



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

Page 01 of 02

TENDER CHANGE NOTE 03 (TCN – 03) DATED 19/11/2010

WITH REFERENCE TO THE NIT, PUBLISHED IN THE WEB SITES FOR *ERECTION, TESTING AND COMMISSIONING OF 1X20 MW STG, 150 TPH BOILER WITH AUXILIARIES AND PIPING AND ELECTRICAL AND C&I FOR IOCL BARAUNI PROJECT AT IOCL BARAUNI, BIHAR*, FOLLOWING CHANGES MAY PLEASE BE NOTED & COMPLIED WHILE SUBMITTING THE OFFER FOR THE SUBJECT JOB.

REF: TENDER DOCUMENT NO-PSER:SCT:BRN-M1141:10

REF: 1) TENDER DOCUMENT NO-PSER:SCT:BRN-M1141:10
2) TENDER CHANGE NOTICE (TCN-01) DT 09/11/2010
3) TENDER CHANGE NOTICE (TCN-02) DT 16/11/2010

BASED ON THE QUERIES OF BIDDERS, FOLLOWING IS CLARIFIED:

- a) The Unit of measurement of cable kit indicated vide Appendix-I, Price Schedule, Rev-01, sl.no. 2.7 and 2.8 shall be Nos instead of “MTRS”.
- b) The weight of Turbine (assembly) and Weight of Generator (assembly), to be lifted by strand jack method is around 50 MT each.
- c) In regard to Civil works of CW piping as indicated in the scope, please note that no civil works or earth cutting is in the scope of the Bidder. However, wrapping of underground CW piping including supply & application of coal tar based plasticised pre-fabricated tape of approved brand (Pypkote/ Rustech/ any other BHEL/customer approved equivalent) is in the scope of the Bidder.
- d) Since strand jack is an expert job of third party, the same has been included as a separate item in the price schedule. The payment for this item shall be 100% as per following break-up and the clause no 42.5 is revised as under:-

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 / 1684

TENDER CHANGE NOTE 03 (TCN – 03) DATED 19/11/2010

42.5	<p>A) The break-up for progressive payment for completion of work in various categories of Package B (STG) work is as under :</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding-left: 40px;">i) Condenser</td> <td style="text-align: right;">- 20 %.</td> </tr> <tr> <td style="padding-left: 40px;">ii) Turbine</td> <td style="text-align: right;">- 20 %.</td> </tr> <tr> <td style="padding-left: 40px;">iii) Generator</td> <td style="text-align: right;">- 20 %</td> </tr> <tr> <td style="padding-left: 40px;">iv) Piping, Auxiliaries and miscellaneous mechanical items</td> <td style="text-align: right;">- 25 %.</td> </tr> <tr> <td style="padding-left: 40px;">v) Pre-commissioning and commissioning</td> <td style="text-align: right;">- 15 %</td> </tr> <tr> <td colspan="2" style="text-align: center;">-----</td> </tr> <tr> <td style="text-align: center;">TOTAL</td> <td style="text-align: right;">- 100 %</td> </tr> <tr> <td colspan="2" style="text-align: center;">-----</td> </tr> </table> <p>B) Lifting of Turbine (Assembly) and Generator Assembly by Strand Jack method under PKG- B:-</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding-left: 40px;">a) Receipt of strand jack structure and equipment at site</td> <td style="text-align: right;">- 20%</td> </tr> <tr> <td style="padding-left: 40px;">b) Erection of strand jack structure and equipment at site</td> <td style="text-align: right;">-20%</td> </tr> <tr> <td style="padding-left: 40px;">c) Lifting and placement of stator & turbine on foundation by strand jack method-</td> <td style="text-align: right;">40%</td> </tr> <tr> <td style="padding-left: 40px;">d) Dismantling of strand jack structure and equipment</td> <td style="text-align: right;">- 20 %</td> </tr> <tr> <td colspan="2" style="text-align: center;">-----</td> </tr> <tr> <td style="text-align: center;">TOTAL</td> <td style="text-align: right;">- 100 %</td> </tr> <tr> <td colspan="2" style="text-align: center;">-----</td> </tr> </table>	i) Condenser	- 20 %.	ii) Turbine	- 20 %.	iii) Generator	- 20 %	iv) Piping, Auxiliaries and miscellaneous mechanical items	- 25 %.	v) Pre-commissioning and commissioning	- 15 %	-----		TOTAL	- 100 %	-----		a) Receipt of strand jack structure and equipment at site	- 20%	b) Erection of strand jack structure and equipment at site	-20%	c) Lifting and placement of stator & turbine on foundation by strand jack method-	40%	d) Dismantling of strand jack structure and equipment	- 20 %	-----		TOTAL	- 100 %	-----	
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- e) The clause no. 25.3 under clause no. 25.0 against “CRANES AND T&Ps TO BE PROVIDED BY BHEL” stands replaced by the following clause :-

25.3	BHEL will provide one 75 MT Capacity mobile crane free of charges on sharing basis including operator. Fuel for operation and required consumables for maintenance i.e, Greese, Cardium compound, Engine/ mobile etc. are to be arranged by vendor within his quoted rates. The crane need to be maintained properly so that it remain in user ready condition always.
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- f) Based on all above, the Price/Rate schedule Appendix-1 has been revised in totality and enclosed herewith as Price/Rate schedule, Volume-II, Rev-02. As such The REV-00 & REV-01 both stands deleted and not to be considered for quoting purpose. All the Bidders are requested to quote as per this Rev-02 price bid.

