



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-05 DTD. 02/12/2022)
Job	"OVERHAULING OF TURBINE (HP & LP), GENERATOR AND AUXILIARY WORKS AT UNIT-3, 250 MW (KWU DESIGN), BUDGE BUDGE, CESC, WEST BENGAL".
Ref	E-TENDER NO.: PSER:PUR:CESC-S501:22 (ENQ:22:PP:0015:PUR:91) Date 25/11/2022, TCN-01 DTD. 28/11/2022, TCN-02 DTD. 29/11/2022, TCN-03 DTD. 30/11/2022, TCN-04 DTD. 01/12/2022.

[With reference to above, following points/documents, relevant to tender, may please be noted and complied with while submitting the offer.](#)

- 1) Revised PRE – QUALIFICATION CRITERIA (ANNEXURE – V) - Rev-01 attached herewith, superseding earlier PRE – QUALIFICATION CRITERIA (ANNEXURE – V) issued along with NIT.
- 2) Revised Annexure-I (Scope of Work) - Rev-01 attached herewith, superseding earlier Annexure-I (Scope of Work) issued along with NIT.
- 3) EMD amount for the subject tender shall be INR 1,80,048.00. Relevant clauses/points shall be read accordingly. Bidders are requested to submit the EMD as per tender provision.
- 4) Due date of submission of offer against the subject tender is hereby extended from 02/12/2022 (14-00 Hrs. IST) to 05/12/2022 (14-00 Hrs. IST). Techno-commercial bid shall be opened on 05/12/2022 (16-30 Hrs. IST).
- 5) '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.
- 6) All other terms & conditions shall remain unchanged.

Thanking you,

Yours faithfully,
for BHARAT HEAVY ELECTRICALS LTD

MANAGER (PURCHASE)

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

ANNEXURE – V – REV-01

PRE – QUALIFICATION CRITERIA

Job: “OVERHAULING OF TURBINE (HP & LP), GENERATOR AND AUXILIARY WORKS AT UNIT-3, 250 MW (KWU DESIGN), BUDGE BUDGE, CESC, WEST BENGAL”.

E-Tender No.: PSER:PUR:CESC-S501:22 (ENQ:22:PP:0015:PUR:91) Date 25/11/2022, TCN-01 Date 28/11/2022, TCN-02 Date 29/11/2022, TCN-03 Date 30/11/2022, TCN-04 Date 01/12/2022 & TCN-05 Date 02/12/2022.

SL NO	CRITERIA
	PRE-QUALIFICATION CRITERIA
	PRE-QUALIFICATION CRITERIA- FINANCIAL
1.0 (a)	BIDDER SHOULD HAVE AVERAGE ANNUAL TURNOVER OF MINIMUM Rs 27.01 LAKHS DURING LAST 3 (THREE) FINANCIAL YEARS, ENDING ON 31-03-2022 AND SHOULD HAVE POSITIVE NET WORTH AS ON LATEST AUDITED ACCOUNTS AS SUBMITTED FOR PARA 1(c).
(b)	BIDDER MUST HAVE EARNED PROFIT IN ANY ONE OF THE LAST THREE FINANCIAL YEARS ENDING ON 31-03-2022. AUDITED BALANCE SHEET AND PROFIT & LOSS ACCOUNT OF THE COMPANY FOR LAST 3 (THREE) FINANCIAL YEARS, ENDING ON 31-03-2022 NEED TO BE SUBMITTED IN SUPPORT OF ABOVE.
(c)	IN CASE AUDITED BALANCE SHEET AND PROFIT & LOSS ACCOUNT HAS NOT BEEN SUBMITTED FOR ALL THREE YEARS INDICATED ABOVE THEN APPLICABLE FINANCIAL AUDITED STATEMENTS SUBMITTED BY THE BIDDER AGAINST THE REQUISITE THREE YEARS WILL BE AVERAGED FOR THREE YEARS.
(d)	IF FINANCIAL STATEMENTS ARE NOT REQUIRED TO BE AUDITED STATUTORILY, THEN INSTEAD OF AUDITED FINANCIAL STATEMENTS, FINANCIAL STATEMENTS ARE REQUIRED TO BE CERTIFIED BY CHARTERED ACCOUNTANT.
	PRE-QUALIFICATION CRITERIA -TECHNICAL
2.0	BIDDER SHOULD HAVE EXECUTED AT LEAST ONE JOB OF “ERECTION & COMMISSIONING OF STEAM TURBINE, GENERATOR & AUX. WORKS” OR “OVERHAULING OF STEAM TURBINE, GENERATOR & AUX. WORKS” OF AN UNIT OF RATING 190 MW OR ABOVE (KWU DESIGN) IN ANY UTILITY/ INDUSTRIAL PROJECT IN LAST 7 (SEVEN) YEARS, ENDING ON LATEST DUE DATE OF SUBMISSION OF OFFER. RELEVANT SUPPORTING DOCUMENTS FROM PURCHASER / END USER SHALL BE SUBMITTED.
	NOTE FOR SL NO 2.0 ABOVE
	THE WORD EXECUTED MEANS: THE WORK SHALL HAVE BEEN COMPLETED UPTO SYNCHRONISATION (FIRST SYNCHRONIZATION DATE SHALL BE CONSIDERED FOR EVALUATION) EVEN IF THE CONTRACT HAS NOT BEEN COMPLETED OR CLOSED.
3.0	BIDDER SHOULD HAVE VALID PAN. RELEVANT SUPPORTING DOCUMENTS SHALL BE SUBMITTED.
4.0	NO CONSORTIUM / JV BIDDING IS ALLOWED FOR THIS TENDER.
5.0	CONSIDERATION OF OFFER WILL BE SUBJECT TO CUSTOMER'S APPROVAL OF BIDDER
6.0	BIDDER MUST NOT BE UNDER BANKRUPTCY CODE PROCEEDINGS (IBC) BY NCLT OR UNDER LIQUIDATION / BIFR, WHICH WILL RENDER HIM INELIGIBLE FOR PARTICIPATION IN THIS TENDER, AND SHALL SUBMIT UNDERTAKING TO THIS EFFECT.
Note	AFTER SATISFACTORY FULFILLMENT OF ALL THE ABOVE CRITERIA, OFFER SHALL BE CONSIDERED FOR FURTHER EVALUATION AS PER NIT AND ALL OTHER TERMS OF THE TENDER.

