CHHATTISGARH STATE POWER TRANSMISSION CO. LTD.

(A Govt. of Chhattisgarh undertaking) (A successor company of CSEB)

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OFFICE OF EXECUTIVE DIRECTOR (STORE & PURCHASE)
CHHATTISGARH STATE POWER TRANSMISSION CO. LTD.
Third Floor, SLDC Building, Dangania, Raipur (C.G.)-492013

Phone: 0771- 2574240, 4236 Fax: 0771- 2574246
Website-www.cspc.co.in, email- nk.bisen@cspc.co.in

TENDER SPECIFICATIONS
TR-21/S&P/17
Procurement of 245 KV Circuit Breaker
(Through E- Bidding)
RFX No.- 8100023309

LAST DATE HRS. & TIME OF SUBMISSION OF TENDER
28.10.2021 (TIME 15:00 HRS.)

DUE DATE OF OPENING OF TENDER
28.10.2021 (TIME 15:30 HRS.)

Cost of Tender:-i) Rs.1120 (Incl 12% GST) (if purchased from O/o CE(S&P)
ii) Rs.1180 (Incl 18% GST) (if dowloaded from website)

INDEX

TENDER FORM

CHHATTISGARH STATE POWER TRANSMISSION CO. LTD

Tender document SL.No…..

ISSUED to M/s ----------

Cost of Tender documents Rs…….

Received vide D.D.No……..Dtd……..

Name of Bank ----------

Signature & Seal of Issuing Authority

CHHATTISGARH STATE POWER TRANSMISSION CO LTD

RAIPUR C.G. (INDIA)

TENDER FORM

The undersigned hereby tender and offer (subject to CSPTCL's conditions of tendering), the Chhattisgarh State Power Transmission Co. Ltd. to test and supply, plant, machinery, materials, deliver and execute and do the several works and things which are described or referred to in the enclosures & Annexures to the specification **TR-21/S&P/17** copies of which are annexed hereto and which under the terms thereof are to be supplied, executed and done by the contractor in a thoroughly good and workman like manner, and to perform and observe the provisions and agreements or the part of the contract contained in or reasonably to the inferred from the said tender documents for the sum and at the rates set out in schedules annexed hereto.

It is confirmed that:

(i) Questionnaire for Commercial terms and conditions.

(ii) Questionnaire for Technical specifications of the Equipments, and

(iii) All other conditions wherever described in the tender documents have been replied in full giving clear details. It has been noted that in case any reply is not given or any reply is incomplete / ambiguous the CSPTCL will have right to take the same to be advantageous for the CSPTCL. CSPTCL's decision in this regard will be final. The bidder will have no right to furnish any technical or commercial clarification after opening of the bid which may in any way alter the offered prices.

Dated, this …… day of ……. **Bidder's Signature**

Bidder's Address

To be published in power company's website

CHHATTISGARH STATE POWER TRANS. CO. LTD.

(A Govt. of Chhattisgarh undertaking) (A successor company of CSEB)
CIN- U40108CT2003SGCO15820 / GSTIN-22AADCC5773E1ZX
O/o Executive Director (Store & Purchase)
3rd Floor, SLDC Building, Danganiya, Raipur(C.G.)-492013
Website- www.cspc.co.in Phone-0771-2574240/36/4002
email- Nk.bisen@cspc.co.in Fax–0771-2574236

No.02-16/SE(S&P)/TR-21/05/17/23/24/ 1211 Raipur, Dtd. 04.10.2021

E-PROCUREMENT TENDER NOTICE

Sealed tenders are invited from experienced manufacturers for supply of following equipments/ materials.

Sl No.	Tender No.	Particulars	Qty (No.)	Cost of tender doc. (Rs.) including GST (Rs.)		EMD (Rs.)	Due date and time for submission of Tender
				Printed Tender Form	E-Tender Form Online (downloaded from website)		
1	TR-21/S&P/23 RFx No-8100023313	70 KN Disc Insulator	15000	1120/	1180/-	1,83,000/-	**27.10.2021 (15.00 Hrs.)**
		90 KN Disc Insulator	17500				
		160 KN Disc Insulator	3400				
2	TR-21/S&P/24 RFx No-8100023312	Long Rod Polymer Insulators of 70 KN for 132 KV	2805	1120/	1180/-	1,50,000/-	**28.10.2021 (15.00 Hrs.)**
		Long Rod Polymer Insulators of 90 KN for 132 KV	4045				
		Long Rod Polymer Insulators of 70 KN for 220 KV	385				
		Long Rod Polymer Insulators of 160 KN for 220 KV	440				
3	TR-21/S&P/05 RFx No-8100023308	66KV SF6 Circuit Breaker	32	1120/-	1180/-	1,26,000/-	**27.10.2021 (15.00 Hrs.)**
4	TR-21/S&P/17 RFx No. 8100023309	220 KV Circuit Breaker	11	1120/	1180/-	1,74,000/-	**28.10.2021 (15.00 Hrs.)**

NOTE:-

i) In case any of the above dates is declared as holiday then the particular date will automatically get shifted to next working day.

ii) The quantities mentioned above are tentative & may vary according to final requirement.

iii) Any notice for extension of due date of tender opening shall not be published in newspapers. It will be displayed only on official website of the company.

iv) The tender will be processed through e-bidding module of SAP-SRM. Bidders are advised to visit our website www.cspc.co.in/csptcl for viewing detailed instructions regarding submission of offer through SAP-SRM.

v) The NIT shall also be published in www.tarang.website

// TERMS AND CONDITIONS //

(i) The tender documents can be obtained from the office of the ED (S&P) in person on payment of cost of tender documents in the form of DD only made out in the name of Manager (RAO: HQ), CSPTCL, Raipur accompanied with firm's application on its letter head. If tender document is required by post, Rs.250/- is to be paid by DD additionally along with the cost of documents. If more than one tender document is required, separate DDs should be furnished for each tender. CSPTCL shall not be responsible for any postal delay in receipt/ non-receipt of tender documents. No receipt of tender shall be issued in any case.

(ii) The tender document can also be downloaded from official website of CSPTCL 'www.cspc.co.in (go through Chhattisgarh State Power Transmission Co. Ltd.- Tender Notice/ Store & Purchase Offices) and required tender fee in form of DD in favour of Manager (RAO:HQ), CSPTCL, Raipur payable at Raipur should be submitted along with EMD in envelope containing DD of EMD. The envelope containing DDs of cost of tender document and EMD should be suitably super scribed "DDs containing cost of tender document and EMD". The details of DDs be mentioned on the outer side of the envelope also. Please note carefully in absence of aforesaid requisite tender fee, further bids shall not be considered for opening.

(iii) Tender document and the details specification can be obtained on any working day one day prior to the due date. The tenders duly filled in shall be dropped/ get dropped in the specified tender box up to 15.00 Hrs on the due date. Any other means of delivery shall not be accepted. No receipt of tender shall be issued in any case. The tender box shall be locked/ sealed at 15.00 Hrs on the due date and shall be opened at 15.30 Hrs on the same date.

(iv) After publication of NIT & before the date of opening of TC bid, corrigendum/ other information (if any) shall be displayed on our official web only. The bidders are requested to remain in contact with this office or visit our web-site for any development/ clarification/ amendment issued subsequently.

(v) CSPTCL reserves the right to accept or reject any or all the offers, in part or full without assigning any reason whatsoever.

Website www.cspc.co.in
(Go through CSPTCL-Tender notice)

Executive Director (S&P)
CSPTrans.CL : Raipur

Special Instructions to bidders for submission of bid through SAP- SRM module

(E-bidding)

The tender specification no. **TR-21/S&P/17** is to be processed through e-bidding. The bid is to be submitted online as well as offline (hard copy). Details of NIT & Tender Documents are available on our website–**http://www.cspc.co.in & http:// ebidding.cspcl.co.in:50724/ irj/portal.** The bidder may download the same from the above site. In e-bidding portal, tender documents will be displayed in online tender display at Technical RFx section.

Last date & time of submission of bid in hard copy and also in softcopy is 28.10.2021 upto 3.00 pm and due date & time of opening of part –I and part-II of the tender is 28.10.2021 -at 3.30 pm.

Important Instructions:-

1. Please note that this tender shall be processed online as well as offline. The bidder has to all the documents in hard copy as per tender specifications in four envelopes. Besides above, scanned copy of following documents are to be uploaded in e-bidding portal:-

(a) The scanned copy of DD for tender fee.
(b) The scanned copy of DD for EMD/ EMD exemption.
(c) Schedule VI commercial information.
(d) Schedule VII (A) Schedule for commercial deviation.
(e) Schedule VII (B) Schedule for Technical deviation.

It may please be noted that only above mentioned documents are to be uploaded in e-bidding portal and no other document is required to be submitted in e-bidding portal. The bidder shall give reply to following questions regarding above documents in e-bidding portal:-

(i) Whether scanned copy of tender fee DD uploaded. Yes/No

(ii) Whether scanned copy of DD of EMD /EMD Exemption uploaded. Yes/No

(iii) Whether scanned copy of Schedules of Commercial information Yes/No

(iv) Whether scanned copy of Schedules of Commercial deviation Yes/No

(v) Whether scanned copy of Schedules of Technical deviation Yes/No

2. **It is not required to upload /attach scanned copy of price bid in Soft/ Hard copy. Only the rates are to be filled in the item tab in e-bid in SAP SRM System (online e-tender). Rates should be quoted online & in specified fields only.** Once the rates are filled, the bidders may change their rates up to the due date and time of submission of tender. After due date and time, no change on any ground whatsoever will be accepted

3. After scrutiny of techno-commercial bid, the price bid will be opened in e-bidding system only of eligible bidders for which suitable intimation will be given to the bidders offline & through email.

4. Please note that e-mail is always system generated, hence bidders are advised to regularly check their inbox/junk mail box.

5. CSPTCL shall not assume any responsibility for non-supporting of system, internet, line & associated hardware & software for bidding their tender. No extension in time shall be granted on such grounds. The bidder should submit their bid well before submission dead line to avoid any system related problem. It is strongly recommended not to wait for submission of bid in last minutes as internet/technical problem may disrupt their works.

6. Reference time for submission dead line shall be the time displayed in the portal and shall be treated as final.

7. After end of submission dead line, no alteration in the tender will be allowed by the system. However, in case of extension of due date of opening of tender, the bidders will be allowed to submit revised bid in the system.

8. CSPTCL will not accept incomplete bid.

9. The bidder must have a valid Digital Signature & SAP SRM User ID. User ID & Password from CSPTCL and Digital Signing Certificate and Digital Encryption Certificate from any recognized digital signature issuing authority are required for participation in any Tender. The bidder shall intimate in advance regarding details of digital signature issuing authority for ensuring the reliability of the same. For User ID and Password for participating in the tender, the bidder shall register on line through e-bidding portal.

10. The e-bidding vendor user manual displayed on website-http://ebidding.cspcl.co.in:50724/irj/portal for the help of the bidders. For any further queries the bidder may contact at Helpline no. 0771-2576672/73 (EITC, CSPDCL, Raipur)

11. The training for bidders will be on every Wednesday from 3.00 pm to 5.00 pm at office premises of Energy Info Tech Center (EITC) at Dangania, Raipur.

12. Tender shall be opened in the scheduled time as notified. If the due date of opening/submission of tender documents is declared a holiday by the Govt. or local administration, it will be automatically shifted to next working day for which no prior intimation shall be given. Tender opening shall be continued on subsequent days, in case the opening of all tenders is not completed on due date because of the technical constraints of system on the day of opening. It may be noted that the due date of opening/time may be altered/ extended if desired by CSPTCL without assigning any reason. However, intimation shall be available on company‘s tender portal/bidders email (if participation shown). The bidders are requested to keep track of the same.

13. Amendment in tender specification will be published on our website as well as in SRM system and the intimation regarding amendment in date extension will be conveyed through system generated e-mail to registered bidders only.

14. Before participating the bidder shall carefully read all the instructions and processes.

15. Tender duly completed in all respects will be accepted online up to due date & time and will be opened on the due date at specified time in the presence of tenderers or their authorized representatives. In case of authorized representative(s) they shall bring the original authorization letter with their signature attested by the tenderers

Executive Director (S&P)
CSPTCL: RAIPUR

SECTION-I

INSTRUCTIONS TO BIDDERS

IMPORTANT: Except as otherwise provided in any subsequent modification/LOI/Order, the provision of this Section shall have effect notwithstanding anything inconsistent therewith contained in any other Schedule/ Annexure/ Clause/ Terms/ Condition of this tender document)

E-Bidding & Due date: Please note that the Tender shall be processed through e-Bidding. Instruction to Bidders for submission of Bids through SAP-SRM Module (e-Bidding) are detailed in

Instructions to bidders for submission of bid through SAP- SRM module (e-bidding)

1. The bidders are requested to go through these Instructions carefully and submit the tender in e -Bidding portal and also in hard copy accordingly.

Date of submission of tender is 28.10.2021 upto 3.00 PM and tender will be opened on same day at 3.30 PM in the Office of ED (S&P), CSPTCL, Danganiya, Raipur, through e-bidding as per the guidelines .

The Chhattisgarh State Power Transmission Company Ltd., Raipur (or any authority designated) - hereinafter called 'OWNER' or 'CSPTCL' or 'Company' - will receive bids as per the accompanying specification. All bids shall be prepared and submitted in accordance with instructions, terms and conditions stipulated in the tender.

2. **Tender Fee:** - The tender document can also be downloaded from official website of the CSPTCL (www.cspc.co.in/csptcl). In case bidder chooses to submit his offer on downloaded tender document, they will be required to deposit specified tender fee (cost of tender documents- non refundable) in form of DD in favour of Manager (RAO:HQ), CSPTCL, Raipur payable at Raipur. The bank draft shall be issued from the nationalized/ scheduled bank. DD should be enclosed with the part I of the tender offer. In absence of tender fee, offer will not be considered for opening of price bid.

3. **Earnest Money**:- The earnest Money in the instant tender is **Rs 1,74,000/- (Rs. One Lac Seventy Four Thousand only)** , payable in the form of demand draft in favor of Manager (RAO : HQ), CSPTCL, Raipur.

The bidding is open to manufacturers only who can provide satisfactory evidence to substantiate this.

Goods & Service Tax:-The bidder should furnish valid GST registration number and certificate along with EMD. In absence of GST registration the offer shall not be accepted.

4. The bidding is open to manufacturers only who can provide satisfactory evidence to substantiate this.

5. The above tender for procurement of 245 KV Circuit Breaker is proposed to be processed through **e-bidding.**

6. **Qualifying Requirements**:-

The pre qualifying requirements and other important terms & conditions of the tender are as given hereunder.:-

S.N	Proposed PQR for the Instant Tender	Documents to be submitted by Bidder in support of PQR
(A)	**Technical & Supply Experience Requirement**	
1.	**For Regular Suppliers:-**	
1.1	The Bidder should be an Indian manufacturer of 245 KV SF6 Breakers or higher voltage class SF6 Circuit Breakers having manufacturing unit in India.	**In support of bidder being manufacturer of tendered material/equipment offered s**elf attested valid NSIC/DIC(DIC is applicable for CG state SSI unit) certificate should be submitted. In case firm is not registered with NSIC/DIC, self attested copy of valid factory license issued by industries department of State/Central Government for tendered item/items should be submitted.
1.2	The Bidder should have a minimum experience of at least Three (3) years for manufacture and supply of 245 KV SF6 Breakers or higher voltage class SF6 Circuit Breakers to following Indian Entities as on date of issue of NIT:- i) Power utilities owned and controlled by Central or State Govt, Or ii) PSUs, Or iii) Govt. organizations directly or through turnkey contractors	**(A) Direct supply to utility:-** **i)** In support of Bidder having minimum experience of at least three years of manufacturing and supply of 245 KV SF6 Breakers or higher voltage class circuit breaker, copies of purchase orders (in the name of manufacturer) and relevant MRCs (Material Receipt Certificate) issued by the entities mentioned above in clause 6A(1.2) will be submitted. The date of receipt mentioned in the MRC will be treated as actual date of supply. ii) The supply experience as on date of issue of NIT will be counted from the aforesaid actual date of supply. In case of non-availability of MRC , commissioning certificate / Performance certificate may also be treated as proof of actual supply provided it establishes the requirements as per PQR and is issued by an officer not below the rank of

		Executive Engineer/Manager of the entities in clause 6A(1.2) of PQR. **iii)** If performance certificate indicates both proof of supply experience of 3 years or more and satisfactory performance for two years or more, separate MRC will not be required as a proof of supply. However, if only MRC is submitted as proof of supply, performance certificate will have to be submitted separately to establish minimum performance of 2 years as per PQR. All these documents should be attested by the authorized signatory of the tender. **(B) <u>Through Turnkey Contractors:-</u>** **i)** Self attested Copies of order issued by the entities mentioned in clause **1.2** of PQR to the turnkey contractor (Order should be in the name of the turnkey contractor). **ii)** Self attested Copies of order issued by the turnkey contractor(s) to the manufacturer (bidder). **iii)** Self atetsted Copies of inspection letter and dispatch clearance issued by the entities mentioned in clause 1.2 of PQR to the manufacturer (bidder). **iv)** Self attetsed Copies of invoice issued by the turnkey contractor to the entities mentioned in clause 1.2 of PQR. **v)** Self attested Copies of performance certificate issued by the entities mentioned in clause

		1.2 of PQR towards proof of execution of order placed by the turnkey contractor to the manufacturer (bidder) **and successful performance of minimum three (3) years (**as per clause 1.3)**.**
1.3	The 245 KV SF6 circuit breakers or higher voltage class SF6 circuit breakers should be in successful operation for minimum **2 years** from date of commissioning as on date of issue of NIT in the **aforesaid entities mentioned in clause 1.2.**	In support of satisfactory performance , a self attested copy of performance certificate in support of **minimum two (2) years successful performance** issued by the entities mentioned in clause **1.2** of the **PQR** will have to be submitted**.**
1.4	The bidder should have all type test/special test reports of 245 KV SF6 Circuit Breaker conducted as per relevant standards i.e. ISS/ IEC carried out at & issued by Govt. standard test laboratory/ NABL accredited laboratory /ILAC accredited Laboratories on item/items offered by them as per tender specification. The type test certificate of 254 KV SF6 Breakers should not be older than ten (10) years as on the date of issue of NIT. submitted. The type test reports, which could not be re-validated due to lock down since 23/03/2020, shall be treated as valid upto 30/09/2021 as per CEA's circular no. CEA-PS-80/1/2019-PSETD Division Part (2)/564-640.	The bidder should submit self attested copies of all type test reports required as per clause 1.4.
(B)	**<u>Commercial/Financial Requirement</u>:-**	
1.1	The bidder should have Minimum Average Annual Turn Over (MAAT) for best three financial years out of last five financial years i.e. 2015-16, 2016-17, 2017-2018 , 2018-2019 & 2019-20 of **Rs. 2.61 Cr. (Rs. Two Crore Sixty One Lakh only).** In case bidder is a holding company, MAAT shall be that of holding company only (i.e. excluding its subsidiary / group companies). In	Statement of annual turnover (as per annexure of the tender), audited balance sheets and profit & loss statement duly certified by Chartered Accountant. The audited balance sheets furnished should be for last five financial years **(i.e. F.Y 2015-16 , 2016-17 , 2017-2018, 2018-2019 & 2019-20).**

	case bidder is a subsidiary of a holding company, the MAAT shall be of subsidiary company only (excluding its holding company).	
1.2	Net worth of bidder for last three financial years i.e .2017-2018 ,2018-2019 & 2019-20 should be positive. Net worth means the sum total of paid-up capital and free reserves (excluding reserves created out of revaluation) reduced by aggregate value of accumulated losses (including debit balance in profit and loss account for current year) and intangible assets.	**A** statement showing 'Net worth' including assets and liability of the bidder duly certified by chartered accountant for the last three financial years (i.e F.Y. **2017-2018 ,2018-2019 & 2019-20**) along with audited balance sheet of these years shall be furnished.
3	**The bidder shall submit Certificates (in original) from CA stating that,** a. All payment obligations (principal/interest) on outstanding debentures have been discharged and no such payment as on **30.06.2021** is outstanding /overdue. b. The Bidder is presently not in default in payment of any bank loan or interest thereon for more than three months or any loan account of the bidder has not been classified as NPA (Non performing assets) by the creditor/ leading bank as on date of issue of NIT.	Original certificate issued by CA as per clause 3
(C)	**<u>Other Requirements:-</u>**	
1.1	The bidder should not be debarred/black-listed by Bank / State Govt. / Central Govt./ State PSU/CPSU/SEB/Public utility as on the date of issue of NIT**.** However, the bid may not be considered for further processing in following cases also:- a. If, bidder is debarred/black-listed by Bank / State Govt. / Central Govt./ State PSU/CPSU/SEB/Public utility up to date of opening of price bid of the instant tender. b. If a case comes to notice regarding submission of forged/fake document in any other tender under process in CSPTCL up to date of opening of price bid of the instant tender.	A declaration in this regard shall be furnished by the bidder
1.2	"Any sums of money due to CSPTCL on the date of opening of tender should have been paid/settled in full prior to the date of opening of	A declaration in this regard shall be furnished by the bidder.

	tender. Price bids of bidders not complying with the requirement shall not be opened."	
1.3	The bidder shall have to submit pre-contract integrity pact in the format enclosed as **Annexure -III** on non-judicial stamp paper worth **Rs.300/-** duly signed by the bidder along with the Techno-Commercial bid. The validity of this integrity pact shall be from the date of its signing and extended up to 02 years or the complete execution of the order to the satisfaction of both the Buyer and the Bidder/Seller, whichever is later. In case Bidder is unsuccessful, this Integrity Pact shall expire after six months from the date of its signing.	The bidder shall have to submit pre-contract integrity pact in the format enclosed as per Annexure - III
1.4	All the documents/ statements/ attachments/ information submitted by the bidder in proof of the qualifying requirements must be authentic / genuine'/ correct and in case, any of the said documents/ statement/ attachments/ information are found to be false / fake / misleading the bidder will be disqualified and action will be taken against the bidder as per relevant provisions of the tender	A declaration in this regard shall be furnished by the bidder

A declaration in this regard shall be furnished by the bidder.