ALL THE BIDDERS ARE REQUESTED TO SUBMIT REVISED NO DEVIATION CERIFICATE AS PER ENCLOSED ‘ANNEXURE –Y’

BIDDERS TO NOTE THAT ALL TCNS WILL FORM PART OF TENDER DOCUMENT.

ALL OTHER TERMS & CONDITIONS OF THE TENDER SHALL REMAIN UNCHANGED.

ENGR (SCT)

<p>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 / 1684</p>
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FORMAT FOR NO DEVIATION CERTIFICATE
(To be submitted in the bidder's letter head)

BHARAT HEAVY ELECTRICALS LIMITED,
Power Sector - Eastern Region,
Plot no 9/1, DJ Block, Sector – II, Salt Lake City,
Kolkata – 700 091

Sub	No Deviation Certificate.	
Job	ERECTION, TESTING AND COMMISSIONING OF 1X20 MW STG, 150 TPH BOILER WITH AUXILIARIES AND PIPING AND ELECTRICAL AND C&I FOR IOCL BARAUNI PROJECT AT IOCL BARAUNI, BIHAR	
Ref	1.0	Tender no PSER:SCT:BRN-M1141:10
	2.0	BHEL's NIT, vide reference no.PSER:SCT:BRN-M1141:10 dated 29/10/2010
	3.0	BHEL's TCN-01, vide ref. no.TENDER CHANGE NOTE 01 (TCN – 01) DT. 09/11/2010
	4.0	BHEL's TCN-02 vide ref. No.TENDER CHANGE NOTE 02 (TCN – 02) DT. 16/11/2010
	5.0	BHEL's TCN-03 vide ref. No.TENDER CHANGE NOTE 03 (TCN – 03) DT. 19/11/2010
	5.0	Other references (if any).

Dear Sirs,

With reference to above, this is to confirm that as per tender conditions, we have visited site before submission of our offer and noted the job content & site conditions etc. We also confirm that we have not changed/ modified the tender documents as appeared in the website/ issued by you along with various TCNs and in case of such observance at any stage, it shall be treated as null and void.

We hereby confirm that we have not taken any deviation from tender clauses together with other references as enumerated in the above referred NIT and TCNs. We hereby confirm our unqualified acceptance to all terms & conditions, unqualified compliance to technical specification, integrity pact and **acceptance to reverse auctioning process.**

In the event of observance of any deviation in any part of our offer at a later date whether implicit or explicit, the deviations shall stand null & void.

We confirm to have submitted offer in accordance with tender instructions and as per aforesaid references.

Thanking you,

Yours faithfully,

(Signature, date & seal of authorized
representative of the bidder)

	Erection, Testing and Commissioning , Handing over etc of 1x20 MW STG, 150 TPH Boiler with Auxiliaries and Piping and Electrical and C&I for IOCL Barauni Project at IOCL Barauni, Bihar
	TENDER NO: PSER:SCT:BRN-M1141:10
	PRICE / RATE SCHEDULE
	VOLUME – II (Rev-02)
	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 – 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 fifteen percent (± 15%) of the executed 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 , dimensions and weights of various items are mentioned in the attached BOQ cum rate/price schedule for reference purpose. These shall be utilised as per relevant sections of tender. Bidders shall quote for each item in the rate 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 extra as per tender terms.

VOLUME-II
PRICE SCHEDULE, REV-02
SUMMARY SHEET (Package A +Package B+Package C)
RATE SCHEDULE FOR THE WORK (TO BE QUOTED BY THE BIDDER)

Erection, testing and commissioning of 1x20 MW STG and Auxiliaries, 150 TPH Boiler and Auxiliaries Including Piping, insulation etc alongwith Electrical and C&I fworks for IOCL Barauni Project at IOCL, Barauni, Bihar taking into account all clarifications /changes, TCNS etc to tender document till date.

