

TENDER SPECIFICATION

NO: BHE/PW/PUR/PIPVG-ELE/738

FOR

Handling at Storage Yard/ Stores, Transportation to Site, Calibration, Erection, Testing, Commissioning, Final Painting and Handing Over of Electrical Works of 2x351.43 MW Combined Cycle Power Plant comprising of HRSG, Frame 9 FA Gas Turbine, Steam Turbine and their Auxiliaries, Piping etc.

AT

GSPC PIPAVAV POWER COMPANY LIMITED

VILL-KOVAYA (NEAR PIPAVAV), TALUKA: RAJULA,

DIST- AMRELI (GUJARAT)

PART II - PRICE BID



BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

POWER SECTOR - WESTERN REGION

345, KINGS WAY - NAGPUR 440 001

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EARNEST MONEY DEPOSIT: RS. : Rs.2, 00,000.00 (Rs. TWO LAKH ONLY)

LAST DATE AND TIME FOR:

THESE TENDER DOCUMENTS CONTAINING PART-I TECHNICAL BID AND PART-II PRICE BID, ARE ISSUED TO:

M/s.....

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(THESE TENDER DOCUMENTS ARE NOT TRANSFERABLE)

FOR BHARAT HEAVY ELECTRICALS LIMITED

Dy. GENERAL MANAGER (PURCHASE)

PLACE: NAGPUR

DATE :

BHARAT HEAVY ELECTRICALS LIMITED : PSWR : Nagpur
T.S. No. BHE/PW/PUR/PIPVG- ELE738
RATE SCHEDULE (Page 1 of 11)

SN	DESCRIPTION	TOTAL QTY.	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
AA	TRANSFORMERS				
A1	Gas Turbine Generator transformer 287 MVA , 230/15.75 KV, with ONAN /ONAF cooling, OLTC ,Neutral side CTs,HV/LV/HVN bushings, bushing CTs, Radiators, Cooling fans, conservators, RTC Control panel, Marshalling Panel, Piping and loose accessories. Dimensions: 16100x8260x7805mm, Shipping Weight (Gas Filled) -172MT approx. Oil quantity -64500 Litres approx..	2	Nos		
A2	Steam Turbine Generator transformer 160 MVA, 230/15.75 KV , with ONAN /ONAF cooling, OLTC ,Neutral side CTs,HV/LV/HVN bushings, bushing CTs, Radiators, Cooling fans, conservators, RTC Control panel, Marshalling Panel, Piping and loose accessories. Dimensions: 14200x8500x7350mm, Shipping Weight (Gas Filled) -125MT approx., Oil quantity -44830 Litres approx..	2	Nos		
A3	Unit Auxiliary transformer 40 MVA,15.75/6.9 kV, ONAN Cooling and loose accessories.	2	Nos		
A4	6.6/0.433 KV 2.5 MVA Station service transformer and accessories	2	Nos		
A5	6.6/0.433 KV 2.0 MVA Station service transformer and accessories	4	Nos		
A6	6.6/0.433 KV 1.6 MVA Station service transformer and accessories	12	Nos		
BB	ISOLATED PHASE GENERATOR BUSDUCT OF GTG/STG AND TAP OFF BUS DUCT TO UATs COMPROSING OF THE FOLLOWING				
B1	15.75 KV GTG IPBD -Total main run 225 mtrs & total tapoff run 120 mtrs. GTG/STG Isolated phase bus duct with Aluminium conductor and aluminium enclosure, with cubicle housing NGTs, CTs,PTs, LA and SPs, from generator terminal to generator circuit breaker. The tap- off bus duct form main bus duct to the UAT. Providing canopy over open bus duct area Including structural steel support, hot air blower skid along with accessories etc. Detail scope of work as specified in tender specification.	2	set		

