



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.
DAGANIYA, RAIPUR (C.G.) 492-013

Phone: 0771- 2574236, 2574240 Fax: 0771- 2574246

Website- www.cspc.co.in, email- n@cspc.co.in

TENDER SPECIFICATION TR-20/S&P/56

**Procurement of 132KV Control & Relay Panel
for Feeder (Duplex Type) ,132 KV Control &
Relay Panel for 132/33 KV Transformer , 132
KV Incomer panel for 220/132 KV Transformer
(Duplex Type) and Relays
(Through E-bidding)**

RFx No-8100021139

LAST DATE & TIME OF SUBMISSION OF TENDER

04.06.2021 (TIME 15:00 HRS.)

DUE DATE OF OPENING OF TENDER

04.06.2021 (TIME 15:30 HRS.)

Cost of Tender:- i) Rs.5600 (Incl 12% GST) (if purchased
from O/o ED(S&P)
ii) Rs.5900 (Incl 18% GST) (if downloaded
from website)

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**CHHATTISGARH STATE POWER TRANSMISSION CO. LTD. RAIPUR (C.G.)
TENDER FORM**

SUPPLY OF 132 KV C&R PANELS FOR FEEDER, TRANSFORMER AND INCOMER
PANEL for 220/132 KV TRANSFORMER AND RELAYS

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 COMPANY LIMITED
RAIPUR C.G. (INDIA)
TENDER FORM**

The undersigned hereby tender and offer (subject to CSPTCL's conditions of tendering), the Chhattisgarh State Power Transmission Company Limited 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 & Annexure to the specification **TR-20/S&P/56**, 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 be 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



CHHATTISGARH STATE POWER TRANS. CO. LTD.

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

CIN- U40108CT2003SGCO15820

O/o Executive Director (Store & Purchase)

3rd Floor, SLDC Building, Dangania, Raipur(C.G.)-492013

Website- www.cspc.co.in,

Phone-0771-2574236/4240

Email id :-nk.bisen@cspc.co.in

Fax-0771-2574246

No.02-16/SE-I-(S&P)/TR-20/S&P/56/45/44/90

Raipur, Dtd.07.05.20201

E- PROCUREMENT TENDER NOTICE

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

Sl. No.	Tender No.	Particulars	Qty	Cost of tender doc. (Rs.) including GST (Rs.)		EMD (Rs.)	Due date of opening
				Printed Tender Form	E-Tender Form Online (downloaded from website)		
1.	TR-20/S&P/56 RFx No- 8100021139	132 KV C&R Panel	(in Nos)	5600/-	5900/-	4,95,000/-	04/06/2021
		i) for Feeder	36				
		ii)for Transformer	23				
		iii) Incomer panel for 220/132 KV Transformer	05				
		Numerical relay					
		i)Distance Protection	7				
		ii)Differential Protection	7				
		iii)Directional O/c & E/F	47				
iv)Non-Directional O/c & E/F	208						
2	TR-20/S&P/45 RFx No- 8100021204	33 KV Isolators (with insulators)	(in Sets)	1120/-	1180/-	1,60,000/-	03/06/2021
		i) 800 A	138				
		ii) 1200 A	76				
		iii) 1600 A	29				
3	TR-20/S&P/44 RFx No- 8100021513	132 KV wavetrap	77 Nos	1120/-	1180/-	86,100/-	02/06/2021

- NOTE:-
- In case any of the above dates is declared as holiday then the particular date will automatically get shifted to next working day.
 - The quantities mentioned above are tentative & may vary according to final requirement.
 - 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.**
 - 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.
 - 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 CE (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 office) 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)**

**(Er. S.D Telang)
Executive Director (S&P) CSPTCL :
Raipur**

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

The tender specification no. **TR-20/S&P/56**, 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:50700/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 **04.06.2021 upto 3.00 pm** and due date & time of opening of part –I and part-II of the tender is **04.06.2021 at 3.30 pm**.

Important Instructions :-

- 1 Please note that this tender shall be processed online as well as offline. The bidder has to submit 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 V commercial information.
 - (d) Schedule VI (A) Schedule for commercial deviation.
 - (e) Schedule VI (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:50700/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 bidder.

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 **04.06.2021 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 .

2. 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.
3. **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.
4. (i)**Earnest Money:-** The earnest Money in the instant tender is **Rs 4,95,000 (Rs Four Lakh Ninety Five Thousand only.)** payable in the form of demand draft in favor of Manager (RAO : HQ), CSPTCL, Raipur.
(ii)**Goods & Service Tax:-**The bidder should furnish valid GST registration certificate alongwith EMD. In absence of GST registration the offer shall not be accepted.
5. The bidding is open to manufacturers only who can provide satisfactory evidence to substantiate this.
6. **PRE QUALIFYING REQUIREMENT** :-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)	<u>Technical & Supply Experience Requirement</u>	
1.	<u>For Regular Suppliers:-</u>	
1.1	The Bidder should be manufacturer of 132 KV or above voltage class Control & Relay Panel having manufacturing unit in India .	In support of bidder being manufacturer of tendered material/equipment offered self 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	<p>The Bidder should have a minimum experience of at least five (5) years of manufacture and supply of 132 KV or above voltage class Control & Relay Panel to following Indian Entities as on date of issue of NIT:-</p> <p>i) Power utilities owned and controlled by Central or State Govt, Or</p> <p>ii) PSUs, Or</p> <p>iii) Govt. organizations directly or through turnkey contractors.</p>	<p>(A) <u>Direct supply to utility:-</u></p> <p>i) In support of Bidder having minimum experience of at least five (5) years of manufacturing and supply of 132 KV or higher voltage class Control & Relay Panels, copies of purchase orders (in the name of manufacturer) and relevant MRCs (Material Receipt Certificate) issued by the entities mentioned in clause 1.2 will be submitted. The date of receipt mentioned in the MRC will be treated as actual date of supply.</p> <p>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 1.2 of PQR.</p> <p>iii) If performance certificate indicates both proof of supply experience of five (5) years or more and satisfactory performance for three (3) years or more(as per clause 1.3), separate MRC will not be required as a proof of supply. However, if only MRC is submitted as proof of supply ,</p>

		<p>performance certificate will have to be submitted separately to establish minimum performance of three (3) years as per PQR. All these documents should be attested by the authorized signatory of the tender.</p> <p>(B) <u>Through Turnkey Contractors:-</u></p> <p>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).</p> <p>ii) Self attested Copies of order issued by the turnkey contractor(s) to the manufacturer (bidder).</p> <p>iii) Self attested Copies of inspection letter and dispatch clearance issued by the entities mentioned in clause 1.2 of PQR to the manufacturer (bidder).</p> <p>iv) Self attested Copies of invoice issued by the turnkey contractor to the entities mentioned in clause 1.2 of PQR.</p> <p>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).</p>
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1.3	The 132 KV or above voltage class Control & Relay Panel should be in successful operation for minimum 3 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 three (3) years successful performance issued by the entities mentioned in clause 1.2 of the PQR will have to be submitted.
1.4	<p>The bidder should have all type test reports of the offered relays i.e Distance protection relay, Differential relay, Directional and Non directional over current and earthfault relay, LBB relay, overload relay and REF relay conducted as per relevant standards i.e. ISS/ IEC carried out at & issued by Govt. Standard laboratory/ NABL accredited laboratory /ILAC accredited Laboratories .</p> <p>The type test report should not be older than Seven (7) years as on the date of issue of NIT. The makes & models of relay proposed to be offered by the bidder should be mentioned in the TC Bid and type test report of these offered makes & models will only be accepted.</p> <p>Further, copy of test for degree of protection IP54 on the panels conducted in any Govt. Standard laboratory/ NABL accredited laboratory /ILAC accredited Laboratories conducted within Seven (7) years as on date of issue of NIT should also be submitted.</p> <p>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.</p>	The bidder should submit self attested copies of all type test reports required as per clause 1.4.
2	<u>For C.G State SSI units:-</u>	
2.1	Chhattisgarh state based Micro and small Enterprises (hereinafter referred as CG State SSI Units) should be registered under Micro, Small and Medium Enterprises Development Act,2006 for manufacturing tendered item & should have its BIS licence.	In support of manufacturing & technical requirement a copy of registration under MSME act 2006 & BIS license for 132 KV or above voltage class Control & Relay Panel, duly self attested to be submitted.
2.2	The bidder should have all type test reports of the offered relays i.e Distance protection relay, Differential relay, Directional and Non	The bidder should submit self attested copies of all type test reports required as per clause 2.2.

	<p>directional over current and earthfault relay, LBB relay, overload relay and REF relay conducted as per relevant standards i.e. ISS/IEC carried out at & issued by Govt. Standard laboratory/ NABL accredited laboratory /ILAC accredited Laboratories .</p> <p>The type test report should not be older than Seven (7) years as on the date of issue of NIT. The makes & models of relay proposed to be offered by the bidder should be mentioned in the TC Bid and type test report of these offered makes & models will only be accepted.</p> <p>Further, copy of test for degree of protection IP54 on the panels conducted in any Govt. Standard laboratory/ NABL accredited laboratory /ILAC accredited Laboratories conducted within Seven (7) years as on date of issue of NIT should also be submitted.</p> <p>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.</p>	
(B)	<u>Commercial/Financial Requirement:-</u>	
1	For Regular Suppliers:-	
1.1	<p>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. 7.43 Cr. (Rs. Seven Crore Forty Three Lakh only).</p> <p>In case bidder is a holding company, MAAT shall be that of holding company only (i.e. excluding its subsidiary / group companies). In case bidder is a subsidiary of a holding company, the MAAT shall be of subsidiary company only (excluding its holding company).</p>	<p>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).</p>
1.2	<p>Net worth of bidder for last three financial years i.e .2017-2018 ,2018-2019 & 2019-20 should be positive.</p> <p>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</p>	<p>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</p>

	(including debit balance in profit and loss account for current year) and intangible assets.	sheet of these years shall be furnished.
2	<u>For C.G State SSI Unit:-</u>	
2.1	<p>CG state SSI units should have the aggregate turnover of minimum Rs. 37.42 Lakhs (Rs. Thirty Seven Lakh Forty Two Thousand only) for best three financial years out of last five financial years i.e. 2015-16, 2016-17, 2017-2018 , 2018-2019 & 2019-20 .</p> <p>In case bidder is a holding company, MAAT shall be that of holding company only (i.e.excluding its subsidiary / group companies). In case bidder is a subsidiary of a holding company, the MAAT shall be of subsidiary company only (excluding its holding company).</p>	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).
2.2	<p>Net worth of bidder for last three financial years i.e . FY 2017-2018 , FY 2018-2019 & FY 2019-20 should be positive.</p> <p>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.</p>	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) shall be furnished.
3	<p>The bidder shall submit Certificates (in original) from CA stating that,</p> <p>a. All payment obligations (principal/interest) on outstanding debentures have been discharged and no such payment as on 31.12.2020 is outstanding /overdue.</p> <p>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.</p>	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	A declaration in this regard shall be furnished by the bidder

	<p>considered for further processing in following cases also:-</p> <p>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.</p> <p>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.</p>	
1.2	<p>“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 tender. Price bids of bidders not complying with the requirement shall not be opened.”</p>	<p>A declaration in this regard shall be furnished by the bidder.</p>
1.3	<p>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.</p>	<p>The bidder shall have to submit pre-contract integrity pact in the format enclosed as per Annexure -III</p>
1.4	<p>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</p>	<p>A declaration in this regard shall be furnished by the bidder</p>

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 CE (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-III on non-judicial stamp paper worth Rs. 300/- duly signed by the bidder along with the Techno-Commercial bid.
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 observed 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.

- 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-VIII) 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

GENERAL TERMS & CONDITION OF TENDER

1. Scope :-

The subject tender specifications cover supply of 132KV C&R panels for feeder , ,132 KV C&R Panel for 132/33 KV transformer ,132 KV incomer panel for 132 KV side of 220/132 KV Transformer and Spare Relays . The details of scope has been described in Section-II “Technical Specifications” of the tender.

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 tendered quantity of 132 KV Control & Relay panel for Feeder , 132 KV Control & Relay panel for 132/33 KV transformer , 132 KV Incomer panel for 220/132 KV transformer and Spare Relays will be offered to lowest bidder of respective item.

a) For C.G. State SSI Units:-

For C.G. State SSI units meeting all technical requirements of tender upto maximum 25% of tendered quantity is reserved for CG state SSI/MSME units for procurement of subject material to the following terms & condition.

- (i) Chhattisgarh State based Micro and Small Enterprises (hereinafter referred as CG State SSI Units) should be registered under Micro, Small and Medium Enterprises Development Act,2006 for tendered items.
- (ii) CG State SSI units should have the requisite valid type test reports of tendered material/equipment and BIS License.
- (iii) CG State SSI units-offering against reserved quantity for CG State SSI units, shall not quote price for tendered item.
- (iv) CG State SSI unit shall offer minimum 10% of quantity allocated for CG State SSI units.
- (v) Maximum quantity of tendered item which any CG State SSI unit may offer shall be restricted to 100 % of reserved quantity for CG State SSI Units. However, it shall be limited as per production/manufacturing capacity of that item (as mentioned in the SSI Certificate) with respect to time frame of supply mentioned in the tender.
- (vi) If any CG State SSI unit submits the price bid in open tender, he shall not be considered against quantity reserved for CG State SSI units.
- (vii) **The rate quoted by the L-1 bidder in the open tender shall be counter offered to all eligible CG State SSI units. On receipt of their acceptance, earmarked quantity for CG units (maximum 25%) shall be equally distributed to all such firms subject to their individual ceiling.**

- (viii) In case of non/partial acceptance of allocated quantity by any CG State SSI units, the unallocated remaining quantity out of reserved tendered quantity (maximum 25%) shall be equally distributed among other eligible CG State SSI units subject to their consent and individual ceiling.
- (ix) In case any quantity or whole quantity remains left from CG State SSI units, the same shall be allocated to regular bidders in same ratio as per tender clause.
- (x) CG State SSI units are also eligible for extension order up to 50% of the original order quantity placed on them.

b) The Final distribution of quantity shall be as per details below:-

Case I:- In case order is placed to L-1 bidder & CG state SSI Unit final quantity distribution as details below:-

Sl. No.	Particular	Quantity (in Nos)	Total Quantity for Regular suppliers (75 % of Total Quantity ,in Nos)	Total Quantity for For C.G. State SSI Units (25 % of Total Quantity ,in Nos)
1	132 KV Control & Relay Panel for Feeder	36 Nos	27	09
2	132 KV Control & Relay panel for 132 KV side of 132/33 KV Transformer	23 Nos	17	06
3	132 KV Incomer panel for 132 KV side of 220/132 KV Transformer	05 Nos	04	01
4	Numerical Distance Protection Relays	7 Nos	05	02
5	Numerical Differential Relays	7 Nos	05	02
6	Numerical Directional O/c & E/F Relays	47 Nos	35	12
7	Numerical Non- Directional O/c & E/F Relays	208 Nos	156	52

Case II:-In Case of non participant /Non acceptance of C.G. State SSI Units, the entire tendered quantity will be offered to respective L-1 bidder based on offered FOR-destination rate, the regular bidder will have to quote for entire quantity.

Sl. No.	Particular	Quantity (in Nos)	Total Quantity for Regular suppliers (in Nos)
1	132 KV Control & Relay Panel for Feeder	36 Nos	36 Nos
2	132 KV Control & Relay panel for 132 KV side of 132/33 KV Transformer	23 Nos	23 Nos

3	132 KV Incomer panel for 132 KV side of 220/132 KV Transformer	05 Nos	05 Nos
4	Numerical Distance Protection Relays	7 Nos	7 Nos
5	Numerical Differential Relays	7 Nos	7 Nos
6	Numerical Directional O/c & E/F Relays	47 Nos	47 Nos
7	Numerical Non- Directional O/c & E/F Relays	208 Nos	208 Nos

A Separate schedule for check list has been incorporated in tender document .The Bidders are requested to go through our Technical requirement carefully and it may be noted that furnishing of all information as required in various schedules enclosed is a must. In case any of the schedule, duly filled in, is not found furnished as required in the Schedules /Annexure the tender will be treated as incomplete, and will be liable for rejection without any correspondence by the CSPTCL.

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.

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.

3.2 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.

4.0 Offers :-

The offer for equipment/materials are 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 "SPECIAL 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) Self attested photocopy of the NSIC/ SSI registration certificate for the tendered item should be furnished with the offer. In case of not having self attested photocopy, the original certificate should be produced at the time of opening for verification failing which their offer will be liable for rejection.
- v) The Bidders who come under any of above category must produce documentary evidence failing which offer shall be rejected.
The photocopy of valid NSIC certificate should be self attested by authorized signatory failing which tender shall be liable for rejection.
- vi) **The valid GST registration number and certificate alongwith EMD should be furnished. 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 (A) Part – II :- TECHNICAL BID:

- 4.2.1 In this part of bid, tenderer 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 Schedule II, III & IV should be submitted duly filled with this part.

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 tenderers must furnish the following informations along with technical bid.

- i) The responsibility for obtaining timely supplies of bought out items will rest on the tenderer and only on this basis, delivery period will be offered in the tender. 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 should be recoverable from the tenderer on total cost of the material.
- ii) 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 tenderer.

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

4.2.3 It would be obligatory on the part of tenderer 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.

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”.

4.3 II(B) Part:- 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 & TAXES:

The prices offered should be valid for 180 days from due date of tender in Indian Rupees only. Quoted prices should be on the basis of firm rates. 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. 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 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. 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 tenderer by CSPTCL and if it works out to be negative, the same shall be recovered from the tenderer. The price variation bills should be submitted to Manager (Bills) O/o GM (Finance), CSPTCL, Raipur.
- (iv) 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 **from the date of receipt of material.**

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), CSPTCL, Raipur for arranging payment.

