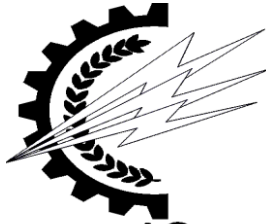


M.P.MADHYA KSHETRA VIDYUT VITARAN CO.LTD.

(A Wholly Owned Govt. of M.P. Undertaking)

BHOPAL



प्रकाश एवं विकास

TENDER SPECIFICATION

NO.CMD/MK/04/220

(DUE FOR OPENING ON 12-10-2011)

FOR SUPPLY OF

**33 KV & 11 KV PORCELAIN CLAD VACUUM
CIRCUIT BREAKERS AND CONTROL & RELAY
PANEL (FOR FEEDER & TRANSFORMER
PROTECTION)**

**CHIEF ENGINEER (PURCHASE),
OFFICE OF THE CHAIRMAN AND MANAGING DIRECTOR,
M.P. MADHYA KSHETRA VIDYUT VITARAN Co. LTD.,
NISHTHA PARISAR, BIJLINAGAR, GOVINDPURA, BHOPAL-462023**

PHONE NO.(0755)-2678325, 2602033 to 2602036

FAX NO. (0755)- 2589821

Website – www.madhyavitaran.nic.in

TENDER SPECIFICATION NO. CMD/MK/04/220**ITEM: 33 KV & 11 KV PORCELAIN CLAD VACUUM CIRCUIT BREAKERS AND CONTROL & RELAY PANEL (FOR FEEDER & TRANSFORMER PROTECTION)****DUE FOR OPENING ON 12.10.2011****I N D E X**

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**OFFICE OF THE CHAIRMAN & MANAGING DIRECTOR
M.P.MADHYA KSHETRA VIDYUT VITARAN CO. LTD.**

(A Wholly Owned Govt. of M.P.Undertaking)

NISHTHA PARISAR, BIJLINAGAR, GOVINDPURA, BHOPAL-462023

Phone: 2602033-36, 2678325, 2678280, Fax No.2589821 Email :- sepurchase@mpmkvvc.com

TENDER – NOTICE

Online tenders are invited for supply of following items from the manufacturers only. The Bid Seals (Hashes) will be received online on the portal <http://mpmkvvc.mpeprocurement.gov.in> up to date & time indicated below. The Tenders will be opened in the office of the undersigned as mentioned in tender time schedule (key date). If desired, the bidder or their duly authorized representatives may remain present at the time of opening of tender.

NUMBER	NAME OF ITEMS	APPROX. VALUE (Rs. in Lakhs)	TENDER FEE (in Rs.)	DATE OF OPENING OF TENDER
TENDER SPECN. No. CMD/MK/04/220	33 KV & 11 KV PORCELAIN CLAD VACUUM CIRCUIT BREAKERS AND CONTROL & RELAY PANEL (FOR FEEDER & TRANSFORMER PROTECTION)	712.50	2000/-	12.10.11 (Pre bid conference shall be held on 20.09.11)

1. Tender documents can be purchased only online from <http://mpmkvvc.mpeprocurement.gov.in> by making online payment for the Tender Document Fees.

2. The Bid Data should be filled in and the Bid Seals (Hashes) of all the envelopes and the documents which are to be uploaded by the Bidders should be submitted online upto as per time schedule (Key Dates).

3. The Bidders shall have to submit their Bids online (decrypt the bids and re-encrypt the bids) and upload the relevant documents forms as per time schedule (key Dates). **Original Earnest Money Deposit Instrument should reach the office of the undersigned by 12.10.11 upto 3 p.m.**

4. Since the online bidders are required to sign their bids online using Class III - Digital Certificates only, Contractors are advised to obtain the same at the earliest. For further information, Contractors are requested to contact NexTenders (India) Pvt. Ltd., A-6 Sahyog Parisar, E-8 Shahpura , Opp. Maakhan Lal University, Bhopal – 462 039, Tel. No.: 0755 – 4075010, Email Address: bhopal@nextenders.com
(Note: It may take upto 4 working days to issue Digital Certificates.)

5. Bidders intending to participate in the Tender are required to get themselves trained on the e-Procurement System. The Bidders are required to contact the Service Provider – Wipro – NexTenders to confirm their session in advance.

6. The EMD of Rs. 50,000/- in favour of Sr. A.O (HOAU), MPMKVVC Co. Ltd. payable at Bhopal along with hard copy of tender & supporting documents duly filled up excluding

Schedule I (Price & Quantity) shall be dropped in the tender box of Purchase Section, O/o CMD, Bhopal on date 12.10.11 till 3.00 p.m.

7. Other details can be seen in the tender documents.

Key Dates : Single Submission Multi Opening With Prequel

Seq No	MPMKVVC Stage	Contractor Stage	Start Date & Time	Expiry Date & Time
1	Tender Preparation And Release of NIT	-	17-08-2011 10:30	09-09-2011 17:00
2	-	Tender Purchase - Online	09-09-2011 17:31	06-10-2011 12:30
3	-	Tender Download	09-09-2011 17:31	06-10-2011 17:30
4	-	Submit Bid - Hash Online	09-09-2011 17:31	07-10-2011 12:30
5	Close for Bidding - Generation of Super Hash	-	07-10-2011 12:31	07-10-2011 17:30
6	-	Submit Bids Online - Re-encryption	07-10-2011 17:31	11-10-2011 20:30
7	Open EMD & Technical / PQ bid	-	12-10-2011 15:30	12-10-2011 17:30
8	Open Financial / Price-Bid	-	14-11-2011 15:30	14-11-2011 17:30

Note:- In case of any or above date is declared as holiday/ local holiday then the date will be get shifted to next working day.

- a) The Company reserves the right to reject any or all the tenders or accept any tender in full or part as considered advantageous to the Company, whether it is lowest or not, without assigning any reason whatsoever it may be.
- b) The tender notice and information shall also be available on our website www.madhyavitaran.nic.in.

(Sanjeev P. Puranik)
CHIEF GENERAL MANAGER (PUR),
O/O CMD, MPMKVV CO.LTD. BHOPAL

SAVE ELECTRICITY



**OFFICE OF THE CHAIRMAN & MANAGING DIRECTOR
M.P.MADHYA KSHETRA VIDYUT VITARAN CO. LTD.
(A Wholly Owned Govt. of M.P.Undertaking)**

NISHTHA PARISAR, BIJLINAGAR, GOVINDPURA, BHOPAL-462023

Phone: 2602033-36, 2678325, 2678280, Fax No.2589821 Email –sepurchase@mpmkvvc.com

Postal Order/Demand Draft No.....

Tender issued to M/s

TENDER FORM

The undersigned hereby tender and offer (subject to the Company's conditions of tendering) the MP Madhya Kshetra Vidyut Vitaran Co. Ltd., Bhopal to supply the plant, machinery and materials and execute and do the several works and things which are described or referred to in the Details of Technical Particulars attached to tender document no. **CMD/MK/04/220** and its enclosure and in Schedules to the side Details of Technical Particular copies of which are annexed here to and which under the terms thereof are to be supplied, executed and done by the contractor and to perform and observe the provisions and agreements or the part of the contract contained in or reasonable to be referred from the said tender documents for the sums and at the rates sets out in Schedule-I annexed here to.

The questionnaire enclosed with this tender document has been fully answered and is enclosed herewith (if the questionnaire is not answered in full, the answer to various question may be taken so as to be advantageous to the Company unless contrary is mentioned in the body of the tender).

Date the Day 2011

TENDERER'S SIGNATURE

(With Seal)

ANNEXURE –III

SPECIAL INSTRUCTIONS TO THE BIDDERS

The Chief Engineer (Purchase) on behalf of the Madhya Pradesh Madhya Kshetra Vidyut Vitran Co. Ltd. hereinafter referred to as “MPMKVVCL” invites sealed tender for supply of 33 KV & 11 KV Porcelain Clad Vacuum Circuit Breakers and Control & Relay Panel (For Feeder & Transformer Protection) in accordance with the attached specification for supply to Area Stores Bhopal , Gwalior & Guna in Madhya Pradesh.

The bidder should read and note carefully the following terms and conditions of the tender before submitting his bid:-

1. ELIGIBILITY CRITERIA:-

- (a) The bidding is open for original manufacturers of the equipment only.
- (b) That they are qualified manufacturers who regularly manufacture the 11 KV and 33 KV Porcelain Clad Vacuum Circuit Breaker, 11 KV and 33 KV Transformer & Feeder Control and Relay Panels and have adequate technical knowledge and practical experience.
- (c) In case of new unit not yet executed orders from MPSEB or its successor company, they should have minimum **five years** experience in the field of design, manufacturing of the equipment offered and have supplied 25% of the tendered quantity to any State Electricity Board, NTPC, Power Utility during last five years. The order copy and Material Receipt Certificate is required to be enclosed with the offer as documentary evidence.
- (d) That they do not anticipate any change in the ownership during the proposed period of contract i.e. 18 months from the date of supply of last consignment, (if such a change is anticipated, the scope and effect thereof shall be defined).
- (e) That, they have adequate financial stability and status to meet the financial obligations pursuant to the scope of the assignments. (The Bidders should submit at least two copies of their profit and loss account and balance sheet for the last two years including Turn-over).The Bidder should furnish documentary evidence regarding execution of purchase order to Government. Departments/SEBs/NTPC etc in past three years.
- (f) That, they have adequate plant and manufacturing capacity available to perform the assignment properly and expeditiously within the time period specified. The evidence shall consist of written details of the installed manufacturing capacities and present commitments (excluding the assignment under this specification) of the bidder or his principal. If the present commitments are such that the installed capacity results inadequacy of the manufacturing capacities to meet the requirement of equipment / material corresponding to this bid, then the details of alternative arrangements to be organized by the Bidder for this purpose shall also be furnished.
- (g) That they have established quality assurance system and organizations designed to achieve high level of quality equipment and reliability during their manufacturing activities. For this, quality assurance plan and action taken for implementing the same has to be furnished.

2. PRICES:-

The ex-works prices of VCB and Control Panel shall be 'Variable' as per relevant IEEMA Price Variation formula, both on plus & minus side without any ceiling. The basic price of the material and indices used shall be as published by IEEMA prevailing as on first working day of the month, one month prior to the date of tender opening.

3. TAXES & DUTIES :-

Excise duty, ST/VAT and statutory levies shall be paid at the rate prevailing at the time of delivery. No upward variation shall be payable beyond the contractual delivery period, where the supplier is responsible for the delays. The bidders are advised to quote the present rate of ED, ST/VAT etc. applicable to them.

Wherever applicable bidders outside the State of M.P. should also quote the prevailing rate of Sales Tax/VAT in the state of origin so that the concessional rate of CST payable against "C" form may be limited to the Sales Tax applicable for the state of origin from where the material moves, in case these are lower than the concessional rate of CST.

4. DELIVERY:-

- (i) Two month shall be allowed for approval of drawings & commencement of supplies and completion in 4 months thereafter in equal monthly installments. At least 25% of ordered quantity should be offered in commencement period. The bidders, therefore, should quote for only such quantities which they can supply according to the delivery schedule. Early commencement & completion of supply shall be preferred.
- (ii) The material should be delivered to the consignees within 15 days of issue of dispatch instructions. For any delay in delivery beyond this period, penalty shall be applicable even if material is offered within delivery schedule.
- (iii) The suppliers are, therefore, advised to indicate their delivery schedule very clearly in the questionnaire appended with this tender specification.
- (iv) Deferment of deliveries:- MPMKVVCL reserves the right to defer the supplies or reschedule the delivery of the orders, if needed. The intimation shall be given in writing. The price variation shall be given for quantities deferred along with any change in excise duty, sales tax and any statutory levies.

5. PAYMENT:-

- (i) 100% payment would be made in 45 days from the date of receipt of equipments in good condition in our consignee Area Stores. The supplier while claiming for 100% payment shall have to certify that the prices as charged have not undergone any downward variation on account of IEEMA Circular(s) and that the claim for upward variation will be submitted separately.
- (ii) The MPMKVVCL has also provision to make above payment directly in the Account of successful bidders. MPMKVVCL is having its Account in S.B.I., Bhopal. To make payment directly through Bank, the bidders are requested to furnish following information in respect of their Bank Account:-
 - (a) Name of Bank and Branch address.
 - (b) Their Bank Account Number.
 - (c) IFS code of the Branch for RTGS transfer.

- (iii) Charges required by Bank in this regard will be debited to suppliers'/contractors' Account. Net payment after deduction of charges required by the Bank shall be released in favour of successful bidders.
- (iv) Other provisions of terms of Payment Clause no.8 shall remain unchanged.
- 6. PERFORMANCE GUARANTEE:-** If during the course of 18 months subsequent to the date of receipt of consignment any of the equipment is found to be defective in material or workmanship or develops defect during service, the same shall be replaced/repaired immediately, but in any case within 30 days of receipt of report of defect/ failure, by the supplier free of all charges. All necessary arrangement on this account will be made by the supplier. In case repair is delayed beyond three months of intimation cost of the material may be recovered from the pending bills/ security deposit of the firm. Other provisions of Performance Guarantee of Annexure-II shall also be applicable.
- 7. SECURITY DEPOSIT:-** Security deposit according to Annexure-II shall be deposited by the supplier within 30 days from the date of receipt of order to cover performance guarantee of equipments supplied and for due and faithful performance of the order.
- 8. PENALTY:-** The time for and the date of delivery of the material stipulated in the order shall be deemed to be the essence of the contract. In case of delay in supply of equipments beyond delivery schedule stipulated in the order or non-execution of the order, the MPMKVVCL at its option shall recover from the supplier as agreed towards liquidated damages @ 0.5% price of any stores not delivered per week or part thereof subject to maximum of 10%.
- In case of delay in payment of first/previous lot, the delivery of second/next lot shall be extended for that period of delay without levy of penalty and with PV.
- 9. EXTENSION ORDER:-** The Company reserves right to place an extension order for any additional quantity to the extent of 50% quantity of the original order on the same rates, terms and conditions within 6 months from the date of orders.
- 10. FACTORY INSPECTION:-** The MPMKVVCL may depute a team of authorized officers to visit and inspect the factory of new firms with a view to ascertain whether they are actually manufacture and have adequate manufacturing & testing facilities, technical know-how and practical experience for the manufacturing of the quoted item, after opening of the tender or before issue of detailed trial order, for which necessary intimation shall be given.
- 11. QUALITY ASSURANCE PLAN:-** The bidder must establish that they are following a proper quality assurance programme for manufacture of equipment and shall submit various checks, tests, since receipt of the raw materials up to dispatch of finished product. The bidder shall invariably furnish with his bid statement giving list of important raw materials, name of sub-supplier for the raw material, list of standards according to which the raw material are tested, list of tests normally carried on raw material, list of manufacturing facilities available, list of testing equipment available with the bidder for final testing of equipment and test plant limitation, levels of automation achieved and list of areas, where manual processing exists.

- 12. VCB SPARES:-** The bidders are requested to indicate prices of all the recommended spares for VCB separately, so that the field officers of MPMKVVCL could procure their requirement from the respective firm, directly, if required.
- 13. TYPE TEST CERTIFICATE:-**
- a. The offered VCB shall be fully type tested as per relevant Indian Standards or any equivalent International Standard during the last five years from the date of bid opening. Submission of photo copy of the type test certificates for the following tests along with drawings duly sealed & signed by Testing Lab Authority conducted at CPRI, ERDA or at any NABL accredited Test Laboratories is essential.
- i. Short Circuit Duties Test
 - ii. Short Time Current withstand and Peak current withstand test
 - iii. Mechanical Endurance Test (M2 Class).
 - iv. Temperature Rise Test
 - v. Lightning Impulse Voltage withstand test
 - vi. High Voltage Power frequency withstand Test (Dry & Wet)
 - vii. Single Capacitor Bank Switching Test
 - viii. Degree of Protection IP-55 as per IS:13947(I):93/IEC-60529-89.
 - ix. Cable Charging test
 - x. Seismic Test
 - xi. Out of phase making and breaking test
- b. For any change in the design/type already type tested and the design type offered against this bid, the purchaser reserves the right to demand repetition of some or all type tests without any extra cost.
- 14. APPLICABLE STANDARDS:-** When the equipment offered by the bidder conforms to the other standards, salient points of difference between standards adopted and the standard specified in this specification shall be clearly brought out in the schedule. Two copies of such standard with authentic translation in English shall be enclosed with the offer.
- 15. GUARANTEED TECHNICAL PARTICULARS & QUESTIONNAIRE:-**
Guaranteed Technical Particulars as per Schedule-III attached giving specification and Questionnaire as per Schedule-IV shall be filled-in and submitted compulsorily with the offer. In case, these are not filled-in and enclosed with the offer, the Bid will be rejected.
- 16. SUBMISSION OF DRAWINGS, BILL OF MATERIALS, MANUALS, LITERATURE AND ASSISTANCE FOR INSTALLATION:-**
The bidders are requested to submit G.A drawing, Sectional drawing, Rating & Connection diagram of the equipments/materials along with Bill of Material stating make, type, rating of each and every components with offer for the purpose of evaluation of the offer. It may please be noted that MPMKVVCL's action of evaluating tender bid, would not mean approval of the drawings/ BOM submitted along with the bid and the successful bidders on whom order shall be placed shall again submit the drawings/BOM as per purchaser's requirement/ suggestions for further scrutiny and approval.
The bidders are also requested to submit operation, installation, commissioning and maintenance manual of the offered equipment with the bid. Further, bidder will render assistance, as may be needed for installation and commissioning of the equipment in the field without any extra-cost.