SI No	ITEM DESCRIPTION	TOTAL AMOUNT IN RUPEES (IN FIGURES & In WORDS)
1	COMPLETE WORK OF MATERIAL RECEIPT FROM STORE, HANDLING, SHIFTING TO ERECTION SITE, TOUCH UP PAINTING, PROVIDING WATCH & WARD, CHECKING OF FOUNDATION, CHIPPING & LEVELLING OF FOUNDATIONS, PRE-ASSEMBLY, ERECTION, ALIGNMENT,GROUTING,WELDING,RADIOGRAPHY,STRESS RELIEVING, UT / MPI WHEREVER APPLICABLE, APPLICATION OF THERMAL INSULATION, HYDRAULIC & AIR LEAK TEST, LIGHT-UP, STEAM BLOWING, SAFETY VALVE FLOATING, TESTING, COMMISSIONING , TRIAL OPERATION AND HANDING OVER OF THE BOILER AND AUXILIARIES INCLUDING POWER CYCLE PIPING (FOR BOTH TG & BOILER SIDE) ,CRITICAL PIPING VESSELS RELATED WITH SG AND TG PACKAGE AND ALLIED INSULATIONS etc AND PG TEST OF THE BOILER AND AUXS. OF IOCL-BARAUNI (PACKAGE-A)	
2	PROVIDING MANPOWER, SUPERVISION, T&P, IMTES/MMDS & ALL CONSUMABLES ETC. FOR ERECTION, TEMPORARY STORAGE, PRESERVATION AS REQUIRED PRIOR TO ERECTION AFTER RECEIPT, WATCH & WARD, ERECTION, TESTING, COMMISSIONING, TRIAL OPERATION, PG TEST, HANDING OVER ETC. OF STEAM TURBINE, GENERATOR, AUXILIARIES, PUMPS, HEATERS, DE-AERATOR, PIPING SYSTEM, THERMAL INSULATION, FINAL PAINTING AS ENUMERATED IN DETAIL IN THE TENDER SPECIFICATION FOR IOCL/BARAUNI : 1X20 MW SET AS PER TCC & TERMS & CONDITIONS AS DETAILED IN THIS TENDER DOCUMENT (PACKAGE-B)	
3	ERECTION, TESTING AND COMMISSIONING OF ELECTRICAL AND C&I PACKAGE INCLUDING SUPPLY OF SHOCK HAZARD CHART, DANGER BOARDS, FIRST AID BOXES, SADDLES AND CLAMP, RUBBER GROMMET, 6 MM THICK CHEQUERED PLATE,ONE METER LONG ERATHING DISCHARGE RODS,CBLE TAGS,CLAMPS,GI CONDUITS, HUME PIPES, PVC CONDITS, RUBBER MATS ETC. (PACKAGE-C)	
	GRAND TOTAL FOR THE COMPLETE TENDER	

VOLUME-II
PRICE SCHEDULE, REV-02
PRICE/RATE SCHEDULE FOR BOILER PORTION OF WORK (PACKAGE-A)

COMPLETE WORK OF MATERIAL RECEIPT FROM STORE, HANDLING, SHIFTING TO ERECTION SITE, TOUCH UP PAINTING, PROVIDING WATCH & WARD, CHECKING OF FOUNDATION, CHIPPING & LEVELLING OF FOUNDATIONS, PRE-ASSEMBLY, ERECTION, ALIGNMENT, GROUTING, WELDING, RADIOGRAPHY, STRESS RELIEVING, UT / MPI WHEREVER APPLICABLE, APPLICATION OF THERMAL INSULATION, HYDRAULIC & AIR LEAK TEST, LIGHT-UP, STEAM BLOWING, SAFETY VALVE FLOATING, TESTING, COMMISSIONING , TRIAL OPERATION AND HANDING OVER OF THE BOILER AND AUXILIARIES INCLUDING POWER CYCLE PIPING (FOR BOTH TG & BOILER SIDE) ,CRITICAL PIPING VESSELS RELATED WITH SG AND TG PACKAGE AND ALLIED INSULATIONS etc AND PG TEST OF THE BOILER AND AUXS. AS DETAILED IN THE TENDER FOR IOCL-BARAUNI PROJECT AT IOCL, BARAUNI, BIHAR TAKING INTO ACCOUNT ALL CLARIFICATIONS/CHANGES, TCNS ETC TO TENDER DOCUMENT TILL DATE

SI No	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT RATE IN RUPEES	TOTAL AMOUNT IN RUPEES (In Figures & in Words)
1	GROUP – I (non-pressure parts)	821	MT		
2	GROUP – II (pressure parts & oil system)	295	MT		
3	GROUP – III (rotating m/c)	13	MT		
4	GROUP – IV (Piping)	168	MT		
5	Group-V (insulation)	60	MT		
6	LUMPSUM PRICE FOR PROVIDING ASSISTANCE FOR CONDUCTING PG TEST	1	Unit		
	TOTAL (IN Rs.)				

