



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

TCN – 02

Ref: PSER:SCT:KGN-E664:TCN-02

Date: 28-04-2006

Sub	Tender change notice (TCN) 02.	
Job	Handling at site/ storage yard, transportation to site of work, pre-assembly, erection, testing, commissioning and handing over of electrical for boiler & TG of 3x500 MW Unit # 5, 6 & 7 at Kahalgaon STPP, Bihar.	
Ref	1.0	Tender no PSER:SCT:KGN-E664:06.
	2.0	BHEL's TCN-01 vide reference no PSER:SCT:KGN-E664:TCN-01, dated 25-04-06.

With reference to above, following points relevant to tender may please be noted and complied while submitting offer.

- 1.0 Clarifications to tender as per enclosed Annexure-1.
- 2.0 Revised price schedule (SCT-KGN-E664-VOLUME III-PRICE SCHEDULE, REV-1) which supersedes previous version (Rev-0).
- 3.0 All other terms & conditions shall remain unchanged.

Based on above offer shall be submitted as per revised price schedule format within due date, ie 05-05-06.

Thanking you,

Yours faithfully,
for BHARAT HEAVY ELECTRICALS LTD

Sr Manager/SCT

Encl: As above.

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)

POWER SECTOR EASTERN REGION, DJ-9/1, SALT LAKE CITY, KOLKATA-700 091

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ANNEXURE-1 TO TCN-02			
JOB Handling at site/ storage yard, transportation to site of work, pre-assembly, erection, testing, commissioning and handing over of electrical for boiler & TG sets of 3x500 MW Unit # 5, 6 & 7 at Kahalgaon STPP, Bihar.			
TENDER NO PSER:SCT:KGN-E664:06.			
SI no	Reference clause of tender	Bidder's query	BHEL's clarification
1.0	19.0, Vol-III	<p>Whether end termination of LT cables is within the scope of sub-contractor? If yes, please provide details with quantities.</p>	<p>Item description shall be read as 'LAYING OF LT POWER CABLE (UNARMoured)'. The scope of work includes laying, termination etc including supply of lugs.</p> <p>Yes. It depends on cable schedule. Individual cable lengths may approximately vary from 50 mtr to 500 mtr.</p>
2.0	20.0, Vol-III		<p>Item description shall be read as 'LAYING OF LT CONTROL CABLE (UNARMoured)'. The scope of work includes laying, termination etc including supply of lugs.</p>
3.0	29.1 - 29.14, Vol-III	<p>Detailis of size of double or single support channel, base plate etc.Please provide drawing if any. Further clarify whether weights mentioned are for individual equipment/item or for total quantity for 3 units.</p>	<p>The wight within bracket under equipment description corresponds to the quantity per unit. Further details will be furnished during execution.</p>
4.0	41.0 - 52.0, Vol-III	<p>Whether both supply and end termination are included in the scope of sub-contractor? Please furnish type of compression (single or double) Regarding supply of various lugs, whether same is included within the scope of sub-contractor.</p>	<p>Supply is in the scope of subcontractor as per the instruction of site engineer. Specification as per requirement & instruction of site engineer. Quoted rates shall be inclusive of supply of lugs upto 4 sqmm.</p>
5.0	53.0, Vol-III	<p>Please provide details of VFD</p>	<p>Details for various items are given from 53.1 - 53.7.</p>
6.0	54.0 - 58.0, Vol-III	<p>Please furnish details/ dimensions or weight of panel.</p>	<p>PI note dimensions (LxWxH) & weight as per following.</p> <p><u>LOAD COMMUTER INTERRUPTOR PANEL</u> 3679 mmx1450 mmx3480 mm (height includes 90 mm lifting beam and 1150mm silencer height); weight 3000 kg.</p> <p><u>ADAPTOR PANEL</u> 577 mmx1450 mmx2330 mm; weight 200 kg.</p> <p><u>COMMON CONTROL PANEL</u> 800 mmx1450 mmx2330 mm; weight 400 kg.</p> <p><u>OPERATOR & MONITORING STSTION</u> 600 mmx 600 mmx 1050 mm; weight 100 kg.</p> <p><u>CABLE LENGTH COMPENSATOR PANEL</u> 1000 mmx1000 mmx1450 mm; weight 150 kg.</p>
7.0	58.0 - 61.0, Vol-III	<p>Please provide rating of equipment including system voltage</p>	<p>VFD transformer - 11KV/ 2.3 KV AC. VCB - 2.3 KV AC. DC reactor - 3600 V DC.</p>

