



भारत हेवी इलेक्ट्रिकल्स लिमिटेड

(भारत सरकार का उपक्रम)

**BHARAT HEAVY ELECTRICALS LIMITED**

(A Govt. of India Undertaking)

**TCN - 02**

Ref: PSER:SCT:MRW-T1148:TCN-02

Date: 14/12/2010

Sub	Tender change notice (TCN) 02	
Job	Erection, Testing and Commissioning of STG set with Auxiliaries for 2x500 MW Unit 1 & 2 at Tendubhatta, Marwa, Dist- Janjgir, Chattisgarh.	
Ref	1.0	Tender no PSER:SCT:MRW-T1148:10.
	2.0	BHEL's NIT, vide ref no Ref: PSER:SCT:MRW-T1148:10 Dated 26/11/10
	3.0	BHEL's TCN-01 vide ref. no. PSER:SCT:MRW-T1148:10 Dated 13/12/10
	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 BILLING SCHEDULE OF UNIT-I of ANNEXURE-I has been revised as BILLING SCHEDULE OF UNIT -I, Rev-01
- 2.0 Revised `No deviation certificate' is attached. Bidder to submit `No deviation certificate' as per attached format only.
- 3.0 All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,  
for BHARAT HEAVY ELECTRICALS LTD

ENGR (SCT)

Encl

- 1.0 BILLING SCHEDULE OF UNIT -I, Rev-01
- 2.0 Revised `No deviation certificate' format.

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 and Commissioning of STG set with Auxiliaries for 2x500 MW Unit 1 & 2 at Tendubhatta, Marwa, Dist- Janjgir, Chattisgarh.	
Ref	1.0	Tender no PSER:SCT:MRW-T1148:10.
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	3.0	BHEL's TCN-01 vide ref. no. PSER:SCT:MRW-T1148:10 Dated 13/12/2010
	4.0	BHEL's TCN-02 vide ref. no. PSER:SCT:MRW-T1148:10 Dated 14/12/2010
	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 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)

<b>ANNEXURE-I</b>		
<b>BILLING SCHEDULE OF UNIT-I-(REV-01)</b>		
<b>Sl. No.</b>	<b>Activity Description</b>	<b>% Billing</b>
<b>1.0</b>	<b>CONDENSER (15%)</b>	
1.1	Preparation of foundation	0.25
1.2	Placement, alignment, assembly and welding of bottom plate segments, hot well, NDT and spring elements placement & Grouting.	1
1.3	Assembly and positioning of water chamber, side plates, bottom plates, welding and NDT	2
1.4	Assembly, alignment and welding & NDT of tube support plates and internals like baffle plates, air evacuation pipes etc.	2
1.5	Assembly, welding & NDT of dome walls and dome stiffeners, extraction piping and steam throw device, LPH-1 support etc.	1.5
1.6	Insertion, expansion, cutting etc. of condenser tubes	3
1.7	Assembly of Condenser Water Boxes and preparation of Hydro-test	1
1.8	Erection of CW Piping from A-Row end terminal point / butterfly valve upto condenser water boxes including RE Joints, Butterfly valves.	1
1.9	Hydro test of steam and water side	1
1.10	Welding of condenser neck joint and NDT& completion of balance works	1.25
1.11	Erection, Commissioning, load testing of condenser water box handling system	1
<b>2.0</b>	<b>TURBINE (14 %)</b>	
2.1	Preparation of foundation, placement, alignment and grouting of base plates of LPC and bearing pedestals	1
2.2	Placement and alignment of LP outer casing bottom portion and centre guide keys	0.75
2.3	Placement of LP rotor and alignment with inner casing and checking of blade clearance	1
2.4	Assembly, alignment & welding of LP Outer Casing upper half	1
2.5	Placement and alignment of IP Turbine outer casing and inner casing (lower halves)	0.75
2.6	Placement and alignment of IP Rotor with lower casing and boxing up of inner & outer casing ( upper halves ) & Roll check	0.75
2.7	Final Box up of IP Turbine	0.75
2.8	Boxing up of LP inner-inner & inner- outer and roll check	0.75
2.9	Placement of HP Turbine, lowering of HP Rotor on bearings and checking of clearances, coupling, HP Turbine swing checks etc.	0.75
2.10	Alignment of all Rotors including reaming, honing and fixing of coupling bolts	1.5
2.11	Assembly of Governing system/equipment	1
2.12	Installation of ESVs, IVs, LPBP Valves, MS Strainers (internals), HRH strainers (internals)	1
2.13	Erection, alignment and welding of cross around piping	0.5