4.3.3 **Delivery period:** The delivery should be as below :-

For supply of 132 KV control & Relay panel for feeder , 132 KV C&R panel for 132/33 KV Transformer , 132 KV incomer panel for 220/132 KV Transformer and spare Relays the delivery should be completed in **04 months** from the date of order. This period is inclusive of time of drawing submission and approval.

The time 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.

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 you on free of cost basis. The replacement / repairing will have to be organised by you expeditiously and preferably within one month's time.

If for the purpose of replacement / repairs, the equipment / material is required to be dispatched to your works, all charges towards transportation / insurance / packing / forwarding will have to be paid by you for to and fro dispatches.

In this connection, please note that the following additional conditions will also be applicable in case any damages / defects are noticed in the equipments or its accessories supplied by you.

- (i) If the material develops defect within guarantee period after installation at site, for the purpose of replacement / repairs, the same will have to be dismantled and taken out by us. In such cases actual cost of dismantling and replacement of the equipment / material will also be recoverable from you.
- (ii) In case it is observed that replacement / repairs of equipments or its accessories is not being provided to us within reasonable period and proper response is not received from you, then apart from operating clause of penalty (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 you which may include debarring you 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 tenderer 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 bidder who has supplied material earlier in CSPTCL and which has 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. (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 of part –I is not found inside the envelope.
ii) **The GST registration certificate is not furnished**
iii) 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 Annexure –III.
- (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 itself

TENDER SPECIFICATION No. TR-20/S&P/56, DUE FOR OPENING ON 04/06/2021 FOR SUPPLY OF 132KV C&R PANELS FOR FEEDER,132 KV C&R Panel FOR 132/33 KV TRANSFORMER , 132 KV INCOMER PANEL FOR 220/132 KV TRANSFORMER & SPARE RELAYS.

In case tender document is downloaded from website the envelope should also be Superscribed "DOWNLOADED FROM WEBSITE –TENDER COST FURNISHED"

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 Executive Director(S&P),
C.S.Power Transmission Co.Ltd.,
Danganiya, RAIPUR (C.G.) 492013**

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 & INTEGRITY PACT	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

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. Earnest Money shall be first opened on the due date & time. Part-II i.e. 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 tenderer 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, I.T. 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 completed in all respects. It should not be expected that in case of lack of any information, the CSPTCL will make any correspondence with the tenderer. 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 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 purchaser 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 CE (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/IEC standards shall be conducted at their 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 primary and secondary winding before final assembly of equipment. Tenderers 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. 5,000/- or actual expenditure incurred in the visit of the inspector whichever is more.

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 exists.
- (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, I the type/ special acceptance and routine test specified in the relevant standards. These limitation shall be very clearly brought out in schedule of deviations from specified test requirements.

- 12. Test certificate:** Self attested copies of type test certificate from Govt. standard test laboratory/ NABL accredited laboratory / International laboratories like KEMA or equivalent shall be submitted along with the tender failing which the tender will be liable for rejection. The type test certificate of all the offered main relays (DPR , differential, Dir. O/C & E/F, Non- Dir. O/C & E/F, LBB relays, Overload & REF relay) shall not be more than 7 years old from date of NIT. Without required type test certificate the offer shall be liable for rejection.

13. CANCELLATION OF ORDER:-

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

- (a) If in the opinion of the CSPTCL, the supplier fails to deliver the material within the time specified or during the period for which extension has been granted by the CSPTCL.
- (b) If in the opinion of the CSPTCL, 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 CSPTCL to the supplier to suspend further activities and to take urgent steps towards corrective measures, failing which the entire order would be cancelled.

13.2 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 approved in the clause No. 4.3.4 above.

OR

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

OR

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

13.3 Notwithstanding that the power under clause (13.2 a, b & c)) referred to above, are in addition to the rights and remedy available to the CSPTCL under the general law of India relating to Contract.

13.4 In the event of risk purchase of stores of similar description, the opinion of the CSPTCL shall be final. In the event of action taken under clause 13.2 (a or b) above, the supplier shall be liable to pay for any loss, which the CSPTCL may sustain on that account but the supplier shall not be entitled to any saving on such purchases made against the default.

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

13.6 In the event, CSPTCL does not terminate the order as provided in clause 13.1 & 13.2 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.

14. **COMPLIANCE OF REGULATIONS:-**The supplier shall warranty that all Goods covered under procurement shall have been produced, sold, dispatched, delivered, tested, in strict compliance with all applicable rules, regulations including Industries(Development and Regulations) Act 1951 and any amendment thereunder, labour agreements, working conditions and technical codes and requirements as applicable from time to time.

15. **ARBITRATION:-** If, at any time any question, dispute or difference, whatsoever shall arise between the purchaser and the supplier, upon, or in relation to or in connection with the Contract, either party may forthwith give to the other, notice in writing of the existence of such question, dispute or difference and the same shall be referred to the adjudication of two arbitrators, one to be nominated by the purchaser and the other to be nominated by the supplier or in the case 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 provision of the Indian Arbitration Act, 1940 and its latest amendments, and of the rules there-under

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 Tenderer during the arbitration proceedings, unless otherwise, directed in writing by the Purchaser or unless the matter is such that the work cannot possibly be continued until the decision of the arbitrators or of the Umpire, as the case may be, is issued.

16. **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.

17. **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 scrutinized to find out as to whether some or all bidders have entered in to any such „agreement's. 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.

18. **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.

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

20. **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.

21. **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.

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

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

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

25. **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.

26. **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.
27. **Language of bids:** All tenders should be made either in English or in Hindi only.
28. **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.
29. **Approval of Drawing :-** The drawings of the ordered material should be submitted to this office within 15 days from the date of order for approval.
30. **Limitation of Liability :-** Except in cases of gross negligence or wilful misconduct by the bidder,
- a) The bidder shall not be liable 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 bidder to pay liquidated damages to the CSPTCL

AND

- b) The aggregate liability of the bidder 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.

SECTION II (A)

TECHNICAL SPECIFICATION FOR SUPPLY OF 132 KV CONTROL & RELAY PANELS FOR FEEDER AND 132 KV INCOMER OF 220/132 KV TRANSFORMER 110/220VDC AND SPARE RELAYS

1.1 Scope:

This section contains the technical specifications for the indoor control, indication, relay and metering panels associated with the outdoor switch gear for the sub-station. The various control and relay panels shall be complete in themselves with all main and auxiliary relays, fuses, link switches wherever necessary, wiring, labels, terminal boards, earthing terminals, foundation bolts etc. All the main numerical relays such as Distance Protection Relay, O/C and E/F Relay, LBB Relay shall comply to IEC 61850 protocol. The DC Control voltage should be 110V/220V DC. The supplier of C&R panel should ensure to supply all the relays as per make/model mentioned in Annexure A and vendor list.

1.2 Limits of contract:

The various control and relay boards and other requirements specified under this section shall be complete in themselves with all main and auxiliary relays, fuse links switches where necessary, wiring, labels terminal boards, earthing terminals foundation bolts, interior illumination cable glands etc.

The supply and laying of the control and power cables interconnecting the various equipments is not covered under the specification. The cable terminating arrangements, viz., the cable hold support boxes, multicore cable glands, sealing ends for other types of cables that may be specified, shall however be included, where ever required for connection to the equipments under this contract and in the tender price. These shall be subject to our approval.

1.3 Climatic conditions:

Peak Ambient Temperature	50 Degree Celsius
Minimum Temperature in Shade	6 Deg. C
Maximum Relative Humidity	95% (sometime approaches saturation)
Average Number of Thunderstorm	58 days per annum.
Average No. of rainy days per annum	90 days.
Average Annual Rainfall	125 cm.
Maximum Wind Pressure	150 kg/meter square.
Altitudes (Not Exceeding)	1000 metres.
Seismic Level Horizontal	0.3 g.

1.4 Standards & specifications:

1.4.1 PANEL FINISH AND COLOUR:-

The exterior colour finish of panels shall be opeline green as per colour No. 275 of BS:381 C:1948, equivalent colour as per relevant Indian Standards or any other

standard shall be accepted. This colour finish shall be applied on the exterior steel works of the panels. The exterior opeline green paint finish shall be semi-glossy only and shall not be fully glossy. The interior of panels shall be painted with egg shell white.

1.4.2 PRETREATMENT AND PAINTING PROCESS

Process of painting of panels to be followed by the tenderers for all the panels included under this tender specification shall be as given in annexure-A enclosed. The sheet steel fabricated members shall be subjected to pre treatment processes before painting. This process shall be carried as indicated in Annexure A. Please note the process indicated in Annexure-I should be strictly followed and confirmation may be made in your offer. This is very important.

1.4.3 PROTECTIVE RELAYS AND INSTRUMENTS:-

A) The protective relays shall be manufactured tested and supplied with guaranteed particulars generally confirming to the latest issue of the following Indian Standard Specification:

i)	IS-3842 (PART I TO V)	Application guides for electric relays for AC system.
ii)	IS-3231	Electric relays for power system protection.
iii)	IS-1885 (PART I & II)	Electric technical vocabulary- electrical relays and Electrical power system protection.
iv)	IS-1248, IS-2419	Indicating instruments.
v)	IS-722	Energy meters, control switches (LV switching devices for control and auxiliary circuits)
vi)	IS-5	Colour sheds.
vii)	IS-2715	Current transformers.
viii)	IS-3156	Voltage transformers.
ix)	IS-4237	General requirements for switchgear and control gear for voltage not exceeding 1KV.
x)	IS-375	Marking and arrangements for switchgear busbars, main connection and auxiliary wiring.
xi)	IS-8686	Specification for static protective relays.
xii)	IS-4483	Preferred panel cut out dimension for relays.

B) TYPE TEST:-

All the main relays (DPR, Differential, Dir O/c & E/F, Non Dir O/C & E/F, LBB, Overload & REF relays) 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 invariably furnish the type test reports from the approved laboratory to prove indicated accuracy and other specifications of the relays offered. The test certificates shall clearly indicate the type and model No. etc., so that relevant details could be verified. While submitting offers the model and type etc. shall be

clearly indicated. The type test reports so furnished should not pertain to the period earlier than seven years from the date of opening of tender documents. The tenders not accompanied by the above type test report shall run the risk of rejection.

1.4.4 PANEL CUT OUT AND DIMENSIONS:

- i) The panels shall be fabricated of not less than 14 SWG sheet steel free from all surface defects. The panels shall have sufficient structural reinforcement to ensure a plain surface to limit vibration and to provide rigidity during despatch and installation.
- ii) The Feeder and Incomer Panels for 220/132 KV Transformer shall have the following dimensions:

132 KV FEEDER AND 132 KV INCOMER FOR 220/132 KV TRANSFORMER DUPLEX PANELS :-

Type	Duplex
Height	2300 MM
Depth	400(Control panel) +700 +600 (Relay panel)
Width	800 mm.
Thickness	3mm for load bearing side & 2mm for out side.

- iii) The control panels shall be floor mounting dead front sheets steel assemblies of unitized design.
- iv) The panels shall be made in suitable sections as described elsewhere in the specification so that while mounting, the panels can be located side by side bolted together to form a compact unit.
- v) Design material selection and workmanship shall be such as to present a peak appearance, outside and inside with no works of welds, reverts, screw or bolts head apparent from the exterior surfaced of the control boards.
- vi) The control panels shall be placed over the cable trench supported by channel of not less than 100x100mm size.

1.4.5 PANEL LIGHTING:-

- a. In each control and relay panel for interior illumination one tube light 20 W operating at 230 V 50 cycle with door operated switch shall be provided in the corridor. The tube light shall be located at the ceiling and guarded with a protective cage. In addition to corridor tube light, two incandescent lamp one each on front and rear panel with switch shall also be provided.
- b. One 15 A, 3 pin socket with plug and switch shall be provided for each of the control board of duplex type C&R panels. The third pin of the socket shall be effectively earthed through the metallic structure. The socket shall be industrial grade control panel type complete with protective metallic cover.
- c. A test lamp 230V AC 18 W CFL with 3 M lead and holder with a controllable 5 A switch is to be mounted at the top inside each panel.

1.4.6 AUXILIARY SUPPLY:-

For each group of control boards, the CSPTCL will arrange to provide at one point only the following:

- i. (415 V + 10% to –25% 4 wire, 3 phase 4 wire 50 C/s, neutral grounded AC supply. The tenderer shall arrange for providing proper looping of these power supplies to the different panels of the control board group.
- ii. H.R.C. fuses shall be provided at each panel for both the AC and DC power supplies. Distribution and wiring of the same shall be utilised through fuses and links in such a way so that isolation of respective system unit is possible without affecting the rest of the system or unit.
- iii. All H.R.C. fuses and links shall be with holder, and the same shall be mounted on slant support and with identification labels.
- iv. For each control and relay panel, a separate cable from DCDB for 110 V/220 V DC supply.
- v. The H.R.C. fuses as per following details shall be provided:

S. No.	CIRCUIT	FUSE RATING 132 KV
1.	Circuit breaker closing circuit.	10A
2.	Trip circuit I & II	16 A
3.	Main protection	10 A
4.	Back up protection	10 A
5	Indication	4A
6	Annunciation	4A
7	P.T. Circuit	4 A

1.4.7 CONTROL WIRING:

- i) Wiring shall be done with flexible heat resistant multi strand wires, PVC insulated with standard copper conductor. The conductor size shall be equivalent to 2.5 mm square for CT/PT and LV AC and 1.5 mm square for control circuit unless otherwise specified in this tender.
- ii) Coloured wires shall be used for wiring as per latest revision of IS-375 viz; red, yellow, blue and black for R,Y,B, phases and neutral respectively, green for earthing , grey for annunciation & control circuits & white for trip circuit.
- iii) Each wire shall be identified at both ends with wire designation number by plastic ferrule as per wiring diagram based on latest revision of IS-375 to denote the different circuit functions. The tenderer shall take approval for the system of wire numbering.
- iv) All wires termination shall be made with compression type connectors. Wires shall not be tapped or spliced between terminal points. All wire shall have crimp type termination and direct connection at any place is not at all required.
- v) All series connected devices and equipment shall be wired up in sequence. Loop-in Loop out system of wiring shall be avoided as far as possible and the common buses shall normally be made through the terminal block for better reliability of testing and maintenance.
- vi) Fuses and links shall be provided for isolation of individual circuit from bus bars without disturbing other circuits and equipments.
- vii) The DC trip and DC voltage supplies and wiring to main protective gear shall be segregated from those for special purposes. Each such group shall be fed through separate fuses, either direct from main supply fuses or the bus wires.
- viii) Since a number of wires will run from one point to another, it is desired that the support arrangement should be adequate and neat. The conventional method of bunching of wires should not be adopted since the same creates problems in case any wire is to be removed. The wires should be accommodated in a suitable plastic channels with sliding plastic cover, which may be mounted inside the panels suitably. Inspection/removal of wires should be possible by sliding the covers.
- ix) Blank plastic channels should be provided by the sides of the panels to accommodate the incoming cables from switchyard through the cable glands.

1.4.8 TERMINAL BLOCKS:

- i) A Multi-way stud type 10 A current carrying capacity terminal blocks complete with necessary binding nut and bolt , washers for wire connection and making strip for circuit identification shall be furnished for terminating the panel wiring and outgoing cables. The terminal block shall be suitable for receiving at least 2x7/0.737 mm standard copper or aluminium conductor wire per terminal. It may also be noted that the current rating shall be double the current rating of 2x7/0.737 non-stranded copper wire and the terminal shall be suitable to receive 2 x 2.5 sq. Mm/ 2x4 sq. Mm copper conductor of copper control cables.
- ii) Terminal blocks shall have shorting and disconnection facilities. The Board side and outgoing wires can be disconnected just by opening the disconnecting links which slides up or down without lodging the wires from their position. 'ASEA' type sliding links shall be provided. However, disconnecting type terminal connectors may be limited to CT & PT circuits only. All other terminals should be of bolted type.
- iii) Highly reliable terminal blocks with facilities of shorting and easy removal of connection shall be provided for CT & PT circuits. Instrument transformer wires shall be terminated through suitably mounted test terminal blocks for site testing facility.
- iv) The terminal blocks shall be grouped according to the circuit functions and each terminal block group shall have at least 20% spare terminals.
- v) Not more than two wires shall be connected to any terminal or either side of the terminal block. If necessary, a number of terminals shall be jumpered together to provide the wiring points.
- vi) Each terminal point shall be marked with designation obtained from the CSPTCL's schematic drawings.
- vii) Adjacent rows of terminal blocks shall be spaced not less than 100 mm apart. They shall be mounted vertically at the sides of the cubicle and set obliquely towards the rear doors to give easy access to terminating end to enable ferrule number to be read without difficulty.
- viii) The bottom of terminal blocks shall be spaced at least 200 mm above the cable trench incoming multicore cables.
- ix) Separate test terminal block should be provided for the KWH meters to facilitate the testing and calibration of energy meters without disturbing the other circuits such as ammeter/MW meters. The TTBs should be 3 phase, 4 wire with screw type CT shorting arrangement.
- x) Stud type terminal connectors rated for not less than 10 Amps shall be used in the CRP panel.
- xi) Terminal connectors for control and other circuits shall be of stud type. For CT & PT circuits the terminal connectors shall be of best quality disconnecting type. The terminal connector size shall be 16A current rating.
- xii) The DC circuit wires shall be grey of size of 1.5 Sq. Mm. However, for trip wires shall be of 2.5 Sq. Mm size.

1.4.9 CABLE ENTRY:-

- i) The control board shall have provision of cable entry from the bottom. Necessary cable glands should also be provided. The CSPTCL will arrange for necessary floor opening below the panels to suit the cable trench design of CSPTCL's requirement.

