



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

TCN - 01

Ref: PSER:SCT:JBA-I975:TCN-01

Date: 24-04-2009

Sub	Tender change notice (TCN) 01.	
Job	Erection, Testing and Commissioning of C&I and electrical jobs for boiler, ESP, piping, turbine, generator & auxiliaries for UNIT# 5 of 1X120 MW Jojobera extension project, Tatanagar, Jharkhand.	
Ref	1.0	Tender no PSER:SCT:JBA-I975:09
	2.0	BHEL's NIT vide reference no. PSER:SCT:JBA-I975:09, dated 04-04-09.

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

- 1.0 Revised Volume-III A (Price Schedule – Absolute value)-(Rev-01), superseding VOL-III A (Rev-0) issued earlier along with NIT. (File-1)
- 2.0 The due date of offer submission is extended from 27-04-2009 to 30-04-2009 (15=00Hrs).
 - BIDDERS ARE REQUESTED TO NOTE THAT THE REVISED PRICE SCHEDULES (REV-01) SUPERSEDES PRICE SCHEDULES ISSUED EARLIER. BIDDERS SHALL SUBMIT THEIR OFFER ONLY AS PER REVISED PRICE SCHEDULES (REV-01). OFFER FROM BIDDER IN SUPERSEDED PRICE SCHEDULES WILL NOT BE CONSIDERED.

All other terms & conditions shall remain unchanged.

Based on above, offer shall be submitted by revised due date, ie 30-04-2008.

Thanking you,

Yours faithfully,
for BHARAT HEAVY ELECTRICALS LTD

DGM (SCT)

पावर सेक्टर पूर्वी क्षेत्र (मुख्यालय)

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

फैक्स/Fax : (033) 23211960 फोन/Phone : बोर्ड/EPABX : 23211691

VOLUME – IIIA
BOQ CUM PRICE SCHEDULE,(REV-01)

**JOB : ERECTION, TESTING AND COMMISSIONING OF C&I AND ELECTRICAL
JOBS FOR BOILER, ESP, PIPING, TURBINE, GENERATOR & AUXILIARIES FOR
UNIT# 5 OF 1X120 MW JOJOBERA EXTENSION PROJECT, TATANAGAR,**

TENDER NO. PSER:SCT:JBA-I975:09

PREAMBLE

1	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 Volume-IB, IE , Volume – II and other tender sections as applicable.
2	The work shall be carried out strictly as per specifications, description of the items in these schedule and / or engineer's instructions.
3	Items of work provided in this schedule but not covered in this specification shall be executed strictly as per instruction of the engineer.
4	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(except service tax), 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 complete tender document and this schedule.
5	The quantities of the various items mentioned in this schedule of items are approximate, based on very preliminary information and may vary to any extent or be deleted altogether. The quoted rates of each item will remain firm throughout the period of execution including extension, for reasons whatsoever, as long as variation in the total value of work executed under any part of this contract including extra items, if any but excluding any price variation remains, within thirty percent ($\pm 30\%$) of the awarded price as per LOI .
6	The rates quoted shall be inclusive of cleaning of site of any vegetation, dressing , clearing of old structures 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.

