भारत हेवी इलेक्ट्रिकल्स लिमिटेड
(भारत सरकार का उपक्रम)
BHARAT HEAVY ELECTRICALS LIMITED
(A Govt. of India Undertaking)

TENDER CHANGE NOTE 01 (TCN – 01) DT: 02-05-2009

WITH REFERENCE TO THE NIT, PUBLISHED IN THE WEB SITES FOR HANDLING AT SITE, STORAGE YARD, STORES, TRANSPORTATION TO WORK PLACE, ERECTION, TESTING, COMMISSIONING & HANDING OVER OF STEAM TURBINE & AUX, GENERATOR & AUX, CONDENSER, TG INTEGRAL PIPING & AUXILIARIES & COMMON SYSYEM (CW PUMP, BOILER FILL PUMP, OTHER PUMPS, ETC) AT 2x500 MW DVC,DURGAPUR TPP PROJECT, ANDAL, WEST BENGAL, FOLLOWING CHANGES MAY PLEASE BE NOTED AND COMPLIED WHILE SUBMITTING THE OFFER FOR THE SUBJECT JOB.

REF: TENDER DOCUMENT NO-PSER-SCT-DGP-DGP-T1005:09

With respect to subject tender, all the bidders are requested to note that the following clauses of SCC, Volume-ID are being revised:-

A) Clause No. 4.8 of SCC, Volume-ID
B) Clause No. 5.5.3 of SCC, Volume -ID
C) Appendix VII to SCC (Billing schedule)

The revised Clauses and Appendix VII are enclosed herewith as per Annexure-AA and Appendix –VII (Rev-01).

BIDDERS TO NOTE THAT ALL TCNS WILL FORM PART OF TECHNICAL SPECIFICATIONS & SPECIAL CONDITION OF CONTRACT OF TENDER DOCUMENT.

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

SDGM (SCT)

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ANNEXURE-AA

A) Clause no. 4.8 of SCC of DSTPS

4.8 GENERATOR INSTALLATION

4.8.1 GENERATOR STATOR

The Generator Stator,weighing 265 Metric Tonnes (approx.) , will be delivered to site on a special wagon / trailer .

Generator Unloading , placement to TG floor with the help of Strand-Jack" :

Handling, lifting from special trailer/resting place in front of A row, and placement on TG foundation with the help of Strand-Jack is included in the scope of contractor. The contractor shall tie up with specialized agency sufficiently experienced in handling of 500 MW Generator stator by strand jack method and take approval of BHEL Construction Manager of respective site regarding the agency and the method.

The vendor shall extend all necessary assistance for releasing the special trailer (which will come in front of A-row in site with Generator Stator) treating it as his normal scope of work.

In case the stator is not lifted directly from the trailer, necessary assistance in Unloadong of Generator in front of A row of Power House from trailer, and placement of the same on the designated resting place is included in the scope of work. Stator lifting slings as required for handling & lifting of the generator stator shall be arranged by the contractor within the quoted price.

Stator is to be rested on a Temporary Stool (to be fabricated by the contractor) with a minimum ground clearance of 500 mm at the stator bottom, to facilitate blue matching of the bottom terminal box for final placement. During this time, loading is to be given only on the special insert plates provided on ground alongside of the A-row for Stator Movement. Suitable Temporary Stools with adequate strength & Capacity to bear the load (weight) of Generator Stator are to be fabricated and placed on the insert plates by the vendor including supply of necessary steel as required. Necessary compaction and concreting of the area beside A-row, where stator will be unloaded and kept on stool temporarily, shall be done by the contractor within his quoted rate, duly considering the load of the stator.

It may be noted by the contractor that during the entire process of Lifting/Shifting and Placement of the Stator over Generator Foundation Deck, all ground Loads are to be transmitted over ground level ONLY through the existing foundation anchor points provided by some other agency to the contractor. Thus no Load is permitted over the Powerhouse floor at Ground Level except the points stated above and the TG Foundation Deck. Any further Civil Works to accommodate resting/positioning of Structural columns are to be done over these foundations only.

