



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

BHARAT HEAVY ELECTRICALS LIMITED

(A Govt. of India Undertaking)

TCN - 02

Ref: PSER:SCT:BRL-E1018:TCN-02

Date: 10-06-2009

Sub	Tender change notice (TCN) 02.	
Job	ERECTION TESTING & COMMISSIONING OF ALL ELECTRICAL, CONTROL & INSTRUMENTATION WORK OF HRSG, GTG, BOP, GT & THEIR AUXILIARIES, ETC FOR 1X21 MW (FRAME-V) GTG BASED COGENERATION CAPTIVE POWER PLANT OF BRPL-DHDT PROJECT AT BONGAIGAON REFINERY & PETROCHEMICALS LTD., ASSAM.	
Ref	1.0	Tender no PSER:SCT:BRL-E1018:09.
	2.0	BHEL's NIT, vide reference no Ref: PSER:SCT:BRL-E1018:09 Dated 14-05-2009
	3.0	BHEL's TCN-01, vide reference no PSER:SCT:BRL-E1018:TCN-01, dated 29-05-09.
	4.0	Other references (if any).

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

- 1.0 Due date of submission of offer is extended from **10-06-2009** to **16-06-2009, 15-00 hrs.**
- 2.0 Price schedule format has been revised as **VOL-III A, PRICE SCHEDULE, REV-01**. Bidders are requested to submit their price in revised format (**VOL-III A, PRICE SCHEDULE, REV-01**) only. Offer from bidders in superseded price schedules shall not be considered. Bidders are requested to furnish a declaration in techno-commercial offer that they have submitted their price bid in sealed envelope as per revised price schedule format
- 3.0 Revised 'No deviation certificate' is attached. Bidder to submit 'No deviation certificate' as per attached format only.
- 4.0 Technical clarifications attached in vide annexure-I.
- 5.0 All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,
for BHARAT HEAVY ELECTRICALS LTD

DGM (**SCT**)

Encl

- 1.0 Revised format of 'No deviation certificate'.
- 2.0 Technical clarifications (annexure-I)
- 3.0 Revised price format **VOL-III A, PRICE SCHEDULE, REV-01**

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 : 23211798/ 1691

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 & COMMISSIONING OF ALL ELECTRICAL, CONTROL & INSTRUMENTATION WORK OF HRSG, GTG, BOP, GT & THEIR AUXILIARIES, ETC FOR 1X21 MW (FRAME-V) GTG BASED COGENERATION CAPTIVE POWER PLANT OF BRPL-DHDT PROJECT AT BONGAIGAON REFINERY & PETROCHEMICALS LTD., ASSAM.	
Ref	1.0	Tender no PSER:SCT:BRL-E1018:09.
	2.0	BHEL's NIT, vide reference no Ref: PSER:SCT:BRL-E1018:09 Dated 14-05-2009
	3.0	BHEL's TCN-01, vide reference no PSER:SCT:BRL-E1018:TCN-01, dated 29-05-09.
	4.0	BHEL's TCN-02, vide reference no PSER:SCT:BRL-E1018:TCN-02, dated 10-06-09
	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 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. We hereby confirm our unqualified acceptance to all terms & conditions, unqualified compliance to technical specification 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)

BHEL CLARIFICATION (ANNEXURE-I)

JOB: ERECTION TESTING & COMMISSIONING OF ALL ELECTRICAL, CONTROL & INSTRUMENTATION WORK OF HRSG, GTG, BOP, GT & THEIR AUXILIARIES, ETC FOR 1X21 MW (FRAME-V) GTG BASED COGENERATION CAPTIVE POWER PLANT OF BRPL-DHDT PROJECT AT BONGAIGAON REFINERY & PETROCHEMICALS LTD., ASSAM.

TENDER DOCUMENT NO : PSER:SCT:BRL-E1018:09

SL.	Reference clause of Tender document	Existing provision	Bidder's Query	BHEL's clarification
1.0	VOLUME – IIIA, REV-0 Sr. No. 15 – Contractor to install the following cable hooking material	Unit of measurement is METRE	Unit of measurement is METRE or in Nos.	Sl. No. 15.01 TO 15.08 unit will be in “NO” not in “metre”
2.0	VOLUME – IIIA, REV-0 Sr. No. 16 – following item to be procured and erected by contractor	Unit of measurement is Lot	Specify actual Unit of Measurement.	Small & Loose items of misc nature, Hence unit specification in “LOT”
3.0	Volume IIIA price - BOQ Cum schedule of rate. The serial No. 4.09, 4.10 & 4.11 - MS angle and ISMC channel for tray support	_____	Material supplied by BHEL and asking the price for erection or you need the price for items.	Material described in SI Nos. referred in 4.09,4.10, 4.11, AS mentioned, shall be supplied by BHEL

	<u>ELECTRICAL, C&I ERECTION WORK FOR 1 X FRAME-5, CO- GENERATION PLANT FOR BRPL AT BONGAIGAON, ASSAM</u>
	<u>TENDER DOCUMENT NO: PSER:SCT:BRL-E1018:09</u>
	<u>BOQ CUM SCHEDULE OF RATES</u>
	<u>VOLUME – IIIA (Revision-01)</u>
	<u>PREAMBLE</u>
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, ID, 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. 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/reimbursable extra as per tender terms.

