



TRANSMISSION CORPORATION OF TELANGANA LIMITED

Website: www.tstransco.in. GST No. 36AAFCT0166J1Z9 CIN No. U40102TG2014SGC094248

From:
The Chief Engineer,
P&MM, TSTRansco,
Vidyut Soudha,
HYDERABAD – 500 082.
Tel: 040-23303736; Fax: 040-23303736

To
M/s. CG Power and Industrial Solutions Ltd.,
A-3, MIDC, Switchgear Complex,
Nashik,
Maharashtra – 422010,
Fax No: 02532381247

SAP PO.No.4500002990/web PO No.530-PMM/2020/CE(P&MM)/SE(P&MM)/DE41/
TSPMM41-30/2020/220kV CTs/D.No.173/20, Dt: 14.12.2020.

Sirs,

Sub: Tender Specification No. TSPMM41-30/2020 – Supply of Item - 1: 20 Nos. 220kV Current Transformers (2400-1600-800/1-1-1, 2-1,2-1)A, Item-2: 10 Nos. 220kV Current Transformers (1200-1000-800/1-1-1-1-1) A, Item-3: 10 Nos. 220kV Current Transformers (800-600-400/1-1-0.5, 0.75,1-0.5, 0.75,1-1) A and Item-4: 13 Nos. 220kV Current Transformers (500-300/1-0.5775, 0.66,1-0.375, 0.625,1-0.375, 0.625,1-1) A – Detailed Purchase Order – Issued – Regarding.

Ref: 1. Enquiry Lr. No.CE/P&MM/SE/P&MM/DE41/TSPMM41-30/2020/220kV&132kV CTs/D. No.39/20, Dt:30.06.2020.

2. Your offer against Tender Specification No.TSPMM41-30/2020 in enquiry letter.

3. Your Lr. No. YS/SC-MS/20-21/TSTR/TSPMM41-30/2020/01, Dt. 31.10.2020.

4. LOI No. CE(P&MM)/SE(P&MM)/DE41/TSPMM41-30/2020/220kV& 132KV CTs/ D.No.150/2020, Dt:19.11.2020.

5. Your Lr. No.YS/SC-MS/20-21/OA/TSPMM41-30, Dt.26.11.2020.

* * *

I, acting for and on behalf of and by the order and direction of TRANSMISSION CORPORATION OF TELANGANA LIMITED, accept the prices offered by you, vide ref (2), against Tender Specification No. TSPMM41-30/2020, for supply of equipment detailed in clause (2) below, with the terms and conditions as per the Tender Specification No. TSPMM41-30/2020. This Purchase Order is issued in confirmation of the Letter of Intent issued vide ref (4) cited, accepted by you vide ref (5) cited.

1. SCOPE OF CONTRACT

This contract relates to the supply of the equipment detailed in clause–2 below and covers design, manufacture, testing before dispatch and delivery free at destination/stores/site (FADS) within State of Telangana as detailed in this Purchase Order.

2. SCHEDULE OF EQUIPMENT & PRICES:

- (a) Supply of Item - 1: 20 Nos. 220kV Current Transformers (2400-1600-800/1-1-1, 2-1,2-1)A, Item-2: 10 Nos. 220kV Current Transformers (1200-1000-800/1-1-1-1-1) A, Item-3: 10 Nos. 220kV Current Transformers (800-600-400/1-1-0.5, 0.75,1-0.5, 0.75,1-1) A

and Item-4: 13 Nos. 220kV Current Transformers (500-300/1-0.5775, 0.66,1-0.375, 0.625,1-0.375, 0.625,1-1) A conforming to latest IEC/IS, complete with Terminal Connectors suitable for twin ACSR Moose Conductor and as per Technical Specification, as per the price break-up indicated below:

All Financial Figures are in Rs.