17. **ROUTINE & ACCEPTANCE TEST:** - The manufacturer shall carry out all Routine & Acceptance test as stipulated in the relevant Indian Standards or equivalent International Standards on each equipment at their works and results of these tests will be submitted to this office for approval along with letter/offer for inspection. The above test results shall be witnessed by our representative at the manufacturer works, if so desired by the purchaser, prior to dispatch of the equipment.
18. **PRICE CONSIDERATION ZONE:** - Subject to fulfilling the techno-commercial criteria, the quantity may be distributed amongst the bidders other than lowest also. However counter offers shall be limited to the bidders whose computed FOR rates including taxes, duties, freight, other levies is within the price band of 1.10 times of the lowest acceptable offer on merit basis. The counter price shall be the computed FOR price of lowest bidder including all taxes, duties, freight, other levies etc.
19. **ACCEPTANCE OF TENDER:-** The Company may split the quantities against the tender on more than one eligible tenderer for the same item. Subject to fulfilling the techno-commercial criteria, the quantity may be distributed amongst the bidders other than lowest also in the manner as detailed hereunder:-
- (A) **In cases where lowest acceptable F.O.R. destination rate is from a regular firm :-**
60% of proposed quantity to L-1 bidder (limiting the same to offered quantity) and balance 40% quantity amongst L-2 and L3 bidders falling within price consideration zone of 10% above L1 and at the price of L1. The order shall be placed to L-3 when the offered quantity by L-2 is less than the balance 40% and at the price of L1. However, the bidders shall have to offer a minimum of 10% of the proposed quantity, below which their bids shall not be evaluated.
- (B) **In cases where lowest acceptable F.O.R. destination rate is from a new firm (not supplied material to Discoms of MP and whose supply performance is not known) and difference between L-1 & other eligible bidders is within price consideration zone of 10 %:-**
Capacity of the L1 bidder or 50% of proposed quantity, whichever is lower to L1 bidder (subject to satisfactory inspection prior to placement of detailed order and limiting the same to offered quantity) and balance quantity amongst L2 and L3 bidders only falling within the price consideration zone of 10% above L1 and at the price of L1. Order shall be placed to L3 when the offered quantity by L2 is less than the balance 50%, at the price of L1. However the bidders shall have to offer a minimum of 10% of the proposed quantity, below which their bids shall not be evaluated.
- (C) **In any of the cases of para 14 (A) and (B) above where L2 and L3 do not accept the counter offers**
If L2 and L3 bidders do not accept the counter offer for the quantity and price offered by the utility, the balance quantity shall be procured through retendering or by enhancement of the quantity on L1. The L1 will be required to accept the enhanced quantity provided it is within the offered quantity. In the event L1 does not accept enhanced quantity, as above, bid security shall also be forfeited. Suitable provisions in this regard shall be incorporated in the bid documents.
20. The date of opening of Part-III i.e. 'Price Bid' shall be notified to the bidders whose bids are found commercially and technically acceptable.

21. Indexing and page numbering of offers.

For fast scrutiny of offers, it is requested that all schedules of tender documents duly filled in should be enclosed first and all enclosures should be enclosed after wards. The offer should be page numbered and index of schedules and enclosure duly indicating page numbers should be furnished on top.

23. UNSATISFACTORY PERFORMANCE

Even on fulfillment of all the criteria, it may be noted that :-

- (a) Offer of those bidders who have been debarred/ black listed for future business with our company/ MPSEB / Other Discom of M.P, shall be summarily rejected.
- (b) In case of those bidders whose past performance has not been found to be satisfactory against previous tenders of MPSEB/ Companies formed on restructuring MPSEB, they may not be considered for order. Following shall attribute to poor performance of a bidder :-
 - Non-execution of previous order(s)/ inordinate delay in supply of material.
 - Failures of material in testing & non-replacement of the same by the supplier.
 - Failure of material enmasse as reported by the field officers.
 - The old firms whose average annual percentage failure of tendered item within guarantee period (WGP) for last 3 years, as per records available with the company, is higher than the average annual percentage WGP failure of last 3 years of Discom-CZ may not be considered for opening of their price bid.

- 24. Debarring /Blacklisting of Firms :-** That in the event of violation of any of the terms and condition of this tender or the terms and conditions of the subsequent supply order / work contract so issued, either partly or completely, then in such event the MPMKVVCL Co. reserves every right to take penal actions which may, inter alia, include termination of the contract and / or blacklisting and debarring the tenderer from participating in future tender/tenders upto 3 years along with the other penalties as stated in the tender document. Before debarring / blacklisting or contract termination, the concerned firm would be first served a notice to the effect, so that it gets an opportunity to represent its point of view.

(Sanjeev P. Puranik)

**CHIEF GENERAL MANAGER (PUR),
O/O CMD, MPMKVV CO.LTD. BHOPAL**

ANNEXURE – I**GENERAL INSTRUCTIONS TO BIDDERS****1. GENERAL:-**

The Chief Engineer (Purchase), on behalf of the CMD, M.P. Madhya Kshetra Vidyut Vitaran Co. Ltd Bhopal here in after referred as "Company", will receive sealed tenders / bids for procurement of 33 KV & 11 KV Porcelain Clad Vacuum Circuit Breakers and Control & Relay Panel (For Feeder & Transformer Protection) as indicated in Schedule-I in accordance with the attached specification for supply at area stores Bhopal, Gwalior and Guna in Madhya Pradesh.

2. EARNEST MONEY:-

- (i) The tenderer shall deposit the Earnest Money amount vis-à-vis the value of the materials offered as shown here under:-

	Value of Material	Earnest Money-Rs.
(a)	Upto Rs. 10,000/-	100.00
(b)	Above Rs. 10,000/- & upto Rs. 2.5 Lakhs	@ 1%
(c)	Above Rs. 2.5 Lakhs & upto Rs. 3.0 Lakhs	2,500.00
(d)	Above Rs. 3.0 Lakhs & upto Rs. 7.0 Lakhs	5,000.00
(e)	Above Rs. 7.0 Lakhs & upto Rs. 15.0 Lakhs	7,000.00
(f)	Above Rs. 15.0 Lakhs & upto Rs.25.0 Lakhs	10,000.00
(g)	Above Rs. 25.0 Lakhs & upto Rs.35.0 Lakhs	15,000.00
(h)	Above Rs. 35.0 Lakhs & upto Rs. 50.0 Lakhs	20,000.00
(i)	Above Rs. 50.0 Lakhs & upto Rs.75.0 Lakhs	30,000.00
(j)	Above Rs.75.0 Lakhs & upto Rs.100.0 Lakhs	40,000.00
(k)	Above Rs. 100.0 Lakhs	50,000.00

- (ii) The tenderers are permitted to quote for part quantities and pay earnest money only to the extent of the participation on the basis of slabs specified above. If the earnest money amount is found to be less than required for corresponding value of the material offered, the offer may be rejected and will not be read out.
- (iii) The Earnest Money can be deposited by Bank Draft in favour of **Senior Accounts Officer (HOAU), MPMKVCL**, payable at BHOPAL.

No offer will be accepted without valid Earnest Money Deposit, unless exempted by the Company. If on opening of tender, it is revealed that EMD amount is inadequate/any other discrepancy is noticed, the tender shall be rejected and returned to the tenderer.

- (iv) The following are exempted from payment of Earnest Money Deposit :-
- S.S.I. Units of Madhya Pradesh Permanently registered with DIC/Ancillary Units of MPSEB. **The registration should be permanent and should be specifically for the items quoted in the tender and valid on the date of opening of tender.**
 - Small Scale Units registered with NSIC:-** The Small Scale Unit permanently registered with NSIC, whose registration certificate is valid for the item quoted on due date of opening of commercial and technical bid shall be entitled for exemption from EMD. (The renewal/ amendment of certificate should not be more than 3 years

old from the due date of opening of tender) otherwise EMD has to be furnished by the tenderer.

- c) Fully owned State/Central Govt. manufacturing Units, if 100% shares are held by the respective Govt. for which documentary evidence must be furnished with the offer.
- d) The photocopy of the NSIC/SSI Registration Certificate for the tendered items duly notarized/ attested by G.M./ Manager, DIC of the Area/ any officer of the Company not below the rank of E.E./Dy.G.M. shall be furnished with the offer. In case of unattested/un-notarized copy, the original certificate should be produced at the time of tender opening for verification.
- (v) All the SSI/ NSIC units should quote/offer the material only to the extent they are registered for respective items with the SSI/NSIC organization.
- (vi) In case, the tenderer withdraws his offer during the validity period, after placement of order, the EMD amount shall be forfeited.
- (vii) **RETURN OF EARNEST MONEY TO BIDDERS**
 - a) EMD shall be returned to the un-successful bidders, as soon as possible, after the tender is decided. No interest shall be paid on EMD amounts.
 - b) EMD of bidders on whom the orders have been placed, shall be returned on acceptance of security deposit. No, interest shall be paid on EMD amount.

3. **TAXES AND DUITES:-**

3.1 **MODVAT:** - The Tenderer should confirm in his offer that effect of modvat has already been taken care of while quoting the prices.

3.2 **All taxes and duties should be indicated in the quantity and price schedule. Any additional taxes and duties shall not be paid extra in any case.**

3.3 M.P. Madhya Kshetra Vidyut Vitaran Company Ltd., Bhopal is a Registered Dealer and TIN Number is 23263605361. Therefore necessary declaration form, wherever applicable, shall be issued after receipt of material at destination, by the M.P. Madhya Kshetra Vidyut Vitaran Company Ltd., Bhopal. Any other applicable declaration form for concessional rate of Sales tax/Commercial tax as may be in force shall be given only after the legal position is verified at our end.

3.4 Tenderers outside the State of M.P. should also include the prevailing rate of Sales Tax/Commercial Tax in the State of origin so that the concessional rate of CST payable against 'C' form may be limited to the Sales Tax applicable for State of origin, from where the material move, in case, these are lower than the concessional rate of CST.

4. **AMENDMENT IN SPECIFICATION:-**

The Company may revise or amend the specification, prior to the date notified for opening of tender. Such revision / amendment, if any, will be communicated to all those who have bought the tender documents as Amendment / Addendum to the invitation of tender.

5. **BIDS RECEIVED BY MESSENGER:-**

When tenders are delivered by special messenger, the same should be dropped in the Tender Box, kept in the office of CMD, MPMKVV Co. Ltd., Nishtha Parisar, Bijlinagar,

Govindpura, Bhopal (MP) 462023, on all working days during working hours indicated in tender notice. **Nobody is authorized to receive or grant receipt for tender delivered by hand.**

6. **TELEX / TELEGRAPHIC / FAX BIDS:-**

Telex / Telegraphic / Fax offers will not be accepted under any circumstances.

7. **DELAYED / LATE BIDS:-**

The Company shall not assume any responsibility for any postal delays either for the late receipt of documents by bidders or late receipt of bids by the Board. No extension in time shall be granted on such grounds.

8. **ALTERNATIVE BIDS:-**

Bid should be submitted as per intent of tender documents; any alternative offers are liable to be rejected.

9. **MISTAKES IN BIDS:-**

Rates should be quoted in both; figures and words. In case of ambiguity between rates in figures and words, lower of the two shall be considered. Such offers can also be rejected.

10. **LUMP SUM BASED BIDS:-**

In case prices for some items or all items are given as a lump sum, instead of unit prices as required in the tender specifications, Company can summarily reject such incomplete tender.

11. **PRINTED TERMS AND CONDITIONS IN BIDS:-**

Supplier's printed terms and conditions will not be considered as forming part of the tender under any circumstances whatsoever it may be.

12. **ALTERATION – CORRECTION IN BIDS:-**

No alteration / correction in the tender document will be permitted.

13. **INCOMPLETE BIDS:-**

Tender which is incomplete or obscure is liable for rejection.

14. **ACCEPTANCE OF PART / WHOLE BIDS – RIGHTS THEREOF:-**

Company reserves the right to accept/reject wholly or partly any tender without assigning any reason whatsoever. No correspondence in this regard shall be entertained.

15. **AMBIGUITIES IN CONDITIONS OF BIDS:-**

In case of ambiguous or self contradictory terms / conditions mentioned in the bid, interpretation as may be advantageous to the Company may be taken without any reference to the tenders.

16. **DISQUALIFICATION OF BIDS:-**

A bid which gets opened before the due dates as a result of improper or no indication having been given on the cover to indicate that it is a tender, will be disqualified. Bidder will not

be permitted to change the substance of his tender on post interpretation/improper understanding grounds. This includes post tender price changes/modifications etc after opening of Price Bid. In such events, otherwise, i.e., when a bidder does not comply, tender will be rejected.

17. **LANGUAGE OF BIDS:-**

All tenders should be made either in English or in Hindi only.

18. **QUESTIONNAIRE FILLING IS ESSENTIAL:-**

A “QUESTIONNAIRE” (Schedule VI, Part A, B & C) alongwith specification is enclosed for technical/commercial details. It is compulsory on the part of the bidder to furnish all details as per the “Questionnaire”. In case, this is not filled in and enclosed with the offer, the bid will be rejected.

19. **DEVIATIONS FROM TERMS & CONDITIONS:-**

Offers with deviation in the terms of payment, liquidated damages, security deposit and performance guarantee are liable to be rejected out rightly.

20. **PAST EXPERIENCE:-**

Supplier having past experience in manufacture and supply of material should furnish the list of supplies made (alongwith order copies) during the last 3 years for the materials supplied by them, as per enclosed Schedule – VII Part “A”. A certificate in this regard from the organisation to which supply is made in the past shall have to be furnished alongwith the offer, failing which the tender may not get any preference for his past experience.

21. **SUBMISSION OF BIDS:-**

- (i) **The tender shall be submitted in three (3) parts:-**

Part-I shall contain “**EARNEST MONEY DEPOSIT/DOCUMENT WHICH ENTITLE FOR EXEMPTION FROM EMD**”. The Tender Fee in form of **D.D. drawn in favour of Sr. A.O. (HOAU), MPMKVVCL, Bhopal shall be submitted if the document is downloaded from our Website.**

Part-II shall contain “**COMMERCIAL BID AND THE TECHNICAL BID**”. The details about these two bids are discussed in Annexure-II & III respectively. Relevant information that the tenderers are liable to submit, comprises of duly filled-in questionnaire, all the schedules and any other information that is sought in the tender.

Part-III PRICE BID (Submit Online Only)

- (ii) Tender being Online submitted must be Class 3 Digital Certificate signed by a person holding a Power of Attorney authorizing him to do so, certified copies of which shall be enclosed.
- (iii) Online Tender submitted on behalf of companies registered with the Indian Companies Act, for the time being in force, shall be signed by persons duly

authorized to submit the Tender on behalf of the Company and shall be accompanied by certified true copies of the resolutions, extracts of Articles of Association, special or general Power of Attorney etc. to show clearly the title, authority and designation of persons signing the Tender on behalf of the Company.

- (iv) Part-I & Part-II shall be submitted in two separate sealed envelopes and these envelopes shall be properly superscribed as Part-I "Earnest Money Deposit" and Part-2 "Commercial Bid & Technical Bid". Part-3 "Price Bid" shall be submitted **online only**.

Each envelope shall also be super scribed with name of item and T.S. No. for which the tender is submitted, the name of the said bidder and the date of opening, as advertised.

- (v) **The above two envelopes & Envelop containing tender fee, duly sealed are to be kept again in one envelope called main envelope and sealed.** This envelope should be properly super scribed stating that this envelope contains three separate envelopes for Part-I "EARNEST MONEY DEPOSIT" and Part-II "COMMERCIAL AND TECHNICAL BID", in addition to tender specification No., Name of Item & bidder. Details of Earnest Money Deposit and Due date of opening should be super scribed on this common envelope also. Beside this, it shall be certified on the main envelope itself that Discom(CZ)'s PAYMENT TERMS, PENALTY, SECURITY DEPOSIT and PERFORMANCE GUARANTEE & PRICE VARIATION (WHEREVER APPLICABLE) CLAUSES, as mentioned in tender specification, are acceptable to the bidder. This certification shall be in the following manner:-

**TENDER SPECIFICATION NO. _____ DUE FOR OPENING ON _____ FOR
PROCUREMENT OF _____**

THIS ENVELOPE CONTAINS 2 SEPARATE ENVELOPES FOR:-

- i) PART-I : "EARNEST MONEY DEPOSIT"
ii) PART-II : "COMMERCIAL AND TECHNICAL BID"
iii) PART-III : "PRICE BID" (**Online Only**)

TO,

**THE CHIEF ENGINEER (PUR)
M.P. MADHYA KSHETRA VIDYUT VITRAN CO. LTD.
NISHTHA PARISAR, BIJLINAGAR, GOVINDPURA
BHOPAL (MP) 462023**

**IT IS CERTIFIED THAT WE AGREE THE FOLLOWING CLAUSES OF
TENDER SPECIFICATION:-**

- | | | |
|-------|-----------------------|----------|
| (i) | PAYMENT TERMS | : AGREED |
| (ii) | SECURITY DEPOSIT | : AGREED |
| (iii) | PENALTY | : AGREED |
| (iv) | PERFORMANCE GUARANTEE | : AGREED |

SIGNATURE OF TENDERER
STATUS & COMPANY'S SEAL

- (vi) Even after certification on the body of the main envelope, if any ambiguity is found upon opening of the main envelope or after opening of the Price Bid, the offer shall be liable for rejection.

22. DATE AND TIME OF OPENING OF BIDS – CHANGES:-

Tender shall be opened on the due date and time as notified in the presence of the tenderers or their authorized representatives who may be present. If the due date of opening/ submission of tender documents are declared a holiday by the Central/ State Government or Local Administration, it will automatically get shifted to the next working day, for which no prior intimation shall be given. The tender opening shall be continued on subsequent days, in case the opening of all the tenders is not completed on the day of opening.

It may please be noted that the due date/ time of opening can be altered, extended, if felt necessary by the purchaser, without assigning any reason thereof. However, due intimation shall be communicated in such a case.