- ii) The wiring through the terminal blocks shall be so located so as to be convenient for floor openings.
- iii) The control board shall have provisions for fixing the multi-core cable glands which shall be included by the tenderer in scope of supply. For fixing these cable glands, detachable gland plates of 4 mm thickness shall be mounted.
- iv) Gland plate shall be supplied with factory made gland holes with suitable blanking arrangement for un used gland holes. The gland plate and doors shall be properly gasketted.
- v) Rigid supports shall be provided along with terminal block for holding plastic channel. Suitable clamps may also be provided in plastic channel for holding cables.
- vi) The following quantities of cable glands with blanking plate shall be supplied fitted along with each panel:-

i)	For 8 core x 2.5 sq. Mm 1.1 kV control cable	4 Nos.
ii)	For 4 core x 2.5 Sq. Mm 1.1 KV Control cable	8 Nos.
iii)	For 12 core x 2.5 sq. Mm 1.1 KV Control cable	2 Nos.
iv)	For 10core x 2.5 sq. Mm 1.1 KV Control cable	2 Nos.

1.4.10 GROUNDING:-

- i) 25 mm x 6 mm copper ground bus shall be providing for each control boards extending along with entire length of the board and effectively grounding all metal structures.
- ii) Each continuous length of ground bus shall have provision of two terminals at two separate points for connection to main ground grid of the substation.
- iii) Whenever a circuit is shown grounded on the drawings a single wire for the circuit shall be run independently to the ground bus and connected to it.

1.4.11 Invariably for all the panels end doors with suitable lock and handle on both the sides should be included in the offered prices. As per our standardisation end doors should be of full size without requiring any end sheets on the sides.

1.5 CONTROL AND RELAY PANELS:

- i) The control and relay boards required for 132 KV side shall be duplex type panels of the back to back corridor type with central roofed access. The control, recording and indication apparatus shall be mounted in the front panel. These shall be of the flush pattern. The relays shall be mounted on the rear panels and these may be of the projecting pattern. However, if relays of “draw out” type are offered, these may be arranged to be flush.
- ii) The central access way shall be provided with interchangeable lockable doors. Suitable tube light shall be provided inside the panels for adequate illumination & the same being controlled by a switch provided on one end, including two incandescent lamps with switch one each on the front & rear panel.
- iii) The labelling for the circuits shall be provided at the front control panels, at the rear relay panels as well as on the inside of the panels.
- iv) The panels shall be of uniform thickness and level sheet steel of minimum 14 gauge (3 mm for load bearing sides & 2mm for other sides). The bottom of the cubicle shall be open for the purpose of wiring and cable entrance. The panel shall be designed to be self supporting and wherever additional structural strength is required, inconspicuous bracing, gusset, welding etc., shall be used. All control panels and switchgear cubicles shall be made absolutely vermin proof design of the approval of the CSPTCL.
- v) The panels shall be made in suitable sections to facilitate easy transport and handling and shall be later assembled at site. It may please be noted carefully that it should be possible to disassemble the relay control board of a substation in length of 700/800 mm for ease of handling, single continuous sheet steel should not be

used to make a single board for all the panels required. The panels should have unitized construction with facility to bolt together the panels where more than one panel is involved.

vi. The panels shall be provided with best quality independent TTBs Distance Protection relay ,O/C & E/F relay, LBB relay etc.

vii.RTB(relay test block) of ABB /ASLTOM make should be provided along with test handle.

1.6 CONTROL & INDICATION CIRCUITS:

1.6.1 The control and indication circuit for each circuit breaker controlling feeder and incomer for 220/132 KV Transformer shall generally comprise the following:

- a) Mimic diagram (main and transfer bus scheme)
- b) Ammeters and voltmeters where specified.
- c) PF, Mega Watt, MVAR meter where specified.
- d) Circuit Breaker Control switch.
- e) "Trip Circuit Healthy" I & II lamps.
- f) Alarm Cancellation arrangement.
- g) Breaker ON/OFF indication lamps.
- h) Breaker Spring Charge indication lamp

1.6.2 The mimic diagram offered shall be at the eye level to indicate the position of each breaker, isolating and grounding switch. Other equipments such as transformer, voltage transformers etc., shall be represented by suitable symbols. Mimic diagram shall be for single main & single transfer arrangement.

1.6.3 The mimic diagram offered shall be of Azure blue shade 104 of IS-5.

1.6.4 Rotating disc type semaphore shall be used to indicate the position of each breaker. The position of the circuit breaker whether closed or open shall be indicated by semaphore indicator to be provided for this purpose. It may be noted that the circuit breaker will have two trip coils in parallel and since their DC source of supply is one at present, necessary arrangement shall be made in the panel circuitry. For this purpose contact multiplication will not be involved but the rating of the control switch should be adequate to handle; the burden of two trip coils Along with pistol grip type control switches red and green indicating lamps for ON/OFF indication shall be provided.

1.7 ANNUNCIATION SYTEM:

1.7.1 Alarm annunciation system shall be provided for the control board by means of visual and audible alarm in order to draw the attention of the operator to the abnormal operating conditions or the operation of some protective devices. The annunciation equipment shall be suitable for operation on the voltages specified in this specification.

1.7.2 The annunciation shall be of visual and audible type. The visual annunciation shall be provided by annunciation facia, mounted flush on the top of the control panels. The audible alarm shall be provided by alarm hooter or bell .The annunciator facia shall be provided with translucent plastic window for alarm point with minimum size of 35 mm x 50 mm. The facia plates shall be engraved in black lettering with respective inscriptions which will be furnished to the tenderer by CSPTCL. Alarm inscriptions shall be engraved on each window in not more than three lines and size of the lettering shall not be less than 5 mm.

1.7.3 Each annunciation window shall be provided with two white lamps in parallel to provide safety against lamp failure. Long-life lamps shall be used. The lamp circuit shall include series resistor of adequate rating. The cover plate of the facia windows shall be flush with the panel and shall be capable of easy removal to facilitate replacement of lamps. The transparency of cover plates and wattage of the lamps provided in the facia windows shall be adequate to ensure clear visibility of the inscriptions in the control room having high illumination intensity (500 Lux) from the location of the operator's desk.

1.7.4 TRIP AND NON TRIP facia shall be differentiated. All trip shall have red colour and all non trip facia shall have white colour.

Sequence of operation of the annunciator shall be as follows:-

Sl. No.	Alarm condition	Fault contact	Visual Annunciation	Audible Annunciation
1	Normal	Open	OFF	OFF
2	Abnormal	Close	Flashing	ON
3.	Acknowledge push button is pressed.	Close	Steady on	OFF
		Open	Steady on	OFF
4	Reset push button is pressed.	Close	On	OFF
		Open	Off	OFF
5	Lamp test push button pressed.	Open	Steady on	ON

The annunciation system described above shall meet the following additional requirements:

- a) The annunciation system shall be capable of catering to at least 80% simultaneous signals (of windows provided) at a time.
- b) One self resetting push button shall be provided on each panel for testing the facia window lamps. Push buttons for testing flasher and audible alarm circuit of annunciation system and for testing the annunciation supply failure monitoring circuit shall also be provided. These testing circuits shall also be so connected that while test is being done it shall not prevent the registering of any new annunciation that may land during the test.
- c) One set each of the following push buttons shall be provided on each panel as shown in the front view drawing:
 - i) Reset push button for annunciation system.
 - ii) Accept push button for annunciation system.
 - iii) The annunciations shall be repetitive type and shall be capable of registering the fleeting signal. Minimum duration of the fleeting signal registered by the system shall be 15 milli seconds.
- d) The annunciation shall be suitable for operation with normally open contacts which close on a fault. For contacts which open on a fault it shall be possible at site to change annunciators from "close to fault" to "open to fault" and vice versa.
- e) In case of static annunciation scheme, special precaution shall be taken by tenderer to ensure that spurious alarm condition does not appear due to influence of external electromagnetic/electrostatic interferences on the annunciation wiring and switching disturbances from the neighbouring circuits within the panels.
- f) The annunciation scheme (wherever called for) offered shall be complete in all respects including annunciation relay, flasher relay test, accept and reset arrangement.

- h) The purchaser reserves the right to ask for a sample of annunciation system for approval, if so considered necessary from the successful tenderer.

1.8 INSTRUMENTS:

- i) All indicating instruments shall be conforming to IS-722 and shall be of type and sizes specified under relevant sections. The Ampere meters and all the other meters should be of Digital type. They shall be capable of carrying their full load currents continuously without undue heating. All indicating instruments shall be provided with non reflecting type glass fronts. Instruments connected to double ratio current transformers shall be provided with reversible scale, instrument transformer ratios names etc. Shall not appear on the dials but shall be marked in approved positions.
- ii) The instruments shall not be damaged by the passage of fault current through the primary of their corresponding instrument transformers. All potential circuits to instruments shall be protected by a fuse on each pole of the circuit placed as close as possible to the instruments transformer terminals or where instruments are direct-connected as close as possible to the main connection. All instruments and apparatus shall be back connected and all instrument cases shall be earthed. All indicating instruments shall be of accuracy class 0.2S.
- iii) **SEMS** make 0.2S class, electronic 4 quadrant, import-export, 3phase 4wire, tri-vector energy meters shall be provided with suitable TTB on the front panel. The energy meters shall indicate instantaneous parameters like KW, KVA, KVAR, pf, current, voltage etc. The energy meter shall have 15 minutes load survey for KW & KVA for a minimum period of 35 days. The energy meter shall be suitable to CT ratio 400/1A for feeder panel & 800/1 for 132 KV incomer panel of 220/132 KV transformer and PT ratio 132KV/110V, and without any external M.F. The meter should have RS485 port for data communication on Modbus protocol. Meter shall have front optical port for the purpose of extraction of data through MRI.
- iv) **Multi-Functional Transducer (MFT):**
1 No. MFT shall be provided for each panel. The MFT should be accommodated in feeder panel and output signal of MFT shall be taken to RTU panel through 1.5 Sq mm multi strand copper wire (screened cable). The analog parameters of all feeders, transformers, bus voltages and frequency shall be measured through MFT and Breaker ON/ OFF indications shall be double point indication and isolator indication shall be single point indication and will be coupled to RTU through OPTO isolator print. The wiring of digital indication shall be done by 1.5 sq mm multi strand copper wire, Bus PT voltage and frequency signal shall be terminated to RTU panel. The MFT should have accuracy class of 0.2, 3 ph-4wire type with 2 no digital & 4 no.20mA analog outputs, should have USB & RS485 ports for communication and operating voltage 40-276V AC/DC. Necessary software interface shall also be provided.

1.9 SWITCHES:

- (i) Control and instrument switches shall be rotary operated type with escutcheon plates clearly marked to show operating position and circuit designation plates and suitable for flush mounting with only switch front plate and operating handle projecting out. Handles of different shapes and suitable inscriptions on switches shall be provided as an aid to switch identification.

- (ii) The selection of operating handles for the different type of switches shall be as follows:

a)	Breaker control switches	Pistol grip, black
b)	Selector switches	Oval or knob black.
c)	Instrument switches	Round, Knurled, black.
d)	Protection transfer switch	Pistol grip lockable and black.
e)	PT Selection switch	Pistol grip lockable and black

- (iii) The control switch of breaker shall be of spring return to neutral type. The control springs shall be strong and robust enough to prevent inadvertent operation due to light touch. The spring return type switch shall have spring return from close and trip positions to neutral position after close and after trip position respectively. Protection transfer switch shall be provided on each control panel.
- (iv) Instrument selection switches shall be of maintained contact (stay put) type. Ammeter selection switches shall have make-before-break type contacts (heavy duty) so as to prevent open circuiting of CT secondary when changing the position of the switch. Voltmeter transfer switches for AC shall be suitable for reading all line to line and line to neutral voltages.
- (v) Lockable type of switches which can be locked in particular positions shall be provided when specified. The key locks shall be fitted on the operating handles.
- (vi) The contacts of all switches shall preferably open and close with snap action to minimise arcing. Contacts of switches shall be spring assisted and contact faces shall be with rivets of pure silver or silver alloy. Spring shall not be used as current carrying parts. The contact combination and their operation shall be such as to give completeness to the interlock and function of the scheme.

1.10 INDICATING LAMPS:

- (i) Indicating lamps shall be panel mounting multiple bright LED type with rear terminal connections. Lamps shall be provided with series connected resistors preferably built in the lamp assembly. Lamps shall have translucent lamp covers to diffuse lights coloured red, green, amber, clear white or blue as specified.
- (ii) Multiple LED indicating lamps shall be provided wherever specified.
- (iii) The indicating LED lamps with resistors shall withstand 120% of rated voltage on a continuous basis and should also give sufficient illumination with – 20% auxiliary voltage condition.

1.11 POSITION INDICATORS:

- (i) Position indicators of “semaphore” type shall be provided when specified as part of the mimic diagrams on panels for indicating the position of circuit breakers. The indicator shall be suitable for semi-flush mounting with only the front disc projecting out and with terminal connection from the rear. Their strips shall be of the same colour and size as the associated mimic.
- (ii) Position indicators shall be suitable for operation as specified. When the supervised object is in the closed position, the pointer of the indicator shall take up a position in line with the mimic bus bars, and at right angles to them, when the object is in the open position. When the supply failure to the indicator occurs, the pointer shall take up an intermediate position to indicate the supply failure. The rating of the indicator shall not exceed 2.5 W.

- (iii) The position indicators shall withstand 120% of rated voltage on a continuous basis

1.12 DRAWING AND LITERATURE:

The successful tenderers shall have to supply atleast 3 sets hard copy of drawing /literature for each panel containing of GA, Schematic & Wiring drawings illustrative pamphlets, literature, operation and maintenance instructions of the relay/Panels under his supply. The wire route schedule also be provided along with the wiring diagram. Also to submit soft copy of the above drawing /literature in 3 Nos of readable CD. Ensure supply of onsets of above drawing / literature also along with the panel, kept inside the panel.

- 1.13** Bill of material for 132 KV panels shall be submitted by the bidder based on the detailed technical requirements as stated in section IIA

1.14 PROTECTION SCHEME

- 1.14.1** The protection schemes to be supplied under this contract shall cover the 132 KV feeder panel ,132 KV Transformer panel and incomer panel for 220/132 KV Transformer.

- 1.14.2 All the Numerical relays as specified should have IEC 61850 or better version compliant. None of the inbuilt feature of the relay shall be disabled.**

TECHNICAL REQUIREMENT OF 132KV FEEDER CONTROL & RELAY PANELS

THE DETAILS OF RELAY TO BE PROVIDED IN EACH PANEL ARE MENTIONED BELOW :

- 1 **132 KV Feeder protection panel:** - The 132 KV C&R panel shall be provided for protection of 132 KV (3- ϕ) line with trip transfer facility. The protection for 132 KV (3- ϕ) lines is one Main distance protection (numerical relays with min. 4-zones) with separate Numerical directional backup protection (IDMT) shall be provided. These relays should have disturbance recording facility, event recording & time synchronising facility. The relay shall comply to IEC61850. The LBB protections should be provided for all the 132 KV breakers. All the inbuilt features of numerical DPR such as over current protection, SOTF, LBB, reverse power flow protection, power swing blocking and out of step blocking, pole discrepancy, trip circuit supervision, DC supply supervision & PT fuse failure etc. Shall also be provided. Separate relays shall be provided for LBB protection, trip circuit supervision and DC supply supervision.
The exact model of the offered relay for feeder panel shall be finalised by CSPTCL at the time of the engineering based on the requirement of protection scheme of CSPTCL and it shall be binding on the tenderer.
- 2 **DC. Supply:-**The panel wiring should be made considering one single source of 110V/220 V DC supply, but two independent protection DC circuits, to be wired by providing separate DC fuses in such a way that even with the availability of one set of protection fuses CB tripping should take place.
- 3 **DC Fail Indications:-**Two Nos. DC fail relay energising an AC bell shall be provided for monitoring of DC supply to the protection circuit. The DC fail relay shall have a reverse flag. It shall monitor both Main & back up protection ckt. DC.
- 4 **PT Supply:-**The panel shall be wired for a double set of 132 KV PT, having metering and protection cores. Thus the provision of PT selection switch is required. Further DPR relays should not mal-operate during the changeover period of PT supply. Lamp indications shall be provided to indicate the selected PT supply. Suitable HRC fuse protections shall be provided on the incoming side of the PT supply. Neutral wire of the PT supply shall be provided with a fuse link. Disconnecting type good quality terminal connectors shall be used for PT circuits. 'E' series ferrules shall be used for PT circuits. Further 1100V grade flexible copper wires of R Y B and Black coloured 1.5 sq mm shall be used for easy phase identification. PT selection switch shall have intermediate position where in DPR may be blocked during change over.
Digital Ampere meters shall be used on all the 3 phases having ratio 800-400/1A without ammeter selection switch. The panel shall be provided with 3phase 4 wire MW & MVAR meters of digital type suitable to 400/1A CT ratio & 132KV/110V PT ratio. All the ampere meters shall be of class 0.2S accuracy, of reputed manufacture like AE or equivalent make only.
- 5 **Protection Transfer Switch:-**Provision shall be made to provide a trip transfer switch to transfer the protection trip command to Bus-Transfer Bay CB. Special care may be taken not to mix the DC circuits of main and bus transfer protection circuits. The lockable switch shall have normal-inter-transfer positions and the key shall be removable only in normal positions. A lamp indication shall be provided to indicate the transfer positions. The switch shall be of make **Alstom / Switron**.
- 6 Panel shall be provided with semaphore indications for CB on-off. Semaphore shall be needed to provide to indicate the positions of isolators/earth switch with separate lamp indications. Separate lamp indications shall be provided to indicate CB on-off positions.