8.0	62.0 & 63.0, Vol-III	Please clarify whether weight mentioned is for individuals equipment or for total quantities	Weight is for individual equipment.
9.0	66.0 & 68.0, Vol-III	Please provide rating of LT and HT motors including scope of work. Also please clarify the whether the scope included only checking of alignment, no-load trial and IR value and checking of rotation of motors.	HT motor (FD) - 1400 KW. HT motor (PA) - 2750 KW. HT motor (ID) - 4286 KW. HT motor (BFP) - 10000 KW. HT motor (CEP) - 900 KW. HT motor (Mill) - 525 KW. Scope includes electrical testing & commissioning only.
10.0	GROUNDING SYSTEM	The BOQ cum rate schedule is under our study and we do not find scope for earthing station or earth pit. Please clarify.	Earth pit is not in contractor scope.

VOLUME - III
PRICE SCHEDULE, REV-1

HANDLING AT SITE/ STORAGE YARD, TRANSPORTATION TO SITE OF WORK, PRE-ASSEMBLY, ERECTION, TESTING, COMMISSIONING AND HANDING OVER OF ELECTRICAL FOR BOILER & TG SETS OF 3x500 MW UNIT # 5, 6 & 7 AT KAHALGAON STPP, BIHAR

TENDER DOCUMENT NO - PSER:SCT:KGN-E664:06

PREAMBLE

01	This preamble forms part of tender document and schedule of items. The tenderer should read this preamble carefully in rates for various items. Clauses under this preamble shall be read in conjunction with various volumes of tender as per NIT together with subsequent changes/ modifications etc thereto as applicable as on date of submission of price offer.
02	The work shall be carried out strictly as per specifications, description of the items in these schedule and / or engineer's instructions.
03	Items of work provided in this schedule but not covered in this specification shall be executed strictly as per instruction of the engineer.
04	Unless specifically mentioned otherwise in the tender document, the tenderer shall quote for the finished items and shall provide for the complete cost towards power, fuel, tools, tackles, equipment, constructional plants, temporary works, labour, dismantling of all temporary piping, structures, valves, pumps, tanks & other misc equipment, strengthening of roads/culverts/bridges etc including arranging all clearances etc required for carrying out different activities & tests, materials, levies, taxes, transport, layout, repairs, rectification, maintenance till handing over, supervisions, colonies, shops, establishments, overheads, profits and all incidental items not specifically mentioned but reasonably implied and necessary to complete the work according to the tender document and this schedule.
05	The rates quoted shall be inclusive of cleaning of site of any vegetation, dressing and leveling etc including fixing of grid pillars, benchmarks etc required for commencement of site activities. No separate payment will be made towards the same.
06	Rates shall be quoted in figures and in words in clear legible writing. No overwriting is allowed. All scoring and cancellations should be countersigned and in case of illegibility the interpretation of engineer shall be final. All entries shall be in English.
07	The tender shall be deemed to have visited site and made himself aware of all the site conditions, studied the specifications and details of work to be done within the time schedule attached and to have acquainted himself of the conditions prevailing at site.
08	Engineer's decision shall be final and binding on the contractor regarding clarification of items in the schedule with respect to the other sections/volumes of the contract.