Contractor is also required to furnish a confirmatory certification from any of the Design Consultants as mentioned below, regarding the adequacy of Structural Design and Safety provisions of the Temporary Structures that are proposed for use by Contractor, to Handle a load of at least 265T as detailed above. This confirmation

should be submitted and got approved from BHEL before construction of the temporary stool.

This Certification regarding Design adequacy may be obtained from any of the following Engg. Consultants or any National/International Organization of repute duly accredited by Statutory Body/Authorities to this effect-

i) BHEL ii) M/S DCPL iii) M/S FISTENER iv) M/S DESEIN v) M/S TCE vi) M/S EIL vii) M/S MECON viii) M/S M N Dastur & Co. ix) M/S Lloyd's.

All Equipment/T & P/Temporary Supporting Structures/Slings & Consumables etc. as may be required for the job shall be timely Mobilized and Installed/Erected/ Aligned/Welded by Contractor at Site, as per tender schedule/site clearance and later Dismantled/Demobilized from Site within a period of maximum 2 (Two) weeks after completion of the work for each Unit.

For Heavy Duty Slings including that for handling of Stator, appropriate Test Certificate from Statutory Agencies declaring the sling to be fit for handling the desired load is to be produced by the Bidder prior to use of the same at Site.

The Contractor shall have the option to retain their Equipment/T & P/Temporary Supporting Structure etc. at Site, which have a repetitive requirement for executing the job in successive Units, in part or full portion for which necessary storage facility shall be provided by BHEL at site, free of cost. However, responsibility of watch & ward/surveillance shall remain with the Contractor.

The Lifting/Shifting System to be installed at Site is required to be Load tested at 25% overload than the Load it is intended to carry at Site {i.e. 1.25 Times of the weight of Stator (approx.265 T)} added with the load of slings and other lifting tackles used by Contractor.

Necessary Insurance Coverage for contractor's Staff, Workmen, materials and Equipment is to be obtained by the Contractor (successful bidder of this tender), within quoted/accepted rates.

These insurance covers have to be taken prior to start of his work at the subject project and he shall make available the Policy to BHEL Site in-charge for necessary verification before commencement of work. However, irrespective of such verification/acceptance, the sole responsibility to maintain adequate insurance cover for his workmen, T&P, assets etc. at all times during the period of contract shall lie with the contractor. Regarding the aforesaid insurance cover, the contractor shall directly deal with the Insurance Company for all matters regarding the insurance in his scope.

Insurance coverage for BHEL/customer owned items is not in the scope of contractor (successful bidder of this tender). Insurance covers to be taken by BHEL is stipulated under relevant clauses of Vol.-I of this specification (G.C.C).

Contractor is required to assume full responsibility of the safety of the crew/staff and to comply with the security/safety conditions of BHEL and Client/statutory regulations as applicable at site. BHEL shall not be responsible for any accident/injury to the Contractor's Crew/Staff at Site.

During handling of the Equipment, utmost care is to be taken by the Contractor with all safety precautions taken to prevent any mishap/accident from happening and to protect the equipment altogether from any possible damages. However, in case of any plausible eventual damage caused to the Generator or any other Power Plant Equipment during the process of Unloading /Lifting/Shifting and Placement, a case is to be lodged to Insurance Co. immediately after occurrence for which all relevant details sought by the Insurance Co. are to be furnished by the Contractor. Under such circumstances, payment due to Contractor may be kept withheld for some time till settlement of the Insurance Case. Moreover, certain deductions may also be effected based on the attribution of responsibility for damages as assigned by the Insurance Co.

Contractor is also required to arrange all required safety precautions/protective equipment for his working personnel.

Contractor is to furnish the necessary Test Certificates for all relevant Lifting Equipment e.g. Strand wires, Lifting Tackles etc.

In case of poor or non-performance of the Contractor in the job, BHEL reserves the right to take away the job in part or full and get it done by other agency at the risk and cost of the Contractor as may be deemed fit.

