



Bharat Heavy Electricals Limited

(A Govt. Of India Undertaking)

Power Sector, Eastern Region

BHEL BHAWAN, PLOT NO. DJ-9/1 , SECOTR II ,
SALT LAKE CITY , KOLKATA , WEST BENGAL, INDIA

Phone : 033-23398220,033-23211690 FAX : 033-23211960

Sub	TENDER CHANGE NOTICE (TCN-01 dated 30/07/2018)	
Job	"OVERHAULING OF TURBINE, GENERATOR & AUXILIARY WORKS OF 25MW TG SET (M/C NO. T-0210) PH-4 AT TATA STEEL LIMITED- BISTUPUR, JHARKHAND".	
Ref	PSER:PUR:TISCO-S314:18 (ENQ:18:PP:0015:PUR:36)	Date -20/07/2018.

- 1) [With reference to above, following clarifications, relevant to tender, may please be noted and complied with while submitting the offer.](#)
- 2) **Annexure-I: SCOPE OF WORK, Page no – 1, 2 & 3 (of total 9 pages) of the tender has been revised as attached with this TCN. All other pages remain unchanged.**
- 3) Due date of submission of offer against the subject tender is hereby **extended from 30/07/2018 (15:00 hrs. IST) to 31/07/2018 (15:00 hrs. IST). Techno-commercial bid shall be opened on 31/07/2018 (16:00 hrs. IST).**
- 4) 'No deviation certificate' is attached. Bidder to submit their offer along with stamped & signed copy of this TCN & 'No deviation certificate' as per attached format only.
- 5) All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,

for BHARAT HEAVY ELECTRICALS LTD

DY MANAGER (PURCHASE)

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

SCOPE OF WORKOVERHAULING OF TURBINE, GENERATOR & AUXILIARY WORKS OF 25MW TG SET (M/C NO. T-0210)
PH-4 AT TATA STEEL LIMITED- BISTUPUR, JHARKHAND**Job Duration: 40 DAYS (BG STOP TO BG IN)****Mobilization time:** within seven (07) days from date of intimation by BHEL

The scope under this specification is not exhaustive but indicative only. However, any activity covered under the normal course of overhauling job shall be deemed to be within the scope. The scope shall also include, manpower assistance during trim balancing as may be required including post overhauling vibration signature analysis. Time is the essence of this contract. Hence contractor must mobilize site with adequate manpower for round the clock 12 hours shifts work during the entire duration. Workmen will not be allowed to work more than 12hrs a day. Also adequate T&P, Consumables and inspection/measuring and monitoring devices are to be mobilized at site for two shift operations to avoid any hold up during execution of the work. Post overhauling and synchronization of the unit, observation for 72 hrs at stable rated load and attending all works to rectify defects if any, is included within the scope of work. Prior to mobilization of site list of work men shift wise with the concerned work area supervisor shall be finalized in BHEL-PSER, HQ.

In case any part of the job is not required to be carried out, a deduction will be effected as per percentage shown against those items.

	Total	(100.00%)
	SECTION - I	
	OVERHAULING OF TURBINE:	(28.00%)
1	Assistance during recording of all the important parameter like machine vibration, bearing temperature, eccentricity axial shift & expansion etc. at different loading conditions and also at no load necessary for defect analysis of the machine to be overhauled prior to availing shutdown.	0.50%
2	After turbine cooling, removal of insulation from the body of turbine and connected pipelines. Disposal of all insulation materials from site to predefined location of customer (TATA STEEL LIMITED). Arrangement of transporter is in vendor's scope.	0.50%
3	Measurement of reference readings of turbine during dismantling and assembly.	0.50%
4	Dismantling of all bearing pedestals top halves after dismantling of all connected pipe lines (oil and instrument), turbovisory instruments (TSI). Dismantling of top halves of bearing.	0.50%
5	Measurement of coupled run-out, rotor float, reference readings during dismantling and assembly.	0.75%
6	DELETED	0.00%
7	Locking of turbine casing at front side and dismantling of steam inlet pipe lines by grinding.	0.50%
8	Loosening of turbine parting plane bolts of turbine by induction heating equipment. Arrangement for induction heating equipment with operator is included in vendor's scope of work.	2.50%
9	Jacking and removal of the turbine top casing.	0.50%
10	Journal bearing clearances, thrust bearing clearances, centering, run out with reference to turbine rotor casing to be recorded.	0.50%
11	Dismantling of all blade carrier top halves, front, rear and balance piston glands of turbine	1.00%
12	Lifting the turbine rotor. Lifting of all bottom halves internals including front, rear and balance piston glands.	1.00%
13	Cleaning the rotor & carrier blades, front, rear and balance piston glands blades of the turbine by Alumina Blasting (grit size 80). Arrangement of Alumina oxide and equipment for blasting with operator is included in vendor's scope. Arrangement of enclosure including covering by tarpaulins and proper illumination of enclosure is included in vendor's scope of work.	3.00%
14	Parting planes of turbine casing shall be checked. Uneven contact shall be rectified by grinding/lapping.	0.50%

