



Bharat Heavy Electricals Limited
POWER SECTOR : WESTERN REGION

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Ref: **BHE/PW/PUR/KLT-ELE/460-Clfn-01-TS**

Date:27/10/2006

To,

All Bidders

Dear Sirs,

Sub: Clarification-01 to Tender Specification No. BHE/PW/PUR/KLT-ELE/460

Job: Handling at Site Stores/Storage Yard, Transportation to Site of Work, Complete Erection, Checking of Calibration, Testing, Commissioning and Handing Over of **Electrical Package** viz., Isolated Phase Bus Duct, Segregated Phase Bus Duct, Generator Transformer, Unit Auxiliary Transformer, Electrostatic Precipitator, Generator Control & Protection Panels, 6.6 KV HT Switchgear, 415 V LT Switchgear Board MCC, Soot Blower System, Excitation System, Electrical Hoist and Associated Items for **1x75 MW Unit # 4 at Kutch Lignite Thermal Power Station.**

Certain bidders have sought clarification on some of the clauses of the subject Tender Specification. We have gone through such queries and would like to communicate the following.

Query-01: Quantity of Oil in Generator Transformer and Unit Aux. Transformer (UAT).

Clarification : The quantities of Transformer Oil are as follows:

- a) Generator Transformer– 54.6 KL (shipped loose)
- b) UAT – 18.81 KL (out of this 5.92 KL will be shipped loose. Balance will be sent in the transformer tank).

Query-2: Dimensions of Generator Transformer and UAT .

Clarification : Dimensions of the transformers are as follows:

- a) Generator Transformer– 12200 mm x 9100 mm x 7400 mm
- b) UAT – 6700 mm x 6000 mm x 5800mm

Query-3: Construction Power and Water charges Clause no. 5.7 (page no 45 of 98).

Clarification : Charges shall be as per tariff decided by the Client (GSECL) and prevailing at the time of actual usage. The prevailing rate is around Rs. 9/- per unit. However Bidders are advised to please visit the project site to obtain more accurate information about this. BHEL will not admit any claims whatsoever of the Contractor on account of charges of Construction Power at any stage.

Contd.2

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Query-4: Scope of Integrated Testing/Commissioning of Controls and Protection Relay Panel of Generator & Associated Equipment (Rate Schedule page 3 of 9, Sl. No. F.2).

Clarification : Detailed scope of Integrated Electrical Testing is already provided in Clause no 4.3.11 of Tender Specification. This clause shall be applicable for Sl. No. F.2 of Rate Schedule.

Query-5: Details of Generator Bus Duct / Isolated Phase Bus Duct (Cl. no.16.4, page no. 85 of 98).

5.1) Number of Enclosure Welding Joints in Main Section (Refer Sl. no. 3).

Clarification: There are about thirty four (34) weld joints in enclosure.

5.2) Number of Conductor Welding Joints in Main Section (Refer Sl. no. 3).

Clarification: There are about eleven (11) weld joints of Conductor.

5.3) Number of Enclosure Welding Joints in Tap-Off Section (Refer Sl. no. 4).

Clarification: There are about thirty eight (38) weld joints in enclosure.

5.4) Number of Conductor Welding Joints in Tap-Off Section (Refer Sl. no. 4).

Clarification: There are about nineteen (19) weld joints of Conductor.

5.5) Length of Bus Duct per phase .

Clarification: Length of IP Main Bus Duct per phase: 107 m.

Length of IP Tap-Off Bus Duct per phase: 82 m.

5.6) Number of Enclosure Welding Joints in LAVT, VT and NGR (Refer Sl. no. 8)

Clarification: Welded joints in LAVT and NG Cubicle – **NIL**

Bolted joints in LAVT cubicle – forty (40).

Bolted joints in NG cubicle – six (6).

Query-6: **Number of HT Cable Termination and HT Cable Jointing Kit** (Rate Schedule , page 7 of 9 , Sl. Nos. N.1 and N.2).

Clarification : HT Power Cable termination kits will be supplied by BHEL. The numbers of termination are as follows:

1 core x 630 sq mm – 50 nos.

3 core x 240 sq mm – 16 nos.

