

Scope of work for DIL Unit 1 TG AOH 2025-26

Bearing inspection:

- I. Inspection of 5 TG bearings (bearing no. 1, 2, 4, 5 and 7) and the thrust bearing. Bearing inspection and replacement, if required includes the followings:**
 - a) Dismantling of bearings,
 - b) Measuring and recording 'as-found' readings including bearing clearances, seal bore, bridge gauge reading, oil seal clearances, slope, pedestal interference etc.
 - c) Measuring and recording thrust float, reference position of thrust bearing and adjustment of float as required.
 - d) Health assessment of bearings by NDTs (DP and UT),
 - e) Necessary bedding, as required,
 - f) Measuring and recording 'as-left' readings including bearing clearances, seal bore, bridge gauge reading, oil seal clearances, slope, pedestal interference, oil guard clearances etc.,
 - g) Final assembly,
 - h) Cleaning of pedestals and connected supply and drain lines.
 - i) Replacement of any one (1) no bearing and Thrust Pads, as required, will be under the job scope.
- II. Measurement of final axial float and assistance in rotor position instrument setting.**
- III. Swing check at bearing 7 and necessary correction, as required, to achieve desired swing value.**
- IV. Exciter pedestal bolt tightness checking.**
- V. Bearings Pedestal oil baffle and Bearing oil guard clearance checking and repair. Pedestal Oil Fins and Bearing Oil Glands (rings) will be replaced, as required, for Brg Pedestal Nos 1, 2, 5, 6 and 7 including the Thrust Bearing.**

Other TG related Jobs:

- I. Leak test of LP rupture disk and replacement of diaphragm if required. Renewal of LP manhole cover gaskets.**
- II. Inspection of LP rotor last row blades and bolts of LP diffusers including arrangement of proper scaffolding. Inspection of LP inner casing thermal shield and necessary repair, if required.**
- III. Cleaning and Greasing of Front pedestal base plates, LPT turbine base plates and HIP Cylinder supports paws (4 legs), as required.**
- IV. Cleaning and flushing of all bearing pedestals including disassembly and assembly of related pipework including JOP lift setting.**
- V. Inspection and overhaul of barring gear including backlash measurement, inspection of oil seals, chains and rectifications if required.**

Generator Related Jobs:

- I. Opening of bushing chamber manhole cover, Stator top and bottom manhole covers and internal partitions to inspect the hoses connected to leads and bushings.**
- II. Assistance in helium leak test of hose joints by approaching through manholes.**
- III. Assistance in attending leakage from hoses and hose joints, if required, which would include removal and refitting of hoses with new copper washers, removal and reapplication of insulation at conductors, leads, lead extensions, bushing joints.**
- IV. Leak test of Stator Conductor Cooling Water system and ensuring leak test results are within acceptable limit.**

ANNEXURE I TO TENDER NO. DIL/ANNUAL OVERHAULING/02 DATED 23.08.25

- V.** Refitting of internal partitions. Refitting of all manhole covers with new gaskets.
- VI.** Assistance for Air Tightness Test of Generator and necessary repair including Tite-seal injection as required to achieve permissible test result. The contractor will also arrange Pneumatic pump for Tite-seal injection into end shields.

Complete Overhauling of all Turbine Main Steam and RH Steam Stop and Governing Control valves and strainers:

- I. Complete overhauling involving dismantling, inspection, repair and reassembly of RSV 1& 2, IV 1& 2, GV 1, 2, 3, 4, TV 1& 2 involving**
 - a) Removal of actuators after decoupling from valve stem,
 - b) Dismantling of valves,
 - c) Cleaning of valves and its components,
 - d) Measurement of clearances and valve stem runout,
 - e) Replacement/refurbishment of valve components, as applicable,
 - f) Ensuring proper blue contact between valve cone and valve seat,
 - g) Assembly of components,
 - h) Inspection and refitting of actuators including replacement of actuator filters.
- II.** NDT of valves. The Job includes Dye penetrant test and Ultrasonic test of valve stem, disc, pocket, coupling and Dye penetrant test of valve bonnet, seat and steam chest.
- III.** MS and Reheat strainer inspection, cleaning and NDT as required. NDT of strainer includes Dye penetrant test of strainer body and weld joints.
- IV.** Replacement of strainer will have to be done, if required.
- V.** Assistance during Stroke adjustment/ Functional tests of TV, GV, IV & RSV valves.

