

TENDER FOR ANNUAL OVERHAULING OF BOILER & ITS AUXILIARIES SET AND MINOR OVERHAULING OF TURBINE-GENERATOR SET AT HALDIA ENERGY LIMITED

Haldia Energy Limited (HEL), Haldia a power utility in private sector and a flagship company under RP-Sanjiv Goenka Group, is engaged in power generation.

HEL invites **bids for a 3-year Rate Contract for execution of Capital Overhauling (COH) / Annual Overhauling (AOH) works from eligible bidders** for Annual Overhauling Boiler & Its Auxiliaries and Turbine-Generator for One Unit of 300 MW.

The bids shall be submitted in the following two parts:

- Unpriced Techno-Commercial Bid
- Price Bid

A) BRIEF SCOPE OF WORK:

The overhauling job under this tender majorly covers the following:

➤ **MINOR OVERHAULING OF SEC MAKE BOILER & ITS AUXILIARIES OF UNIT 1 (Consist of 6 Packages)**

SI No.	Description	Qty	UOM
1	Boiler Pr. Parts with Boiler Furnace Scaffolding, Valves, SV & Burner	1	AU
2	APH - One support Brg, Sector plate & No Basket Replacement	1	AU
3	Fan Overhauling	1	AU
4	ESP Overhauling	1	AU
5	Duct, Gate & Dampers	1	AU
6	BA & FA System	1	AU

➤ **MINOR OVERHAULING OF SEC MAKE TURBINE, GENERATOR & ASSOCIATED SYSTEMS OF UNIT 1 (Consist of 2 Packages)**

1	Main Turbine & Generator • Bearing Inspection & Valve (TV & GV) Inspection • Generator – H2 leak identification & Attending (Assistance to OEM & TPs)	1	AU
2	TG Aux – BFP, CEP, MOT, Vacuum Pump, Condenser, HP-LP Heaters TG Area Pumps	1	AU

Detailed Scope of work as mentioned under Annexure I

B) CALENDAR OF EVENTS

(a)	Date of issue of detailed bid documents	By 29.07.2026
(b)	Last date of receipt of pre-bid queries (if any)	By 01.08.2026
(c)	Response of Prebid Queries / Site Visit	By 06.08.2026
(d)	Last date and time of receipt of both Technical-Commercial & Price Bids	By 12.08.2026

C) DEVIATIONS FROM TENDER

Normally, the deviations to tender terms are not admissible and the bids with deviation are liable for rejection. Hence, the Bidders are advised to refrain from taking any deviations on this Tender. Still in case of any deviations, all such deviations shall be set out by the Bidders and same shall be submitted as a part of the Technical Bid. Deviation sheet enclosed as per **Annexure-V**.

- Bids shall not be accepted after the deadline date and time.
- No alteration in the form of the Bid or in the amount or any addition in the form of special stipulation will be permitted. If corrections be needed while filling in the Bid, the same shall be made by the Bidder with his dated signature.
- All pages of the Bid papers and other accompanying documents shall be initialed at the lower right-hand corner with ink only and signed where required by the Bidder or any person holding Power of Attorney authorizing him to sign on behalf of the Bidder before submission of the Bid.
- Bid, which is incomplete, obscure, or irregular or only for a part of the schedule, is liable for rejection and decision of HEL in this regard is final and conclusive.

D) PRE-QUALIFICATION CRITERIA

Sr No	Parameter	HEL Requirement	Documents to be submitted by Bidder
A	Technical Pre-Qualification Requirements		
1	Technical Experience	• The Bidders or its associates should have minimum 5 Years of experience as per the scope of work in the tender with a similar/identical unit size of 250 MW or above. • The Bidders or its associates shall have done at least 5 identical/similar overhauling jobs within the last 6 year in a Thermal Power Plant with a minimum capacity of 250 MW unit or above. • For TG Overhauling, Bidders and/or its sub-contractors should have experience in 300/330MW SEC units	Copy of work order / completion certificate
2	Technical Performance	• Bidders or its associates should submit Performance Certificates or Repeat Order copies for at least two similar jobs.	Performance certificate and contact details of the client need to be submitted. In case the Bidder has a previous association with HEL or its group Companies for similar services, the performance feedback for that Bidder from HEL technical Team shall only be considered irrespective of performance certificates issued by any third organization.
B	Financial Pre-Qualification Requirements		
1	Commercial Capability	• The Principal Service Provider/Authorized bidder should have Average Annual turnover of at least Rs. 100 Cr. for last 3 Financial Year (FY 22-23, FY 23-24 C FY 24-25.)	PL & Balance sheet of last three FY along with Certificate of incorporation to be submitted

2	Commercial feasibility	Net worth shall be positive for last 3 years.	Net worth statements duly certified by Chartered Accountant has to be submitted for last 3 years.
3	Statutory Requirement	- The Bidder should possess the following: Valid EPF Registration Certificate. - Valid ESI Registration Certificate. - Valid GST Registration Certificate. - Valid PAN No.	Certificate/ registration copy of the same to be submitted
4	No Insolvency and No Bankruptcy	The Bidder has not been blacklisted/debarred by any central/state government institution / Electricity utilities and there are no pending proceedings against the Bidder under the Insolvency and Bankruptcy Code, 2016 ("IBC").	Undertaking for both the points as mentioned need to be submitted in this regard
5	No Litigation	The Bidder shall should not have any Litigation pending with the HEL or its Group / Associates Companies.	Undertaking for both the points as mentioned need to be submitted in this regard

- a) HEL reserves the right to assess the capability/qualifications of the Bidder and/or its sub-contractors to satisfactorily perform the Contract. During such assessment the Bidder may interalia be required to demonstrate past experience of completion of works of similar nature mentioned above as well as satisfactory performance of the plant and equipment supplied and installed by them or their sub-contractors.