7. Tenders being submitted must be signed by a person holding a **Power of attorney** authorising him to do so. The self attested copy of power of attorney should be furnished. Tenders submitted on behalf of company registered under Indian Companies Act shall be signed by persons duly authorised to submit the tender on behalf of the company and shall be accompanied by self attested copy of resolution / abstract of Article of Association/ special or general power of attorney.

8. Only FIRM rate should be quoted. No price variation shall be admissible.

9. **It is not required to upload /attach scanned copy of price in soft/hard copy. Only the rates are to be filled in the item tab in e-bid in SAP SRM System (online e-bidding portal). The prices should be quoted through SAP SRM system should indicating unit ex-works price inclusive of packing & forwarding charges, GST, freight charges & any other charges should be quoted separately. The freight shall be on FIRM basis irrespective of whether the ex-works prices are firm or variable. The total F.O.R. destination price should be quoted in the relevant column**.

8. It will be presumed that the bidder has taken utmost care while quoting ex-works unit rates and tax rates in the price bid, which shall be considered as base for computation of total prices. However, in case of any arithmetical mistakes/errors in calculation for arriving at total FORD rate, arithmetic corrections shall be made as per the quoted

basic rate/ tax rate for the purpose of computation to decide the relative position of bidder. However, for placement of order lower of the two values will be considered.

9. The tender offers of those Bidders, who do not agree to CSPTCL's payment terms, security deposit clause, penalty clause, performance guarantee clause shall be liable for rejection.

10. The tender document shall be available for sale in the Office of ED (S&P) on payment of the cost of tender document through demand draft on all working days up to one day prior to the due date of opening. The tender document shall also be displayed in CSPTCL's website i.e. www.cspc.co.in and bidders may download the tenders from the website directly. In such case, the payment of cost of tender document shall be made through demand draft along with the tender. The details are given in clause No. 5 of Section-I (General Instruction to bidders).

11. The Company reserves the right to reject any or all tenders or accept any tender in full or part, considered advantageous to the C.S. Power Transmission Co. Ltd., whether, it is lowest or not without assigning any reason whatsoever.

12. The bidder should ensure following points in order to avoid rejection of tender :-

i) DD towards EMD OR proof of exemption valid on due date of opening , self attested (i.e copies attested by authorized signatory of the tender) is to be submitted in envelope –I. Please note that in case of exemption claimed from EMD by the SSI units registered under NSIC/ DIC, the copy of certificate issued by concerned authority along with enclosures, in which name of materials for which certificate has been issued should also be furnished. The name of material under tender should appear in this list. Further, the copy of certificate (each page) should be self attested. In case of non compliance of above instructions, tender shall be liable for rejection. The bidder should furnish valid GST registration number and certificate along with EMD. In absence of GST registration the offer shall not be accepted.

ii) DD toward tender document cost, in case tender has been downloaded from our website, is also to be placed inside envelope-I . In case of non compliance of above instructions tender shall be liable for rejection.

iii) Techno-Commercial Bid is to be submitted inside envelope II

13. **INTEGRITY PACT** :- The bidder shall have to submit pre-contract integrity pact in the format enclosed as **Annexure -II** on non-judicial stamp paper worth **Rs.300**/- duly signed by the bidder along with the Techno-Commercial bid. The validity of this integrity pact shall be from the date of its signing and extended up to 02 years or the complete execution of the order to the satisfaction of both the Buyer and the Bidder/Seller, whichever is later. In case Bidder is unsuccessful, this Integrity Pact shall expire after six months from the date of its signing. Declaration in this regard shall be furnished by the bidder.

14. EXTREMELY IMPORTANT'- Bidders to note this to avoid rejection-

i) Attention of bidder is drawn to the fact that all the documents required as tender are submitted alongwith bid or before due date of tender. The submission date is cutoff date .submission of all the document required as per tender and every bidder must adhere to this deadline. However , if any short coming is observe during Scrutiny of TC Bid , CSPTCL reserve the right to seek request clarification /documents from bidder giving them only one chance to such required documents/ clarifications confirmations within specified time limit.

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ii) It may also be noted that if a bidder has quoted 'NIL' deviation (Schedule VI-A & Schedule VI-B) in the bid, this will have an overriding effect on any other conditions noted as deviations elsewhere in the bid and no correspondence will be made to withdraw such specific contradictory conditions".

15.CHECK – LIST:-

The check list (Schedule-XI) in respect of various schedules etc is required to be submitted by the bidder without which the tender will be considered incomplete and liable for rejection. The bidder should submit all schedule duly filled in along with this offer.

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GENERAL INSTRUCTIONS TO BIDDERS

1. SCOPE :-

The tender specifications shall cover supply of tendered items as per the technical specifications mentioned in Section-II of the tender document.

2.1 ACCEPTANCE OF OFFERS:-

While the Bidders may make all out efforts to offer for the complete scope of tender, they may please note that the CSPTCL reserves the right to split the tender into different lots towards supply.

Bidders are advised to go through the contents of specific requirement for standard conditions very carefully and in absence of non-compliance/lapse, responsibility for the same will rest on bidders.

2.2 CRITERIA FOR PLACEMENT OF ORDER: -

The entire quantity of 220 KV ND & SPR Breaker will be offered to respective L- 1 bidder . The following points will also be considered for placing the orders:-

(i) The competitive rates quoted by each Bidder: - The original ranking based on FOR destination rates offered.

(ii) The production capacity and past performance as on date of NIT against the tendered material supplied against CSPTCL's orders.

2.3 Bid Evaluation:- **As per special instructions to bidders for submission of bid through SAP-SRM module the bidder have to quote their item wise rates in E-bid portal . For preparing comparative statement for arriving at respective L-1 position the following method shall be followed :-**

i) **In case of SPR type breaker**: The L-1 position shall be decided based on Total Cost of 05 No SPR type breaker + Total Cost of 05 No 20 Kg capacity spare SF6 gas cylinder + Cost of 1 No complete set of coils , contactors for DC conversion + Total Cost of supervision charges for ETC work of 05 No breaker.

ii) **In case of ND type breaker**: The L-1 position shall be decided based on Total Cost of 06 No SPR type breaker + Total Cost of 06 No 20 Kg capacity spare SF6 gas cylinder + Cost of 1 No complete set of coils , contactors for DC conversion +Total Cost of supervision charges for ETC work of 06 No breaker

3.1 Extension Order: The CSPTCL reserves the right to place extension order for supply of 50% additional quantity of material/equipments with associated accessories within six months from date of order and accordingly offered prices should be taken into account for these requirements.

For procurement of singular quantity of material/equipments the extension order clause shall be applicable for 100% additional quantity.

3.1 Price reduction clause:- In case a fresh tender is issued for the same item before completion of supply against extension order and lower rates are received in the fresh tender. The lower rates received in the fresh tender shall be applicable to the quantity of extension order balance to be supplied also..

3.2 Variation in quantity: A tolerance in the ordered quantity will be allowed to the extent of +/- 2% (plus minus 2%). This tolerance will be allowed on total ordered quantity. The MRCs shall be issued on actual receipt of quantity only

4. OFFERS:-

The offer for equipments/materials is required to be submitted in duplicate in separate sealed envelopes for which following details may be noted:-

4.1 Part-I: EARNEST MONEY DEPOSIT:

Please note that techno-commercial bid of tender will not be opened if earnest money is not deposited in form of demand draft for the value mentioned in tender clause No. 4 of " INSTRUCTIONS TO BIDDERS" in the tender, unless exempted by the CSPTCL.

The following are exempted from payment of EMD:-

i) SSI units of Chhattisgarh state permanently registered with DIC. The registration should be permanent & should be specifically for the items quoted in the tender & valid on the date of opening of tender. Copy of certificate duly notarised should be submitted.

ii) Small scale units registered with NSIC: - In case of small scale units registered with NSIC, their registration certificates should be valid for the item under tender on due date of opening of Techno-commercial bid. In case the certificate is not valid on due date of opening the tender shall be liable for rejection. *Incomplete certificate should not be submitted. The list of items for which certificate is valid should also be furnished and*

name of item under tender should appear in this list failing which tender shall be liable for rejection.

iii) Fully owned State Govt /Central Govt. units, if 100% shares are held by the state Govt. concerned for which documentary evidence duly notarised must be furnished with offer.

iv) The photocopy of the NSIC/ SSI registration certificate for the tendered item duly notarised by a notary should be furnished with the offer. In case of un notarised copy, the original certificate should be produced at the time of opening for verification failing which their offer will be liable for rejection.

It has been noticed that some bidders submit photocopy of a notarised certificate. This is not acceptable. The photocopy of valid NSIC certificate should bear original signature of authorised person failing which tender shall be liable for rejection.

v) The bidders who come under any of above category must produce documentary evidence failing which offer shall be rejected.

In case the bidder withdraws his offer during the validity period or after placement of order, the Earnest Money shall be forfeited. EMD of unsuccessful bidders shall be returned on placement of order. EMD of bidder on whom order is placed shall be returned on acceptance of security deposit. No interest shall be paid on the EMD amount.

vi) **The bidder should furnish valid GST registration number and certificate along with EMD. In absence of GST registration the offer shall not be accepted.**

In case the bidder withdraws his offer during the validity period or after placement of order, the Earnest Money shall be forfeited. EMD of unsuccessful bidders shall be returned on placement of order. EMD of bidder on whom order is placed shall be returned on acceptance of security deposit. No interest shall be paid on the EMD amount

4.2 Part - II (A):- TECHNICAL BID:

4.2.1 In this part of bid, Bidder will have to furnish confirmation in regard to all our Technical requirements. The bid should clearly describe various technical particulars, as

per details given in this specification. Also along with above information all details required in various schedules should be furnished so that the purchaser may be able to examine whether the offer submitted is technically acceptable or not. All relevant technical schedules viz. Guaranteed Technical Particulars, technical deviation etc shall be submitted with the bid.

The bidder shall have to submit pre-contract integrity pact in the format enclosed as Annexure-III on non-judicial stamp paper worth Rs. 300/- duly signed by the bidder along with the Techno-Commercial bid.

4.2.2 **COMPLETENESS OF EQUIPMENT AND BOUGHT OUT ITEMS: -**

The Bidders must furnish the following information along with technical bid.

i) The responsibility for obtaining timely supplies of bought out items will rest on the Bidder and only on this basis, delivery period will be offered in the tender.

ii) It may be noted in the case of damages/shortages due to improper packing or any other negligence; replacement shall be arranged within one month's time. If this is not done, date of delivery of such accessory will be treated as date of delivery of main equipment and full penalty shall be recoverable from the Bidder on total cost of the material.

iii) For bought out items, responsibility for guarantee and obtaining immediate replacement in case any defects are noticed and in case defective supply of any item is reported will rest on the Bidder.

iv) In case for attending to defect in any equipment or inspection/replacement of the equipment, which may be bought out item for the Bidder; services of engineer of original manufacturer is required, the same will be organized on immediate basis by the Bidder at his cost.

4.2.3 It would be obligatory on the part of Bidder to enclose a schedule of Technical deviation in Schedule VI-B in case there are any deviations from our technical requirement. **Even if no deviations are involved, a separate schedule of deviation for technical particulars should be enclosed wherein a certificate may be recorded that there are no deviations from all our technical requirements**. In the event of non-compliance of this instruction, it may be noted that the CSPTCL reserves the right to reject all such offers without assigning any reason or without making any correspondence for obtaining any clarification.

4.3 Part - II (B) COMMERCIAL BID:

This bid should clearly spell confirmation in regard to various commercial terms and conditions for supply. Basis of price, acceptance of various important terms and conditions for supply and questionnaire for commercial terms and conditions for supply duly filled in, will form part of commercial bid. All commercial schedules viz. commercial terms & conditions, commercial deviations, bidders experience, details plan of manufacturing & testing shall be furnished with this bid.

It may please be noted that it is obligatory on the part of Bidder to comply with all our commercial terms and conditions. In particular, **specific confirmation towards acceptance of following commercial terms and conditions should be furnished in the tender.**

4.3.1 **PRICES:-** The prices offered should be valid for 180 days from due date of tender in Indian Rupees only. Quoted prices for **245 KV Circuit Breaker** should be variable as per IEEMA formula indicated in **Annexure-I** with base indices as issued by IEEMA in its circular one month prior to the due date of opening. In case of any extension of due date the base date for working out the price variation shall be as per the original due date

only and the validity of offer shall be counted from the extended due date on which TC bid has been opened. The payment shall be initially done on the basis of base rates offered by the bidder subject to price adjustment to reflect changes in cost.

It is not required to upload /attach scanned copy of price in soft copy. Only the rates are to be filled in the item tab in e-bid in SAP SRM System (online e- bidding portal). The prices should be quoted through SAP SRM system should indicating unit ex-works price inclusive of packing & forwarding charges, GST, freight charges & any other charges should be quoted separately. The freight shall be on FIRM basis irrespective of whether the ex-works prices are firm or variable. It may please be noted that only statutory variations due to Govt. Regulation in the rate of GST shall be permitted by CSPTCL only within contractual delivery schedule. In case supplies against the contract are affected late i.e. beyond contractual delivery period and rate of GST undergoes upward revision the payment will continue to be made only on the basis of rates prevailing during the contractual delivery period. However, in case the rate of statutory levies undergoes downwards revision than the delayed supplies beyond contractual delivery period will attract reduced rate of levies/ GST.

The following clause regarding price variation shall be applicable:-

The price adjustment shall be invoked by either party subject to the following conditions:

i) For calculation of price adjustment date on which the equipment is notified to be ready for inspection at the works of the manufacturer shall be taken as date of delivery provided the material is passed in the inspection and material is received in CSPTCL's Area Stores within 21 days from date of issue of dispatch instructions failing which actual date of receipt of materials shall be treated as date of delivery.

(ii) In case of delay in supply beyond contractual delivery, price variation up to scheduled delivery date or actual date of delivery, whichever is advantageous to CSPTCL, shall be considered.

(iii) The bidder shall submit price adjustment invoices for supplies positively within three months from date of supply whether positive or negative. **However, Price adjustment invoices submitted after 6 months from date of supply of material will not be entertained for payment, however negative variations in the prices will be recoverable.** The invoices should be supported with calculation of price variation along with documentary evidence of applicable indices. If price adjustment works out to be positive, the same is payable to contractor by CSPTCL and if it works out to be negative, the same shall be recovered from the contractor. The price variation bills should be submitted to Manager (Bills) O/o ED (Finance), CSPTCL, Raipur.

(iii) In case subsequent to issue of this tender IEEMA notifies either modification in prevailing formula or new formula the same shall be applicable.

4.3.2 **TERMS OF PAYMENT:**

100% payment along with all taxes and duties shall be made on production of necessary documents along with material receipt certificate (MRC) from our consignee normally within 30 days time.

The supplier should submit original Material Receipt Certificate issued by the Area Stores along with copies of bill and other necessary documents to Manager (Bills), O/o E.D. (Fin.) CSPTCL, Raipur for arranging payment.

4.3.3 **DELIVERY PERIOD:**

The delivery should commence in **three months** from the date of order with minimum 50% of ordered quantity and should be completed within **two months** thereafter i.e. a total period of **five months from date of order**.

The time for and date of delivery of the stores stipulated in the order shall be deemed to be the essence of the contract. In case of delay in execution of the order, the CSPTCL shall either:-

(i) Recover from the supplier as agreed Penalty/liquidated damages at the rate mentioned in "Penalty" clause.

(ii) Purchase elsewhere on account and at the risk of the supplier, the stores not delivered or other of similar description or;

(iii) Cancel the contract.

4.3.4 **Liquidated Damages:**

The time for and the date of delivery of the material stipulated in the order shall be deemed the essence of the contract. In case of delay in execution or non-execution of the order, the CSPTCL at its option shall recover from the supplier/contractor as agreed towards liquidated damages a sum of ½ % of **the basic price excluding taxes of any store not delivered per week or part thereof up to a maximum of 10% of contract value excluding taxes.**

For this purpose date of offer (**date of readiness of material for inspection shall be treated as date of offer**) for inspection of material in the O/o ED (S&P) shall be considered as the date of delivery subject to condition that:-

i) The intimation of readiness of material in respect of each lot should be made atleast 15 days in advance from the scheduled date of completion of supply.

ii) Material should be delivered at stores within 21 days from issue of dispatch clearance. Please note that in case material is not received within 21 days from date of issue of dispatch instructions even though the delivery period exists liquidated damages shall be imposed on delay of dispatch.

The inspection offer, apart from postal/courier service shall be invariably **Faxed/E-mailed** to the ED (S&P) so that ambiguity does not arises for date of offer. In case the inspection offer is not received in the O/o ED (S&P) through Fax/E-mail the date of receipt of offer letter shall be taken as date of offer for inspection.

4.3.5 **GUARANTEE PERIOD:**

Equipments offered and associated accessories covered under the tender shall be guaranteed for performance and quality for a period of 30 months from the date of supply in Store or 24 months from date of commissioning whichever is earlier.

In case any defect in the equipment/material is found within guarantee period, the same will be replaced /repaired by the firm on free of cost basis. The replacement/repairing will have to be organized by the firm expeditiously and in any case within one month's time.

If for the purpose of replacement/repairs, the equipment/material is required to be dispatched to their works, all charges towards transportation/insurance/ packing/ forwarding will have to be paid by you for to and fro dispatches. In this connection, the following additional conditions will also be applicable in case any damages/defects are noticed in the equipments or its accessories supplied by the firm.

(i) If the material develops defect within guarantee period after installation at site, for the purpose of replacement/repairs & if the same is dismantled and taken out by us. In such cases actual cost of dismantling and replacement of the equipment/material will also be recoverable from the firm.

(ii) In case it is observed that replacement/repairs of equipments or its accessories is not being provided to us within one month time from date of report of defect to you and proper response is not received from the firm, then apart from operating clause of liquidated damages (which provides for imposition of penalty/liquidated damages, risk purchase at your cost and cancellation of contract) the CSPTCL may also take suitable penal action against the firm which may include debarring the firm from all future business with the CSPTCL for a period which will be at the discretion of the CSPTCL.

(iii) In case of replacement of material due to failure within guarantee period, the guarantee shall automatically get extended. In such case, the material shall be guaranteed as per the terms of guarantee with the commencement date of guarantee from the date on which replaced material has been received.

4.3.6 **SECURITY DEPOSIT:**

The supplier has to submit the security deposit in form of Demand Draft / Bank Guarantee for value of order to be placed on the bidder to cover performance guarantee period for supply of equipments covered in this specification.

(i) All the outside state units shall be required to pay security deposit @10% of order value.

(ii) The SSI units of CG having annual business is above Rs.50.00 Lakh, shall be required to pay Security deposit @7.5% of the value of order subject to maximum of Rs 10 Lakhs (Ten Lakhs)

(iii) In case of SSI units of CG whose annual business is up to 50 Lakh, they shall be required to pay Security deposit @ 5% of the value of purchase order with maximum limit of Rs. 20,000/- (Twenty Thousand) only.