SCOPE OF WORK

JOB DESCRIPTION: OVERHAULING OF TURBINE (HP & LP), GENERATOR AND AUXILIARY WORKS OF UNIT-3, 250 MW (KWU DESIGN) AT CESC-BUDGE BUDGE, WEST BENGAL.

Job Duration: 21 Days from Off-Bar to BG in considering 3 days cooling period (job duration to be maintained strictly. LD will be imposed as per contract).

Start of work shall be certified by BHEL site engineer and shall commence from date of Off-Bar or within 7 days from date of intimation by BHEL, whichever is later.

Mobilisation time: Vendor shall start mobilisation within 3 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 12 hrs 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 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.

NOTE:

- 1) INDUCTION HEATING MACHINE ALONG WITH OPERATOR WILL BE ARRANGED BY BHEL FOR HP, IP TURBINE OPENING. MANPOWER ASSISTANCE DURING PARTING PLANE BOLT/STUD OPENING AND CLOSING WILL BE PROVIDED BY VENDOR. VENDOR TO ARRANGE INDUCTION/ GAS HEATING FOR BREECH NUT OPENING AND CLOSING.
- 2) **ALUMINA BLASTING:** ALUMINA BLASTING INCLUDING ARRANGEMENT OF COMPRESSED AIR & ALL OTHER MACHINERIES REQUIRED FOR ALUMINA BLASTING ARE IN VENDOR'S SCOPE. HOWEVER, COMPRESSED AIR IF REQUIRED FOR OTHER THAN ALUMINA BLASTING WILL BE PROVIDED CUTOMER FROM PLANT SERVICE LINE.

	TOTAL	(100.00%)
A	TURBINE AND AUXILIARY SYSTEMS	(62.00%)
A.1	HPT MODULE OVERHAULING	(25.00%)
1	Removal of insulation and all connecting pipes of HP module, which will obstruct during lifting of the HP Module. Dismantling of casing thermocouples. Disposal of insulation and scrap material to designated location including arrangement of its transportation.	0.25%
2	Checking of all the clearances (roll check, bump check, entering check, horn drop check etc.).Initial/final measurement of reference readings of HP module. Coupled run out to be checked.	0.75%
3	Removal of breech nut (02 nos.) and CRH pipe lines by induction heating/gas heating & other related pipelines. Locking of pipe lines as required. Cutting of breech nut as required, UT of MS pipe, subsequent welding and SR of MS pipe joint after re-welding according to BHEL specified welding procedure, necessary arrangement	2.25%