Query-7: Unit Auxiliary Transformer – Number of transformers (Clause 16.2 of Tender Specs and Item No. C-2 of Rate Schedule).

Clarification: There is only **one** UAT for this contract. Accordingly the indication of quantity as 2 nos. in clause no. 16.2 stands superseded. Indication (quantity – 1) as in the Rate Schedule is correct.

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7. PART-II (Price Bid) – We have noticed certain errors in the formatting of the Rate Schedule. The errors have been corrected and revised document titled “**Part-II : Price Bid (Revision -01 dated 27/10/2006)**” is enclosed herewith. Bidders are requested to submit their offer in line with this revised Price Bid in sealed envelope duly indicating in bold letters “**PRICE BID REVISION-01 DATED 27/10/2006**”.

8. TERMS OF PAYMENT: We also observed certain errors in Section-12 (Terms of Payment). Accordingly the Section is superseded by the enclosed Section-12 (Revision-01 dated 27/10/2006) enclosed herewith.

You are requested to send us one copy of this letter with enclosures duly countersigned as a token of unqualified acceptance of this Clarification-01 as apart of Technical Bid. You are also requested to send revised Price Bid in a sealed cover as indicated above.

Please note that the Last Date for offer submission is 07/11/2006.

Thanking you.

Yours faithfully

DGM (Purchase)

Encl: **1.** Price Bid (Revision -01 dated 27/10/2006)
2. Section-12 (Revision -01 dated 27/10/2006)

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SECTION-12 (Revision-01 dated 27/10/2006) Page 1 of 6

12.0 TERMS OF PAYMENT

12.0.1

THE CONTRACTOR SHALL SUBMIT HIS MONTHLY ON ACCOUNT BILLS WITH ALL THE DETAILS REQUIRED BY BHEL ON SPECIFIED DATE EVERY MONTH COVERING PROGRESS OF WORK IN ALL RESPECTS AND AREAS FROM THE 25TH OF PREVIOUS CALENDAR MONTH TO 24TH OF THE CURRENT MONTH.

12.0.2

CLAUSE 2.6 OF GENERAL CONDITIONS OF CONTRACT SHALL BE REFERRED TO AS REGARDS MODE OF PAYMENT, AND MEASUREMENT OF THE WORK COMPLETED.

12.0.3

RELEASE OF PAYMENT IN EACH RUNNING BLL WILL BE RESTRICTED TO 95% OF THE VALUE OF WORK ADMITTED, AS PER THE PERCENTAGE BREAK-UP FOR THE STAGE OF WORK COMPLETION STIPULATED VIDE CLAUSES HEREINAFTER.

THE 5% THUS REMAINING SHALL BE ON ACCOUNT OF WORKMANSHIP GUARANTEE OF WORK EXECUTED. THE SAME WILL BE RELEASED AFTER COMPLETION OF THE GUARANTEE PERIOD OF 12 MONTHS FROM THE DATE OF COMPLETION OF ENTIRE WORK AS CERTIFIED BY BHEL ENGINEER. HOWEVER, THIS AMOUNT MAY BE RELEASED EARLIER ON RECEIPT AND ACCEPTANCE OF BANK GUARANTEE OF EQUAL AMOUNT IN PRESCRIBED FORMAT AND THE BG SHALL BE KEPT VALID TILL COMPLETION OF SUCH GUARANTEE PERIOD AND AN ADDITIONAL SIX MONTHS CLAIM PERIOD.

12.0.4

THE PAYMENT FOR RUNNING BILLS WILL NORMALLY BE RELEASED WITHIN AROUND 30 DAYS OF SUBMISSION OF RUNNING BILL WITH MEASUREMNT SHEETS. CONTRACTOR SHALL MAKE HIS OWN ARRANGEMENT FOR MAKING PAYMENT OF IMPENDING LABOUR WAGES AND OTHER DUES IN THE MEANWHILE.

12.1 STAGES OF PROGRESSIVE PRO-RATA PAYMENTS

The agreed rates for each item shall be paid on pro-rata basis progressively as per the break up given hereunder based on the progress of work in each month. The contractor shall submit his running bills with the details of measurement required by BHEL engineer on or before 26th of every month covering progress of work in all respect in the area upto 24th day of the same month.