B) Cl. No. 5.5.3 of SCC of DSTPS

- BHEL is operating Computerized Site Operations Management System (SOMS) that includes materials management, progress reporting, sub-contractor billing and material reconciliation through a computerized data base management system. Contractor shall engage personnel with proficiency in operation of such Computerized System for the purpose of usage and regular updation of data base Management System. The SOMS/software package shall be provided by BHEL to the contractor on free of cost basis.However the contractor shall deploy their manpower for its usage etc. at their cost, for carrying out their portion of work as per tender condition.

- BHEL will provide online/off line primavera software package for work progress updation at site. The contractor has to provide trained computer operator and necessary assistance to BHEL for regular updation of the work progress at site, as required, using the software.
- The contractor may note that all operations in their scope which have interfaces with BHEL systems will have to be done only through this computerized system. The vendor has to make all arrangements for connectivity, computing equipment, personnel, software, etc. To operate and interact with BHEL system. No manual systems other than what is not covered by computerized system will be acceptable at site.
- The contractor has to make their own separate arrangements for their portion of on /MIRs/other activities.

5.5.3.1

- The contractor within his quoted rate has to arrange one set of latest version of new computer of at least 40 GB Hard disc,512 MB RAM ,P4-2.2 GHz with FDD and CD RW with MS office software of at least Windows XP & other utility S/W and / or above version with printer (ink-jet/lasor) with stationeries including computer papers/ photocopy papers and catridges/inks with regular refilling as per requirement and Two nos. exclusive operator, for exclusive use of BHEL. Sufficient number of floppies and CDs, video cassettes are to be

handed over to BHEL within the quoted rate of the contractor. These facilities are to be provided by the vendor to BHEL within one month from the date of start of work and this computer shall remain under the sole custody of BHEL and this service is to be retained till handing over of the Sets to the customer.

- If contractor fails to provide computer/ printer or personnel as per requirement, for a continuous period of thirty days or more, BHEL shall have the right to deduct the amount as per following rates on prorate basis, from contractor's RA bill or any other dues –

  @ Rs 10,000/- (ten thousand) /month for each computer operator.

  @ Rs 9,000/- (nine thousand)/month for each computer with printer.

C) Appendix VII to SCC (Billing schedule) of SCC of DSTPS

- The billing schedules is revised and enclosed as Appendix-VII-(REV-01)

APPENDIX-VII (REV 01)

BILLING SCHEDULE FOR TG PACKAGE OF 2X500 MW DSTPS PROJECT

Sl. No.	Activity Description	Unit wise percentage billing	Total Percentage of Billing
1.0	**CONDENSER (8% per Unit)**		
1.1	Preparation of foundation	0.125	0.25
1.2	Placement, alignment, assembly and welding of bottom plate segments, hot well, NDT and spring elements placement & Grouting.	0.5	1
1.3	Assembly and positioning of water chamber, side plates, bottom plates, welding and NDT	1	2
1.4	Assembly, alignment and welding & NDT of tube support plates and internals like baffle plates, air evacuation pipes etc.	1	2
1.5	Assembly, welding & NDT of dome walls and dome stiffeners, extraction piping and steam throw device, LPH-1 support etc.	1	2
1.6	Insertion, expansion, cutting etc. of condenser tubes	1.5	3
1.7	Assembly of Condenser Water Boxes and preparation of Hydro-test	0.5	1
1.8	Erection of CW Piping from A-Row end terminal point / butterfly valve upto condenser water boxes including RE Joints, Butterfly valves.	0.75	1.5
1.9	Hydro test of steam and water side	0.5	1
1.10	Welding of condenser neck joint and NDT& completion of balance works	0.625	1.25
1.11	Erection, Commissioning, load testing of condenser water box handling system	0.5	1
2.0	**TURBINE (7 % per Unit)**		
2.1	Preparation of foundation, placement, alignment and grouting of base plates of LPC and bearing pedestals	0.5	1
2.2	Placement and alignment of LP outer casing bottom portion and centre guide keys	0.375	0.75
2.3	Placement of LP rotor and alignment with inner casing and checking of blade clearance	0.5	1
2.4	Assembly, alignment & welding of LP Outer Casing upper half	0.5	1
2.5	Placement and alignment of IP Turbine outer casing and inner casing (lower halves)	0.375	0.75
2.6	Placement and alignment of IP Rotor with lower casing and boxing up of inner & outer casing (upper halves) & Roll check	0.375	0.75
2.7	Final Box up of IP Turbine	0.375	0.75
2.8	Boxing up of LP inner-inner & inner- outer and roll check	0.375	0.75
2.9	Placement of HP Turbine, lowering of HP Rotor on bearings and checking of clearances, coupling, HP Turbine swing checks etc.	0.375	0.75
2.10	Alignment of all Rotors including reaming, honing and fixing of coupling bolts	0.75	1.5
2.11	Assembly of Governing system/equipment	0.5	1
2.12	Installation of ESVs, IVs, LPBP Valves, MS Strainers (internals), HRH strainers (internals)	0.5	1
2.13	Erection, alignment and welding of cross around piping	0.25	0.5
2.14	Final box-up of LP turbine	0.5	1
2.15	Assembly and preparation of hydro-test, steam blowing devices and normalisation etc.	0.375	0.75
2.16	Final boxing up of Pedestals after Oil Flushing completion	0.375	0.75
3.0	**TURBO GENERATOR (10 % per unit)**		
3.1	Submission & approval of Strand jack drawings	1	2
3.2	Receipt of strand jack structures and equipment at site	1	2