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SN	DESCRIPTION	TOTAL QTY.	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
B2	11KV STG IPBD -Total main run 240 mtrs & total tapoff run 30 mtrs. GTG/STG Isolated phase bus duct with Aluminium conductor and aluminium enclosure, with cubicle housing NGTs, CTs,PTs, LA and SPs, from generator terminal to generator circuit breaker. The tap- off bus duct form main bus duct to the UAT. Providing canopy over open bus duct area Including structural steel support, hot air blower skid along with accessories etc. Detail scope of work as specified in tender specification.	2	set		
CC	NON SEGREGATED LV 415 VOLT BUSDUCKS / NEUTRAL GROUNDING TRANSFORMER / NEUTRAL GROUNDING RESISTANCE Transportation of material from Stores/ storage yard to erection site, Erection, Assembly, Testing & Commissioning of NSP BUS DUCTS for interconnection between service transformer and LT MCC.				
C1	LT Busduct, 3000/2500/1600 A 415V, Non-Phase segregated form LV terminals of oil filled LT transformer to switchgear.	16	Set		
C2	6.6 KV NGR, 9.96 OHM, 400 A	4	nos.		
DD	SEGREGATED PHASE BUS DUCT 6.6 kV (Lump sum rate)				
D1	Transportation from stores / storage yard to erection site, assembly, erection, welding, testing & commissioning of SEGREGATED PHASE BUS DUCT (6.6 KV) for interconnection of UAT TO 6.6 KV UNIT SWITCHGEAR , STATION SWITCHGEAR AND TIE DUCTS BETWEEN SWGR , Approx 95 Enclosures of size (450 (H) X 1350 (B) X 3.5 tk (Total length 280 Mtrs (Approx), along with all Structures and Misc accessories and Other details as described in the Tender Specification.	2	set		
EE	GENERATOR CIRCUIT BREAKER				
E1	GT Circuit Breaker for Gas Turbine ,Isolated Phase set of three single phase breaker pole assembly along with hydraulic control unit ,beam/floor mounted with mounting brackets, supports and control panel etc. Dimension 4000x3000x2500, approximate weight: 7 MT	2	Set		
FF	AVIATION LAMP AND LIGHTNING ARRESTOR PACKAGE COMPRISING OF Four numbers of Aviation Lamp assembly, Lightning arrestor, Approximately 100 mts of GI conduits, two numbers of JBs, Switch fuse units and its accessories	1	sets		

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SN	DESCRIPTION	TOTAL QTY.	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
GG	Generator Starting Frequency Converter system consist of LCI panels, AC reactors, DC reactors, LCI transformers, AC breaker cubicle HMI station and printers of LCI and networking interface and associated accessories	2	Set		
HH	GTG -Excitation system consist of -REG Cubicle (1150x1200x2355),FS Cubicle (1150x1200x2355),TY1& TY2 Cubicle (680x1200x2355),RTC Cubicle (1950x1450x2355)	2	Set		
II	STG -Excitation system consist of -REG Cubicle (1150x1200x2355),FS Cubicle (1150x1200x2355),TY1& TY2 Cubicle (680x1200x2355),RTC Cubicle (1950x1450x2355)	2	Set		
JJ	GENERATOR, GT, ST & UAT PROTECTION & METERING PANELS, ETC				
J1	Generator Relay panel for GTG 2600(H)x1200(W)x1200(D), Wt.600Kg. Each	4	Nos.		
J2	Generator Relay panel for STG 2600(H)x1200(W)x1200(D), Wt.600Kg. Each	4	Nos.		
J3	DC motor starter panels, etc (DC JOP, DC EOP, Seal oil panel), including resistance boxes. Approx weight 0.5 MT each.	6	Nos		
KK	HT SWITCHGEARS				
K1	6.6 KV Unit Switchboard 1CA & 1CB : consists of 36 panels. Dimension of EACH PANEL is approx 2692(h) x 1831(d) x 820(w) mm and Approx Weight 1500Kg. per Panel.	1	set		
K2	6.6 KV Unit Switchboard 2CA & 2CB : consists of 34 panels (2CA- 18 panels & 2CB- 16 panels). Dimension of EACH PANEL is approx 2692(h) x 1831(d) x 820(w) mm and Approx Weight 1500Kg. per Panel.	1	set		
LL	LT SWITCHGEARS				
L1	415 V, 2500 A GTG PMCC-1DA. Approx. dimension 2430(H) X 1444(D) X 13600(W) mm, & WT. 11900 kg.	2	Nos.		