	of gas is included in vendor scope within quoted price.	
4	Locking of turbine shaft with outer casing by locking arrangement. Removal of both bearing no 01 and 02 bottom halves bearings.	0.50%
5	Lifting of complete HP module from pedestal and placing on fixture.	0.50%
6	Tilting of complete module and placing in vertical position.	0.25%
7	Dismantling of both end glands including removal of sealing segments. Locking of rotor with respect to inner casing and outer casing both axially and radially.	0.50%
8	Loosening of threaded ring from barrel and removal of the same.	0.25%
9	Removal of rotor with inner casing from barrel with the help of attachment etc. and placing of the same on fixture in horizontal position for inspection as required.	0.25%
10	Removal of top half of inner casing after loosening of parting plane studs. Inspection of rotor and stator blades, fins, etc. Assistance during loosening of inner casing parting plane nut by Induction heating equipment.	0.50%
11	Removals of rotor from bottom half. Removal of sealing segments from both half of HP inner casing.	0.25%
12	Measurement of parting plane stud length and replacement if required. Testing of spring support on sealing segments, sealing strips etc. and replacement as required.	0.50%
13	Placement of top half casing on bottom half casing and aligning the alignment shaft.	0.25%
14	Insertion of inner casing in outer barrel and aligning the inner casing in casing inlet section and fitting in with the fitted keys. Replacement of keys as required.	0.50%
15	Facial and free run-out measurement. Correction of face as required to get desired swing values. Arrangement of annular surface plate (considering spigot) for coupling face correction is in vendor's scope.	0.50%
16	Thorough inspection of rotor, casing & gland seals. Minor repair of rotor and inner casing blade shifting.	0.25%
17	Measurement of axial and radial clearances (flow path) and corrections to be made if required.	0.25%
18	Ovality checking of HP inner casing. Correction of shroud parting plane gap. Assistance during heat tightening by induction heating equipment.	0.50%
19	Alumina cleaning of the rotor and HP inner casing (top and bottom) blades, studs, sealing segments etc. Supply of alumina (80 grit size), blasting nozzles/ other arrangements, enclosure including covering by tarpaulins and proper illumination / ventilation of enclosure is included in vendor's scope of work.	0.50%
20	Re-finishing of rotor gland area & sealing segments , subsequent machining of the same at site, as may be required. Arrangement of machining fixture included in vendor's scope. Replacement of new gland ring/ segments as may be required.	1.00%
21	Measurement of 'U' seal ring compression/HPC front gland seal ring bore dia. Replacement of 'U' seal rings/ Front gland seal ring as may be required including to & fro transportation to BHEL-VARANASI/ HARIDWAR.	0.50%
22	Checking of axial and radial clearances for sealing segments after insertion of the same and placement of the rotor. Dressing of fins to be done wherever damaged.	0.25%
23	Inspection of HPT internals & fasteners and carrying out cleaning, repair, replacement of components etc. and DPT as required.	0.50%
24	Turbine shaft insertion in bottom half for final assembly and top half to be placed in position. Tightening of the studs with Induction Heating device.	0.50%
25	Minor dressing/ hand machining of casing & rotor inter stage fins as may be required to maintain design radial clearance.	0.50%

26	Roll check and bump check of assembled inner casing. Measurement of axial reference.	0.50%
27	OPTIONAL-Arrangement of SLOW SPEED BALANCING MACHINE along with operator (including accommodation) for balancing of HP rotor. Transportation of balancing machine is also included in vendor scope. Submission of slow speed balancing report after balancing. Balancing Vendor should have proper credentials and to be vetted by BHEL.	10.00%
28	Locking of inner casing with rotor for inserting in casing. Inner casing to be inserted in the inlet section after fitting of the internals etc.	0.25%
29	Assembly of front gland sealing segments, glands etc. with new or re-finned ones & subsequent machining of sealing segments. Hand machining of sealing segment to maintain height is included in vendor scope.	0.50%
30	Assembled module to be put back on the pedestal.	0.25%
31	Final connections of all pipe lines, breech nuts, welding of gland steam pipe lines and stress relieving, UT, X-ray of joints including steam gland pipes as applicable. Arrangement of welding rods, filler rod is included in vendor's scope. Drilling & Reaming of Breech nut pin if required.	0.75%
A.3	LPT MODULE OVERHAULING	(13.00%)
1	Loosening of L P outer casing parting plane joints bolts and removal of LP outer shell, dismantling of both end cones.	0.25%
2	Covering of condenser tubes from inside the condenser and prepare platform of LP casing joints plane. Jacking LP casing and necessary arrangement of platform. Arrangement of pipe & clamp cover is included in vendor's scope of work. Condenser spring locking and unlocking is in vendor's scope.	0.25%
3	Loosening of joints plane bolts to remove LP inner-outer casing and LP inner- inner casing by Induction heating equipment. Assistance during loosening of parting plane studs by Induction heating equipment	0.25%
4	Record all necessary readings, roll check during dismantling of casing.	0.25%
5	Inspection of LP turbine internals and record radial and axial clearances of fixed and moving blades and rotor gland seals. Removing of LP rotor and placing it on rotor support.	0.25%
6	Thorough cleaning of bottom and top casing halves and the rotor. Alumina blasting cleaning of LP rotor, LP Rotor moving /LP stationary blades and top inner-inner, inner-outer casing etc. Supply of alumina (80 grit size), blasting nozzles/ other arrangements, enclosure including covering by tarpaulins and proper illumination / ventilation of enclosure is included in vendor's scope of work.	0.50%
7	Thorough inspection of rotor and casing. D P test of rotor, blades and casing in the suspected area /zone.	0.25%
8	Replacement / repair of damaged sealing rings of rotor and cylinder. Inspection and replacement of inter-stage fins as possible of LP Rotor, as per requirement.	0.25%
9	Free & facial run-out measurement at both end of LP rotor and IP rotor (LP end) as may be required. Correction of face to achieve desired swing value. Arrangement of annular surface plate (considering spigot) for coupling face correction is in vendor's scope. Surface finish of surface plate should be 04 micron or less and it has circular hole inside to accommodate spigot.	0.50%
10	Visual inspection and DPT of steam inlet bellows, all LP extractions bellows, LP front and rear expansion bellows of the gland box. Removal of necessary compensator protection pipes, repair of bellows as per requirement. Arrangement DPT kit along with operator, high pressure welder, filler and welding rods etc. is under vendor's scope. Replacement of two no. of extraction bellows included in vendor's scope	1.00%
11	Ovality checking of LP inner-inner and inner outer casing, correction by grinding as per requirement. Assistance during Inner-inner casing parting plane stud and cap nuts tightening by Induction heating equipment. Deformation and gap checking of inner-inner and inner-outer casing parting plane and correction by welding as per BHEL WPS & post welding treatment is	1.00%