ERECTION TESTING & COMMISSIONING OF ALL ELECTRICAL, CONTROL & INSTRUMENTATION WORK OF HRSG, GTG, BOP, GT & THEIR AUXILIARIES, ETC FOR 1X21 MW (FRAME-V) GTG BASED COGENERATION CAPTIVE POWER PLANT OF BRPL-DHDT PROJECT AT BONGAIGAON REFINERY & PETROCHEMICALS LTD., ASSAM.

SL. NO.	DESCRIPTION OF ITEMS	DIMENSION(in m) (Length)x(Width)x(Height)/DETAIL	QUANTITY	UNIT	UNIT RATE (RUPEES)	AMOUNT (RUPEES)
1.00	TRANSFORMER					
1.01	Unit Ratio Transformer 11/11kV 20MVA	5X3X4	2	50 T		
1.02	Stn. Power Transformer 11/6.9kV 10.0MVA	4.5X3.0X5.0	2	30 T		
1.03	Stn. Distribution Transformer 6/6/0.433kV 2.0MVA	3.3X3.5X3.5	2	9 T		
1.04	Lighting transformers	1.5X1X1	2	Nos		
1.05	Emg. Lighting transformers	1x1x1	1	Nos		
2.00	Cubicles/Cabinets/Panels :					
2.01	Neutral Isolation (11/11kV) bkr Panels	3.5x2.5x2.5(dim. of board)	4	Panels		
2.02	415V Station PCC-1	9x1.4x2.4	1	No		
2.03	415V Station PCC-2	7x1.4x2.4	1	No		
2.04	GT MCC-1	14x1.4x2.4	1	No		
2.05	BOPMCC	12x1.4x2.4	1	No		
2.06	AC&VENT MCC	14X8X4	1	No		
2.07	415V BOP MCC	15x1.4x2.4	2	No		
2.08	415v ASB	6x1x2.4	1	No		
2.09	MLDB	6x1x2.4	1	No		
2.10	AC ELDB	3x1x2.4	1	No		
2.11	DCDB&DCELDB	9x1x2.4	1	No		
2.12	125V DCDB-1	4x1x2.4	1	No		
2.13	220V DC Station battery charger	6x1x2.4	1	No		
2.14	125V DC battery charger	5x1x2.4	1	No		
2.15	110V AC UPS	6x1x2.4	1	No		
2.16	a) UPS ACDB	6x0.8x2.4	1	No		
2.17	b) wall mounted DBs	2x 2x1	5	Nos		
2.18	220V (Lead Acid) Station battery bank-1No.	0.5x0.5x0.2(/Cell)	110	Cells		
2.19	125V (Lead Acid) Station battery bank-1No.	0.5x0.5x0.2(/Cell)	65	Cells		
2.20	UPS battery bank-1No.	0.55x0.5x0.2(/Cell)	110	Cells		
2.21	415V LT Bus duct	15x1x1	4	Nos		

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SL. NO.	DESCRIPTION OF ITEMS	DIMENSION(in m) (Length)x(Width)x(Height)/DETAIL	QUANTITY	UNIT	UNIT RATE (RUPEES)	AMOUNT (RUPEES)
2.22	6.6kV Busduct	15x1x1	2	Nos		
2.23	Local Control stations	0.2x0.15x0.25	1	Lot		
2.24	11kV neutral C.B. (tieline trafo.)	1.0x2.5x2.5	4	Nos		
2.25	NGR for 11/11kV tiel line trafo	3.0x2.0x2.5	4	Nos		
2.26	NGR for 11/6.9kV Power Dist. Trafos.	3.0x2.0x2.5	2	Nos		
2.27	Synchronisation Control & Annunciation Panel & SER	7.0x1.0x2.4	2	Set		
3.00	Electrical Control System(ECS)					
3.01	Panels	1x0.8x2.4	12	Nos		
3.02	Aux. Control mimic panel	12x1x2.4	1	Nos		
3.03	HMIs & Consoles	As per Requirement	3	Nos		
3.04	Printers etc.	As per Requirement	11	Nos		
3.05	GPS system with Antenna	As per Requirement	1	Set		
4.00	Erection of Cable Trays with proper support :					
4.01	600/750mm width, 3.0m length, ladder type, GI cable trays		1700	Nos.		
4.02	300mm width, 3.0m length, ladder type, GI cable trays		200	Nos.		
4.03	600mm width, 2.5m length, perforated, GI cable trays		500	Nos.		
4.04	300mm width, 2.5m length, perforated, GI cable trays		100	Nos.		
4.05	150mm width, 2.5m length, perforated, GI cable trays		200	Nos.		
4.06	50mm width perforated cable trays		1500	Nos.		
4.07	1200mm width, 400mm height 2.5m length GI cable duct		200	Nos.		
4.08	400mm width, 200mm height 2.5m length GI cable duct		50	Nos.		
4.09	65x65x6 MS Angle for tray support		45	Tonnes		
4.10	50x50x6 MS Angle for tray support		10	Tonnes		
4.11	ISMC 100 channel for tray support		45	Tonnes		