VOLUME-III PRICE SCHEDULE, REV-1							
HANDLING AT SITE/ STORAGE YARD, TRANSPORTATION TO SITE OF WORK, PRE-ASSEMBLY, ERECTION, TESTING, COMMISSIONING AND HANDING OVER OF ELECTRICAL FOR BOILER & TG SETS OF 3x500 MW UNIT # 5, 6 & 7 AT KAHALGAON STPP, BIHAR							
TENDER DOCUMENT NO - PSER:SCT:KGN-E664:06							
BOQ CUM RATE SCHEDULE							
SL NO	EQUIPMENT DESCRIPTION	GROUP	QTY PER UNIT	TOTAL QTY FOR 3 UNITS	UNIT	UNIT RATE (Rs)	AMOUNT FOR 3 UNITS (Rs)
(1)	(2)	(3)	(4)	(6) =(4)x(3)	(5)	(7)	(8) =(7)x(6)
1.0	AUXILIARY CONTROL PANEL (DOUBLE FRONT, DRAW OUT TYPE) (12000 mm x 1700 mm x 2450 mm, 11000 kg)	A	4	12	NO		
2.0	ELECTRONIC CONTROL PANEL (700 mm x 650 mm x 2000 mm, 300 kg)	A	80	240	NO		
3.0	HIGH VOLTAGE TRANSFORMER RECTIFIER, 70 kV, 1200 mA (1400 mm x 539 mm x 2180 mm, 1450 kg)	C	80	240	NO		
4.0	DISCONNECTING SWITCH VAR.05 (1200 mm x 1100 mm x 750 mm, 180 kg)	C	80	240	NO		
5.0	HEATING ELEMENTS FOR HOPPER (PANEL TYPE) (30 kg)	B	160	480	SET		
6.0	HEATING ELEMENTS FOR SUPPORT INSULATOR HEATER (3 kg)	B	320	960	NO		
7.0	HEATING ELEMENTS FOR SHAFT INSULATOR HEATERS (2 kg)	B	80	240	NO		
8.0	THERMOSTAT FOR HOPPER (350 mm x 100 mm x 100 mm, 1 kg)	B	160	480	NO		
9.0	THERMOSTAT FOR SUPPORT INSULATOR (35 mm x 100 mm x 100 mm, 1 kg)	B	8	24	NO		
10.0	ASH LEVEL INDICATOR (HIGH & LOW) (900 mm x 100 mm x 100 mm, 15 kg)	C	320	960	NO		
11.0	LOCAL START STOP PUSH BUTTON FOR RAPPING MOTOR (180 mm x 100 mm x 250 mm, 5 kg)	D	168	504	NO		
12.0	JUNCTION BOX FOR HOPPER HEATERS (600 mm x 278 mm x 515 mm, 15 kg)	D	160	480	NO		
13.0	JUNCTION BOX FOR SUPPORT INSULATOR HEATERS VAR.06 (WITHOUT CABLE GLAND) (450 mm x 150 mm x 300 mm, 15 kg)	D	32	96	NO		
14.0	JUNCTION BOX FOR SHAFT INSULATOR HEATERS, VAR.01 (WITHOUT CABLE GLAND) (450 mm x 150 mm x 300 mm, 15 kg)	D	8	24	NO		
15.0	IOS PANEL (1000 mm x 500 mm x 2050 mm, 200 kg)	A	1	3	NO		
16.0	RAPPER CONTROL PANEL (1000 mm x 500 mm x 2050 mm, 200 kg)	A	8	24	NO		
17.0	STATCON PANEL (1000 mm x 500 mm x 2050 mm, 200 kg)	A	4	12	NO		
18.0	ELECTRICALLY OPERATED HOIST 3T (EOH) (1200 kg)	D	4	12	NO		

SL NO	EQUIPMENT DESCRIPTION	GROUP	QTY PER UNIT	TOTAL QTY FOR 3 UNITS	UNIT	UNIT RATE (Rs)	AMOUNT FOR 3 UNITS (Rs)
19.0	LAYING OF LT POWER CABLES (UNARMoured)						

SL NO	EQUIPMENT DESCRIPTION	GROUP	QTY PER UNIT	TOTAL QTY FOR 3 UNITS	UNIT	UNIT RATE (Rs)	AMOUNT FOR 3 UNITS (Rs)
19.1	2C-120 MM ² AL	D	33000	99000	MTR		
19.2	3C-6 MM ² AL	D	1200	3600	MTR		
19.3	3C-16 MM ² AL	D	17000	5100	MTR		
19.4	3C-25 MM ² AL	D	14000	42000	MTR		
19.5	3C-70 MM ² AL	D	2500	7500	MTR		
19.6	3C-2.5 MM ² CU	D	31200	93600	MTR		
19.7	2C-2.5 MM ² CU	D	9500	28500	MTR		
20.0	LAYING OF LT CONTROL CABLES (UN ARMoured)						
20.1	3C-1.5 MM ² CU	D	18000	54000	MTR		
20.2	10C-1.5 MM ² CU	D	1750	5250	MTR		
20.3	12C-1.5 MM ² CU	D	23200	69600	MTR		
20.4	14C-1.5 MM ² CU	D	9600	28800	MTR		
21.0	LT SCREENED COPPER UNARMoured CABLE, 4C-1.5 MM ²	D	38600	115800	MTR		
22.0	DATA LOGGER PC WITH COLOUR MONITOR (1220 mm x 762 mm, 10 kg)	A	1	3	NO		
23.0	IOS PC WITH COLOUR MONITOR (1220 mm x 762 mm, 10 kg)	A	1	3	NO		
24.0	PRINTER (DOT MARTIX, INKJET) 1+1 (762 mm x 610 mm, 10 kg)	A	2	6	NO		
25.0	JUNCTION BOX FOR START STOP PB (WITHOUT CABLE GLAND) (250 mm x 150 mm x 400 mm, 12 kg)	D	16	48	NO		
26.0	JUNCTION BOX FOR HOPPER THERMOSTAT (WITHOUT CABLE GLAND) (250 mm x 150 mm x 400 mm, 12 kg)	D	16	48	NO		
27.0	JUNCTION BOX FOR ALI – HIGH & LOW (WITHOUT CABLE GLAND) (250 mm x 150 mm x 400 mm, 12 kg/JB)	D	112	336	NO		
28.0	JUNCTION BOX FOR OPACITY MONITOR (WITHOUT CABLE GLAND) (250 mm x 150 mm x 400 mm, 12 kg/JB)	D	4	12	NO		
29.0	FLEXIBLE CABLE TRAY SUPPORT						
29.1	BASE PLATE FOR DOUBLE SUPPORT CHANNEL (486 kg)	D	310	930	NO		
29.2	BASE PLATE FOR SINGLE SUPPORT CHANNEL (1249 kg)	D	1600	4800	NO		
29.3	DOUBLE SUPPORT CHANNEL (1600 kg)	D	400	1200	MTR		
29.4	DOUBLE SUPPORT CHANNEL (2940 kg)	D	1500	4500	MTR		
29.5	CANTILEVER ARM (C/A), 650 mm (2691 kg)	D	1150	3450	NO		
29.6	CANTILEVER ARM (C/A), 500 mm (810 kg)	D	450	1350	NO		
29.7	CANTILEVER ARM (C/A), 200 mm (950 kg)	D	1320	3960	NO		
29.8	BENDS.	D	--	10000	NO		
29.9	FLAT PLATE STRAIGHT FITTING.	D	--	5000	NO		
29.10	CLAMP FOR DOUBLE CHANNEL (CC2)	D	--	150	NO		