In support of annual business of SSI units of CG, the certificate of Chartered Accountant duly notarized should be furnished. **The bank guarantee shall be submitted within 30 days from date of order and shall be kept valid for guarantee period exceeding claim period of 6 months**. The bank guarantee shall be submitted on stamp paper worth Rs. 250/- or as per the prevailing legal requirements/ any other amount as per the C.G. State Stamp Duty Act and shall be from a Nationalized/ Scheduled Bank in the prescribed form of CSPTCL. No interest shall be paid by CSPTCL on the security deposit. In case of non-fulfilment of contractual obligations by the supplier the security deposit shall be forfeited.

4.3.7 **TRANSIT INSURANCE & RISK:-**

a) Responsibility regarding covering of risk, during transit of material shall entirely be on the supplier. The CSPTCL, shall in any case, not bear the transit risk/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 awaiting for the 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 extra cost and without waiting for the settlement of the claim.

d) Replacement of goods lost/ broken or damaged including loss to fire:- Notwithstanding anything herein 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 CSPTCL 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/shortages, the payment shall be made only for the quantity received in good and working condition and consignee shall lodge claim with the supplier/carrier with necessary documents of the same with carriers at supplier's end.

4.3.8 **DEVIATIONS**:-

It would be obligatory on the part of the Bidder to enclose a separate schedule of deviation, if there are any deviations from our commercial terms/conditions. Even if no deviations are involved, **a separate schedule of deviation for commercial conditions should be enclosed wherein a certificate may be recorded that there are no deviations from all our commercial conditions**. All tenders, wherein these conditions are not complied with, may run the risk of rejection without any correspondence from our side.

4.3.9 **UNSATISFACTORY PERFORMANCE:** The bidders who have supplied material to CSPTCL and have been found to be defective / not rendering satisfactory service within guarantee period and has not been replaced in the stipulated period shall not be considered for opening of price bid.

In addition to the above, the bidders who have supplied material to CSPTCL and if any adverse reports regarding higher rate of failure, poor performance of equipment

or defective supply reported from field, the price bid of such bidders shall not be considered for opening. (The cases reported as on date of NIT shall be considered).

4.4 Part - III PRICE BID:- Price bid shall include submission of details of prices as per Schedule-I. **It is not required to upload /attach scanned copy of price in soft /hard copy. Only the rates are to be filled in the item tab in e-bid in SAP SRM System (online e- bidding portal).** The prices should be quoted through SAP SRM system should indicating unit ex-works price inclusive of packing & forwarding charges, GST, freight charges & any other charges should be quoted separately. However, the delivery schedule offered by bidder should be indicated in Part – II (B) "Commercial Bid". In case of any discrepancy is found suitable loading on prices will be considered for which responsibility will rest on the Bidder.

5. SUBMISSION OF OFFERS:- The Bidders should submit their bids in three envelopes as under:-

(i) **Envelope - I :-** (To contain Part-I of the tender document) This envelope should contain a covering letter with earnest money or earnest money exemption certificate as detailed in clause (4.1). The cover of the envelope should be suitably super scribed with the details of earnest money and tender number. The envelope should be sealed properly. **The bidder should furnish valid GST registration number & certificate alongwith EMD. In absence of GST registration the offer shall not be accepted.**

In case the tender document is downloaded from CSPTCL's Website the required cost of tender document in the form of MICR DD drawn in favour of Manager (RAO-HQ), CSPTCL, Raipur should also be kept inside this Envelope.
Please note that the tender shall be liable for rejection if

i) EMD as per tender specification / proof in support of exemption of EMD as per clause 4.1 is not found inside the envelope.**The GST registration certificate is not furnished**

ii) In case DD towards tender cost is not found inside this envelope in case tender document is downloaded from website.

(ii) Envelope - II (To contain Part-II of tender document)
This envelope should contain the Technical Bid and Commercial bid complete in all respects, in duplicate & Integrity pact as per proforma in Schedule-X and power of attorney. Tenders being submitted must be signed by a person holding a power of attorney authorizing him to do so. The self attested copy of power of attorney should be furnished. Tenders submitted on behalf of company registered under Indian Companies Act shall be signed by persons duly authorized to submit the tender on behalf of the company and shall be accompanied by self attested copy of resolution / abstract of Article of Association/ special or general power of attorney.

(iii) **Envelope - III:-** This large envelope should contain all the above two envelopes. A certificate in the following format should be recorded on main Envelope:

TENDER SPECIFICATION No.TR-21/S&P/17 DUE FOR OPENING ON DTD 28.10.2021OR SUPPLY OF 245 KV SF6 Circuit Breaker

THIS ENVELOPE CONTAINS TWO ENVELOPES FOR:-

1. Envelop-I- Part – I of tender document i.e. Earnest Money Deposit, **GST registration certificate** & cost of tender document, if downloaded.
2. Envelop-II- Part – II (A) i.e. Technical bid & Part– II (B) i.e. Commercial Bid & Integrity pact as per proforma in Annexure –III

To,
The Chief Engineer (Store & Purchase),
C.S. Power Transmission Co. Ltd.,
Danganiya, RAIPUR (C.G.) 492 013

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

1	PAYMENT TERMS	AGREED
2	SECURITY DEPOSIT	AGREED
3	PENALTY	AGREED
4	PERFORMANCE GUARANTEE	AGREED
5	TECHNICAL SPECIFICATION	IT IS CERTIFIED THAT THE MATERIAL OFFERED BY US IS STRICTLY AS PER TECHNICAL SPECIFICATION AS STIPULATED IN THIS TENDER AND IN CASE ANY DEVIATION IS OBSERVED LATER ON, WE SHALL BE SOLELY RESPONSIBLE AND THAT OUR TENDER SHALL BE LIABLE FOR REJECTION.

Sign & Seal of Bidder

THIS ENVELOPE (Envelop-III) CONTAINS TWO ENVELOPES FOR:-

1. Envelop-I : Earnest Money Deposit and cost of tender document if tender document is downloaded) **along with GST registration certificate**

2. Envelop-II : Technical bid & Commercial Bid **along with integrity pact, Power of Attorney and a copy of un priced / unfilled price schedule.**

3. Envelop-III : . Envelop-I & Envelop-II.

Tenders being submitted must be signed by a person holding a power of attorney authorising him to do so. The notarised copy of power of attorney should be furnished. Tenders submitted on behalf of company registered under Indian Companies Act shall be signed by persons duly authorised to submit the tender on behalf of the company and shall be accompanied by notarised copy of resolution / abstract of Article of Association/ special or general power of attorney

6. **OPENING OF TENDERS**:- Part - I i.e. The envelop for Tender Cost (if downloaded) ,Earnest Money & GST registration certificate shall be first opened on the due date & time. Part-II i.e. "Technical & Commercial Bid" will be opened thereafter on the same day in respect of the bidders **whose GST registration certificate is attached, EMD are found to be as per tender specification and tender cost is found to be as per tender** .These bids will be scrutinized and then we will take decision regarding opening of Part - III price bid in respect of successful Bidders. For the purpose of opening of price bid, a notice of not less than 7 days shall be given to the Bidders so that they may depute their representative for attending price bid opening. It may be mentioned that period of 7 days will be counted from the date of issue of fax intimation by us. Such intimation shall be given within a reasonable period from the date of opening of commercial and technical bids, and after its scrutiny. Only authorized representatives possessing necessary authority letter from the Bidder shall be allowed to participate in the tender.

7. **COMPLIANCE WITH OTHER CONDITIONS :-**
Although all other conditions have clearly been spelt out in the tender document, it is once again brought to the notice of Bidder that they should go through our tender document carefully and comply all other conditions also, like furnishing of type test report, furnishing of list of past supplies, performance certificate, profit and loss account, balance sheet for last three years etc., furnishing of drawing and write up for the manufacturing process. In the nut shell, the offer at the time of submission of Technical and Commercial bid itself should be complete in all respects. It should not be expected that in case of lack of any information, the CSPTCL will make any correspondence with the Bidder. The documents and details as called for in the tender must be submitted without making any reference to submission of such certificate against past order, tender or past experience of supplies with the Board/CSPTCL etc. All tenders wherein these conditions are not complied with may run the risk of rejection without correspondence from our side.

8. CHANGE OF QUANTITY:-
The purchaser reserves the right to vary the quantities of any or all the items as specified in the technical specifications/schedules as may be necessary based on requirement. No correspondence shall be entered into regarding quantity variation.

9. INSPECTION:-

a) The CSPTCL shall have access at all times to the works and all other places of manufacture where the equipments are being manufactured and the supplier shall provide all facilities for unrestricted inspection of the suppliers works, raw material, manufacture of all the accessories and for conducting necessary tests as detailed herein.

b) The successful supplier shall keep the purchaser informed in advance of the time of starting and of the progress of manufacture of equipment in various stages so that arrangements could be made for inspection.

c) No material shall be dispatched from its point of manufacture unless the material has been satisfactorily inspected and tested by the CSPTCL's representative.

d) The acceptance of any quantity of equipment shall in no way relieve the successful supplier of his responsibility for meeting all the requirements of this specification and shall not prevent subsequent rejection if such equipment are later found to be defective.

e) In readiness of material for inspection should be intimated to O/o the ED (S&P), CSPTCL at least 15 days in advance so that Inspector can be deputed on

scheduled date. In case material is not found ready on the intimated date of readiness, the CSPTCL reserves the right to recover from the supplier the charges.

f) **Random testing**:

a) The CSPTCL's authorized Inspector shall test the samples selected at random from the material offered for inspection and tests as per relevant ISS shall be conducted at firm's works on the randomly selected samples. In case, the samples fail to withstand the required tests, the entire lot will be liable for rejection.

b) However, 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 tender specification.

c) If required, the Company may at its option test the samples selected at random from the supplies affected and/or may get the selected samples tested for acceptance / type test as per relevant ISS and Technical specifications at any standard laboratories as deemed fit e.g. CPRI, ERDA etc.

i) If the sample passes the test, charges towards testing & transportation shall be borne by CSPTCL & the lot shall be accepted.

ii) In case, the samples fail the required tests, supplier will be required to bear all the charges including transportation and taxes etc paid to standard laboratories e.g. CPRI, ERDA etc. towards conducting the tests and the entire lot will be liable for rejection. The supplier will have to replace/repair the whole rejected lot at his own cost.

iii) The replaced material, at CSPTCL's option shall be tested for acceptance tests in the Govt. standard laboratory as deemed fit on terms & conditions similar to first testing. If the sample passes the required test, the lot shall be accepted. The charges required for getting the tests conducted shall be borne by CSPTCL. If the sample again fails, the lot shall be rejected & the charges required for getting the tests conducted shall be borne by the supplier and action as per provision of contract shall be taken.

g) Stage inspection:-The CSPTCL reserves the right to carryout stage inspection during manufacture. The inspection will include verification of all raw materials, construction practice, quality control process and inspection of equipment before final assembly. Bidders will have to confirm that they will render all assistance for this purpose.

10. FALSE INSPECTION CALL:

In case, the material is not offered for inspection on the date of inspection offered by the firm, due to any reason the firm shall be required to remit a sum of Rs.50000/- plus expenditure incurred towards deployment of officer.

11. QUALITY ASSURANCE PLAN:

The supplier shall invariably furnish following information along with his offer, failing which the offer shall be liable for rejection. Information shall be separately given for individual type of equipment offered.

(a) Statements giving list of important raw materials, name of sub-suppliers for the raw material, list of standards according to which the raw material are tested, list of tests normally carried out on raw material in presence of suppliers representative, copies of test certificates.
(b) Information and copies of test certificates as in (a) above in respect of bought out items.
(c) List of manufacturing facilities available.
(d) Level of automation achieved and list of areas where manual processing exits.
(e) List of areas in manufacturing process where stage inspections are normally carried out for quality control and details of such tests and inspections.
(f) Special features provided in the equipment to make it maintenance free.
(g) List of testing equipment available with the supplier for final testing of equipment specified and test plan limitation, if any, vis-à-vis the type/ special acceptance and routine test specified in the relevant standards. These limitations shall be very clearly brought out in schedule of deviations from specified test requirements.

12. TEST CERTIFICATE:-

The bidder should have all the type test certificates of tendered item/ materials as per relevant standards i.e. ISS/ IEC carried out at & issued by Govt. standard test laboratory/ NABL accredited laboratory. Self attested copy of test reports shall be submitted along with the tender. The type test certificate of tendered item/ materials shall not be more than **ten years** old as on the date of issue of NIT. Without required type test certificate the offer shall be liable for rejection.

13. POOL RATE/CARTEL:

Formation of bidder's cartel is strictly prohibited. "Cartel" includes an association of sellers, distributors, traders or service providers who by agreement amongst themselves, limit, control or attempt to control the production, distribution, sale or price of or trade in goods or provision of services, Here, "agreement" includes any arrangement or understanding or action, whether or not is formal or in writing.

Quoting same rates i.e. pool rate is not acceptable. In case the same rate is found to be quoted by more than two bidders, offers of all such bidders shall be out rightly rejected. However, if rates of two bidders are found to be same, quantity of orders to be placed on them will be reduced to half of the quantity a bidder is entitled to be allocated by virtue of their common rank. But, in case of multi-item tender, if rates of even two bidders for more than one item are found to be same, it will be considered as deliberate cartel and offers of both the bidders shall be rejected. Accordingly, all the bidders are advised to quote their own individual and most competitive rates.

Rated received in a tender will be minutely scrutinised to find out as to whether some or all bidders have entered in to any such agreement. If CSPTCL is satisfied with the conclusion that some or all the bidders have formed a cartel, offers of all such bidders shall be rejected.

14. **Amendment in specifications:** CSPTCL may revise or amend the specification and drawing, prior to the date notified for opening of tender. Such revision/ amendment, if any, will be communicated to all the bidders as amendment/ addendum to the invitation of tender and the same will be displayed in CSPTCL's website also.

15. **Telex/ telegraphic/ fax bids:** Telex/ telegraphic/ fax offers will not be considered under any circumstances.

16. **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.

17. **Lump sum based bids:** In case prices for some items or all items are given as lump sum, instead of unit prices as required in the tender specifications, CSPTCL can summarily reject such incomplete tender.

18. **Printed terms & conditions in bids:** Supplier's printed terms and conditions will not be considered as forming part tender under any circumstance whatsoever.

19. **Alterations/ correction in bids:** No alternations in the tender document will be permitted.

20. **Incomplete bids:** Tender which is incomplete or obscure is liable for rejection.

21. **Ambiguities in conditions of bids:** In case of ambiguous or self contradictory terms/ conditions mentioned in the bid, interpretations as may be advantageous to the CSPTCL may be taken without any reference to the tender.

22. **Disqualification of bids:** A bid which gets opened before the due date as a result of improper or no indication has been given on the cover to indicate that it is a tender, will be disqualified. Bidders 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, that is, when a bidder does not comply, tender will be rejected.

23. **Language of bids:** All tenders should be made either in English or in Hindi only.

24. **Canvassing of bids:** Tenders shall be deemed to be under consideration, after opening of tender/ bid till placement of order. During this period, the bidders or their authorised representatives or other interested parties are advised strongly in their own interest, to refrain from contacting by any means any of the CSPTCL's personnel or representative.

25. **Cancellation of order:**

25.1 The company may upon written notice of default, terminate contract in the circumstances detailed here under:

a) If in the opinion of the Company, 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 opinion 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 substandard, which is likely to affect the performance of the finished product, a notice would be served by the Company to the supplier to suspend further activities and to take urgent steps towards corrective measures, failing which the entire order would be cancelled.

25.2 In the event of such termination, the CSPTCL shall exercise its discretionary power as:

(a) To recover from the supplier the agreed liquidated damages as given in the clause No. 4.3.4 above.

Or

(b) To purchase form elsewhere after giving due notice to the supplier on account and at the risk of the supplier 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 right to recover damages.

25.3 Notwithstanding that the power under clause (25.2 a, b & c) referred to above, are in addition to the rights and remedy available to the Company under the general law of India relating to contract.

25.4 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 clause 25.2 (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 on such purchases made against the default.

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

25.6 In the event Company does not terminate the order as provided in clause 25.1 & 25.2 above, the supplier shall continue execution of this order, in which case he shall be liable to the CSPTCL for liquidated damages for the delay as per clause 4.3.4 until supplies are accepted.

26. **Arbitration:**

If at any time, any question, dispute or difference, whatsoever shall arise between the Purchase and the supplier, upon or in relation to or in connection with the Contract, either party may forth with 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 Purchase and the other to be nominated by the supplier or in the case of said arbitrators not agreeing, then to the adjudication of the Umpire to be appointed by the arbitrators, whose decision shall be final and binding on the parties and the provisions of the Indian Arbitration Reconciliation Act 1996, 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.

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

27. **Jurisdiction:** Any dispute or difference, arising under, out of or about this tender/ contract order shall be subject to exclusive jurisdiction of competent court at Raipur only.

28. **Approval of Drawing**: - The drawings of the ordered material should be submitted to this office within 10 days from the date of order for approval.

29. **Limitation of Liability**: - Except in cases of gross negligence or wilful misconduct,

a) The contractor and CSPTCL shall not be liable to the other party for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the contractor to pay liquidated damages to the CSPTCL

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b) The aggregate liability of the contractor to CSPTCL, whether under the contract, in tort or otherwise, shall not exceed the total contract price, provided that this

limitation shall not apply to the cost of repairing or replacing defective equipments, or to any obligation of the contractor to indemnify CSPTCL with respect to patent infringement.

30. **CHECK – LIST:-**

The check list (Schedule-XI) in respect of various schedules etc is required to be submitted by the bidder without which the tender will be considered incomplete and liable for rejection. The bidder should submit all schedule duly filled in along with this offer.

Executive Director (S&P)
CSPTCL : Raipur

SECTION – II

TECHNICAL SPECIFICATION FOR 245 KV SF_6 CIRCUIT BREAKERS

1.0 **SCOPE**:

This specification covers design, engineering, manufacture, assembly, inspection & testing before supply, packing & delivery of 245 KV class outdoor SF_6 Normal Duty/Single pole reclosing, circuit breakers along with support structures, terminal connectors, operating mechanism box all accessories and auxiliary equipments required for their satisfactory operation in various EHV grid substations of Chhattisgarh State.

1.2 It is not the intent to specify completely here all the details of design and construction of the circuit breakers. However the, breaker shall conform in all respects to the high standard of engineering design and workmanship and shall be capable of performing in continuous operation up to the Bidder's guarantee in a manner acceptable to the owner who will interpret the meanings of drawings and specifications and shall have power to reject any **work or material** which in his judgment is not in accordance therewith. The circuit breakers offered shall be complete with all components necessary for their effective and trouble free operation up to the end of guarantee period, to the entire satisfaction of purchaser or his representative. Such components shall deemed to be included within the scope of supply of the Bidder irrespective of whether these are specifically brought out in this specification and/or in the commercial order or not.

2.0 **STANDARDS :**

2.1 The offered circuit breakers shall conform to meet the requirement of the latest revisions of relevant standards of international Electro-Technical commission or equivalent national standards of the country with amendments of relevant standards, rules and codes, available at the time of testing at the manufacturer's work. Some of the standards & codes are listed herein for ready reference.

2.2 Equipment meeting with the requirements of any other authoritative standards, which ensures equal or better quality than the standard mentioned below shall also be acceptable. If the equipment offered by the Bidder conforms to any other standards, salient points of comparison between the standards adopted and the specific standards shall be clearly brought out in relevant schedule of technical deviation.

Copies of such standards with authentic English Translations shall be furnished along with the offer.

S. No.	STANDARD	TITLE
1.	IEC-56/ IS-13118	Specification for alternating current circuit breakers.
2.	IEC-376	Specification and acceptance of new supply of sulphur hexafluoride
3.	IS-375	Marking and arrangement for switchgear, busbar, main connections & auxiliary wirings.
4.	IS-2147	Degree of protection provided for enclosures for low voltage switchgear and control gear.
5.	IS-325	Specification for three phase induction motors.
6.	IS-2629	Recommended practice for hot dip galvanizing of iron and steel.
7.	IS-5	Color for ready mix paints.
8.	IS-2099	High voltage porcelain bushings.
9.	IS:5561	Electric Power connectors.

3.0 SERVICE CONDITIONS:

3.1 Climatic Conditions:

The breakers and accessories to be supplied against this specification shall be suitable for satisfactory continuous operation under the following tropical conditions.

i)	Location	Outdoor
ii)	Max. ambient air temperature (°C)	50 °C
iii)	Min. ambient air temperature (°C)	4°C
iv)	Average daily ambient air temperature	30 °C
v)	Max. Relative Humidity (%)	95%(sometimes approaches saturation)
vi)	Max. altitude above mean sea level (meters)	1000 m
vii)	Average annul rainfall	1250 mm
viii)	Max. wind Pressure	150 kg/m^2
ix)	Seismic level (Horizontal acceleration.)	0.3

Moderately hot and humid tropical climate, conducive to rust and fungus growth.