7	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 language.
8	All works item wise shall be measured upon completion and paid for at the rates quoted and accepted as per BHEL approved payment schedule/billing break-up.
9	The tenderer shall be deemed to have visited site and made himself aware of all the site conditions, studied the specifications, details of instruments/panels/equipments to be dismantled/reuse etc. and details of work to be done within the time schedule as per tender conditions and to have acquainted himself of the conditions prevailing at site.
10	No splitting of the job is envisaged. Decision of BHEL in this regard shall be final and binding to the bidders.
11	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.
12	Size and weights of various items are mentioned in the attached BOQ cum rate/price schedule for reference purpose only & these shall not be taken into consideration for quoting/calculating amount in the rate schedule. These shall be utilised as per relevant sections of tender. Bidders shall quote for each item in the rate column, taking unit as mentioned in the quantity column. Rates shall be filled in both figures and words. Amount shall be calculated based upon these rates multiplied by the mentioned quantity for the respective items.
	Note : Bidders to note the following for quoting their rates.
	A) Only authorised persons of bidder having power should sign in the price bid. All the pages must be signed.
	B) For bid evaluation purpose (deciding L1), grand total price of all the items of rate schedule shall be considered.
	C) Quoted rates shall be inclusive of all taxes, duties etc., except service tax as per tender terms. Service tax(as applicable) shall be payable/reimbursable extra as per tender terms.
13	Rates quoted by bidder against s.no. A1.1 TO A5.2 , C1 TO C6 , D1 TO D9, F1 TO F28 & F35, H1 TO H10 shall be exclusive of structural steel works/support works. Structural steel (if required) connected to these activities shall be paid separately vide s.no.E of BOQ/ Rate schedule.

14	MTM (S.NO. H14 OF BOQ) -- Rates quoted by bidder against s.no. H14 shall be exclusive of Tray & structural steel works/support works. Structural steel (if required) connected to these activities shall be paid separately vide s.no.E of BOQ/ Rate schedule. Cable tray (if required) connected to these activities shall be paid separately vide s.no.A of BOQ/ Rate schedule.
15	Oil filtration for ESP rectifier Transformer / Rectiformer is not in the scope of this tender.
16	Supply and application of all preservatives/ finish paints shall be in bidders scope within quoted rates.
17	Weight indicated in the Price-schedule is having no bearing with unit rate.

VOLUME - IIIA
BOQ CUM PRICE SCHEDULE (REV-01)

**JOB : ERECTION, TESTING AND COMMISSIONING OF C&I AND ELECTRICAL JOBS FOR BOILER, ESP, PIPING, TURBINE, GENERATOR & AUXILIARIES FOR UNIT# 5 OF 1X120 MW
JOJOBERA EXTENSION PROJECT, TATANAGAR, JHARKHAND.**

TENDER NO. PSER:SCT:JBA-I975:09

Sl.No.	Description	Size (mm)	Weight(Kg)	Quantity	Unit rate (Rs) (Unit to be taken from quantity column)		Amount (Rs.) = Unit rate (x) Quantity (Quantity column)
					Figures	Words	
A. CABLE TRAY							
A.1.1	Ladder/ perforated cable tray 450 mm wide with cover			15 mtrs			
A.1.2	Ladder/ perforated cable tray 450 mm wide without cover			15 mtrs			
A.2.1	Ladder/ perforated cable tray 300mm / cable duct 250 mm wide with cover			400 mtrs			
A.2.2	Ladder/ perforated cable tray 300mm / cable duct 250 mm wide without cover			500 mtrs			
A.3.1	Ladder/ perforated cable tray 100 to 150mm/ cable duct 180 mm wide with cover			1500 mtrs.			
A.3.2	Ladder/ perforated cable tray 100 to 150mm/ cable duct 180 mm wide without cover			2250 mtrs.			
A.4.1	Ladder/ perforated cable tray 50mm/ cable duct 60 mm wide with cover			100 mtrs.			
A.4.2	Ladder/ perforated cable tray 50mm/ cable duct 60 mm wide without cover			150 mtrs.			
A.5.1	ladder type- Cable tray with cover tray	600 mm. wide		120 mtrs.			
A.5.2	ladder type- Cable tray without cover tray	600 mm. wide		30 mtrs.			
B CABLES(POWER/CONTROL/SIGNAL)							
B.1	Armoured/ unarmoured cable, core size upto 2.5 sqmm, no of cores:1 to 5			36400 mtrs.			
B.2	Armoured/ unarmoured cable, core size upto 2.5 sqmm, no of cores:6 to 10			9700 mtrs.			
B.3	Armoured/ unarmoured cable, core size upto 2.5 sqmm, no of cores:11 to 16			500 mtrs.			
B.4	Armoured/ unarmoured cable, core size upto 2.5 sqmm, no of cores:17 to 24			5000 mtrs.			
B.5	UTP(4 pair) cable for MAX partly through conduit & partly through tray			8000 mtrs			
B.6	Armoured/ unarmoured cable, core size 4 to 6 sqmm , no of cores:1 to 3			1500 mtrs.			
B.7	1 CX 70 sqmm cable			100 mtrs			