23. OPENING OF EMD AND COMMERCIAL AND TECHNICAL BID:-

The first envelope of Earnest Money Deposit shall be opened on the due date and time, as notified in the Notice Inviting Tenders. The requirement for EMD shall be verified and thereafter, the second part, i.e. the Commercial & Technical Bid, shall be opened on the same date in respect of eligible tenderers.

24. OPENING OF PRICE BID:-

Opening of price bid along with first two parts of the offer on the same date:-

The offers which are in conformity with important commercial terms and conditions including Payment terms, Penalty, Security deposit and Performance guarantee clause & Technical specifications of Tender specification shall be eligible for opening of their Price Bid.

OR

Opening of Price Bid on subsequent date:-

- (a) After opening of first two parts (i.e. Part-I and Part-II), the deviations from the Company's terms & conditions, if any, proposed by the tenderer in regard to Commercial and technical Bid, as per prescribed schedules, given along with the tender documents, shall be notified and clarifications, if required by Company, shall be submitted by the tenderers, either at the time of scrutiny of tender or within the time prescribed. **Any deviations from payment terms, penalty, security deposit and performance guarantee clauses of tender specification shall not be acceptable, in any case and the offer shall be liable for rejection out-rightly.**
- (b) As a result of discussions and clarifications obtained in writing on Commercial & technical matter, the tenderer shall be free to indicate the effect of such changes on their prices and submit a sealed "Supplementary Price Bid", within the specified time to take care of any deviations/ alterations on account of changes in Commercial & Technical matters.
- (c) The bidder shall not be allowed to change their original price bids. In case deviations and clarification on Commercial and Technical matters are not submitted

by the tenderer within the time prescribed by the Company then the Company reserves the right to refuse to open the original price bids Part-III. Thus, the tenderer should ensure that their tender is strictly in conformity with the specifications.

- (d) It is, therefore, necessary for the tenderer, in his own interest to submit a "Supplementary Price Bid" in the sealed cover stating that in spite of clarifications, he does not want to revise his original Bid. This will avoid confusions/misinterpretations. Otherwise, failing which, Company's decision, shall stand as binding.
- (e) The date of opening of "Part-III i.e. PRICE BIDS" shall be notified to the tenderers, whose bids are found to be commercially & technically acceptable.
- (f) The decision of the Company in this respect shall be final and acceptable to the tenderer.

25. CANVASSING OF BIDS:-

Tender shall be deemed to be under consideration, after opening of tender/bid, till placement of order. During this period, the tenderers or their authorized representatives or other interested parties are advised strongly, in their own interest, to refrain from contacting by any means any of the Company's personal or Representative, on matters relating to tender under process.

26. DESTINATIONS WHERE MATERIALS ARE REQUIRED:-

The materials as per the specifications are required to be delivered at area stores situated at Bhopal, Gwalior and Guna only. The prices quoted should be on **F.O.R. DESTINATION** anywhere in these Area Stores accordingly.

27. VALIDITY OF BIDS:-

The offers shall be **valid for 180 days**. Validity of the offer shall be counted from the date of opening of bids. Those who do not agree for a validity of 180 days will do so at their own risk and their offers are liable to be rejected.

28. AUTHORISATION/LOCAL REPRESENTATIVE:-

Only authorized representative, possessing necessary authority letter from the bidder shall be allowed to participate in the tender opening.

29. ACCEPTANCE OF TENDER:-

- i) The Company may reject any or all tenders or to accept any tender considering advantageous to Company whether it is the lowest offer or not.
- ii) The Company may split the quantities against the tender on more than one firm for the same item. No reasons shall be assigned by the Company for this and the same will be binding on the tenderers.

30. CHANGE OF QUANTITY:-

The Purchaser reserves the right to vary the quantities of any or all items as specified in the technical specifications/schedules as may be necessary, based on Purchaser's judgment and vendor rating. No correspondence shall be entered into, nor discussed regarding quantity variation and no reason shall be assigned thereof in this regard.

31. POOL RATES:-

"The bidders, specifically the SSI Units of the State, are advised to quote their own individual rates. It may please be noted that if more than one bidder quotes the same rate, suggestive of a cartel, then such offers may not be considered by the Company. It may also please be noted that the competitive rate quoted by each tenderer may be one of the main criteria for quantity to be ordered on each successful bidders."

(Sanjeev P. Puranik)
**CHIEF GENERAL MANAGER (PUR),
O/O CMD, MPMKVV CO.LTD. BHOPAL**

ANNEXURE-II

GENERAL TERMS AND CONDITIONS OF PURCHASE

1. PRICES AND STATUTORY LEVIES:-

(a) The price of VCBs and Control & Relay Panels are variable as per relevant IEEMA Price Variation Clause, both on plus & minus side without any ceiling. The basic price of the material and indices used shall be as published by IEEMA prevailing as on first working day of the month, one month prior to the date of tender of opening.

(b) The prices shall be quoted exactly as per the price schedule-I enclosed with the tender specification, including all elements. In absence of this, the offer shall be liable for rejection.

2. PACKING AND FORWARDING:-

(a) The supplier shall be responsible for the Stores being sufficiently and properly packed at his expenses for transport by rail, road or sea, so as to ensure them being free from the loss/damage due to handling and transport to the destination.

(b) Each package shall be prominently and distinctly marked on atleast two faces, indicating the full address of the consignee, destination station, name of equipment, purchaser's order number, weight and volume of the package etc.

(c) Each package shall contain in a water proof cover, a detailed description indicating the order reference and date and list of the contents. Each item contained in the package or box shall be described sufficiently, to enable easy identification. The quantity, weights etc. shall also be given.

(d) The packaging shall conform to the specification, rules and regulation prescribed by the Underwriters, Railways, and Transport Agencies. In case of any loss/damages to the consignment, due to non-standard packing the same shall be made good, free of all charges to Purchaser by the supplier. All the provision of this clause shall apply whether the disrupting cause is total or partial in its effects upon the ability of the supplier to perform.

3. MODE OF DISPATCH:-

The tenderer should clearly indicate mode of dispatch for the material. In case of dispatch through rail, the material is to be booked for respective destination railway station. In case of dispatch through road transport, the material should be dispatched through bank approved road transporter on door delivery basis only.

4. TRANSIT RISK:-

(a) Responsibility regarding covering of risk during transit of material shall entirely be on the supplier. The Company shall, in any case, not bear the transit risks/transit insurance charges.

(b) Transit damages/shortages/losses shall be reported by the consignees within 30 days from the receipt of the consignments. Such damages/shortages/losses shall be repaired/ replaced by the suppliers, free of cost within one month from the date of intimation by the consignee without waiting for his settlement from carrier or Insurance Company etc. If the supplier fails to do so

the consignee (s) shall be free to get the repair work done from other sources and they shall be free to recover the cost of such material/expenses of repairs either from the supplier/balance bills or from the security deposit as deemed fit.

(c) While the necessary assistance shall be rendered by the consignee in lodging and processing the claims with carriers and the supplier's insurance underwriters, the responsibility shall rest with the supplier to immediately make good the shortages/losses/ damages, without any extra cost and without waiting for the settlement of the claim.

(d) **Replacement of goods lost/broken or damaged including loss due to fire:-**

Notwithstanding anything here-in contained, the supplier shall undertake responsibility for the safe arrival of the material in good condition and without any loss or damage at the final destination and until the same is actually delivered to/received by the Company at its stores or other places of final destination. For this purpose, material carried by Railway or Road transport or other carriers shall be deemed to be so carried at the risk of the suppliers. In the case of transport damages/shortage, the payment shall be made only for the quantity received in good and working condition and consignee shall lodge claim with the suppliers/carrier with all necessary documents for settlements of the same with the carriers at supplier's end.

5. **DELIVERY:-**

(i) Normally the supply shall be commenced within two month from the date of receipt of order and completion in four months thereafter in equal monthly installments. At least 25% of ordered quantity should be offered in commencement period.

(ii) Any delay in delivery beyond this period shall attract penalty even though offer for pre-delivery inspection is made timely within the terminal date of delivery.

(iii) The material should be delivered to the consignees within 15 days from the date of issue of dispatch instructions/clearances. Any delay in delivery beyond this period shall attract penalty even though offer for pre-delivery inspection is made timely within the terminal date of delivery.

(iv) **Deferment of deliveries:-**

Company reserves the right to defer or reschedule the delivery.

6. **FORCE MAJEURE:-**

Force majeure condition is herein defined as:-

(a) Natural phenomena, such as floods, draught, earth-quake and epidemics.

(b) Act of any Government Authority, domestic or foreign, such as war, quarantines, embargoes, licensing control or production or distribution restrictions.

(c) Accident and disruption such as fires, explosion, and increase in power cut with respect to date of tender opening, break-down of essential machinery or equipment etc.

(d) Strikes, slow down, lockout continuing for more than three (3) weeks.

(e) Failure or delay in the supplier's source of supply due to force majeure causes enumerated at (a) do (d) above, provided the supplier produces documentary evidence to show that there were no other alternative sources of supply available to him or if available, the lead time required was likely to be longer than the duration of the force Majeure at the normal source of supply.

(f) Any cause which is beyond the reasonable control of the supplier or purchaser as the cause may be.

All the provisions of this clause shall apply whether the disruption cause is total or partial in its effect upon the ability of the supplier to perform.

Note:- In case of much delay, the cause of force majeure condition will be taken into consideration only if the supplier within 15 days from the day of occurrence of such delay notifies. The company shall verify the facts and grant such extension as the facts justify. For extension due to force majeure conditions, the supplier shall submit his representation with documentary evidence for scrutiny by the purchaser and decision of the Company shall be binding on the firm.

7. TERMS OF PAYMENT:-

- 7.1 Subject to completion of all contractual formalities, 100% payment alongwith excise duty and taxes corresponding to the consignment would be made within 45 days from the date of receipt of material at consignee in good condition against **MATERIAL RECEIPT CERTIFICATE (MRC)** issued by the consignee at the places given in Annexure-IV.
- 7.2 The supplier shall forward the original RR/MTR and Excise gate pass directly to consignee alongwith copies of following documents:-
- (i) A copy of bill
 - (ii) Delivery challan
 - (iii) Original copy of excise duty gate passes alongwith a photo copy.
 - (iv) The inspection and/or T.C. approval.
 - (v) Detailed packing list.
- 7.3 The original bills in triplicate should be forwarded to the paying authority and should be marked "**ORIGINAL**". The bill should indicate Sales Tax Registration Number and date allotted to him under Sales Tax Act.
- 7.4 The following documents will have to be forwarded to the paying authority alongwith bills in triplicate:-
- i) Bill/Invoice.
 - ii) Original copies of excise duty gate pass along with one photocopy.
 - iii) The inspection and /or T.C. approval.
 - iv) Xerox copy of dispatch documents, i.e. RR/MTR etc.
- 7.5 The material Receipt Certificate will be forwarded by the consignee to the paying authority for payment, as well as to the suppliers towards acknowledgement of receipt of material including part consignment to the extent it is received in good condition and is serviceable.

7.6 For payment, the invoice in triplicate with relevant documents such as Material Receipt in good condition etc. should be submitted to the Director (Fin), O/o CMD, MPMKVCL, Bhopal for value more than Rs. 2.5 Lakh. The bills valued upto Rs. 2.5 Lakhs, should be submitted to concerned Sr. AO/RAO at Bhopal, Gwalior & Guna.

8. PENALTY:-

(a) The time for and the date of delivery of the material stipulated in the order shall be deemed to the essence of the contract. In case of delay in execution or non-execution of the order, the Company as its option shall either:

(i) recover from the supplier/contractor as agreed towards liquidate damages as sum of ½% (half percent) of the price of any stores not delivered per week or part there of subject to a maximum of 10 % (ten percent) of the price of any stores not delivered.

OR

(ii) Purchase from elsewhere on account and at the risk and responsibility of the supplier, the stores not delivered or others or similar description.

OR

(iii) Cancel the contract for part or whole of the quantity on order, with liability.

(b) "For the purpose of calculating penalty, the date of receipt of offer of material in the office of CMD, MP Madhya Kshetra Vidyut Vitaran Co. Ltd., Bhopal shall be considered as the date of delivery subject to the condition that the offer has been received 15 days in advance of terminal date of scheduled delivery period and material delivered at stores within 15 days of dispatch clearances. For early inspection, offer may be sent telegraphically or by telex/fax. The Company will not be responsible for any delays for ordinary/registered post inspection offers. Please note, in case material is not received within 15 days from the date of issue of dispatch instructions, even though the delivery period exists, penalty shall be applicable on delay of dispatch.

9. PERFORMANCE GUARANTEE:-

9.1 If during the course of 18 months subsequent to the date of receipt of consignment, if any of the goods found to be defective in materials or workmanship or develops defects during service, they will have to be replaced by the supplier, free of all charges. All necessary arrangement on these accounts will be made by the suppliers.

9.2 The said material if required to be replaced, shall be collected by the supplier/firm from Area Stores site at their own cost and at their own responsibility. These materials will like-wise be returned duly repaired/replaced and tested subsequently by the supplier to the destination indicated on "Freight paid basis" at their cost in a **reasonable time** of 90 days from the date of intimation from stores. If the firm is failed to return duly repaired and tested equipments within this period to respective stores, then penalty shall be imposed @ 10% of the ordered value per month. The penalty shall be deducted from the pending bills or security deposit. The guarantee period as stipulated in clause 10.1 above shall also be applicable for repaired/replaced material, which shall however be counted afresh from the date of its delivery in our stores/at site.

9.3 Further, it is clarified that all the charges towards carrying out repairs including packing/forwarding loading/unloading shall be borne by the supplier. The amount

deposited under security deposit clause shall also cover the performance guarantee of the replaced material.

- 9.4 All equipment/line materials reported failed within specified guarantee period may be replaced free of cost by the supplier/manufacturer concerned.
- 9.5 Actual cost of dismantling and replacement of these equipments/materials with the new ones shall be charged to the supplier's account.
- 9.6 To and fro transportation cost of such failed equipment shall also be borne by the supplier/contractor.
- 9.7 In the event of the supplier's inability to adhere to the aforesaid provisions, suitable penal action will be taken against them which may result in black-listing of the firm for future business with the Company for a certain period or altogether.

10. SECURITY DEPOSIT:-

- On acceptance of offer, the supplier will have to deposit an amount of 10% of the total value of the order in Cash or Demand Draft or Bank Guarantee as Security Deposit.
- Cash has to be deposited with Sr. Accounts Officer (HOAU), MPMKVV Co. Ltd., Bhopal, and original receipt shall be produced to this office which shall be returned after conveying the acceptance of Security Deposit.
- Demand Draft is to be drawn in favour of Sr. Accounts Officer (HOAU), MPMKVV Co. Ltd., Bhopal drawn on any nationalized/scheduled Bank and payable at Bhopal.
- Bank Guarantee in lieu of cash deposit must be of any nationalized/scheduled Bank is to be submitted to the office of the CMD, MPMKVV Co. Ltd, Bhopal strictly as per Company proforma (to be supplied alongwith the order) valid sufficiently to cover the guarantee period.
- All SSI Units registered with Industries Department of MP shall be required to pay security deposit for only 5% (five percent) value of the order, subject to maximum of Rs.20,000/- in cash or DD. This concession is for such SSI Units of MP who are doing business upto Rs.50 lakhs annually only.
- The Security Deposit shall have to be deposited within 30 days of issue of order or before the offer of material supply.
- The company shall forfeit the Security Deposit in event of non execution/part execution of the orders/poor performance of supplier/contractors besides invoking the penalty clauses.
- The Security Deposit shall be returned to the successful bidder only after due and faithful performance of the order as per terms and conditions of the order and on expiry of guarantee period provided there are no claims outstanding to be recovered against the bidders/suppliers.
- No interest shall be paid by the Company on security deposit furnished by the suppliers.

11. EXTENSION ORDER:-

The Company reserves right to place an extension order for any additional quantity to the extent of 50% quantity of the original order on the same rates, terms and conditions within 6 months from the date of orders.

12. TESTING FACILITY AND TESTS TO BE CONDUCTED:-

The tenderer must give their production capacity, all about testing lab and line testing facilities available with them in details for the tendered material. The tenderer should also give the details of test proposed to be conducted in their labs in the event of order with the details Indian Standard Specification/Codes.

13. MATERIAL TEST CERTIFICATE:-

Each item of the lot should be tested by the supplier and routine test certificate in duplicate giving the results of all tests prescribed in the relevant ISS (as mentioned in the Technical Specification Schedule) for ordered item shall be submitted to the office of the CMD, MPMKVV Co. Ltd, Nishta Parisar, Govindpura, Bhopal, for approval along with the letter/offer for inspection of material. Please note that each lot will be inspected at your works, which includes witnessing of all tests prescribed in ISS.

14. **(A) TYPE TEST CERTIFICATE:** - The tenderers are advised to submit following type test certificates as per relevant IS in force with type tested drawings from CPRI, Bangalore or from any Govt. standard test laboratory in India or from laboratories of International repute duly attested by "Competent Testing Authority" along with the tender invariably. **Type test reports/certificates for the tests conducted on the tendered item/material shall not be older than 5 years on the date of opening of technical commercial bid:-**

- i. Short Circuit Duties Test
- ii. Short Time Current withstand and Peak current withstand test
- iii. Mechanical Endurance Test (M2 Class).
- iv. Temperature Rise Test
- v. Lightning Impulse Voltage withstand test
- vi. High Voltage Power frequency withstand Test (Dry & Wet)
- vii. Single Capacitor Bank Switching Test
- viii. Degree of Protection IP-55 as per IS:13947(I):93/IEC-60529-89.
- ix. Cable Charging test
- x. Seismic Test
- xi. Out of phase making and breaking test

(B) DRAWING & CATALOGUE:- General arrangement drawing showing location of secondary termination box & other accessories, dimensional drawing & design details shall be submitted by the tenderer with their offer.