3.2 AUXILIARY POWER SUPPLY:

3.3 Auxiliary electrical equipment shall be suitable for operation on the following supply system:-

a.	Power device (like dry motor)	400 V 3 - ϕ , 4 wire 50 Hz, neutral grounded A.C. supply
b.	D.C. alarm, control and protective device	220 V or 110 D.C., 2 wire substation wise exact details shall be furnished to the successful bidder.

Each of the foregoing supplies shall be made available by the Owner at the terminal point for each circuit breaker for operation of accessories and auxiliary equipment. Bidder's scope include supply of interconnecting cables, terminal boxes etc. The supply voltage may vary as shown below and all devices shall be suitable for continuous operation over entire range of voltage variations :-

S.No.	Type of Supply	Range Variation
1	AC supply voltage	+10% to (-) 25%
2	AC supply frequency	frequency (±) 5%
3	D.C. Supply	(-)15% to +10%.

4.0 **TYPE & RATING:**

The offered circuit breakers shall be of Sulphur Hexa-Fluoride (SF6) gas type suitable for outdoor operation under all climatic conditions specified above without any additional protection from the sun, dust and rain.

As far as 220 KV network of CG system is concerned, studies carried out show that system stability is ensured with total fault clearing time of 80 milli seconds which also includes a small margin for the relay operating time over the guaranteed performance to allow for fault locations under varying system conditions. The purchaser has come to the conclusion that the circuit breaker shall have a total break time not exceeding 50 milli seconds for the range of fault levels likely to be experienced in the CG system. It

is therefore desired that total break time of any 245 kV class breaker shall not exceed 50 milli seconds (not more than 2.5 cycles) which should be guaranteed for interrupting ratings from 30% to 100% of the specified interrupting capacity.

5.0 PRINCIPAL PARAMETERS:

The breakers shall conform to the specific technical requirements specified hereunder:

S. No	Items	Requirement of 245 KV SF_6 Circuit Breaker
1.	Nominal System Voltage	220 KV
2.	Highest System Voltage	245 KV
3.	Rated Frequency	50 Hz.
4.	Rated Normal Current (A_{rms}) At 50°C Ambient Temperature	2000 Amperes
5.	Type	Outdoor SF_6
6.	Mounting Structural Details	Hot dip galvanized lattice steel support structure to be supplied by the bidder for all breakers. One platform with suitable steps should be provided of such a height that operator can easily operate the breaker climbing this platform.
7.	System Neutral Earthing	Effectively earthed
8.	Number of Poles	3
9.	Type of Operation (i) For transformers (ii) For Feeders	 (i) Normal Duty (Mechanically gang operated) (ii) Suitable for single pole reclosing.
10.	Phase to phase spacing in the switch yard i.e. interpole spacing for breaker (mm) SPR Duty/ ND	4500mm(SPR)/2800 m.m.(ND)
11.	Required ground clearance from the lowest live terminal to structure base place to be erected on Concrete Plinth in m.m.	5500 m.m
12.	Height of Concrete Plinth to be provided by the purchaser	300 m.m.
13.	Operating Mechanism	Spring operated by electrical & mechanical control individually for each breaker with anti pumping & trip free facility. All terminal connectors should be stud type.
14.	Auto Reclosing Duty (i) For feeders (ii) For transformers	 (i) Single phase - SPR duty (ii) Three phase
15.	Rated Operating Sequence	0-0.3 sec CO -3 min-CO
16.	"First Pole to Clear" Factor (Type of Tripping)	1.3 Trip free
17.	Opening time (ms)	27 ms max.
18.	Maximum closing time not exceeding in	72 max.

	millisecond	
19.	Maximum Total Break Time (For any Current Up to the rated breaking current) at limiting conditions of operating coil Voltage & Quenching Media Pressure in Milliseconds.	50
20.	a. Rated insulating level 1.2/ 50 Micro Second Lightning impulse withstand Voltage : (Kvp) b. 250/ 2500 Micro Second Switching Impulse Withstand Voltage (Kvp)	1050 -
21.	1 Minute Power frequency withstand Voltage KV rms	460
22.	Maximum Radio Interference Voltage	1000 at 266 kVrms line to ground voltage (both in closed & open condition)
23.	Minimum corona extinction voltage (kVrms)	-
24.	Rated breaking current capacity i) Line charging at rated voltage at 90° Degree leading power factor (Arms) ii) Rated small inductive current iii) rated short circuit breaking current in KA a. A.C. Component b. % D.C. Component c. Asymmetrical breaking current including DC Component	 280 Amperes (rms) (this should be possible with temporary over voltage as high as 2.3 p.u. without re-strike. 0 - 10 without switching over voltage exceeding 2.3 p.u. 50 K.A. Corresponding to minimum opening time as per IEC -56. To be confirmed by the bidder in accordance with IEC 56.
25.	Transient recovery voltage for terminal fault	As per IEC 56-2, 1971 Clause no. 7.
26.	Rated characteristics for short line faults	As per IEC 56-2, 1971 Clause no. 8.
27.	Rated out of phase making current	Breaking 25% of the rated fault current of twice rated voltage under out of phase conditions as per IEC publication no. 267
28.	Reactor loaded transformer interrupting capacity	To be specified by the bidder.
29.	Rated short circuit making current capacity	100 KA
30.	Permissible limits of temperature rise	As per the table given under clause 8.27
31.	Maximum acceptable difference in the instants of closing / opening of contacts	

	i) within a pole (milli second) ii) between poles (milli second)	5 10 The above timings will be at rated controlled voltage & rated operating & quenching media pressure.
32.	Total creepage distance of support insulator in m.m.	6,125 m.m.
33.	Type of tripping	The bidder should specifically mention whether the breaker is trip free or fixed trip according to IEC 56-1.
34.	Short time current carrying capacity for three seconds (kilo amperes) KA	50 KA.
35.	Breaking capacity of auxiliary contacts	10 A D.C. with the circuit time constant not less than 20 milli second.
36.	Noise level at base and upto 50 metres.	140 dB.
37.	Seismic acceleration	0.3 g (horizontal)
NOTE :- **With ref. to point No.-17 above, at 110V DC operating voltage the current in tripping coil of breaker should not exceed 6Amp at the time of tripping of breaker. The tripping coil resistance may be designed accordingly**.		

6.0 **SPECIAL DUTY REQUIREMENT :-**

6.1 DUTY CYCLES :

a. Terminal faults (C-1 min-O-CO-2 min-C-1 min-O-CO)

b. Reclosing against trapped charge: Same but with first, third and fourth closing being on de-energised line and second closing against trapped charge of 1.2 p.u. of opposite polarity.

c. Out of phase closing one closing operation under phase opposition i.e. with twice the normal voltage across the terminals.

The bidder shall highlight the design features provided to effectively deal with the followings

a) Charging of long lines open at other end.

b) Auto reclosing of line i.e. closing the breaker on trapped charge.

Details of gears, linkage etc., involved in ensuring the required time of insertion of resistor shall be indicated.

Damping resistors when provided shall be of ceramic type hermetically sealed in porcelain bushings.

6.2 TRANSFORMER/ REACTOR CHARGING CURRENT BREAKING CAPACITY:

The offered 245 kV class circuit breakers shall be capable of interrupting small inductive current, such as those occurring while switching off unloaded transformers of rating 500 MVA, for 220 KV breakers with/ without reactor/capacitor loaded transformers under all conditions, including those of high dynamic or temporary over voltages without giving rise to undue over voltage and without restrikes. The maximum over voltage value which will not be exceeded under such conditions shall also be stated in the bid.

6.3 SHUNT CAPACITOR SWITCHING CAPACITY:
The maximum rating of 3 phase single bank of shunt capacitors which can be switched safely by 220 KV circuit breakers without restriking shall be stated in the bid along with over voltage occurring during such switching. It should be confirmed that offered breakers will safely switch 3 Phase shunt capacitor single bank of 80 MVAR rating minimum.

6.4 DYNAMIC OVER VOLTAGES:
The circuit breaker shall be capable of satisfactorily performing all their duties including, but not limited to, clearing of faults and interrupting the line charging and transformer charging currents without causing undue over voltage and showing signs of undue strain while operating under conditions of high temporary (Power frequency) over voltage of the order of 1.5 p.u.
The stability of circuit breakers for working satisfactorily under such conditions should be explicitly guaranteed by the bidder and it should be supported with clear technical elaborations and details in the bid.

6.5. PROTECTION SCHEMES:
Two independent trip coils shall be provided on the breakers for segregation of two main relaying schemes. The local breaker back-up protection is also being provided and the breaker shall be suitable for its operation. Two separate DC sources shall be available one for each trip coil.

6.6. DEVELOPING FAULTS:
The circuit breakers shall be capable to withstand the high stresses imposed on them during fault clearing, developing faults, load rejection and re-energisation of line, with trapped charges within the full rating of the breaker. The breaker shall also withstand the voltage specified in clause "Principal Parameters of this specification"

6.7 TRIP FREE OPERATION:
The circuit breakers mechanism shall be suitable for trip-free operation.

6.8 SMALL FAULT-CURRENT INTERRUPTING CAPACITY:
The circuit breakers shall be capable of interrupting Small fault Currents of magnitude between 0.5 KA to 10 KA along with the usual short circuit current interrupting capacity in the range of 2 KA to 50 KA without causing any restrikes or causing un-permissible over-voltage on the system in which these are to be installed. The over-voltage shall not exceed 2.3 pu.
The test certificates in support of this capacity of circuit breaker must be submitted along with the bid.

6.9 RECOVERY VOLTAGE AND POWER FACTOR:
Each circuit breaker shall be capable of interrupting rated short circuit breaking current under the condition of recovery voltage corresponding to highest system voltage and to power factor not exceeding 0.15.

6.10 The circuit breakers shall be capable of satisfactory operation even under conditions of phase opposition that may arise due to faulty synchronising or otherwise. The maximum power in accordance with relevant IEC Specification which the circuit breaker can satisfactorily interrupt under-phase opposition shall be stated in the bid.

6.11 RESTRIKING VOLTAGE:
The rated transient recovery voltage for terminal faults shall be as already specified in clause No. 5 "Principal Parameters". The measures adopted for ensuring proper operation at high rate of rise of restriking voltage and for limiting the actual values

across the breakers shall be described in the tender. No opening resistors shall be necessary for ensuring conformity with the duty cycle.

6.12 LINE CHARGING CURRENT INTERRUPTING CAPACITY

Circuit breaker shall be designed so as to be capable of interrupting line charging currents as given in clause no. 5.0 "Principal Parameters" of this specification under the conditions of high dynamic over voltages of the order of 1.5 pu without showing signs of undue strain. The successful bidder shall have to carry out adequate acceptance tests with proper representation of actual system conditions, including correct simultation of natural frequency of bus bars so as to properly reproduce the initial part of the recovery voltage, to prove the charging current interrupting capability of the breaker. The bidder shall furnish in the bid complete details of procedure in respect of this acceptance test. The bid found deficient in respect of requirements as mentioned in this clause may be rejected.

The guaranteed over voltage, if any, which will not be exceeded while interrupting line charging current as given in clause '5' "Principal parameters" shall be stated in the tender.

"' The over voltage caused while interrupting the line charging current shall not exceed the limits of switching surges and dynamic over voltages as given here in above at clause 6.1 & 6.4. The result of the test conducted along with copies of the oscillographs to prove the capability of the circuit breakers to interrupt these and lower line charging current values shall be furnished along with the tender."

6.13. INSULATING SUPPORTS

The basic impulse insulation level of the external insulator supports bushing & interrupting insulator bushing shall match with that of the SF_6 circuit breakers and shall be specified and suitable for insulation in the contaminated atmosphere. Insulating supports shall be designed to have ample insulation and adequate mechanical strength and rigidity for satisfactory operation under various operating conditions detailed in this specification.

All hollow insulator & interrupter housing of identical rating shall be interchangeable. The puncture strength of the hollow insulator & interrupter housing shall be greater than the flash over value.

6.14. BREAKING CAPACITY FOR KILOMETRIC FAULTS:

All circuit breakers shall have high capacity for breaking short line (kilometric faults) with source impedance behind the bus equivalent to symmetrical fault current specified. The interrupting capacity of the circuit breakers for kilometric faults (short line faults) should be equal to its interrupting capacity and shall be stated in the bid. The details of tests conducted to guarantee the capability of the circuit breaker operation under kilometric fault condition shall be furnished in the bid.

6.15 AUTOMATIC RAPID RECLOSING:

220 KV circuit breakers shall be suitable for single pole automatic rapid reclosing as per requirement.

'The dead time corresponding to automatic rapid reclosing of the circuit breakers shall be adjustable at least within limits of 15 cycles (0.3 sec) to 35 cycles and actual limits of adjustment provided in the offered circuit breaker shall be stated in the bid. The relay or timer required for adjustment of the dead time shall form a part of the scope of supply. The breaking capacity of the circuit breakers shall be guaranteed for second and third interruptions.

6.16 TEMPERATURE RISE:

The temperature rise and the maximum temperature attained by any part of the equipment when in service at site under continuous full load conditions and exposed continuously to the direct rays of the sun shall not exceed the permissible limits as per limits given. The permissible temperature rise indicated is for a maximum ambient temperature of 50° deg. centigrade. If the maximum ambient temperature is higher, the temperature rise permissible limit shall be reduced accordingly.

6.18. INSULATION OF CIRCUIT BREAKERS:

The insulation to ground, insulation between open contacts and the insulation between phases of the completely assembled circuit breaker (including closing resistors etc.,) shall be capable of withstanding satisfactorily dielectric test voltage corresponding to the stipulations made in para 5 of "Principal parameters". The exposed live parts shall be placed high enough above ground to meet the requirements of local safety codes.

7.0 ADDITIONAL REQUIREMENTS:

a) The circuit breakers shall be single pressure type, the design and construction of the circuit beaker shall be such that there is minimum possibility of gas leakage and entry of moisture. There should not be any condensation of SF_6 gas on the internal insulating surface of the circuit breaker.

b) All gasketed surfaces shall be smooth, straight and reinforced, if necessary to minimise distortion and to make a tight seal, the operating rod connecting the operating mechanism to the arc chamber (SF_6 media) shall have adequate seals, Double"O" ring seals and test holes for leakage test of the internal seal shall be provided on each static joint.

c) In the interrupter assembly there shall be an absorbing product box to eliminate SF_6 decomposition products and moisture. The material used in the construction of the circuit breakers shall be fully compatible with SF_6 gas.

d) Each pole shall form an enclosure filled with SF_6 gas independent of two other poles. The SF_6 gas density of each pole in 220 KV Circuit breaker shall be monitored and regulated by individual pressure switches which are required for SPR duty.

FAIL SAFE to monitor the density of SF6 gas. TC-I & TC-II to be monitored through individual density monitor i.e. for each pole 2 Nos. of density monitor are to be provided.

e) The SF_6 gas density monitor shall be adequately temperature compensated. The density monitor shall meet the following requirements:

i) It shall be possible to dismantle the density monitor for checking/ replacement without draining the SF_6 gas by using suitable interlocked non-return couplings.

ii) It shall damp the pressure pulsation while filling the gas in service so that the flickering of the pressure switch contacts does not take place.

iii) Air & gas pressure indicator shall also be supplied. The pressure indicator shall have uniform graduated dial.

f) Means for pressure relief shall be provided in the gas chamber of circuit breaker to avoid the damages or distortion during occurrence of abnormal pressure increase or shock waves generated by internal electric fault / arcs. The position of vents, diaphragms and pressure relief devices shall be arranged so as to minimize danger to the operators in the event of gas or vapour escaping under pressure.

g) Facility shall also be provided to reduce the gas pressure within the breaker to a value not exceeding 8 milli-bars within 4 hours or less. Each circuit breaker

shall be capable of withstanding this degree of vacuum without distortion or failure of any part.

h) Sufficient SF_6 gas shall be provided to fill all the circuit breakers installed. In addition to this 20% of the total gas requirement shall be supplied in separate cylinders as spare requirement. This quantity of gas should be inclusive in the quoted rates of Breakers.

i) In addition to the gas required for first filling, spare cylinder of 20 kg capacity (one per breaker) has been asked in price schedule for which separate rates should be quoted.

j) Provisions shall be made for attaching an operation analyser after installation at site to record contact travel, speed and making measurement of operation timings, pre-insertion timing of closing resistor, synchronisation of contacts in one pole.

k) Portable SF_6 gas leakage detector to be supplied along with each SF_6 breaker.

8.0 GENERAL TECHNICAL REQUIREMENTS:

8.1 Circuit breaker offered shall be Sulphur hexa-flouride (SF_6) type only suitable for outdoor installation. Circuit breaker shall be designed to withstand seismic acceleration equivalent to 0.3g. If construction of the breaker is of wheel mounted type suitable locking clamps shall be provided designed to sustain above seismic acceleration.

8.2 Exposed live parts shall be placed high enough above ground to meet the requirement of local safety codes.

8.3 Any part of the breaker, especially the removable ones, shall be freely inter-changeable without the necessity of any modification at site.

8.4 Circuit-breaker shall comprise of three identical single pole units which should be linked together electrically. Each breaker pole shall have, its associated mechanism box. Common operating shaft for all the three poles is not acceptable for 220 KV class circuit breakers.

8.5 Complete circuit breaker with all the necessary items for successful operation shall be supplied, including but not limited to the following:

8.5.1 Breaker assemblies with bases, support -structure for circuit breaker as well as for control cabinet, central control cabinet and foundation bolts for main structure as well as control cabinet and central control cabinet (except concrete foundations), terminals and operating mechanisms.

8.5.2 Pneumatic / hydraulic type tripping / closing mechanism SF_6 gas filled breaker is not in the scope of the tender.

8.5.3 One central control cabinet for each breaker and one control box for each pole with all the required electrical devices mounted therein and the necessary stud type terminal blocks for termination of inter-pole wiring. The necessary intepole cables shall be in the scope of supplier and cabling at site shall be done by the Owner based on the schematic wiring diagram and termination schedule to be supplied by the Bidder.

8.5.4 Instruments, gauges and leakage detector for SF_6 gas pressures supervision.

8.5.5 All necessary parts to provide a complete and operatable circuit breaker installation such as main equipment, terminal connectors, control parts, cable connectors, pipe lines and other devices, whether specifically called for herein or not.

8.5.6 Circuit breaker shall be suitable for hot line washing.

8.5.7 All breakers shall be supplied with terminal connectors. Details of terminal connector required with each circuit breaker is enclosed and the bidders are required to confirm that the offered prices, are inclusive of terminal connectors.

8.8 The current density adopted for the design of the terminal pads shall in no case exceed the following values. For copper pads 1.6 A/sq.mm. and others - 1.0 A/sq. mm.

8.9 CONTACTS:

8.9.1 Main contacts shall have ample area and contact pressure for carrying the rated current and the short time rated current of the breaker without excessive temperature rise which may cause pitting or welding. Contacts shall be adjustable to allow for wear, easily replaceable and shall have a minimum of moveable parts and adjustments to accomplish these results.

8.9.2 All making and breaking contacts shall be sealed free from atmospheric effects. Contacts shall be designed to have adequate thermal and current carrying capacity for the duty specified and to have a life expectancy so that frequent replacements due to excessive burning will not be necessary. Provision shall be made for rapid dissipation of heat generated by the arc on opening.

8.9.3 Main contacts shall be first to open and the last to close so that there will be little contact burning and wear.

8.9.4 If arcing contacts are used they shall be first to close and the last to open. These shall be easily accessible for inspection and replacement. If there are no separately mounted arcing contacts the main contacts shall be easily accessible for inspection and replacements. Tips of arcing contacts and main contacts shall be silver plated or have tungsten alloy tips.

8.9.5 Any device provided for voltage grading to damp oscillations or to prevent re-strike prior to the complete interruption of the circuit or to limit over voltages on closing shall have a life expectancy comparable to that of the breaker as a whole.

8.9.6 Breakers shall be so designed that when operated within their specified rating, the temperature of each part will be limited to values consistent with a long life or the material used. The temperature shall not exceed that indicated in IEC-56 under specified ambient conditions.

8.9.7 Contacts shall be kept permanently under pressure of SF_6 gas. The gap between the open contacts shall be such that it can withstand at least the rated phase to ground voltage continuously at zero gauge pressure of SF_6 gas due to its leakage.