Sl.No.	Description	Size (mm)	Weight(Kg)	Quantity	Unit rate (Rs) (Unit to be taken from quantity column)		Amount (Rs.) = Unit rate (x) Quantity (Quantity column)
					Figures	Words	
B.8	1 CX 300 sqmm cable			500 mtrs.			
B.9	50 to 70 sqmm 2C/ 3C Al / Cu Cable			4000 mtrs			
B.10	Cable 10 to 16 sqmm, core: 2C/3C/4C			7600 mtrs			
B.11	2C/3C , 35 sqmm, Al/ Cu cable			500 mtrs.			
B.12	Compensating cable(armoured/ unarmoured core size upto 1.5 sqmm) no of core: upto 04			2500 mtrs			
B.13	Prefab cable(panel to panel, panel to console, 32 Pair)			725 mtrs			
B.14	Cable for EWLI(30 conductor)			300 mtrs			
B.15	Fibre optic cable			120 mtrs			
B.16	3 Core x 6 sq.mm.			1800 mtrs.			
B.17	3 Core x 300 sq.mm.			150 mtrs.			
C JUNCTION BOX							
C.1	Junction box upto 12 way/ local gun maintenance switch/local push button box/shear pin indication box/proximeter housing/ ASLD head amplifier			150 nos.			
C.2	Junction box upto 24 ways / position controller LBBP			250 nos.			
C.3	Junction box upto 64 ways / JB with cold junction compensation			100 nos.			
C.4	Junction box upto 100 ways			5 nos.			
C.5	Junction box with microprocessor unit of EWLI/Furnace temp box			4 nos.			
C.6	DC starter Panel			1 no.			
D IMPULSE PIPES							
D.1	Heavy duty Copper tube 6 mm/8mm/0.25"/10mm/0.375"			3000 mt			
D.2	SS tube 6 mm			50 mt			
D.3	CS/SS/AS impulse pipe OD 10 mm to 22 mm(upto 160 sch)			2500 mt			
D.4	CS/SS/AS impulse pipe OD 23 mm to 35 mm(upto 160 sch)			1000 mt			
D.5	CS/SS/AS impulse pipe OD 36mm to 60 mm(upto 160 sch)			50 mt			
D.6	GI conduit upto 1" (flexible & rigid)			50 mt			