VOLUME-II
PRICE SCHEDULE, REV-02
PRICE/RATE SCHEDULE FOR STG PORTION OF WORK (PACKAGE-B)

Bidders are required to submit their lumpsum price only as sought under price schedule below:-

Sl. No.	Description of work	Lump-sum price in Rs. (In figure and in words)
1	Providing manpower, supervision, T&P, IMTEs/ MMDs & all consumables etc. for receipt of materials from stores,storage yards, erection, temporary storage, preservation as required, prior to erection after receipt, watch & ward, erection, testing, commissioning, trial operation, PG test, handing over etc. of Steam Turbine & Auxiliaries, Generator & Auxiliaries, Pumps, Heaters, De-aerator, piping system, thermal insulation, final painting including supply of paints as enumerated in detail in the tender specification for 1X20 MW Set at IOCL/ BARAUNI: as per TCC & terms & conditions as detailed in this tender document taking into account all clarifications / changes, TCNS etc to tender document till date	
2	Providing Manpower, supervision, arranging all required civil works, grouting etc for lifting the Turbine (assembly) and the Generator (assembly),weighing around 50 MT each safely and placement in position as detailed in the tender specification taking into account all clarifications / changes, TCNS etc to tender document till	
GRAND TOTAL		

VOLUME-II
PRICE SCHEDULE, REV-02
SUMMARY SHEET FOR ELECTRICAL AND C&I PORTION OF WORK INCLUDING
SUPPLY & ERECTION OF MISCELLANEOUS ITEMS (PACKAGE-C)
(SL NO. 1 + SL NO. 2)

Rate schedule for erection, testing and commissioning of Panels, earthing transformer, cable tray & accessories and others Electrical and C & I equipment alongwith for 1x20 MW STG + 150 TPH IOCL Barauni Project at IOCL Barauni, Bihar taking into account all clarifications /changes, TCNS etc to tender document till date

SI No	ITEM DESCRIPTION	QUANTITY	TOTAL AMOUNT IN RUPEES (IN FIGURES & IN WORDS)
1	ERECTION, TESTING AND COMMISSIONING OF ELECTRICAL AND C&I PACKAGE (PACKAGE- C-I, C-III & C-IV)	AS PER ATTACHED APPENDIX – I	
		APPENDIX-III	
		APPENDIX-IV	
2	SUPPLY OF SHOCK HAZARD CHART, DANGER BOARDS, FIRST AID BOXES, SADDLES AND CLAMP, RUBBER GROMMET, 6 MM THICK CHEQUERED PLATE, ONE METER LONG EARTHING DISCHARGE RODS, CABLE TAGS, CLAMPS, GI CONDUITS, HUME PIPES, PVC CONDUITS, RUBBER MATS ETC (PACKAGE-C-II)	AS PER ATTACHED APPENDIX – II	
	GRAND TOTAL (PACKAGE-C-I + PACKAGE-C-II + PACKAGE- C-III + PACKAGE- C-IV)		

APPENDIX – I
PRICE SCHEDULE, REV-02

**RATE SCHEDULE FOR ERECTION , TESTING AND COMMISSIONING OF ELECTRICAL AND C& I PACKAGE AS DETAILED IN THE
TENDER SPECIFICATION FOR IOCL-BARAUNI PROJECT AT IOCL, BARAUNI, BIHAR**

SI No	ITEM DESCRIPTION	Unit Weight in kg	QTY	UNIT	DIMENSION(LXDXH)m m	UNIT RATE IN RUPEES	TOTAL AMOUNT IN RUPEES(IN FIGS & IN WORDS)
1.1	ST Generator transformer 11/7.2kV, 22/27.5 MVA. ONAN/ONAF,OCTC	55,000	1	no	7600x6500x 7650.		
1.2	LT Distribution transformers 6.6/0.433kV, 1.6MVA, ONAN	7150	2	no	3170X2700X2280		
1.3	2500A, 415V TPN, NPS Al. Bus duct	200/m	2	set	850x450x10000		
1.4	6.6 KV Neutral grounding Transformer	600	1	no	1550x1320x1460		
1.5	PMCC (20 panels/board)	800kg/panel	1	no	15762x1800x2450		
1.6	STG MCC (15 panels/board)	800kg/panel	1	no	12552x1250x2450		
1.7	Boiler MCC		1	no			
1.8	ASB (5 panels/board)	400 kg/panel	1	no	7000x1000x2450		
1.9	PDBs(2 panels/board)	400 kg/panel	5	no	1000x3000X1000		
1.10	110V UPS DB (7 panels/board)	400 kg/panel	1	no	5000x1000x2450		
1.11	220V DCDB. (5 panels/board)	400 kg/panel	1	no	5687x1000x2450		
1.12	220V Station Battery. (555AH,173Cells)	35KG WITH Acid/ Cell	2	no	4 Racks. Each Rack dim.: 2205(L)x514(W)X1540(H)		
1.13	Battery Charger	2200 kgs	1	set	1350(w)x1000(D)x2300(h)		
1.14	Electrical Auxiliary Control Panel(~ 4Panels)	4000	1	set	4816X1250X2200		
1.15	Start/Stop PB Station	5	40	no	400x110x220		
1.16	Start / Stop PB Station with Ammeter	2.5	30	no	400x110x220		