- 7 **SEMS** make 0.2S class, electronic 4 quadrant, import-export, 3phase 4wire, tri-vector energy meters shall be provided with suitable TTB on the front panel. The energy meters shall indicate instantaneous parameters like KW, KVA, KVAR, pf, current, voltage etc. The energy meter shall have 15 minutes load survey for KW & KVA for a minimum period of 35 days. The energy meter shall be suitable to CT ratio 400/1A and PT ratio 132KV/110V, and without any external M.F. The meter should have RS485 port for data communication on Modbus protocol. Meter shall have front optical port for the purpose of extraction of data through MRI.
- 8 All the CT terminal connectors shall be of best quality, sliding type connectors of suitable size. 2.5 square mm flexible 1100V grade copper wires shall be used. The colour of wires shall be R Y B and black for easy identification. The 'A' series ferrules shall be used for DPR CT circuits, 'C' series ferrules shall be used for back up O/C&E/F, CT circuits, and 'D' series ferrules shall be used for metering CT circuits.
- 9 All the control, tripping and indications circuit wiring shall be of grey wires of 1100v grade flexible best quality copper wires. All the wires shall be ferruled systematically without repetition. Control protection wires shall be provided with 'K' series ferrules and alarm /indications circuits shall be provided with 'L' series ferrules. AC 230 V supply wires shall have H ferrules. All the terminal connectors shall be of stud type of suitable size, except of CT-PT circuits. All the wires shall be provided with insulated copper lugs properly crimped. The ferrules used shall be of best quality printed sleeve type ferrule having legible letters/numbers.
- 10 **A min. 4 zone numerical distance relay** shall be provided as the main protection to clear all type of line faults. The DPR relays shall be provided with suitable test blocks to test the relays with out disturbing any of the panel wiring. Necessary arrangements shall be made to block the trip commands to CB while testing on line. The DPR relay shall be of numerical type and IEC61850 compliant.

The relay shall be suitable to the following:-

- i CT ratio: - 400A/1A
- ii. PT ratio: - 132KV/110V
- iii. DC auxiliary supply: - suitable for 110V DC nominal
- iv. System earthing: - solidly grounded
- v. Max. Ambient temperature: - 55 degrees centigrade

The relay shall have the following features:-

- a. **Maximum operating trip output time in zone 1:-** 25 ms.
- b. **Operating characteristic:-** Mho/ quadrilateral;
- c. **Fuse failure monitoring:-** Should be available internally. The relay shall be blocked during fuse fail condition. A contact shall be available for fuse fail alarm. An inbuilt feature of O/C and E/F trip shall be available as back up protection during fuse fail block condition.
- d. **Operating Zones:-** Min 4 Zone protections excluding the power swing boundaries. Zone1 is instantaneous and the other zones with a settable time delay from 0 to 2000 ms in steps of 1ms.
- e. **SOTF:-** Shall be provided as inbuilt feature.
- f. **Power swing detection:-** Inbuilt feature shall be available to detect power swing condition. Provision shall be available to set the relay to block in any desired zone. Setting shall also be available to set the nature/ severity of power swing.
- g. **Distance to fault location:-** Shall be available as an integral part.

- h. **Disturbance Analog Record of fault current, voltage and other parameters:-** Record of previous fault current, voltage and other parameters for at least 4 events for a duration of 1.5 Sec. Each in the oscilloscopic form.
- i. **Protection signalling:-** Internal arrangement shall be available to 'send' and 'receive' carrier signal for carrier aided protections schemes.
- j. **Inbuilt feature** shall be available for **parallel feeder compensation**.
- k. **Inbuilt LBB feature**.
- l. **Inbuilt directional over current and earth fault protection** shall be available.
- m. **Necessary software** for viewing the fault currents fault voltages and other measurements in a PC.
- n. **Minimum 08 nos. Of output contacts** of trip duty.
- o. Minimum 12 no of input contacts/ input **Opto connectivity**.
- p. Relay shall have **independent port for IRIG-B**.
- q. Carrier / fibre optic signal aided remote end tripping.
- r. The relays shall have terminal blocks suitable for wiring ring (eye) type lugs for CT and PT wires.
- s. Shall be IEC61850 compliant and shall have RJ45/ethernet ports. It shall have continuous self monitoring and diagnostic feature .It shall have a trip value recorder feature to record instantaneous fault values of current & voltage. It shall have oscillographic disturbance recording feature facility.
- t. It shall have broken conductor detection feature.
- u. The relay shall preferably have Trip Circuit monitoring feature.
- v. The relay model shall be as per make/model mentioned in annexure-A .The exact model of the relay for feeder panel shall be the latest proven model and shall be finalised by the CSPTCL at the time of the engineering and it shall be binding on the tenderer.
- w. Shall have sufficient nos of freely configurable output and input contacts.(shall have min 20% extra output and input contacts over and above what is required in the scheme for future use)

NOTE :- The tenderer shall arrange/provide the software required for setting and data extraction of the numerical relays along with panels.

11. **For back-up protection, numerical directional relay** having 3 no. directional over current and one earth fault shall be provided. It shall be IEC61850 compliant. It shall have RJ45 port/Ethernet port. It shall have continuous self monitoring and diagnostic feature .It shall have a trip value recorder feature to record instantaneous fault values of current & voltage. It shall have event logger and oscillographic disturbance recording feature facility.
 - (a) It shall have three over current and one earth fault element(s)
 - (b) The scheme shall include necessary VT fuse failure relays for alarm purposes
 - (c) Current rating of output contacts shall be minimum 5 Amp.
 - (d) Over current relay shall
 - have multiple characteristic with a directional IDMT characteristic with a definite minimum time of 3.0 seconds at 10 times setting and have a variable setting range of 50-200% of rated current
 - have low transient, over reach high set instantaneous unit of continuously variable setting range 200-2000 % of rated current
 - have a variable selectable characteristic angle
 - include hand reset flag indicators or LEDs.
 - (e) Earth fault relay shall
 - have multiple characteristics (with a directional IDMT definite minimum time of 3.0 seconds at 10 times setting) and have a variable setting range of 0.20-3.0 times of rated current.

- have low transient, over reach high set instantaneous unit of continuously variable setting range 200-1500 % of rated current
 - have a variable selectable characteristic angle
 - include hand reset flag indicators or LEDs
 - have internal feature in the relay for open delta voltage to the relay
- (f) The relay model shall be as per make/model mentioned in annexure-A. The exact model of the offered relay for feeder panel shall be finalised by the CSPTCL at the time of the engineering based on the requirement of protection scheme and it shall be binding on the tenderer.
- 12 Two separate high speed hand reset type tripping relays** shall be provided with adequate no. of contacts for tripping through trip coil 1 and trip coil 2, and also the additional contacts required for Bus transfer CB trip. The tripping relays shall have NC contacts for CB close inter locks. The operating time of trip relays shall not exceed 12 ms. Contactors shall not be acceptable as trip relays.
- 13 Two nos. Of TCH** monitoring relays shall be provided with flag/LED indicators. The relay shall be connected to an audible facia annunciation scheme. The TCH relay shall be capable of monitoring complete trip circuit.
- 14 Flag Relays:-** Two nos. Flag relays of type VAA 33 of Areva make or equivalent type for CB trouble shall be provided in the panel to route annunciation from yard to electronic facia for CB SF6 low gas pressure Alarm & CB Low SF6 gas lock out etc.
- 15 LBB Relay :-** The LBB relay shall be of Numerical type and separate from Dist/Diff/Back up relays. It shall be IEC61850 compliant. It shall
- i) be phase segregated type.
 - ii) have an operating time of less than 15 milli seconds.
 - iii) have a resetting time of less than 15 milli seconds
 - iv) have three over current elements.
 - v) be arranged to get individual initiation from the corresponding phase of main protections of line/x'mer for each over current element.
 - vi) have a variable setting range of 20-150% of rated current
 - vii) have a continuous thermal withstand two times rated current irrespective of the setting.
 - viii) have a timer with continuously adjustable setting range of 0.1-1 seconds
 - ix) have necessary auxiliary relays to make a comprehensive scheme.
 - x) The exact model of the LBB relay for feeder panel shall be finalised by the customer at the time of the engineering and it shall be binding on the tenderer.
 - xi) have event logger,trip value recorder and oscillographic Disturbance Recorder.
 - xii) The relay model shall be as per make/model mentioned in annexure-A. The exact model of the offered relay for feeder panel shall be finalised by the CSPTCL at the time of the engineering based on the requirement of protection scheme and it shall be binding on the tenderer.
- 16. Minimum 18 way facia annunciator** with following indications shall be provided.

S. No.	Name of Annunciation	Initiation From
1.	Distance Protection Trip	Distance Relay
2.	Zone 1	Distance Relay
3.	Zone 2	Distance Relay
4.	Zone 3	Distance Relay

5.	Back Up Trip	Over Current / Earth Fault Relay
6.	SOTF Optd	Distance Relay
7.	Fuse Failure Optd	Distance Relay
8.	Distance Relay Faulty	Distance Relay
9.	Back up Relay faulty	Over Current / Earth Fault Relay
10.	L.B.B. Relay Operated	L.B.B. Relay
11.	Low SF6 Gas (CB)Alarm	Auxiliary Relay For Low SF6 Gas Alarm
12.	SF6 / Air Pressure Low Trip Block	Auxiliary Relay For SF6 / Air Pressure Low Trip Block
13.	Trip Circuit-1 Fail	TCH Relay Coil 1
14.	Trip Circuit-2 Fail	TCH Relay Coil 2.
15.	Spare	
16.	Spare	
17.	Spare	
18.	Spare	---

- 17** The C&R panel shall be provided with necessary wiring suitable to single phase 230V AC supply for internal lighting and cubical heaters. Two nos 2 feet size tube lights shall be provided with suitable switches. Further a 15A size 3pin plug with switch shall be provided. Necessary HRC fuse protection shall be provided on phase side and solid fuse link on the neutral side. A separate TB shall be used for 230 V circuits. 'H' series ferrules shall be used for the AC supply circuits
- 18** The panel shall be provided an earthing bar of copper of adequate size to connect the earth wires of various relays, CT secondary earthing etc. Necessary holes shall be provided to interconnect the earthing bar to the adjacent panels. Green coloured flexible copper wire of size 2.5 sq mm shall be used for earthing of relays/equipments/ CT star point etc.
- 19** **Wiring in the panel** : The CT & PT circuit wires should be colour coded i.e. red, yellow, blue and black for three phases and neutral. The DC and control wires should be grey. The cable size shall be 2.5 mm² for CT & PT and 1.5 mm² for control circuit. However, **for trip circuit, white wires** should be used & it shall be 2.5 mm².

The details of relays and other facilities required in each panel for feeder,transformer and incomer for 220/132 KV Transformer is mentioned in Annexure A

B) TECHNICAL REQUIREMENT OF 132 KV INCOMER PANEL FOR 220/132 KV TRANSFORMER.

01. **D.C.SUPPLY:-** The panel wiring shall be made considering a single source of 110V or 220V d.c. battery but two independent protection d.c. circuits to be wired by providing separate d.c. fuses in such a way that even with the availability of one set of protection fuses C.B. tripping should take place.
02. **D.C. FAIL INDICATION:-** Two Nos. d.c. fail relay energizing an A.C. bell shall be provided for monitoring the d.c. supply to the protection circuit. The D.C. fail relay should have a reverse flag.
03. **P.T.SUPPLY:-** The panel shall be wired for a double set of 132 KV PTs having metering and protection cores. Thus, the provision of P.T. Selection switch is required. The selection shall be through a manual stay put switch having VT-1, inter, VT-2 positions. There shall be a lamp indication for the selected PT supply so that when VT-1 is selected, the lamp for VT-1 shall be lighted and similarly for VT-2. PT selection switch shall be break before make type to avoid paralleling of PT ckt. Suitable HRC fuse protections shall be provided on the incoming side of the PT supply. Neutral wire of the PT supply shall be provided with a fuse link. Disconnecting type good quality terminal connectors shall be used for PT circuits. 'E' series ferrules shall be used for PT circuits. Further 1100V grade flexible copper wires of R Y B and Black coloured 1.5 sq mm shall be used for easy phase identification.

Digital Ampere meters shall be used on all the 3 phases having ratio 800-400/1A without ammeter selection switch. The panel shall be provided with 3phase 4 wire MVAR meters of digital type suitable to 800/1A CT ratio & 132KV/110V PT ratio. All the ampere meters shall be of class 0.2S accuracy, of reputed manufacture like AE or equivalent make only.

04. **PROTECTIONS PROVIDED IN THE PANEL:-**

The panel shall consist of 6 Nos of VAA Self Resetting elements for alarm circuits shall be provided, as follows:-

- a. Low SF6 Alarm.
 - b. Low Air pressure alarm.
 - c. Low SF6 CB Lock out
 - d. Low Air Pressure CB Lock out
 - e. Spare – 2 Nos.
- 05 **Trip circuit supervision relays:-** Two nos. Of trip circuit supervision relays shall be provided with flag/LED indicators. The relay shall be connected to an audible facia annunciation scheme. The TCH relay shall be capable of monitoring complete trip circuit..
 - 06 **Protection Transfer Switch:-**Provision shall be made to provide a trip transfer switch to transfer the protection trip command to Bus-Transfer Bay CB. Special care may be taken not to mix the DC circuits of main and bus transfer protection circuits. The lockable switch shall have normal-inter-transfer positions and the key shall be removable only in normal positions. A lamp indication shall be provided to indicate the transfer positions. The switch shall be of make **Alstom / Switron**

Panel shall be provided with semaphore indications for CB on-off. Semaphore shall be needed to provide to indicate the positions of

isolators/earth switch with separate lamp indications. Separate lamp indications shall be provided to indicate CB on-off positions.

All the CT terminal connectors shall be of best quality, sliding type connectors of suitable size. 2.5 square mm flexible 1100V grade copper wires shall be used. The colour of wires shall be R Y B and black for easy identification. The 'A' series ferrules shall be used for DPR CT circuits, 'C' series ferrules shall be used for back up O/C&E/F, CT circuits, and 'D' series ferrules shall be used for metering CT circuits.

- 07** All the control, tripping and indications circuit wiring shall be of grey wires of 1100v grade flexible best quality copper wires. All the wires shall be ferruled systematically without repetition. Control protection wires shall be provided with 'K' series ferrules and alarm /indications circuits shall be provided with 'L' series ferrules. AC 230 V supply wires shall have H ferrules. All the terminal connectors shall be of stud type of suitable size, except of CT-PT circuits. All the wires shall be provided with insulated copper lugs properly crimped. The ferrules used shall be of best quality printed sleeve type ferrule having legible letters/numbers
- 08** **L.B.B.:-** The LBB relay shall be of Numerical type and separate from Dist/Diff/Back up relays. It shall be IEC61850 compliant. It shall
- i) be phase segregated type.
 - ii) have an operating time of less than 15 milli seconds.
 - iii) have a resetting time of less than 15 milli seconds.
 - iv) have three over current elements.
 - v) be arranged to get individual initiation from the corresponding phase of main protections of line/x'mer for each over current element.
 - vi) have a variable setting range of 20-150% of rated current.
 - vii) have a continuous thermal withstand two times rated current irrespective of the setting.
 - viii) have a timer with continuously adjustable setting range of 0.1-1 seconds.
 - ix) have necessary auxiliary relays to make a comprehensive scheme.
 - x) have event logger,trip value recorder and oscillographic Disturbance Recorder.
 - xi) The relay model shall be as per make/model mentioned in annexure-A. The exact model of the offered relay for feeder panel shall be finalised by the CSPTCL at the time of the engineering based on the requirement of protection scheme and it shall be binding on the tenderer.
- 09** **Tripping relays:-** Two separate hand reset type trip relays shall be provided. The relay should have enough contacts for TC-1 & TC-2 trip of main CB as well as provision for tripping of transfer CB of **SPR** type breakers. Further the trip relays shall have NC type contacts for CB close interlock. The operating time of trip relays shall not exceed 12 ms. Contactors shall not be accepted as trip relays.
- 10** **Numerical Directional 3 overcurrent and 1 Earth Fault (E/F) relay:** having 3 no. directional over current and one earth fault shall be provided. It shall be IEC61850 compliant. It shall have RJ45 port/Ethernet port. It shall have continuous self monitoring and diagnostic feature .It shall have a trip value recorder feature to record instantaneous fault values of current & voltage. It shall have event logger and oscillographic disturbance recording feature facility.
- i)**It shall have three over current and one earth fault element(s)

- ii) The scheme shall include necessary VT fuse failure relays for alarm purposes.
- iii) Over current relay shall
- have multiple characteristic with a directional IDMT characteristic with a definite minimum time of 3.0 seconds at 10 times setting and have a variable setting range of 50-200% of rated current
 - have low transient, over reach high set instantaneous unit of continuously variable setting range 200-2000 % of rated current
 - have a variable selectable characteristic angle
 - include hand reset flag indicators or LEDs.
- iv) Earth fault relay shall
- have multiple characteristics (with a directional IDMT definite minimum time of 3.0 seconds at 10 times setting) and have a variable setting range of 0.20-3.0 times of rated current.
 - have low transient, over reach high set instantaneous unit of continuously variable setting range 200-1500 % of rated current
 - have a variable selectable characteristic angle
 - include hand reset flag indicators or LEDs
 - have internal feature in the relay for open delta voltage to the relay
- v) The relay model shall be as per make/model mentioned in annexure-A. The exact model of the offered relay for feeder panel shall be finalised by the CSPTCL at the time of the engineering based on the requirement of protection scheme and it shall be binding on the tenderer.
- vi) **Over load protection:-** Numerical three phase IEC 61850 compliant relay having fixed time delay over load protection having current setting 0.5A to 1.5A in steps of 0.05A or continues. The relay should have two independent, variable time delayed output contacts one for alarm / load shedding and the other, for trip. The relay shall be provided in Y phase only. The trip out put contact shall be wired up to terminal connector however the alarm contact shall be connected to annunciator of transformer panel.

(a) GE (Alstom)-Micom-P141 (b) Siemens-7SJ66 or equivalent.

11) **SEMS** make 0.2S class, electronic 4 quadrant, import-export, 3phase 4wire, tri- vector energy meters shall be provided with suitable TTB on the front panel. The energy meters shall indicate instantaneous parameters like KW, KVA, KVAR, pf, current, voltage etc. The energy meter shall have 15 minutes load survey for KW & KVA for a minimum period of 35 days. The energy meter shall be suitable to CT ratio 800/1A and PT ratio 132KV/110V, and without any external M.F. The meter should have RS485 port for data communication on Modbus protocol. Meter shall have front optical port for the purpose of extraction of data through MRI.