VOLUME - III A, REV-01

TENDER SPECIFICATION NO. PSER:SCT:BRL-E1018:09

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SL. NO.	DESCRIPTION OF ITEMS	DIMENSION(in m) (Length)x(Width)x(Height)/DETAIL	QUANTITY	UNIT	UNIT RATE (RUPEES)	AMOUNT (RUPEES)
5.00	Cable laying ,dressing ,glanding and termination of cables of following sizes(All cable are to be terminated with proper Ferrules,Cable Tag and Cable Tie)(Cable Tag-@Every 3 Mtrs of cable length)					
5.01	1Cx 630sq.mm Cable	11kV, Copper conductor, Extruded XLPE insulated, PVC/FRLS PVC sheathed, armored	17000	Metre		
5.02	1Cx630 sq.mm Cable	6.6 KV Al conductor, Extruded XLPE insulated, PVC/FRLS PVC sheathed, armored Cable	2500	Metre		
5.15	1 C x 150 mm ² Cables	1.1KV Armoured Al/Cu XLPE/PVC, FRLS	1000			
5.30	1Cx125 mm ²	1.1KV Armoured Al/CU PVC, FRLS	1000	Metre		
5.31	1Cx120 mm ² Cables	1.1KV Armoured Al PVC, FRLS	1200	Metre		
5.16	1 C x 70 mm ² Cables	1.1KV Armoured Al/Cu XLPE/PVC, FRLS	5000	Metre		
5.10	1 C x 35 mm ² Cables	1.1KV Armoured Al/Cu XLPE/PVC, FRLS	500	Metre		
5.11	1 C x 25 mm ² Cables	1.1KV Armoured Al/Cu XLPE/PVC, FRLS	1000			
	1C x 6 mm ² Cables	1.1KV Armoured Al/Cu XLPE/PVC, FRLS	500	Metre		
5.24	SIGNAL CABLE, 1 PAIRX1.5MM2,TINNED CU	600/1100V Cu PVC, FRLS, OS	31500	Metre		
5.28	SIGNAL CABLE, 1 PAIRX16 AWG		1500	Metre		
5.26	SIGNAL CABLE, 6 PAIRX0.5MM2		47300	Metre		
5.27	SIGNAL CABLE, 12PAIRX0.5MM2		34200	Metre		
5.29	SIGNAL CABLE, 12 PAIRX20 AWG		3000	Metre		
5.48	2Cx2.5mm ² CABLE	As per Rrequirement	2000	Meters		
5.32	2Cx0.75 mm ² Cables	1.1KV Armoured Al XLPE/PVC, FRLS	150	Metre		
5.03	3Cx300 sq.mm Cable	6.6kV, Aluminum conductor, Extruded XLPE insulated, PVC/FRLS PVC sheathed, armored Cable	1500	Metre		
5.38	3 C x 95mm ² CABLE		500	Metre		
5.37	3C X 70 mm ² CABLE		1800	Metre		
5.46	3Cx10mm ² CABLE	As per Rrequirement	600	Meters		
5.45	3Cx6mm ² CABLE	As per Rrequirement	900	Metre		
5.36	3C X 4 mm ² CABLE		8500	Metre		
5.17	3 C x 2.5 mm ² Cables	1.1KVArmoured Cu XLPE/PVC, FRLS	63500	Metre		

VOLUME - III A, REV-01

TENDER SPECIFICATION NO. PSER:SCT:BRL-E1018:09

ERECTION TESTING & COMMISSIONING OF ALL ELECTRICAL, CONTROL & INSTRUMENTATION WORK OF HRSG, GTG, BOP, GT & THEIR AUXILIARIES, ETC FOR 1X21 MW (FRAME-V) GTG BASED COGENERATION CAPTIVE POWER PLANT OF BRPL-DHDT PROJECT AT BONGAIGAON REFINERY & PETROCHEMICALS LTD., ASSAM.