15	<i>Removal of fins from front, rear and balance piston glands (top & bottom halves, rotor) and refining of the same. Rectification of inter stage fins to the extent possible is to be done. Machining of fins as required. Necessary scrapping/machining to get desired readings as required.</i>	0.50%
16	<i>DPT of turbine and stator casing blades of any crack in blades to be carried out and minor repairs to be done.</i>	0.50%
17	<i>Opening of the front bearing block housing of turbine, removal from position, cleaning of guide keys & fitting with proper clearances. Replacement of components as required.</i>	0.50%
18	<i>Dismantling of rear housing pedestal and blue matching as required with sole plate.</i>	0.50%
19	<i>All the oil scrapping rings of both front and rear bearing housing of the turbine shall be checked and shall be replaced in case of necessity. Necessary machining/ scrapping for obtaining proper clearance to be done by the party.</i>	0.50%
20	<i>Localized dressing/minor repair of turbine rotor and stator blades are to be repaired to the possible extent for maintaining proper blade clearances.</i>	0.50%
21	<i>Complete overhauling of turning gear device.</i>	0.50%
22	<i>All the bearings of turbine & generator to be checked for its bonding, correct profile of Lube Oil pockets, Crack by DPT & UST the bearings & journals shall be polished and rectified as per requirement. If required, journal & thrust bearings shall be replaced and the same shall be matched and fitted properly after maintaining proper clearances. Arrangement of necessary consumables for DPT and Instrument with operator for UST is within the scope of vendor.</i>	0.50%
23	<i>Turbine rotor is to be put back in position and centered. Maintaining internal clearance, recording of run-out etc. shall be carried out.</i>	0.50%
24	<i>Replacement of turbine rotor with new one as required including reaming and honing, replacement of coupling bolts. Arrangement for in-situ machine for machining of rotor fins at glands and inter stage on rotating on bearings.</i>	1.00%
25	<i>Re-fixing of internal casing thermo couple.</i>	0.25%
26	<i>The blade carriers of the turbine shall be fitted back after maintaining proper clearances.</i>	0.50%
27	<i>Centering of turbine. Changing of eccentric bushes if required during centering.</i>	0.25%
28	<i>Placement of Guide blade carrier -I. Grinding and welding as required for fitment of the same is included. Polishing/grinding of inter stage fins to get proper radial clearances is included.</i>	0.25%
29	<i>Placement of Guide blade Carrier-II. Grinding and welding as required for fitment of the same is included. Polishing/grinding of inter stage fins, glands portion to get proper radial clearances is included.</i>	0.25%
30	<i>Placement of Guide blade carrier-III. Grinding and welding as required for fitment of the same is included. Polishing/grinding of inter stage fins, glands portion to get proper radial clearances is included.</i>	0.25%
31	<i>Placement of Guide blade carrier-IV. Grinding and welding as required for fitment of the same is included. Polishing/grinding of inter stage fins, glands portion to get proper radial clearances is included.</i>	0.25%
32	<i>Replacement / repair of front, rear and balance piston glands with new one. Grinding and welding as required for fitment of the same is included. Polishing/grinding of fins, glands portion to get proper radial clearances is included.</i>	0.50%
33	<i>Ensure proper clearance (radial and axial) in all internal components and heat tightening by induction heating. Roll check of all internal individually.</i>	0.50%
34	<i>The top casing of turbine is to be put back and parting line bolts to be tightened properly by induction heating. Arrangement for induction heating including operator nozzles is to be arranged by successful bidder.</i>	0.50%
35	<i>Alignment of turbine rotor with respect to generator rotor and to be coupled. Before coupling, bolts holes shall be reamed & polished if required. Coupling bolts, if required to be replaced & shall be done by the party without any extra cost. Coupling bolts will be supplied by customer (TATA STEEL LIMITED) free of cost but arrangement of reaming & reaming tools / accessories shall be responsibility of party. Fixing of turning gear devices,</i>	0.50%