15. INSPECTION AND TEST CERTIFICATE:-

(i) Each lot of offered material shall be inspected by Company's inspecting officer(s) / third party agency before despatch. The supplier shall extend all reasonable and necessary help to the inspecting officer(s)/ third party agency deputed by Company to carry out testing of material at his works.

(ii) An intimation about the date, by which material shall be ready for inspection, indicating quantity, shall be given to the CE (Pur), O/o CMD, MPMKVV Co. Ltd., Bhopal, by the supplier, so as to reach sufficiently in advance, at least 15 days prior to expiry of phased delivery schedule, failing which, the suppliers shall be responsible for delay in delivery and levy of penalty. On receipt of such intimation, the material shall be inspected normally within 15 days.

(iii) The supplier shall not despatch the material unless specific despatch instructions are issued by the Purchase Section of the Company.

(iv) In case the inspecting officer deputed for inspection does not find the offered lot ready, the Company reserves the right to recover from the supplier, such charges as may have been incurred towards arranging such inspection. These charges have been mentioned in Clause-19 hereunder.

(v) The acceptance of any quantity of material shall in no way relieve the supplier of any of his responsibilities for meeting all requirements of the specification, and shall not prevent subsequent rejection, if such material is found to be defective at a later date.

(vi) The number of sample selected to carryout the acceptance test shall be as per provision in relevant IS.

(vii) The purchaser has the right to have the tests carried out by an independent Agency subject to recovery of testing expenditure in case of failure, whenever there is dispute regarding the quality of supply.

16. FAKE INSPECTION CALL:- All such firms who after giving inspection call do not offer materials to Inspecting officer for inspection due to one or other reasons, shall be required to remit a sum of Rs. 5,000/- per officer.

17. RIGHT TO CARRY OUT INSPECTION DURING MANUFACTURING:-

(i) The Company at its option will inspect the material on order during its process of manufacturing including the inspection of raw material and will request the supplier to carry out such tests as may be necessary to ensure proper quality check. Samples of components of the material shall be subject to quality check by the inspecting officer during manufacturing. In the event of stage inspection, if any discrepancy is noticed, the supplier shall be given immediate notice to suspend further manufacturing until corrective measure are taken and the process cleared.

(ii) **Factory Inspection:-**

(a) The factory inspection of the tenderers who have not executed any order of MPSEB/MP MK VV Co. Ltd. shall be carried out before placing detailed order.

(b) During pendency of the order, the factory inspection may be conducted by Company's authorized officers, as and when felt necessary, for ensuring production of quality material.

(iii) The supplier shall extend all reasonable and necessary assistance to the inspecting officer of the Company to carry out testing of equipment/material, at his works.

18. RECOVERIES FOR LIABILITIES AGAINST OTHER CONTRACTS:-

All amounts recoverable from the successful bidder against earlier contracts with the Board will be adjusted from payment due against the contract that may be awarded under this specification.

19. ROYALTIES AND PATENTS:-

All royalties for patent or any charges for usage or infringement there of that may be involved in the supply shall be included in the offered price and the supplier shall protect

purchaser against any claim thereof. Supplier is fully responsible for such contractual dealing and purchaser shall not be called upon to bear any such charges.

20. COMPLIANCE OF REGULATIONS:-

The supplier shall warranty that all goods covered under procurement, shall have been produced, sold, dispatched, delivered, tested, in strict compliance with all applicable Rules, Regulation including Industrial (Development and Regulation) Act 1951 and any amendment there under. Labour agreement, working conditions and technical codes and requirements, as applicable from time to time.

The supplier should execute and deliver such documents, as may be needed, by the purchaser in evidence of compliance. All laws, Rules and Regulation are required to be incorporated in this reference. Any liability arising out of contravention of any of the laws shall be the sole responsibility of the vendor and the purchasers shall not be responsible in any manner whatsoever.

21. CANCELLATION OF ORDER:-

21.1 The Company may upon written notice of default, terminate contract in the circumstances detailed hereunder:-

- a) If in the option of the Board, the supplier fails to deliver the material within the time specified or during the period for which extension has been granted by the Company.
- b) If in the option of the Company, the supplier fails to comply with any of the other provisions of this contract or material is found not in accordance with prescribed specifications and or the approved samples.
- c) If as a result of stage inspection, it is revealed that material and/or, workmanship is sub-standard which is likely to affect the performance of the finished products a notice would be served by the Board to the supplier to suspend further activities and to take urgent steps towards corrective measures, failing which the entire order would be cancelled.

21.2 In the event of such termination, the Company shall exercise the discretionary powers as:-

(a) To recover from the supplier then agreed liquidated damages as approved in the clause No. 8 above.

OR

(b) To purchase from elsewhere after giving due notices to the supplier on account and at the risk of the contractor such stores/material not so delivered or others of similar description in respect of consignment not yet delivered.

OR

(c) To cancel the contract reserving Company's right to recover damages.

21.3 Notwithstanding that the powers under clause [21.2 (a), (b) & (c)] referred to above, are in addition to the rights and remedy available to the Board under the law of India relating to contract.

21.4 In the event of risk purchase of stores of similar description, the opinion of the Company shall be final. In the event of action taken under the clause 21.2 (a) or (b) above, the supplier shall be liable to pay for any loss, which the company may sustain on that account but the supplier shall not be entitled to any saving all such purchases made against the default.

21.5 The decision of the Company shall be final regarding the acceptability of the store supplied by supplier and the Company shall not be required to give any reason in writing or otherwise at any time for the rejection of the stores/material.

21.6 In the event, the Company does not terminate the order as provided in clause 21.1 and 21.2 above, the supplier shall continue execution of this order, in which case he shall be liable to the Company for liquid detail damages for the delay as per clause 8, until supplies are accepted.

22. **ARBITRATION:-**

If, at any time, any question, or difference. Whatsoever shall arise between the purchaser and the supplier, upon, or in relation to or in connection with the contract, either party may forthwith give to the other, notice in writing of the existence of such question, dispute or difference, and the same shall be referred to the adjudication of two Arbitrators, one to be nominated by the purchaser and the other to be nominated by the supplier in the case of said Arbitrator not agreeing, then to adjudication of the Umpire to be appointed by the Arbitrator, whose, decision shall be final and binding on the parties and the provisions of the Indian Arbitrator Act 1940, and of the rules there under and any statutory modification thereof shall be deemed to apply. The Arbitrators or the Umpire as the case may be, are bound to give a detailed speaking award assigning reasons for the findings.

Suppliers under the contract shall be continued by the Supplier during the arbitration proceedings, unless otherwise, directed in writing by the purchaser or unless the matter is such that the work cannot possibly be continued until the decision of the Arbitrator or of the Umpire, as the case may be, is issued.

23. **JURISDICTION:-**

Any dispute or difference, arising under, out of, or in connection with Tender/contract order shall be subject to exclusive jurisdiction of court at Bhopal only.

24. **RANDOM TESTING:-**

24.1 Inspection of material before dispatch or waiver of inspection will not relieve the supplier from his responsibility to supply the material strictly in accordance with the specification. The Company shall have option to test the samples selected at random from the supplies effected and subject it to routine/acceptance/type test to be conducted at CPRI.

24.2 In case, the samples fail to withstand the required test, the entire lot will be liable to be rejected (i.e. unused material so supplied) and the supplier will have to refund the amount paid, including all taxes & duties, as well as the test charges thereof, after inspection. Such quantities or rejected material as identified shall be removed by the supplier and replaced in full at his own cost. The Company will not be responsible for levy of taxes on such rejected materials and deduction shall be in totality.

24.3 In case the random checking of supplies, if any deviation is noticed, a notice shall be given to the supplier, who shall arrange to depute his representative within 15 days for joint inspection. If during joint inspection any deviation is observed and material supplied is found not conforming to standard laid down in the relevant ISS, the Company reserves the right to impose any appropriate penalty for full quantity of material supplied against the order. The decision of the Company in this respect shall be final and binding on the suppliers.

25. **VARIATION IN THE ORDERED QUANTITY:-**

A tolerance in the ordered quantity will be allowed to the extent of $\pm 2\%$ (plus minus 2%) and not for each consignment. MRCs shall be issued for actual receipt of quantity only.

26. CORRESPONDENCE:-

Copies of all important correspondence on subject should be sent to Director (Fin.), O/o CMD MPMKVVCL Bhopal, the concerned consignee, Sr. Accounts Officer/Regional Accounts Officer and to this office. In addition to the above, one statement showing the details of despatches made should be submitted to this office after completion of order.

Copies of all important correspondence regarding the order shall be endorsed to the following:-

- i) Director (Finance), O/o CMD, MPMKVV Co. Ltd., Bhopal
- ii) Concerned consignee
- iii) Concerned Sr. Accounts Officer (HOAU) / (ROAU), MPMKVVCL, Bhopal/Gwalior
- iv) Chief Engineer (Purchase), O/o CMD, MPMKVV Co. Ltd., Bhopal

27. CLIMATIC CONDITIONS:-

The climate conditions where equipment is intended for installation could be taken as under:-

(i)	Maximum temperature of air in shed	:	45° C
(ii)	Minimum temperature of air in shed	:	4° C
(iii)	Maximum relative humidity	:	95% (The humidity sometime approaches saturation point)
(iv)	Minimum relative humidity	:	10%
(v)	Average No. of dust-storm days per Annum	:	40 days
(vi)	Average No. of rainy days per Annum	:	90 days
(vii)	No. of months of tropical monsoon conditions per annum.	:	3 months
(viii)	Average annual rain fall	:	1250 mm
(ix)	Maximum wind pressure	:	150 kg/sq. mm.
(x)	Altitude not exceeding	:	1000 meters
	(the limit of ambient temperature shall be 45°C peak and 35°C average over a period of 24 hours)		

(Sanjeev P. Puranik)
**CHIEF GENERAL MANAGER (PUR),
O/O CMD, MPMKVV CO.LTD. BHOPAL**

ANNEXURE-IV**LIST OF CONSIGNEE AREA STORES &
SENIOR / REGIONAL ACCOUNTS OFFICERS**

(For the items other than General stationery/General printed stationery/Drawing Articles etc.)

S.No.	Name of Consignee	Name of Station to which Materials are to be despatched, if by Railway.	Concerned Sr.AO / R.A.O. MPSEB
1	Addl.S.E./ E.E.(Stores) Area Store, MPMKVCL Bhopal	Bhopal (W-C.R.)	Bhopal
2	-do- Gwalior	Gwalior (W-C.R.)	Gwalior
3	-do- Guna	Guna (W-C.R.)	Guna

ANNEXURE-V**LIST OF SCHEDULED BANKS**

S.No.	Name of R.A.O. / Sr.A.O	Name of Bank	
1	Bhopal	:	State Bank of India, Sultania Branch
2	Guna	:	State Bank of India, Guna
3	Gwalior	:	State Bank of India, Jiwaji Chowk, Gwalior

SCHEDULE-I A**(PRICE & QUANTITY)**

(To be kept in envelope containing Part-III of tender documents)

Sl. No	Description of Material	Quantity tendered (Nos)	Quantity offered (Nos)	Unit FOR Ex-works price inclusive of packing & forwarding (Rs.each)	% of ED and its amount	% of ST and its amount	Freight Charges (Rs. each)	Any other levy/ duty etc.	Total FOR price including all taxes and duties (Rs.each)
1	2	3	4	5	6	7	8	9	10
1	Outdoor Porcelain Clad Vacuum Circuit Breaker complete with Mechanism Housing, Terminal Connectors and Structure for VCB & CTs as per Technical Specification in Schedule-II								
	(i) 11KV	200							

Note:-

- (1) Price Bid (online only) to be furnished in above format .
- (2) Responsibility of any lack of clarity leading to confusion will rest with the bidders.
- (3) Remarks, if any, may please be specified clearly.

PLACE:

DATE

SIGNATURE OF TENDERER

NAME IN FULL

DESIGNATION/ STATUS IN THE FIRM
COMPANY SEAL

SCHEDULE-I B**(PRICE & QUANTITY)**

(To be kept in envelope containing Part-III of tender documents)

Sl. No	Description of Material	Quantity tendered (Nos)	Quantity offered (Nos)	Unit FOR Ex-works price inclusive of packing & forwarding (Rs. each)	% of ED and amount	% of ST and amount	Freight Charges (Rs. each)	Any other levy/duty etc.	Total FOR price including all taxes and duties (Rs. each)
1	2	3	4	5	6	7	8	9	10
1	Outdoor Porcelain Clad Vacuum Circuit Breaker complete with Mechanism Housing, Terminal Connectors and Structure for VCB & CTs as per Technical Specification in Schedule-II								
	(i)33 KV	100							

Note:-

- (1) Price Bid (online only) to be furnished in above format.
- (2) Responsibility of any lack of clarity leading to confusion will rest with the bidders.
- (3) Remarks, if any, may please be specified clearly.

PLACE:

DATE

SIGNATURE OF TENDERER

NAME IN FULL

DESIGNATION/ STATUS IN THE FIRM
COMPANY SEAL

SCHEDULE-I C**(PRICE & QUANTITY)**

(To be kept in envelope containing Part-III of tender documents)

Sl. No	Description of Material	Quantity tendered (Nos)	Quantity offered (Nos)	Unit FOR Ex-works price inclusive of packing & forwarding (Rs. each)	% of ED and amount	% of ST and amount	Freight Charges (Rs. each)	Any other levy/ duty etc.	Total FOR price including all taxes and duties (Rs. each)
1	2	3	4	5	6	7	8	9	10
2	11 KV Control & Relay Panel with numerical Relays (One Transformer + One Feeder Protection)	200							

Note:-

- (1) Price Bid (online only) to be furnished in above format.
- (2) Responsibility of any lack of clarity leading to confusion will rest with the bidders.
- (3) Remarks, if any, may please be specified clearly.

PLACE:

DATE

SIGNATURE OF TENDERER

NAME IN FULL

DESIGNATION/ STATUS IN THE FIRM
COMPANY SEAL

SCHEDULE-I D**(PRICE & QUANTITY)**

(To be kept in envelope containing Part-III of tender documents)

Sl. No	Description of Material	Quantity tendered (Nos)	Quantity offered (Nos)	Unit FOR Ex-works price inclusive of packing & forwarding (Rs. each)	% of ED and amount	% of ST and amount	Freight Charges (Rs. each)	Any other levy/duty etc.	Total FOR price including all taxes and duties (Rs. each)
1	2	3	4	5	6	7	8	9	10
1.	11 KV Control & Relay Panel with numerical Relays (2 Feeders Protection)	300							

Note:-

- (1) Price Bid (online only) to be furnished in above format
- (2) Responsibility of any lack of clarity leading to confusion will rest with the bidders.
- (3) Remarks, if any, may please be specified clearly.

PLACE:

DATE

SIGNATURE OF TENDERER

NAME IN FULL

DESIGNATION/ STATUS IN THE FIRM

COMPANY SEAL

SCHEDULE-I (E)**(PRICE & QUANTITY**

(To be kept in envelope containing Part-III of tender documents)

Sl. No	Description of Material	Quantity tendered (Nos)	Quantity offered (Nos)	Unit FOR Ex-works price inclusive of packing & forwarding (Rs.each)	% of ED and amount	% of ST and amount	Freight Charges (Rs.each)	Any other levy/ duty etc.	Total FOR price including all taxes and duties (Rs.each)
1	2	3	4	5	6	7	8	9	10
1	33 KV Control & Relay Panel with numerical Relays (Transformers protection)	55							

Note:-

- (1) Price Bid (online only) to be furnished in above format.
- (2) Responsibility of any lack of clarity leading to confusion will rest with the bidders.
- (3) Remarks, if any, may please be specified clearly.

PLACE:

DATE

SIGNATURE OF TENDERER

NAME IN FULL

DESIGNATION/ STATUS IN THE FIRM

COMPANY SEAL

SCHEDULE-I (F)**(PRICE & QUANTITY**

(To be kept in envelope containing Part-III of tender documents)

Sl. No	Description of Material	Quantity tendered (Nos.)	Quantity offered (Nos.)	Unit Ex-works price inclusive of packing & forwarding base date : 01.07.08 (Rs. each)	% of ED and amount	% of ST and amount	Freight Charges (Rs.each)	Any other levy/ duty etc.	Total FOR price including all taxes and duties (Rs.each)
1	2	3	4	5	6	7	8	9	10
1	33 KV transformer panel with differential protection for 8 MVA transformers with Numerical relays.	25							

Note:-

- (1) Price Bid (online only) to be furnished in above format.
- (2) Responsibility of any lack of clarity leading to confusion will rest with the bidders.
- (3) Remarks, if any, may please be specified clearly.

PLACE:

DATE

SIGNATURE OF TENDERER

NAME IN FULL

DESIGNATION/ STATUS IN THE FIRM
COMPANY SEAL

SCHEDULE-I (G)**(PRICE & QUANTITY**

(To be kept in envelope containing Part-III of tender documents)

Sl. No	Description of Material	Quantity tendered (Nos)	Quantity offered (Nos)	Unit FOR Ex-works price inclusive of packing & forwarding (Rs. each)	% of ED and amount	% of ST and amount	Freight Charges (Rs. each)	Any other levy/ duty etc.	Total FOR price including all taxes and duties (Rs. each)
1	2	3	4	5	6	7	8	9	10
1	33 KV Control & Relay Panel with numerical Relays (Feeder protection)	100							

Note:-

- (1) Price Bid (online only) to be furnished in above format.
- (2) Responsibility of any lack of clarity leading to confusion will rest with the bidders.
- (3) Remarks, if any, may please be specified clearly.

PLACE:

DATE

SIGNATURE OF TENDERER

NAME IN FULL

DESIGNATION/ STATUS IN THE FIRM

COMPANY SEAL

SCHEDULE – II (A)

TECHNICAL SPECIFICATION FOR 11 KV & 33 KV V.C.B.