<b>ANNEXURE-I</b>		
<b><u>BILLING SCHEDULE OF UNIT-I</u></b>		
<b>Sl. No.</b>	<b>Activity Description</b>	<b>% Billing</b>
2.14	Final box-up of LP turbine	1
2.15	Assembly and preparation of hydro-test, steam blowing devices and normalisation etc.	0.75
2.16	Final boxing up of Pedestals after Oil Flushing completion	0.75
<b>3.0</b>	<b>TURBO GENERATOR (24 %)</b>	
3.1	Submission & approval of Strand jack drawings	2
3.2	Receipt of strand jack structures and equipment at site	2.5
3.3	Erection of strand jack structure and equipment	2.5
3.4	Unloading of Generator	2.5
3.5	Lifting and placement of stator on foundation by strand jack method	5
3.6	Dismanting of strand-jack structure and equipment	1.5
3.7	Preparation of foundation, levelling, matching and grouting of foundation plates	0.5
3.8	Levelling and alignment of Stator	0.5
3.9	Fixing of End Shields on to foundation beams	0.5
3.10	Rotor Insertion	0.75
3.11	Boxing up of Generator and assembly of Hydrogen Seals	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	1
3.13	Erection of Excitation equipments & Alignment of Gen.-Exciter Rotors including Swing check and completion of balance works	0.75
3.14	Installation of enclosures of Generator/Exciter with all auxiliaries	1
3.15	Erection, commissioning of Generator Rotating/Static auxiliaries with piping including main equipment	0.75
3.16	Final gas tightness test of Stator with complete system	0.75
<b>4.0</b>	<b>PUMPS AND AUXILIARIES (28 %)</b>	
<b>4.1</b>	<b>Erection / testing of one no. Motor Driven BFP</b>	
4.1.1	Foundation chipping, blue matching of foundation and levelling, centring of grillage/foundation frame and bolt grouting and grouting in totality	1.00
4.1.2	Placement of feed pump, booster pump, motor, hydraulic coupling and preliminary alignment.	0.5
4.1.3	Grouting of grillage/ foundation and final alignment of BFP, BP Motor and HC	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	0.50
<b>4.2</b>	<b>Erection / Testing of Turbine Driven BFP</b>	
4.2.1	Chipping / blue matching of foundation, placing, centering levelling of BFPs, Booster pumps, gear boxes and blue matching of Turbine foundation packers.	1
4.2.2	Alignment of Turbine, BFP, BP, Gear box and grouting in totality and coupling.	1

<b>ANNEXURE-I</b>		
<b><u>BILLING SCHEDULE OF UNIT-I</u></b>		
<b>Sl. No.</b>	<b>Activity Description</b>	<b>% Billing</b>
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.	1
4.2.4	Erection of gland steam piping, drainage piping, cooling water piping, sealing lines etc.	1
4.3	Erection and Commissioning of DMCW (BOILER) Pumps	1
4.4	Erection and commissioning of DMCW (TG) Pumps	1
4.5	Erection of Condensate Extraction Pumps	1
4.6	Erection, Testing & commissioning of Lube oil pumps, oil centrifuge, main oil tank, coolers and other related equipments / Items with related grouting etc.	1.5
4.7	Erection, Testing & commissioning of Vacuum Pumps including auxiliaries and connected pipelines	1
4.8	Erection, Testing & commissioning of Seal oil, Primary Water and Gas System	1.5
4.9	Erection, Testing & commissioning of Control Fluid tank, C.F. Coolers, C.F. Pumps, Purification unit etc.	1
4.10	Erection, Testing & commissioning of HP & LP heaters	1
4.11	Erection, Testing & commissioning of Gland Steam Condenser, Drain Coolers	1
4.12	Erection, Testing & commissioning of De-aerator, Feed Storage Tank and associated approach platform with ladders etc.	2.5
4.13	Erection of ACW pumps	1
4.14	Commissioning of ACW Pumps	1
4.15	Erection, Testing & commissioning of Plate Heat Exchanger Package	0.5
4.16	Erection, Testing & commissioning of Condenser on load tube cleaning package	1
4.17	Erection, Testing & commissioning of self cleaning strainer package	0.5
4.18	Erection of common oil storing & purification unit	1
4.19	Commissioning of common oil storing & purification unit	1
4.20	Erection of single girder crane	1.5
4.21	Commissioning of single girder crane	0.5
4.22	Erection of Hoist/chain pulley blocks	1

<b>ANNEXURE-I</b>		
<b><u>BILLING SCHEDULE OF UNIT-I</u></b>		
<b>Sl. No.</b>	<b>Activity Description</b>	<b>% Billing</b>
<b>5.0</b>	<b>INTEGRAL PIPING (8%)</b>	
5.1	Lube. Oil and Jacking Oil Piping	1
5.2	Control Fluid Piping for ESV's, IV's, LPBP Valves, NRV's	2
5.3	Gland Seal Steam Piping	1
5.4	Generator Seal Oil Piping	1
5.5	Generator Primary Water Piping	1
5.6	Generator Gas Piping	1
5.7	Balance PIPING	1
<b>6.0</b>	<b>PAINTING</b> with arrow marking and nomenclature, preservation of all equipments, Piping etc.	<b>2.0</b>
<b>7.0</b>	<b>COMMISSIONING (9%)</b>	
7.1	Oil Flushing of lube. Oil, seal oil and control fluid, Gas system etc. of TG .	1
7.2	Commissioning of MD- BFP & TD-BFP's including chemical cleaning, oil flushing etc.	1
7.3	Steam blowing and barring gear	1
7.4	Commissioning of CEPs	1
7.5	Synchronisation	1
7.6	Trial operation completion	1
7.7	PG Test assistance	1
7.8	Attending to punch points/stabilisation/defect points	2
	<b>Grand Total</b>	<b>100.0</b>