APPENDIX – I
PRICE SCHEDULE, REV-02

**RATE SCHEDULE FOR ERECTION , TESTING AND COMMISSIONING OF ELECTRICAL AND C& I PACKAGE AS DETAILED IN THE
TENDER SPECIFICATION FOR IOCL-BARAUNI PROJECT AT IOCL, BARAUNI, BIHAR**

SI No	ITEM DESCRIPTION	Unit Weight in kg	QTY	UNIT	DIMENSION(LXDXH)m	UNIT RATE IN RUPEES	TOTAL AMOUNT IN RUPEES(IN FIGS & IN WORDS)
1.17	Break glass type,mushroom type,stop push button station.	2	10	no	400x110x220		
2	HT POWER CABLE						
2.1	11kV (UE) Armored, Cu Conductor, XLPE insulated FRLS PVC outer-sheathed cable.	3350 unit Weight(per Km)	9000	MTRS	1C x 1000		
2.2	6.6kV (UE) Armored, Al Conductor, XLPE insulated FRLS PVC outer-sheathed cable.	8425 unit Weight(per Km)	500	MTRS	3C x 240		
2.3	6.6 kv (UE) Armored, Al Conductor, XLPE insulated FRLS PVC outer-sheathed cable.	3405 unit Weight(per Km)	1000	MTRS	1CX630		
2.4	6.6 kv, (UE) Armored, Cu Conductor, XLPE insulated FRLS PVC outer-sheathed cable.	5120 unit Weight(per Km)	1500	MTRS	1CX1000		
2.5	Cable Kit for 1C x 630 sq.mm, 11kV Cu. Cables.	2 unit Weight(per Km)	30	NO			
2.6	Cable Kit for 3Cx 240 sq.mm, 6.6 kV Al Cable	2 unit Weight(per Km)	12	NO			
2.7	Cable kit for 1Cx1000 Sq. mm, 11 kv cable	3 unit Weight(per Km)	225	NOS			
2.8	Cable kit for 1Cx1000 Sq. mm, 6.6 kv cable	4 unit Weight(per Km)	45	NOS			
3.0	LT POWER CABLE						
3.1	1.1KV Armoured Al. Conductor XLPE/PVC Insulated, FRLS outer sheathed.	1289Kg/Km	4500	MTRS	3 ½ C x 50 Sq. mm		
3.2	1.1KV Armoured Al. Conductor XLPE/PVC Insulated, FRLS outer sheathed.	727 Kg/Km	1000	MTRS	4C x 25Sq. mm		
3.3	1.1KV Armoured Al. Conductor XLPE/PVC Insulated, FRLS outer sheathed.	2075 Kg/Km	1000	MTRS	3 ½ C x 95 Sq.mm		
3.4	1.1KV Armoured A1. Conductor PVC Insulated, FRLS outer sheathed	5400 Kg/Km	8000	MTRS	3 ½ C x 300Sq.mm		
3.5	1.1KV Armoured A1. Conductor XLPE/PVC Insulated, FRLS outer sheathed.	1337Kg/Km	1500	MTRS	1 C x 120Sq.mm		

APPENDIX – I
PRICE SCHEDULE, REV-02

**RATE SCHEDULE FOR ERECTION , TESTING AND COMMISSIONING OF ELECTRICAL AND C& I PACKAGE AS DETAILED IN THE
TENDER SPECIFICATION FOR IOCL-BARAUNI PROJECT AT IOCL, BARAUNI, BIHAR**