1. SCOPE :-

This specification covers design, manufacturing, testing, inspection before dispatch of 11 KV & 33 KV Vacuum Circuit Breakers complete with all accessories required for its satisfactory operation for the Sub-transmission solidly grounded system and delivery at consignee Area Stores at Bhopal, Gwalior & Guna. The Breaker shall be used for Transformer or Feeder Control protection, in the system.

2. TYPE AND RATING :-

The circuit breaker shall be suitable for outdoor operation under the climatic conditions, as specified in Tender Specification, without any protection from sun and rain.

S.N.	Particulars	11 KV	33 KV
i.	Number of Poles	3	
ii.	Frequency	50 cycles	
iii.	Nominal system voltage	11 KV	33 KV
iv.	Highest system voltage	12 KV	36 KV
v.	Interrupting capacity at nominal system voltage	500 MVA	1500 MVA
vi.	Rated continuous current	630 Amps	1250 Amps
vii.	Short-time current rating for 3 Sec	25 KA	26.2 KA
viii.	L.I voltage withstand for one Minute	75 KV _p	170 KV _p
ix.	Power frequency withstand voltage for one Minute	28 KV	70 KV
x.	Total break-time for any current up to the rated breaking current	3 cycles (max.)	
xi.	Control circuit voltage	30 Volt D.C.	
xii.	Operating duty for gang operation	O-0.3sec.-CO-3 min-CO	
	Minimum clearances		
a.	Between phases	280 mm	430 mm
b.	Between phase & earth	190 mm	380 mm
c.	Between live parts & ground	2750 mm	3700 mm
d.	Creepage distance (min.)	300 mm	900 mm

The 11 KV & 33 KV circuit breakers shall have the following rating:-

The above is minimum requirement. The suppliers may offer their standard design, keeping in view our minimum requirements.

3. STANDARDS :-

The circuit breakers shall comply with the requirements of IS:13118(1991) or IEC 62271-100 with latest amendment thereof, except wherein specified otherwise.

4. GENERAL :-

The circuit breaker shall be of porcelain clad vacuum type. The breaker, complete in all respect, shall be supplied with all accessories in-place and all internal wiring installed and terminated in the mechanism housing and the equipment.

- (i) The design and construction of the circuit breaker shall be such that there is no possibility of entry of moisture. There should not be any condensation or accumulation of moisture on the internal insulating surface of the circuit breaker. For this purpose, the entire interrupter and supporting insulator could be filled with insulating gas or any insulating media to avoid condensation. It may please be noted that any additional device like heater, fan etc. which requires On/Off switch or continuous monitoring shall not be acceptable.
- (ii) The circuit breaker shall provide rapid and smooth interruption of current under all conditions, completely suppressing all undesirable phenomena, even under the most severe and persistent short-circuit conditions or when interrupting small currents or leading/lagging reactive currents. The details of any device incorporated to limit or control the rate of rise of re-striking voltage across the circuit breaker contacts shall be stated. The over voltage caused by the circuit breaker switching on inductive or capacitive load shall not exceed 3.2 times the normal phase to neutral voltage. The total break-time for the circuit breaker, throughout the range of breaker operating duty, shall be guaranteed. The 11 KV breakers shall also be fit for switching of Capacitor Bank and shall be rated for 400 Amp single capacitor bank breaking current.
- (iii) The breakers shall be provided with trip free mechanism.
- (iv) Circuit breaker shall be suitable for mounting on steel structures. Strongly supported bracket or frame, for mounting associated 3 nos. CTs (being procured separately), shall also be provided. All the structures shall be hot dip galvanised with 3 dips. The mechanism box shall be centrally mounted in front of the middle pole. Please note that Breaker with mechanism box mounted by the side of one of the extreme poles is not acceptable. The mechanism box shall have firm supports from bottom. This is necessary to minimise vibration of mechanism box, which in turn may disturb various settings. The cantilever type support for mechanism box is not acceptable.
- (v) The circuit breaker shall be suitable for performing auto re-closing cycle duty.

5. SPECIFICATION FOR CIRCUIT BREAKERS :-

The circuit breakers shall consist of three identical phase units with a common operating mechanism. The circuit breaker shall conform following:-

- i) The breakers should be suitable for out-door duty.
- ii) Make, Type, Rating and Source of Vacuum Interrupter with relevant details shall be as indicated in GTP. Drawings of VI (Vacuum Interrupter) shall be submitted before commencement of supplies.
- iii) The capacity of breaker to interrupt inductive and capacitive currents shall be as indicated in GTP.

- iv) A copy of manual for installation, operation & maintenance of the ordered circuit breaker shall be supplied with each breaker. In addition, 5 sets may be submitted to this office immediately.

6. VACUUM INTERRUPTER(VI) :-

- (i) The design of the vacuum interrupter shall be such that it gives trouble free operation under normal load and fault conditions throughout the life of the equipment. As the efficiency of the breaker depends on the degree of vacuum inside the interrupter, manufacturer shall ensure that the same is maintained consistently during service. To know the residual life of vacuum interrupter, an indicator/means to indicate status of contact erosion should be provided.
- (ii) The insulating ceramic body of the interrupter should have high mechanical strength and it should be capable of withstanding high temperature without any significant deterioration in its mechanical and electrical properties.
- (iii) The metal/alloy used for the fixed and moving contacts shall have very low resistivity and low gas content. They should be resistant to arc erosion and the contact should have no tendency to get Cold Welded under the high vacuum in the interrupter.
- (iv) The interrupter design should ensure rapid de-ionization of the gap so that normal electrical strength of the gap is restored instantaneously.
- (v) The metallic bellow or any other similar vacuum sealing arrangement should be provided at the moving contact and should have a long fatigue life.
- (vi) Manufacturers catalogue of vacuum bottle, indicating all the details shall essentially be submitted.
- (vii) If the bidder is not a manufacturer of vacuum interrupter than for 11 KV VCB CGL/BEL & for 33 KV only BEL make interrupter shall be accepted.
- (viii) A pressure gauge to monitor positive pressure lower part of the pole is to be provided to protect ingress of moisture.

7. MOUNTING OF CTs:-

The offered steel structures for breakers should also have adequate strength to accommodate 3 nos. CTs on it with provision of suitable supports from ground.

8. TEMPERATURE RISE :-

The maximum temperature attained by any part of the equipment, when in service at site, under continuous full load conditions, exposed to the direct rays of the sun, shall not exceed 45° C above ambient temperature. The limits of temperature rise shall be as per relevant standard.

9. INSULATION OF THE CIRCUIT BREAKER:-

The insulation to ground, the insulation between open contacts and the insulation between phases of the completely assembled circuit breaker shall be capable of withstanding satisfactorily di-electric test voltage corresponding to specified basic insulation level in the standard.

10. INSULATORS: -

The basic insulation level of the Insulator and insulating porcelains shall be as specified and porcelain shall be homogenous and free from cavities and other flaws. They shall be designed to have ample insulation, mechanical strength and rigidity for satisfactory operation under

conditions specified above. All insulators of identical ratings shall be inter-changeable. The puncture strength of the insulators shall be greater than the flash over value.

11. OPERATING MECHANISM :-

- 11.1 The circuit breaker shall be designed for remote control from the control room and in addition there shall be provision for manual operation of circuit breakers during maintenance and for local tripping and closing by the normal means.
- 11.2 The circuit breakers shall have operation control and mechanical “open” and “closed” indicator, in addition to facilities for remote electrical indication. An operation counter shall also be provided in the common operating mechanism. The mechanical indicator and operation counter shall be located in a position where it shall be visible to a man standing on the ground level with the mechanism housing doors are in closed position. In addition to mechanical indications, the electrical On/Off indication is also to be provided.
- 11.3 The operating mechanism shall be of the spring charging type, by electric control under normal operation. The mechanism shall be trip free electrically and mechanically. The mechanism shall also be capable of performing satisfactorily, the re-closing duty cycles. All working parts in the mechanism shall be of corrosion resistant material and all bearings which require greasing shall be equipped with pressured grease fittings. No part/component shall be of non metallic materials so mechanical strength of the mechanism shall be ensured. The mechanism shall be strong, quick in action and shall be removable without disturbing the other parts of the circuit breaker. The mechanism and breaker shall be such that the failure of any spring will not prevent tripping and will not cause tripping or closing. The operating Mechanism should be motor operated spring charged type. It should not be chain operated or clutch bearing operated. The motor for spring charging shall be suitable to perform satisfactorily for input supply voltage of 230V AC 50 Hz with a variation of plus 10 and minus 20 percent. The A.C. Motor should have overload protection. Provision should also be made for mounting of Mechanism Box at an adequate height and gear ratios shall be so chosen that one man should be able to charge the spring, without any additional efforts. The mechanical arrangement should be provided to facilitate manual tripping of circuit breaker for emergency trip under emergent condition i.e. failure of DC supply, trip coil burnt, mechanism is defective while arc quenching media is healthy. The operating mechanism shall be capable to perform 10000 trouble free mechanical operations .
- 11.4 **CONTROL CUBICLE:-**
A common control cubicle shall be provided to house electrical controls, monitoring devices and all other accessories, except those which must be located on individual poles. The cubicle shall be IP-55 of gasketed weather-proof construction, fabricated from sheet steel of minimum 2.5 mm. thickness. The cubicle shall have front access door with lock and keys. Space heater, internal illumination lamp, 3-pin 5A socket with individual ON-OFF switches shall be provided in the cubicle. For local operation following shall be provided :-
- a) LOCAL/REMOTE selector switch
 - b) TRIP/NORMAL/CLOSE control switches with pistol grip handle.
- 11.5 The coupling between poles and mechanism should be either direct or the length of the coupling rod provided should be minimum.

- 11.6 The control circuits shall be designed to operate on 30V DC and it shall be possible to adopt to work on other voltages by simply changing the operating coils. The shunt tripping coils shall be designed to operate satisfactorily within 70% to 110% and the shunt closing coil within 85% to 110% of the rated DC voltage. 30V DC supply shall be used for all indication schemes. The wattage power of the coil should be 300 Watts.
- 11.7 AC Power supply for auxiliaries will be available at 230V single phase 50 Hz.
- 11.8 Necessary double compression cable glands for the cables of the operating mechanism shall be provided. The cables used for operation are un-armoured 2.5sq.mm. Copper control cables of 1100 V grade. The cable glands provided may therefore be suitable for 1 no. 8 core and 2 nos. 4 core ,1 nos. 2 core un-armoured 2.5 sq.mm copper control cable.
- 11.9 The Circuit breaker shall be provided with trip free Mechanism so that tripping instructions could over-ride the closing instructions. An additional tripping coil shall also be provided in the trip circuit. The second coil shall have separate tripping lever arrangements in the mechanism, so as to avail full advantage of second trip coil. Also the two trip coils shall have separate DC Circuits, so that in the event of any short circuit/ damage in any one of the trip coil, the supply is available in the other one.
- 11.10 The circuit diagram of Control circuit of VCB along with operating instructions (DO'S/ DON'T) shall be embossed on metallic plate duly laminated and the same shall be fixed on the rear door of the control cubicle from inside.
- 11.11 **WIRING :-**
- (i) Wiring shall be completed in all respects to ensure proper functioning of the control, protection, monitoring and interlocking schemes.
 - (ii) All the wiring shall be carried out with 1100V grade PVC insulated stranded copper conductor of 2.5 sq mm.
 - (iii) Each wire shall be identified at both ends with permanent markers bearing wire numbers as per wiring diagram.
 - (iv) Wire termination shall be done with crimping type connectors with insulating sleeves. Wires shall not be spliced between terminals.
 - (v) All spare contacts of auxiliary switches etc. shall be wired up to terminal blocks in the control cubicle.
- 11.12 **TERMINAL BLOCKS:-**
- (i) Terminal blocks shall be of 1100V grade, box clamp type ELMEX 10 sq.mm or approved equivalent. Not more than two wires shall be connected to any terminals. Spare terminals, equal in number to 20% of active terminals, shall be provided. Only nut connector type terminal block shall be accepted.
 - (ii) Terminal block shall be such located to allow easy access. Wiring shall be so arranged that individual wires of an external cable can be connected to consecutive terminals.
- 11.13 **TERMINAL CONNECTORS:-**
- (i) All circuit breakers shall be provided with 6 nos. terminal connectors suitable to receive Dog ACSR conductors. Clamps shall be designed adequately to take care of any

bimetallic effect. Terminal connectors shall be tested for short circuit current capability, temperature rise.

(ii) **The terminal connector shall also meet the following requirements :-**

- a) Terminal connectors shall be manufactured & tested as per IS:5561.
- b) All castings shall be free from blow holes, surface blisters, cracks and cavities. All sharp edges and corners shall be blurred and rounded off.
- c) No part shall be less than 12 mm thick.
- d) The GI nuts, bolts & washers are to be used in the current path.
- e) The bimetallic strips/sleeve copper alloy liner of minimum thickness of 2mm shall be cast integral with aluminium body.
- f) All current carrying parts shall be designed and manufactured to have minimum contact resistance.
- g) The terminal connectors should be made of A6 Aluminium Alloy and manufactured by gravity die-casting process only. Sand die-casted connectors are not acceptable.
- h) Size of terminal connector for which the clamp is designed and also rated current under site conditions shall be embossed/ punched on each part of clamps, except hardware.
- i) The conductor shall be tightened by at least four bolts. Conductor hold length must not be less than 60 mm.
- j) The surface of clamps to be tightened by the bolts should be flat in shape, so that it may be possible to open the nuts and bolts by normal spanners. Therefore, any type of groove in the clamp body for fixing of nuts should be avoided.
- k) The portion of clamp to hold the conductor should be flat and straight and not zig-zag in construction at both the sides, so that heating of clamp by throttling action of current may be avoided.
- l) Space of at least 50% of diameter of nuts should be available after hole at both the sides of conductor holding portion for better mechanical strength.

11.14 **AUXILIARY CONTACTS:-**

Eight numbers each of auxiliary contacts both of the normally open and normally closed types shall be provided in each circuit breaker for use in the remote indication and control scheme of the circuit breaker and for providing safety interlocking. Special contacts for use with trip coils which permit for relative adjustment with respect to the travel of the circuit breaker shall also be provided. Wherever required, there shall be provision to add more auxiliary contacts at a later date, if required. All auxiliary contacts shall be placed in a weather proof casing and current rating of the contacts shall be as mentioned in the bid. Provision shall be available to convert these spare “normally-open” contacts to “normally-closed” type and vice versa. Minimum 20% extra contacts are to be provided.

12. **ACCESSORIES :-**

The circuit breaker shall be supplied as a complete unit with internal wiring installed and terminated in mechanism box and equipped with the following accessories :-

- | | |
|---|----------|
| (i) Motor operated spring charged mechanism | : 1 No. |
| (Motor voltage - 230 V AC, 50 Hz) | |
| (ii) Trip coil suitable for 30 V DC | : 2 Nos. |
| (iii) Closing coil suitable for 30 V DC | : 1 No. |
| (iv) Pistol grip C.B. Control switch having | : 1 No. |
| trip/normal/close position | |

(v) Local/remote selector switch	: 1 No.
(vi) Spring Charged indicator	: 1 No.
(vii) Manual operating handle for maintenance	: 1 No.
(viii) Facility for manual charging of spring	: 1 No.
(ix) Operation counter	: 1 No.
(x) Auxiliary contacts (8 NO - 8 NC)	: 1 Set
(xi) Anti pumping device suitable for 30 V DC	: 1 No.
(xii) Bimetallic terminal connectors suitable for connecting Dog ACSR conductor.	: 6 Nos.
(xiii) Cubicle illuminating CFL lamp with protective cage and on/off switch	: 1 No.
(xiv) Spare terminals block	: 20% of the Total active terminals
(xv) Mechanical ON/OFF Indicator	: 1 No.
(xvi) MCB for both AC and DC supply	: 1+2 No.
(xvii) Space heater with thermostat and ON/ OFF switch	: 1 No.
(xviii) 3-Pin 5 A socket with on/off switch	: 1 Set
(xiv) Earthing terminals	: 2 Nos.
(xx) Foundation Bolts	: As per requirement
(xxi) Cable glands (Double Compression Type)	: As per requirement

Other accessories which are not specified above, but are required for efficient and trouble free operation of breaker, should also be provided without any extra cost.

13. TYPE TESTS :-

- (i) Type test certificates for the following tests, as per IS:13118 or IEC 62271-100 with latest amendment thereof, from any of the NABL accredited Laboratory shall invariably be furnished
 - i. Short Circuit Duties Test
 - ii. Short Time Current withstand and Peak current withstand test
 - iii. Mechanical Endurance Test (M2 Class).
 - iv. Temperature Rise Test
 - v. Lightning Impulse Voltage withstand test
 - vi. High Voltage Power frequency withstand Test (Dry & Wet)
 - vii. Single Capacitor Bank Switching Test
 - viii. Degree of Protection IP-55 as per IS:13947(I):93/IEC-60529-89.
 - ix. Cable Charging test
 - x. Seismic Test
 - xi. Out of phase making and breaking test
- (ii) The above type test certificates must accompany drawing of type tested equipment, duly sealed & signed by type testing authority.
- (iii) The above tests should not have been conducted on the equipment earlier than **5 years** from the date of opening of bids.
- (iv) In case of any change in design/type of Breaker already type tested and the one offered against this specification, the purchaser reserves the right to demand repetition of some or all tests without any extra-cost at independent NABL accredited lab.

14. ACCEPTANCE AND ROUTINE TEST :-

Each VCB should be tested by the manufacturer at their works and routine/acceptance test certificates in duplicate giving result of all tests prescribed in the relevant ISS will be submitted for purchaser approval along with letter/offer for inspection of circuit breaker. The above result shall be witnessed by our representative at the manufacturer works, if so desired by the purchaser, prior to dispatch of the materials.

15. RATING PLATES :-

Each circuit breaker shall be provided with a detailed rating plate. Details on the rating plate shall be as per ISS and shall also indicate manufacturer name, serial no., order no. and month & year of dispatch.