	<i>bearing covers & coupling covers etc.</i>	
36	<i>Deleted</i>	0.00%
37	<i>Deleted</i>	0.00%
38	<i>All the pipe lines (oil/steam/air) shall be fitted back in position after cleaning.</i>	1.00%
39	<i>Adjusting jacking oil system to ensure proper lifting of rotor.</i>	0.50%
40	<i>Assembly of turbovisory instruments (TSI) after fitting with proper gap. Setting of emergency governor trip device. Servicing of emergency trip device as required.</i>	0.50%
41	<i>Putting the machine on oil flushing, setting of the control valves and putting the machine on turning gear. All necessary filters cleaning during oil flushing is to be done by the party.</i>	0.75%
42	<i>Arrangement of two (02) crane operators duly vetted by customer and BHEL site Engineer in-charge for round the clock basis during entire duration of work.</i>	1.00%
43	<i>Arrangement of all consumables (gaskets, Stag B, hylomer, molycote, graphite powder etc.) required for servicing and assembly is in the scope of the vendor.</i>	0.50%
44	<i>Arrangement of one Turbine Expert conversant with this type of machine (single cylinder) including accommodation for the entire duration of work duly vetted by BHEL Site-in-charge is in the scope of vendor</i>	2.00%
SECTION-II		
OVERHAULING OF GOVERNING SYSTEM		(3.00%)
1	<i>Overhauling of main oil pump, IH converter, hand tripping device etc</i>	0.25%
2	<i>Complete servicing of control valves with actuator – replacement of worn out parts, matching, assembly and testing.</i>	0.25%
3	<i>Complete overhauling of governing system and its connected equipments like servo motor, pilot piston, wood-ward governor, (i) to (h) convertor, solenoid valves etc. are to be carried out for smooth operation.</i>	0.50%
4	<i>Complete servicing of the ESV with actuator, replacement of worn out parts, matching for proper sealing, smooth operation & quick closing and draining is to be carried out.</i>	0.25%
5	<i>Replacement of servomotors along with brackets and position indicators.</i>	0.25%
6	<i>Servicing of starting device, speeder gear and governor impeller.</i>	0.25%
7	<i>Complete overhauling of all 3 numbers of extraction NRV (both oil and steam side) with repair and replacement of worn out parts.</i>	0.25%
8	<i>Arrangement of one Governing system expert conversant with this type of machine (single cylinder), including accommodation for a period of 15 days duly vetted by BHEL Site-in-charge is in the scope of vendor</i>	1.00%
SECTION-III		
CONVERSION OF BEARING PEDESTAL SUPPORT SYSTEM.		(2.00%)
1	<i>Carry out the turbine centering using the existing threaded cup and spherical washer system.</i>	
2	<i>Ensure that the rotor journal level and journal bearing parting plane level are equal.</i>	
3	<i>Ensure proper bedding of rotor on journal bearing.</i>	
4	<i>Carry out the alignment of the driven machine with turbine.</i>	
5	<i>Measure the gap between bearing housing and grouted pedestal at various points along the length of the pedestal/axis of rotor as directed by BHEL Site Engineer in charge.</i>	
6	<i>An allowance of +0.10mm to +0.15mm to be considered. (Blue matching allowance.)</i>	
7	<i>Packer plates (supplied by customer) are to be surface grinded as per the measured gaps on the bottom surface.</i>	
8	<i>Pull out the bearing housing.</i>	
9	<i>Grouted pedestal surface to be inspected for any dents or major surface imperfections. The same are to be removed by blue matching with glass or surface plate</i>	
10	<i>The surface grinded lubrite /Hardened plates are to be blue matched with the grouted pedestal so as to obtain proper contact between lubrite /Hardened plates and grouted pedestal.</i>	

ANNEXURE - IV

FORMAT FOR NO DEVIATION CERTIFICATE
(To be submitted in the bidder's letter head)

To,
Bharat Heavy Electricals Limited,
POWER SECTOR – EASTERN REGION
2nd FLOOR, Block-DJ, Plot- 9/1, SECTOR
SALT LAKE CITY, KOLKATA – 700 091
FAX – 033-2321-1960

Job: “OVERHAULING OF TURBINE, GENERATOR & AUXILIARY WORKS OF 25MW TG SET (M/C NO. T-0210) PH-4 AT TATA STEEL LIMITED- BISTUPUR, JHARKHAND”.

E-Tender No.: PSER:PUR:TISCO-S314:18 (ENQ:18:PP:0015:PUR:36) Date -20/07/2018 and TCN-01 dated 30/07/2018.

Dear Sir/Madam,

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/newspapers and in case of 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 confirm our acceptance to **reverse auctioning process*** and we hereby convey our unqualified acceptance to all terms and conditions as stipulated in the tender and NIT.

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 strictly in accordance with tender instructions.

Thanking you,

Yours faithfully,

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