Offer will also include Cost towards following Optional Jobs (if required):

- 1. Replacement of more than 1 no. bearing,**
- 2. Inspection of additional bearings as stated above**

Note:

Vendor will also have to arrange the following tools & tackles:

- a) Pneumatic pumps for Tite-seal injection into end shields.

PART B: Other terms and conditions

- 1. All findings, materials damaged, materials required and readings captured during overhauling has to be submitted by end of each day. All final protocol sheets for relevant measurement reading of Turbine & Generator and Box-up of Turbine Cylinder/Generator will be duly signed both by the Contractor and DIL. Brief field Survey report, MOM between contractor and DIL. and a copy of the signed protocol sheets have to be submitted by the Contractor before leaving site.
- 2. Survey report including a) all relevant measurements including both 'as found' and 'as left' reading format as per standard protocol sheets and b) all observations including photographs are to be submitted within 30 days from completion of overhauling.
- 3. Running abnormalities, if any, of the Turbo Alternator set will have to be resolved during the overhauling.

ANNEXURE I TO TENDER NO. DIL/ANNUAL OVERHAULING/02 DATED 23.08.25

4. Job will be carried out round the clock. Hence the contractor will have to depute required manpower for working both in the Day and Night shifts.
5. EOT crane operators to be provided by the Contractor in all working shifts.
6. All Tools and Tackles (duly tested and certified) and measuring instruments (duly calibrated), as required for the job, will have to be provided by the contractor. DIL will provide only the Special Tools & Tackles for the job. Contractor has to carry out modifications of special tools during the course of the overhauling, if required.
7. If any machining is required beyond the Jobs Scope, the same will have to be done at a competent workshop. Supervision of machining to achieve design clearances at site after installation will be in the scope of the Contractor. However, the cost of machining will be under the scope of DIL.
8. The Contractor will have to abide by the medical & safety norms practiced at Budge budge Generating Station and produce relevant medical test reports.
9. Contractor has to provide common consumables including common cleaning agents, emery paper or wheels, various buffing & cutting wheels etc., consumables for Power tools like drill bits.
10. The contractor will have its own welding and gas cutting sets. Welding job and after welding radiography & Stress relieving jobs should be the responsibility of the Contractor.
11. Contractor has to make proper scaffolding to safely access equipment and conduct maintenance activities wherever required.
12. Notwithstanding any other provision herein, the Contractor shall measure and record all critical dimensions required for successful completion of the overhauling in the relevant protocols.
13. Loose clothes, gunny bags, jutes etc. must not be used for covering open oil lines, steam lines. Only large tarpaulin sheets are to be used, and these sheets must be properly bound to external part of the oil/steam line. If any metallic or wooden cover is used, the same has to be again bound. Contractor has to ensure no metallic wire or pieces of metallic cover goes into the lines. During working on these open ports for any activities including cleaning, special care must be taken to ensure no foreign object goes into the oil/steam line.
14. Before any final box up, visual and videoscope examination of the internals and connected pipelines of turbine, generator, bearings, valves have to be done to ensure there are no foreign materials inside. Contractor must also ensure all related works have completed before box up to avoid rework.