12) An 12-window facia annunciator with following inscription shall be provided on the front with audible DC alarm bell.

S. N.	Name Of Annunciation	Initiation From
1.	IDMT O/C–E/F Relay Trip	Over Current Earth Fault IDMT relay
2	L.B.B. Operated	L.B.B. Operated

3	Low SF6 Gas Alarm	Auxiliary Relay For Low SF6 Gas Alarm
4	Low Air Pressure Alarm	Auxiliary Relay For Low Air Pressure Alarm
5	SF6 pressure low Trip Block	SF6 Pressure Low Trip Block
6	Air Pressure Low Trip Block	Air Pressure Low Trip Block
7	Trip Circuit-1 Fail	TCH Relay Coil 1
8	Trip Circuit-2 Fail	TCH Relay Coil 2.
9	IDMT Relay faulty	From Numerical IDMT RelaySupervision Contact
10	Inter Trip operated	Trip relay
11	Spare	---
12	Spare	

- 13) Breaker indication:- Separate breaker ON – OFF lamp indication shall be provided in addition to CB semaphore indications.
- 14) Mimic diagram:- The standard mimic diagram of two main and single transfer bus for feeder and incomer for 220/132 KV Transformer C&R panel as mentioned in 1.4.4 has to be incorporated.
- 15) CT cores:- The 132 KV class C.T. has 2 Nos. of PS class CT Secondary core for protection & 02 No. C.T. secondary core of 0.2s class for metering.
- 16) Inter trip indication lamp:- In addition to above all, this panel shall have lamp indication for inter trip.
- 17) The CT & PT circuit wires should be colour coded i.e. red, yellow, blue and black for three phases and neutral. The d.c. and control wires should be grey. The multi strand flexible wire 2.5 mm² for CT & PT and 1.5 mm² for control circuit. However, for trip circuit, white colour 2.5 Sq.mm multi strand flexible wires are to be used.
- 18) **Digital Multi function Energy Meter:-** Digital Multi Function Energy Meter shall be provided on each panel to measure currents & voltage of all the 3 phases and MW ,MVAR, PF. etc. The multi function energy meter shall have CT ratio 400/1A & PT ratio 132 KV/110 V.
- 19) **BILL OF MATERIAL**
- A) **The details of relays and other facilities required in 132 KV Feeder & 132 KV Incomer Panel for 220/132 KV Transformer is mentioned below :-**

S. No.	Protection Schemes	132 KV feeder bay panel	132 KV Incomer panel for 220/132 KV Transformer
1	Numerical Distance protection relay	1 No.	-

2	Trip circuit supervision relay	2 Nos.	02 Nos.
3	DC Auxiliary 110 V/220 V DC supply voltage monitoring relay	2 Nos.	02 Nos.
4	Numerical Local Breaker back up relay	1 No.	01 No.
5	Numerical directional IDMT relay with high set (3 O/C + 1 E/F)	1 No.	01 No.
6	Overload protection	-	01 No.
7	Master trip relay	2 Nos.	02 Nos.
8	LBB Trip relay	1 No.	01 No.
9	MW Meter	1 No.	
10	MVAR Meter	1 No.	01 No.
11	Digital Ampere meter	3 Nos.	03 No.
12	Digital Volt meter	3 Nos	03 No.
13	Annunciator relay	1 Set	01 Set
14	Trip transfer switch	1 No.	01 No.
15	TNC switch	1 No.	01 No.
16	PT selection stay put switch	01 No.	01 No.
17	Multifunction Transducer	1 No.	01 No.
18	SEMS make Energy Meter of 0.2 s accuracy class 3 Phase 4 wire Export-import, with load survey facility, RS 485 port with TTB (heavy duty screw type TTB).	1 No.	01 No.
19	Multifunction Energy Meter: Model Elite 443 or equivalent (P -N Voltage, Average P-N voltage, P-P voltage, (L1,L2,L3 and Average), Active/Reactive Current, Frequency, Power factor, Average Power factor, Active Power, Total Active Power, Reactive Power, Total Reactive Power, Apparent Power, Total Apparent Power, Active Total Import/ Export Energy. Active/Apparent Forwarded, Reactive Lag/Lead Forwarded, Phase Angle, Power On/Off Hours, Load On/Off Hours, Feeder Interruption Count(When Aux is also off), RPM with Freq and VUnb and IUnb, Modbus on RS485. Accuracy class: 0.2s. Ethernet pluggable port by separate detachable Module. Calibration LED for accuracy test on site Load Survey: 40 days for 6 parameters @ 30 min IP, Options for 15or 60 minute integration period. Type tested by NABL accredited Lab.)	1 No	1 No
20	Indicating LEDs, semaphores	As per requirement	As per requirement

SECTION II (B)

TECHNICAL SPECIFICATION FOR SUPPLY OF 132 KV CONTROL & RELAY PANELS FOR TRANSFORMERS/DUPLEX CORRIDOR TYPE FOR 110/220VDC AND SPARE RELAYS

1.1 Scope:

This section contains the technical specifications for the indoor control, indication, relay and metering panels associated with the outdoor switch gear for the sub-station. The various control and relay panels shall be complete in themselves with all main and auxiliary relays, fuses, link switches wherever necessary, wiring, labels, terminal boards, earthing terminals, foundation bolts etc. All the main numerical relays such as Differential Protection Relay, O/C and E/F Relay, LBB Relay and REF relay shall comply to IEC 61850 protocol or higher version. The DC Control voltage should be 110V/220V DC. The supplier of C&R panel should ensure to supply all the relays as per make/model mentioned in Annexure A and vendor list.

1.2 Limits of contract:

The various control and relay boards and other requirements specified under this section shall be complete in themselves with all main and auxiliary relays, fuse links switches where necessary, wiring, labels terminal boards, earthing terminals foundation bolts, interior illumination cable glands etc.

The supply and lying of the control and power cables interconnecting the various equipments is not covered under the specification. The cable terminating arrangements, viz., the cable hold support boxes, multicore cable glands, sealing ends for other types of cables that may be specified, shall however be included, where ever required for connection to the equipments under this contract and in the tender price. These shall be subject to our approval.

1.3 Climatic conditions:

Peak Ambient Temperature	50 Degree Celsius
Minimum Temperature in Shade	6 Deg. C
Maximum Relative Humidity	95% (sometime approaches saturation)
Average Number of Thunderstorm	58 days per annum.
Average No. of rainy days per annum	90 days.
Average Annual Rainfall	125 cm.
Maximum Wind Pressure	150 kg/meter square.
Altitudes (Not Exceeding)	1000 metres.
Seismic Level Horizontal	0.3 g.

1.4 Standards & specifications:

1.4.1 PANEL FINISH AND COLOUR:-

The exterior colour finish of panels shall be opeline green as per colour **No. 275 of BS:381 C:1948**, equivalent colour as per relevant Indian Standards or any other standard shall be accepted. This colour finish shall be applied on the exterior steel works of the panels. The exterior opeline green paint finish shall be semi-glossy only

and shall not be fully glossy. The interior of panels shall be painted with egg shell white.

1.4.2 PRETREATMENT AND PAINTING PROCESS

Process of painting of panels to be followed by the tenderers for all the panels included under this tender specification shall be as given in annexure-A enclosed. The sheet steel fabricated members shall be subjected to pre treatment processes before painting. This process shall be carried as indicated in Annexure A. Please note the process indicated in **Annexure-I** should be strictly followed and confirmation may be made in your offer. This is very important.

1.4.3 PROTECTIVE RELAYS AND INSTRUMENTS:-

A) The particulars generally confirming to the latest issue of the following Indian Standard Specification:

i)	IS-3842 (PART I TO V)	Application guides for electric relays for AC system.
ii)	IS-3231	Electric relays for power system protection.
iii)	IS-1885 (PART I & II)	Electric technical vocabulary- electrical relays and Electrical power system protection.
iv)	IS-1248, IS-2419	Indicating instruments.
v)	IS-722	Energy meters, control switches (LV switching devices for control and auxiliary circuits)
vi)	IS-5	Colour sheds.
vii)	IS-2705	Current transformers.
viii)	IS-3156	Voltage transformers.
ix)	IS-4237	General requirements for switchgear and control gear for voltage not exceeding 1KV.
x)	IS-375	Marking and arrangements for switchgear busbars, main connection and auxiliary wiring.
xi)	IS-8686	Specification for static protective relays.
xii)	IS-4483	Preferred panel cut out dimension for relays.

B) **TYPE TEST:-**

All the main relays (DPR,Differential,Dir O/c & E/F,Non Dir O/C & E/F, LBB, Overload & REF relays) 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 invariably furnish the type test reports from the approved laboratory to prove indicated accuracy and other specifications of the relays offered. The test certificates shall clearly indicate the type and model No. etc., so that relevant details could be verified. While submitting offers the model and type etc. shall be clearly indicated. The type test reports so furnished should not pertain to the period earlier than **seven years** from the date of opening of tender documents. The tenders not accompanied by the above type test report shall run the risk of rejection.

1.4.4 PANEL CUT OUT AND DIMENSIONS:

- i) The panels shall be fabricated of not less than 14 SWG sheet steel free from all surface defects. The panels shall have sufficient structural reinforcement to ensure a plain surface to limit vibration and to provide rigidity during despatch and installation.
- ii) The Panels shall have the following dimensions:

132 KV Duplex Panels:-

Type	Duplex
Height	2300 MM
Depth	400(Control panel) +700 +600 (Relay panel)
Width	800 mm.
Thickness	3mm for load bearing side & 2mm for out side.

- iii) The control panels shall be floor mounting dead front sheets steel assemblies of unitized design.
- iv) The panels shall be made in suitable sections as described else where in the specification so that while mounting, the panels can be located side by side bolted together to form a compact unit.
- v) Design material selection and workmanship shall be such as to present a peak appearance, outside and inside with no works of welds, reverts, screw or bolts head apparent from the exterior surfaced of the control boards.
- vi) The control panels shall be placed over the cable trench supported by channel of not less than 100x100 mm size.

1.4.5 PANEL LIGHTING:-

- a) In each control and relay panel for interior illumination one tube light 20 W operating at 230 V 50 cycle with door operated switch shall be provided in the corridor. The tube light shall be located at the ceiling and guarded with a protective cage. In addition to corridor tube light, two 21 W CFL lamp one each on front and rear panel with switch shall also be provided.
- b) One 15 A, 3 pin receptable socket with plug and switch shall be provided for each of the control board of duplex type C&R panels. The third pin of the socket shall be effectively earthed through the metallic structure.
- c) A test lamp 230 V AC 18 W CFL, with 3 M lead and holder with a controllable 5 A switch is to be mounted at the top inside each panel.

1.4.6 AUXILIARY SUPPLY:-

For each of control panel, the purchaser will arrange to provide at one point only the following:

- a) 415 V+10% to -25%, 4 wire , 3 phase 50 C/s, neutral grounded AC supply. The tenderer shall arrange for providing proper looping of these power supplies to the different panels of the control board group.
 - (ii) 110 V / 220 V DC power supply

- b) H.R.C. fuses shall be provided at each panel for both the A.C. and D.C. power supplies. Distribution of the same shall be utilised through fuses in such a way that the isolation of respective system is possible without affecting the rest of the system.
- c) All H.R.C. fuses and links shall be with holder, and the same shall be mounted on slant support and with identification labels.
- d) The H.R.C. fuses as per following details shall be provided:

S. No.	CIRCUIT	FUSE RATING 132 KV
1.	Circuit breaker closing circuit.	10A
2.	Trip circuit I & II	16 A
3.	Main protection	10 A
4.	Back up protection	10 A
5	Indication	4A
6	Annunciation	4A
7	P.T. Circuit	4 A

1.4.7 CONTROL WIRING:

- a) The successful tenderer shall furnish and install complete wiring upto the terminal block for the equipment, instrument devices mounted in the control boards strictly accordingly to the approved wiring diagram prepared by the tenderer based on the approved schematic diagram.
- b) The wiring shall be completed in all respects so as to ensure proper functioning of control, protection and metering schemes.
- c) All spares contacts of relays and switches shall be wired upto the terminal blocks.
- d) Wiring shall be done with flexible heat resistant multistrand, PVC insulated copper wire. The conductor size shall be equivalent to 2.5 mm square for CT , PT , tripping circuits & LV AC and 1.5 mm square for indication & control circuits.
- e) Each wire shall be identified at both ends with wire designation number by PVC ferrule as per wiring diagram based on latest revision of IS-375 to denote the different circuit functions. The contractor shall take approval for the system of wire numbering.No cross ferruling shall be used.
- f) All wires termination shall be made with compression type connectors. Wires shall not be tapped or spliced between terminal points..
- g) All series connected devices and equipment shall be wired up in sequence. Loop-in Loop out system of wiring shall be avoided as far as possible and the common buses shall normally be made through the terminal block for better reliability of testing and maintenance.
- h) Fuses and links shall be provided for isolation of individual circuit from bus bars without disturbing other circuits and equipments.
- i) The DC trip and DC voltage to main protective gear shall be segregated from those for special purposes. Each such group shall be fed through separate fuses,
- j) Since a number of wires will run from one point to another, it is desired that the support arrangement should be adequate and neat. The conventional method of

bunching of wires should not be adopted since the same creates problems in case any wire is to be removed. The wires should be accommodated in a suitable plastic channels with sliding plastic cover, which may be mounted inside the panels suitably. Inspection/removal of wires should be possible by sliding the covers.

- k) Blank plastic channels should be provided by the sides of the panels to accommodate the incoming cables from switchyard through the cable glands.

1.4.8 TERMINAL BLOCKS:

- i) A Multi-way stud type 10 A current carrying capacity terminal blocks complete with necessary binding nut and bolt , washers for wire connection and making strip for circuit identification shall be furnished for terminating the panel wiring and outgoing cables. The terminal block shall be suitable for receiving at least 2x7/0.737 mm standard copper or aluminium conductor wire per terminal. It may also be noted that the current rating shall be double the current rating of 2x7/0.737 non-stranded copper wire and the terminal shall be suitable to receive 2 x 2.5 sq. Mm/ 2x4 sq. Mm copper conductor of copper control cables.
- ii) Terminal blocks shall have shorting and disconnection facilities. The Board side and outgoing wires can be disconnected just by opening the disconnecting links which slides up or down without lodging the wires from their position. 'ASEA' type sliding links shall be provided. However, disconnecting type terminal connectors may be limited to CT & PT circuits only. All other terminals should be of bolted type.
- iii) Highly reliable terminal blocks with facilities of shorting and easy removal of connection shall be provided for CT & PT circuits. Instrument transformer wires shall be terminated through suitably mounted test terminal blocks for site testing facility.
- iv) The terminal blocks shall be grouped according to the circuit functions and each terminal block group shall have at least 20% spare terminals.
- v) Not more than two wires shall be connected to any terminal or either side of the terminal block. If necessary, a number of terminals shall be jumpered together to provide the wiring points.
- vi) Each terminal point shall be marked with designation obtained from the CSPTCL's schematic drawings.
- vii) Adjacent rows of terminal blocks shall be spaced not less than 100 mm apart. They shall be mounted vertically at the sides of the cubicle and set obliquely towards the rear doors to give easy access to terminating end to enable ferrule number to be read without difficulty.
- viii) The bottom of terminal blocks shall be spaced at least 200 mm above the cable trench incoming multicore cables.
- ix) Separate test terminal block should be provided for the KWH meters to facilitate the testing and calibration of energy meters without disturbing the other circuits such as ammeter/MW meters. The TTBs should be 3 phase, 4 wire with screw type CT shorting arrangement.
- x) Stud type terminal connectors rated for not less than 10 Amps shall be used in the CRP panel.
- xi) Terminal connectors for control and other circuits shall be of stud type. For CT & PT circuits the terminal connectors shall be of best quality disconnecting type. The terminal connector size shall be 16A current rating.
- xii) The DC circuit wires shall be grey of size of 1.5 Sq. Mm. However, for trip wires shall be of 2.5 Sq. Mm size.

1.4.9 CABLE ENTRY:-

- (a) The control board shall have provision of cable entry from the bottom. Necessary cable glands should also be provided.
- (b) Gland plate shall be supplied with factory made gland holes with suitable blanking arrangement for un used gland holes. The gland plate and doors shall be properly gasketted.
- (c) Rigid supports shall be provided alongwith terminal block for holding plastic channel. Suitable clamps may also be provided in plastic channel for holding cables.
- (d) The following quantities of cable glands with blanking plate shall be supplied fitted alongwith each panel:-

i)	For 8 core x 2.5 sq. mm 1.1 kV control cable	4 Nos.
ii)	For 4 core x 2.5 Sq. mm 1.1 KV Control cable	8 Nos.
iii)	For 12 core x 2.5 sq. mm 1.1 KV Control cable	2 Nos.
iv)	For 19 core x 2.5 sq. mm 1.1 KV Control cable	2 No.

1.4.10 GROUNDING:-

- i) 25 mm x 6 mm copper ground bus shall be providing for each control boards extending along with entire length of the board and effectively grounding all metal structures.
- ii) Each continuous length of ground bus shall have provision of two terminals at two separate points for connection to main ground grid of the substation.
- iii) Whenever a circuit is shown grounded on the drawings a single wire for the circuit shall be run independently to the ground bus and connected to it.

1.4.11 Invariably for all the panels end doors with suitable lock and handle on both the sides should be included in the offered prices. As per our standardisation end doors should be of full size without requiring any end sheets on the sides.