(Sanjeev P. Puranik)
CHIEF GENERAL MANAGER (PUR),
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SCHEDULE – II (B)

SPECIFICATION FOR 11 KV & 33 KV INDOOR CONTROL PANELS

1. SCOPE:-

This section contains the technical specification for the Indoor control, indication, relay and metering panels associated with the outdoor switchgear for use at various sub-stations. The control and relay panels and other requirements specified under this section shall be complete in themselves with all main and auxiliary relays, fuses, links, switches, wiring, labels, terminal blocks, earthing terminals, foundation bolts, illumination, cable glands etc.

2. PANEL FINISH AND COLOUR:-

The purchaser has standardized that the colour finish shall be opaline green as per colour no. 275 of BS:381C(1948). Equivalent colour as per relevant Indian Standards or any other standard shall be acceptable. This colour finish shall be applied to all the exterior steel work of the panels. The exterior finish shall be semiglossy only and shall not be fully glossy. The interior of the panels shall be painted with egg shale white.

3. PROTECTIVE RELAYS AND INSTRUMENTS:-

The protective relays shall be manufactured, tested and supplied with the guaranteed particulars, as per following Indian Standard Specifications with latest amendment thereof :-

- (i) IS-3842 (Part-I):1967:- Application guide for electric relays for A.C. Systems over- current relays for Feeders and Transformers
- (ii) IS-3842 (Part-IV):1967:- Application guide for electric relays for A.C. system thermal protection relays
- (iii) IS-3231 (1965):- Electric relay for power system protection
- (iv) IS-1885 (Part-I&II):- Electro-technical vocabulary Electrical relays & Electrical power system protection
- (v) IS-4483: Preferred panel cut-out
- (vi) IS-1248 Indicating instruments
- (vii) All indicating instruments shall conform to IS-722 or BS-89.

The equipment meeting any other authoritative standard which ensures equal or better quality than the standards mentioned above shall also be acceptable. Equipment for which Indian Standards are not available the relevant British Standards and IEC recommendations will be applicable.

4. TYPE TEST CERTIFICATES FOR RELAYS:-

Following type test certificates of relays as per IS:3231 or any equivalent international standard are required to be submitted by the bidder :-

- (i) Performance test
- (ii) Thermal requirement test
- (iii) Accuracy test
- (iv) Re-set value test
- (v) Re-set time test
- (vi) Over shoot time test
- (vii) Rated burden & impedance test
- (viii) Insulation requirement test
- (ix) Mechanical requirement test
- (x) Contact performance test

NOTE: Regarding testing of the relays, reference may please be made to BS - 142-19.

5. PANEL CUT OUT AND DIMENSIONS:-

- (i) The panels shall be fabricated from 2mm steel sheet free from all surface defects. The panels shall have sufficient structural re-inforcement to ensure a plain surface to limit vibration and to provide rigidity during dispatch and installation. All control panels and switchgear cubicles shall be made absolutely vermin-proof and subjected to the approval of the purchaser. Pre-treatment & painting of panels shall be done as per the procedure detailed in clause -22 of this schedule.
- (ii) The panels shall have the following dimensions :-

Height	1475 mm
Depth	300 mm
Width	600 mm

No deviation in height/depth will be permitted.
However, width can be increased depending upon the actual requirement, which shall be subjected to approval from the purchaser.
- (iii) The preferred panel cut out dimensions for mounting of the relays shall be as per Indian Standard Specification IS-4483 (Part - I & II).
- (iv) Design, material selection and workman-ship shall be such as to present a neat appearance, outside and inside with no works of welds, rivets, screw or bolts head apparent from the exterior surface of the Control Panels.

6. PANEL LIGHTING:-

- a) For interior illumination, CFL/ fluorescent tube operating at 230V AC 50 Hz with On/Off switch shall be provided in each panel. The lamp/tube shall be located at the ceiling and guarded with protective cage. The On/Off switch shall be mounted on one of the side walls and shall be easily accessible.
- b) One 3 pin-5 Amp. receptable socket with On/Off switch and fuse shall be provided in each control panel.

7. AUXILIARY SUPPLY:-

- (a) For each Control Panel, the purchaser will provide the following :-

- i) 230 V (+ 10% to - 20%) single phase 2-wire, 50 Hz neutral grounded A.C. supply, frequency variation + 4 to -4%
- ii) 30 V (+ 10% to - 15%) D.C. supply
- (b) H.R.C. fuses shall be provided by the supplier for both the A.C. and D.C. power supplies.
- (c) All H.R.C. fuses and links shall be with holder, the base of fuse holder shall be mounted on slant support and with identification labels.

8. CONTROL WIRING:-

- (a) The supplier shall provide complete wiring upto the terminal block for the equipment, instrument devices mounted in the control panel strictly according to the wiring diagram prepared by the supplier based on the purchaser's information and schematic diagram and get approved from the purchaser.
- (b) The wiring shall be completed in all respects so as to ensure proper functioning of control, protection and metering schemes.
- (c) All spare contacts of relays and switches shall be wired upto the terminal block.
- (d) The Control Panels shall be supplied completely wired ready for purchaser's external connections at the terminal blocks. For CT circuits the wiring shall be carried out with 1100V grade PVC insulated stranded copper conductor of size 2.5 sq.mm.

For PT and for control circuits the wiring shall be carried out with 1100 V Grade PVC insulated stranded copper conductor of size 1.5 Sq. mm.

- (e) Colour coded wires should be used to facilitate easy tracing, as under:-

- i) Three Phase, A.C. Circuit:-

Red for R Phase
Yellow for Y Phase
Blue for B Phase
Black for Neutral

- ii) Single Phase A.C. Circuit:-

Red for Phase
Black for Neutral
Green for Earthing

- iii) D.C. Circuit:-

Red for Positive
Black for Negative

- iv) Control Wiring:-

Gray for annunciation and other control circuits.

- (f) Each wire shall be identified at both ends with wire designation number by plastic ferrules, as per wiring diagram based on latest revision of IS-375 to denote the different circuit functions. The supplier shall take approval for the system of wire numbering.

- (g) All wire termination shall be made with compression type connectors. Wires shall not be tapped or spliced between terminal points. All wire shall have crimp type termination and direct connection at any place is not at all required.
- (h) All series connected devices and equipment shall be wired-up in sequence. Loop-in/loop-out system of wiring shall be avoided, as far as possible and the common buses shall normally be made through the terminal block for better reliability of testing and maintenance.
- (i) Cartridge type fuses and links shall be provided for isolation of individual circuit from the bus wires without disturbing the other circuits and equipments.
- (j) The DC trip and DC voltage supplies and wiring to main protective gear shall be segregated from these for back up protection and also for protective apparatus for special purposes. Each such group shall be fed through separate fuses, either direct from main supply fuses or the bus wires.
- (k) Since a number of wires will run from one point to another, it is desired that the support arrangement should be adequate and neat. The conventional method of bunching of wire should not be adopted, since the same may create problems in case any wire is to be removed. The wires should be accommodated in plastic channel with sliding plastic cover mounted inside the panel, suitably. Inspection/removal of wires should be possible by sliding the covers.
- (l) Blank plastic channels should be provided by the sides of the panel to accommodate the incoming cables from switchyard through the cable glands.
- (m) The circuit diagram of control circuit along with operating instructions (DOS/DONT) embossed on metallic plate duly laminated shall be provided on rear side of the door.

9. TERMINAL BLOCKS :-

- (a) Multi-way terminal blocks complete with necessary binding screws and washers for wire connections and marking strips for circuit identification shall be provided for terminating the panel wiring and outgoing cables. The terminal block shall be suitable for receiving atleast 2x2.5 sq.mm or 2x1.5 sq.mm. Stranded copper conductor wire per terminal. Only nut/bolt type connectors shall be acceptable.
- (b) Terminal blocks shall have shorting and disconnection facilities. The panel-side and outgoing wires should be dis-connectable just by opening the disconnecting links which slide up/down or left/right without dislodging the wires from their position. However, dis-connectable type terminal connectors may be limited to CT & PT circuits only.
- (c) Instrument transformer wires shall be terminated through suitably mounted test terminal blocks for site testing facility.
- (d) The terminal blocks shall be grouped according to circuit functions and each terminal block group shall have atleast 20% spare terminals. Adjacent rows of terminal block shall be spaced not less than 100 mm apart. These shall be mounted vertically at the sides of the cubicle and set obliquely towards rear doors to give easy access of terminating end to enable ferrule number to be read without difficulty. The bottom of terminal blocks shall be spaced atleast 200 mm the cable gland of incoming multi-core cables.

10. CABLE ENTRY:-

- (a) The control panel shall have provision of cable entry from the bottom. One no. cable glands suitable for 8 core and 2 nos. for 4 core 2.5 sq.mm unarmoured cable duly fitted in gland plate and covered with dummy plate shall be provided by the supplier. All cable glands shall be double compression type. The purchaser will arrange for necessary floor opening, below the panels to suit the supplier's requirement.
- (b) The wiring through terminal blocks shall be such located so that it is convenient for floor opening.
- (c) For fixing cable glands, detachable gland plates of 4 mm thickness shall be mounted at least 200 mm above the floor level.
- (d) The cable gland plate and rear door shall be properly gasketed.
- (e) Rigid supports shall be provided along the terminal block for holding plastic channel. Suitable clamps may also be provided in plastic channel for holding cables.

11. GROUNDING:-

- (a) 25 mm x 6 mm x 250 mm copper ground bus shall be provided inside the panel and effectively grounding all metal structures.
- (b) Each continuous length of ground bus shall have provision of two terminals at two separate points for connection to main ground grid of the sub-station.
- (c) Potential and current transformer neutrals shall be grounded only at the terminal blocks where they enter the control panel from the instrument transformers.
- (d) Wherever a circuit is shown grounded in the drawings, a single wire for the circuit shall run independently to the ground bus and connected to it.

12. DOORS:-

Each panel shall be completed with end enclosing sheets on both sides and door in the front. There shall be one door with handle and also turn twist locks at top and bottom. Proper gasketing shall be provided on the door. A type test report from the recognized Govt. laboratory on degree of protection test IP-55 shall be furnished by the supplier. Only front opening doors shall be acceptable.

13. CONTROL AND RELAY PANELS:-

- 13.1 The control panels required for installation at all the sub-stations shall be of simplex type. The control and indication apparatus, all meter and relays shall be mounted in the front. The instruments and relays shall be flush pattern.
- 13.2 The labeling for the circuits shall be provided at the front control panel, as well as on the inside wall. All indicating instruments, meters and important components shall have identification labels from inside also, in addition to outside. The terminal block shall have identification labels attached to them, clearly indicating type of supply (AC & DC identifications circuits control (metering/ protection) and instruments identification.

For example, the terminal block shall have an identification indicating that CT circuit for metering, for protection etc.

14. PROTECTION SCHEME:-

14.1 The control panels are required for protection of the following equipments:-

- a) 33/11 KV Power Transformers
- b) 11 and 33 KV Overhead sub-transmission lines

The protection schemes are described in the following clauses:-

14.2 Transformer Protection :-

- (a) 11 KV Transformer Control Panel is required for control/ protection on 11 KV side of 33/11 KV Power Transformers. This will be in the form of a relay set having 2 Nos. O/C and 1 no. E/F elements. The current settings of O/C relay elements shall be from 50% to 200% and of E/F element from 10% to 40%. They shall be suitable to work on 30 Volt D.C. supply. The secondary rating of C.T. shall be 5 Amps. The O/C and E/F relays shall have operating time of 1.3 sec. at 10 times of plug setting current. The relay shall be of draw out type with CT shorting facility. Further, the relay shall have self re-set contacts and hand reset flag arrangement.
- (b) 33 KV Transformer Control Panel is required for control/ protection on 33 KV side of 33/11 KV Power Transformers. This will be in the form of a relay set having 3 Nos. O/C elements. The current settings of O/C relay elements shall be from 50 to 200%. They shall be suitable to work on 30 Volt D.C. supply. The secondary rating of C.T. shall be 5 Amps. The relays shall have operating time of 1.3 sec. at 10 times of plug setting current. The relay shall be of draw out type with CT shorting facility. Further, the relay shall have self re-set contacts and hand re-set flag arrangement.

14.3 Protection Schemes for 8/10 MVA 33/11 KV Power Transformers:

33 KV Transformer control circuit in the Panel is required for control/protection of 33 KV side of 33/11 KV **8/10 MVA** Power Transformers. This will be in the form of a relay set having 3 Nos. O/C elements. The current setting of O/C relay elements shall be from 50 to 200% and shall have independent high set element. They shall be suitable to work on 30 Volts D.C supply. The secondary rating of C.T. shall be 5 Amps . The relays shall have operating time of 1.3 sec. at 10 times of plug setting current. The tripping shall be routed through a high speed master trip relay with hand reset facility and flag relay. The numerical relays having programmable characteristics are also acceptable. The relay shall be of draw out type with CT shorting facility. Further, the relay shall have self re set contacts and hand reset flag arrangement. In addition main protection through numerical differential protection relay is to be provided. The numerical Differential relay and its protection scheme shall be complete in all respect including interposing CTs etc., Which shall be required to provide differential protection against all types of fault within the protective zone and also shall have selection for slope and bias. The relay shall also have capability to record and down load event data on lap top/desk top with time stamping on demand through communicating port for analyzing data in future. The bidder shall provide necessary software including communication

leads with each relay without demanding extra cost. The tripping shall be routed through a high speed master trip relay with hand reset facility and flag relay.

A facia annunciating 30 Volt DC relay for transformer protection having separate trip and alarm bus with suitable scheme for tripping of transformer from 33 KV side on operation of protection relay of any trip signal and also to inter trip 11 KV breaker. A suitable alarm scheme for non-trip and trip signal shall be provided to sound alarm with flashing window and with accept and reset switch. A test switch shall also be provided to test healthiness of annunciation relay without tripping any breakers while performing such test. The facia annunciation relay shall have the following trip and non trip windows:

1).	Buchholz Trip	(TRIP)
2)	Differential	(TRIP)
3)	Over Current Trip	(TRIP)
4)	OT High Trip	(TRIP)
5)	WT High Trip	(TRIP)
6)	11 KV Inter Trip	(TRIP)
7)	Buchholz Alarm	(ALARM)
8)	OT High Alarm	(ALARM)
9)	W T High Alarm	(ALARM)
10)	LOLA	(ALARM)

14.4 **NUMERICAL RELAYS:-**

a. The high speed numerical protection relay, shall be in the form of a numerical relay set having required O/C and E/F elements with programmable relay trip characteristics settings. Primary and secondary current reading should be continuously read by the LCD Display on the relay. The high speed DSP based numerical relay should be provided with a minimum 12 bit A/D converter and capable of performing powerful digital algorithmic calculations to calculate the amplitude of current signal and convert the same directly from the A.C. Signal further use the same for combined protection and metering functions. The numerical relay shall be capable of breaking the maximum current which shall not be affected by vibration or by external magnetic fields. The contacts shall be of silver, platinum or other approved materials and shall be capable of repeated operation, without deterioration.

b. Numerical relay contacts, which are connected to complete the tripping circuit of the breaker coil, shall be provided with LED flag indication, that shall be capable of being reset by hand, without opening the relay case. It shall not be possible to operate any relay by hand without opening case.

c. All relays shall be so arranged that on opening the case it shall be impossible for any dust which may have collected in or upon the case to fall on the relay interior.

d. Numerical Over current and earth fault relays has got selection of IDMT characteristic of international IEC standard Very inverse /Extremely Inverse / Long Inverse and Standard inverse (3.0 sec, 1.3sec and 0.6 secs at 10 times current at 1.0 TMS). The unit

also has Time Multiplier Setting (TMS) from x0.01 to x1.0 for IDMT delay multiplication. The relay shall also be provided with high-set current trip settings.

All the settings are password protected to prevent unauthorized change. Unless otherwise approved, the definite minimum time shall be continuously variable from 0.05 seconds and current setting range shall be variable between 50% and 200% for O/C relay and 5% to 80% (in steps of 1 %). Further, these relays shall have self reset contacts with LED flag arrangement. The relay rating shall be 5 Amps. The time scale (or dial) shall be settable range from 0.10 to upward so that calibration could be done accordingly.

Self-supervision feature:

The software shall continuously keep track on its internal hardware and the moment it detect any failure of any component, a message should flash on LED display. This feature is essential to give pre information to avoid any mal-operation. In such situation the relay should revert to its default setting and remain in protection mode.

Measurement Function

In normal condition the LCD display should show all settings. Via keyboard the display can be programmed to show the actual current flowing through the relay for both primary & secondary currents. If current exceeds set value the relay should give trip command after the calculated time delay as per the settings and chosen characteristics. . The type of fault should be displayed on LCD display. *During the fault condition the relay should measure the fault current and store in non-volatile memory. It should be possible to read the fault current via keyboard on LCD display and it should be possible to read the last 5 fault values along with tripping current via keyboard.*

All settings should be saved in electrically erasable read only memory and remain stored.