Sl. No.	Activity Description	Unit wise percentage billing	Total Percentage of Billing
3.3	Erection of strand jack structure and equipment	1	2
3.4	Unloading of Generator	0.25	0.5
3.5	Lifting and placement of stator on foundation by strand jack method	1.25	2.5
3.6	Dismanting of strand-jack structure and equipment	0.5	1
3.7	Preparation of foundation, levelling, matching and grouting of foundation plates	0.5	1
3.8	Levelling and alignment of Stator	0.25	0.5
3.9	Fixing of End Shields on to foundation beams	0.25	0.5
3.10	Rotor Insertion	0.5	1
3.11	Boxing up of Generator and assembly of Hydrogen Seals	0.75	1.5
3.12	Alignment of Generator Rotor with LP Turbine Rotor, run-out checks and Reaming, Honing of coupling holes and fixing of coupling bolts	0.5	1
3.13	Erection of Excitation equipments & Alignment of Gen.-Exciter Rotors including Swing check and completion of balance works	1	2
3.14	Installation of enclosures of Generator/Exciter with all auxiliaries	0.25	0.5
3.15	Erection, commissioning of Generator Rotating/Static auxiliaries with piping including main equipment	0.5	1
3.16	Final gas tightness test of Stator with complete system	0.5	1
4.0	**PUMPS AND AUXILIARIES (8.75 % per Unit)**		
4.1	**Erection / testing of one no. Motor Driven BFP (0.75% per unit)**		
4.1.1	Foundation chipping, blue matching of foundation and levelling, centring of grillage/foundation frame and bolt grouting and grouting in totality	0.125	0.25
4.1.2	Placement of feed pump, booster pump, motor, hydraulic coupling and preliminary alignment.	0.25	0.5
4.1.3	Grouting of grillage/ foundation and final alignment of BFP, BP Motor and HC	0.25	0.5
4.1.4	Erection of lube. Oil piping, & other balance piping like mechanical seal etc, Erection of panel/racks and oil flushing of oil piping	0.125	0.25
4.2	**Erection / Testing of Turbine Driven BFP (for both pumps) (1.5% per unit @0.75% for each pump)**		
4.2.1	Chipping / blue matching of foundation, placing, centering levelling of BFPs, Booster pumps, gear boxes and blue matching of Turbine foundation packers.	0.25	0.5
4.2.2	Alignment of Turbine, BFP, BP, Gear box and grouting in totality and coupling.	0.5	1
4.2.3	Erection of Lube. Oil piping. Jacking oil piping, Governing oil piping, Governing oil console, oil tanks, oil pumps, oil purification unit, coolers, and other equipments, acid cleaning, oil flushing of pipelines.	0.5	1
4.2.4	Erection of gland steam piping, drainage piping, cooling water piping, sealing lines etc.	0.25	0.5
4.3	Erection, Testing, grouting etc. of DMCW (BOILER) Pumps	0.5	1
4.4	Erection, Testing, grouting etc. of DMCW (TG) Pumps	0.5	1
4.5	Erection, Testing, grouting etc. of Condensate Extraction Pumps	0.75	1.5
4.6	Erection, Testing & commissioning of Lube oil pumps, oil centrifuge, main oil tank, coolers and other related equipments / Items with related grouting etc.	0.25	0.5