The progressive pro-rata payment will be released based on accepted price/item rates in following manner:

- (A) Progressive payment for erection, testing, assistance for commissioning etc. (90% of the accepted item rates on pro-rata basis as per the break up given hereinafter under the clause no. 12.1.1)**
- (B) Progressive payment for providing Installation Supervision Services (10% of the Contract Value basis as per the details given hereinafter under the clause no. 12.1.2)**

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12.1.1 Progressive payment for Erection, Testing and Assistance for Commissioning etc. on pro-rata basis shall be as per following break up.

12.1.1.1 Transformers (GT, UAT, ST): Item nos A.1, A.2 and A.3 of Rate Schedule		
SN	DESCRIPTION OF ACTIVITY	PERCENTAGE
01	COLLECTION OF MATERIALS, TRANSPORTATION POSITIONING ON FOUNDATION AND ALIGNMENT AS PER LAYOUT DRAWING	10%
02	INTERNAL INSPECTION OF CORE AND WINDING TAPS SWITCH OFF-LOAD/ON-LOAD, H.V./L.V. BUSHING TURRET ASSEMBLY, VACUUM PULLING, OIL FILTERATION AND FITTING OF OIL UPTO CORE AND WINDING LEVEL	10%
03	ASSEMBLY OF ALL ACCESSORIES, PIPES AND FITTINGS, CONSERVATOR TANK, COOLER BANK/RADIATOR BANK, BUSHINGS, MARSHALLING BOX, CABLING FROM MARSHALLING BOX TO FIELD DEVICES, FANS AND PUMPS ETC.	20%
04	OIL FILLING IN COMPLETE ASSEMBLED TRANSFORMERS, COMPLETION OF DRY OUT AND FILTERATION OF OIL OF COOLING BANK, ACCEPTANCE OF DRY OUT.	15%
05	PRE-COMMISSIONING CHECKS, ELECTRICAL TESTS, CALIBRATION AND PROTECTION AND INTER LOCK CHECKS	15%
06	INTEGRATED ELECTRICAL TESTING/ COMMISSIONING WITH ASSOCIATED CONNECTED EQUIPMENT , BACK CHARGING/FORWARD CHARGING	12%
07	FINISH PAINTING	05%
08	TRIAL RUN AND FULL LOADING	02%
09	COMPLETION OF ALL FACILITIES AND HANDING OVER	01%

12.1.1.2 6.6 KV / 415V / DCDB SWITCHGEAR BOARDS, GENERATOR CONTROL/ PROTECTION PANEL & ACCESSORIES : Item nos. D.1 to D.9 of Rate Schedule		
SN	DESCRIPTION OF ACTIVITY	PERCENTAGE
01	COLLECTION OF MATERIAL AND TRANSPORTATION FROM BHEL STORES TO SITE	10%
02	PLACEMENT ON FOUNDATION, ASSEMBLIES ETC.	10%
03	ADJUSTMENT, ALIGNMENT, GROUTING, ELECTRICAL INTER-CONNECTIONS, INTER PANEL WIRING AND BUS BAR, INSTALLATION OF LOOSE ACCESSORIES ETC.	35%
04	PRE-COMMISSIONING AND ELECTRICAL TEST, MECHANICAL/ ELECTRICAL CHECKS INCLUDING PROTECTION, INTERLOCK TESTING AND MAKING THE SYSTEM READY BY ENERGIZATION	13%