14.5 Feeder Protection :-

- a) 11 KV Feeder Control Panel is required for control/protection of 11 KV sub-transmission lines. This will be in the form of a relay having 2 Nos. O/C and 1 No. E/F elements. The current settings of O/C relay element shall be from 50% to 200% and of E/F relay element from 10% to 40%. They shall be suitable to work on 30 Volt D.C. supply. The secondary rating of C.T. shall be 5 Amps. The over current and earth fault relay shall have operating time of 0.6 sec. at 10 times of plug setting current. The relay shall be of draw out type with CT shorting facility. Further, the relay shall have self re-set contacts and hand re-set flag arrangement.
- b) 33 KV Feeder Control Panel is required for control/protection of 33 KV sub-transmission lines. This will be in the form of a relay having 2 Nos. O/C and 1 No. E/F elements. The current settings of O/C relay element shall be from 50 to 200% and of E/F relay element from 10 to 40%. They shall be suitable to work on 30 Volt D.C. supply. The secondary rating of C.T. shall be 5 Amps. The over current and earth fault relay shall have operating time of 1.3 sec. at 10 times of plug setting current. The relay shall be of draw out type with CT shorting facility. Further, the relay shall have self re-set contacts and hand re-set flag arrangement.
- c) Only numerical relays of reputed make like JVS, Areva, Ashida, ABB, Easun Reyrolle etc. shall be acceptable

15. CONTROL AND INDICATING CIRCUITS :-

15.1 The 11 KV & 33 KV control and relay panels shall have the following instruments, relays and accessories :-

Sr No.	Particulars	11KV		33KV	
		X'mer	Feeder	X'mer	Feeder
i)	3 pole 5 Amp relay suitable for 30 V DC with self-reset contacts and hand reset flag with following settings :-				
	a) O/C Element (50% to 100%)	2 nos	2 nos.	3 nos.	2 nos.
	b) E/F Element (10% to 40%)	1 no.	1 no.	nil	1 no.
	c) Operating Time (Sec) (Flush pattern, Horizontal)	1.3	0.6	1.3	1.3
ii)	Circuit Breaker Control switch (Pistol grip) T-N-C	1 no.	1 no.	1 no.	1 no.
iii)	Flush pattern Multifunction three phase 4 wire meter of Accuracy Class 1.0 indicating Amp. /Volt/MW/MVAR/ PF etc. with programmable CTR & PTR operating on 30 Volts DC Power Supply of reputed make i.e. Accord/Meco/Rishab/L&T/ equivalent	3 nos.	3 nos.	3 nos.	3 nos.
iv)	Indicating Lamps (LED)				
	a) CB-ON	1 no.	1 no.	1 no	1 no.
	b) CB-OFF	1 no.	1 no.	1 no	1 no.
	c) TCH coil-1	1 no.	1 no.	1 no	1 no.
	d) TCH coil-2	1 no.	1 no.	1 no	1 no.
	e) Auto trip	1 no	1 no	1 no	1 no
	f) Trip ckt healthy	1 no.	1 no.	1 no	1 no.
	f) DC Fail	1 no.	1 no.	1 no	1 no.
	g) Buchholz Alarm	1 no.	nil	1 no	nil
	h) Winding Temp alarm	1 no.	nil	1 no	nil
	i) Oil Temp alarm	1 no.	nil	1 no	nil
	j) Low oil level	1 no.	nil	1 no.	nil
v)	Push buttons				
	a) Alarm accept	1 no.	1 no.	1 no	1 no.
	b) Alarm reset	1 no.	1 no.	1 no	1 no.
	c) Trip Ckt.check coil-1	1 no.	1 no.	1 no	1 no.
	d) Trip Ckt.check coil-2	1 no.	1 no.	1 no	1 no.
vi)	Illumination lamp with protective cage & On/Off Switch.	1 no.	1 no.	1 no	1 no.

vii) 3 pin-5 A power socket with On/Off Switch.	1 no.	1 no.	1 no.	1 no.
viii) a) Alarm Bell (DC)-(electronic type)	1 no.	1 no.	1 no.	1 no.
ix) A three element voltage operated (30V DC) auxiliary relay with 2 pairs of N/O hand reset contacts and flag for transformer protection such as Buchholz relay trip , Winding Temp.trip , OT trip. (Flush pattern , Horizontal)	1 no.	nil	1 no.	nil
x) Master trip relay 30 V DC with hand reset and flag type having minimum 5 No. + 1 NC contacts for transformer panel.	1 no.	nil	1 no.	nil
xi) Double compression Cable gland 1 no. for 8 core & 2 nos. for 4 core , 1 no. for 2 core 2.5 sq.mm. unarmoured cu-control cable	1 set	1 set	1 set	1 set
xii) Foundation bolts	1 set	1 set	1 set	1 set

15.2 A trip healthy lamp shall be provided for each circuit breaker and connected in such a way as to indicate the healthy condition of the trip circuit. The lamp should have the indication on demand when breaker is on. Such indication is also necessary when the breaker is off, but it should be possible to check the trip circuit condition before closing the circuit breaker. In brief, pre and post close trip supervision facility on demand is required and shall be included.

15.3 The automatic tripping of the circuit breaker due to operation of protective relays shall be indicated by a common audible alarm.

15.4 Low oil level indicator should not be reset till the oil level is not maintained.

NOTE: Any other indications which are required for proper protection/ operation of circuit breaker should be provided in control panel, without any extra cost.

16. **RELAYS:-**

16.1 All relays, except where otherwise approved, shall be capable of breaking the maximum current which shall not be affected by vibration or by external magnetic fields. The contacts shall be of silver, platinum or other approved materials and shall be capable of repeated operation, without deterioration.

16.2 All relays /auxiliary relay, which are connected to complete the tripping circuit of the breaker coil, shall be provided with approved flag indication, which whenever possible shall be mechanically operated type. Indicators shall also be provided on such additional relay elements as it will enable identification the type & phase of fault condition to be identified. Each indicator, whether of the electrically or mechanically operated type, shall be capable of being reset by hand, without opening the relay case. Each indicator shall be so designed that it can not move before the relay has completed its operation. It shall not be possible to operate any relay by hand without opening case.

16.3 All relays shall be so arranged that on opening the case it shall be impossible for any dust which may have collected in or upon the case to fall on the relay mechanism.

16.4 Over current and earth fault relays shall have inverse definite minimum time limit characteristics with separately adjustable time and current settings. Unless otherwise approved, the definite minimum time shall be continuously variable from 0.05 seconds and current setting range shall be variable between 50% and 200% (in steps of 25%) for O/C relay and between 10% to 40% (in steps of 5 %) for E/F relays. Further, these relays shall have self reset contacts with hand reset flag arrangement. The relay rating shall be 5 Amps. The time scale(or dial) shall be marked in minimum ranges 0.05 to upward so that calibration could be done accordingly.

17. INSTRUMENTS :-

17.1 All indicating instruments shall conform to relevant IS and shall be of type and sizes specified under subsequent section. They shall be capable of carrying their full load currents continuously without heating. They shall have long clearly divided and indelibly marked scales of engraved or enamelled and the pointers shall be of clean outline. The pointers and scales shall be subject to approval. The marking on the dials shall be restricted to the scale marking. All indicating instruments, shall be provided with non-reflecting glass type fronts. All indicating instruments shall be of class 1.0 accuracy.

17.2 You shall arrange to furnish type test certificate for Ammeter and Voltmeter whenever required,

The following may be carefully noted

- i) The component of alarm scheme shall be strictly in accordance with Tender Specification and shall be explained very clearly.
- ii) The scheme incorporated should ensure that flag resetting of relay is “self-hand operated” type. Thus it should not be necessary to reset the flag, at the time alarm/annunciation is accepted in case of fault. It should be possible to separately reset the flag, after the fault is attended.
- iii) The automatic tripping of the circuit breaker due to operation of protective relay shall be indicated by audible alarm. The offered alarm scheme shall be complete in all respects including one DC bell for trip alarm with a contractor/ auxiliary relay suitable to handle breaking of DC bell current. The contractor/auxiliary relay will get energised through the self reset alarm contacts of protective relay and will remain actuated by its own seal-in contact. A push button shall be provided to accept alarm by breaking the seal in contact.
- iv) Trip ckt. Healthy indication on demand shall be provided with push type.

18. TESTS :-

18.1 Each control panel shall be completely assembled, wired, adjusted and tested at the factory, prior to dispatch.

18.2 The tests shall include wiring continuity tests, insulation tests and functional tests to ensure operation of the control scheme and individual equipment.

18.3 The test procedures shall have prior approval of the purchaser.

18.4 All instruments, meters and relays shall be tested and calibrated in accordance with relevant standards.

18.5 All auxiliary instrument transformer shall be tested in accordance with procedure as laid down in relevant standards.

19. TEST CERTIFICATE :-

Each control & relay panel should be tested by the manufacturer at their works for all routine and acceptance tests and copies of test certificate in duplicate giving results of these tests shall be furnished to the purchaser alongwith letter / offer for inspection .

20. TEST WITNESSING :-

The routine/ acceptance tests results shall be witnessed by purchaser's representative, if so desired by the purchaser, prior to dispatch of the equipment from the works. The supplier shall give atleast Fifteen (15) days advance notice of the date when the tests are to be carried out.

21. TEST CERTIFICATE OF COMPONENTS :-

Test certificate for important components like Ammeter, Voltmeter, Relays, Control Switch shall be produced at the time of inspection and shall be enclosed with the inspection report.

22. PRE-TREATMENT AND PAINTING PROCESS :-

The Control Panel sheet steel shall be subjected to pre-treatment process before painting. The process shall be carried out as under. The procedure can broadly be divided as "Metal treatment" and "painting".

(A) METAL TREATMENT:-

- i) DEGREASING:- This can be achieved either by immersing in hot alkaline degreasing bath or in hot dry chlorothelene solution. In case, degreasing is done by alkaline bath, rinse with cold water thoroughly.
- ii) PICKLING:-This is to remove rust and metal scales by immersing in diluted sulphuric acid (approximately 20%) at nearly 80 degree centigrade until scale and rust are totally removed.
- iii) Rinse in cold water in two tanks to remove traces of acids. iv) Treat with phosphoric acid base neutraliser, for removal of chlorine from the above acid pickling and again wash with running water.
- v) PHOSPHATING:- Immerse in zinc-nodine Zinc phosphate solution for about 20 minutes at 80 to 90 degree centigrade. The uniform phosphate coating of 4 to 5 gms per sq. metre shall be achieved.
- vi) SWILL IN COLD WATER :-
- vii) Rinse in deorylyte to bath at 70 to 80 degree centigrade to neutralise any traces of salts.
- viii) Seal the above phosphate coating with hot dilute chromate solution.
- ix) Dry with compressed air.

(B) PAINING:-

- i) Spray one coat wet on wet specially developed, "High Lusture" Zinc chromater primer and stove at 150 to 160 degree centigrade for 25 to 30 minutes. Alternatively, Red-Oxide primer with chromate content may be used. However, former process is preferred.
- ii) Rubbing and putting:- Apply putty to fill up the scar, if any, to present smooth surface and stove 15 to 20 minutes. Apply putty several times to get the perfectly smooth finish.
- iii) Surfacing:- Sand down with mechanical abrasive and stove for 20 minutes.
- iv) Primer:- Spray second coat of primer as per (i) above or grey primer surface wet on wet and stove for 30 to 40 minutes at 150 degree centigrade.
- v) Finish Paint:- Rub down dry and spray first coat of synthetic enamel finish paint wet on wet and stove for 30 minutes.
- vi) Surfacing:- Sand down or rub dry to prepare for final finish. Spray 2 coats of synthetic enamel finish paint wet on wet and stove it at 150 degree centigrade for 30 minutes.

NOTE:-

- i) Necessary stiffness may be welded between large cut outs to provide rigidity before painting process.
- ii) Painting process shall be done within 24 Hrs. of completion of metal treatment.
- iii) Small coating shall be supplied along with equipment for touching up at site.

(Sanjeev P. Puranik)
CHIEF GENERAL MANAGER (PUR),
O/O CMD, MPMKVV CO.LTD. BHOPAL

SCHEDULE-III(A)
GUARANTEED TECHNICAL PARTICULARS FOR 11KV & 33 KV VCB

S No	Particulars	11 KV	33 KV
1	Name of manufacturer & Place of manufacture		
2	Manufacturer's type Designation of VCB		
3	Rated Nominal voltage (KV)		
4	Rated Highest Voltage (KV)		
5	Rated Normal Current (Amps)		
6	Rated frequency (HZ)		
7	Rated short circuit breaking current (KA)		
8	Rated short circuit making current (KAp)		
9	Rated PF withstand voltage (KV)		
10	Rated LI withstand voltage (KVp)		
11	Rated Short Time Current for 3 sec. (KA)		
12	Rated operating sequence		
13	a) Rated Aux. supply for spring charging motor		
	b) Spring charging motor rating/make		
	c) Spring charging motor time (ms)		
	d) Detail of overload protection provided for spring charging motor		
14	Rated supply of tripping/ closing coils		
15	Power required for tripping/ closing coils		
16	No. of poles		
17	No. of breaks/pole		
18	Class (outdoor)		
19	Applicable standards		
20	Type of Operating mechanism		
21	Vacuum Interrupter details		
	(a) Make		
	(b) Model No./type, designation		
	(c) Voltage/Current rating		
	(d) STC rating & Duration		
	(e) Type of contacts		
	(f) Material of contacts		
	(g) Contact pressure at no load		
	(h) Electrical life		
	(i) At rated normal current		
(ii) At rated short circuit current			
(i) Mechanical life			
22	Maximum temp. rise over ambient temp.		
23	Breaking capacity (KA)		

	a. Symmetrical		
	b. Symmetrical at rated service voltage		
	c. Asymmetrical		
24	Total break time in milli second		
	a. At 10% rated interrupting capacity		
	b. At rated interrupting capacity		
25	Arcing time in milli-sec		
	a. At 10% breaking capacity		
	b. At 100% breaking capacity		
26	Minimum closing time from the instant of trip coil energisation (ms)		
27	Rated transient recovery voltage		
28	a) Data on re-striking voltage		
	i. Amplitude factor 100% & 50% of rated capacity		
	ii. Natural frequency		
	iii. Phase factor		
	iv. R.R.V. Volts/micro second		
29	Minimum clearance in air (mm)		
	i. Between phase & Earth		
	ii. Between phases		
	iii. Live parts to ground level		
30	Make, Type of support insulators, creepage distance		
31	Make, Type of insulator containing VI creepage distance		
32	Total length of break per phase		
33	Total break time (milli-sec)		
34	Opening time (milli-sec)		
35	Closing time (milli-sec)		
36	Opening speed (Meter/Sec)		
37	Closing speed (Meter/Sec)		
38	DC component of rated short circuit breaking current		
39	First pole to clear factor		
40	Number of auxiliary contact provided & type		
	i. Normally open		
	ii. Normally closed		
	iii. Those adjustable with respect to the position of main contacts		
41	Accessories to be supplied with each breaker		
42	(a) Rated cable charging breaking current		
	(b) Rated back to back on capacitor bank breaking current		

	(c) Rated capacitor bank inrush making current	
43	Rated single capacitor breaking current	
44	Maximum over voltage on switching transformer on No-load and the charging current	
45	Total weight of one complete Breaker	
46	Overall dimension of VCB (mm) including structure	
47	Dimension, weight of mounting structure	
48	Procedure followed to ensure achievement of parameters Simultaneity of contact, Contact travel, Contact speed	
49	Please indicate measures provided to trap moisture, if any, inside the hollow porcelain containing the vacuum interrupter	
50	Measures provided to indicate for loss of vacuum	
51	Measures provided to indicate for wear/tear of contacts	

PANEL HAVING GEAR MECHANISM & CONTROL CIRCUIT

1	Sheet thickness of breaker panel	
2	Size of control wiring	
3	GI Mounting Structure (Breaker & CT)	
4	Colour code for control wiring	
5	Type of Operating Mechanism	
6	Rating of Diode protection (in case of D.C. Spring charging motor)	
7	Make & Rating of Heater & thermostat	
8	Color shade of VCB control panel	
9	Make & Rating of Anti-pumping relay	
10	Make & Type Operation counter	
11	Spring charged indicator	
12	Mechanical ON/OFF Indicator	
13	Facility for manual charging of breaker	
14	Auxiliary contact 8 NO + 8NC	
15	Cubical illumination lamp with protective cage & on/off switch	
16	Make & Rating of MCB for AC/DC circuits	
17	Make & Rating of C.B. Control switch having Trip/Normal/Close Position	
18	Make & Rating of Local/Remote selector switch	
19	3 Pin 5 Amps Socket with on/off switch	
20	Nos. & Size of foundation Bolts	

21	Material supplied in loose with each VCB	
22	Provision of double trip coil	
23	Provision of 2 nos., 4 core and 1 no. 8 core cable glands suitable for 2.5 sq.mm. unarmoured copper control cable	
24	Provision of circuit diagram with operating instructions (DO'S & DON'T) embossed on metallic plate duly laminated to be fixed on inside wall of rear door of control cubicle.	