	included in vendor's scope of work.	
12	Placement of LP rotor inside bottom casing.	0.25%
13	Boxing-up of LP inner- inner and inner- outer casing. Tightening of studs by Induction heating equipment. Assistance during tightening of parting plane studs by Induction heating equipment	0.50%
14	Roll check of LP rotor. Correction of internal radial and axial clearances	0.25%
15	Boxing- up of LP outer shell.	0.50%
16	Setting of gland boxes as per recommended clearances. Removal and replacement of gland segments and springs, re-finishing and hand machining of gland seal segments as required. Cleaning of LP front and rear seal segments by alumina blasting. Checking and setting of clearances of jack bolts after 24 hours of synchronization.	0.50%
17	Inspection of safety diaphragms and replacement if required.	0.25%
18	Inspection of all balancing weight of LP rotor of both end, removal, assembly and replacement (if found damaged) of high density balancing weight. Hot-well cleaning after box-up of LPC. Opening and closing of Hot-well manhole.	0.25%
19	Removal of LP last two stage blades (3L & 3R, 2L&2R as per tech cir. No X-68), cleaning of blades at root, assistance during NFT, matching as required to get improved NFT values, assembly of blade with technological pieces, removal of blades, final assembly of blades with clamping pieces and locking the blades etc. Replacement of defective blade, if required including its transportation from store.	2.00%
20	OPTIONAL-Arrangement of NFT team along with operator, technological pieces, for measurement and rectification work for improvement of NFT value. Expert for blade root matching to be arranged by vendor.	1.50%
21	MPI of all dismantled blades and rotor grooves, Arrangement of MPI kits (coil method) including operator is included in the vendor's scope Consumables for MPI (MAGNAFLUX or Equivalent) as required are to be supplied by successful bidder.	2.00%
22	Inspection and cleaning of LP exhaust hood spray nozzles. Carry out DPT of LP exhaust spray line Weld joints & rectification of same by welding.	0.25%
A.4	GENERAL ACTIVITIES OF TURBINE	(12.00%)
1	Assistance during pre-shutdown & post shut down inspection of the machine and recording the parameters.	0.25%
2	Dismantling and re-assembly of turbine-enclosure as per requirement.	0.50%
3	Opening of bearing pedestal covers and removal of bearings for inspection and recording of rotor and casing control dimensions.	0.50%
4	Coupled run out and float of rotor system to be checked and recorded. Measurement of reference readings during dismantling and assembly	0.50%
5	De-coupling and coupling of LP rotor, IP rotor, HP rotor and MOP. Final measurement of coupled run out and swing value.	0.50%
6	Alignment check of turbine rotors and corrections.	0.50%
7	DP test and ultrasonic test of turbine bearings, thrust pads for cracks in metal bonding. DPT & UT of spare bearings and thrust pads (in case of replacement) also included in vendor's scope. UT & DP test kit along with accessories and operator is in the Vendor's scope.	0.50%
8	Blue matching of torus piece with base plate to the extent possible at site. Replacement of bearings and thrust pads (if found not acceptable / damaged) by spares is included in vendor's scope.	1.00%
9	Coupling of LP/GEN, LP/IP, IP/HP and HP/ MOP. Reaming and honing of coupling holes and replacement of coupling bolts including machining of coupling bolts outside plant if required.	1.00%
10	Adjustment of bearing clearances and thrust float, boxing-up of all bearings, repair/ replacement and resetting of bearing yoke keys, pads and oil guard fins/sealing strips, oil guard ring set etc. as required.	0.50%