Sl. No.	Description	Item-1: 220kV CTs (2400-1600- 800/1-1-1, 2- 1,2-1)A	Item-2: 220kV CTs (1200-1000- 800/1-1-1-1- 1)A	Item-3: 220kV CTs (800-600- 400/1-1-0.5, 0.75,1-0.5, 0.75,1-1)A	Item-4: 220kV CTs (500-300/1- 0.5775, 0.66,1- 0.375, 0.625,1- 0.375, 0.625,1-1)A
		HSN Code:85043100			
1	Ex-Works	2,30,000.00	2,10,000.00	2,30,000.00	2,10,000.00
2	Packing & Forwarding	Inclusive	inclusive	inclusive	inclusive
3	Freight	7,500.00	7,500.00	7,500.00	7,500.00
4	Insurance	500.00	500.00	500.00	500.00
5	Total Taxable Unit Rate	2,38,000.00	2,18,000.00	2,38,000.00	2,18,000.00
6	GST @ 18% on (Ex-works+Freight+Insurance)	42,840.00	39,240.00	42,840.00	39,240.00
7	Unit FADS Price including GST	2,80,840.00	2,57,240.00	2,80,840.00	2,57,240.00
8	Quantity (Nos.)	20	10	10	13
9	Total Amount	56,16,800.00	25,72,400.00	28,08,400.00	33,44,120.00
10	Grand Total	1,43,41,720.00			
(Rupees One Crore Forty Three Lakh Forty One Thousand Seven Hundred Twenty Only)					

- (b) The prices of equipment accepted above are FIRM and are free at destination stores (FADS).
- (c) The dispatch of the equipment is by road only. The transit insurance shall include storage cover for 45 days at destination stores.
- (d) Freight & Insurance charges will be reimbursed limited to documentary proof only.
- (e) The prices are with the present rate of IGST @ 18% on the total of Ex-works, Freight and Insurance.
- (f) The TSTransco shall have the right to vary the ordered quantity by +/- 50% at any time during the execution of the order.
- (g) The Price are inclusive of all incidental charges such as packing, forwarding, handling, unloading and other incidentals.

3. DELIVERY SCHEDULE: To supply

Item-1: 20 Nos. 220KV CTs (2400-1600-800/1-1-1,2-1,2-1)A : To supply 10Nos. in the 3rd month from the date of letter of intent and balance quantity in the 6th month from the LOI.

Item-2: 10 Nos. 220KV CTs (1200-1000-800/1-1-1-1-1)A : To supply total quantity in the 3rd month from the date of letter of intent.

Item-3: 10 Nos. 220KV CTs (800-600-400/1-1-0.5, 0.75, 1-0.5, 0.75, 1-1)A : To supply total quantity in the 3rd month from the date of letter of intent.

Item-4: 13 Nos. 220KV CTs (500-300/1-0.66,0.5775,1-0.375,0.625,1-0.375,0.625,1-1)A: To supply total quantity in the 3rd month from the date of letter of intent.

4. PERFORMANCE SECURITY:

Performance Security for 10% of the contract value i.e. for **Rs. 14,34,172/-** (Rupees Fourteen Lakh Thirty Four Thousand One Hundred and Seventy Two Only) with a validity of 60 days beyond the date of completion of performance obligations including warranty obligations is to be furnished.

In the event of any correction of defects or replacement of defective material during the warranty period, the warranty for the corrected/replaced material will be extended to a further period of 12 months and the Performance Bank Guarantee for proportionate value will be extended 60 days over and above the extended warranty period. It is entirely your responsibility to extend the validity of this Bank Guarantee to cover the period of guarantee well before its expiry.

The Performance Security will be:

- a) A Bank Guarantee issued by SBI or its associate Banks / Nationalized Banks.
- b) A banker's cheque or crossed DD or Pay Order payable at the head quarters of the Purchaser in favour of the purchaser drawn on any Schedule Bank.

5. Guaranteed Technical Particulars: The Guaranteed Technical Particulars are enclosed to this Purchase Order. The 220kV CTs drawings shall be furnished for approval.

6. Payment:

- a) 100% payment will be arranged through PFC/REC/Bank/TSTransco/Bulk Load funds within 45 days reckoned from the check measurement date in Form-13.
- b) For Real Time Gross Settlement (RTGS) the details of your Bank Account are as follows:

(i)	Company Name	M/s. CG Power and Industrial Solutions Ltd
(ii)	Name of the Bank	State Bank of India
(iii)	Branch Address	Industrial Finance Branch, B- 202, Wing –B, 2 nd Floor, Parinee Crescenzo, Bandra Kurla, Complex.
(iv)	Branch Code	008965
(v)	City	Mumbai-400 051
(vi)	Account No.	38831345246
(vii)	MICR Code	400002123
(viii)	IFSC Code	SBIN0008965
(ix)	PAN No.	AAACC3840K
(x)	GST No.	27AAACC3840K1ZP