SL. NO.	DESCRIPTION OF ITEMS	DIMENSION(in m) (Length)x(Width)x(Height)/DETAIL	QUANTITY	UNIT	UNIT RATE (RUPEES)	AMOUNT (RUPEES)
5.14	3.5 C x 300 mm ² Cables	1.1KV Armoured Al/Cu XLPE/PVC, FRLS	2000	Metre		
5.12	3 .5 C x 185 mm ² Cables	1.1KV Armoured Al/Cu XLPE/PVC, FRLS	2000	Metre		
5.13	3 .5 C x 95 mm ² Cables	1.1KV Armoured Al/Cu XLPE/PVC, FRLS	2500			
5.09	3 .5 C x 50 mm ² Cables	1.1KV Armoured Al/Cu XLPE/PVC, FRLS	5400			
5.08	3 .5 C x 35 mm ² Cables	1.1KV Armoured Al/Cu XLPE/PVC, FRLS	2000	Metre		
5.04						
5.05	4 C x 16 mm ² Cables	1.1KV Armoured Al/Cu XLPE/PVC, FRLS	5500			
5.06	4 C x 10 mm ² Cables	1.1KV Armoured Al/Cu XLPE/PVC, FRLS	3250	Metre		
5.07	4 C x 6 mm ² Cables	1.1KV Armoured Al/Cu XLPE/PVC, FRLS	4500			
5.18	5 C x 2.5 mm ² Cables	1.1KVArmoured Cu XLPE/PVC, FRLS	27500	Metre		
5.19	7 C x 2.5 mm ² Cables	1.1KVArmoured Cu XLPE/PVC, FRLS	25500	Metre		
5.20	10 C x 2.5 mm ² Cables	1.1KVArmoured Cu XLPE/PVC, FRLS	13000	Metre		
5.21	12 C x 2.5 mm ² Cables	1.1KVArmoured Cu XLPE/PVC, FRLS	20450	Metre		
5.33	16Cx2.5 mm ² Cables	1.1KV Armoured Cu XLPE, FRLS	3000	Metre		
5.22	19 C x 2.5 mm ² Cables	1.1KVArmoured Cu XLPE/PVC, FRLS	8500	Metre		
5.23	24C x 2.5 mm ² Cables	1.1KVArmoured Cu XLPE/PVC, FRLS	8750	Metre		
5.25	8 TRIAD, 1.5 SQ.MM., CU	600/1100V Cu PVC, FRLS, I&OS	6000	Metre		
5.34	THERMOCOUPLE KX TYPE CABLE 1PX16AWG IEC 584-2	600V/1100V,PVC/FRLSPVC,INDI& OVERALLSHEILD	500	Metre		
5.35	THERMOCOUPLE KX TYPE CABLE 12PX20 AWG	600V/1100V,PVC/FRLSPVC,INDI& OVERALLSHEILD	3000	Metre		
5.39	12P X 1.3 SQ.MM(T/C) SIGNAL CABLES	PVC FRLS- INDIVIDUAL & OVERALL SHIELDING	900	Metre		
5.40	6P X 1.3SQ.MM(T/C) SIGNAL CABLES	PVC FRLS- INDIVIDUAL & OVERALL SHIELDING	900	Metre		
5.41	1P X 1.3SQ.MM(T/C) SIGNAL CABLES	PVC FRLS- INDIVIDUAL & OVERALL SHIELDING	300	Metre		
5.42	2T X 1.5 SQ.MM SIGNAL CABLES	PVC FRLS- INDIVIDUAL & OVERALL SHIELDING	600	Metre		
5.44	6T X 1.5 SQ.MM SIGNAL CABLES	PVC FRLS- INDIVIDUAL & OVERALL SHIELDING	1200	Metre		
5.47	6Px1.5mm ² CABLE	As per Rrequirement	1500	Meters		
5.49	2P x 0.5MM ² CABLE	As per Rrequirement	3000	Metre		

ERECTION TESTING & COMMISSIONING OF ALL ELECTRICAL, CONTROL & INSTRUMENTATION WORK OF HRSG, GTG, BOP, GT & THEIR AUXILIARIES, ETC FOR 1X21 MW (FRAME-V) GTG BASED COGENERATION CAPTIVE POWER PLANT OF BRPL-DHDT PROJECT AT BONGAIGAON REFINERY & PETROCHEMICALS LTD., ASSAM.

SL. NO.	DESCRIPTION OF ITEMS	DIMENSION(in m) (Length)x(Width)x(Height)/DETAIL	QUANTITY	UNIT	UNIT RATE (RUPEES)	AMOUNT (RUPEES)
6.00	Supply of HT Jointing kits for following HT Cables:					
6.01	1Cx630 mm ² , 11 KV Cu Cables		200	Nos		
6.02	1Cx630 mm ² , 6.6 KV Al Cables		75	Nos		
7.00	Plant/Equip Earthing:					
7.01	65mm dia, 3m long Earth electrodes	As per Requirement	50	Nos		
7.02	GI STRIP 75X10GI STRIP 75X10	As per Requirement	14000	Metre		
7.03	GI STRIP 50X6GI STRIP 50X6	As per Requirement	1500	Metre		
7.04	5/8" GI Fine Wire Rope	As per Requirement	100	Metre		
7.05	3/8" GI Fine Wire Rope	As per Requirement	100	Metre		
7.06	GI STRIP 25X3GI STRIP 25X3	As per Requirement	1000	Metre		