SI No	ITEM DESCRIPTION	Unit Weight in kg	QTY	UNIT	DIMENSION(LXDXH)m	UNIT RATE IN RUPEES	TOTAL AMOUNT IN RUPEES(IN FIGS & IN WORDS)
3.6	1.1KV armoured Cu. Conductor PVC Insulated, FRLS outer sheathed.	425Kg/Km	4000	MTRS	4C x 6 Sq.mm		
3.7	1.1KV armoured Al. Conductor PVC Insulated, FRLS outer sheathed.	4000Kg/Km	1000	MTRS	3C x 240Sq.mm		
4	CONTROL CABLES						
4.1	1.1kv PVC Insulated FRLS Outer Sheathed.	500 Kg/Km	10000	MTRS	3C x 2.5 Sq. mm		
4.2	1.1kv PVC Insulated FRLS Outer Sheathed.	650 Kg/Km	6000	MTRS	5C x 2.5 / 2.5Sq. Mm		
4.3	1.1kv PVC Insulated FRLS Outer Sheathed	800 Kg/Km	5000	MTRS	7C x 2.5 / 2.5Sq. Mm		
4.4	1.1kv PVC Insulated FRLS Outer Sheathed	1000 Kg/Km	5000	MTRS	16C / 2.5 Sq.mm		
4.5	1.1kv PVC Insulated FRLS Outer Sheathed	1400 Kg/Km	2500	MTRS	19C/2.5 Sq.mm		
5.0	PRE FABRICATED CABLE TRAYS AND ACCESSORIES						
5.1	600MM LADDER TYPE ST RUN TRAY+ACC+CPLR PT	10 Kg	1000	Nos			
5.2	600MM HOR ELB LADDER TYPE TRAY+ACC+CPLR PT	20 Kg	25	Nos			
5.3	600MM VER UP LADDER TYPE TRAY+ACC+CPLR PT	20 Kg	15	Nos			
5.4	600MM VER DOWN LADDER TYPE TRAY+ACC+CPLR	20 Kg	15	Nos			
5.5	600MM HOR TEE LADDER TYPE TRAY+ACC+CPLR PT	30 Kg	25	Nos			
5.6	300MM LADDER TYPE ST RUN TRAY+ACC+CPLR PT	10 Kg	250	Nos			
5.7	300MM HOR ELB LADDER TYPE TRAY+ACC+CPLR PT	20 Kg	10	Nos			
5.8	300MM VER UP LADDER TYPE TRAY+ACC+CPLR PT	20Kg	5	Nos			
5.9	300MM VER DOWN LADDER TYPE TRAY+ACC+CPLR	20 Kg	5	Nos			
5.10	300MM HOR TEE LADDER TYPE TRAY+ACC+CPLR PT	30 Kg	10	Nos			
5.11	600MM PERF ST RUN TRAY+ACC+CPLR PT	15 Kg	500	Nos			
5.12	600MM HOR BEND PERF TRAY+ACC+CPLR PT	20 Kg	15	Nos			
5.13	600MM VER UP PERF TRAY+ACC+CPLR PT	20 Kg	10	Nos			
5.14	600MM VER DOWN PERF TRAY+ACC+CPLR PT	20 Kg	10	Nos			
5.15	600MM HOR TEE PERF TRAY+ACC+CPLR PT	30 Kg	15	Nos			
5.16	300MM PERF ST RUN TRAY+ACC+CPLR PT	15 Kg	250	Nos			

APPENDIX – I
PRICE SCHEDULE, REV-02

**RATE SCHEDULE FOR ERECTION , TESTING AND COMMISSIONING OF ELECTRICAL AND C& I PACKAGE AS DETAILED IN THE
TENDER SPECIFICATION FOR IOCL-BARAUNI PROJECT AT IOCL, BARAUNI, BIHAR**

SI No	ITEM DESCRIPTION	Unit Weight in kg	QTY	UNIT	DIMENSION(LXDXH)m	UNIT RATE IN RUPEES	TOTAL AMOUNT IN RUPEES(IN FIGS & IN WORDS)
5.17	300MM HOR BEND PERF TRAY+ACC+CPLR PT	15Kg	10	Nos			
5.18	300MM VER UP PERF TRAY+ACC+CPLR PT	15 Kg	5	Nos			
5.19	300MM VER DOWN PERF TRAY+ACC+CPLR PT	15 Kg	5	Nos			
5.20	300MM HOR TEE PERF TRAY+ACC+CPLR PT	20 Kg	10	Nos			
5.21	150MM PERF ST RUN TRAY+ACC+CPLR PT	10 Kg	200	Nos			
5.22	50MM PERF ST RUN TRAY+ACC+CPLR PT	5 Kg	200	Nos			
6.0	STRUCTURAL STEELS						
6.1	ISMC 100x50x6 mm Channels		10000	KG			
6.2	ISA 50x50x6 mm Runner angles		23000	KG			
	NOTE:- 1) These materials are supplied for site to make supports for cable trays (in the buried RCC trenches, Overhead tray arrangement on pipe racks and Cable Tray arrangement in Cellars & other arrangements as applicable for the project. Also these are required for making of frames for PB stations and junction boxes as per the project requirements. 2) All steel structure used for electrical installation shall be painted with one coat of Red Oxide Zinc Chromate Primer of approved shade for indoor installations.						
7.0	PLANT EARTHING MATERIALS						
7.1	75x10mm GI Strip		1500	MTRS			
7.2	65mm dia Pipe Electrode		18	MTRS			
7.3	50 x 6mm GI Strips		500	MTRS			
7.4	25 x3 mm GI Strip		500	MTRS			
7.5	16SWG GI wire		250	MTRS			
7.6	8SWG GI wire		250	MTRS			
8.0	PLANT EARTHING MATERIALS						
8.1	65mm dia, GI Pipe Electrode		12	MTRS			
8.2	25 X3 mm GI Strip		1400	MTRS			
TOTAL							

Notes :- 1. All Site modification works for the existing 6.9kV switchboards and further extension works, power and control cables modifications in existing swbds, etc.works shall be in the scope of Vender.