- c) Applicable transaction charges will be recovered from the bill amount for each disbursement on LOA raised by unit officers.
- d) The 100% payment mentioned above is subject to submission of performance security by the supplier as per clause (4) above.
- e) The performance guarantee to be executed in accordance with this specification will be furnished on a stamp paper of value Rs.100/- within two weeks of receipt of this order as per the format indicated in Form-4 of the specification. The Bank Guarantee will be extended if required suitably in accordance with the provisions of Performance Security Clause of the Specification.
- f) If the supplier has received any over payments by oversight or if any amounts are due to the TSTransco due to any other reasons, when it is not possible to recover such amounts under the contract resulting out of this specification, TSTransco reserves the right to collect the same from any other amount due to the supplier and / or Bank Guarantees given by the company due to or with TSTransco.
- g) When the supplier does not at any time, fulfill his obligations in replacing / rectifying etc. the damaged / defective materials in part or whole promptly to the satisfaction of the TSTransco Officers, TSTransco reserves the right not to accept the bills against subsequent dispatches made by the supplier and only the supplier will be responsible for any demurrages, wharfages or damage occurring to the consignments so dispatched.
- h) Any incidental charge such as stamp duty, bank charges etc., shall be to the Supplier's account and any charges in relation there to shall not be included in the bills submitted to TSTransco.
- i) All payments will be made in non-convertible Indian Rupees.

7. RESPONSIBILITY OF THE SUPPLIER FOR LOSS/DAMAGE

- (a) The supplier is responsible for the safe delivery of the goods in good condition at the destination. He should acquaint himself of the conditions obtaining for handling and

transport of the goods to destination and shall include and provide for security and protective packing of the goods so as to avoid damage in transit.

- (b) External damages or shortages that are prima-facie the results of rough handling in transit or due to defective packing will be intimated within a fortnight of the receipt of the materials. Internal defects, damages or shortages of any internal parts which cannot ordinarily be detected on a superficial visual examination will be intimated subsequently.

In either case, the defective or damaged materials should be replaced by the supplier free of cost to the TSTransco. If no steps are taken within 15 days of receipt of intimation of defects or such other reasonable time as the TSTransco may deem proper to afford, TSTransco may without prejudice to its other rights and remedies cause to be repaired or rectified the defective material or replace the same and recover the expenditure incurred there for from the deposit such as Earnest Money, Security and Performance or other monies available with TSTransco or by resorting to legal action.

- (c) For the purpose of any legal consideration, the material shall be deemed to pass into TSTransco's ownership only at the final destination where they are delivered and accepted.

8. Penalty for Late Delivery:

- a) The delivery period as per agreed delivery schedule shall be deemed to be the essence of the contract. In case of delay in delivery of materials beyond the agreed delivery schedule or to perform the services within the period specified in the contract whatever be the reason the TSTransco may at its option, demand and recover from the supplier from the contract price, as liquidated damages, a sum equivalent to 0.5% per week on the undelivered portion subject to a maximum of 5% of total value of contract.
- b) For penalty, the number of days of delay would be rounded off to the nearest week and penalty calculated accordingly.
- c) Equipment which is not of acceptable quality (or) not conforming to specification would be deemed to be not delivered.
- d) The penalty specified will be levied and would be adjusted against subsequent pending bills.
- e) The check measurement date in Form-13 i.e., the date of receipt of equipment at the destination stores in good condition will be taken as date of delivery.

9. Force Majeure:

- (a) The Supplier will not be liable for forfeiture of its performance security, penalty for late delivery or termination for default if and to the extent that its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.
- (b) For the purpose of this clause 'Force Majeure' means an event beyond the control of the Supplier and not involving the Suppliers' fault or negligence and not foreseeable. Such events may include but are not restricted to wars or revolutions, fires, floods, epidemics, earth quakes, Tsunami, quarantine restrictions and freight embargoes.
- (c) If the Force Majeure situation arises, the supplier will promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier will continue to perform its obligations under the Contract as far as is reasonably possible, and will seek all reasonable alternative means for performance not prevented by the Force Majeure event.

10. Termination for Default:

- (a) The Purchaser without prejudice to any other remedy for breach of Contract, by written notices of default sent to the Supplier, may terminate this Contract in whole or part :
 - i) If the Supplier fails to deliver any or all of the Materials/equipment within the period(s) specified in the Contract, or within any extension thereof granted by the Purchaser.
 - ii) If the Supplier fails to perform any other obligation(s) under the Contract.
 - iii) If the Supplier, in the judgment of the Purchaser has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.
- (b) In the event the Purchaser terminates the Contract in whole or in part, the Purchaser may procure, upon such terms and in such manner, as it deems appropriate, Materials/equipment or services similar to those undelivered and the Supplier will be liable to the Purchaser for any excess costs for such similar Materials/equipment or Services. However, the Supplier will continue performance of the Contract to the extent not terminated.

11. Termination for convenience:

- (i) The Purchaser, by written notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination will specify the termination is for the Purchaser's convenience, the extent to which performance of the supplier under the Contract is terminated, and date upon which termination becomes effective.

- (ii) However the Materials / equipment that are complete and ready for shipment within thirty (30) days after the supplier's receipt of notice of termination will be accepted by the Purchaser at the Contract terms and prices.

12. Warranty:

The material shall be guaranteed for satisfactory performance for a period of 18 months from the date of receipt of material/equipment at TLC stores or at site in good condition against defects proved to be due to faulty design of material/ workmanship. If during this period, any of the material is found defective they shall be repaired or replaced by you free of all costs to the TSTransco. To and fro freight charges shall also be to your account only.

13. Taxes:

Taxes as indicated in the price schedule at para (2) are applicable. You shall agree, that if, at any time, any GST reported to have been paid has not been paid, or a lesser amount has been paid, or on subsequent adjudication or appeal or revision it is decided that a lesser amount is payable, you shall refund such amounts irrespective of time lag.

14. Statutory Variations:

Any variation up or down in statutory levy or new levies introduced after tender calling date of this specification will be to the account of TSTransco, provided that in cases where delivery schedule is not adhered to by the supplier and there are upward variation/ revision after the agreed delivered date, the supplier will bear the impact of such levies and if there is downward variation / revision, TSTransco will be given credit to that extent.

Statutory variation if any allowed, it is allowed only once during delivery period, i.e. at the time of delivery of goods at factory. In case of sub-vendor items, taxes & duties are inclusive in tender price and no statutory variation is applicable.

In cases where the bidder assumes less tax rates and become lowest, upward variation of taxes will not be considered. In case of the bought out items for which the prices are quoted all-inclusive of taxes, statutory variation shall not be applicable

15. Dispatch Instructions:

The dispatch instructions for the equipment will be furnished separately on satisfactory scrutiny of routine/acceptance test certificates. The prices indicated in clause (2) above shall remain unaltered whatever be the destination.

16. Inspection:

After completion of manufacture of the equipment/ material, routine tests shall be performed as per relevant standards and requisite copies of test certificates shall be furnished to the purchaser. Various components of the equipment shall be routine tested in accordance with approved standards and manufacture standards.

As soon as the material/ equipment are ready the supplier will duly send intimation to TSTransco by post/fax and carry out the tests in the presence of the representative of TSTransco. The Supplier shall give at least 15 days advance intimation to enable the Purchaser to depute his representative for witnessing acceptance and routine tests. All charges in connection with inspection shall be borne by the supplier.

The equipment should not be dispatched without final inspection of the tests, approval of test certificates and issue of specific dispatch instructions or specific waiver thereof from this office. The equipment shall reach the destination store/site within three weeks of issue of Dispatch Instructions.

17. Contract Drawings:

Three sets of the detailed drawings/GTP along with soft copy of the equipment ordered giving full particulars of sectional views to give a clear idea of construction and working of the equipment shall be furnished for approval. Approval by TSTRANSCO to the supplier's drawings shall not relieve the supplier of his responsibility for correctness thereof or from results arising out of error or omission therein or from any obligation or liability under the contract. Any supplementary drawings necessary to permit the complete design of the installation prior to receiving the equipment shall also be supplied. Within two weeks of approval, six sets of all approved drawings and soft copy of drawings shall be furnished. One set of drawings and instruction manuals along with soft copy shall be sent along with each equipment at the time of dispatch. Copies of the drawings and manuals shall also be sent to other offices as indicated below.

Consignee	:	One set of approved drawings per consignee
Two Sets	:	Concerned Executive Engineer
To this office	:	Six sets.

18. Erection, Operation & Maintenance Manuals:

Erection, operation and maintenance manuals along with soft copy shall be supplied as per distributions given below giving detailed instructions with illustrations along with the equipment. They shall contain clear recommended schedule of maintenance for the guidance

of the operating staff. Any items requiring the special attention of the operation engineer should be highlighted.

Consignee	:	One set per consignment
Concerned Executive Engineer	:	Two sets
To this office	:	One set

These shall be sent to the Divisional Engineers / Executive Engineers concerned.

19. Completeness of Contract:

All minor accessories that are normally necessary for satisfactory and efficient operation of the equipment shall be supplied by you free of cost to the TSTransco whether these are specifically mentioned or not in the specification, your tender schedules or in this purchase order and the equipment shall be complete in itself.

20. General Conditions of Contract:

Except in so far as it is provided otherwise in this contract, you shall abide by the terms and conditions appended to the specification. Except as specifically accepted in this order the terms and conditions mentioned in your quotation under reference are not accepted.

21. Risk:

The risk in the property is entirely yours till the goods are received in good condition at the destination.

22. Packing:

Each equipment shall be securely packed separately in such a manner as to withstand rough handling during rail and road transit upto site and as per latest IS/BSS/IEC.

23. Material & Workmanship:

All the materials shall be of the best class and shall be capable of satisfactory operation in the tropics under service conditions without distortion or deterioration. No welding or filling or plugging of defective parts shall be permitted, unless otherwise specified they shall conform to the requirement of the appropriate Indian, British or American standards (where a standard specification covering the material in question has not been published the standards of the American society for testing of materials should be followed).

The entire design and construction shall be capable of withstanding the several stresses likely to occur in actual services and of resisting rough handling during transport.

24. Insurance:

As insurance charges are included in your prices you should cover the equipment against transit risks and also for further period of 45 days towards storage from the date of receipt of

equipment at site. It is entirely your responsibility for arranging the insurance through your underwriters. The damages and shortages will be intimated to you as stipulated in purchase order and you shall arrange for replacement/repairs immediately without awaiting settlement from insurance authorities.

25. Interchangeability:

All similar equipment and removable parts of similar equipment shall be interchangeable with each other.

26. Spares:

You shall supply any spares required for the equipment that will be supplied under this order, whenever called upon to do so at fair prices and at the TSTransco's standard terms of payment within a period not exceeding the deliveries accepted therein.

27. Progress Reports:

You shall furnish the program of works and progress reports on the manufacture of equipment to this office every month in triplicate till the supplies are completed.

28. Correspondence:

- a) Your acknowledgement of this order and all correspondence of general or technical nature shall be addressed to the Chief Engineer/P&MM, TSTransco, Vidyut Soudha, Hyderabad –500 082.
- b) All correspondence regarding dispatches, payments and any other field matters shall be addressed to the concerned paying officer. Copies of such correspondence shall be marked to the concerned Superintending Engineer and to the Chief Engineer/P&MM, TSTransco, Vidyut Soudha, Hyderabad –500 082. Copies of the correspondence regarding payments should also be marked to the Executive Director/Finance, TSTransco, Vidyut Soudha, Hyderabad –500 082.
- c) You shall submit invoices for materials directly to the paying officer.

29. Jurisdiction:

All and any disputes or differences arising out of or touching this order shall be decided only by courts or tribunals situated in Hyderabad or Secunderabad cities. No suit or other legal proceedings shall be instituted elsewhere.

30. Supervision of erection, testing and commissioning:

You have to provide services of qualified personnel for supervision of erection, testing at site and commissioning of the equipment wherever required. The above services, if requested for, should be provided at free of Cost.

31. Acknowledgement:

Please acknowledge the receipt of this purchase order with your confirmation of its acceptance by you and the extra copy enclosed may please be returned with your signature in token of your acceptance.

Encl.: Annexure (GTP)

Yours faithfully,

Sd/-

Chief Engineer/P&MM

(Acting for and on behalf of TSTRANSCO)

WE ACCEPT THE TERMS AND CONDITIONS OF THIS PURCHASE ORDER

SIGNATURE OF THE CONTRACTOR
WITH SEAL AND DATE

Copies to:

The Executive Director/Finance/TSTransco/Vidyut Soudha/Hyderabad.

The Chief Engineer/Transmission/TSTransco/Vidyut Soudha/Hyderabad.*

The Superintending Engineer/Transmission/TSTransco/Vidyut Soudha/Hyderabad.

The Superintending Engineer/OMC/Metro-Central/TSTransco/2nd Floor,132kV NIMS GIS SS premises/Erramanzil/Panjagutta/Hyderabad -82

The Superintending Engineer/Quality Control/ Vidyut Soudha/Hyderabad.

The SAO/Pay & accounts/TSTransco/Vidyut Soudha/Hyderabad along with Form-40.

The SAO/Metro-Central/TSTransco/2nd Floor, 132kV NIMS GIS SS premises/ Erramanzil/ Panjagutta/Hyderabad -82.

The Divisional Engineer/Transmission & Stores/Metro/Erragadda/ Hyderabad, 500 045.

The AEE/Construction Stores/TSTransco/Erragadda/Hyderabad.

This order is placed against the indents indicated below:

Sl. No.	Indent Reference	Description of material	Qty in Nos.	Required for
1	U.O. No. CE(Tr)/SE(Tr)/ DE-SS/ADE1/ F. Rolling stock19-20/D.No.782/19, Dt:25.11.2019	220kV Current Transformers (2400-1600-800/1-1-1, 2-1,2-1)A	20	RMI & Rolling stock for the FY 2019-20 & 2020-21
2		220kV Current Transformers (1200-1000-800/1-1-1-1-1) A	10	
3		220kV Current Transformers (800-600-400/1-1-0.5, 0.75,1-0.5, 0.75,1-1) A	10	
4		220kV Current Transformers (500-300/1-0.5775, 0.66,1-0.375, 0.625,1-0.375, 0.625,1-1) A	10	
5	U.O. No. CE(Tr)/SE(Tr)/ DE-SS/ADE2/ F. Tr.SS.A2.2438/19,D.No.979/19, Dt:25.02.2020		03	Augmentation at 220kV Gachibowli SS

* Copy of this PO is available on <http://www.tstransco.in/>

ANNEXURE

GUARANTEED TECHNICAL PARTICULARS FOR 220kV CURRENT TRANSFORMERS

Item-1: 220kV Current Transformers (2400-1600-800/1-1-1, 2-1,2-1)A

Item-2: 220kV Current Transformers (1200-1000-800/1-1-1-1-1) A

Item-3: 220kV Current Transformers (800-600-400/1-1-0.5, 0.75,1-0.5, 0.75,1-1) A

Item-4: 220kV Current Transformers (500-300/1-0.5775, 0.66,1-0.375, 0.625,1-0.375, 0.625,1-1) A

Sl. No.	Description	Rating/Details			
1	Type of Tank/Installation/Sealing:	Live Tank CT / Outdoor/ Hermetically Sealed			
2	Type of mounting	Structure Mounted			
3	Manufacturer's Name and address and Country	M/s. CG Power and Industrial Solutions Limited, Nasik.			
4	Conforming to standard	IS: 16227, IEC:61869-1&2, IS:2705			
5 a)	Primary and Secondary winding made out of (To be mentioned by the manufacturer as per design)	Primary= Aluminium Secondary = Copper			
i)	Primary windings: Design density for short circuit current Conductivity of metal used (To be mentioned by the manufacturer as per design)	< 1 A/sq.mm at rated current. < 120 A/ sq.mm at STC			
		Item-1	Item-2	Item-3	Item-4
b) i)	Area of cross section of primary winding (To be mentioned by the manufacturer as per design)	4950 sq.mm	1963 sq.mm		
ii)	Area of cross section of secondary winding (To be mentioned by the manufacturer as per design)	1.167 sq.mm (minimum)			
c)	Material used for providing secondary terminals (To be mentioned by the manufacturer as per design)	Copper			
6	Rated primary voltage (kV rms)	220kV			
7	Rated highest voltage (kV rms) Um of the system	245kV			
8	Rated frequency (Hz)	50 Hz			
		Item-1	Item-2	Item-3	Item-4
9	Rated primary current (A)	2400A	1200A	800A	500A
10	Rated secondary current (A)	1A			
11	Ratio taps (on secondary side only)	Secondary Side only			
12	Class of insulation				
i)	Primary winding	Class “A”			
ii)	Secondary Winding	Class “H”			
13	Seismic acceleration (g)				
i)	Horizontal	0.5g Horizontal,			
ii)	Vertical	0.3g Vertical			
14	RIV at 1.1 x Um/Root3 (micro volts)	< 1000 μV			

Sl. No.	Description	Rating/Details
15	Tank details	
i)	Material	Aluminium
ii)	Coating	Natural Finish
iii)	Thickness	3 mm (min)
16	Dielectric withstand values of external & internal insulation (for each type)	External Insulation – 460kV Internal Insulation - 5kV
17	Clamps and connectors made of and confirming to standard	Aluminium Die Casted
18	Lugs material used for terminations	Copper
19	Hardware exposed to atmosphere, all other bolts & Nuts and washers	Shall be of SS / HGD
20	Porcelain housing and its make (Modern, CJI, IEC, ABI, Ravikiran)	Modern, CJI, IEC, ABI, Ravikiran
21	Sealing (Nitrogen gas cushion) & Pressure	CTs are totally Oil finned, N2 gas cushion is not there in CGPISL CT design.
22	Instrument security factor	< 5
23	Whether test tap provided	Yes
24	Guaranteed temperature rise	55 degree
25	Tan delta Value measured at 5KV,10KV and 30%,70%,100%,110% of $U_m/\text{root3}$	Same shall be mentioned in CT Test Reports.
26	Acceptable partial discharge level	
i)	at $1.2 \times U_m/\text{Root3}$ is <5pC	< 5 pC
ii)	at U_m is <10pC	< 10 pC
27	Rated short time withstand current & duration (kA rms) I_{Sc}	40kA for 1 Sec.
28	Rated dynamic withstand current (kAp) I_{Dy}	100kAp
29	Rated continuous thermal current	120%
30	Rated extended primary current	120%
31	1.2/50 micro-second impulse withstand voltage (kVp)	+ / - 1050kVp
32	One minute power frequency withstand voltage (kV rms) of primary winding (Dry & Wet)	460 kV
33	One minute power frequency withstand voltage of secondary winding (kV rms) (Dry & Wet)	3 kV
34	Minimum total creepage distance of insulator bushing (mm) 25mm/kV or as per requirement)	6125 mm@ 25mm/kV
35	Mechanical loading on primary winding terminals	
i)	Horizontal	350kgf (type tested for 1 min)
ii)	Vertical	350kgf (type tested for 1 min)

Sl. No.	Description	Rating/Details			
36	Details of Cores				
		Item-1	Item-2	Item-3	Item-4
i)	Current Ratios A/A	As per Table-I	As per Table-II	As per Table-III	As per Table-IV
ii)	Output burden (VA)				
iii)	Class of accuracy				
iv)	Accuracy limit factor				
v)	Min. knee point voltage (kpV)				
vi)	Secondary resistance (corrected to 75° C)				
vii)	Max. exciting current at 20% of Knee point voltage 50% of Knee point voltage 100% of Knee point voltage				
viii)	Application				
ix)	Core material used				
	a) for Protection core	CRGO/ Equivalent High Permeability material			
	b) for Metering core	NANO Crystalline			
		Item-1	Item-2	Item-3	Item-4
x)	Area of cross section of core	<u>Core-1,2,3,4 :</u> 29cm² <u>Core 5:</u> 4.8 cm²		<u>Core-1,2:</u> 65.3cm² <u>Core-3,4 :</u> 26.7cm2 <u>Core 5:</u> 4.8 cm²	<u>Core 1:</u> 19.9 cm2 <u>Core-2:</u> 17 cm² <u>Core-3,4:</u> 34 cm2 <u>Core 5:</u> 9.3 cm²
xi)	Flux density at rated primary current and rated burden.	< 1.7T			
xii)	Secondary winding gauge	18 SWG (Min)			
37	Insulating oil				
i)	Type (Paraffinic/Napthenic)	Napthenic Based			
ii)	Standard	IS: 335 ,			
		Item-1	Item-2	Item-3	Item-4
iii)	Qty. (in Litres or Kg.) (To be mentioned by the manufacturer as per design)	210 ± 10% kg	200 ± 10% kg	210 ± 10% kg	200 ± 10% kg
38	Total Weight (Kg.) (To be mentioned by the manufacturer as per design)	850 ± 10% kg	800 ± 10% kg	850 ± 10% kg	800 ± 10% kg
39	Overall dimensions (To be mentioned by the manufacturer as per design)	As per approved drawing.			
40	Whether all seals are of “O” ring type	Yes			

Sl. No.	Description	Rating/Details
41	Whether all “O” Rings are fixed in machined grooves with adequate space for compression	Yes
42	Whether the main hollow insulator has the flanges cemented at both ends	Yes