VOLUME - III A, REV-01

TENDER SPECIFICATION NO. PSER:SCT:BRL-E1018:09

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SL. NO.	DESCRIPTION OF ITEMS	DIMENSION(in m) (Length)x(Width)x(Height)/DETAIL	QUANTITY	UNIT	UNIT RATE (RUPEES)	AMOUNT (RUPEES)
Illumination:						
8.00						
8.01	Bulkhead luminaires suitable for use with GLS 60 W.	As per Rrequirement	25	Nos		
8.02	Indoor industrial fixture sheet steel body, open end trough reflector, vitreous enamel finish, suitable for pendant/cantilever bracket/wall/column mounting with twin flourescent lamp	As per Rrequirement	115	Nos		
8.03						
8.04	Corosion-resistant industrial batten for 'TL'/TL'D 36 W flourescent lamp.For surface mounting on the wall or ceiling		15	Nos		
8.05	Indoor decorative recess mounted fixture with AL mirror reflector & louver system, suitable for pendant/cantilever bracket/wall/column mounting with twin flourescent lamp	As per Rrequirement	215	Nos		
8.08	Down light recess mounted fixture suitable for 100W GLS lamp & 220V DC		30	Nos		
8.09	Industrial Highbay luminaire with Zinc plated MS eyebolt gromett for cable entry, spacer, ignitor, capacitor for p.f. improvement, ballast with cooling fins, dispersive reflector of CRCA steel sheet & vitreously enamled finish & with electrical control gear prewired upto terminal block, suitable for HPMV HPLN 400W lamp	As per Rrequirement	15	Nos		
8.10	Same as Sl. No. 4 but suitable for HPMV HPLN 250W lamp		25	Nos		
8.11	Integral well glass luminaire of IP54 enclosure protection, with cast Al housing & gear tray, anodised Al reflector, zinc plated MS mounting & wire guard, heat resistant glass cover, glazed porcelain lamp holder, mounting by eye bolts or hooks or 19mm conduits, suitable for HPMV lamp HPL 125W	As per Rrequirement	160	Nos		
8.12	Well glass flampeproof fixture suitable for 125W HPMV lamp		50	Nos		
8.13	general purpose floodlight luminaire suitable for use with high pressure sodium vapour SON-T 400W lamp.	As per Rrequirement	20	Nos		
8.14	Street lighting luminaire suitable for pole mounting, consisting of die-cast Al housing prewired control gear compartment (including ballast, capacitor, ignitor, connector block), light stabilised polymethyl methacrylate cover, provision for varying toe-in angle, gasketed lamp compartment which is water & insect repellent, suitable for HPSV lamp SON 250W	As per Rrequirement	25	Nos		
8.15	Bulkhead fixture suitable for 100W GLS lamp & 220V DC	As per Rrequirement	10	Nos		

VOLUME - III A, REV-01

TENDER SPECIFICATION NO. PSER:SCT:BRL-E1018:09

ERECTION TESTING & COMMISSIONING OF ALL ELECTRICAL, CONTROL & INSTRUMENTATION WORK OF HRSG, GTG, BOP, GT & THEIR AUXILIARIES, ETC FOR 1X21 MW (FRAME-V) GTG BASED COGENERATION CAPTIVE POWER PLANT OF BRPL-DHDT PROJECT AT BONGAIGAON REFINERY & PETROCHEMICALS LTD., ASSAM.

SL. NO.	DESCRIPTION OF ITEMS	DIMENSION(in m) (Length)x(Width)x(Height)/DETAIL	QUANTITY	UNIT	UNIT RATE (RUPEES)	AMOUNT (RUPEES)
8.16	Dust tight, rain & vapour proof well glass fixture having die cast Al body, stove enameled canopy, porcelain lamp holder, heat resistant & gasketed glass cover, wire guard, suitable for pipe suspension mounting with IP 54 enclosure protection class, suitable for 100W GLS lamp of operating voltage 240V AC/220V DC	As per Rrequirement	35	Nos		
8.17	Street lighting luminaire suitable for pole mounting, similar to Sl. No. 8 but suitable for use with HPSV lamp HPL 125W	As per Rrequirement	30	Nos		
8.18	HPSV LAMP 150WHPSV LAMP 150W	As per Specification in tender	15	Nos		
8.19	2 MT LIGHTING POLE 2 MT LIGHTING POLE	As per Rrequirement	100	Nos		
8.20						
8.21	3.75 MT LIGHTING POLE3.75 MT LIGHTING POLE	As per Rrequirement	50	Nos		
8.22						
8.23	9.5MT LIGHTING POLE9.5 MT LIGHTING POLE	As per Rrequirement	20	Nos.		
8.24	30 M HIGH MAST LIGHTING POLE	As per Rrequirement	1	Nos.		
8.25						
8.26	GI Conduits / Hume pipes					
8.27	20 mm dia conduits (down rods for tube light fixtures)	As per Rrequirement	750	Metre		
8.28	25mm dia conduits & locknuts	As per Rrequirement	10000	Metre		
8.29	50 mm dia conduits	As per Rrequirement	360	Metre		
8.30	PVC CONDUIT					
8.31	25mm PVC CONDUIT	As per Rrequirement	500	Metre		
8.32	MET SEC Channel	As per Rrequirement	400	Metre		
8.33	3 pin sockets(15A,240V) for Lamps & Portable tools are to installed at all manholes of Process area.	As per Rrequirement	75	Nos		
8.34	Switchboards consisting of 5A SP switches and 5/15A,240V socket with plug	As per Rrequirement	120	Nos		
8.35	63 A , 415 V plug socket	As per Rrequirement	15	Nos		
8.36	Lighting panel with 6 out going feeders	900x600x250	20	Nos		
8.37	Lighting panel with 12 out going feeders	800x600x250	13	Nos		
8.38	Lighting panel with 18 out going feeders	As per Rrequirement	5	Nos		