Sl.No.	Description	Size (mm)	Weight(Kg)	Quantity	Unit rate (Rs) (Unit to be taken from quantity column)		Amount (Rs.) = Unit rate (x) Quantity (Quantity column)
					Figures	Words	
D.7	GI conduit upto 2" (flexible & rigid)			50 mt			
D.8	GI pipe upto 1"			50 mt			
D.9	GI pipe upto 2"			50 mt			
E. STRUCTURAL STEEL(For item no E.1 to E.2 below , material e.g TEES, cross, socket, nipple, reducer, union etc to be supplied by the bidder within his quoted rate.)							
E.1	Fab & erection of air header for SADC power cylinder with 1/2 " to 2" GI pipe and valves etc(1 I/L , 14 O/L, drain & vent			5 nos.			
E.2	Fab & erection of air filte station for SADC power cylinder with 1 " GI pipe & valves & air filter regulator.			4 nos			
E.3	Fabrication & erection of dust collector / catch pot			10 nos			
E.4	Fabrication & erection of pneumatic junction box			5 nos.			
E.5	Fabrication & erection of structural steel(angle, channel, flat, pipe,plate etc)			18 tonnes			
E.6	Canopy for Instrument & JB			50 sq.m.			
E.7	Earthing Flat/strips	50 x 10 GS		500 mtrs.			
E.8	Earthing Flat/strips	25 x 6 GS		300 mtrs.			
E.9	Earthing with Wires	8 SWG		50 mtrs.			
F. CONTOL PANEL CUBICLES & PLANT MONITORING SYSTEM							
REMARKS : Receipt from stores, Transportation to place of erection, Erection, Placement, Alignment & Grouting of panels under s.no. F.1 to F.4 below is not in the scope of this tender.							
F.1	MAX Panels , single suit	2415X750X800	1X400 (each	5 nos			
F.2	MAX Panels , double suit	2415X750X800	2X400 (each	3 nos.			
F.3	MAX Panels , 3 suit	2415X750X800	3X400 (each	5 nos.			
F.4	MAX Panels , 4 suit	2415X750X800	4X400 (each	3 nos.			
F.5	Regulating cubicle & field flashing cubicle	2295X2351X1200	2000	2 nos.			
F.6	Field breaker cubicle & thyristor cubicle	2540X2860X1200	3300	2 nos.			
F.7	Transformer cubicle & associated duct for dust control chamber	3150X3500X2500	1600	1 Panel			
F.8	Rectifier Transformers (this will be supplied loose & is to be mounted inside transformer cubicle)		8000	1 Panel			

Sl.No.	Description	Size (mm)	Weight(Kg)	Quantity	Unit rate (Rs) (Unit to be taken from quantity column)		Amount (Rs.) = Unit rate (x) Quantity (Quantity column)
					Figures	Words	
F.9	24 V DC Power Equipment Panel	2325X2700X600	1500	1 Panel			
F.10	Network Panel			1 Panel			
F.11	415 V AC TG Valve Distribution Board	4800X2400X900	4000	1 Panel			
F.12	220 V DCDB	800X2400X900	1000	1 Panel			
F.13	24 V DCDB	3200X2400X900	3000	1 Panel			
F.14	220 V DC motor starter panel (JOP)	1200X2400X900	1000	1 Panel			
F.15	220 V DC motor starter panel (EOP)			1 Panel			
F.16	LT main switch board(Double front, draw out type for ESP)	5650(L)X1700/900(W)X2450(H)	4900	1 no			
F.17	AUX control panel(Double front, draw out type for ESP)	4000(L)X900(W)X2450(H)	3500 (each panel)	2 nos.			
F.18	Electronic control panel for ESP	700(L)X650(W)X2000(B)	300 (each panel)	14 nos.			
F.19	Local gauge board for (including removal, calibration & refitting of all instruments)			2 nos.			
F.20	Local instrument rack	1500x1700		10 nos.			
F.21	Mill control cabinet	2345X1000X800	500	1 no.			
F.22	Cubicle type 110 V AC UPS DB	2365X800X600		1 no.			
F.23	Cubicle type 240 V AC DB	2365X800X600		1 no			
F.24	Cubicle type 240 V DCCSP	2365X1000X800		1 no.			
F.25	Valve damper MCC	2475X8000X900	8000	1 no.			
F.26	Soot Blower MCC			1 no.			
F.27	GRAVIMETRIC feeder Control Panel	2365X110X540	2600	5 nos			
F.28	ASLD (Accoustic Steam Leakage Detector) Panel			1 no.			
F.29	MAX station (PC, monitor, mouse, keyboard, power & UTP socket)			7 nos.			
F.30	Printer(inkjet, laser, dot matrix) with power & UTP socket			3 nos.			
F.31	Print Server			3 nos.			