SL NO	EQUIPMENT DESCRIPTION	GROUP	QTY PER UNIT	TOTAL QTY FOR 3 UNITS	UNIT	UNIT RATE (Rs)	AMOUNT FOR 3 UNITS (Rs)
29.11	CLAMP FOR SINGLE CHANNEL (CC1) (2505 kg)	D	175	525	NO		

SL NO	EQUIPMENT DESCRIPTION	GROUP	QTY PER UNIT	TOTAL QTY FOR 3 UNITS	UNIT	UNIT RATE (Rs)	AMOUNT FOR 3 UNITS (Rs)
29.12	TRAY CLAMP FOR LADDER TYPE CABLE TRAY (5280 kg)	D	8800	26400	NO		
29.13	M12 FASTENERS COMPRISING 1 NO EACH M12 HEX BOLT SPRING NUT & WASHER FOR FIXING BASE PLATE, C/A, LADDER TRAYS 7 & CLAMPS/ SUPPORT CHANNEL (1881 kg)	D	20900	62700	NO		
29.14	M6 FASTENER SET COMPRISING 1 NO M6 PAN HEAD SCREW, 1 NO SPRING NUT & 1 NO WASHER FOR FIXING PERFORATED TYPE CABLE TRAYS WITH C/A (33 kg)	D	1100	3300	NO		
30.0	STRUCTURAL STEEL FABRICATION/ SUPPORTS CONSISTING OF ANGLES, CHANNELS (ISA 35X35X3, ISA 40X40X5, ISMC 100X50X6, ISA 50X50X6, ISMC 100X50). SUPPLY EXCLUDED.	D	4	12	MT		
31.0	BAPCON CONTROLLER FITTED IN EC PANEL (280 mm x 210 mm x 210 mm, 5 kg)	D	80	240	NO		
32.0	RAPCON CONTROLLER FITTED IN RAPCON PANEL (280 mm x 210 mm x 210 mm, 5 kg)	D	16	48	NO		
33.0	STATCON CONTROLLER FITTED IN STATCON PANEL (280 mm x 210 mm x 210 mm, 5 kg)	D	4	12	NO		
34.0	CABLE TRAYS (LADDER TYPE)						
34.1	600 mm (W) x 120 mm (H)	D	1775	5325	MTR		
34.2	450 mm (W) x 120 mm (H)	D	575	1725	MTR		
34.3	300 mm (W) x 120 mm (H)	D	250	750	MTR		
34.4	150 mm (W) x 120 mm (H)	D	3175	9525	MTR		
35.0	CABLE TRAYS (PERFORATED TYPE)						
35.1	600 mm (W) x 120 mm (H)	D	350	1050	MTR		
35.2	150mm (W) x 120 mm (H)	D	525	1575	MTR		
36.0	COUPLER PLATE (1177 kg)	D	5120	15360	NO		
37.0	FASTNERS FOR TRAYS (1137 kg)	D	18960	56880	NO		
38.0	GI FLAT 50 x 6 (7065 kg)	D	3	9000	MTR		
39.0	GI FLAT 30 X 5 (5713 kg)	D	4850	14550	MTR		
40.0	GI WIRE 8 SWG (900 kg)	D	900	2700	KG		
41.0	SUPPLY OF POWER CABLE GLAND SUITABLE FOR 3C-16 MM ² AL CABLE (APPX OD 19.5 MM)	D	8	24	NO		
42.0	SUPPLY OF POWER CABLE GLAND SUITABLE FOR 3C-25 MM ² AL CABLE (APPX OD 23 MM)	D	240	720	NO		
43.0	SUPPLY OF POWER CABLE GLAND SUITABLE FOR 3C-70 MM ² AL CABLE (APPX OD 25.2 MM)	D	24	72	NO		
44.0	SUPPLY OF CONTROL CABLE GLAND SUITABLE FOR 2C-1.5 MM ² AL CABLE (APPX OD 11.2 MM)	D	160	480	NO		
45.0	SUPPLY OF CABLE GLAND FOR 2C-2.5 MM ² AL CABLE (APPX OD 14.6 MM)	D	400	1200	NO		

SL NO	EQUIPMENT DESCRIPTION	GROUP	QTY PER UNIT	TOTAL QTY FOR 3 UNITS	UNIT	UNIT RATE (Rs)	AMOUNT FOR 3 UNITS (Rs)
46.0	SUPPLY OF CABLE GLAND FOR 3C-1.5 MM ² AL CABLE (APPX OD 11.7 MM)	D	528	1584	NO		
47.0	SUPPLY OF CABLE GLAND SUITABLE FOR 10C-1.5 MM ² AL CABLE (APPX OD 17.8 MM)	D	8	24	NO		
48.0	SUPPLY OF CABLE GLAND FOR 12C-1.5 MM ² AL CABLE (APPX OD 18 MM)	D	36	108	NO		
49.0	SUPPLY OF CABLE GLAND FOR 14C-1.5 MM ² AL CABLE (APPX OD 19 MM)	D	80	240	NO		
50.0	SUPPLY OF CABLE GLAND FOR 2C-120 MM ² AL CABLE	D	80	240	NO		
51.0	SUPPLY OF POWER CABLE GLAND FOR 3C-6 MM ² AL CABLE	D	100	300	NO		
52.0	SUPPLY OF POWER CABLE GLAND FOR 4C-1.5 MM ² AL CABLE (APPX OD 14 MM)	D	25	75	NO		
53.0	VFD FOR ID FAN A, B						
53.1	LOAD COMMUTER INTERRUPTOR PANEL (3 PANELS)	A	4	12	SET		
53.2	ADAPTOR PANEL (4 PANELS)	A	1	3	SET		
53.3	COMMON CONTROL PANEL	A	2	6	NO		
53.4	OPERATOR & MONITORING STATION	A	1	3	NO		
53.5	CABLE LENGTH COMPENSATION PANEL	A	2	6	SET		
53.6	ONAN TRANSFORMER (5000 mm x 2500 mm x 3450 mm, 14500 kg)	A	4	12	NO		
53.7	AIR CORE DC REACTOR (5000 mm x 2500 mm x 3450 mm, 14500 kg)	A	4	12	NO		
54.0	VACUUM CIRCUIT BREAKER PANEL (1650 mm x 2355 mm x 2300 mm, 1350 kg)	A	4	12	NO		
55.0	FLEXIBLE COUPLING FOR VFDs (710 mm x 1065 mm x 1065 mm, 1250 kg)	A	4	12	NO		
56.0	TYPE TEST EQUIPMENTS FOR TRANSFORMER & REACTOR (710 mm x 1065 mm x 1065 mm, 1250 kg)	A	2	6	SET		
57.0	STARTER CABINET FOR DC SEAL OIL MOTOR (GCC01) (1000 mm x 800 mm x 2200 mm, 450 kg)	A	1	3	NO		
58.0	CONTROLLER(BAPCON/RAPCON/STATCON) FITTED IN PANEL(EC/ RAPCON/ STATCON) (280 mm x 210 mm x 210 mm, 5 kg)	A	100	300	NO		
59.0	LT MOTORS	C	832	2496	NO		
60.0	HT MOTORS	C	24	72	NO		
TOTAL							