8.9.8 If multi-break interrupters are used these shall be so designed and augmented that a uniform voltage distribution is developed across them. Calculations/ test reports in support of the same shall be furnished along with the bid. The thermal and voltage withstands of the grading elements shall be adequate for the service conditions and duty specified.

8.10 PORCELAIN HOUSING:

8.10.1. The porcelain housing shall be of single piece construction without any joint or coupling, it shall be homogeneous, free from lamination, cavities and other flaws or imperfections that might affect high, mechanical, and dielectric strength and shall be thoroughly vitrified, tough and impervious to moisture.

8.10.2. Glazing of porcelain shall be uniform brown or darkbrown colour, free from blisters, burns and similar other defects with a smooth surface arranged to shed away rain water or, condensed water particles (fog).

8.10.3. Housings shall be designed to have ample insulation, mechanical strength and rigidity for satisfactory operation for the conditions under which they will be used. All housings of identical ratings shall be interchangeable.

8.10.4. Puncture strength of housings shall be greater than the dry flash-over value. When operating at normal rated voltage there shall be no electric discharge between the conductors and housing which would cause corrosion or injury to conductors, insulators or supports by the formation of substance produced by chemical action. No radio disturbance shall be caused by the housing when operating at the normal rated voltage.

8.10.5. All iron parts shall be hot dip galvanized and all joints shall be air-tight. Surfaces of the joint shall be made burr free, porcelain parts by grinding and metal parts by machining. Bushing design shall be such as to ensure a uniform compressive pressure on the joints.

8.10.6 All current carrying contact surfaces shall be silver plated.

8.10.7. Bushings shall satisfactorily withstand the insulation level specified in the IEC Specification.

8.11 SULPHUR HEXA FLUORIDE GAS (SF_6 GAS)

a. The SF_6 gas shall comply with IEC 376, 376A &376 B and be suitable in all respects for use in the switch gear under the worst operating conditions,

b. The high pressure cylinders in which the SF_6 gas is shipped and stored at site shall comply with requirement of the following standards and regulations:
   i) IS : 4379 Identifications for the contents of industrial gas cylinder.
   ii) IS : 7311 Seamless high carbon steel cylinders for permanent and high pressure liquifiable gases.
   iii) The cylinders shall also meet Indian boiler regulations.

c. Test : SF_6 gas shall be shall be tested for purity, dew point, break down voltage, water contents as per IEC 376, 376A 7 376B and test certificates shall be furnished to owner indicating all the tests as per IEC 376 for each lot of SF_6 gas.

8.12 AUXILIARY CONTACTS:-

The auxiliary switches (contacts) required for satisfactory operation of the circuit breaker including automatic reclosing (single shot single and three phases) ON/ OFF indicators both in control room and switch yard semaphore indicators in the mimic diagram in the control room and anti pumping in the mimic diagram in the control room and anti pumping features shall be provided on each circuit breaker and shall be clearly indicated in the bid and all these auxiliary switches shall be included in the scope of supply. In addition to the auxiliary switches mentioned above, the bidder shall provide as spares 10 auxiliary contacts each of the “normally open” and “normally closed” types which shall be used to operate the closing or opening of each of the three poles of circuit breakers. These spare switches shall be utilized for safety interlocking and other monitoring devices by the purchaser. Special contacts for use with the trip coils and single shot reclosing operations which permit the relative adjustment with respect to the travel of the circuit breaker shall also be provided. All auxiliary switches shall be placed in a weather proof galvanised casing and current rating of the switches shall be mentioned in the bid. There shall be provision to add more auxiliary switches at a later date and to convert the “normally open” contacts to the “normally closed” type and vice versa.

Arrangement proposed for connecting control cables to the auxiliary switches shall be clearly stated. Provision shall be made for suitable cable glands for receiving control cable for terminating connections in the auxiliary switches.

8.13 TOTAL BREAK TIME:

8.13.1 The "Total Break Time" as specified in clause 5.0, "Principal Parameters" of this section shall not be exceeded under any of the following duties:
   i) Test duties 1,2,3,4,5 (with TRV as per IEC)
   ii) Short line fault L90, L75 (with TRV as per IEC-56).

8.13.2 The Bidder may please note that there is only one specified break time of the breaker which shall not be exceeded under any duty conditions specified such as with the combined variation of the trip coil voltage, (70-110%) and arc extinguishing medium pressure etc. while furnishing the proof for the total break time of complete circuit breaker, the Bidder may specifically bring out the effect of non-simultaneity between

contracts within a pole or between poles and show how it is covered in the guaranteed total break time.

8.13.3 The values guaranteed shall be supported with the type test reports.

8.14 OPERATING MECHANISM AND ASSOCIATED EQUIPMENTS:

8.14.1 Each circuit breaker shall be designed for remote control from the control room in addition there shall be provision for local tripping & closing operations both by electrical control. Mechanical arrangement should also be provided to facilitate manual tripping of circuit breaker for emergency trip when DC is not available OR tripping coil is burnt OR trip lever mechanism becomes defective etc., under healthy arc quenching medium condition.

8.14.2 The operating mechanism shall be spring type, operated by electrical & mechanical control under every method of tripping/ closing. The mechanism shall be adequately designed & capable of performing satisfactorily the specified tripping and re-closing duty indicated above within the time specified. The entire operating mechanism control circuitry including electrical controls & monitoring devices and all other accessories, individual breaker compressor unit, pump, etc., as required, shall be housed in an outdoor type, hot dip galvanised steel enclosure. This enclosure shall conform to the degree of protection IP-55 of BIS 2147. The enclosure shall be invariably mounted on a separate concrete plinth of 300 mm height. However in case due to IP-55 protection limitations, if operating mechanism is mounted below the pole housing, in that case it should be possible for operating personnel to charge the spring from ground level including making ON/OFF operation without using any stool or plateform.

8.14.3 All working parts in the mechanism shall be of corrosion resistant material. All bearings which require greasing, shall be equipped with pressure grease fittings. Bearing pins, bolts, nuts and other parts shall be adequately pinned or blocked to prevent loosening or charging adjustment with repeated operation of the breaker.

8.14.4 The design of the operating mechanism shall be such that it shall be practically maintenance free. The guaranteed years of maintenance free operation, the number of full load and full rated short circuit current breaking/operation without requiring any maintenance or overhauling, shall be clearly stated in the bid. As far as possible the need for lubricating the operating mechanism shall be kept to the minimum and eliminated altogether if possible.

8.14.5 The operating mechanism shall be suitable for high speed single phase reclosing. It shall be non-pumping and trip free electrically and mechanically under every method of closing. A latch checking switch shall be provided on mechanically trip free mechanism to prevent reclosing before the breaker latches have reset. There shall be no objectionable rebounds in the mechanism and it shall not require any critical adjustments at site. It shall be string, rigid, positive and fast in operation. Mechanism shall be such that the failure of any auxiliary spring will not cause tripping or closing. Operation of the power operated closing device, when the circuit breaker is already closed, shall not cause damage to the circuit beaker or endanger the operator life. Provision shall be made for attaching an operation analyser similar to concinnatic operation analyser to facilitate speed test after installation of the breaker at site. ON-OFF indicating lamps shall be provided on the mechanism box.

8.14.6 A mechanical indicator shall be provided to show open and close position of the breaker in addition to facilitate remote electrical indication. An operation counter shall also be provided in the central control cabinet. The mechanical indicator and operation counter shall be located in a position where it will be visible to a man standing on the ground level with the mechanism housing closed.

8.14.7 Should the settings of the three breaker poles not be the same (e.g. failure of an operating or closing coil) all three poles shall trip simultaneously on appropriate

electrical command. An out of step relay shall be supplied with each breaker to give a remote trip discrepancy alarm.

8.14.8 Should the most unlikely situation occur in SF_6 breakers where there is a substantial pressure loss in a pole already open, the main interrupting chamber column should be blocked off (by a non return value) so that the main interrupting chambers remain pressurized and can retain their full insulating capacity for several more hours.

8.14.9 Circuit breaker operating mechanism shall incorporate an electrically achieved positive acting anti-pumping feature to prevent the circuit breaker from reclosing after an automatic opening when the initiating closing device is maintained in the position for closing. Necessary anti-pumping relay shall be included in the scope of supply.

8.14.10 The Bidder shall furnish detailed operation and maintenance manual of the mechanism along with the operation manual for the circuit beaker.

8.14.11 All material for making connection between the circuit breaker and its local control cabinet shall be included in the scope of supply.

8.14.12 All the similar contacts of 3 pole circuit breakers shall be designed to touch or open essentially simultaneously & in any case shall close or open within a period of half a cycle or less. The auxiliary circuit through resistors shall be closed in sufficient time before the main contacts closes to ensure that the over-voltage will be held to guaranteed value under most favorable sequence of contact closing.

8.15 MOTOR COMPRESSED SPRING CHARGING MECHANISM:

Spring operated mechanism shall be complete with motor, opening & closing spring with Visual indication for spring charged / discharged condition and all necessary accessories to make the mechanism a complete operating unit. Each mechanism shall be so designed as to enable a continuous sequence of circuit breaker opening and closing operations to be obtained by the control switch as long as power is available to the motor and at least one circuit breaker opening and closing after failure of power supply to the motor. Breaker operation shall be independent of the motor which shall be used solely for the purpose of compressing the closing spring. Motor rating shall be such that it required only about 30 seconds for fully charging the closing spring. Closing action of the circuit breaker shall compress the opening spring ready for tripping. Motors for spring charging mechanism shall operate satisfactorily at all supply voltages between 85% and 110% of the rated voltage. Spring charging motor shall be AC motor (Single or 3 phase 230/400 volts). DC Motors are not acceptable. The mechanism shall be capable of performing the rated operating duty cycle of 0-0.3 sec-CO-3 mins-CO as per IEC:56 and in the event of failure of power supply to spring charging motor, the mechanism shall be capable of performing one sequence of 0-0.3Sec-CO duty.

Facility shall be provided for manual charging of closing springs by operating personnel from ground level.

8.16 OPERATING MECHANISM HOUSING:-

The operating mechanism housing/ control cabinet shall conform to the requirement specified in clause 8.29.5.

8.17 CONTROL:

8.17.1 The close and trip circuits shall be designed to permit use of momentary contact switches and push buttons.

8.17.2 Each breaker pole shall be provided with the independent tripping circuits, valves and coils; each connected to a different set of protective relays. The trip coils circuit shall be such that to facilitate trip circuit supervision in Pre & post closing the control panel of control room. The trip circuit supervision relay would be provided by the Owner.

Necessary terminals shall be provided in the central control cabinet of the circuit breaker by the Bidder.

These two trip coils shall be arranged separately and electrically wired up to control cubicle with schematic connections such that healthiness of both trip coils individually could be checked in the control cubicle itself.

8.17.3 The breaker shall normally be operated by remote electrical control. The electrical tripping shall be performed by shunt trip coils. However, provisions shall be made for local electrical control. For this purpose a local / remote selector switch and close and trip push buttons shall be provided in the breaker central control cabinet. Remote located push buttons and indicating lamps shall also be provided by the Owner in the control room panel.

8.17.4 A conveniently located manual mechanical tripping lever or push button shall also be provided for tripping the breaker and simultaneously opening the reclosing circuit.

8.17.5 Closing coil shall operate correctly at all values of voltage between 135% and 110% of the rated voltage of closing coil. Shunt trip coils shall operate correctly under all operating conditions of the circuit breaker up to the rated breaking capacity of the circuit breaker and at all values of D.C. supply voltage between 70% and 110% of rated voltage. However, even at 50% of rated voltage, the breaker shall be able to perform all its duties. If additional elements are introduced in the trip coil circuit their successful operation and reliability for similar applications on outdoor circuit shall be clearly brought out in the additional information schedules. In the absence of adequate details the offer is likely to be rejected.

8.17.6 Suitable relay for monitoring of DC Supply voltage to the control cabinet shall be provided. The pressure switches used for interlock purposes shall have adequate contact ratings to be directly used in the closing and tripping circuits. In case the contacts are not adequately rated and multiplying relays are used then the interlock for closing/ opening operation of breaker shall be with NO logic of the relay i.e. if the DC supply to the interlock circuit fails operation lockout shall take place.

8.17.7 The auxiliary switch of the breaker be preferably positively driven by the breaker operating rod and where due to construction features, same is not possible a plug in device shall be provided to simulate the opening and closing operations of circuit breaker for the purpose of testing control circuits.

8.18 INTERLOCKS:

It is proposed to electrically interlock the circuit breaker with Owner's associated air break isolating switches in accordance with switchyard safety interlocking scheme. The details of the scheme will be furnished to the Successful Bidder. All accessories required on breaker side for satisfactory operation of the scheme shall be deemed to be included in the scope of supply of this specification.

8.19 SUPPORT STRUCTURE:

The price of support structure(Hot dip galvanized) & foundation bolts etc. should be included in the price of the circuit breakers. The support structure shall meet the following requirements:-

i) The minimum vertical clearance -from any energised metal part to the bottom of the circuit breaker (structure) base, where it rests on the foundation pads shall be 5.5 meters for 220 kV.

ii) The minimum clearance between the live parts and earth shall be 2.4 meters for 245 KV circuit breakers. In case the structures are not ordered, the supplier shall furnish drawings for fabrication of structure at site.

8.20 FITTINGS AND ACCESSORIES:

8.20.1 Following is a partial list of some of the major fittings and accessories to be furnished by Bidder as an integral part of equipment. Number and exact location of these parts shall be indicated in the bid.

a) Operating mechanism housing in accordance with clause no. 5.31 & shall be complete with
   i) Padlocks and duplicating keys,
   ii) trip coils/ closing coil,
   iii) Space heater equipped with industrial grade switch.
   iv) Cable glands.
   v) Industrial grade receiptable type pin 15 Amps, power plug & socket with switch.
   vi) Local/ remote changeover switch.
   vii) Manually operated tripping Push button / lever (mechanical device conveniently located to trip all three phases simultaneously).
   viii) Pistol grip circuit breaker control switch having trip /normal / close position.
   ix) Terminal Boards.
   x) Spring charged / discharged indicator.
   xi) Operation counter.
   xii) Facility for manual charging of spring.
   xiii) Pneumatic pressure gauges.
   xiv) Fuses/ MCBs as required for AC & DC supply.
   xv) The number of terminals provided shall be adequate enough to wire out all contacts and control circuits plus 20% spare terminals for owner's use. It may please be noted that only stud type terminal shall be used for termination of inter panel wiring and also for outgoing termination. No screw type terminals shall be used anywhere in the breaker / control cubicle.
   xvi) Manual charging spring operating handle for maintenance.
   xvii) Auxiliary switch.
   xviii) Mechanical ON & OFF Indicator.
   xix) Cubicle lamp with cage & switch.
   xx) Anti-pumping relay.
b) Set of 6 nos. gravity die cast terminal connector clamps.
c) Rating and diagram plate in accordance with IEC incorporating year of manufacture.
d) SF_6 gas leakage detector.

8.21 SURFACE FINISH, PAINTING GALVANIZING

8.21.1 All interiors and exteriors of tanks, mechanism, enclosures, cabinets and other metal parts shall be thoroughly cleaned to remove all rust, scales, corrosion, greases or other adhering foreign matter. All steel surfaces in contact with insulating oil, as far as accessible, shall be painted with not less than two coats of heat resistant, oil insoluble, insulating paint. Steel surfaces exposed to the weather shall be hot dip galvanised.

8.21.2 All metal surfaces exposed to atmosphere shall be given two primer coats of zinc chromate and two coats of epoxy paint with epoxy base thinner. All metal parts not

accessible for painting shall be made of corrosion resisting material. All machine finished or bright surfaces shall be coated with a suitable preventive compound and suitably wrapped or otherwise protected. All paints shall be carefully selected to withstand tropical heat and extremes of weather within the limits specified. The paint shall not scale off or wrinkle or be removed by abrasion due to normal handling. All external paintings shall be as per shade no. 697 of IS : 5.

8.21.3 All ferrous hardware exposed to atmosphere shall be hot dip galvanised.

8.22 GALVANISING

All ferrous parts & steel structure including all sizes of nuts, bolts plain and spring washers, support channels, structures, etc. shall be hot dip galvanised to conform to latest version of IS: 2629 or any other equivalent authoritative standard.

8.23 EARTHING:

The operating mechanism housing, cabinets, dead tanks, support structure etc shall be provided with two separate earthing terminals suitable for bolted connection to 50 x 8 mm MS flat to be provided by the owner for connection to station earth mat.

8.24 RATING AND NAME PLATE

Circuit breaker and its operating device shall be provided with a rating plate or plates marked with but not limited to following data:

a. Manufacturer's name or trade mark.
b. Serial number or type designation making it possible to get all the relevant information from the manufacturer.
c. Year of manufacture.
d. Rated nominal / highest voltage.
e. Rated insulation level.
f. Rated frequency.
g. Rated normal current.
h. Rated capacitive /inductive breaking current.
i. Rated short circuit breaking current.
j. First pole to clear factor.
k. Rated duration of short circuit.
l. Rated auxiliary D.C. supply voltage of closing and opening devices.
m. Rated pressure of compressed Air for operation and interruption.
n. Rated out of phase breaking current.
o. Rated AC supply voltage of auxiliary circuits.
p. Rated DC supply voltages of auxiliary circuits.
q. Mass of circuit breaker.
r. Owner's Purchase order number & date.

The rating plate shall be visible in position of normal service and installation. The rating plate shall be weather proof and corrosion proof.

8.25 LIMITS OF TEMPERATURE RISE:

The temperature rise and the maximum temperature attained on any part of equipment when in service at site under continuous full load conditions and exposed continuously to the direct rays of the sun, shall not exceed the maximum temperature rise specified below in the table. The permissible temperature rise indicated in the table is for a maximum ambient, temperature of 50ºC. If the maximum ambient temperature rises, permissible values shall be reduced accordingly.

S. No.	Nature of the Part or of the Liquid	Maximum values of	
		Temperature	temperature rise at a maximum ambient air temperature not exceeding 50°C
1	Contacts in Air Silver Faced Copper, Copper Alloys Or Aluminum Alloys (See Notes 1 &2) Bare Copper Or Tinned Aluminum Alloy.	105 75	55 25
2	Contacts In Oil Silver Faced Copper Alloy Or Aluminum Alloy (See Notes 2) Bare Copper Or Tinned Aluminum Alloys	90 80	40 30
3	Terminal to be connected to external Conductor by Bolts, Silver Faced (See Notes 3)	105	55
4	Metal Parts Acting As Springs	See note IV	See note IV
5	Metal Parts in Contact with Insulation of following clauses :-		
	Class Y: For Non Impregnated Materials	90	40
	Class A: For Materials Immersed In Oil Or Impregnated	100	50
	Class "E" a. In Air b. In Oil	 120 100	 70 50
	Class "B" a. In Air b. In Oil	 130 100	 80 50
	Class "F" a. In Air b. In Oil	 155 100	 105 50
	Enamel : Oil Base a. Synthetic In Air b. Synthetic In Oil	100 120 100	50 70 50
6	Any Part of Metal Or of Insulating Material in contact with oil except contacts	100	50
7	Oil	90	40

Notes:

i) While applying the temperature rise of 55 deg. C, care should be taken to ensure that no damage is caused to the surrounding insulating materials.

ii) The quality of the silver facing stall be such that a layer of silver remains at the points of contact after the mechanical endurance test. Otherwise, the contacts shall be regarded as "bare".

iii) The values of temperature and temperature rise are valid whether or not the conductor connected to the terminals is silver-faced.

iv) The temperature shall not reach a value where the elasticity of the material is impaired. For pure copper, this implies a temperature limit of 75° deg.C.

8.26.1 CONTROL AND CONTROL EQUIPMENT:

a) Duplicate incoming supply of 415 V, AC shall be provided by the Owner, at switch yard motor control centre.
b) All control equipments shall be housed in a totally enclosed sheet steel cabinet, Pressure gauges and other indicating devices, control switches shall be mounted on the control cabinet.

8.26.2 ISOLATING SWITCHES:

The incoming power supply isolating switch, operating handle shall be interlocked with the control cabinet door so as to prevent opening of door when main switch is closed. Device for by-passing the door interlock shall also be provided. Switch handle shall have provision for locking in both fully open and fully closed positions.

8.26.3 FUSES:

All fuses shall be of the HRC cartridge type, conforming to IS : 2208 and suitable for mounting on plug-in type of fuse bases. Fuses shall be provided with visible operation indicators to show that they have operated. All accessible live connections shall be adequately shrouded, and it shall be possible to change fuses with the circuit alive, without danger of contact with live conductor. Insulated fuses pulling handle shall be supplied with each control cabinet.