1.5 CONTROL AND RELAY PANELS:

- i) The control and relay boards required for 132 KV side shall be duplex type panels of the back to back corridor type with central roofed access. The control, recording and indication apparatus shall be mounted in the front panel. These shall be of the flush pattern. The relays shall be mounted on the rear panels and these may be of the projecting pattern. However, if relays of “draw out” type are offered, these may be arranged to be flush.
- ii) The central access way shall be provided with interchangeable lockable doors. Suitable tube light shall be provided inside the panels for adequate illumination & the same being controlled by a switch provided on one end, including two incandescent lamps with switch one each on the front & rear panel.
- iii) The labelling for the circuits shall be provided at the front control panels, at the rear relay panels as well as on the inside of the panels.
- iv) The panels shall be of uniform thickness and level sheet steel of minimum 14 gauge (3 mm for load bearing sides & 2mm for other sides). The bottom of the cubicle shall be open for the purpose of wiring and cable entrance. The panel shall be designed to be self supporting and wherever additional structural strength is required, inconspicuous bracing, gusset, welding etc., shall be used. All control panels and switchgear cubicles shall be made absolutely vermin proof design of the approval of the CSPTCL.
- v) The panels shall be made in suitable sections to facilitate easy transport and handling and shall be later assembled at site. It may please be noted carefully that it should be possible to disassemble the relay control board of a substation in length

of 700/800 mm for ease of handling, single continuous sheet steel should not be used to make a single board for all the panels required. The panels should have unitized construction with facility to bolt together the panels where more than one panel is involved.

- vi. The panels shall be provided with best quality independent TTBs Distance Protection relay ,O/C & E/F relay, LBB relay etc.
- vii. **RTB(relay test block) of ABB /ASLTOM make should be provided along with test handle.**

1.6 CONTROL & INDICATION CIRCUITS:

1.6.1 The control and indication circuit for each circuit breaker controlling transformer shall generally comprise the following:

- a) Mimic diagram (Single main and transfer bus scheme)
- b) Circuit Breaker Control switch.
- c) “Trip Circuit Healthy” I & II lamps.
- d) Alarm Test and Cancellation arrangement.
- e) Breaker ON/OFF indication lamps.
- f) Breaker Spring Charge indication lamp.
- g) Trip transfer indication lamp.

1.6.2 The mimic diagram offered shall be at the specified level to indicate the position of each breaker, isolating and grounding switch. Other equipments such as transformer, voltage transformers etc., shall be represented by suitable symbols. Mimic diagram shall be for single main & single transfer arrangement.

1.6.3 The mimic diagram offered shall be of Azure blue shade 104 of IS-5.

1.6.4 Rotating disc type semaphore shall be used to indicate the position of each breaker. The position of the circuit breaker whether closed or open shall be indicated by semaphore indicator to be provided for this purpose. It may be noted that the circuit breaker will have two trip coils in parallel and since their DC source of supply is one at present, necessary arrangement shall be made in the panel circuitry. For this purpose contact multiplication will not be involved but the rating of the control switch should be adequate to handle; the burden of two trip coils Along with pistol grip type control switches red and green indicating lamps for ON/OFF indication shall be provided.

1.7 ANNUNCIATION SYTEM:

1.7.1 Alarm annunciation system shall be provided for the control board by means of visual and audible alarm in order to draw the attention of the operator to the abnormal operating conditions or the operation of some protective devices. The annunciation equipment shall be suitable for operation on the voltages specified in the specification.

1.7.2 The annunciation shall be of visual and audible type. The visual annunciation shall be provided by annunciation facia, mounted flush on the top of the control panels. The audible alarm shall be provided by alarm hooter or bell.

1.7.3 The annunciator facia shall be provided with translucent plastic window for alarm point with minimum size of 35 mm x 50 mm. The facia plates shall be engraved in black lettering with respective inscriptions which will be furnished. Alarm inscriptions shall be engraved on each window in not more than three lines and size of the lettering shall not be less than 5 mm.

1.7.4 Long-life lamps shall be used. The lamp circuit shall include series resistor of adequate rating. The cover plate of the facia windows shall be flush with the panel

and shall be capable of easy removal to facilitate replacement of lamps. The transparency of cover plates and wattage of the lamps provided in the fascia windows shall be adequate to ensure clear visibility of the inscriptions

1.7.5 TRIP AND NON TRIP fascia shall be differentiated. All trip shall have red colour and all non trip fascia shall have white colour.

1.7.6 Sequence of operation of the annunciator shall be as follows:

S.No.	Alarm condition	Fault contact	Visual Annunciation	Audible Annunciation.
1	Normal	Open	OFF	OFF
2	Abnormal	Close	Flashing	ON
3.	Acknowledge push button is pressed.	Close	Steady on	OFF
		Open	Steady on	OFF
4	Reset push button is pressed.	Close	On	OFF
		Open	Off	OFF
5	Lamp test push button pressed.	Open	Flashing	ON

The annunciation system described above shall meet the following additional requirements:

- a) The annunciation system shall be capable of catering to at least 100% simultaneous signals (of windows provided) at a time.
- b) One self resetting push button shall be provided on each panel for testing the fascia window lamps. Push buttons for testing flasher and audible alarm circuit of annunciation system and for testing the annunciation supply failure monitoring circuit shall also be provided. These testing circuits shall also be so connected that while test is being done it shall not prevent the registering of any new annunciation that may land during the test.

One set each of the following push buttons shall be provided on each panel as shown in the front view drawing:

- i) Reset push button for annunciation system.
- ii) Accept push button for annunciation system.
- c) The annunciations shall be repetitive type and shall be capable of registering the fleeting signal. Minimum duration of the fleeting signal registered by the system shall be 15 milli seconds.
- d) The annunciation shall be suitable for operation with normally open contacts which close on a fault. For contacts which open on a fault it shall be possible at site to change annunciators from “close to fault” to “open to fault” and vice versa.
- e) In case of static annunciation scheme, special precaution shall be taken by tenderer to ensure that spurious alarm condition does not appear due to influence of external electromagnetic/electrostatic interferences on the annunciation wiring and switching disturbances from the neighbouring circuits within the panels.
- f) The annunciation scheme (wherever called for) offered shall be complete in all respects including annunciation relay, flasher relay test, accept and reset arrangement.
- g) The purchaser reserves the right to ask for a sample of annunciation system for approval, if so considered necessary from the successful tenderer.

1.8 INSTRUMENTS:-

1.8.1 All indicating/recording instruments shall be digital type and shall be of type and sizes specified under subsequent sections. They shall be capable of carrying their full load currents continuously without undue heating. They shall have long, clearly divided and indelibly marked scales of engraved or enamelled metal and the pointers shall be of clean outline. The marking on the dials shall be restricted to the scale marking.

1.8.2 The instruments shall not be damaged by the passage of fault current through the primary of their corresponding instrument transformers and approved means shall be provided for zero adjustment without dismantling the instrument. Voltmeters shall be calibrated while hot. All potential circuits to instruments shall be protected by a fuse on each pole of the circuit placed as close as possible to the instrument s transformer terminals or where instruments are direct-connected as close as possible to the main connection. All instruments and apparatus shall be back connected and all instrument cases shall be earthed as required.

1.9 SWITCHES:

(i) Control and instrument switches shall be rotary operated type with escutcheon plates clearly marked to show operating position and circuit designation plates and suitable for flush mounting with only switch front plate and operating handle projecting out. Handles of different shapes and suitable inscriptions on switches shall be provided as an aid to switch identification.

(ii) The selection of operating handles for the different type of switches shall be as follows:

a)	Breaker control switches	Pistol grip, black
b)	Selector switches	Oval or knob black.
c)	Instrument switches	Round, Knurled, black.
d)	Protection transfer switch	Pistol grip lockable and black.
e)	PT Selection switch	Pistol grip lockable and black

(iii) The control switch of breaker shall be of spring return to neutral type. The control springs shall be strong and robust enough to prevent inadvertent operation due to light touch. The spring return type switch shall have spring return from close and trip positions to neutral position after close and after trip position respectively. Protection transfer switch shall be provided on each control panel.

(iv) Instrument selection switches shall be of maintained contact (stay put) type. Ammeter selection switches shall have make-before-break type contacts (heavy duty) so as to prevent open circuiting of CT secondary when changing the position of the switch. Voltmeter transfer switches for AC shall be suitable for reading all line to line and line to neutral voltages.

(v) Lockable type of switches which can be locked in particular positions shall be provided when specified. The key locks shall be fitted on the operating handles.

(vi) The contacts of all switches shall preferably open and close with snap action to minimise arcing. Contacts of switches shall be spring assisted and contact faces shall be with rivets of pure silver or silver alloy. Spring shall not be used as current carrying parts. The contact combination and their operation shall be such as to give completeness to the interlock and function of the scheme.

1.10 INDICATING LAMPS:

- 1.10.1 Indicating lamps shall be panel mounting group LED type with rear terminal connections. Lamps shall be provided with series connected resistors preferably built in the lamp assembly. Lamps shall have translucent lamp covers to diffuse lights coloured red, green, amber, clear white or blue as specified. The lamp cover shall be preferably of screwed type, unbreakable and moulded from heat resisting material.
- 1.10.2 Group LED indicating lamps shall be provided when specified. The wattage of the Group LED lamp shall be 0.25 to 0.05 W.
- 1.10.3 Bulbs and lenses shall be interchangeable and easily replaceable from the front of the panel. Tools if required for replacing the bulbs and lenses shall also be included in the scope of supply.
- 1.10.4 The indicating lamps with resistors shall withstand 120% of rated voltage on a continuous basis and should also give sufficient illumination with – 20% auxiliary voltage condition.
- 1.10.5 Group LED long life type indicators shall be preferred over filament and neon type lamps.

1.11 DRAWING AND LITERATURE:

The successful tenderers shall have to supply at least 2 sets hard copy of drawing /literature for each panel containing of GA, Schematic & Wiring drawings illustrative pamphlets, literature, operation and maintenance instructions of the relay/Panels under his supply. The wire route schedule also be provided along with the wiring diagram. Also to submit soft copy of the above drawing /literature in 3 Nos of readable CD. Ensure supply of onsets of above drawing / literature also along with the panel, kept inside the panel.

- 1.12 Bill of material for 132 KV panels shall be submitted by the bidder based on the detailed technical requirements as stated in section II B .

1.13 PROTECTION SCHEME

- 1.13.1 The protection schemes to be supplied under this contract shall cover the 132 KV Transformer panel for 40 MVA 132KV/33 KV transformer.
- 1.13.2 **All the Numerical relays as specified should have IEC 61850 or better version compliant. None of the inbuilt feature of the relay shall be disabled.**

TECHNICAL REQUIREMENT OF 40 MVA ,132KV TRANSFORMER CONTROL & RELAY PANELS

THE DETAILS OF RELAY TO BE PROVIDED IN EACH PANEL ARE MENTIONED BELOW:

01. **D.C.SUPPLY:-** The panel wiring shall be made considering a single source of 110V / 220V d.c. battery but two independent protection d.c. circuits to be wired by providing separate d.c. fuses in such a way that even with the availability of one set of protection fuses C.B. tripping should take place.
02. **D.C. FAIL INDICATION:-** Two Nos. d.c. fail relay energizing an A.C. bell shall be provided for monitoring the d.c. supply to the protection circuit. The D.C. fail relay should have a reverse flag.
03. **A.C FAIL INDICATION:-** One Nos. A.C. fail relay shall to be provided for AC fail annunciation.

- 04. PT Supply:-**The panel shall be wired for a double set of 132 KV PT, having metering and protection cores. Thus the provision of PT selection switch is required. Further Differential relays should not mal-operate during the changeover period of PT supply. Lamp indications shall be provided to indicate the selected PT supply. Suitable HRC fuse protections shall be provided on the incoming side of the PT supply. Neutral wire of the PT supply shall be provided with a fuse link. Disconnecting type good quality terminal connectors shall be used for PT circuits. 'E' series ferrules shall be used for PT circuits. Further 1100V grade flexible copper wires of R Y B and Black coloured 1.5 sq mm shall be used for easy phase identification. PT selection switch shall have intermediate position where in Differential may be blocked during change over.

Digital Ampere meters shall be used on all the 3 phases having ratio 800-400/1A without ammeter selection switch. All the ampere meters shall be of class 0.2S accuracy, of reputed manufacture like AE or equivalent make only.

05. PROTECTIONS PROVIDED IN THE PANEL:-

a) Numerical Differential Relay:

- i) **A two winding numerical differential relay** shall be provided. The operating time of the relay should be less than 30 ms. The relay shall be suitable for display of load current and fault data through a HMI. Relay shall have IRIG-B/SNTP port for time synchronising.
- ii) It shall have an adjustable bias setting range. Shall have a dual bias slope.
- iii) Shall be stable under severe through fault condition.
- iv) It shall be suitable for rated current of 1 Amp.
- v) **It shall be IEC 61850 or better version compliant.**
- vi) The exact model of the offered relay shall be finalised by the customer at the time of the engineering based on the requirement of protection scheme and it shall be binding on the contractor.
- vii) It shall have internal feature in the relay to take care of the angle & ratio correction
- viii) have second, fifth and higher harmonic and other inrush proof features and should be stable under normal over fluxing conditions. Magnetising inrush proof feature shall not be achieved through any intentional time delay e.g use of timers to block relay operation
- ix) It shall have an operating current setting of 15% or less. Shall have settable operate current setting.
- x) It shall have Bus 3phase PT voltage inputs also. PT input shall be rated for 110 V phase to phase.
- xi) The connecting leads from the relay to the computer as well as the software interface for setting and data extraction from relay shall also be supplied
- xii) Shall have a minimum of 12 output, out of which a min. of four should be trip heavy duty type and 12 Opto input contacts.
- xiii) All the instantaneous values of wdg. currents, operating and bias currents shall be displayed on the HMI on demand.
- xiv) It shall an unrestrained instantaneous high set Id>> feature.
- xv) The relay shall have following inbuilt protection features. However,

these are not to be wired in the protection scheme as separate relays are to be provided for below given protection functions.

- a) Over excitation (V/f) protection
 - b) Overvoltage protection
 - c) REF protection
 - d) IDMT and Definite time and Over current protections with settable time delay.
- xvi) Have a disturbance recording feature to record graphic form of instantaneous values of current in both the windings, operate current, restraining current and voltages in separate analogue channels, during faults and disturbances for the pre fault and post fault period. The disturbance recorder shall have the facility to record the following minimum external digital channel signals apart from the digital signals pertaining to differential relay.
1. REF protection operated(HV and LV)
 2. HV breaker status
 3. LV breaker status
 4. Bucholtz /OLTC Buchholz alarm and Trip ; PRD trip
 - 5.WTI/OTI alarm/trip of transformer

The Relay shall be suitable for :

- i. CT secondaries : 1A
- ii. PT Secondary: - 110V
- iii. DC auxiliary supply: - suitable for 110V or 220V DC nominal
- iv. System earthing: - solidly grounded
- v. Max. Ambient temperature: - 55 degrees centigrade

Necessary software for downloading the data captured by disturbance recorder to the computer in the substation shall be included in the scope.

- b) **Over current protection:-** Independent 3 element Non-directional numerical **IEC 61850 or better version compliant** IDMT over current relays shall be provided along with variable high set instantaneous trip feature with inbuilt timer settable from 10 ms to 1000 ms. Further the relay shall have following features:-
- The relay shall have the facility to record the oscillographic recording of fault Currents for at least 4 no of events for at least 4 current Channels.
 - The relay shall have time synchronisation feature through IRIG B/SNTP
 - The relay shall have atleast 8 no of trip output contacts
 - The relay shall have **16** no of opto input terminals
- c) **Over fluxing protection:-** A separate numerical over flux relay with instantaneous alarm & time delayed tripping shall be provided (timer 01 to 30 sec in steps of 1 sec). The tripping circuits and other related provisions should remain in 132 KV panel of the transformer.
- e) **L.B.B:-**An independent numerical **IEC 61850 or better version compliant** LBB relay shall have to be provided with the provision for independent setting of current and time delay. The LBB tripping relay shall have the provision to trip 08 Nos. of 132 KV circuits. The relay contacts shall be terminated up to terminal block. LBB trip circuits ferrule numbers shall be 'P' series. A trip isolation link shall be provided in the LBB trip circuit to avoid the mal operation during testing of LBB relay. **The relay shall have minimum 16 Binary input & 08 Nos Binary outputs .**

- f) **Two no. of 1 cycle numerical IEC 61850 or better version compliant REF relay** should be provided with associated metrosil etc. The relay shall have current setting of 0.1 to 0.4 A. For REF protection PS class bushing CT of transformer shall be used. **In addition to this relay the REF function of differential relay shall be used with bushing CT. The relay shall have minimum 03 Binary input & 05 Nos Binary outputs .**
- g) **Transformer body protections:-** A total of 07 Nos. self reset type tripping relays having indicating flags shall be provided for the following:-
- a) Transformer Buchholz trip.
 - b) Transformer OLTC Buchholz trip
 - c) Transformer winding temperature trip
 - d) Transformer oil temperature trip.
 - e) Transformer PRV trip.
 - f) Spare-2 No
- h) In addition to the above, a total of 10 nos of VAA Self Resetting elements as above for alarm circuits shall also be provided, as follows:-
- a. Low Oil Level alarm.
 - b. Main Buchholz alarm.
 - c. W.T.I. Alarm.
 - d. O.T.I. Alarm.
 - e. Low SF₆ Alarm..
 - f. Low SF₆ CB Lock out
 - g. Over flux alarm.
 - h. Spare – 3 Nos.
- i) **Trip circuit supervision relays:-** Two Nos. trip circuit supervisory relays for monitoring of healthiness of trip circuit shall be provided with indicating flags.
- j) **Protection Transfer Switch:-**Provision shall be made to provide a trip transfer switch to transfer the protection trip command to Bus-Transfer Bay CB. Special care may be taken not to mix the d.c. circuits of main and bus transfer protection circuits. The lockable switch shall have normal-inter-transfer positions and the key shall be removable only in normal positions after locking the NIT switch in the normal position .A lamp indication shall be provided to indicate the transfer positions. The switch shall be of make Alstom/Switron.
- k) **Tripping relays:-** Two separate hand reset type trip relays shall be provided. The relay should have enough contacts for TC-1 & TC-2 trip of main CB as well as provision for tripping of transfer CB & inter tripping of 33 KV breakers. Further the trip relays shall have NC type contacts for CB close interlock. The operating time of trip relays shall not exceed 12 ms. Contactors shall not be accepted as trip relays.
- l) **MAKE OF RELAY :- The make of relay should be as per as per Annexure II**
06. **METERING AND CONTROL:-**
- a) **Digital Multi function Energy Meter:-** Digital Multi Function Energy Meter shall be provided on each panel to measure currents & voltage of all the 3 phases and MW ,MVAR, PF. etc. The multi function energy meter shall have CT ratio 400/1A & PT ratio 132 KV/110 V.
 - b) One number **digital frequency** meter (self powered) suitable for 50 Hz shall be provided with a minimum range of 45 Hz – 55 Hz with up to two decimal digits. The LED display shall be not be less than 25mm size.