SIGNATURE OF TENDERER

NAME:

DESIGNATION:

SCHEDULE III(B)**GUARANTEED TECHNICAL PARTICULARS FOR 11 KV & 33 KV
INDOOR CONTROL PANELS**

Sr. No.	Particulars	Provision made for 11 KV & 33 KV Indoor Control Panels
1	Dimension HxDxW (1475 X 300 X 600 mm)	
2	Thickness of steel sheet in mm (minimum 2mm)	
3	Arrangement of rear door(Provision of turn twist locks at top & bottom with handle)	
4	Interior illumination(AC Bulb or fluorescent tube with protective cage & On/Off switch)	
5	Provision of detachable Gland Plate(4mm thick at 200 mm above base of the panel)	
6	Make, Type & Rating of Terminal Connector for CT/PT circuits (dis-connectable type)	
7	Make, Type & rating of Terminal Connectors for control circuits (Non-disconnecting type)	
8	Provision of Spare terminal connectors (20% extra)	
9	Size of conductor used for Wiring of CT/PT circuits & control circuits (2.5 sq.mm stranded copper for CT/PT circuits & 1.5 sq.mm for other circuits)	
10	Wiring colour codes for R,Y,B Phase & Black Neutral (AC) Red- Positive, black-Negative(DC) Green-Earthing , Grey- control circuit	
11	Instruments identification (labels to be provided)	
12	CT/PT/AC/DC/ Circuit Identification(labels to be provided)	
13	Final outside finish (Opaline green colour)	
14	Inside finish(Egg shell white)	
15	Flush pattern Multifunction three phase 4 wire meter of Accuracy Class 1.0 indicating Amp. /Volt/MW/MVAR/ PF etc. with programmable CTR & PTR operating on 30 Volts DC Power Supply of reputed make i.e. Accord/ Meco / Rishab / L&T / Riken or equivalent	
16	Type & thickness of gaskets provided in the rear door & cable gland plate	
17	Make, Type & Rating of Breaker controls switch	

Sr. No.	Particulars	Provision made for 11 KV & 33 KV Indoor Control Panels
18	IDMT O/C and E/F Relays:-	
	A-Feeder Control (E/M):-	
	i) Make	
	ii) Model no.	
	iii) O/C Setting	
	iv) E/F Setting	
	v) No. of selectable characteristic	
	vi) Configuration (Horizontal)	
	vii) Total nos. of NO and NC Contacts(Hand or self reset)	
	viii) Hand or Self Reset Flag	
	B-Transformer Control (E/M):-	
	i) Make	
	ii) Model no.	
	iii) O/C Setting	
	iv) E/F Setting	
	v) No. of selectable characteristic	
	vi) Configuration (Horizontal)	
	vii) Total nos. of NO and NC Contacts(Hand or self reset)	
	viii) Hand or Self Reset Flag	
	vii) Total nos. of NO and NC Contacts(Hand or self reset)	
	viii) Hand or Self Reset Flag	
	19 Auxiliary Relay(For X'mer Panel):-	
	i) Make	
	ii) Model no.	
	iii) Configuration (Horizontal)	
	iv) Total nos. of NO and NC Contacts(Hand or self reset)	
	vi) Hand or Self Reset Flag	
	vi) Aux.Voltage (30 VDC)	
	20 Make, Type & Rating of indicating lamps & Total nos. of lamps	
	21 Make, Type & Rating of Push Buttons & Total nos. of PBs.	
	22 Make, Rating of HRC Fuses & Total nos. of fuses (Rating wise)	
	23 Provision of copper Earthing Bus (25mm x 6 mm x 250 mm)size	
	24 Provision of Alarm cancellation relay (Give Make, Type, Rating)	
	25 Type of wire termination to terminal blocks & instruments (Crimp tag/lugs termination)	

Sr. No.	Particulars	Provision made for 11 KV & 33 KV Indoor Control Panels
26	Provision of Plastic Channels with sliding covers for wiring	
27	Provision of Spare Plastic channels with sliding cover	
28	Ferruling of wires at both ends	
29	Provision of 3-Pin 5 A Socket with On/off switch	
30	Provision of lifting Eye-Bolts & their size	
31	Provision of circuit diagram on rear side of back door of the panel (Embossed on metallic plate duly laminated)	
32	Provision of Pocket with adequate space with transparent cover on top of panel, provision for identification name plate of feeder / transformer panel on front top.	
33	Provision of engraved rating	

SIGNATURE OF TENDERER

NAME:

DESIGNATION:

SCHEDULE – IV**PRICE VARIATION FORMULA FOR SWITCHGEAR AND CONTROLGEAR**

The price quoted/confirmed is based on the cost of raw materials/ components and labour cost as on the date of quotation and the same is deemed to be related to prices of raw materials/ components and all India average consumer price index number for industrial workers as specified in the price variation clause given below. In case of any variation in these prices and Index number, the price payable shall be subject to adjustment up or down in accordance with the following formula :-

$$P = \frac{P_o}{100} \left\{ 25 + 17 \frac{IS}{IS_o} + 18 \frac{C}{C_o} + 10 \frac{Al}{Al_o} + 13 \frac{In}{In_o} + 17 \frac{W}{W_o} \right\}$$

Wherein,

P = Price payable as adjusted in accordance with above formula.

P_o = Price quoted/ confirmed

IS_o = Wholesale price index of 'Iron and Steel' (Base: 1993- 94=100) (refer note)

This index is as applicable on the first week ending Saturday of the month, three months prior to the date of tendering.

C_o = Price of electrolytic copper wire bars (refer notes).

This price is as applicable on the first working day of the month, one month prior to the date of tendering.

Al_o = Price of busbar grade aluminium (refer notes).

This price is as applicable on the first working day of the month, one month prior to the date of tendering.

In_o = Price of phenolic moulding powder for switchgear and control gear of medium/ lower voltage (upto 650 volts) or price of epoxy resin for HT switchgear (above 650 volts) (refer notes).

This price is as applicable on the first working day of the month, one month prior to the date of tendering.

W_o = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base 2001=100).

This index is as applicable for the month, four months prior to the date of tendering.

For example, if the date of tendering falls in May 2007, the applicable prices of electrolytic copper wire bars (C), busbar grade aluminium (Al) and insulating material (In) should be for the month of April 2007 and wholesale price index of "Iron and Steel" (IS) should be for the first week ending Saturday of February 2007 and all India average consumer price index number (W) should be for the month of January 2007.

The above prices and indices are as published by IEEMA vide circular reference number IEEMA(PVC)SWGR/ prevailing as on first working day of the month i.e. one month prior to the date of tendering.

IS = Wholesale price index of 'Iron and Steel' (base 1993- 94=100) (refer notes).

This index is as applicable on the first week ending Saturday of the month, four months prior to the date of delivery.

C = Price of electrolytic copper wire bars (refer notes)

This price is as applicable on the first working day of the month, two months prior to the date of delivery.

Al = Price of busbar grade aluminium (refer notes).

This price is as applicable on the first working day of the month, two months prior to the date of delivery.

In = Price of phenolic moulding powder for switchgear and of medium/lower voltage (upto 650 volts) or price of epoxy resin for HT switchgear (above 650 volts) (refer notes).

This price is as applicable on the first working day of the month, two months prior to the date of delivery.

W = All India average consumer price index number for industrial workers, as published by the Labour Bureau, Ministry of Labour, Govt. of India (Base 2001=100).

This index is as applicable for the month, five months prior to the date of delivery.

For example, if the date of delivery in terms of clause given below falls in December 2007 the applicable price of raw materials viz: C, Al and In should be for the month of October 2007 wholesale price index of 'Iron & Steel' (IS) should be for the first week ending Saturday of August 2007 and all India average consumer price index number (W) should be for the month of July 2007.

The "date of delivery" is the date on which the switchgear equipment is notified as being ready for inspection/dispatch.(In the absence of such notification the date of manufacturer's dispatch note is to be considered as the date of delivery) or the contracted delivery date (including any agreed extension thereto), whichever is earlier.

Notes: (a) All prices of raw materials are exclusive of modvatable excise/CV duty amount and exclusive of any other central, state or local taxes, octroi etc.

(b) All prices are as on first working day of the month.

(c) The details of prices are as under :-

- 1) The wholesale price index number for 'Iron & Steel' is as published by the office of Economic Advisor, Ministry of Industry, Govt. of India, New Delhi with base 1993-94=100. This wholesale price index is being published weekly on provisional basis. However, the same gets finalised after eight weeks and is normally available after two months. Therefore, we are considering in our calculations this final index published by Economic Advisor for the first Saturday of the months, two months

prior to the date of which the prices of other raw materials such as C, Al and In are published for the corresponding month.

- 2) The price for electrolytic copper wire bars (in Rs/MT) is ex-godown price as quoted by the primary producer of copper.
- 3) The price of bus bar grade aluminium (in Rs/MT) is the average of ex-works price as quoted by the two primary producers for the bus bar size 152.4 x 6.35 mm flat approximately of grade equivalent to E91E as per IS:5082-1981(or the latest).
- 4) The price of insulating material (in Rs/Kg).is the average price of phenolic molding powder quoted by three manufacturers(for switchgear and controlgear of medium/ lower voltage upto 650 volts) or is the price of epoxy quoted by a resin manufacturer for their grade CT 5900 or its nearest equivalent (for HT switchgear above 650 volts).

(Sanjeev P. Puranik)

**CHIEF GENERAL MANAGER (PUR),
O/O CMD, MPMKVV CO.LTD. BHOPAL**

SCHEDULE-V

(To be kept in the envelope Part-II, Commercial/Technical Bid)

TYPE TESTS ON THE EQUIPMENTS

S.No	Date of test	Place and Institution where tested	Test Certificate no. & date	Remark
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DATE:
PLACE:

SIGNATURE OF TENDERER
WITH SEAL OF FIRM
NAME:
DESIGNATION:

SCHEDULE- VI
SCHEDULE OF QUESTIONNAIRE
PART “A”: GENERAL INFORMATION

(TO BE KEPT IN THE ENVELOPE PART-II, (COMMERCIAL/TECHICAL BID))”

(i) Strike off, whichever is not applicable.

(ii) Separate sheets should be used, wherever necessary.

1.	Name & Address of the Bidder	
2.	Name & Address of the firm/ Company etc	
	(a) Registered office	
	(b) Factory/ works address	
	(c) Telegraphic address	
	(d) Telephone Nos.	
	(e) Fax Nos.	
3.	Confirm whether bidder is a Manufacturer	Yes/ No.
4.	Only Manufacturer to give following particulars	
	(a) Address of factory	
	(b) Year of starting manufacture	
	(c) Whether same/similar materials Manufactured/printed earlier, (if yes, give reference	
	(d) Yearly/monthly production Capacity	
	(e) Maximum yearly production achieved so far	
5.	Whether the firm is an MP SSI Unit	Yes/ No
	(a) If yes, write registration No.	
	(b) Whether documentary evidence regarding registration enclosed	
	(c) Items of registration	
	(d) Period of Registration	
	(e) Furnish latest copy of competency certificate	Yes/ No
6.	(a) Whether the bidder is old participant with MPSEB/Discom	Yes/ No
	(b) If yes, whether document evidence enclosed.	
7.	Any other information that bidder If yes, whether document evidence enclosed.	If yes, give details may like to give in order to highlight his bid

PLACE:

DATE

SIGNATURE OF TENDERER

NAME IN FULL

DESIGNATION/ STATUS IN THE FIRM

COMPANY SEAL

SCHEDULE-VI
PART “B”: COMMERCIAL INFORMATION
(TO BE KEPT IN THE ENVELOPE PART-II (COMMERCIAL/TECHNICAL BID))”

(i) Strike off, whichever is not applicable.

(ii) Separate sheets should be used, wherever necessary.

1.	i	Earnest Money details	Bank draft/ Bankers cheque/ Cash with Sr. AO (HOAU), MPMKVV Co. Ltd., Bhopal
	ii	(a) Amount of EMD	Rs.
		(b) Particulars/details	
	iii	If exempted, state whether the bidder is	SSI Unit of M.P./ Small Scale unit registered with NSIC/ Fully owned State/ Central Govt. Unit.
iv	Whether reference of documentary evidence regarding exemption enclosed.	Yes/ No	
2.		Whether the offer is valid for 180 days from the date of opening of commercial / technical bid	Yes/ No (If no, state validity period).
3.		State whether the quoted prices are Firm/Variable	
4.		Mode of despatch	By Rail/By Road
5.		DISCOUNT:-	
	i	Whether any rebate/ discount is offered	Yes/No
	ii	If yes, whether the rebate is unconditional /conditional	
	iii	Rate/ amount of rebate/ discount	
	iv	If conditional state condition	
6.		PAYMENT TERMS	
		Whether Discom's terms of payment is acceptable to the tenderer (If no state conditions)	Yes/ No
7.		DELIVERY PERIOD	
	a	Commencement of supplies from the date of order/approval of drawing.	
	b	Completion and supply rate from of the date of LOI/order/approval of drawing.	
8.		PENALTY CLAUSE	
		Whether agreeable to Discom's penalty clause	
9.		GUARANTEE PERIOD	
		Indicate guarantee period of material offered by you.	

10.		SECURITY DEPOSIT	
	a	Whether agreeable to furnish Board/Company's Security deposit @10% of value of order for satisfactory execution of the order and to cover guarantee period.	Yes/No
	b	If not, indicate deviation, specifically	
11.		Indicate State, Central Sales Tax Registration Number (Please note that in case of non-registration with Sales Tax Department Purchase	State
		Tax as admissible shall be deducted by the Purchaser from the bills of the supplier.	Central
12.		EXTENSION ORDER	Yes/ No
		Whether you are agreeable to accept extension order for 50% of original order quantity on the same rates, terms & condition, if any extension order is placed within 6 months from the date of placement of detailed order.	
13.		Whether rates offered are applicable for part quantities also.	Yes/ No
14.		Have you noted that you have quoted prices in the desired format	
		Please furnish photocopy of the clearance from the Sales Tax Deptt. and profit and loss Account and Turn over for last 3 years up to the last financial year have been enclosed.	

PLACE:

DATE

SIGNATURE OF TENDERER

NAME IN FULL

DESIGNATION/ STATUS IN THE FIRM

COMPANY SEAL

SCHEDULE- VI
PART “C”: TECHNICAL INFORMATION
(TO BE KEPT IN THE ENVELOPE PART-II,
(COMMERCIAL/TECHICAL BID)”

(i) Strike off, whichever is not applicable.

(ii) Separate sheets should be used, wherever necessary.

1.	i	Whether material offered is exactly as per the technical specification.	
	ii	If not, give details of technical deviation (Information may be given in deviation schedule given with documents for this purpose.	
2		Whether the list of orders received during last 3 years from other State Electricity Board/NTPC & from other organization for similar materials is furnished.	
3.		Whether the tender has furnished details of manufacturing equipments and short history of plant.	
4.		Whether pamphlets/technical details literature along with drawing etc. furnished with the offer	
5.		Whether the tender agrees to furnish material test certificates in respect of chemical composition and physical properties, wherever required, from Govt./Govt. approved Lab. With each bath of supplies.	
6.		Whether details of manufacturing process furnished with offer.	
7.	i.	Whether all testing facilities are available. If so, give details and in case of non-availability of facilities indicate approved lab. available in surrounding areas where tests are proposed to be conducted.	
	ii	Whether you agree for inspection by Board/Discom's representative prior to despatch and bear the testing charges for all tests as per relevant standard.	Yes/No
8.		Please furnish/indicate the quality assurance programme/plan of your product being followed in your works.	
PLACE:		SIGNATURE OF TENDERER	
		NAME IN FULL	
DATE		DESIGNATION/ STATUS IN THE FIRM	
		COMPANY SEAL	

UNDERTAKING

I _____ Sole proprietor/partner of M/s _____
_____ is giving undertaking that detail given are correct to
the best of my knowledge and I agree to abide by all your tender/order terms and
conditions.

PLACE:

DATE:

*SIGNATURE OF TENDERER
WITH SEAL OF FIRM
NAME IN FULL
DESIGNATION/STATUS*

SCHEDULE-VII
PART "A"
SCHEDULE OF PAST EXPERIENCE

Bidder's Name & Address:

To,

The Chief Engineer (Pur),
O/o CMD, MPMKVV Co. Ltd.,
Nishtha Parisar, Bijlinagar,
Govindpura,
BHOPAL-462023

Dear Sir,

Sub: - **Performance/ past experience.**

We furnish herewith the record of our performance and experience of quoted items as follows:-

Sl. No.	Purchaser's Name and Address	Order Number and Date	Ordered Quantity	Quantity supplied	Value of Order
1	2	3	4	5	6

PLACE:

SIGNATURE OF TENDERER

NAME IN FULL

DATE

DESIGNATION/ STATUS IN THE FIRM

COMPANY SEAL

Note: - Photocopy of the orders & performance reports received from other State Electricity Boards/ Govt. undertakings etc. should be enclosed.

SCHEDULE-VII
PART "B"
SCHEDULE OF COMMERCIAL DEVIATIONS

Bidder's Name & Address:

To,

The Chief Engineer (Pur),
O/o CMD, MPMKVV Co. Ltd.,
Nishtha Parisar, Bijlinagar,
Govindpura,
BHOPAL-462023

Dear Sir,

Sub: - **Commercial Deviations.**

The commercial Deviations & variations to the specifications stipulated in the tender, for the item quoted are, as under:-

Sl. No.	Condition	Clause No. of tender document	Page No. of Tender document	Statement of deviations and variations
1	2	3	4	5

2. Except aforesaid deviations, the entire order, if placed, on us shall be executed in accordance with your specifications and any other conditions, variations/deviations etc. if found, elsewhere in our offer should not be given any considerations while finalizing the tender.

PLACE:

SIGNATURE OF TENDERER

NAME IN FULL

DATE

DESIGNATION/ STATUS IN THE FIRM

COMPANY SEAL

Note: - Continuation sheet of like size & format may be used as per bidder's requirements and shall be annexed to this schedule.

SCHEDULE-VII
PART "C"
SCHEDULE OF TECHNICAL DEVIATIONS

Bidder's Name & Address:

To,

The Chief Engineer (Pur),
O/o CMD, MPMKVV Co. Ltd.,
Nishtha Parisar, Bijlinagar,
Govindpura,
BHOPAL-462023

Dear Sir,

Sub: - **Technical Deviations.**

The Technical Deviations & variations to the specifications stipulated in the tender, for the item quoted are, as under:-

Sl. No.	Condition	Clause No. of tender document	Page No. of Tender document	Statement of deviations and variations
1	2	3	4	5

2. Except aforesaid deviations, the entire order, if placed, on us shall be executed in accordance with your specifications and any other conditions, variations/deviations etc. if found, elsewhere in our offer should not be given any considerations while finalizing the tender.

PLACE:

SIGNATURE OF TENDERER

NAME IN FULL

DATE

DESIGNATION/ STATUS IN THE FIRM

COMPANY SEAL

Note: - Continuation sheet of like size & format may be used as per bidder's requirements and shall be annexed to this.

SCHEDULE-VIII

(To be kept in the envelope Part-II, Commercial/Technical Bid)

SOURCE OF PROCUREMENT OF MATERIALS

S.No.	Source of procurement of raw material	Place of manufacture	Place of testing & inspection
-------	---------------------------------------	----------------------	-------------------------------

DATE:
PLACE:

SIGNATURE OF TENDERER
WITH SEAL OF FIRM
NAME:
DESIGNATION: