

BILL OF QUANTITY CUM PRICE SCHEDULE FOR TESTING & COMMISSIONING WORKS (ANNEXURE- I)

Name of the Work:-Rate contract for testing and commissioning work of switchyard equipments and bays at various project sites of BHEL (TBG) for Two years					
Tender Specification No. : TBSM/TESTING & COMMISSIONING/RATE CONTRACT/TENDER, Date: 24.02.2022					
A. Main Item					
Sl. No.	Description	Unit	Qty	Unit Rate (Rs.)	Amount (Rs.)
1	Team of Engineers (01 Sr.Engineer & 01 Engineer)	Nos. of Days / Team	500	2800	1400000
2	Single Engineer	Nos. of Days / Mandays	0	2000	0
3	Skilled Electrician	Nos. of Days / Mandays	0	1200	0
4	Numerical relay testing Engineer	Nos. of Days / Mandays	0	2200	0
5a.	Accommodation Charges (Team of engr.available at site)	Nos. of Days / Team	400	1100	440000
5b.	Accommodation Charges (Electricians)	Nos. of Days / Mandays	0	700	0
6	Local Transport Charges (all team/person available at site)	Nos. of Days / Team	400	600	240000
Total Amount (Rs.)					2080000
Note:-					
1	The above charges should be inclusive of testing equipment like Digital Multimeter, Clamp meter,Megger,workman compulsory tool kit and General test equipments only.				
2	The above man day rate will be payable from the day contractor's Engineers report to our project site, till the day they leave site including holiday (National) at site. Above man day rate shall be applicable for job carried out in weekly/ local holidays. If no work carried out on any weekdays/sundays no payment shall be applicable for that days.				
3	The above mentioned quantites are only for evaluation purpose the quatity may be varies from -30% to +30% depending upon requirement.				
4	The contract will be awarded on overall L1 basis.				
5	The prices to be quoted by bidder should be exclusive of all taxes & duties.				
Sl.No.	Description	Unit	Qty		
A. Workman Compulsory Tool Kit (per team)					
1	Allen Key Set	No.	1		
2	Screw driver Set	No.	1		
3	Voltage Tester	No.	1		
3	Continuty Tester	No.	1		
4	Wire Stripper	No.	1		
5	Crimper	No.	1		
6	Banana clip	Nos.	6		
7	Crocodile clip	Nos.	6		
B. General Test Equipments					
		Unit	Qty		
1	Analog multimeter	No.	1		
2	Digital multimeter	Nos.	2		
3	Clamp on meter 0-3000A	No.	1		
4	Leakage current meter (0-1A)	Nos.	2		
5	Primary Injection Kit 3000A	No.	1		
6	Variac(30A) 1 ph/ 3 ph	No.	1		
7	Variac(8A) 1ph/3 ph	No.	1		
8	Contact Resistance Measurement kit(100/200A)	No.	1		
9	Three pole timer(0-999msec)	No.	1		
10	Single pole timer(0-9999ms)	No.	1		
11	Step up transformer(3/5KV)	No.	1		
12	Secondary Injection Relay kit (0-12A)	No.	1		
13	DC power pack (0-10A)	No.	1		
14	Earth Resistance meter	No.	1		
C. Special Test Instruments					
Sr. No.	Description	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)
1	a) Testing of 3-Phase Circuit Breaker with CB Operational Analyser with DCRM for 132kV and below	Nos.	30	11000	330000
	b) Testing of 1-Phase Circuit Breaker with CB Operational Analyser with DCRM for 220kV and above	Nos.	10	9000	90000

2	a) Testing of 3-Phase Circuit Breaker with Operational Analyser without DCRM for 132kV and below	Nos.	20	8000	160000
	b) Testing of 1-Phase Circuit Breaker with Operational Analyser without DCRM for 220kV and above	Nos.	10	7300	73000
3	a) SF6 Gas leakage detector for 132kV and below (3-Phase Circuit Breaker)	Nos.	20	6500	130000
	b) SF6 Gas leakage detector for 220kV and above (1-Phase Circuit Breaker)	Nos.	5	7300	36500
4	a) Dew point kit for 132kV and below (3-Phase Circuit Breaker/Transformer)	Nos.	10	3200	32000
	b) Dew point kit for 220kV and above (3-Phase Circuit Breaker/Transformer)	Nos.	10	3700	37000
	c) Dew point kit for 132kV and below (1-Phase Circuit Breaker/Transformer)	Nos.	10	2300	23000
	d) Dew point kit for 220kV and above (1-Phase Circuit Breaker/Transformer)	Nos.	10	2600	26000
5	a) Testing with Automatic Capacitance & Tan Delta test Kit with operator for 132kV and below (Min. 24 points/Day)	Days	5	10000	50000
	b) Testing with Automatic Capacitance & Tan Delta test Kit with operator for 220kV and above (Min. 24 points/Day)	Days	50	10000	500000
6	a) Testing of Current Transformer with CT Analyser for 132kV and below (Min.10 Nos. CT /Day)	Nos.	100	9000	900000
	b) Testing of Current Transformer with CT Analyser for 220kV and above (Min.06 Nos. CT /Day)	Nos.	100	11000	1100000
7	Automatic Relay Test kit Omicrom CMC 356 or equivalent	Days	100	7900	790000
8	Frequency Response Analysis (FRA Kit+ Testing Operator)	Nos of Equipment (Reactor/ Transformer) with test report	10	14000	140000
9	Thermo Vision Camera	Days	2	12000	24000
10	Oil BDV kit	Days	0	4300	0
11	Hi-pot kit(60/70KV ac)	Days	10	6500	65000
12	Battery Discharging Resistor	Set	10	5300	53000
13	Transformer Winding Resistance Kit	Set	10	3000	30000
14	Transformer Ratio test kit	Set	10	3000	30000
Total Amount (Rs.)					4619500

Note:

- Charges in respect of instrument specified at sl. No. 5,7,8,9 will be payable for days instruments are actually used at site.
- Above prices are exclusive of all taxes in India
- BHEL will pay to & fro train fare (if levied) in respect of instruments

D. Additional Testing options

Sr. No.	Description	Unit	Quantity	Unit Rate (Rs.)	Amount (Rs.)
1	Complete testing of Transformer including IR, Vector Group, Magnetising current, Magnetic balance, Turns ratio, Winding resistance, C& Tan Delta, SFRA, dew point etc.	Per transformer (For 100MVA and above transformer)	5	76800	384000
Total Amount (Rs.)					384000
Grand Total -(A+C+D) (Excluding all Taxes & Duties)					7083500

Note:

- Charges mentioned above is inclusive of all charges e.g. manpower, kit and manpower transportation, accommodation, test instrument charges.
- All cabling and terminations should be done beforehand. However correctness of terminations should be verified by testing agency through continuity. Any mistakes on behalf of terminations or any modifications required should be attended by TBG.