- c) **SEMS make 0.2S class**, electronic 4 quadrant, import-export, 3phase 4wire, trivector energy meters shall be provided with heavy duty TTB on the front panel. The energy meters shall indicate instantaneous parameters like kW, kva, kvar, pf, current, voltage. The energy meter shall have 15 minutes load survey for KWH, KVARH, kW& kva for a minimum period of 60 days. The meter shall suitable to CT ratio 200/1A; and PT ratio 132KV/110V, and without any external M.F. The meter should have RS485 port for data communication with modbus protocol.
- d) An 36-window facia annunciator with following inscription shall be provided on the front with audible DC alarm bell.

S. No.	Name of Annunciation	Initiation From
1	Differential Trip	Differential Relay
2	HV REF Trip	REF relay HV
3	HV IDMT O/C Trip	Backup over current relay
4	Overflux Trip	Overflux Relay
5	L.B.B. Operated	L.B.B. Relay
6	LV overvoltage trip	O/L com Over voltage relay
7	Over Load Trip	Over Load Trip Timer
8	Main Buchholz Trip	Main Buchholz Trip Relay
9	OLTC Buchholz Trip	OLTC Trip Relay
10	P.R.V. Trip	P.R.V. Trip Relay
11	W.T.I. Trip	W.T.I. Trip Relay
12	O.T.I. Trip	O.T.I. Trip Relay
13	Overfluxing Alarm	Overfluxing Relay
14	Over Load Alarm	Over Load Relay
15	Main Buchholz Alarm	Auxiliary Relay of Main Buchholz Alarm
16	Low Oil Level Alarm	Auxiliary Relay for MOG
17	W.T.I. Alarm	Auxiliary Relay of W.T.I. Alarm of HV/LV
18	O.T.I. Alarm	Auxiliary Relay of O.T.I. Alarm
19	Low SF6 Gas Alarm	Auxiliary Relay for Low SF6 Gas Alarm
20	Differential Relay Faulty	From Differential Relay Supervision Contact
21	HV O/C protection relay faulty	Over current relay
22	HV REF relay faulty	HV REF relay
23	Overflux protection relay faulty	Overflux relay
24	Overload/LV over voltage protection relay faulty	Overload come overvoltage relay
25	Trip Circuit-1 Fail	TCH Relay Coil 1
26	Trip Circuit-2 Fail	TCH Relay Coil 2.
27	CB low pressure /SF6 lock out	Low SF6 auxiliary relay
28	Transformer body protection DC fail	DC fail relay
29	HV overcurrent high set operated	Overcurrent relay

30	AC fail	AC fail relay
31	DC fail	Dc fail relay
32	LV REF trip	LV REF relay
33	SF6 Low Trip Block	Auxiliary Relay For SF6 Low Trip Block
34	Spare	--
35	Spare	--
36	Spare	--

- f) Breaker indication:- Separate breaker ON – OFF lamp indication shall be provided in addition to CB semaphore indications.
- g) Mimic diagram:- It is not necessary for the manufacturer to match the other details of the switch yard. The standard mimic diagram of single main and transfer bus feeding the x-mer is sufficient.
- h) CT cores:- The 132 KV CTs have a ratio of 200/1 and 4 cores. One core of PS class is for differential circuit and second core of PS class is for over current, the 3rd metering class core shall be for metering and the 4th metering core shall be for RTU.
07. The CT & PT circuit wires should be colour coded i.e. red, yellow, blue and black for three phases and neutral. The d.c. and control wires should be grey. The cable size shall be 2.5 mm² for CT & PT and 1.5 mm² for control circuit. However, **for trip circuit** it shall be 2.5 Sq.mm.
08. **GENERAL:-** Terminal connectors for control and other circuits shall be of bolted (eye) type only. For CT & PT circuits the terminal connectors shall be of best quality disconnecting type. The terminal connector size shall be 16A current rating.
09. **Multi Functional Transducer (MFT):**
1 No. MFT for each panel shall be provided with RS485 communication port. The MFT should be accommodated in respective panel and output signal of MFT shall be taken to RTU panel through 1.5 Sq mm multi strand copper wire (screened cable). The analog parameters viz MW, MVAR, voltages and frequency etc of feeders, Bus transfer, Bus coupler, shall be measured through MFT and Breaker ON/ OFF indications shall be double point indication and isolator indication shall be single point indication and will be coupled to RTU through OPTO isolator print. The wiring of digital indication shall be done by 1.5 sq mm multi strand copper wire. MW. MVAR, PT voltage and frequency and other signal shall be terminated to a separate terminal block in C&R panels. The MFT should have accuracy class of 0.2s, 3 ph-4wire type with minimum 2 no digital & 4 no. 20mA analog outputs, should have USB & RS485 ports for communication and operating voltage 40-276 V AC/DC. The make of MFT should be as per vendor list given in Annexure-II.
- 10) **Bill of Material The details of relays and other facilities required in 132 KV Panel for 132/33KV Transformer mentioned below :-**

S.	Protection Schemes	40 MVA	
		132 KV Side X'mer	Remarks
1	Numerical Differential protection relay	1 No.	
2	Trip circuit supervision relay	2 Nos.	
3	DC Auxiliary 220V/ 110 V supply voltage monitoring relay	2 No.	

4	Numerical Local Breaker back up relay	1 No.	
5	Numerical Non directional IDMT relay with high set (3 O/C + 1 E/F)	1 No.	
6	Numerical Over fluxing relay	1 No.	
7	Numerical Over voltage Protection	In built	
8	Under voltage Protection	NIL	
9	Master trip relay	2 No.	
10	LBB Trip relay	1 No.	
11	Transformer body protection relays.	1 Set	
12	Numerical REF Relay	2 No.	
13	Multifunction Energy Meter: Model Elite 443 or equivalent (P-N Voltage, Average P-N voltage, P-P voltage, (L1,L2,L3 and Average), Active/Reactive Current, Frequency, Power factor, Average Power factor, Active Power, Total Active Power, Reactive Power, Total Reactive Power, Apparent Power, Total Apparent Power, Active Total Import/ Export Energy. Active/Apparent Forwarded, Reactive Lag/Lead Forwarded, Phase Angle, Power On/Off Hours, Load On/Off Hours, Feeder Interruption Count(When Aux is also off), RPM with Freq and VUnb and IUnb, Modbus on RS485. Accuracy class: 0.2s. Ethernet pluggable port by separate detachable Module. Calibration LED for accuracy test on site Load Survey: 40 days for 6 parameters @ 30 min IP, Options for 15or 60 minute integration period. Type tested by NABL accredited Lab.)	1 No	
14	Digital frequency meter (1 inch LED display)	1 No	
15	Annunciator relay	1 Set	
16	Trip transfer switch	1 No.	
17	TNC switch	1 No.	
18	SEMS make Energy Meter 3 Phase 4 wire Export-import, with load survey facility, RS 485 port with TTB (heavy duty screw type TTB).	1 No.	
19	Multifunction Transducer	1 No.	
20	Indicating LEDs, semaphores	As per requirement	
21	Digital Ampere meter	3 Nos.	
22	Digital Volt meter	3 Nos	
23	PT selection stay put switch	01 No.	

ANNEXURE-A

1) The details of make/model of numerical relays.

Numerical distance protection relay with IRIG-B port	GE (Alstom)- MicomP442 or higher/ SEL 311C or higher/GE D-60 or higher /Siemens 7SA 611 or higher/ Schneider- Micom-P442 or higher.
Numerical transformer differential protection relay with IRIG-B port	GE (Alstom)- Micom P 642 or higher/SEL 487-E or higher/Siemens 7UT 633 or higher / GE T-60 or higher/ Schneider-Micom P642 or higher.
Numerical directional O/C and E/F protection relay	GE (Alstom) Micom P141 or higher/ Siemens - 7SJ66 or higher/ Schneider Micom P141 or higher/GE F650 or higher.
Numerical non-directional O/C and E/F protection relay	GE (Alstom) Micom P141 or higher / Siemens 7SJ66/ Schneider Micom P141/ GE F650 or higher.
LBB relay & Over load relay	GE (Alstom) Micom P141 or higher / Siemens 7SJ66/ Schneider Micom P141/GE C60.
REF relay	GE (Alstom) Micom P141 or higher / Siemens 7SJ66/ Schneider Micom P141/GE C60.

2) TECHNICAL REQUIREMENT OF NUMERICAL RELAYS MENTIONED IN ANNEXURE-A USED IN CONTROL AND RELAY PANEL

2.1 RELAYS: All protective relays which are used in panel shall be of numerical type as per make and model mentioned in annexure-A and communication protocol IEC 61850 compliant or better version. All main relays shall have Ethernet/RJ45 ports. Further, the test levels of EMI as indicated in IEC 61850 shall be applicable to these. The exact model of all the relays for feeder & 132 KV incomer panel for 220/132 KV Transformer shall be finalised by CSPTCL at the time of engineering and that shall be binding on the tenderer. All the Numerical Relays shall have 20 % spare input and output contacts over what has been utilised in the scheme. The Numerical Relays shall have freely configurable input and output contacts. All the Numerical relays shall have self monitoring feature. The Numerical relays shall have event logger, trip value recorder and oscillographic Disturbance Recorder and on initiation of event, it shall automatically be downloaded at the workstation of S/S.

2.2 OTHER REQUIREMENTS FOR RELAYS:

2.2.1 All relays shall be contained in dust proof cases. All cases shall be mounted on the control and relay panels and the details of mounting shall be to CSPTCL's approval. Relays shall be of the projecting pattern or flush pattern as specified. Main relays shall have protocol IEC 61850 and IRIG-B for GPS time synchronising and have facility of oscillographic disturbance recording as well as

trip value recording. Main protective relays should preferably have facility to log in Aux. Supply failure and restoration time accurately.

- 2.2.2 Indicators shall also be provided on such additional elements as will enable the type of phase of the fault condition to be identified. Each indicator whether of the electrically or mechanically operated type shall be capable of the reset by hand without opening the relay case. Each indicator shall be so designed that it cannot move before the relay has completed its operation. It shall not be possible to test and operate any relay by hand without opening case. On operation of protective relay, operation indicator shall appear permanently unless reset. On demand type indicators are not acceptable.
- 2.2.3 All relays shall be so arranged that on opening the case it shall be impossible for any dust, which have collected in or upon the case to fall on the relay mechanism.
- 2.2.4 All relays shall conform to the requirement of IS-3231 or other applicable approved standards. Relays shall be suitable for flush or semi flush mounting on the front with connections from the rear. Relays shall be rectangular in shape and shall have dust tight, dull black or egg shell black enamel painted cases with transparent cover removable from the front.
- 2.2.5 All protective relays shall be in draw out or plug in type/module cases with proper testing facilities. The testing facilities provided on the relays shall be specifically stated in the bid. **Necessary test plugs shall be supplied loose and shall be included in tenderer's scope of supply.** Test block and switches shall be located immediately below each relay for testing. CSPTCL reserves the right for accepting any one of the above two testing facilities. Unless otherwise specified all auxiliary relays and timers shall be supplied in non-draw out cases/plug in tight modular cases.
- 2.2.6 All AC relays shall be suitable for operation at 50 Hz AC voltage operated relays shall be suitable for 110/220 Volt VT secondaries and current operated relays of 1 amp CT secondaries as specified in the specification. DC auxiliary relays and timers shall be designed for the 110 V/220V DC and shall operate satisfactorily on $\pm 20\%$ of rated voltage. Voltage operated relays shall have adequate thermal capacity of continuous operation.
- 2.2.7 The protective relays shall be suitable for efficient and reliable operation of the protection scheme described in the specification. Necessary auxiliary relays and timers required for interlocking schemes for multiplying of contacts/suiting contact duties of protective relays and monitoring of control supplies and circuits, lockout relay monitoring circuits etc. And also required for the complete protection schemes described in the specification shall be provided. All protective relays shall be provided with at least three pairs of potential free isolated output contacts. Auxiliary relays and timers shall have pairs of contacts as required to complete the scheme; contacts shall be silver faced with spring action. Relay cases size shall be so chosen as not to introduce any limitations on the use of available contacts on the relay due to inadequacy of terminals.
- 2.2.8 All protective relays, auxiliary relays and timers except the lock out relays and interlocking relays, specified shall be provided with self reset type contacts. All protective relays and timers shall be provided with externally hand reset positive action operation indicators with inscription subject to CSPTCL's approval. All protective relays which do not have built-in-hand reset operation indicators shall have additional auxiliary relays with operating indicators (Flag relays) for this purpose. Similar separate operating indicator (auxiliary relays) shall also be provided in the trip circuits of protections located outside the board such as

- Buchholtz relays, low oil level alarm, oil and winding temperature protection, sudden pressure devices, fire protection, etc.
- 2.2.9 Timers shall be of numerical or solid state type.
- 2.2.10 No control relay which shall trip the power circuit breaker when the relay is de-energised shall be employed in the circuits.
- 2.2.11 Provision shall be made for easy isolation of trip circuits of each relay for the purpose of testing and maintenance.
- 2.2.12 All relays shall withstand a test voltage of 2.5 KV 50 Hz. Rms voltage for one second except static relays.
- 2.2.13 Auxiliary seal-in-units provided on the protective relays shall preferably be of shunt reinforcement type. If series relays are used the following shall be strictly ensured.
- 2.2.14 The operating time of the series seal-in-unit shall be sufficiently shorter than that of the trip coil or trip relay in series with which it operates to ensure definite operation of the flag indicator of the relay.
- 2.2.15 In order to minimise the effects of electro-osmosis, flag coils and DC relay operating coils shall be so placed in the circuit that they are not connected to the positive pole of the battery except through contacts which are normally open.
- 2.2.16 All protective relays and alarm relays shall be provided with minimum three extra isolated pair of contacts wired to terminals exclusively for future use.
- 2.2.17 The setting ranges of the relays offered, if different from the ones specified shall also be acceptable if they meet the functional requirements.
- 2.2.18 All relays and their drawings shall have phase indications as R-Red, Y-yellow, B-Blue. For numerical relays, the scope shall include the following:
- a) Necessary software and hardware to up/down load the data to/from the relay from/to the personal computer installed in the substation.
 - b) The relay shall have suitable communication facility for connectivity to workstation of S/S. The relays shall be capable of supporting IEC 61850 protocol.
- 3. CONTROL CONNECTIONS AND INSTRUMENT WIRING:**
- 3.1 Panel connection shall be insulated and shall be neatly and securely fixed to the back of the panel. All instrument and panel wiring shall be of an approved type which will not support combustion and shall run in porcelain or non-rustable metal cleats or in non-rustable tubes or galvanised steel tubes as may be approved. All panel wiring shall be taken to approve terminal boards which shall comply with requirements of multicore cable boxes where applicable. Switch board wiring shall be PVC or VC braid impregnated with flame proof compound. Rubber insulation is not acceptable.
- 3.2 All wiring diagrams shall be clearly marked with the number which are shown on the ferrules of the individual cores. 20% spare and blank ferrule shall be supplied with each panel.
- 3.3 Flat terminals shall not be used but each end of each instrument or control wire shall be terminated with a Rose Corstney or other approved type of washer.
- 3.4 Each set of current/ voltage transformer secondary connections shall be complete in itself and shall be earthed at one point only. Each such earthing connection to the earth bar shall be made in accordance with the requirement of the earthing system and shall be made through a link of approved design which can be

removed when insulation tests are required without breaking any circuit normally carrying current.

- 3.5 For each circuit on the panel, the control indication and trip wiring shall be suitably segregated so that these could be isolated to permit testing or other work. The semaphore and other indication circuits shall be connected to the DC bus by a set of fuses. Similarly, the trip and close circuits shall also be connected by a separate set of fuses. The fuses shall be labelled clearly showing the circuits connected.
- 3.6 All secondary fuses shall be of an approved type. HRC fuses of some standard make shall only be used.
- 3.7 Where specified test blocks shall be provided for testing of meters and relays. They shall be of the switch board type back connected for front of panel mounting. The test blocks shall provide complete isolation of meters, instruments and relays and the arrangements shall be such that testing power could be connected at the test block from the external source or may be taken from the instrument transformer. Provision shall be made for short circuiting current transformers, by sliding type element connectors.