Other Exclusions:

1. Turbine insulation removal & re-application.
2. Application of Paint.

ANNEXURE I TO TENDER NO. DIL/ANNUAL OVERHAULING/02 DATED 23.08.25

AOH Unit#1 - 2025-26 For TG Aux					
Sr. No.		Work Description	UOM	Qty	Remarks
1	Condenser steam and water space				
	1	Hotwell inspection and Cleaning and rectification of abnormalities	lumpsum	1	
	2	Condenser flash box inspection and cleaning by cutting manholes, rectification of abnormalities, and restoration of manholes by welding			
	3	Condenser flash box attemperation header nozzles inspection and replacement if required			
	4	Condenser steam space inspection - inspection of flow nozzles, LPH 1 and 2, Steam Dump Device, Expansion bellows, Pipe supports, LPT caldding, Expansion bellows, nozzles from flash boxes etc., and rectification of abnormalities			
2	Condensate System				
	1	CEP alignment checking and correction	Set	2	
	2	CEP Thrust bearing inspection and Replacement if required	Set	2	
	3	CEP Mechanical seal inspection and replacement or O ring replacement as per requirement	Set	1	
	4	CEP Suction strainer cleaning	Each	2	
	5	Inspection of LPH-1,2,3 &4 tubes and water box partition	Set	3	
	6	Installation of split type mechanical seal in CEP	Set	1	
	7	Installation of condensate flow nozzles (01 Each),pipe (DN 300, 18 meter) and valve (DN 300,01 each) in bypass line	lumpsum	1	
3	Feed water System				
	1	Deaerator and FST tank inpection,cleaning and rectification ,if any	lumpsum	1	
	2	Deaerator and FST nozzles inspection and rectification,if any			
	3	Inspection of HPH-6,7 & 8 tubes and water box partition,replacement of partion plates,if required	Set	3	
	4	BFP main pump cartridge seal replacement.	Set	1	
	5	BFP main pump, motor and Booster pump bearing inspection and correction. Complete alignment of rotor system	Set	1	
	6	BFP Main pump Mechanical seals inspection/Replacement,Jacket O ring replacement	Set	1	

ANNEXURE I TO TENDER NO. DIL/ANNUAL OVERHAULING/02 DATED 23.08.25

	7	BFP Hydro coupling draining, Cleaning , Rotor inspection and inspection of scoop tube assembly	Set	1	
	8	BFP Hydro coupling draining, cleaning and inspection	Set	2	
	9	BFP discharge MOV gearbox inspection and bearing replacement if required	Each	3	
	10	Feed water line MOV gearbox inspection and replacement of bearings if required	Each	9	
	11	BFP and Booster pump suction strainer cleaning and replacement of strainer mesh if required	Each	6	
4	Extraction System				
	1	Extraction-8 NRV bonnet gasket replacement	Each	1	
	2	Cage cleaning of HPH-6,7 & 8 normal drain control valves	Each	3	
	3	Extraction system Instrument air line Oil mister and separator inspection and cleaning	Set	1	
5	DMCW System				
	1	DMCW pump overhauling - Inspection of impeller, replacement of bearings, mechanical seals	Set	1	
	2	DMCW pump alignment checking and correction, coupling checking and bush replacement	Set	2	
	3	DMCW Expansion tank inspection,painting and tank breather silica replacement ,if required	Set	1	
	4	DMCW PHE dismantling, cleaning and restoration - 500 plates for each PHE	Set	2	
	5	DMCW suction strainer cleaning	Each	2	
	6	Replacement of PHE-B DMCW inlet and outlet MOV seal (DN 500)	Each	2	
6	Lube Oil System				
	1	MOT Cleaning and inspection. Assistance required during MOT draining and oil re filling	Set	1	
	2	MOT Lube Oil cooler tube cleaning	Set	2	
	3	MOT simplex filter and Y strainer cleaning / Replacement as required	Set	2	
7	Seal Oil System				
	1	Seal oil system filter cleaning	Set	4	
	2	Seal oil system tank inspection	Set	1	
	3	Attending flange, gland leakages of seal oil system	lumpsum	1	
	4	Replacement of air and hydrogen side seal oil pump-AC	Set	2	
8	HPLP Bypass System				
	1	Bypass oil system tank draining ,cleaning and inspection and breather inspection	Set	1	