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SN	DESCRIPTION	TOTAL QTY.	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
L2	415 V, 1600 A STG PMCC-1DB/2DBApprox. dimension 2430(H) X 1444(D) X 13600(W) mm, & WT. 11900 kg.	2	Nos.		
L3	415 V, 400 A ST PMCC-1KA/1KB. Approx. dimension 2430(H) X 1444(D) X 8800(W) mm, & WT. 7700kg.	2	Nos.		
L4	415 V, 250 A HRSG MCC-1HA/2HA. Approx. dimension 2430(H) X 1444(D) X8000(W) mm, & WT. 7000kg.	2	Nos.		
L5	415, 3000A STATION SERVICE SWGR-0DA. Approx. dimension 2430(H) X 1444(D) X 7200(W) mm, & WT. 6300 kg.	1	Nos.		
L6	415, 3000A COOLING WATER SYSTEM PMCC-0DB. Approx. dimension 2430(H) X 1444(D) X 9600(W) mm, & WT. 8400 kg.	1	Nos.		
L7	415, 630A AC VENT. MCC-0SA/0SC. Approx. dimension 2430(H) X 1444(D) X 8800(W) mm, & WT. 7700 kg.	2	Nos.		
L8	415, 400A MISC. MCC -0SB/0SD. Approx. dimension 2430(H) X 1444(D) X 8800(W) mm, & WT. 7700 kg.	2	Nos.		
L9	415, 400A CHLORINATION PLANT MCC-0WA. Approx. dimension 2430(H) X 1444(D) X 8800(W) mm, & WT. 7700 kg.	1	Nos.		
L10	415, 2500A SEA WATER SERVICE PMCC-0SE. Approx. dimension 2430(H) X 1444(D) X 6400(W) mm, & WT. 5600 kg.	1	Nos.		
L11	415, 2500A RO PLANT PMCC-0SF. Approx. dimension 2430(H) X 1444(D) X 13600(W) mm, & WT. 11900 kg.	1	Nos.		
L12	220 STATION DCDB- 0FA. Approx. dimension 2430(H) X 1444(D) X 13600(W) mm, & WT. 11900 kg.	1	Nos.		

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SN	DESCRIPTION	TOTAL QTY.	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
L13	125V GT DCDB-1 -1FA/2FA. Approx. dimension 2430(H) X 1444(D) X 4800(W) mm, & WT. 4200 kg.	2	Nos.		
L14	125V GT DCDB-2 -1FB/2FB. Approx. dimension 2430(H) X 1444(D) X 800(W) mm, & WT. 700 kg.	2	Nos.		
L15	415V GT MCC (16000x1250x2430, 20 MT)	2	set		
MM	DC AND UPS SYSTEM				
M1	125 V DC System for Main contains 2 nos. 125 V DC Batteries #1&2(wt. 2500 kg each), 1 no. Dual FCBC charger # 1 (wt 540 kg)	2	set		
M2	125 V DC System for EOP contains 1 no. 125 V DC Battery EOP#2 (wt. 1500 kg each), 1 no. Dual FCBC charger # 2(wt 300 kg)	2	set		
M3	220 V DC System consisting 220 V Dual FCBC battery chargers, battery bank of 170 CELLS, 220V Ni-Cd, high discharge battery of min 640AH rating 1.14 ECV of 5 hrs discharge rate with all accessories & MS racks with anti-corrosive paint .	2	set		
NN	Power & Control Cables (Laying, glanding, dressing, clamping, termination & testing etc.)				
N1	HT Cable				
N1.1	1 core x 500 sqmm, 6.35/11KV Armoured	20000	Mtrs		
N1.2	3 core x 240 sqmm, 6.35/11KV Armoured	8500	Mtrs		
N2	LT POWER CABLE (Aluminium)				
N2.1	3c x10 sqmm - Al.	4000	meters		
N2.2	3c x 25 sqmm -Al.	7000	meters		
N2.3	3c x 50 sqmm -Al.	5000	meters		