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12.1.1.2 6.6 KV / 415V / DCDB SWITCHGEAR BOARDS, GENERATOR CONTROL/ PROTECTION PANEL & ACCESSORIES : Item nos. D.1 to D.9 of Rate Schedule		
05	INTEGRATED ELECTRICAL TESTING/ COMMISSIONING WITH ASSOCIATED CONNECTED EQUIPMENT	08%
06	ENERGIZATION OF SWITCH BOARD AND TRIAL OF INDIVIDUAL FEEDERS ON LOAD	10%
07	COMPLETION OF TRIAL RUN OF MAIN TG SET/FULL LOADING	02%
08	COMPLETION OF ALL FACILITIES AND HANDING OVER	02%
12.1.1.3 EXCITATION SYSTEMS & ACCESSORIES, DAVR, GENERATOR, GT & UT PROTECTION & METERING PANELS: Item nos. F.1, G.1 to G.2 of Rate Schedule		
SN	DESCRIPTION OF ACTIVITY	PERCENTAGE
01	COLLECTION OF MATERIAL, TRANSPORTATION FROM BHEL STORE TO SITE	10%
02	PLACEMENT, ALIGNMENT, GROUTING, INTER CONNECTION OF BUS BAR AND WIRING, FIXING OF LOOSE COMPONENTS AND AIR EXHAUST OUTLET DUCT FOR REGULATION, FIELD FLUSHING AND THYRISTOR PANELS	50%
04	PRE-COMMISSIONING TESTS	13%
05	UNIT SYNCHRONIZATION AND STABILIZATION, INTEGRATED ELECTRICAL TESTING/COMMISSIONING WITH ASSOCIATED CONNECTED EQUIPMENT	13%
06	TRIAL RUN AND FULL LOADING	02%
07	COMPLETION OF ALL FACILITIES AND HANDING OVER	02%

12.1.1.4 ISOLATED PHASE BUS DUCT: Item no. B.1 of Rate Schedule		
SN	DESCRIPTION OF ACTIVITY	PERCENTAGE
01	COLLECTION OF MATERIAL, TRANSPORTATION FROM BHEL STORES TO SITE	10%
02	ERECTION AND ALIGNMENT OF SUPPORTING STRUCTURE	10%
03	PLACEMENT OF BUS DUCT, SUB-ASSEMBLIES, LAVT CUBICLE, NG TRANSFORMER AND RESISTANCE CUBICLE, AIR PRESSURIZATION UNIT AND ITS PIPING AND ACCESSORIES, EXCITATION TRANSFORMER AND ITS TRUNKING CUBICLE, WALL FRAME ASSEMBLY, SEAL AIR BUSHINGS	15%
04	ALIGNMENT OF BUS DUCT ASSEMBLIES, WELDING OF CONDUCTORS, MAKEUP PIECES, SHUNTS, FLEXIBLES, CURRENT TRANSFORMERS AND VOLTAGE TRANSFORMER, SURGE PROTECTOR ETC. INSTALLATION, LINE, NEUTRAL TEE OFF DUCT CTs, WIRING UPTO MARSHALLING BOX, DPD TEST ON CONDUCTOR WELD JOINTS ETC.	20%

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12.1.1.4 ISOLATED PHASE BUS DUCT: Item no. B.1 of Rate Schedule		
05	PRE-COMMISSIONING TESTS, HIGH VOLTAGE TEST	10%
06	COMPLETION OF AIR LEAKAGE TEST	03%
07	FINAL BOX-UP AND END TERMINATION AND MAKING READY FOR ENERGIZATION	04%
08	COMPLETION OF SHORT CIRCUIT/OPEN CIRCUIT TEST WHICH INCLUDES FIXING AND REMOVING OF CERTAIN LINK AND NORMALISATION AND SYNCHRONIZATION OF THE UNIT, INTEGRATED ELECTRICAL TESTING/ COMMISSIONING WITH ASSOCIATED CONNECTED EQUIPMENT	10%
09	FINISH PAINTING	05%
10	TRIAL RUN AND FULL LOADING	02%
11	COMPLETION OF ALL FACILITIES AND HANDING OVER	01%

12.1.1.5 SEGREGATED PHASE BUS DUCT: Item no. C.1 to C.9 of Rate Schedule		
SN	DESCRIPTION OF ACTIVITY	PERCENTAGE
01	COLLECTION OF MATERIAL, TRANSPORTATION FROM BHEL STORES TO SITE	05%
02	ERECTION, ALIGNMENT, GROUTING SUPPORTING STRUCTURE	10%
03	PLACEMENT, ALIGNMENT, BOLTING OF CONDUCTOR, ENCLOSURE, COPPER FLEXIBLE, WALL FRAME ASSEMBLIES, SEAL OFF BUSHINGS, CONDUIT AND WIRING FOR ANTI-CONTENTATION HEATERS, EARTHING INTER CONNECTING BRIDGING BUS DUCT BETWEEN THE SWITCH BOARD ETC.	40%
04	PRE-COMMISSIONING AND COMPLETION OF AIR LEAK TEST	10%
05	COMPLETION OF AIR PRESSURIZATION TEST	05%
06	ENERGIZATION OF INDIVIDUAL BUS DUCT AND SWITCH BOARD, INTEGRATED ELECTRICAL TESTING/ COMMISSIONING WITH ASSOCIATED CONNECTED EQUIPMENT	12%
07	FINISH PAINTING	05%
08	TRIAL RUN AND FULL LOADING	02%
09	COMPLETION OF ALL FACILITIES AND HANDING OVER	01%