ANNEXURE I TO TENDER NO. DIL/ANNUAL OVERHAULING/02 DATED 23.08.25

	2	Support & welding joint checking and rectification of bypass oil piping	Set	1	
9	EH oil System				
	1	EH oil system tank draining ,cleaning and inspection and breather inspection	Set	1	
	2	EH oil cooler internal inspection, cleaning & flushing and water inlet line strainer cleaning work	Set	2	
10	Generator Stator Cooling water system and Gas System				
	1	Hydrogen dryer maintenance checks, Replacement of desiccant if required	Set	2	
11	Hangers and Support				
	1	Hanger & Support checking (Hot - Pre AOH and cold value) and rectification of following piping: Feed water system, Condensate system, Main steam, CRH, HRH, HPLP bypass, Extraction system, gland steam system, APRDS system, Turbine drains, Heaters normal and emergency drains, Desuperheating lines etc. and attending defects, if any (Approx supports: 650 EACH)	lumpsum	1	
	2	Rectification of CEP attemperation line support at TG 6 meter	lumpsum	1	
	3	Replacement of HRH snubber support No.31	Each	1	
12	Gland Steam System				
	1	HP turbine gland steam strainer inspection and cleaning	Each	1	
	2	IP gland steam strainer inspection and cleaning	Each	1	
	3	LP gland steam strainer inspection and cleaning	Each	2	
	4	GSC float strainer cleaning and inspection of trap	Set	1	
13	Vacuum system				
	1	Vacuum pump alignment checking and correction as per requirement	Set	1	
	2	Vacuum pump overhauling	Set	1	
	3	Vacuum pump suction strainer inspection and cleaning	Each	2	
	4	Vacuum pump PHE cleaning	Set	2	
	5	Vacuum pump PHE ACW line strainer inspection and cleaning	Each	2	
	6	Vacuum pump recirculation pump suction strainer inspection and cleaning	Each	1	
14	Valve Replacement and gland addition				
	1	Feed water system valve replacement (DN 20 to DN 150)	Each	6	
	2	Condensate system valve replacement (DN 20 to DN 50)	Each	5	

ANNEXURE I TO TENDER NO. DIL/ANNUAL OVERHAULING/02 DATED 23.08.25

	3	Extraction system valves replacement (DN 20 to DN 50)	Each	5	
	4	Turbine drain system valve replacement (DN 20 to DN 50)	Each	8	
	5	APRDS & Gland steam system valve replacement (DN 20 to 50)	Each	5	
	6	MS, CRH, HRH system valve replacement (DN 20 to DN 50)	Each	5	
	7	Replacement of APRDS to Extraction-5 NRV at Deaerator floor (DN 300)	Each	1	
	8	Inspection, cleaning and replacement of various steam traps in TG area (DN 20 to DN 50)	Each	18	
	9	Normalisation of MS flash tank drains and Gland steam drains (4 joints, F22, 40 MM)	lumpsum	1	
General Terms & Condition					
	1	Scaffolding erection and dismantling for valves	lumpsum	1	
	2	Insulation removal and re-fixing which will be removed during AOH/ COH in TG area	lumpsum	1	
	3	Support services (including manpower, Tools & tackles) required for E&I help request	lumpsum	1	
	5	Scaffolding materials	lumpsum	1	
	6	2 EOT operators (in each shift duty)	lumpsum	1	
	7	Mobilisation of items	lumpsum	1	
	8	All lifting tools and tackles, hydraulic jacks, measuring instruments for mentioned jobs	lumpsum	1	
	9	Pre and Post weld Heat treatment for applicable weld joints	lumpsum	1	
	10	Radiography tests for complete joints mentioned under valve replacement and gland addition section	lumpsum	1	
	11	Radiography tests of MS to APRDS tapping stub joint and repair if required	lumpsum	1	
	12	Hydra 14 T	lumpsum	1	
	13	Protocols and work reports to be submitted as per DIL EIC	lumpsum	1	