Sd/-
Chief Engineer/P&MM

ANNEXURE

TABLE – I

Requirements for 245kV Current Transformers (2400-1600-800/1-1-1,2-1,2-1)A

Core No.	Application	Current ratio	Output burden (VA)	Accuracy class	Minimum knee point voltage	Maximum C.T secondary winding resistance (ohms) at 75 deg. C	Maximum exciting current in mA at knee point voltage
1	OC / EF and LBB Protection	2400-1600-800/1	---	PS	2400 volt at 2400/1A 1600 volt at 1600/1A 800 volt at 800/1A	10 @ 2400/1 8 @ 1600/1 4 @ 800/1	30 @ 2400/1
2	Spare	2400-1600-800/1	---	PS	2400 volt at 2400/1A 1600 volt at 1600/1A 800 volt at 800/1A	10 @ 2400/1 8 @ 1600/1 4 @ 800/1	30 @ 2400/1
3	Bus diff	2400-1600-800/1,2	---	PS	2000 volt at 2400/1A 1600 volt at 1600/1A 800 volt at 800/1A	10 @ 2400/1 8 @ 1600/1 4 @ 800/1	30 @ 2400/1
					1200 volt at 2400/2A 800 volt at 1600/2A 400 volt at 800/2A	6 @ 2400/2 4 @ 1600/2 2 @ 800/2	30 @ 2400/2
4	Spare	2400-1600-800/1,2	---	PS	2000 volt at 2400/1A 1600 volt at 1600/1A 800 volt at 800/1A	10 @ 2400/1 8 @ 1600/1 4 @ 800/1	30 @ 2400/1
					1200 volt at 2400/2A 800 volt at 1600/2A 400 volt at 800/2A	6 @ 2400/2 4 @ 1600/2 2 @ 800/2	30 @ 2400/2
5	Metering	2400-1600-800/1	20 VA	0.2S	---	---	---

TABLE – II

Requirements for 245kV Current Transformers (1200-1000-800/1-1-1-1-1)A

Core No.	Application	Current ratio	Output burden (VA)	Accuracy class	Accuracy Limit factor	Minimum knee point voltage	Maximum C.T secondary winding resistance (ohms) at 75 deg. C	Maximum exciting current in mA at knee point voltage
1	Bus Bar Diff Protection	1200/1	-	PS	-	1200 V	6	30mA @1200/1A
		1000/1				1000 V	5	
		800/1				800 V	4	
2	Bus Bar Diff Protection	1200/1	-	PS	-	1200 V	6	30mA @1200/1A
		1000/1				1000 V	5	
		800/1				800 V	4	
3	Metering	1200/1	20VA	0.2S	-	-		-
		1000/1						
		800/1						
4	Trans Back up/ Line Protection Main-II	1200/1	-	PS	-	1200 V	6	30mA @1200/1A
		1000/1				1000 V	5	
		800/1				800 V	4	
5	Trans Back up/ Line Protection Main-I	1200/1	-	PS	-	1200 V	6	30mA @1200/1A
		1000/1				1000 V	5	
		800/1				800 V	4	

TABLE – III

Requirements for 245kV Current Transformers (800-600-400/1-1-0.5, 0.75, 1-0.5, 0.75, 1-1) 5 Cores

Core No.	Application	Current ratio	Output burden (VA)	Accuracy class	Accuracy Limit factor	Minimum knee point voltage	Maximum exciting current in mA at knee point voltage
1	Distance Protection	800/1	-	PS	-	100I(R _{CT} +20)	30mA @800/1A
		600/1					
		400/1					
2	Distance Protection	800/1	-	PS	-	100I(R _{CT} +20)	30mA @800/1A
		600/1					
		400/1					
3	Bus Bar Diff Protection	800/0.5,0.75,1	-	PS	-	80I(R _{CT} +10)	30mA @800/1A
		600/0.5,0.75,1					
		400/0.5,0.75,1					
4	Bus Bar Diff Protection	800/0.5,0.75,1	-	PS	-	80I(R _{CT} +10)	30mA @800/1A
		600/0.5,0.75,1					
		400/0.5,0.75,1					
5	Metering	800/1	20	0.2S	-	-	-
		600/1					
		400/1					

TABLE – IV

Requirements for 245kV Current Transformers (500-300/1-0.66,0.5775,1-0.375,0.625,1-0.375,0.625,1-1)A

Core No.	Application	Current ratio	Output burden (VA)	Accuracy class	Accuracy Limit factor	Minimum knee point voltage	Maximum exciting current in mA at knee point voltage
1	O/L. E/L Protection	500/1	20	5P	20	-	-
		300/1					
2	T/F Diff. Protection	500/0.66,0.5775,1	-	PS	-	40I(R _{CT} +10)	30 mA @ 500/1
		300/0.66,0.5775,1					
3	Bus Bar Diff Protection	500/0.375,0.625,1	-	PS	-	80I(R _{CT} +10)	30 mA @ 500/1
		300/0.375,0.625,1					
4	Bus Bar Diff Protection	500/0.375,0.625,1	-	PS	-	80I(R _{CT} +10)	30 mA @ 500/1
		300/0.375,0.625,1					
5	Metering	500/1A	20	0.2S	-	-	-
		300/1A					