11	Inspection of the clearance between the rotor and the oil guard ring is to be done. If it has exceeded the limit then the fins / sealing strips are to be replaced and machined in specialized work shop outside power plant to get the designed value. To & fro transportation of the items for machining outside the power plant is also included in vendor's scope. Machining of oil guard fins / sealing strip, pads, yoke keys etc. are included in vendor scope.	0.50%
12	Servicing and adjustment of thrust bearing trip device, over speed trip device, barring gear system, emergency speed governor etc. as applicable. Servicing of over speed trip bolts. Servicing of hydraulic turning motor system including overrun clutch and replacement of damaged components as required.	0.25%
13	Centering check, rolling check, axial bump check, swing check and Horn drop test of HP, IP & LP cylinder and correction as required, Fixing and Lubrication of all sliding keys and packers of the cylinders etc. maintaining proper clearances. Removal / dismantling and re insulation of damaged portion as required. Preparation for platform below HP and IP turbine, as required to carry out the job.	0.50%
14	Dismantling of MOP, Inspection of bearings, seal rings, shaft impeller etc. and replacement of damaged parts including bearings, impeller etc. Machining of bearings in work shop outside the plant as required including to & fro transportation is included in scope.	0.50%
15	Catenary checking of all pedestal & correction as per requirement. Arrangement of 07 numbers pot along with pipe lines included in vendor's scope.	0.50%
16	Anchor plates matching for pedestals. Foundation bolts de-stretching & re-stretching / tightness checking as required of all bearing pedestal including and exciter foundation bolt. Stretching device arrangement to be done by vendor. Proper scaffolding to be carried out by vendor.	0.50%
17	Oil flushing of turbine bearings, resetting of throttles including periodic cleaning of bearing filter, basket filter of MOT, thrust bearing duplex filters. Setting of JOP header pressure and checking of individual lift. Bearings normalization after oil flushing.	0.50%
18	Putting the machine on barring gear with proper adjustment of jacking oil and Lube Oil pressure at bearings. Assistance during barring gear	0.50%
19	Arrangement of four (4) EOT crane operators duly vetted by customer and BHEL site Engineer in-charge for round the clock basis during entire duration of work.	1.00%
20	Arrangement of granite surface plate of 0.01 mm accuracy of 1 x 1 meter ² size, 4nos. of 50 tonnes, 4 nos. of 25 tonnes & 4 nos. of 100 tonnes hydraulic jacks with pumping units in good working conditions	0.50%
21	Painting of LP outer casing, pedestals, GEN & Exciter, governing and LPBP rack with standard colour code, Servomotors of HP, IP, HPBP & LPBP stop and control valves. (Supply of paints included in vendor's scope).	0.50%
22	Checking & rectification of BP leak off line for distortion.	0.50 %
A.5	HANGER INSPECTION	(5.00%)

	<p>Carrying out hanger setting & adjustment of turbine area hangers in MS, CRH & HRH, PRDS BP line and Turbine integral piping hangers & slope checking of gland piping of suspected area to attend long pending vibration issue in HP shaft. Scope as given below:-</p> <p>a) Making necessary scaffolding & approach platform for servicing. b) Hanger cold & hot readings are to be recorded. c) Checking of Freeness of hangers. d) Checking of fouling of hanger with the structure/wall e) Removal of welding of hanger support with surrounding structure for the purpose of temporary supports if any. f) Checking for any visual deviation of hanger elevation noticeable or looseness of hangers. g) Adjustment of necessary hangers & supports as per requirement. h) Any modification / rectification for the above job as required to be done by the vendor. i) Slope checking of gland/ integral piping with necessary insulation removal locally if required and re-patch insulation. Any major modification in piping with cutting if required will be taken up separately. However, minor repair work to be carried out in quoted price.</p>	
Note	Vendor has to depute one expert along with accommodation duly vetted by BHEL Site Engineer In Charge for a period 8 (eight) days for inspection and rectification of piping hanger & support, failing which an amount of Rs 5000/- per man day will be deducted.	
A.7	TURBINE VALVES OVERHAULING	(7.00%)
	<p>a) HP stop and control valve with servomotors - 2 Sets b) IP stop and control valve with servomotors – 2 Sets WORK TO BE DONE AS UNDER:-</p> <p>i) Making necessary scaffolding & approach platform for servicing. ii) Removal of insulation as required. iii) Draining of oil from valve servomotor housing. Disconnection of oil pipelines and steam leak off lines. iv) Decoupling of valve and servomotor stem. Removal of servomotor and valve cover with valve cone. v) Arrangement of induction heating for opening of valve casing studs. vi) Dismantling of servomotor and valves. Cleaning of all components, repair / replacement of damaged parts. Modification of valve bush and cone clearance, if found necessary. vii) Cleaning of servomotor pilot valve assembly. viii) Assembly of valve and servomotor as per the designed clearance after servicing. ix) Blue matching of all valves seats with seating. Lapping to be done with fabrication of lapping devices as per requirement. x) Placement of valve and servomotors and coupling etc. Dismantling and assembly of C&I probes along with limit switch. Calibration and setting of the strokes. xi) Fixing of oil and steam lines xii) Setting of valves characteristics xiii) Dismantling and fixing of position transmitter</p> <p>i) Functional Check of EHA of SV/CV ii) Replacement of four actuators of SV/CV iii) Removal of temporary platforms and Scaffoldings iv) Minor repair/ welding/ machining of spindle/ stems/ seats etc. as required in specialised work shop outside power plant to get the designed value including to & fro transportation of the items for machining outside the power plant is also under vendor's scope.</p>	
B	GENERATOR :	33.00%
B1	GENERAL ACTIVITIES	(10.50%)
1	Complete dismantling and reassembly of acoustic enclosure. Air leak test of Generator at 4.0 Kg/cm ² for checking of air leak through all bushing terminals, stator RTD terminal flanges etc. Disconnection of excitation cable at slip ring and removal of brush gear assembly.	1.00%