**APPENDIX-II
PRICE SCHEDULE, REV-02**

**RATE SCHEDULE FOR SUPPLY, ERECTION, TESTING AND COMMISSIONING OF ELECTRICAL
C & I PACKAGE AS DETAILED IN THE TENDER SPECIFICATION FOR IOCL-BARAUNI PROJECT
AT IOCL, BARAUNI, BIHAR**

Sl. No.	Description	QTY.	Remarks	UNIT RATE IN Rs.	TOTAL AMOUNT IN RUPEES (IN FIGS & IN WORDS)
1	Multilingual shock hazard charts	20 Nos	In English, Hindi & local language		
2	Danger boards for HT & LT switchboards	20 Nos	In English, Hindi & local language		
3	One meter long earthing discharge rods.	4 nos			
4	Cable Tags 2mm thick, 75mm long, 15mm width Aluminium Strips.	1000 nos	At entry, exit & at every 30 mtrs of cable run length.		
5	Trefoil clamps for single core cables –25mm wide 8SWG Aluminium Strips.	2500 nos	Every 3 mtrs of cable length		
6	Clamps for Multicore cables---25x3mm Aluminium flats	500 nos	do		
7	3mm dia Nylon Cord.	10000 nos	to trays, at every 5mtrs.		
8	50dia, 100dia & 200dia GI pipe bends for cable termination upto equipment JB of motor, LPB etc	1) 50 dia- 20M 2) 100 dia-150M 3) 200 dia -20M	Medium Duty, Class-B type with 75 microns thick galvanising.		
9	100dia & 200dia GI floor sleeves for cable routing underground	500 MTRS	Site to coordinate with civil for the erection as per cable tray layout drgs		
10	PVC sleeves for cable routing underground	150 M	Site to coordinate with civil for the erection as per cable tray layout drgs		
11	Rubber Mats	300 M			
	TOTAL				

NOTE : Bidders to arrange all necessary arrangements like, First Aid Box. Sand Buckets, ferrules, cable glands & lugs (Qty. for sufficing the mismatches in supplies) etc, including 6 mm thick chequered plate (for covering unused portion of cutouts) etc in Switch Gear room, etc as per requirement for meeting the work completion.

APPENDIX – III

PRICE SCHEDULE, REV-02

**RATE SCHEDULE FOR ERECTION , TESTING AND COMMISIONING OF C& I PACKAGE FOR 1x20 MW
STG, 150 TPH BOILER IOCL BARAUNI PROJECT**

SI No	ITEM DESCRIPTION	QTY	UNIT	UNIT RATE IN RUPEES	TOTAL AMOUNT IN RUPEES (IN FIGS & IN WORDS)
	Instruments				
1.00	Flow Nozzles	10	Nos		
2.00	Orifice Plate Assemblies	2	Nos		
3.00	Differential Pressure Transmitters	10	Nos		
4.00	Control Valve with HART	15	Nos		
5.00	Level Gauges	5	Nos		
6.00	Level Switches	12	Nos		
7.00	Displacer Type Level transmitter	5	Nos		
8.00	Desuperheater and control valves	2	Nos		
9.00	Pressure Gauges	40	Nos		
10.00	Diff. pressure gauges	4	Nos		
11.00	Pressure Switches	2	Nos		
12.00	Pressure Safety Valve	1	Nos		
13.00	Pressure Transmitters (HART)	8	Nos		
14.00	Temperature Element (Thermo Couple)	2	Nos		
15.00	Temperature Element (Rtd)	8	Nos		
16.00	Temperature Gauges	40	Nos		
17.00	Hand Held Communicator (HART+Fieldbus)	1	Nos		
18.00	Thermowells	40	Nos		
19.00	Rotameters	2	Nos		
20.00	Junction Box	15	Nos		
21.00	Other instruments/ equipments as per final construction documents	10	Nos		

APPENDIX – III

PRICE SCHEDULE, REV-02

**RATE SCHEDULE FOR ERECTION , TESTING AND COMMISIONING OF C& I PACKAGE FOR 1x20 MW
STG, 150 TPH BOILER IOCL BARAUNI PROJECT**