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SN	DESCRIPTION	TOTAL QTY.	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
N2.4	3c x 95 sqmm -Al.	6000	meters		
N2.5	3C x185 sqmm - Al.	5000	meters		
N2.6	3.5C x 25 sqmm -Al.	25000	meters		
N2.7	3.5C x 50 sqmm -Al.	47000	meters		
N2.8	3.5C x 95 sqmm -Al.	6000	meters		
N2.9	3.5C x 185 sqmm -Al.	4000	meters		
N2.10	1C x 25 sqmm -Al	7000	meters		
N2.11	1C x 70 sqmm -Al	4000	meters		
N2.12	1C x 120 sqmm -Al	1000	meters		
N2.13	1C x 400 sqmm -Al	4000	meters		
N2.14	1C x 630 sqmm -Al	12000	meters		
N3	POWER CABLES (Copper)				
N3.1	2Cx2.5sqmm	19000	meters		
N3.2	3Cx2.5sqmm	40000	meters		
N3.3	5Cx2.5sqmm	25000	meters		
N3.4	1Cx25sqmm	4000	meters		
N3.5	1Cx70sqmm	4000	meters		

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SN	DESCRIPTION	TOTAL QTY.	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
N3.6	1Cx630sqmm	1000	meters		
N3.7	2C x 50 sqmm	1000	meters		
N3.8	3Cx16sqmm	6000	meters		
N3.9	3C X 35 sq. mm	8500	meters		
N3.10	3C X 95 sq. mm	1200	meters		
N3.11	3C X 150 sq. mm	3000	meters		
N3.12	3C X 240 sq. mm	3000	meters		
N4	CONTROL CABLES (PVC FRLS)				
N4.1	19C x 1.5 sqmm Cu.	8000	meters		
N4.2	12C x 1.5sqmm Cu.	20000	meters		
N4.3	7C x 1.5 sqmm Cu.	10000	meters		
N4.4	5C X 1.5 sqmm- Cu.	30000	meters		
N4.5	3C X 1.5 sq. mm- Cu.	20000	meters		
N4.6	2C X 1.5 sqmm- Cu.	20000	meters		
N4.7	5C X 2.5sqmm- Cu.	45000	meters		
N4.8	3C X 2.5 SQ. MM	8000	meters		

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SN	DESCRIPTION	TOTAL QTY.	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
OO	CABLE TERMINATION KIT - 6.35/11 kV Indoor Termination Kits for 6.35/11 kV, XLPE insulated, Armoured, Aluminium cable				
O1	1CX500 sq.mm	50	nos		
O2	3CX185 sq.mm	60	nos		
PP	CABLE TRAYS (with coupler plates, fasteners, clamps and fixing hardware) AND ACCESSORIES				
P1	600mm Ladder type tray	20000	M		
P2	450mm Ladder type tray	2000	M		
P3	300mm Ladder type tray	1000	M		
P4	150mm Ladder type tray	2000	M		
P5	600mm Perforated type tray	7000	M		
P6	450mm Perforated type tray	600	M		
P7	300mm Perforated type tray	400	M		
P8	150mm Perforated type tray	1000	M		
P9	100mm Perforated type tray	250	M		
P10	50mm Perforated type tray	1000	M		
QQ	PRE FABRICATED CABLE TRAYS ACCESSORIES				
Q1	HORIZONTAL TEE/BEND WITH COUPLER PLATES FOR LADDER TYPE CABLE TRAYS				
Q1.1	600mm Ladder Horizontal bend	120	nos		
Q1.2	450/300/150mm Ladder Horizontal bend	42	nos		