Sl. No.	Activity Description	Unit wise percentage billing	Total Percentage of Billing
4.7	Erection, Testing & commissioning of Vacuum Pumps including auxiliaries and connected pipelines	0.25	0.5
4.8	Erection, Testing & commissioning of Seal oil, Primary Water and Gas System	0.5	1
4.9	Erection, Testing & commissioning of Control Fluid tank, C.F. Coolers, C.F. Pumps, Purification unit etc.	0.5	1
4.10	Erection, Testing & commissioning of HP & LP heaters	0.5	1
4.11	Erection, Testing & commissioning of Gland Steam Condenser, Drain Coolers	0.25	0.5
4.12	Erection, Testing & commissioning of De-aerator, Feed Storage Tank and associated approach platform with ladders etc.	1.25	2.5
4.13	Erection, Testing & commissioning of Tanks & Vessels	0.25	0.5
4.14	Erection, Testing & commissioning of Plate Heat Exchanger Package	0.25	0.5
4.15	Erection, Testing & commissioning of Condenser on load tube cleaning package	0.5	1
4.16	Erection, Testing & commissioning of self cleaning strainer package	0.25	0.5
5.0	**COMMON SYSTEM EQUIPMENT & AUXILIARIES (6.5% Common for both Units)**		
5.1	Erection, Testing, grouting etc. of CW Pumps	3	3
5.2	Erection & Testing of other Misc. Pumps Package (Horizontal & Vertical)	1.5	1.5
5.3	Erection, Testing & commissioning of Centralised Lube oil purification package	1	1
5.4	Erection, Testing & commissioning of Misc. Hoists & Chain Pulley Blocks.	1	1
6.0	**INTEGRAL PIPING & TG PIPING (7.25% per Unit)**		
6.1	Lube. Oil and Jacking Oil Piping	0.3	0.6
6.2	Control Fluid Piping for ESV's, IV's, LPBP Valves, NRV's	0.3	0.6
6.3	Gland Seal Steam Piping	0.3	0.6
6.4	TG PIPING	5.5	11
6.5	Generator Seal Oil Piping	0.3	0.6
6.6	Generator Primary Water Piping	0.25	0.5
6.7	Generator Gas Piping	0.3	0.6
7.0	**PAINTING** with arrow marking and nomenclature, preservation of all equipments, Piping etc.	**0.75**	1.5
8.0	**COMMISSIONING**		
8.1	Oil Flushing of lube. Oil, seal oil and control fluid, Gas system etc. of TG .	0.75	1.5
8.2	Commissioning of MD- BFP & TD-BFP's including chemical cleaning, oil flushing etc.	0.75	1.5
8.3	Commissioning of CW Pumps (common for both Units)	1	1
8.4	Steam blowing and barring gear	0.5	1
8.5	Commissioning of other Misc. Pumps other than those common for U#1 & U#2	0.4	0.8
8.6	Commissioning of other Misc. Pumps common for U#1 & U#2	0.2	0.2
8.7	Commissioning of CEPs	0.25	0.5
8.8	Steam rolling and over-speed test	0.25	0.5
8.9	Synchronisation	0.5	1
8.10	Trial operation completion	0.5	1

Sl. No.	Activity Description	Unit wise percentage billing	Total Percentage of Billing
8.11	PG Test assistance	0.25	0.5
8.12	Attending to punch points/stabilisation/defect points	0.25	0.5
	Grand Total		***100.0***