2	Dismantling and removal of TG/Exciter enclosures. Check couple run out of L.P. – Gen. Rotors and de-couple. Check alignment and free run out after top half removal of bearings. Dismantling of exciter covers. Record Gen. Exciter Rotors coupled run out, swing check of slip-ring Rotor, Decouple slip-ring Rotor. Check alignment.	2.00%
3	Dismantling of oil and water pipelines. Removal of all Hydrogen Coolers, dismantling and inspection of coolers and replacement of all gaskets. Hydro test of hydrogen coolers to be carried out. Plugging of the tubes to be done, if any leakage in the tube is found [Plugs to be provided by CESC].	2.00%
4	Dismantle bearings and record clearance / interference.	0.50%
5	Dismantle Hydrogen seals, inner oil catchers after recording clearances. Remove top half end shields. Record stator air gap, magnetic offset. Lower bottom half end shields.	1.50%
6	Rotor threat out	0.50%
7	Heating and varnishing of Stator winding, Winding Guards, Fan Guard Covers, other insulating sheets, generator rotor etc. 16 nos. halogen lamp of 1000 watts each are to be arranged by the bidder within the quoted price for proper heating of stator and rotor. Varnishing of the stator is to be done with dry oxygen. Varnish & dry oxygen shall be arranged by vendor.	1.00%
8	Machining & Transportation of Oil catcher, H2 Seal Ring etc. to be carried out by the vendor.	1.00%
9	<p>Assistance during following electrical tests of stator & rotor to be provided by vendor.</p> <p>Stator:-</p> <ul style="list-style-type: none"> a) DIGITAL ELCID test b) Partial discharge probe test c) IR & PI test with 5 kV megger d) DC winding resistance e) TAN-Delta of stator winding <p>Rotor:-</p> <ul style="list-style-type: none"> a) Digital RSO test b) IR & PI test with digital megger c) DC winding resistance d) AC impedance <p>Note: Test kit with operator for these tests will be arranged by the BHEL. Vendor shall provide necessary assistance for gate pass & movement of test kit in TG floor.</p>	1.00%
B2	GENERATOR STATOR	(1.50%)
10	Inspection of stator core overhangs. Thorough cleaning of stator internals. Straightening and matching of H2 cooler pipe lines connected with stator casing to make it proper leak-proof.	1.00%
11	Assistance during NFT of stator overhang portion	0.50%
B3	GENERATOR ROTOR	(6.00%)
12	Cleaning of rotor and removal of paints from retaining rings and fan blades. Conduct DPT and UT of retaining rings and fan blades in position. DPT & UT of Bearings. Inspection of rotor wedges and balancing weights.	1.00%
13	Gas tightness test of rotor	0.50%

14	Any leakages from the CC bolt, sealing washers during air leakage are to be attended and replacement of sealing washers/gaskets/ CC bolts as required. Air leakage of Rotor to be done as per norm. Vendor has to arrange expert technician(s) acceptable to BHEL Site Engineer for attending the CC bolt, sealing washers. All T&Ps including Torque wrench (up to 1700 NM) and consumables required for correction like Rubber compound K and Hardener T-37 to be arranged by the vendor.	3.00%
15	Polishing of bearing Journals by coir rope only. Rotor coupling facial run out checking and correction	0.50%
16	Inspection of bearings, Hydrogen Seals, Oil catchers and end shield etc. Inspection of all phase and neutral bushings and replacement of sealing gaskets of bushings as required. Air-tightness test of the bushings independently (outside).	1.00%
B4	ASSEMBLY:	(9.00%)
17	Box up of hydrogen coolers, pipe lines and dismantled parts. All RTD and thermocouple inspection and replacement only those wherever accessible. Conduct DPT & UT on bearings / hydrogen seals, replacement of bearings 5 & 6 (if required). DPT on LP - Generator coupling bolts	2.50%
18	Thread in of Generator rotor. Assembly of bottom half end shields. LP-Gen. rotor alignment, reaming / honing as required. Coupling and CRO checking. Assembly of top end shields, inner oil catchers etc.	3.50%
19	Checking of all clearances of bearings, labyrinth rings, oil catchers, hydrogen seals etc. Replacement of cords/ gaskets, sealing strips/ fins etc. Assembly of hydrogen seals. Injection of RTV-732 Silicone Sealant (Silicone Sealant with sealing gun to be arranged by the bidder within the quoted price) into end shields. Assembly of bearings ensures bearing pedestal insulation resistance. Machining & transportation of oil catchers and seal rings under vendor's scope.	3.00%
B5	SLIP-RING ROTOR :	(6.00%)
20	Check couple run out of generator rotor to slip ring shaft.	0.20%
21	Decouple slip ring shaft to generator rotor.	0.20%
22	Resting of slip ring shaft on support.	0.10%
23	UT & DPT of bearing -7. check oil clearances like SOC, TOC of bearing-7. Replacement of bearing-7 if required. Check multi contact pins and replacement, if required.	0.25%
24	Alignment (axial only) of slip ring shaft to generator rotor.	0.50%
25	Measure swing check of slip ring shaft to generator rotor.	0.25%
26	Coupling & couple run out of slip ring shaft to generator rotor. Restoration of oil piping to bearing pedestal-7. Check IR values of bearing pedestal-7 and oil piping to pedestal. Restoration of DC cables to slip ring shaft.	0.50%
27	Mounting of outer hood in position.	0.10%
28	Vendor has to depute one Generator expert winder including accommodation duly vetted by BHEL Site Engineer In Charge for a period 7 days.	2.00%
29	Assembly of sealing walls, hoods, enclosures etc. Assistance for oil flushing of bearing. Seal oil establishment & Generator air tightness test. Placement of TG on turning gear. Assistance during Generator dry out, if necessary, and Generator bus duct connection. Oil flushing and necessary arrangements for it. Generator seal establishment and air leakage test. Putting TG on barring gear. Assistance during trim balancing as may be required including post overhauling vibration signature analysis.	1.90%
C	ASSISTANCE DURING COMMISSIONING/SYNCHRONIZATION OF THE UNIT AND OBSERVATION FOR 72 HRS AFTER SYNCRONIZATION OF MACHINE	(5.00%)