Sl.No.	Description	Size (mm)	Weight(Kg)	Quantity	Unit rate (Rs) (Unit to be taken from quantity column)		Amount (Rs.) = Unit rate (x) Quantity (Quantity column)
					Figures	Words	
F.32	Computer/ Printer Table (90% on installation in position/ placement & 10% on completion)			5 nos.			
F.33	Vibration/ axial displacement monitoring system			1 no.			
F.34	Scanner air fan starter box			1 no.			
F.35	Rapcon control panel	700X650X2050	200	1 no.			
F.36	CO2 SYSTEM-Panel			1 no.			
F.37	SWAS System -Panel			2 no.			
G. MISCELLANEOUS ITEMS							
G.1	DSL (DOWNSHOP LEAD) system for the electrically operated handling system/HOIST and giving power supply connection from power supply cabinets including cable laying fitted on the mill cabinets			1 lot			
G.2	Oil level gauges with protection tube fitting on the gauge mounting plate			5 sets			
G.3	Power supply & instrument air connection to local JB consisting of solenoid valves etc for operation of MDV and seal air line valves to MDV's and commissioning of MDV's . This includes erection & commissioning of local JB			5 sets			
G.4	Power supply & instrument air connection to solenoid valves & power cylinder for operating the reject collection box inlet & out isolation gate valves & commissioning of the valves of milling system			5 sets			
G.5	Power cylinder (regulating type)			20 nos.			
H FIELD INSTRUMENTS							
H.1	Pr Gauge, DP Gauge, Vaccume gauge, Compound gauge, Draft gauge, Pr transmitter, DP transmitters, Vaccume transmitters, Compound transmitters, DP flow transmitters, DP type level transmitters, Temp Transmitters, Pr switch, DP switch, Vaccume switch , Flow switch, I/P converter			450 nos.			
H.2	Temp element capillary / non capillary type(RTD, T/C, Thermometer, Temp gauge, Temp switch, Thermostat)			400 nos.			
H.3	Air filter regulator,Air set/ Air lock relay/ Volume booster/ Speed regulator/ Air lubricator, Purge meter cum DP regulator			110 nos.			
H.4	Level switch(with/without electronic unit)			59 nos.			
H.5	Level gauge			35 nos.			

Sl.No.	Description	Size (mm)	Weight(Kg)	Quantity	Unit rate (Rs) (Unit to be taken from quantity column)		Amount (Rs.) = Unit rate (x) Quantity (Quantity column)
					Figures	Words	
H.6	Flame scanner head assembly(including cabling upto JB)			20 nos.			
H.7	ERV controller box with pr switch			2 no.			
H.8	Limit switch			100 nos.			
H.9	Pneumatic indicating controller			1 no.			
H.10	Pneumatic pr transmitter			1 no.			
H.11	UCB mounted instruments/ indicator/ recorder/ control station/ integrator/ controller			20 nos.			
H.12	1/4 " flexible hose (upto 3 meters of length)			60 nos.			
H.13	1" flexible hose (upto 3 meters of length)			4 no.			
H.14	MTM Thermocouple			99 nos.			
H.15	Solenoid valve			65 nos.			
H.16	Flow meter/ Rotameter/ Flow indicator			5 nos.			
H.17	Erection & Commissioning of 12 Port pressure vessel with loose supplied electrodes for EWLI (Electronic Water Level Indicator) for boiler Drum.			02 set			
H.18	Seal pot/ condensing pot/ siphon tube			50 sets			
H.19	Level probe with processing unit			1 no.			
H.20	Position transmitter			10 nos.			
H.21	Console inserts			1 no.			
H.22	Relative/ absolute vibration probe, proximity probe, relative expansion, overall expansion(LVDT), Axial shift, Phase angle, velocity transducer, speed probe			60 nos.			
H.23	Speed monitoring system			2 nos.			
	Vibration transmitter/ proximity transmitter			18 nos.			
H.25	Opacity monitor			1 no.			
H.26	Ash level indicator			28 nos.			
H.27	Bapcon controller of ESP			16 nos.			
H.28	Auxilliary relay			100 nos.			