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SL. NO.	DESCRIPTION OF ITEMS	DIMENSION(in m) (Length)x(Width)x(Height)/DETAIL	QUANTITY	UNIT	UNIT RATE (RUPEES)	AMOUNT (RUPEES)
	All Activities as per Job Title and tender Specification including Calibration for following Skid Mounted Instruments (Gas Turbine & Aux)					
9.00						
9.01	Temperature Switch	As per Specification in tender	15	Nos		
9.02	Pressure & DP Switch	As per Specification in tender	60	Nos		
9.03	Magnetic pickup	As per Specification in tender	10	Nos		
9.04	Hazardous Gas Detector	As per Specification in tender	11	Nos		
9.05	Pressure & DP Transmitter	As per Specification in tender	20	Nos		
9.06	Level Switch	As per Specification in tender	5	Nos		
10	Safety eqpts like shock charts,buckets etc(The following items AND					
10.01	Shock hazard charts (in English & Hindi) for 11KV, 6.6 KV, 415 V	As per Rrequirement	1	Lot		
10.02	First aid boxes	As per Rrequirement	1	Lot		
10.03	One meter long earth discharge rods	As per Rrequirement	1	Lot		
10.04	Sand buckets	As per Rrequirement	1	Lot		
10.05	Rubber mats	As per Rrequirement	1	Lot		
10.06	PVC grips for fixing screws in RCC slabs	As per Rrequirement	1	Lot		
10.07	GI clamps for holding cables onto Cable tray risers	As per Rrequirement	1	Lot		
10.08	50dia,100dia & 200dia GI pipe bends for cable termination upto equipment JB of motor,LPB,Receptacles,Lighting poles,etc	As per Rrequirement	1	Lot		
10.09	Earth strips for Electronic Earthing	As per Rrequirement	80	Nos		
10.1	GI/PVC floor sleeves for cable routing underground		1	Lot		
10.11	25 mm DIA Couplers		200	Nos		
10.12	Saddles & Saddle bar		200	Nos		
10.13	Rubber Grommet		200	Nos		
10.14	Hooks (U type)		100	Nos		
10.15	Hooks (S Type)		200	Nos		
10.16	Steel chain to support to Fixtures in false ceiling Areas		200	Metre		
10.17	Brass Double Compression Cable gland OD 18.5 –20mm(Comet)		200	Nos		
10.18	4 way conduit branching JB		100	Nos		