1	Vendor has to deploy two nos. of safety officers having qualification of Diploma in Safety / customer for round the block basis to co-ordinate all above mentioned activities and to fulfil other statutory requirements. Vendor shall comply safety norms of customer.
2	Vendor has to maintain necessary housekeeping at BHEL site office
3	<i>ASSISTANCE DURING COMMISSIONING/SYNCHRONIZATION OF THE UNIT AND OBSERVATION FOR 72 HRS AFTER SYNCHRONIZATION OF MACHINE</i>

INPUTS REQUIRED FROM SUCCESSFUL BIDDER

- 01. T & P AND IMTES FOR PERFORMING THE SUBJECT JOB
- 02. SCAFFOLDING MATERIALS & WOODEN PLANKS AS REQUIRED

General scope of work and terms:

- 01. Transportation of spares from customer store to site and return to store if not used.
- 02. Transportation of special T& Ps, lifting tackles etc. from customer store to site and return to store after job completion.
- 03. Issuing and returning of materials from customer store and returning back & material reconciliation.
- 04. General illumination is available but for carrying out overhauling job any illumination is required is to be arranged.
- 05. After completion of work, the area shall be cleared up to the satisfaction of BHEL Site Engineer in charge/customer. Disposal of scrap/ waste/ insulation / debris generated while overhauling work to be disposed off at predetermined place as indicated by customer by the bidder including transportation of the waste.
- 06. The contractor shall have to bear for the loss of any damage to the items belonging to customer due to Improper handling / storing or improper fitting etc. and necessary recoveries will be made from the Contractor.
- 07. The contractor shall erect approach platform as per requirement and dismantle the same. Scaffolding material shall be brought by the contractor.
- 08. The contractor shall be fully responsible for maintenance of records of his employees.
- 09. Contractor shall engage his personnel round the clock and shall submit detailed work plan, bar chart, manpower deployment plan (in nos. and skill level only) round the clock and work progress and these shall be discussed and agreed prior to award of contract.
- 10. Housekeeping: Maintaining proper cleanliness around the work area is the contractor's responsibility. The contractor has to depute separately identified persons exclusively for area cleaning.
- 11. Safety Requirements: All persons working shall strictly follow the CUSTOMER safety norms. Contractor shall be solely responsible for ensuring the safety of his all worker / employees.
- 12. Contractor shall provide and ensure the proper use of all safety gadgets (PPE) to / by his all employees / workers engaged for this work. Contractor shall provide following safety gadgets confirming to the IS norms: safety helmets, safety goggles, safety shoes, hand gloves, & safety belts. Failing to the issue or use of the safety gadgets based on the requirement or violation of safety norms will attract penalty as per customer / BHEL safety rule. Contactor shall arrange necessary safety gadgets/PPE for BHEL persons also.
- 13. The contractor shall ensure that safety related awareness training has been given to his all workers / employees at the time of start of contract and it is mandatory to obtain identity card for the same from Customer safety department.
- 14. Contractor to take care of safety exclusively of his workers / employees engaged for the subject work. Contractor shall also ensure that there shall not be any safety hazard to the persons / machines in the vicinity due to his activities.
- 15. All lifting tools and tackles to be used shall be having the valid test certificate (with proper identification mark on the tools) from government approved agency and the same shall be produced to Engineer before start of work.
- 16. Other Requirements: Contractor shall ensure that environmental related awareness training has been given to his workers / employees at the time of start of contract.
- 17. Agency has to arrange their own incoming / outgoing Road permit for the T&Ps, materials, consumables etc required for the work.

18. Deployment of one Safety Officer (round the clock) having qualification of Diploma in Safety for entire duration of the job.