8.27 TERMINAL CONNECTORS:

8.27.1 Terminal clamp for 220 KV Circuit breakers shall be suitable for twin zebra ACSR conductors. Clamps shall be designed adequately to take care of any bimetallic effect. The temperature at the clamp shall not exceed 80° deg. C. Corona rings shall be provided at the breaker terminals to control the radio interference. Two numbers grounding terminals for connection with station earth mat shall be provided on each circuit breaker. Size of the earthing pad shall be suitable for 50 x 8 or 60 x 8 M.S. flat.

8.27.2 The terminal connectors shall also meet the following requirements:

a) Terminal connectors shall be manufactured and 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 of a clamp shall be less than 12 mm thick.
d) The nut, bolts & washers used in current carrying path shall be of stainless steel.
e) For bimetallic connectors, copper alloy liner of minimum thickness of 2 mm shall be integral with aluminium body.
f) Flexible connectors shall be made from tinned copper/ aluminium sheets.
g) All current carrying parts shall be designed and manufactured to have minimum contact resistance.
h) Connectors shall be designed to be corona free in accordance with the requirements stipulated in IS : 5561.

8.27.3 Terminal connector shall be tested for short circuit current capability test, temperature rise test, corona test etc. The terminal connectors should be manufactured by gravity die-casting process only.

8.28 SPECIFICATION FOR CONTROL CABINETS:

1. Control cabinets shall be of the free standing floor mounting type.
2. Operating mechanism and all accessories shall be enclosed in weather & vermin proof mechanism cabinet of hot dip galvanised sheet steel construction. The thickness of which shall not be less than 3 mm intended for outdoor operation. Control cabinets shall be provided with a hinged door. The door hinges shall be of union Joint type and giving access to the mechanism at the front and sides shall be properly braced to prevent wobbling. Suitable gasket shall be provided

to make the mechanism housing water proof and dust proof. The housing latch shall accommodate padlock requiring a 12 mm dia hole. Padlock and duplicate keys shall be furnished by the bidder.

3. Equipment and devices shall be suitable for operation on a 400 V, 3 phase 4 wire 50 Hz A.C. system or single phase 230 volts 2 wire systems. The frequency can vary between 95% to 105% of normal frequency of 50 Hz and voltage from 110% to 75% of normal value.
4. Bus bar shall be of tinned copper of adequate cross-section to carry the normal current, without exceeding the permissible temperature rise over an ambient temperature of 50 deg. C outside the cubicle. The buses shall be braced to withstand forces corresponding to short circuit current of 25 kA
5. Motors rated 1 kW and above being controlled from the control cabinet would be suitable for operation on a 400 V, 3 phase 50 Hz system. Fractional kW motors would be suitable for operation on a 230 V, 1 phase, 50 Hz supply system.
6. Isolating switches shall be group operated units (3 pole for use on 3-phase supply systems and 2 pole for single phase supply systems) quick make quick break type, capable of Breaking safely and without deterioration, the rated current of the associated circuit. Control cabinet door shall be interlocked with the operating handle of the switch so as to prevent opening of the door when the switch is closed. A device for bypassing the door interlock shall also be provided. Switch handle shall have provision for locking in both fully open and fully closed positions.
7. Fuses shall be HRC cartridge link type having prospective current rating of not less than 46 kA (r.m.s.). They shall be provided with visible operation indicators to show when they have operated. One fuse pulling handle shall be supplied for every ten fuses or a part thereof.
8. Push button shall be rated for not less than 6 Amps, 400 V A.C. or 2 Amps, 220V/ 110V D.C. and shall be flush mounted on the cabinet door and provided with appropriate name plates. Red, Green and Amber indicating lamps shall be flush mounted and provided with series resistors to eliminate the possibility of short circuiting of control supply in the event of fusing of lamps.
9. For motors up to 5 kW, contactors shall be direct-on-line, air break single throw type and shall be suitable for making and breaking the stalled current of the associated motor which shall be assumed equal to 6.5 times the full load current of the motor at 0.2 p.f. For motors above 5 kW, automatic star delta type starters shall be provided. 3 pole contactors shall be furnished for 3 phase motors and 2-pole contactors for single phase motors. Reversing contactors shall be provided with electrical interlocks between forward and reverse contractors. If possible mechanical interlock shall also be provided. contactors shall be suitable for uninterrupted duty and shall be of duty category class AC4 as defined in IS : 2959. The main contacts of the contactors shall be Silver plated and the insulation class for the coils shall be class E or better. The dropout voltage of the contactors shall not exceed 70% of the rated voltage.
10. Contactors shall be provided with a three element Positive acting, ambient Temperature compensated, time lagged, hand reset type thermal overload relay with adjustable setting. hand reset button shall be flush with the front door of the cabinet and suitable for resetting with starter compartment door closed, Relays shall be either direct connected or CT operated depending on the rated motor current.

11. Single phasing preventing relays provided for 3 phase motors to provide positive protection against single phasing.
12. Mini starters shall be provided with no volt coils whenever required.
13. Owner's power cables will be of 1100/650 volts grade stranded aluminium conductor. PVC insulated, PVC sheathed single steel wire armoured and PVC jacketed. All necessary cable terminating accessories such as glands, crimp type tinned copper lugs etc. for power as well as control cables shall be included in Bidder's scope of supply. Requisite number of suitable brass cables glands shall be provided for cable entry at the bottom of the operating cabinet to receive purchaser's Control cables. Number & size of cable glands will be intimated to the successful tenderers. These shall be mounted in accessible position and floor level so joints can be made easily. Cable glands shall be double compression type.
14. Separate terminal blocks shall be provided in the mechanism housing for terminating circuits of various voltage classes. Terminals for DC & AC shall be provided separately and isolated from each other. CT loads shall be terminated on a separate block and shall have provision for short circuiting the CT secondary terminals. Terminals for the control & other circuits shall be suitable for accommodating 3 mm stranded conductor cable leads. A minimum of six spare terminals for control wiring shall be provided. The housing shall be complete with all the necessary wiring in the housing.
15. Wiring for all control circuits shall be carried out with 1100/ 650 volts grade PVC insulated tinned copper stranded conductors of sizes not smaller than 2.5 m.m. at least 20% spare terminal blocks for control wire terminations shall be provided on each panel. The terminal blocks shall be ELMEX type or equivalent. All terminals shall be provided with ferrules indelibly marked or numbered and these identifications shall correspond to the designations on the relevant wiring diagrams. The terminals shall be rated for adequate capacity which shall not be less than 10 Amperes.
16 Control cabinet shall be provided with 230 V, 1 phase 50 Hz, 20 W fluorescent light fixture and a suitably rated 230V, 1 phase, 5 amps, 3 pin socket for hand lamps. Suitably rated switches shall be provided to enable the control supply to the breaker to be cut off from the mechanism housing.
17. Suitable strip heaters shall be provided inside each cabinet with thermostat to prevent moisture condensation. Heaters shall be controlled by suitably rated industrial switch unit with fuse shall be provided. Heater shall be suitable for 230 volts AC supply unless otherwise specified.
18. Signal lamps provided shall be of LED type with series resistors, enclosed in bakelite body. Each signal lamp shall be provided with a fuse integrally mounted in the lamp body.
19. Items inside the cabinet made of organic material shall be coated with a fungus resistant varnish.
20. All doors, panels removable covers and breaker openings shall be gasketed all around. All louvers shall have screen and filters. Cabinet shall be dust, moisture and vermin proof.

8.29 MOTORS:

8.29.1 Motors shall be "squirrel cage" three phase induction motors or self starting single phase motor of sufficient size capable of satisfactory operation for the applications and duty as required for driven equipment.

8.29.2 Stator Frame: The stator frame and all external parts of the motor shall be rigid, fabricated steel or of casting. They shall be suitably annealed to eliminate any residual stresses introduced during the process of fabrication and machining.

i) Stator Core: The stator laminations shall be made from suitable grade magnetic sheet steel varnished on both sides. They shall be pressed and clamped adequately to reduce the core and teeth vibrations to minimum.

ii) Insulation and Winding:

a. All insulated winding conductor shall be of copper. The overall motor winding insulation shall be conventional class B type. The winding shall be suitable for successful operation in hot, humid and tropical climate with the ambient temperature of 50 deg. C. The insulation shall be given fungicidal and tropical treatment as per IS: 3202.

b. Any joints in the motor insulation such as at coil connections or between slot and winding section shall have strength equivalent to that of slot section of the coil.

c. For 400 Volt motors, after the coils are placed in slots and all connections are made, entire motor assembly shall be impregnated by completely submerging core and winding in suitable insulating compound or varnish followed by proper baking. At least two additional submersions and bakes shall be applied either making a total of at least three submersions and bake treatment.

8.29.3 Rotor:

a. Rotors shall be adequately designed to avoid overheating during the starting and running conditions.

b. Rotors shall be properly balanced so as to keep the vibration under running condition within the limits.

c. Rotors of induction motors shall be of rigid core construction with bars firmly secured and solidly bonded to the end rings. The end rings assembly shall be such that it is free to move with expansion of the bars without distortion. The connection of the bars to the end ring shall be made by brazing or fusion welding.

d. Rotors shall be so designed as to keep the combined critical speed with the driven equipment away from the running speed by at least 20%.

e. Rotors shall also be designed to withstand 120% of the rated speed for 2 minutes in either direction of rotation..

f. All high speed rotors shall be constructed with provision of rebalancing the rotor on its site position without major dis-assembly.

8.29.4 Bearings:

a. Depending upon the capacity and loading conditions, the supplier shall design suitable grease lubricated or oil lubricated bearings.

b. Greased ball and roller bearing when used shall be of reputed make subject to purchaser's approval. The minimum standard life of the bearing shall not be less than 30,000 working hours taking all motor and driven loads into account these shall be pressure grease gun lubricated type fitted with grease nipples and shall have grease relief devices.

c. Bearing shall be so constructed that the loss of grease and its creeping along with shaft into motor housing is prevented. It shall also prevent dirt and water from getting into the motor.

d. Unless otherwise approved bearing lubrication system shall be such that no external forced oil or water is necessary to maintain the required oil supply or to keep bearing temperature within permissible limits.

e. For oil lubricated bearings drain plugs shall be provided for draining any residual oil when required.

8.29.5. Enclosures:

a) Motors to be installed outdoor shall have hose proof enclosure equivalent to IP-55 as per IS : 4691. For motors to be installed indoor, the enclosure shall be dust proof to IP-54 as per IS : 4691.

b) Two independent earthing points shall be provided on opposite sides of the motor for bolted connection of earthing conductor.

c) Motors shall have drain plugs so located that they will drain water resulting from condensation or other causes from all pockets in the motor casing.

d) Motors weighing more Than 25 Kg small be provided with eyebolts, lugs or other means to facilitate lifting.

8.29.6. Cooling Method:

Motors shall be of self ventilated type having TEFC (totally enclosed fan cooled) enclosure.

8.29.7. Rating Plate:

The rating plate shall conform to the requirements of IEC incorporating the year of manufacture.

8.29.8 Operational Features:

a) Continuous motor rating (name plate rating) shall be at least ten (10) percent above the maximum load demand of the driven equipment at design duty point and the motor shall not be overloaded at any operating point of driven equipment that will arise in service.

b) Motors shall be capable of giving rated output without reduction in expected life span when operated continuously in the system having the particulars as given in principal parameters.

8.29.9. Starting Requirements.

a) All induction motors shall be suitable for full voltage direct-on-line starting. These shall be capable of starting and accelerating to the rated speed along with the driven equipment without exceeding the acceptable winding temperature even when the supply voltage drops down to 85% of the rated voltage.

b) Motors shall be capable of withstanding the electro-dynamic stresses and heating imposed if it is started at a voltage of 110% of the rated value.

c) The locked rotor current shall not exceed six (6) times the rated full load current for all motors, subject to tolerance as given in IS : 325.

d) Motors, when started with the driven equipment imposing full starting torque under the supply voltage conditions; specified under clause 8.31.9 (a) above, shall be capable of withstanding at least two successive starts from cold condition at room temperature and one start from hot condition without injurious heating of winding. The motors shall also be suitable for three equally spread starts per hour under the above referred supply condition.

e) The locked rotor withstand time under hot condition at 110% of rated voltage shall be more than starting time with the driven equipment of minimum permissible voltage by at least two seconds or 15% of the accelerating time

whichever is greater. In case it is not possible to meet the above requirement, the supplier shall offer centrifugal type speed switch mounted on the motor shaft which shall remain closed for speeds lower than 20% and open for speeds above 20% of the rated speed. The speed switch shall be capable of withstanding 120% of the rated speed in either direction of rotation.

9.0 TESTS & TEST REPORTS

9.1. All the equipment offered, shall be fully type tested as per the relevant standards. In case the equipment of the type and design offered has already been type tested, the supplier shall furnish two sets of the type test reports along with the offer. For any change in the design/ type already type tested and the design/ type offered against this specification the purchaser reserves the right to demand repetition of tests without any extra cost. In case the equipment has not been type tested earlier, all the type tests as per relevant standards shall be carried out by the successful supplier in the presence of purchaser's representative without any extra cost.

9.2. The test reports of the type tests and the following additional type tests shall also be submitted for Purchaser's review:

i) Corona extinction voltage test.
ii) Out of phase closing test as per IEC:62271-100.
iii) Line charging breaking current for proving parameters.
iv) Test to demonstrate the Power Frequency withstand capability of breaker in open condition at Zero Gauge pressure and at lockout pressure.
v) Seismic withstand test in unpressurised condition.
vi) Verification of the degree of protection.
vii) Low & high temperature test.(if applicable)
viii) Humidity test.(if applicable)
ix) Static Terminal Load test.
x) Critical Currents test (if applicable).
xi) Switching of Shunt Reactors.

9.3 Routine Tests

Routine tests as per IEC : 62271-100 shall be performed on all circuit breakers.

In addition to the mechanical and electrical tests specified by IEC, the following tests shall also be performed.

1) Speed curves for each breaker shall be obtained with the help of a suitable operation analyser to determine the breaker contact movement during opening, closing, auto-reclosing and trip free operation under normal as well as limiting operating conditions (control voltage, pneumatic/hydraulic pressure etc.). The tests shall show the speed of contacts directly at various stages of operation, travel of contacts, opening time, closing time, shortest time between separation and meeting of contacts at break make operation etc. This test shall also be performed at site for which the necessary operation analyser along with necessary transducers, cables, console, etc. where included in scope of supply shall be furnished and utilised. In case of substations where operation analyser is existing the bidder shall utilise the same. However necessary adopter and transducers etc. if required shall have to be supplied by the bidder.
2) Measurement of Dynamic Contact resistance measurement for arcing & main contacts. Signature of Dynamic contact resistance measurements shall be taken as reference for comparing the same during operation and maintenance in order to ascertain the healthiness of contacts.

9.4 **Site Tests:**

All routine tests except power frequency voltage dry withstand test on main circuit breaker shall be repeated on the completely assembled breaker at site.

10.0 INSPECTION:

10.1 The purchaser reserves the right to insist for witnessing the acceptance/ routine testing of the bought out items.

10.2 No material shall be dispatched from its point of manufacture unless the material has been satisfactorily inspected and tested

10.3 The supplier shall submit the routine test certificates of bought out items and raw material at the time of routine testing of the fully assembled breaker.

11.0 DOCUMENTATION

11.1 All drawings shall conform to International Standards Organisation (ISO) 'A' series of drawing sheet/ Indian Standards Specification IS.-656. All drawings shall be in ink and suitable for micro filming. All dimensions and data shall be in S.I. Units.

11.2 List of Drawings and Documents :

The supplier shall furnish sets of relevant descriptive and illustrative published literature pamphlets and the following drawings for preliminary study alongwith the offer.

a) General outline drawings showing dimensions and shipping weights, quantity of insulating media, air receiver capacity etc.,
b) Sectional views the general constructional features of the circuit breaker including operating mechanism, arcing chambers, contacts with lifting dimensions for maintenance.
c) All drawings & data typical and recommended schematic diagram for control supervision & reclosing
d) Drawings & details of terminal connectors.
e) Structural drawing, design calculations and loading data for support structures.
f) General arrangement of foundation structure mounting plan including weights of various components and impact loading data for foundation design.
g) Type test reports of short circuit withstand capability of 3 sec including oscillogram & relevant certificate of similar type tested breaker.

11.3 The successful supplier after receipt of purchase order shall within 10 days of placement of order submit four sets of final version of all the above drawings for purchaser's approval. The purchaser shall communicate his comments/ approval on the drawings to the supplier within reasonable period. The supplier shall, if necessary, modify the drawings and resubmit four copies of the modified drawings for purchaser's approval within two weeks from the date of comments. After receipt of purchaser's approval, the supplier shall, within three weeks, submit 4 prints per breaker and two good quality reproducible of the approved drawings for purchaser's use.

11.4 The successful supplier shall also furnish adequate copies of bound manuals covering erection, commissioning, operation and maintenance instructions and all relevant information and drawings pertaining to the main equipment as well as auxiliary devices of 3 sets per breaker. Marked erection drawings shall identify the component parts of the equipment as shipped to enable purchaser to carry out erection with his own personnel. Each manual shall also contain one set of all the approved drawings, type test reports as well as acceptance reports of the corresponding consignment dispatched.

11.5 The manufacturing of the equipment shall be strictly in accordance with the approved drawings and no deviation shall be permitted without the written approval of the

purchaser, all manufacturing and fabrication work in connection with the equipment prior to the approval of the drawing shall be at the supplier's risk.

11.6 Approval of drawings/ work by the purchaser shall not relieve the supplier of any of his responsibility and liability for ensuring correctness and correct interpretation of the drawings for meeting the requirements of the latest revision of the applicable standards, rules and codes of practices. The equipment shall conform in all respects to high standards of engineering, design, workmanship and latest revisions of relevant standards at the time of supply and purchaser shall have power to reject any work or materials which in his judgment is not in full accordance therewith.

11.7 Additional data to be furnished along with offer:

A comprehensive spare parts catalogue listing all component parts with their item wise unit prices shall be furnished.

a. Drawing, showing contacts in close, arc initiation, full arcing, arc extinction and open position.
b. The temperature v/s pressure curves for each setting of density monitor, along with details of density monitor.
c. Method of checking the healthiness of voltage distribution devices, condensers provided across the breakers at site.
d. Data on capabilities of circuits breakers in terms of time and number of operations at duties ranging from 100% fault currents to load current of the lowest possible values without requiring any maintenance orchecks.
e. The effect of non-simultaneity between contacts within a pole or between poles and also how it is covered in the guaranteed total break time.
f. Sectional view of non return couplings used for SF_6 pipes.
g. Details and type of filters used in interrupter assembly and also the operating experience with such filters (for SF_6 C.B.)
h. Details of SF_6 gas:
    i) The test methods used in controlling the quality of gas used in the Circuit beakers particularly purity and moisture content
    ii) Proposed, tests to assess the conditions of SF_6 within a circuit breaker after a period of service particularly with regard to moisture contents of the gas.
    iii) The precise procedure to be adopted by maintenance personnel, for handling equipment, who are exposed to the products of arcing in SF_6 gas so as to ensure that they are not affected by possible irritants of the skin and respiratory system. Recommendations shall be submitted for suitable protective clothing, methods of disposal of circuit breaker cleaning utensils and other relevant matters.

i) A complete catalogue on operation analyzer satisfying all the requirements stipulated in this specification.
j) The supplier shall furnish along with the bid, curves supported by the test data indicating the opening time under close open operation with combined variation of trip coil voltage and pneumatic/ pressure.
k) Detailed literature and schematic diagrams of switching mechanism for closing resistor showing the duration of insertion shall also be furnished along with the calculations in respect of thermal rating of resistors for the duties.
l) All duty requirements shall be proved with the support of adequate test reports to be furnished along with the bid failing which the bid is likely to be rejected.
m) Field test reports in case of C.B. meant for Reactor switching duty.

11.8 TEST REPORTS:

i) Two copies of type test reports shall be furnished to the purchaser within one month of conducting the tests.

ii) Two copies of acceptance test reports shall be furnished to the purchaser. The material shall be despatched only after approval of test reports.

iii) All records of routine test reports shall be maintained by the supplier at his works for periodic inspection by the purchaser.

iv) All test reports of test conducted during manufacture shall be maintained by the supplier. These shall be produced for verification as and when requested for by the purchaser.