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SL. NO.	DESCRIPTION OF ITEMS	DIMENSION(in m) (Length)x(Width)x(Height)/DETAIL	QUANTITY	UNIT	UNIT RATE (RUPEES)	AMOUNT (RUPEES)
10.19	3 way conduit branching JB		50	Nos		
10.2	Dummy junction box with ball & socket		20	Nos		
10.21	SSB-1 Surface mounted switchboard with 1 no 5 Amp piano type switch & 5A receptacle with switch.		20	Nos		
10.22	SSB-2 Surface mounted switchboard with 2 nos 5 Amp piano type switch & 5A receptacle with switch.		20	Nos		
10.23	SSB-3 Surface mounted switchboard with 3 nos 5 Amp piano type switch & 5A receptacle with switch.		20	Nos		
10.24	SSB-5 Surface mounted switchboard with 5 nos 5 Amp piano type switch & 5A receptacle with switch.		12	Nos		
10.25						
10.26	FSB-3 Flush mounted switch board with 3 nos 5 amps piano type switch & 5A receptacle with switch.		5	Nos		
10.27	FSB-5 Flush mounted switch board with 5 nos 5 amps piano type switch & 5A receptacle with switch.		30	Nos		
11	THE CONTROL EQUIPMENT					
11.01	AUXILIARY PANEL	1000X910X2400	1	Nos		
11.02	HAZ. GAS MONITOR (240 VAC) TO BE MOUNTED & WIRED IN AUXILIARY PANEL.	161X361X178	2	Set		
11.03	INLET AIR FILTER PANEL	660 X 255 X 1015	1	Nos		
11.04	MARK-VI TURBINE CONTROL PANEL ALONG WITH <HMI> STATION & NETWORK SWITCH, PRINTER.	2257 X 910 X 2400	1	Set		
11.05	MICROPROCESSOR BASED CO2 FIRE FIGHTING PANEL TO BE MOUNTED IN CONTROL ROOM PANEL	600x 500 x 1800	1	Nos		
11.06	GT MOTOR CONTROL CENTRE	19500 X 1254 X 2430	1	Nos		
11.07	GT DCDB (125 V DC) WITH MOTOR CONTROL MODULES	5000 X 644 X 2430	1	Nos		
11.08	GT BATTERY CHARGER (125V DC)	2500x1200x2500	1	Set		
11.09	GT BATTERY (125 V DC)	2000x2500x1900	1	Set		
11.1	BNC 3500 SERIES SYSTEM IN AUX PANEL & WORK STATION	483x350x266	1	Set		
11.11	i) <I STATION> CPU ii) 21" TFT MONITOR iii) PRINTER iv) LINE DRIVER	i) 3 Nos ii) 3 Nos iii) 1 Nos iv) 1 Nos	1	Set		
11.12	LOCAL PUSH BUTTON STATIONS FOR MOTOTRS	150 x 100x 275	20	Nos		
12	HT Switchgear Package					
12.01	11kV Gen. Switch Gear, 30-HV-201 (Consists of 22 Panel)	19x2.5x2.5(dim. of board)	1	Set		
12.02	6.6kV Dist. Switch Gear, 30-HV-202(Consists of 23 Panel)	20x2.5x2.5(dim. of board)	1	Set		
12.03	Data Concentrator	1X0.8X2.3	2	Panels		
12.04	PC/ Monitor/ Furniture		1	Set		

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SL. NO.	DESCRIPTION OF ITEMS	DIMENSION(in m) (Length)x(Width)x(Height)/DETAIL	QUANTITY	UNIT	UNIT RATE (RUPEES)	AMOUNT (RUPEES)
13	LT Switchgear Package					
13.01	Data Concentrator	1X0.8X2.3	2	Panels		
13.02	PC/ Monitor/ Furniture		1	Set		
13.03	LTMCC	As per Rrequirement	1	Set		
13.04	FOLLOWING ITEMS TO BE SUPPLIED AND ERECTED BY CONTRACTOR					
13.05	Branch trays for the field instruments/JBs (50/100mm)	As per Rrequirement	50	metre		
13.06	ISMC-100 CHANNELS	As per Rrequirement	2	tonne		
13.07	65X65X6 or 50X50X6 ANGLES	As per Rrequirement	2	tonne		
	(HRSG)					
14.00	All Activities as per Job Title and tender Specification including Calibration for following					
14.01	LOCAL GAUGE BOARD WITH GAUGES					
14.02	LOCAL GAUGE BOARD	As per Rrequirement	13	Nos		
14.05	CONDENSING POT					
14.06	1) CONDENSING POT SA 355 P22	As per Rrequirement	6	Nos		
14.07	2) CONDENSING POT SA 106 GRB	As per Rrequirement	4	Nos		
14.08	LOCAL BURNER PANEL(FLAME PROOF)	As per Rrequirement	2	Set		

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SL. NO.	DESCRIPTION OF ITEMS	DIMENSION(in m) (Length)x(Width)x(Height)/DETAIL	QUANTITY	UNIT	UNIT RATE (RUPEES)	AMOUNT (RUPEES)
14.09	BMS -PLC	As per Rrequirement	1	Set		
14.10	FLUE GAS ANALYSER-SO2/NOX WITH SHS					
14.11	1) SO2 ANALYSER	As per Rrequirement	1	Set		
14.12	2) NOX ANALYSER	As per Rrequirement	1	Set		
14.13	HC and CO ANALYSER					
14.14	CO & HC ANALYSER	As per Rrequirement	1	Set		
14.15	FLUE GAS SPM ANALYSER(INSITU)	As per Rrequirement	1	Set		
14.16	PH ,CONDUCTIVITY&SILICA ANALYSER -SHS					
14.17	1) PH ANALYSER	As per Rrequirement	2	Nos		
14.18	2) CONDUCTIVITY ANALYSER	As per Rrequirement	3	Nos		
14.19	3) SILICA ANALYSER	As per Rrequirement	1	Nos		
14.20	4) SHS	As per Rrequirement	1	Nos		
14.21	JB& PUSH BUTTON BOX					
14.22	1) FLAME PROOF JB 24-WAY	As per Rrequirement	25	Nos		
14.23	2) FLAME PROOF JB 48-WAY	As per Rrequirement	13	Nos		
14.24	3) FLAME PROOF PB BOX (TYPE-2)	As per Rrequirement	7	Nos		
14.25	4) FLAME PROOF PB BOX (TYPE-1)	As per Rrequirement	5	Nos		
14.26	5) FLAME PROOF PB BOX (TYPE-1 FOR DC MOTOR)	As per Rrequirement	1	Nos		
14.27	CABLE TRAYS					
14.28	1) 300MM (W) GALVANISE MS LADDER CABLE TRAY	As per Rrequirement	100	Nos		
14.29	2) 600MM (W) GALVANISE MS LADDER CABLE TRAY	As per Rrequirement	15	Nos		
14.30	3) 300MM (W) GI PERFORATED CABLE TRAY	As per Rrequirement	65	Nos		
14.31	CS/AS/SS/GI PIPEandTUBE					
14.32						
14.33	CS Pipe upto 1"		1000	Metre		
14.34	SS Pipe upto 1"		3500	Metre		