Sl.No.	Description	Size (mm)	Weight(Kg)	Quantity	Unit rate (Rs) (Unit to be taken from quantity column)		Amount (Rs.) = Unit rate (x) Quantity (Quantity column)
					Figures	Words	
H.29	Lens Barrel assembly			20 nos.			
I CALIBRATION/ COMMISSIONING							
I.1	SADC Power cylinder			56 nos.			
I.2	Power cylinder for scoop			2 nos.			
I.3	Power cylinder on off type for Gates/Dampers			30 nos.			
I.4	Contol Valves (ON- OFF)			60 nos.			
I.5	Control Valve (Regulating)			40 nos.			
I.6	Extraction NRV / Spray water control Valve			10 nos.			
I.7	HPBP Pr & temp control valve/ LPBP control Valve			10 nos.			
I.8	HPBP spray block valve/ main turbine stop valve/ LPBP stop valve			7 nos.			
I.9	Removal, calibration, remounting & commissioning of instruments for skid. Each skid will have minimum of five no of instruments eg PG/ PS/ TG/DPI/ DPS/ TS/ RPM meter with probe/ LS/ LG/ FS/ FI etc. Dressing of capillary cables if any, repair of cu tube impulse pipe, if any,changing of terminals of JB if any is also included.			6 nos.			
I.10	Rapping motors of ESP			30 nos.			
I.11	Heating element for hopper/ support insulator/ shaft insulator			406 nos.			
I.12	High voltage transformer rectifier(HVR) 95 KV 1000mA			14 nos.			
I.13	Electically operated hoist-3T (EOH)			1 no.			
I.14	Mechanical interlock for ESP			2 set			
I.15	Calibration & commng of gravimetric feeder			5 nos.			
I.16	Commissioning of soot blowers with panels and other related activities			60 nos.			
J. POWER CYLINDERS							
J.1	Power cylinder for FD Fan/ PA fan inlet damper			4 nos.			
J.2	Power cylinder for ID fan inlet damper			2 nos.			
J.3	Power cylinder for Cold air Power cylinder torque 7 KGm with accessory			6 nos.			
J.4	Power cylinder for AH out control damper torque 448 KGm			1 no.			

Sl.No.	Description	Size (mm)	Weight(Kg)	Quantity	Unit rate (Rs) (Unit to be taken from quantity column)		Amount (Rs.) = Unit rate (x) Quantity (Quantity column)
					Figures	Words	
J.5	Power cylinder for AH out control damper torque 216 KGm			1 no.			
J.6	Power cylinder for Mill inlet control damper torque 31 KGm			6 nos.			
K. MISCELLANEOUS ITEMS(AS & WHEN REQUIRED, BASED UPON INSTRUCTION OF BHEL ENGINEER)							
K.1	Supply of crimping lugs(0.5 to 2.5 sqmm)			5000 nos.			
K.2	Supply of crimping lugs upto 10 sqmm (above 2.5 sq mm)			1000 nos.			
K.3	Supply of crimping lugs upto 25 sqmm (above 10 sq mm)			200 nos.			
K.4	Supply of crimping lugs upto 35 sqmm (above 25 sq mm)			100 nos.			
K.5	Supply of crimping lugs 50/ 70 sqmm			500 nos.			
K.6	Supply of Brass fittings upto 3/4" (like 1/2X1/4, 1/2X3/4 etc)			200 nos.			
K.7	Supply of SS fittings (male & female) upto 1/2"			200 nos.			
K.8	Supply of SS fittings (male & female) upto 1"(above 0.5 Inch)			50 nos.			
K.9	Supply of CS fitting (male & female) upto 1/2"			200 nos.			
K.10	Supply of CS fitting (male & female) upto 1"(above 0.5 Inch)			50 nos.			
GRAND TOTAL PRICE OF ALL THE ITEMS (SNO. A TO K ABOVE) ; TO BE QUOTED BOTH IN FIGURES AS WELL AS WORDS.							