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SN	DESCRIPTION	TOTAL QTY.	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
Q1.3	600mm Ladder tee	90	nos		
Q1.4	450/300/150mm Ladder tee	60	nos		
Q2	VERTICAL TEE/BEND WITH COUPLER PLATES FOR LADDER TYPE CABLE TRAYS				
Q2.1	600mm Ladder Vertical Up/Down	60	nos		
Q2.2	450/300mm Ladder Vertical Up/Down	24	nos		
Q3	HORIZONTAL TEE/BEND WITH COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS				
Q3.1	600/450/300/150mm Perforated Horizontal bend	63	nos		
Q3.2	600/450/300/150mm Perforated Horizontal tee	30	nos		
Q4	VERTICAL TEE/BEND WITH COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS				
Q4.1	600/450/300mm Perforated Vertical Up/Down	30	nos		
Q5	HORIZONTAL CROSS WITH COUPLER PLATES FOR LADDER TYPE CABLE TRAYS				
Q5.1	600/450/300/150mm Ladder type cross	51	nos		
Q6	HORIZONTAL CROSS WITH COUPLER PLATES FOR PERFORATED TYPE CABLE TRAYS				
Q6.1	600/450/300mm Perforated type cross	27	nos		
Q7	REDUCER WITH COUPLER PLATE				
Q7.1	600-450/300mm Ladder type reducers	30	nos		
Q7.2	450-300mm Ladder type reducers	15	nos		

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SN	DESCRIPTION	TOTAL QTY.	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
Q7.3	300-150mm Ladder type reducers	7	nos		
Q7.4	600-450/300mm Perforated type reducers	14	nos		
Q8	FLEXIBLE CABLE TRAY SUPPORT				
Q8.1	Base plate for double support channel	1200	nos		
Q8.2	Base plate for single support channel	5000	nos		
Q8.3	Double support channel	2000	M		
Q8.4	Single support channel	15000	M		
Q8.5	Canti lever arm (C/A) – 600 mm	27000	nos.		
Q8.6	Canti lever arm (C/A) – 450 mm	2600	nos.		
Q8.7	Canti lever arm (C/A) – 300 mm	1400	nos.		
Q8.8	Canti lever arm (C/A) – 150 mm	3000	nos.		
RR	JUNCTION BOXES/LOCAL PB BOX/POWER DISTRIBUTION BOX (weather/flame-proof)				
R1	Junction boxes upto 48 way	108	Nos.		
R2	Junction boxes above 48 way	25	Nos.		
SS	EARTHING MATERIALS (Civil works for earth pits included)				
S1	65 x 10 GS Flat	20000	meters		
S2	25 x 6 GS Flat	4000	meters		
S3	25 x 3 GS Flat	3500	meters		
S4	20 mm dia. 1000 mm long GS rod	100	meters		

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SN	DESCRIPTION	TOTAL QTY.	UOM	UNIT RATE (Rs.)	TOTAL AMOUNT (Rs.)
S5	8 SWG Solid GI wire	2000	meters		
TT	Structural steel fabrication & installation	120	MT		
UU	COMMISSIONING SERVICES				
U1	Electric Actuators	50	Nos		
U2	Local Push Button Station (Type A/B/C/D)	240	Nos		
U3	Generator H.V. testing, Meggaring of Bushings & Accessories, resistance measurement, Meggaring including dry out of generator.	4	Set		
U4	Testing and commissioning of 6.6 KV and 2.4 KV HT motors including dryout	26	Nos		
U5	Testing and commissioning of 415 V LT motors including dry out	120	Nos		
	TOTAL			Rs.	

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