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14.35	SS 1/4" OD PVC SHEATHED (1MM TH) TUBE	As per Rrequirement	130	Metre		
14.36	NB 1/2" CLASS C GI PIPE	As per Rrequirement	200	metre		
14.37	1" GI PIPE	As per Rrequirement	80	Metre		
14.38	FLUE GAS O2 ANALYSER(INsitu)	As per Rrequirement	1	Nos		
14.39	CERAMIC FIBRE MATTRESSES					
14.40	1) CERAMIC FIBRE MATTRESS	As per Rrequirement	300	Nos		
14.41	2) BINDING TAPE	As per Rrequirement	7000	Metre		
14.42	3) GI TIE WIRE	As per Rrequirement	4500	Metre		
14.43	4) ALUMINIUM SHEET	As per Rrequirement	1000	KG		
14.44	5) GI WIRE MESH	As per Rrequirement	25	Metre2		
14.45	EARTH MATERIALS					
14.46	1) FLATS 25x3.15MM	As per Rrequirement	250	Metre		
14.47	2) HOT DIP GI WIRE 8SWG	As per Rrequirement	800	Metre		
14.48	CONDUCTIVITY TYPE DRUM LEVEL SWITCH	As per Rrequirement	1	Set		
14.49	ACCESSORIES FOR O2 ANALYSER					
14.50	1) AUTO CALIBRATION UNIT	As per Rrequirement	1	Nos		
14.51	2) ZERO GAS CYLINDER	As per Rrequirement	1	Nos		
14.52	3) SPAN GAS CYLINDER	As per Rrequirement	1	Nos		
14.53	4) CONNECTING CABLE	As per Rrequirement	20	Metre		
14.54	5) MATCHING FLANGES	As per Rrequirement	1	Set		
14.55	AVIATION LAMP & LIGHTNING ARRESTORS					
14.56	1) AVIATION LAMP SET ASSEMBLY	As per Rrequirement	3	Nos		
14.57	2) DOUBLE COMPRESSION CABLE GLAND	As per Rrequirement	3	Nos		
14.58	3) 50MM MEDIUM DUTY GI PIPE	As per Rrequirement	6	Metre		
14.59	4) U BOLT ASSEMBLY	As per Rrequirement	3	Set		
14.60	5) REDUCER	As per Rrequirement	3	Nos		
14.61	6) 34.2MM x 3.25MM THICK GI CONDUIT	As per Rrequirement	12	Nos		
14.62	7) GI CLAMP	As per Rrequirement	70	Nos		
14.63	8) GI PLATE	As per Rrequirement	44	Nos		
14.64	9) M3 x 15MM GI FASTENERS ASSEMBLY	As per Rrequirement	140	Set		
14.65	10) SFU	As per Rrequirement	1	Nos		
14.66	11) JUNCTION BOX	As per Rrequirement	1	Nos		
14.67	12) 2C x 2.5 MM ² COPPER UNARMoured CABLE	As per Rrequirement	100	Metre		
14.68	13) 50 x 6 GI FLAT	As per Rrequirement	150	Metre		
14.69	FLAME SCANNER					
14.70	2) IR FLAME SCANNER FOR OIL BURNERS	As per Rrequirement	10	Set		

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14.71	4) POWER SUPPLY UNITS	As per Rrequirement	6	Nos		
14.73	6) EX.PROOF JB (2 DISPLAY)	As per Rrequirement	2	Nos		
	NOTE:					
	1.GROSS TOTAL PRICE SHALL BE CONSIDERED FOR EVALUATION .					
	2.The above Rate shall be inclusive of all taxes except Service Tax. Service Tax and Educational cess on Service Tax shell be paid extra as					
	3. All Cable Lugs upto 2.5 Sq.mm are to be supplied by the bidder.					