12. PACKING AND FORWARDING:

Bidder shall ensure that all equipments covered by this specification prepared for ocean shipment (foreign equipment) or rail /road transport (local equipment). Equipment shall be packed in suitable crates in such a manner to protect it from damage and withstand handling during transit. The supplier shall be responsible for and make good at his own expense any or all damage to the equipment during transit due to improper and inadequate packing and handling. The easily damageable materials shall be carefully packed and marked with the appropriate caution symbols. Wherever necessary, proper arrangement for lifting such as lifting hooks etc. shall be provided. Any material found short inside the packing cases shall be supplied by the supplier without any extra cost.

Each consignment shall be accompanied by a detailed packing list containing the following information:

1. Name of the consignee,
2. Details of consignment.
3. Destination.
4. Total weight of consignment.
5. Sign showing upper / lower side of the crate.
6. Handling and unpacking instructions.
7. Bill of material indicating contents at each package and spare material.
8. The supplier shall ensure that the packing list and bill of material are approved by the purchaser before despatch.

13. SUPERVISION OF ERECTION & COMMISSIONING:

Erection and commissioning of the breakers shall be supervised by the supplier's engineers, if required by the purchaser. For the supervision of erection and commissioning the bidder shall quote the charges of the supervising and commissioning Engineers. Actual assembly and erection of circuit breakers shall be done by skilled and semi skilled workers of the purchaser. However, these works shall arrange assembly and erection under the supervision of erection foreman of the supplier. Charges for the services of erector / foreman shall also be stated.

14 **SPARE PARTS AND MANDATORY MAINTENANCE EQUIPMENT:**

The rates of the breakers should be quoted including mandatory spare parts and maintenance equipments i.e. gas filling adopters, tool sets required for erection & maintenance etc. List of tool sets and devices included in the price should be furnished along with the un priced copy of price schedule to be furnished in the techno commercial bid.

15. **SET OF COILS/CONTACTORS FOR DC CONTROL VOLTAGE OF 110V/220 V:**

The bidders should quote rates for spare sets of coils/ contactors for DC control voltage of 220V & 110 V each separately. The quoted price should include prices of all coils (trip/ close) & contactors so that conversion of DC control voltage from 110V to 220V **or** viz versa may be done at site. The unit price for complete sets should be offered. It will be at the discretion of CSPTCL to decide quantity of spare set of coils/ contactors to be procured.

SCHEDULE-I

SCHEDULE OF GUARANTEED TECHNICAL PARTICULARS (G.T.P.)

S.No.	Particulars	245 KVrms.
1	Name of Manufacturer	
2	Type/Model designated by the manufacturer	
3	Type of breaker offered	
4	Applicable Technical standards	
5	Rated Voltage (kv)	

6	Maximum continuous rated voltage	
7	Rated frequency(Hz)	
8	Number of Poles	
9	Class (Indoor or Outdoor)	
10	Rated normal current:- a. Under site conditions (Amps) b. Rated current (Amps)	
11	Rated short circuit breaking current:- a. Rms value of AC component of rated short circuit current (KA) b. Percentage of D.C. Component c. Asymmetrical breaking current (including DC Components)(KA)	
12	Rated short circuit making current	
13	First pole to clear factor	
14	Rated transient recovery voltage for terminal faults (KV peak)	
15	Rated characteristic for short line faults	
16	Rated operating sequence	
17	Rated duration of short circuit (seconds)	
18	Rated out of phase breaking current (KA)	
19	Opening time (m.s.)	
20	Short time current rating : a. For one second b. For three seconds	
21.	Arcing time (milli-seconds) a. At 100% rated breaking current (m.s.) b. At 50% rated breaking current (m.s.) c. At 25% rated breaking current (m.s.) d. At 10% rated breaking current (m.s.) e. Maximum arcing time at lowest fault current (m.s.)	
22	Total break time (milli-seconds) a. At 100% rated breaking current (m.s.) b. At 50% rated breaking current (m.s.) c. At 25% rated breaking current (m.s.) d. At 10% rated breaking current (m.s.) e. Maximum arcing time at lowest fault current (m.s.)	
23	Closing time (milli-seconds)	
24	Minimum reclosing time at rate interruption capacity from the instant of trip coil energisation	
25	Minimum dead time for : a. Three phase reclosing b. One phase reclosing c. Limit of adjustments of dead time for three phase reclosing d. Limit of adjustments of dead time for 1 ph.	

	Reclosing	
26	Rated line charging breaking current capacity with corresponding over voltage (KA)	
27	Maximum interrupting capacity under phase opposition condition (KA)	
28	Rated small inductive breaking current with corresponding over voltage (kilometric fault)	
29	Maximum cable charging current breaking capacity and corresponding over voltage recorded in tests: a. On supply side b. On line side	
30	Maximum shunt capacity bank switching capacity (single bank)	
31	Reactor loaded transformer interrupting	
32	Maximum rise of temperature over ambient temperature	
33	Interrupting capacity base on duty cycle: a. A.C. component (ka) b. Percentage of D.C. component	
34	Data of restriking voltage a. Amplitude factor b. Phase factor c. Natural frequency (Hz.) d. Rate of rise of restriking voltage in KV (micro-seconds)	
35	Latching current (KA)	
36	No. of breaks in series per pole	
37	Length of contact travel in m.m.	
38	Total length of break per pole	
39	Rate of contact travel: a. At trappings(meters/second) b. At closing(meters/second)	
40	Type of devices if any, used to obtain uniform voltage distribution between breaks	
41	Recovery voltage distribution between breaks in percentage of rated voltage :- a. Single line to ground fault b. Interruption on short lines c. Switching off an unloaded transformer d. Switching of 50/63/80 MVAR reactor	
42	Type of main contact	
43	Type of arcing contact and / or arc control device	
44	Material of contacts : a. Main b. Arcing c. Whether contacts are silver plated d. Thickness of silver coating in m.m. e. Contact pressure kg/sq.mm.	
45	Insulating levels of the breakers: a. One minute power frequency withstand voltage	

	kvrms. b. Switching surge withstand test voltage kvpeak c. Maximum dynamic p.f. over voltage withstand kvpeak	
46	i) R.I. Power at 266 kv ii) Corona inception voltage (KV) iii) Corona extinction voltage (KV)	
47	Minimum clearance: a. Between phases(live parts) in mm b. Between live parts and earth in mm c. Center to center distance between phases (mm) d. The safety boundaries during a breaking operating for circuit breakers with external exhaust for ionized gases or flames.	
48	Whether the circuit breaker is fixed trip or trip free	
49	Method of closing: a. Normal b. Emergency	
50	Type of closing mechanism	
51	i) Normal voltage of closing ii) Pick up range (volts)	
52	a. Power at normal voltage of closing mechanism(watts). b. Power at 85% of normal voltage (watts)	
53	Type of tripping mechanism	
54	Normal voltage of tripping coils(volts)	
55	i) Power at normal voltage for tripping coils(watts) ii) Power at 70% normal voltage for tripping coils (watts)	
56	Arc duration at 100% (milli seconds) interruption capacity :- a.Opening:- i) Arcing time no. of loops and time including resistor current duration (cycles) ii) Resistor current duration (m.s.) iii) Total length of the arc (mm)/maximum length of the arc (mm) iv) Total interrupting time measured from the instant of trip coil energisation to arc extinction of resistor current (cycles) b. Closing time measured from instant of application of power to closing device upto arcing contacts touching (cycles)	
57	Critical current (current giving the longest arc when a break takes place) (KA)	
58	a. Recovery voltage when circuit breaker tested at 100% rated breaking capacity (kvinstan.) b. Rate of rise of restriking voltage at breaking:- i) For 30% breaking capacity (kv/microseconds) ii) For 100% breaking capacity (kv/ microseconds)	

	c. Maximum over voltage factor of the circuit breaker when switching off :- i) Unloaded transformers ii) Loaded transformer iii) Open circuited lines	
59	When switching of synchronous systems :- a. Maximum current (ka) b. Maximum contacts of 1 pole (kv)	
60	No. of openings circuit breaker is capable of performing without inspection, replacement of contacts or other main parts:- a. At 50% rated voltage b. At 100% rated voltage c. At current corresponding to 50% rated breaking capacity d. At current corresponding to 50% rated breaking capacity.	
61	Weight of complete circuit breaker (kg)	
62	Impact loading for foundation design to include dead load plus impact value on opening at maximum interrupting ratings, in terms of equivalent static load (kg)	
63	Overall dimensions:- a. Height in m.m. b. Width in m.m. c. Length in m.m.	
64	Hollow porcelain insulator for breakers:- a. Make b. Type c. Weight in kg d. Transport dimensions in m.m. e. Height above floor required to remove bushings in m.m. f. Insulating class g. One minute dry power frequency withstand in KV rms. h. 10sec.wet power frequency withstand in KRrms. i. Flash over voltage (kv) j. Full wave impulse sithstand voltage Kvpeak k. Switching surge withstand voltage Kvpeak l. Corona discharge voltage KVrms m. Nature of dielectric n. Creepage distance total protected (m.m.) o. Permissible safe cantilever loading installed bushing/insulator(kg.M)	
65	Spring charging motor for stored energy mechanism:- a. Rating in HP b. Voltage in AC/DC c. Speed in RPM d. Time required by motor to charge the spring completely in seconds	

	e. Current (Amperes)	
66	Single/double pressure type range of SF6 gas pressure for satisfactory operating	
67	Quantity of SF6 gas	
68	Guaranteed leakage of SF6 gas per year	
69	Setting of lock out switch (density monitor)	
70	Setting of alarm switch (density monitor)	
71	Rated pressure SF6 gas in the circuit breaker (kg/sq.c.m.)	
72	Rated pressure of SF6 gas in the gas cylinder (kg/sq.c.m.)	
73	Quantity of SF6 gas required per single pole unit (kg.)	
74	Quantity of SF6 gas per cylinder (kg.)	
75	Weight of empty cylinder (kg.)	
76	Quantity of absorbent required per pole (kg.)	
77	Recommended interval for renewal of absorbent in case of outdoor circuit breakers operating in tropical conditions.	
78	Chemical composition of absorbent	
79	Quantity of absorbent covered in the scope of supply including spare quantity (Kg.)	
80	Limits of gas pressure for pressure operation of circuit breaker	
81	Pressure and temperature at which the temperature compensated gas pressure switch will :- a. Give alarm (kg./sq.Cm. Degree Celsius) b. Cut off (kg./sq.Cm. Degree Celsius)	
82	Name of SF6 gas supplier and country of origin	
83	Quantity of SF6 gas supplied for :- a. Actual gas in breakers (kg.) b. As spare (kg.)	
84	Chemical composition of gas :- a. Quantity of air by weight (p.p.m.) b. Quantity of H20by weight (p.p.m.) c. Quantity of Cf4 by weight (p.p.m.) d. Quantity of free acids by weight (p.p.m.)	
85	Details of SF6 gas leakage detector(Make, type etc)	
86	Tenderers shall also furnish relevant details if not covered above but are essentially required for satisfactory operation	

Signature of Tenderer

Name and Seal of the Tendering Company

SCHEDULE-II (A)
SCHEDULE OF PRICE AND QUANTITY

S.No	Particular	Qty in Nos	Unit Ex-works price including packing & forwarding in Rs/Nos	Unit Freight charges in Rs/Nos	GST-- @ on (Ex-works+freight) in Rs/No	Unit F.O.R. destn. price including Exworks, freight & GST (on Exworks+ freight) (4+5+6) in Rs./No
1	2	3	4	5	6	7
1.	245 KV Outdoor 3 pole SF6 complete with associated equipments, auxiliaries, mounting structures, terminal connectors & SF6 gas leakage detector, gas filling adopter, set of erection & maintenance tools, SF6 gas required for first filling etc. meeting all requirements as per Section-II of Tender Document	6				
	(a) Single pole reclosing type (gang operated) Circuit Breakers (110 V /220 V DC)	05				
	(b) Normal Duty type Circuit Breaker (110V/220V DC)	06				
	Complete set of coils, contactors etc to convert DC control voltage of Circuit breaker from 220 V to 110 V and vice versa.	02				
2	20 kg capacity Spare SF_6 gas cylinders	11				

Note:-

1. The quoted prices of Circuit Breakers should be variable as per IEEMA formula enclosed in Anexure-I with base indices as per the IEEMA circular issued one month prior to due date of opening of tender. The freight charges should be on firm basis.
2. Only statutory variaiton due to Govt Regulations during contractural delivery period shall be borne by CSPTCL.
3. The unpriced copy of above schedule is to be submitted alongwith TC bid.
4. **The rates will be quoted through online e bidding portal (SAP SRM system) only. Price schedule duly filled in hard copy is not required**.
5. The SF_6 gas cylinders asked at item No. 3 shall be kept in spare. The cylinders for first filling of breakers should be supplied with the breakers and rates for these cylinder should be inclusive in the cost of breaker.

Signature & Seal of Tenderer

SCHEDULE-II (B)

SCHEDULE OF PRICE AND QUANTITY

Sl. No.	Particulars	Rate per circuit breaker in Rs. /No
1.	Supervision charges for erection & commissioning of Circuit Breaker on any site in Chhattisgarh state (Rate per Breaker inclusive of all charges like accommodation, conveyance.)	

i) The supervision charges shall be on firm basis and applicable to all the Circuit Breakers supplied against this tender.

ii) The applicable rate of GST is to be indicated by the bidder. Price bid shall be processed/ evaluated with applicable GST at the time of opening of Techno Commercial bid.

iii) GST shall be paid extra at the rates applicable during contractual period .

Signature & Seal of Tenderer

CHEDULE – III

SCHEDULE OF BIDDER'S EXPERIENCE

Bidder shall furnish here a list of similar jobs executed by him. A reference may be made by the purchase to them in order be considers such a reference necessary.

S.No.	Name & Description of work. (adequate details to be given certifying the work done)	Order No. & date	Period & date of supply	Client or order placing authority	Person to whom reference to be made

PLACE
DATE

SIGNATURE OF BIDDER
NAME IN FULL
DESIGNATION / STATUS IN THE FIRM
COMPANY SEAL

SCHEDULE – IV

MANUFACTURING DETAIL

Name of the manufacturer, place of manufacturer, testing and inspection

Sl. No.	Description	Manufacturer	Place of manufacturer	Date of testing and inspection

Signature of Bidder

Name :

Company :

SCHEDULE-V

COMMERCIAL INFORMATION

Strike-off, whichever is not applicable

1.i)	Whether purchased from this office or downloaded?	Yes/No
ii)	If down loaded, whether tender cost furnished? Details of MICR DD for tender cost	Yes/No
iii)	Earnest Money details	
iv)	Amount of EMD and full details & GST certificate	Bank draft/ Banker's cheque/ Cash with Manager (RAO : HQ), CSPTCL, Raipur. **GST Number & Registration certificate Enclosed**
v)	If exempted, state whether bidder is	SSI Unit of CG / Small scale unit registered with NSIC/ Fully owned State Central Govt. Unit.
vi)	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. (A)	State whether the quoted prices are variable as per IEEMA formula as per Annexure-I	Yes /No
(B)	Whether agreeable to clause 4.3.1 (iii) page 20 i.e. The bidder shall submit price adjustment invoices for supplies positively within three months from date of supply whether positive or negative. **However, price variation bills submitted after 6 months from the date of supply will not be entertained, but negative variation will be recoverable**. The invoices should be supported with calculation of price variation along with documentary evidence of applicable indices. If price adjustment works out to be positive, the same is payable to bidder by CSPTCL and if it works out to be negative, the same shall be recovered from the bidder.	Yes /No
4.	Rate of GST (Good & Service Tax)	
5.	PAYMENT TERMS:- Whether CSPTCL's terms of payment is acceptable to the bidder	Yes /No

6	DELIVERY PERIOD:- Whether CSPTCL's terms of delivery period is acceptable to the bidder	Yes /No
7.	PENALTY CLAUSE Whether agreeable to CSPTCL's Penalty clause	Yes /No
8.	GUARANTEE PERIOD :- Whether agreed to CSPTCL's guarantee period of 30 months from supply or 24 months from date of commissioning whichever is earlier. If not mention offered guarantee.	Yes /No
9.	SECURITY DEPOSIT Whether agreeable to furnish CSPTCL's Standard security deposit @ 10% of value of order for satisfactory execution of the order and to cover guarantee period.(If not, indicate deviation specifically)	Yes /No
10.	EXTENSION ORDER:- Whether you are agreeable to accept extension order for 50% of qty. on the same rates, terms & condition if any extension order is placed within 6 months from the date of placement of detailed order.	Yes /No
11.	Please mention whether rates offered are applicable for part quantities.	Yes /No
12.	Mention Turnover of the firm for last five years (Enclose balance sheets in support)	
(a)	2015-16	
(b)	2016-17	
(c)	2017-18	
(d)	2018-19	
(e)	2019-20	
13.	Whether C.A. audited notarized copy of net worth for the last three financial years is submitted.	
14.	Year of start of manufacture of offered equipment/ material.	
15.	Whether submitted original certificate of CA stating that a) All interest payment obligations on outstanding debentures have been discharged and no such payment as on **31.06.2021** is/was outstanding / overdue.	

	b) The Company is presently not in default in payment of any bank loan/interest for more than three months or any loan account of the bidder has not been classified as NPA (Non Performing Asset) by the creditor/lending bank as on date of issue of NIT	
16.	Whether submitted Pre – contract Integrity pact	

NOTE:-Scanned copy of this schedule is to be uploaded in e-bidding portal:-

Place:- SIGNATURE OF BIDDER:

NAME IN FULL:

Date:- DESIGNATION/STATUS IN THE FIRM :

COMPANY SEAL:

NOTE:- Scanned copy of this schedule is to be uploaded in e-bidding portal.

SCHEDULE-VI-A

SCHEDULE OF COMMERCIAL DEVIATIONS

We/I have carefully gone through the Commercial requirement of the specification and the General condition of contract and we/I have satisfied ourselves/myself and hereby conforms to the requirement of technical specification and General Conditions of contract except for the deviations, which are given below:-

S.No.	Descriptions & Clause No. of The specification & page No.	Stipulation in specification	Deviation offered	Remarks regarding justification of the deviation.

PLACE
DATE

SIGNATURE OF BIDDER
NAME IN FULL
DESIGNATION / STATUS IN THE FIRM
COMPANY SEAL

NOTE:- Scanned copy of this schedule is to be uploaded in e-bidding portal.

SCHEDULE-VI-B

SCHEDULE OF TECHNICAL DEVIATIONS

We/I have carefully gone through the Technical specification and the General condition of contract and we/I have satisfied ourselves/myself and hereby conform to the requirement of technical specification and General Conditions of contract except for the deviations, which are given below:-

S.No.	Descriptions & Clause No. of The specification & page No.	Stipulation in specification	Deviation offered	Remarks regarding justification of the deviation.

PLACE
DATE

SIGNATURE OF BIDDER
NAME IN FULL
DESIGNATION / STATUS IN THE FIRM
COMPANY SEAL

NOTE:- Scanned copy of this schedule is to be uploaded in e-bidding portal.

SCHEDULE-VII

TYPE TEST SUCCESSFULLY CONDUCTED & ENCLOSED

S.N.	Details of type test	Place and institution	Date of conducting test	Remarks

NOTE: You are advised to furnish detailed report of above tests alongwith the tender. The reports of only Government standard test laboratory/ NABL accredited laboratory (Not older than Ten years) shall be considered.

PLACE
DATE

SIGNATURE OF BIDDER
NAME IN FULL
DESIGNATION / STATUS IN THE FIRM
COMPANY SEAL

SCHEDULE-VIII

ANNUAL TURNOVER

Annual Turnover Data for the Last 5 Years	
Year	**Amount in Rs.**
2016-2017	
2017-2018	
2018-2019	
2019-2020	
2020-2021	
Total Turnover	

The information supplied should be the Annual Turnover of the Bidder for each year for contracts in progress or completed.

Date:

Signature :

Name :

Status :

Seal of the Tendering Co.:

SCHEDULE–IX

PROFORMA FOR BANK GUARANTEE TOWARDS SECURITY DEPOSIT

(To be executed on non-judicial stamp paper of Rs. 250/- and Revenue stamp may be affixed on Bank Guarantee)

Bank Guarantee No…… Dtd……

In consideration of the Chhattisgarh State Power Transmission Company Limited, Raipur (A successor company of Chhattisgarh State Electricity Board, Raipur hereinafter referred to as 'CSPTCL') having agreed to accept this Bank Guarantee in lieu of cash deposit by way of Security for due and faithful performance required from M/s. _____ _____ _____ _____ (herein after referred to as "Contractors", the Bank of _____ hereby agrees unequivocally and unconditionally to pay within 48 hours on demand in writing from the Chhattisgarh State Power Transmission Company Limited or any officer authorized by it in this behalf of any amount upto and not exceeding Rs……..……(in words) …… only to the said Chhattisgarh State Power Transmission Company Limited on behalf of the aforesaid M/s …….. who have tendered and contracted for the supply of materials, equipments or services to the said the Chhattisgarh State Power Transmission Company Ltd, against order No…….. dtd……. for the order value of Rs…….