SI No	ITEM DESCRIPTION	QTY	UNIT	UNIT RATE IN RUPEES	TOTAL AMOUNT IN RUPEES (IN FIGS & IN WORDS)
	NOTE:- The BHEL shall supply above items/ instruments in loose condition to the project site. vendors shall carry out erection & commissioning of these item/instruments as per Owner's approved drawing, input documents from BHEL . Special Requirements / Informations - a. Instrument impulse lines are piping based with welded end connections. The pipe & pipe fitting shall be as per piping specification. b. Painting of impulse line, instrument / JB supports etc shall be in erection agency scope. Painting procedure as per main piping specification. c. The supply of paint, primer, painting tools shall be in erection agency scope. d. The all site erected impulse lines are subject to hydrotest, radiography test in line with mother pipe requirements. Same shall be in erection agency scope e. Pre-fabricated canopies, supplied by BHEL , mounting shall be in erection agency scope. f. Statutory approvals like IBR, local agencies etc as required shall be in Vendor scope. g. Calibration of instruments before erection shall be carried out by erection agency. h. The all skid mounted impulse lines are subject to hydro test, radiography test in line with mother pipe requirements at site. Same shall be in erection agency scope i. Calibration of skid mounted instruments before commissioning shall be carried out by erection agency. j. Instrument Air line 1" upto 6 mm are SS. k. Instrument cable support system from instrument to Junction box shall be fabricated at site by erection agency. l. Receipt, Handling, storage of Mandatory spares shall be in erection agency scope. m. Coordination with various sub-packgaes vendors /other contractors				
	Instrument Installation materials, Tubes and Fittings				
22.00	Needle Valve	20	Nos		
23.00	Globe Valves	185	Nos		
24.00	Tube Fittings	200	Nos		
25.00	Pipe Fittings, Nipples Of SS	1500	Nos		
26.00	Condensing Chambers And Syphons	50	Nos		
27.00	Air Filter Regulators	30	Nos		
28.00	Impulse Pipes & Tubes For Impulse Connection For Inst. Hookup				
	(I) SS Tube 6 mm	200	meter		
	(li) SS Pipe 21.3 X 4.8 Mm	1200	meter		
	(lii) SS Pipe 21.3 X 3.47Mm	1000	meter		
	NOTE:- Above material shall be supply by BHEL in loose condition. Erection contractor shall fabricate and assemble the instrument impulse line connections at project site, as per provided design document.				

APPENDIX – III

PRICE SCHEDULE, REV-02

**RATE SCHEDULE FOR ERECTION , TESTING AND COMMISSIONING OF C& I PACKAGE FOR 1x20 MW
STG, 150 TPH BOILER IOCL BARAUNI PROJECT**

SI No	ITEM DESCRIPTION	QTY	UNIT	UNIT RATE IN RUPEES	TOTAL AMOUNT IN RUPEES (IN FIGS & IN WORDS)
	Instruments				
29	AC UPS system consisting of: • Battery Banks • Inverter & charger panels • Distribution Boards	1	set		
	NOTE:- BHEL shall supply following instrument packages. Erection, installation and commissioning shall be in vendor scope				
	Instrumentation control & signal Cables				
	Cables				
31	1P x 1.5 sq.mm, (Individual & Overall shielded)	4000	Meters		
32	6P x 0.5 sq.mm (Individual & Overall shielded)	2500	Meters		
33	6P x 0.5 sq.mm (Overall shielded)	1500	Meters		
34	1T x 1.5 sq.mm, Individual & Overall shielded Triad cable	1500	Meters		
35	6TX1.5sq.mm Individual & Overall shielded Triad cable	1500	Meters		
36	1P x 16 AWG Cr-Al extension cable	1000	Meters		
	RAW MATERIAL TO BE SUPPLIED BY BHEL AND TO BE FABRICATED, ERECTED & COMMISSIONED BY VENDOR				
37	2" GI pipe for transmitter and JB mounting	100	meters		
38	MS angle iron- 50x50x6 mm	55	kg		
39	MS angle iron- 75x75x6 mm	55	kg		
40	Impulse line supporting clamps for				
40.1	Pipe-1/2"	500	meters		
40.2	Tube-1/4"	200	meters		
41	STEELPlate (6mm) 1500x5000x6	55	kg		
42	ISMC 100x50 mm Channel, MS	12	kg		
43	Nuts & Bolts, Clamps	200	nos		
	TOTAL				

**APPENDIX-IV
PRICE SCHEDULE, REV-02**

**RATE SCHEDULE FOR SUPPLY, ERECTION , TESTING AND COMMISSIONING OF C& I PACKAGE
FOR 1x20 MW STG, 150 TPH BOILER IOCL BARAUNI PROJECT**

Sl. No.	Description	QTY.	Unit	UNIT RATE IN RUPEES	TOTAL AMOUNT IN RUPEES
1	Cable Glands Double compression, Ni coated brass/SS.				
1.1	Size- ½”	300	Nos		
1.2	Size- ¾”	100	Nos		
1.3	Size-1”	150	Nos		
1.4	Size-1-1/4”	150	Nos		
1.5	Size- 1-1/2”	150	Nos		
1.6	Size- 2”	150	Nos		
2	Tinned Cable Lugs at both ends for both ends of cables				
2.1	Size- for 0.5 mm2 cable	600	Nos		
2.2	Size- for 1 mm2 cable	400	Nos		
2.3	Size- for 1.5 mm2 cable	400	Nos		
2.4	Size- for 2.5 mm2 cable	200	Nos		
3	PVC Cable Gland shrouds (covers)	1000	Nos		
4	Cable ferruling numbers & characters	1000	Nos		
5	Name plates/Tag plates with tying/fixing material for cable's both end & filed instruments (@100 METERS per run of cable)	500	Nos		
6	Cable Markers (@ 100 meters per run of cable)	500	Nos		
7	Adapters for cable glands & Junction boxes (@ 100 meters per run of cable)	1000	Nos		
8	Cable Supporting channels/ angles (MS) with clamps, from JB to instrument	800	Nos		
	TOTAL				