SCHEDULE-I**SCHEDULE OF PRICE AND QUANTITY**

S. N	Particulars	Qty.	Unit Ex-works price including packing & forwarding in Rs./nos	Unit Freight charges in Rs/Nos	GST on (Ex-works Price + Freight charges) @ -----%	Unit F.O.R. destn. Price including GST, freight and other taxes (4+5+6) in Rs/Nos	Total Amount (in Rs)
1	2	3	4	5	6	7	8
1	132 KV Control & Relay Panel for Feeder (Duplex type) with all relays & accessories (110V /220V DC). As per tech. spec. under section II A	36 Nos.					
2	132 KV control & Relay panel (Duplex corridor type) for transformer for 110 V/220 V DC with all relays & accessories as per tech. spec. under section-II B	23 Nos					
3.	132 KV Incomer panel for 220/132 KV Transformer (Duplex type) with all relays & accessories (110V /220V DC). As per tech. spec. under section IIA.	05 Nos.					
4.	Numerical Distance Protection Relays	7 Nos					
5.	Numerical Differential Relays	7 Nos					
6.	Numerical Directional O/c & E/F Relays	47 Nos					
7.	Numerical Non- Directional O/c & E/F Relays	208 Nos					

Note:-

1. The prices offered should be **FIRM**.
2. The rates will be quoted through online e bidding portal (SAP SRM system) only. Price schedule duly filled in hard copy is not required
3. The Numerical relays shall be supplied as per makes/models given in annexure-A, only.
4. The details of relays and other facilities required in each panel for 132 KV C&R Panel for feeder and 132 KV incomer panel for 220/132 KV Transformer ,132 KV C&R panel for 132/33 KV Transformer & Spare Relays is tabulated in Annexure A

Signature & Seal of Tenderer

SCHEDULE II (A)
GUARANTEED TECHNICAL PARTICULARS

S. No.	Particulars	132 KV FEEDER	132 KV INCOMER FOR 220/132 KV TRANSFORMER
1.	NUMERICAL DISTANCE RELAYS		
	(i) Make & Model.		NA
	(ii) Switched or Non switched		NA
	(iii) No. of measuring zones		NA
	(iv) Characteristics for Phase & Earth Faults		NA
	(v) Range of Zone Settings		NA
	Zone I		NA
	Zone II		NA
	Zone III		NA
	(vi) Whether independent R, X settings are available		NA
	(vii) Operating time for Zone I		NA
	(viii) No. of output contacts & Ratings		NA
	(ix) P.T. Burden		NA
	(x) C.T. Burden		NA
	(xi) Sensitivity		NA
	a. Minimum Operating Current		NA
	b. Minimum Operating Voltage		NA
	(xii) Auxiliary voltage (D.C.) Suitable for		NA
	(xiii) Whether IEC 61850 COMPLIANT or higher		NA
	(xiv) Whether LBB feature is inbuilt		NA
	(xv) Whether directional backup IDMT O/c & E/f is inbuilt.		NA
	(xvi) Whether Fuse failure monitoring is provided		NA
	(xvii) Power swing detection provided		NA
	(xviii) Distance to fault location feature provided		NA

2.	Numerical dir O/C and E/F relay		
	(i) Make & Model		
	(ii) Rating & burden		
	(iii) PSM settings		
	(iv) TLS settings		
	(v) No. of input and output contacts		
	(vi) Rating of contacts		
	(vii) Any other spec.		
	(viii) Whether oscilloscopic DR functions available		
	(viii)Auxiliary voltage (D.C.) Suitable for		
	(ix) Whether IEC 61850 COMPLIANT or higher		
3.	NUMERICAL LBB relay		
	(i) Make & model.		
	(ii) Rating & burden		
	(iii) PSM settings		
	(iv) TLS settings		
	(v) Nos of channel to trip feeders		
	(vi) Whether IEC 61850 compliant OR higher		
4.	Trip circuit supervision relay		
	(i) Make & type design.		
5.	Trip/Aux. Relays		
	(i) Make & type design.		
	(ii) Rating & burden		
	(iii) settings		
	(v) No. Of contacts		
	(vi) Rating of contacts		
	(vii) Operating time.		
	(viii)Auxiliary voltage (D.C.) suitable for		
6.	NUMERICAL Overload relay		
	(i) Make & model.		
	(ii) Rating & burden		
	(iii) PSM settings		
	(iv) TLS settings		

7.	Annunciator relays		
	(i) Make & type design.		
	(ii) Rating & burden		
	(iii) whether microprocessor based design		
	(iv) No. Of windows		
8.	SEMS Make Trivector Energy Meter		
	(i) Make & type		
	(ii) Size		
	(iii) Ratings		
	(v) Accuracy class		
9	Multifunction Energy Meter		
	(i) Make & type		
	(ii) Size		
	(iii) Ratings		
	(v) Accuracy class		
10	Indication lamps		
	(i) Make & type		
	(ii) Type of lamp (LED/ Filament)		
	(iii) Wattage		
	(iv) Whether resistor internal		
	(v) Any other spec		
11	Push Buttons		
	(i) Make & type		
	(ii) Contact type (Momentary/ maintained)		
	(iii) No. Of NO/NC cont.		
	(iv) Rating of contacts		
	(v) Colour		
	(vi) Any other spec.		
12	Switches		
	(i) Make & type		
	(ii) Rating		
	(iii) No. Of positions		
	(iv) no. Of contacts		
	(v) Any other spec.		

13.	TTB		
	(i) Make & type		
	(ii) Whether 3-ph, 4-wire		
	(iii) CT shorting arrangement		
	(iv) Any other spec.		
14	RTB with test handle		
	(i) Make & type		
15	Details of Digital Voltmeter & Ammeter		
	(i) Make & type		
	(ii) Size		
	(iii) Ratings		
	(v) Accuracy class		

Note:- The particulars of any of the items not covered above may also be mentioned.

Date
Place

SIGNATURE OF BIDDER
NAME
DESIGNATION
(SEAL)

SCHEDULE II (B)
GUARANTEED TECHNICAL PARTICULARS

S. No.	Particulars	Transformer
1.	NUMERICAL DIFFERENTIAL RELAY	
	(i) Make & Model.	
	(ii) Total Trip output time	
	(iii) Minimum Operating Current	
	(iv) Number of Input & Output contacts & Rating	
	(v) Bias setting Available	
	(vi) Harmonic Restraint feature	
	(vii) Auxiliary voltage (D.C.) Suitable for	
	(viii) Whether the relay is IEC 61850 COMPLIANT or higher	
	(ix) Whether Inbuilt overfluxing protection provided ?	
	(x) Whether Inbuilt overvoltage protection provided ?	
	(xi) Whether Inbuilt REF protection provided ?	
	(xii) Whether Disturbance recorder feature available ?	
2.	Numerical Non-dir O/C and E/F relay	
	(i) Make & Model	
	(ii) Rating & burden	
	(iii) PSM settings	
	(iv) TLS settings	
	(v) No. of input and output contacts	
	(vi) Rating of contacts	
	(vii) Any other spec.	
	(viii) Whether oscilloscopic DR functions available	
	(viii) Auxiliary voltage (D.C.) Suitable for	
	(ix) Whether IEC 61850 COMPLIANT or higher	
3.	LBB relay	
	(i) Make & model.	
	(ii) Rating & burden	
	(iii) PSM settings	
	(iv) TLS settings	
	(vii) Nos of channel to trip feeders	

	(viii) Whether IEC 61850 COMPLIANT or higher	
4.	Over flux relay	
	(i) Make & type design.	
5.	REF relay	
	(i) Make & model	
	(ii)Whether IEC 61850 COMPLIANT or higher	
6.	Trip circuit supervision relay	
	(i) Make & type design.	
7.	Trip/Aux. Relays	
	(i) Make & type design.	
	(ii) Rating & burden	
	(iii) settings	
	(v) No. Of contacts	
	(vi) Rating of contacts	
	(vii) Operating time.	
	(viii)Auxiliary voltage (D.C.) suitable for	
8.	Annunciator relays	
	(i) Make & type design.	
	(ii) Rating & burden	
	(iii)whether microprocessor based design	
	(iv) No. Of windows	
9.	Static Exp-Imp Tri Vector meter	
	(i) Make & type	
	(ii) Size	
	(iii) Ratings	
	(iv) Whether static	
	(v) Accuracy class	
10.	Multifunction Energy Meter	
	(i) Make & type	
	(ii) Size	
	(iii) Ratings	
	(v) Accuracy class	
11.	Indication lamps	
	(i) Make & type	

	(ii) Type of lamp (LED/ Filament)	
	(iii) Wattage	
	(iv) Whether resistor internal	
	(v) Any other spec	
12.	Push Buttons	
	(i) Make & type	
	(ii) Contact type (Momentary/ maintained)	
	(iii) No. Of NO/NC cont.	
	(iv) Rating of contacts	
	(v) Colour	
	(vi) Any other spec.	
13.	Switches	
	(i) Make & type	
	(ii) Rating	
	(iii) No. Of positions	
	(iv) no. Of contacts	
	(v) Any other spec.	
14.	TTB	
	(i) Make & type	
	(ii) Whether 3-ph, 4-wire	
	(iii) CT shorting arrangement	
	(iv) Any other spec.	
15.	RTB with test handle	
	(ii) Make & type	
16.	Details of Digital Voltmeter & Ammeter	
	(i) Make & type	
	(ii) Size	
	(iii) Ratings	
	(v) Accuracy class	

Note:- The particulars of any of the items not covered above may also be mentioned.

Date
Place

SIGNATURE OF BIDDER
NAME
DESIGNATION
(SEAL)

SCHEDULE – III**SCHEDULE OF MANUFACTURER’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

Signature of Bidder

Name :

Company :

SCHEDULE- IV

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

S.No.	Description	Manufacturer	Place of manufacture	Date of testing and inspection

Signature of Bidder

Name :

Company :

SCHEDULE-V**COMMERCIAL INFORMATION**

Strike-off, whichever is not applicable (ii) Separate sheet should be used, wherever necessary.

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.	State whether the quoted prices are FIRM	Yes /No
4.	Rate of GST (Good & Service Tax)	
5.	PAYMENT TERMS:- Whether CSPTCL's terms of payment is acceptable to the bidder (if no state conditions)	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. a.	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	Yes /No
b.	If not, indicate deviation specifically	
10.	EXTENSION ORDER:-	Yes /No

	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.	
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.	Year of start of manufacture of offered equipment/ material.	
14.	Whether C.A. audited notarized copy of net worth for the last three financial years is submitted	
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 31.12.2020 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:

SCHEDULE – VI(A)**SCHEDULE OF COMMERCIAL DEVIATIONS**

We/I have carefully gone through the Commercial requirements of specification and the General condition of contract and we/I have satisfied ourselves/myself and hereby confirm that our/my offer strictly conforms to the requirements of commercial specification and General conditions of contract except for the deviations, which are given below:-

S.No.	DESCRIPTIONS & CLAUSE NO. OF THE SPECIFICATION & PAGE NUMBER	STIPULATION IN SPECIFICATION	DEVIATION OFFERED.	REMARKS REGARDING JUSTIFICATION OF THE DEVIATION
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>

Except for aforesaid deviations, the entire order, if placed on us, shall be executed in accordance with your specification and any other conditions, variation/deviation etc. if found elsewhere in our offer should not be given any considerations while finalising the tender.

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

Date

SIGNATURE OF BIDDER

Place

NAME

DESIGNATION

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 confirm that our/my offer strictly conforms to the requirements 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 NUMBER	STIPULATION IN SPECIFICATION	DEVIATION OFFERED.	REMARKS REGARDING JUSTIFICATION OF THE DEVIATION
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>

Except for aforesaid deviations, the entire order, if placed on us, shall be executed in accordance with your specification and any other conditions, variation/deviation etc. if found elsewhere in our offer should not be given any considerations while finalising the tender.

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

Date

SIGNATURE OF BIDDER

Place

NAME
DESIGNATION
(SEAL)

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 along with the tender. The reports of only Government standard test laboratory/ NABL accredited laboratory (Not older than five 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	
Year	Amount in Rs.
2015-2016	
2016-2017	
2017-2018	
2018-2019	
2019-2020	
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 INFORMATION**

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

**Name and seal of the tendering
Company.**

Place

SCHEDULE-XI
TECHNICAL INFORMATION

Strike-off, whichever is not applicable

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

1	Whether material offered is exactly as per the technical specification	Yes/No
2	Whether the copies of orders received during last 5 years from other State Electricity Board/NTPC & other organization for similar materials enclosed	Yes/No, give details
3	Whether performance certificate from such organization regarding supplies enclosed	Yes/No, give details
4	Whether pamphlets/technical details literatures alongwith drawing etc. Furnished with the offer	Yes/no, give details
5	Whether the bidder agrees to furnish materials test certificates in respect of chemical composition and physical properties from Govt./Govt. Approved Lab. With each batch of supplies	Yes/No
6	Whether the bidder has furnished details of manufacturing equipments and short history of plant	Yes/No, give details
7	Whether details of manufacturing process furnished with offer	Yes/No, give details
8 (a)	Whether all testing facilities are available, if so, give details and in case of non-availability of facilities indicate approved lab. Available in surrounding areas where tests are proposed to be conducted	Yes/No, give details
(b)	Whether you agree for inspection by CSPTCL's representative prior to dispatch and bear the testing charges for all tests as per relevant standards	Yes/no
9	Mention in brief the type test reports enclosed name of test, agency at which testing done, date of testing.	
10	GA drawing furnished with the offer	Yes/no
11	Confirm that non of the inbuilt feature of numerical relay has been disabled.	

Date
Place

SIGNATURE OF BIDDER
NAME
DESIGNATION
(SEAL)

SCHEDULE-XII
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-II(A) & II(B)	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	General Information	Schedule-X	Yes/No
12	Technical information	Schedule-XI	Yes/No
13	Pre-contract integrity pact	Annexure-III	Yes/No
14	NSIC/DIC/ Factory registration certificate	As per PQR 6 (A)	Yes/No
15	Valid MSME registration /BIS license	As per PQR 6 (A)	Yes/No
16	For 5 years experience in supply –Copy of purchase order along with relevant MRC/Performance	As per PQR 6 (A)	Yes/No
17	For 3 year satisfactory performance – Copy of performance certificate	As per PQR 6 (A)	Yes/No
18	Type test certificate not older than 7 years	As per PQR 6 (A)	Yes/No
19	Financial data for previous 5 years	As per PQR 6 (B)	Yes/No
20	CA certified Net worth certificate	As per PQR 6 (B)	Yes/No
21	Declarations	As per PQR 6 (C)	Yes/No
22	Power of Attorney	As per clause 7 Section-I	Yes/No
<i>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</i>			

Signature & Seal of the Bidder

ANNEXURE-I

PRE-TREATMENT AND PAINTING PROCESS

1. The sheet steel fabricated members shall be subjected to pre-treatment process before painting. The process shall be carried out as under. The process can broadly be divided as 'Metal Treatment and painting. The painting must be done through 7 tank painting process with Baking oven.
 - 1.1 **METAL TREATMENT:**
 - 1.1.1 **DEGREASING:** This can be achieved either immersing in not alkaline degreasing bath or in hot dry chlorothelence solution. In case degreasing is done by alkaline bath with cold water thoroughly.
 - 1.1.2 **PICKLING:** This is to remove rust and metal scales. Immersing in diluted sulphuric acid (approximately 20%) at nearly 60 deg. centigrade unit scale and rust are totally removed.
 - 1.1.3 Rinse in cold water in two tanks to remove traces of acids.
 - 1.1.4 Treat with Phosphoric acid base neutraliser for removal of chlorine from the above acid pickling and again wash with running water.
 - 1.1.5 **PHOSPHATING:-** Immerse in grenodine 'zinc phosphate solution for about 20 minutes at 80 to 90 deg. Centigrade. The uniform phosphate coating of 4 to 5 gms per sq. meter shall be achieved.
 - 1.1.6 Swill in cold water.
 - 1.1.7 Rinse in Deorylyte bath at 70 to 80 deg. centigrade to neutralise any traces of salts.
 - 1.1.8 Seal the above phosphate coating with hot/dilute choromoto solution.
 - 1.1.9 Dry with compressed air.
 2. **PAINTING:**
 - 2.0 Primer spray one coat wet on wet specially developed 'High lusture' zinc chromote primer and stove at 150 deg. centigrade to 160 deg. centigrade for 25 to 30 minutes. Alternative re-oxide primer with zinc chromate contents may be used. However, former process is preferred.
 - 2.1 Rubbing and putting: Apply putty to fill up the scars if any to present smooth surface and stove 15 to 20 minutes. Apply putty several times to get the perfectly smooth finish.
 - 2.2 Surfacing Sand down with mechanical abrasive and stove for 20 minutes.
 - 2.3 Primer: Spray second coat of primer as per (i) above or grey primer surfacer wet on wet and stove for 20 to 40 minutes at 150 deg. centigrade.
 - 2.4 Finish paint: Rubbing down dry and spray first coat of synthetic enamel finish paint wet on wet and stove for 30 minutes.
 - 2.5 Surfacing: Sand down or rub dry to prepare for final finish spray. Coats of synthetic enamel finish paint wet on wet and stove it at 150 deg centigrade for 30 minutes.
- NOTE:-**i) Necessary stiffeners may be welded between large cut duts to provide rigid before painting process.
ii) Painting process shall be done within 24 hrs. of completion .
iii) Small coating paint shall be supplied alongwith equipment for touching up at site.

ANNEXURE-II**LIST OF VENDORS FOR C&R PANEL ACCESSORIES**

Sl.No.	PARTICULARS	MAKE
1.	Numerical distance, differential, LBB relays, REF & Overload relays	The relays shall be supplied as per makes/models given in Annexure-A, only
2.	Numerical O/C & E/F relay	
3.	Master tripping relay/Auxiliary relay	ER/Areva(Alstom)/ABB/Siemens
4.	Panel ammeters, voltmeters, MW, MVAR meters	AE/ Rishabh/ SECURE/ MECO <u>OR</u> Equivalent
5.	Annunciator relay	Alan/Bharani/Minilec/JVS
6.	Control switch/selector switch trip transfer switch	Kaycee/ AREVA/ Switron
7.	HRC Fuse	GE (Alstom)/SS/Siemens/ Hivelm <u>OR</u> Equivalent
8.	TTB	DAV heavy duty
9.	Semaphore	GE (Alstom)/DAV
10.	Indication lamps	Vaishnav/ Equivalent
11.	Trivector Energy meters	SEMS
12.	Multi Functional Transducer(MFT)	SEMS
13.	Relay test blocks with handles	ABB/GE (Alstom)

ANNEXURE-III**PRE-CONTRACT INTEGRITY PACT****1. GENERAL**

- 1.1 This pre-bid contract Agreement (hereinafter called the Integrity Pact) is made on.....day of the month20..., 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 or 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 bidding 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.

7.2.1. 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 aton.....

BUYERBIDDER

Name of Officer
Destination Department/PSU

CHIEF EXECUTIVE OFFICER

Witness

Witness

1).....

2).....