12.1.1.6 OTHERS: Item nos. H.1 to H.4, J.1 to J.12, K.1 to K.7, L.1, M.1 and M.2 of Rate Schedule)

Unit rate payment shall be made for other systems (ESP, Soot Blower, Electrical Hoist, DCDB, & Misc. Items) as per the rate schedule and percentage breakup for erection, testing, commissioning shall be as per detailed breakup given below: -

1. 70% of the agreed unit rates on completion of erection, testing and commissioning.
2. 12% after completion of the individual system commissioning.

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3. 5% after trial operation or unit handing over whichever is earlier.
4. 3% on completion of facilities and handing over.

12.1.1.7 Testing of Commissioning of Equipment erected by other agencies: Item nos. N.1 to N.5 of Rate Schedule

1. 70% of the agreed unit rates on completion of testing and off-load commissioning.
2. 10% after on-load commissioning of each item.
3. 5% after completion of trial operation of unit.
4. 5% on completion of facilities and handing over.

12.1.1.8 Cables (Item nos. P.1 to P.4 and Q.1 to Q.4 of Rate Schedule)

1. 70% after laying of cable.
2. 05% after termination.
3. 05% after testing of cables.
4. 05% after dressing of cables
5. 05% after completion of facilities and handing over.

12.1.1.9 Cable Tray (Item nos. R.1 to R.3 and S.1 of Rate Schedule)

1. 75% after erection of trays in position
2. 10% after completion of welding/bolting.
3. 05% after completion of facilities and handing over.

12.1.2 STAGE-WISE BREAK UP FOR PRO-RATA PROGRESSIVE PAYMENT FOR VARIOUS INSTALLATION (ERECTION, TESTING & COMMISSIONING) SUPERVISION SERVICES

For the purpose of payments to the contractor, 10% of the contract value shall be assigned as the amount payable towards installation (erection, testing & commissioning) supervision services.

For the purpose of release of progressive payments, month-wise break up for each of the above services will be jointly worked out by BHEL and the contractor at site at the time of start of work. This will be dynamically and regularly reviewed every month/quarter or mutually agreed periodicity and shall be re-calculated based on expected requirement of services keeping in view relevant aspects. On all the issues as above, BHEL engineer's decision shall be final & binding.

These services are to be rendered even during extended period (the contract extension may be due to any reason) without any additional payment/ compensation. The periodical review of monthly billing/payment break up shall take this aspect in consideration. Progressive payment for the service rendered will be made on certification of BHEL accordingly.

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12.2 PAYMENT FOR THE WORK COMPLETED

12.2.1

For the items where the payment is to be made against unit of weight, the actual weight of items erected by contractor will be paid after assessing the weight on the basis of shipping list or standard engineering practice. BHEL engineer's decision will be final and binding on contractor in this regard.

12.2.2

The bidder shall quote separate unit rates for each item of work listed in the rate schedule.

12.3 Measurement for Payment

12.3.1

In rate schedule, unit rates called for erection, testing and commissioning for various devices and equipment and payment shall be made accordingly.

12.3.2

For all payment purpose, measurement shall be made on the basis of physical measurement. Contractor shall make physical measurement in presence of BHEL engineer. Contractor shall maintain records for utilization of material system-wise.

12.3.3

All the surplus, scrap and serviceable materials shall be returned by the contractor to BHEL's stores as per the instruction of engineer

12.3.4

Wherever additional instrumentation work has to be carried out for performance guarantee test, the same has to be executed by the contractor as per the applicable rates already provided in the rate schedule.