For all the above cases arrangement of necessary Material handling equipment will be in vendor's scope

TAXES AND DUTIES:

1.1	All taxes excluding GST with applicable cess & BOCW Cess (mentioned elsewhere in the Tender) but including, Charges, Royalties, , any State or Central Levy and other Taxes for materials if any obtained for the work and for the execution of the contract shall be borne by the bidder and shall not be payable extra by BHEL.
1.2	Any increase in the above at any stage during execution including extension of the contract, if any, shall have to be borne by the contractor. Quoted/ accepted rates/ price shall be inclusive of all such requirements.
1.3	GST with applicable Cess, legally leviable & payable by the successful bidder as per GST Law, shall be paid extra by BHEL. Hence, Bidder shall not include GST with applicable Cess in their quoted price.
1.4	The successful bidder shall furnish proof of GST registration with GSTN Portal covering the services under this contract. Registration should also bear endorsement for the premises from where the billing shall be done by the successful bidder on BHEL for this project/ work.
1.5	Since GST on output will be paid by BHEL separately as enumerated above, bidder's quoted rates/ price should be after considering the Input Credit under GST law at their end.
1.6	TDS under Income Tax shall be deducted at prevailing rates on gross invoice value from the running bills unless exemption certificate from the appropriate authority/ authorities is furnished.
1.7	TDS under GST shall be deducted at applicable rates on gross invoice value from the running bills
1.8	Bidder shall note that the GST Tax Invoice complying with GST Invoice Rules (Section 31 of GST Act & Rules referred there under) wherein the 'Bill To' details shall be as per following. BHEL GSTN – 19AAACB4146P1ZC NAME: Bharat Heavy Electricals Limited ADDRESS: BHEL-PSER , DJ-9/1, sector-II Salt Lake City, Kolkata-700 091, West Bengal, India
1.9	Bidder to intimate immediately on the day of removal of Goods(in case of any supply of goods) to BHEL along with all relevant details and a scanned copy of Tax Invoice through following communication mode for enabling BHEL to meet its GST related compliances Portal Address – Shall be intimated later. And Email Address – Shall be intimated later. In case of delay in submission of the abovementioned documents on the date of dispatch, BHEL may incur penalty /interest for not adhering to Invoicing Rules under GST Law. The same will be liable to be recovered from the successful bidder, if such delay is attributable to the bidder.
1.10	In case of raising any Supplementary Tax Invoice (Debit / Credit Note) Bidder shall issue the same containing all the details as referred to in Section 34 read with Section 31 of GST Act & Rules referred there under.
1.11	Bidder shall Comply with the Time limit prescribed under the GST Law and rules thereof for raising of the tax invoice. If any supply of goods is applicable, Bidder shall also ensure prompt delivery of Goods after dispatch.
1.12	Bidder shall note that in case GST credit is delayed/ denied to BHEL due to delayed / non receipt of goods and /or tax invoice or expiry of the timeline prescribed in GST Law for availing such ITC, or any other reasons attributable to the bidder, GST amount shall be recoverable from the bidder along with interest levied / leviable on BHEL, as the case may be.
1.13	Bidder shall upload the Invoices raised on BHEL in GSTR-1 within the prescribed time as given in the GST Act. Bidder shall note that in case of delay in declaring such invoice in your return and GST credit availed by BHEL is denied or reversed subsequently as per GST Law , GST amount paid by

	BHEL towards such ITC reversal as per GST law shall be recoverable from the bidder along with interest levied / leviabale on BHEL.
1.14	<p>Way Bill: Successful Bidder shall arrange way bill / e-waybill for any transfer of goods for the execution of the contract.</p> <p>The Bidder has to make their own arrangement at their cost for completing the formalities, if required, with Issuing Authorities, for bringing materials, plants & machinery at site for execution of the works under this contract, Road Permit/ Way Bill, if required, shall be arranged by the contractor and BHEL will not supply any Road Permit/ Way Bill for this purpose.</p>
1.15	<p>Any new taxes & duties, if imposed subsequent to the due date of offer submission as per NIT & TCN, by statutory authority during contract period (including extensions for which delay is not attributable to the bidder), shall be reimbursed by BHEL on production of relevant supporting document to the satisfaction of BHEL. However, bidder shall obtain prior approval from BHEL before depositing any such new taxes and duties.</p> <p>Benefits and/or abolition of all existing taxes must be passed on to BHEL against new taxes, if any, introduced at a later date.</p>

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[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 II
SALT LAKE CITY, KOLKATA – 700 091
FAX – 033-2321-1960

Job: “OVERHAULING OF TURBINE (HP & LP), GENERATOR AND AUXILIARY WORKS AT UNIT-3, 250 MW (KWU DESIGN), BUDGE BUDGE, CESC, WEST BENGAL”.

E-Tender No.: PSER:PUR:CESC-S501:22 (ENQ:22:PP:0015:PUR:91) Date 25/11/2022, TCN-01 Date 28/11/2022, TCN-02 Date 29/11/2022, TCN-03 Date 30/11/2022, TCN-04 Date 01/12/2022 & TCN-05 Date 02/12/2022.

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 websites 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)