The beneficiary of this Bank Guarantee shall be Chhattisgarh State Power Transmission Company Limited, Raipur (A Successor company of CSEB Raipur). The proceeds / encashment of this Bank Guarantee would go in the name of Chhattisgarh State Power Transmission Company Limited, Raipur (A Successor company of CSEB Raipur).

This agreement should be valid and binding on this bank upto and including _____ of for such further period as may hereunder be mutually fixed from time to time in writing by the Chhattisgarh State Power Transmission Company Ltd. and the contractor and shall not be terminable by notice or any change in the constitution of the aforesaid bank or the firm of Contractors or by any others reasons whatsoever and the Banker's liability hereunder shall not be impaired or discharged by any extension of time or variations or alteration made, given conceded or agreed to with or without the Bank knowledge or consent by or between the Chhattisgarh State Power Transmission Company Ltd. and contractor in the existing and / or further tenders and / or contracts.

It is agreed by the Bank with the CSPTCL that if for any reason a dispute arises concerning the Bank's liability to pay the requisite amount to the CSPTCL under the terms of this guarantee the competent court at Raipur alone shall have the jurisdiction to determine the said dispute and that this shall be without prejudice to the liability of the Bank under the terms of this guarantee being unequivocal and unconditional as mentioned above.

The liability under this guarantee is restricted to Rs…… (In words) …… only. This guarantee shall remain in force until ……. Unless a demand to enforce a claim under the guarantee is made under this Bank Guarantee by the CSPTCL to the Bank within six months from that date the rights of the Chhattisgarh State Power Transmission Company Ltd under this guarantee shall be forfeited and Bank shall be relieved and discharged from all liabilities there under.

WITNESSES: - SIGNATURES

Authorized Signatories of Bank

1. …… Signed._ _ _ _ _ _ _

2. …… for _ _ _ _ _ _ _ _ _ _ Bank

SCHEDULE-X

GENERAL INFORMATIONS

The bidders shall furnish general information in the following format:-

1. Name of the Firm
2. Head Office address
3. Works address
4. Contact Person
5. Mobile No. of contact person
6. Telephone No. Office
7. Telephone No. Residence
8. Fax No.
9. E-mail:-
10. PF / ESIC Registration No.

Dated

Place

Name and seal of the tendering Company.

ANNEXURE-II

ieema
your link to electricity

501 kakad chambers
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mumbai 400 018
india

p +91 22 2493 0532
f +91 22 2493 2705
e mumbai@ieema.org
w www.ieema.org

Cir. No.: 188/DIV/SWGR/05

July 03, 2009

To all members of Switchgear division
SEBs, DISCOMs and other listed purchasing organizations

Sub: Price variation clause for HT Switchgear (Above 36 KV) effective from 1st June 2007

IEEMA had circulated price variation clause for HT Switchgear (Above 36 KV) effective from 1st June 2007 vide Cir. No. 184/DIV/SWGR/05 dated July 05, 2007.

One of the users have pointed out the anomaly in the example given for taking appropriate prices and indices at the time of date of delivery where prices and indices given in the example were not matching with the desired lag period mentioned above for each prices and indices.

We have now therefore corrected the month references in the example for the date of delivery and enclose the revised page No. 2

We request users to replace the page 2 of the PV clause available in you records with the enclosed page and remove the old page from all your records.

We sincerely regret for the inconvenience may have caused to you in this regard.

Executive Officer

Encl: Revised page no. 2 of IEEMA PV clause for HT Switchgear PV clause (Above 36 KV)

Nr/c:/mydoc/swgr-pvc-letters-Apr07.doc

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indian electrical & electronics manufacturers' association

IEEMA/PVC/HT-SWGR (ABOVE 36KV)/2007 Effective from: 1st June 2007

The above prices and indices are as published by IEEMA vide circular reference number IEEMA(PVC)/SWGR (R-2)/_/_ prevailing as on first working day of the month ..... i.e., one month prior to the date of tendering.

IS = Wholesale price index number for 'Iron & Steel (Base: 1993-94=100)' (refer notes)
This index number is as applicable for the week ending 1st Saturday of the month, four months prior to the date of delivery.

C = Average LME settlement price of copper wire bars (refer notes)
This price is as applicable for the month, three months prior to the date of delivery.

AL = Price of Busbar grade Aluminium (refer notes)
This price is as applicable on the 1st working day of the month, two months prior to the date of delivery.

IN = IEEMA Index for Insulator (Base: January 2003=100) (refer notes)
This index is as applicable on the 1st 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 on the first working day of the month, five months prior to the date of delivery.

For example, if date of delivery in terms of clause falls in June 2006, the applicable prices of average LME Copper Wire Bars (C) should be for the month March 2006, where as the applicable price of Busbar grade Aluminium (AL) and Phenolic moulding powder (IN) should be as on 1st April 2006 and Wholesale price index number for 'Iron & Steel' (IS) should be for the week ending first Saturday of February 2006 and all India average consumer price index no. (W) Should be for the month of January 2006.

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.

Part II: Price variation for import content of Switchgear (Above 36KV)

$$PV_2 = \frac{100 \times I_0}{(100 + D_0)} \left(\frac{E_0}{E} - 1 \right) + \frac{I_0}{(100 + D_0)} \left(\frac{Ec_0}{Ec} D - D_0 \right)$$

Wherein

PV_2 = Variation in price in indian Ruees on account of variation in exchange rates and rate of import duties, payable in accordance with the above formula.

I_0 = Rupee component of quoted price related to Imports (CIF in Rs. + Import duties at the rate D0 defined below considered at the time of quotation)

E_0 = IEEMA's Banker's selling rate of exchange between foreign currency and Indian Rupees expressed in concerned foreign currency equivalent to Rupees 100 prevailing on the first Bankers working day one month prior to the date of tendering (refer notes)

02

IEEMA/PVC/HT-SWGR (ABOVE 36KV)/2007 Effective from: 1st June 2007

E = IEEMA's Banker's selling rate of exchange between foreign currency and Indian Rupees expressed in concerned foreign currency equivalent to Rupees 100 prevailing on the first Bankers working day four months prior to the date of delivery (refer notes)

D = Effective import duty rate in percentage (Excluding duties set off against MODVAT) as per item no. 85.38 of customs tariff act in so far as it applies to the parts of customs tariff item 85.35 prevailing on 1st working dat of the calendar month, two months prior to the date of delivery.

D_0 = Effective import duty rate in percentage (Excluding duties set off against MODVAT) as per item no. 85.38 of customs tariff act in so far as it applies to the parts of customs tariff item 85.35 prevailing on 1st working dat of the calendar month, one month prior to the date of tendering.

EC = Rate of exchange between foreign currency and Indian Rupees expressed in foreign currency equivalent to Rs. 100/- adopted by Customs prevailing on first working day of the calendar month, two months prior to the date of delivery (refer notes)

EC_0 = Rate of exchange between foreign currency and Indian Rupees expressed in foreign currency equivalent to Rs. 100/- adopted by Customs prevailing on first working day of the calendar month, one month prior to the date of tendering (refer notes)

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. transformers manufacturers import major raw materials like Copper, CRGO Steel Sheets, TOBS and Insulating pressboards etc. The landed cost of these imported raw materials includes applicable custom duty but exclusive of modvatable CVD.

(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 number is being published weekly on provisional basis. However, the same gets finalized after eight weeks and is normally available after two months. Therefore, we are considering in our calculations this final index for the first Saturday of the months two months prior to the date of which the prices of other raw materials such as Al, IN are published for the corresponding month.

2) The LME price of Copper Wire Bars (in Rs./MT) is the LME average settlement price of Copper Wire Bars for one month prior to the month of the circular converted into Indian Rupees with applicable exchange rates prevailing as on 1st working day of the subsequent month. This price is the landed cost, inclusive of applicable customs duty only but exclusive of countervailing duty.

3) The price of Busbar grade Aluminium (in Rs./MT) is the average Ex-works price as quoted by primery producer of the Busbar size 152.4 x 6.35 mm flat approx. of grade equivalent to E91E as per IS 5082-1981 or latest.

4) The exchange rates that would be published by IEEMA would be for the following currencies only.
1) US Dollars 2) Pound Sterling 3) Japanese Yen 4) Euro

Authorized Signatory

ANNEXURE-II

PRE-CONTRACT INTEGRITY PACT

1. GENERAL

1.1 This pre-bid contract Agreement (hereinafter called the Integrity Pact) is made on.....day of the month .....20..., between the CSPTCL acting through Shri.....CE(S&P) (hereinafter called the "BUYER", which expression shall mean and include, unless the context otherwise requires, his successors in the office and assigns) and the First Party, proposes to procure (name of the Stores/Equipment/Work/Service) and M/s. .... represented by Shri.....Chief Executive Officer (hereinafter called the "BIDDER/Seller", which expression shall mean and include, unless the context otherwise requires, his successors on permitted assigns) and the Second Party, is willing to offer/has offered.

1.2 WHEREAS the BIDDER is a Private Company/Public Company/ Government undertaking/Partnership/Registered Export Agency, constituted in accordance with the relevant law in the matter and the BUYER is a power company an undertaking of Govt. of CG, performing its function on behalf of the Government of Chhattisgarh.

2. OBJECTIVES

2.1 NOW, THEREFORE, the BUYER and the BIDDER agree to enter into this pre-contract agreement, hereinafter referred to as Integrity Pact, to avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the Contract to be entered into with a view to:-

2.2 Enabling the BUYER to obtain the desired Stores/Equipment/Work/Service at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement, and

2.3 Enabling BIDDERs to abstain from bribing or indulging in any corrupt practices in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing any corrupt practices and the BUYER will commit to prevent corruption, in any form, by its official by following transparent procedures.

3. COMMITMENTS OF THE BUYER

The BUYER commits itself to the following:-

3.1 The BUYER undertakes that no official of the BUYER, connected directly or indirectly with the contract, will demand, take promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER, either for themselves of for any person, organization or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting of implementation process related to contract.

3.2 The BUYER will, during the pre-contract stage, treat BIDDERs alike, and will provide to all BIDDERs the same information and will not provide any such information to any particular BIDDER which could afford an advantage to that particular BIDDER in comparison to the other BIDDERs.

3.3 All the officials of the BUYER will report the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.

In case any such preceding misconduct on the part of such official(s) is reported by the BIDDER to the BUYER with the full and verifiable facts and the same prima facie found to be correct by the BUYER, necessary disciplinary proceedings, or any other action as deemed fit, including criminal proceedings may be initiated by the BUYER and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the BUYER the proceedings under the contract would not be stalled.

4. COMMITMENTS OF BIDDERS

The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following:-

4.1. The BIDDER will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER, connected directly or indirectly with the biding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.

4.2. The BIDDER further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage, or inducement to any official of the BUYER or otherwise in procuring the Contract of forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other contract with the CSPTCL for showing or forbearing to show favour or disfavour to any person in relation to the contract or any other contract with the CSPTCL.

4.3. The BIDDER further confirms and declares to the BUYER that the BIDDER in the original Manufacture/Integrator/Authorized government sponsored export entity of the stores and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the BUYER or any of its functionaries, whether officially or unofficially to the award of the contract to the BIDDER, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.

4.4. The BIDDER, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payment he has made, is committed to or intends to make to officials of the BUYER or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.

4.5. The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.

4.6. The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.

4.7. The BIDDER shall not use improperly, for purpose of competition or personal gain, or pass on to others, any information provided by the BUYER as part of

the business relationship, regarding plans, technical proposal and business details, including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.

4.8. The BIDDER commits to refrain from giving any compliant directly or through any other manner without supporting it with full and verifiable facts.

4.9. The BIDDER shall not instigate or cause to instigate any third person to commit any of the acts mentioned above.

5. PREVIOUS TRANSGRESSION

5.1. The BIDDER declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could justify BIDDER's exclusion from the tender process.

5.2. If the BIDDER makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

6. EARNEST MONEY (SECURITY DEPOSIT)

6.1. Every BIDDER while submitting commercial bid, shall deposit an amount as specified in RFP as Earnest Money/Security Deposit, with the BUYER through any of the following instruments:

(i) Bank Draft or Pay Order in favour of.....

(ii) A confirmed guarantee by an Indian Nationalised Bank, promising payment of the guarantee sum to the .....(BUYER).....on demand within three working days without any demur whatsoever and without seeking any reasons whatsoever. The demand for payment by the BUYER shall be treated as conclusive proof of payment.

(iii) Any other mode or through any other instrument (to be specified in the RFP).

6.2. The Security Deposit shall be valid up to complete conclusion of the contractual obligations to the complete satisfaction of both the BIDDER and BUYER, including warranty period, whichever is later.

6.3. In the case of successful BIDDER a clause would also be incorporated in the Article pertaining to Performance Bond in the Purchase Contract that the provisions of Sanctions for violation shall be applicable for forfeiture of Performance Bond in case of a decision by the BUYER to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

6.4. No interest shall be payable by the BUYER to the BIDDER on Earnest Money/Security Deposit for the period of its currency.

7. SANCTIONS FOR VIOLATIONS

7.1. Any breach of the aforesaid provisions by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER) shall entitle the BUYER to take all or any one of the following actions, wherever required:-

(i) To immediately call off the pre contract negotiations without assigning any reason or giving any compensation to the BIDDER. However, the proceedings with the other BIDDER(s) would continue.

(ii) To forfeit fully or partially the Earnest Money Deposit (in pre-contract stage) and/or Security Deposit/Performance Bond (after the contract is signed), as decided by the BUYER and the BUYER shall not be required to assign any reason therefore.

(iii) To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.

(iv) To recover all sum already paid by the BUYER, and in case of the Indian BIDDER with interest thereon at 2% higher than the prevailing Prime Lending Rate while in case of a BIDDER from a country other than India with Interest thereon at 2% higher than the LIBOR. If any outstanding payment is due to the BIDDER from the BUYER in connection with any other contract such outstanding payment could also be utilized to recover the aforesaid sum and interest.

(v) To encash the advance bank guarantee and performance bond/warranty bond, if furnished by the BIDDER, in order to recover the payments, already made by the BUYER, along with interest.

(vi) To cancel all or any other contracts with the BIDDER and the BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such cancellation/rescission and the BUYER shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER.

(vii) To debar the BIDDER from participating in future bidding processes of the CSPTCL for a minimum period of five years, which may be further extended at the discretion of the BUYER.

(viii) To recover all sum paid in violation of this Pact by BIDDER(s) to any middlemen or agent or broken with a view to securing the contract.

(ix) In cases where irrevocable Letters of Credit have been received in respect of any contract signed by the BUYER with the BIDDER, the same shall not be opened.

(x) If the BIDDER or any employee of the BIDDER or any person action on behalf of the BIDDER, either directly or indirectly, is closely related to any of the officers of the BUYER, or alternatively, if any close relative of an officer of the BUYER has financial interest/stake in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filling of tender. Any failure to disclose the interest involved shall entitle the BUYER to rescind the contract without payment of any compensation to the BIDDER.

The term 'close relative' for this purpose would mean spouse whether residing with the Government servant or not, but not include a spouse separated from the Government servant by a decree or order of a competent court; son or daughter or step son or step daughter and wholly dependent upon Government servant, but does not include a child or step child who is no longer in any way dependent upon the Government servant or of whose custody the Government servant has been deprived of by or under any law; any other person related, whether by blood or marriage, to the Government

servant or to the Government servant's wife or husband and wholly dependant upon Government servant.

(xi) The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the BUYER, and if he does so, the BUYER shall be entitled forthwith to rescind the contract and all other contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such rescission and the BUYER shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER.

7.2. The decision of the BUYER to the effect that a breach of the provisions of this pact has been committed by the BIDDER shall be final and conclusive on the BIDDER. However, the BIDDER can approach the Monitor(s) appointed for the purpose of this Pact.

8. INDEPENDENT MONITORS

8.1. The BUYER will appoint Independent Monitors (hereinafter referred to as Monitors) for this Pact.

8.2. The task of the Monitors shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.

8.3. The Monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.

8.4. Both the parties accept that the Monitors have the right to access all the documents relating to the project/ procurement, including minutes of meetings. The Monitor shall be under contractual obligation to treat the information and documents of the BIDDER/ Subcontractor(s) with confidentiality.

8.5. As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Authority designated by the BUYER.

8.6. The Monitor will submit a written report to the designated authority of BUYER/Secretary in the department/within 8 to 10 weeks from the date of reference or intimation to him by the BUYER /BIDDER and, should the occasion arise, submit proposal for correcting problematic situations.

9. FACILITATION OF INVESTIGATION

In case of any allegation of violation of any provision of this fact or payment of commission, the BUYER or its agencies shall be entitled to examine all the documents including the books of Account of the BIDDER and the BIDDER shall provide necessary information of the relevant documents and shall extend all possible help for the purpose of such examination.

10. LAW AND PLACE OF JURISDICTION

This pact is subject to Indian Law, the place of performance and jurisdiction shall be the seat of the BUYER.

11. OTHER LEGAL ACTIONS

The actions stipulated in this integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of any other law in force relating to any civil are criminal proceeding.

12. VALIDITY

12.1 The validity of this integrity Pact shall be from the date of its signing and extend up to 2 years or the complete execution of the contract to the satisfaction of both the BUYER and the BIDDER/Seller whichever is later. In case BIDDER is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.

12.2. If one or several provision of this pact turn out to be invalid; the reminder of this pact shall remain valid. In such case, the parties will strive to come to an agreement to their original intention.

13. The parties hereby sign this integrity Pact at .....on.....

BUYERBIDDER

Name of Officer CHIEF EXECUTIVE OFFICER
Destination Department/PSU

Witness Witness

1).....
.....

2).....
.....

SCHEDULE-XI
CHECK LIST

S.No	ITEMS	REFERENCE	Whether submitted / not submitted
1	Earnest money enclosed	Covering letter *(As per clause 4.1)*	Yes/No
2	GTP	Schedule-I	Yes/No
3	Bidders experience	Schedule-III	Yes/No
4	Manufacturing details	Schedule-IV	Yes/No
5	Commercial Information	Schedule-V	Yes/No
6	Commercial Deviation	Schedule-VI-A	Yes/No
7	Technical Deviation	Schedule-VI-B	Yes/No
8	Details of type test	Schedule-VII	Yes/No
9	CA certified Annual turnover	Schedule-VIII	Yes/No
10	Bank guarantee Performa for Security Deposit	Schedule-IX	Yes/No
11	Pre-contract integrity pact	Annexure-III	Yes/No
12	General Information	Schedule-X	Yes/No
13	NSIC/DIC/ Factory registration certificate	As per PQR 5 (D)	Yes/No
14	Valid MSME registration /BIS license	As per PQR 5 (A)	Yes/No
15	For 3 years experience in supply –Copy of purchase order along with relevant MRC/Performance	As per PQR 5 (A)	Yes/No
16	For 2 year satisfactory performance – Copy of performance certificate	As per PQR 5 (A)	Yes/No
17	Type test certificate not older than 10 years	As per PQR 5 (A)	Yes/No
18	Financial data for previous 5 years	As per PQR 5 (B)	Yes/No
19	CA certified Net worth certificate	As per PQR 5 (B)	Yes/No
20	Declarations	As per PQR 5 (C)	Yes/No
21	Power of Attorney	As per clause 5	Yes/No
22	Quality Assurance Plan	As per clause 11	Yes/No
To avoid rejection, please read tender document carefully and refer tender document for submission of any Further document/schedule/ annexure which is not covered in point 01 to 22			

"**EXTREMELY IMPORTANT (Bidders to note this to avoid rejection)**

i) Attention of bidders is drawn to the fact that no additional /new documents will be allowed to be submitted after bid submission with only exception that clarifications/ confirmations on the points which lack clarity after techno-commercial evaluation may be obtained. Bidders are therefore, requested to exercise utmost care to make sure that all the documents required as per eligibility criteria/PQR/techno-commercial requirements of the tender are submitted with their bid on or before the date of bid submission. The bid submission of all the documents required as per tender conditions/requirements and the bidder must adhere to the deadline.

ii) It may also be noted that if a bidder has quoted 'NIL' deviation in the bid, this will have an overriding effect on any other conditions noted as deviations elsewhere in the bid and no correspondence will be made to withdraw such specific contradictory conditions.

Signature & Seal of the Bidder