HEL reserves the right to verify all or any of the above.

HEL reserves the right to seek further documentary evidences from Bidders and/or its sub-contractors in support of fulfilment of the pre-qualification criteria, as above, and refuse to qualify at HEL's discretion without assigning any reason.

- b) Subject to HEL being satisfied about the Bidder's capability to execute the work as provided in this tender, in part or in totality, the above conditions may be relaxed at HEL's discretion.

- c) HEL reserves the right to split the job to multiple Bidders for best techno-commercial benefit & delivery/completion schedule.
- d) HEL reserves the right to cancel/withdraw the tender without assigning any reasons and shall bear no liability whatsoever consequent upon such decision.
- e) HEL reserves the right to reject the proposal of any or all Bidders without assigning any reasons whatsoever.

E) EARNEST MONEY DEPOSIT

The bidders are required to furnish a Demand Draft / RTGS of **INR 3 Lakhs (Part 1: 2.5 Lakhs + Part 2: INR 0.5 Lakh)** from any scheduled bank as EMD, which is to be submitted at the address mentioned below.

EMD shall be forfeited if bidder withdraw the price after submission, declined to accept the Work Order at quoted/agreed rates and /or fails to start/execute the job after getting the Order.

BIDS WITHOUT EMD WILL NOT BE ACCEPTED.

F) PROCESS OF SUBMISSION OF TENDER:

Bids shall be submitted in 2 (Two) parts:

1st Part: "TECHNICAL-COMMERCIAL UNPRICED BID":

This part shall contain the techno-commercial particulars along with the following:

- i) A brief profile of the company stating the organizational pattern, Total manpower details, Office, and other facility etc.
- ii) Credentials of carrying out similar job at other places as per clause D along with Documentary evidence in support of qualifying criteria.
- iii) PF, ESI License details with validity date.
- iv) The audited balance sheets of last three (03) fiscal years
- v) Net worth statements duly certified by Chartered Accountant has to be submitted for last 3 years.
- vi) Duly signed & stamped Scope of Work (Annexure I)
- vii) No Deviation Certificate / Schedule of Deviations as per the Annexure V
- viii) Acceptance to Commercial Terms and Conditions as mentioned in the Tender.
- ix) Duly signed & stamped acknowledgement of the Gatepass & Safety Guidelines (**Annexure VI**).

Technical Bids to be mailed to soukalik.biswas@rpsg.in and copy to anindya.dhar@rpsg.in

2nd Part: "PRICE BID" shall be submitted considering the **Scope of Work as per Annexure- I**

I. Any price related information/discussion at the time of technical evaluation shall lead to bid disqualification. All price related communications to be done with authorized procurement department

member only.

Bid shall be submitted only after complete understanding the tender terms & conditions and undersigned may kindly be contacted in case of queries in relation to the current tender. The Bid prepared by the Bidder, and all correspondence and documents relating to the Bid exchanged by the Bidder and HEL, shall be written in the English Language only.

Price Bid documents should be duly submitted as per “Price Schedule-Annexure-II” attached only. And submit the detailed price Break-Up for each job as per the detailed SOW Annexure-I.

No deviations in the price schedule format provided, shall be considered for evaluation.

Price Bids shall be in password protected PDF file & to be mailed to soukalik.biswas@rpsg.in with copy to anindya.dhar@rpsg.in.

Process & mode of sending the Password shall be intimated at later date.

G) CONTACT INFORMATION

All the Bidders are requested to send their pre-bid queries (if any) against this tender through e-mail within the stipulated timelines. In case of any clarification, the Bidders may contact the following officials of HEL:

For Queries:

Mr. Soukalik Biswas

Addl. Manager (Materials)

E-mail: soukalik.biswas@rpsg.in Mob: 9937294041

H) AWARD DECISION

HEL shall award the contract to the successful Bidder based the all-inclusive cost quoted by Bidder as “PRICE SCHEDULE”. The decision to place purchase order/LOI solely depends on HEL on the cost competitiveness across quality of service and Bidder’s capacity, in addition to other factors that HEL may deem relevant.

HEL reserves all the rights to award the contract to one or more Bidders to meet the requirement or nullify the award decision without assigning any reason thereof.

In case any contractor is found unsatisfactory during the execution process, the award will be cancelled and HEL reserves the right to award other contractors who are found fit.

I) VALIDITY OF BID

Offer shall be valid for at least 120 days from the date of submission.

J) CONFIDENTIALITY AND NON-DISCLOSURE:

- a) In the event of a Contract with HEL, Bidder shall agree (unless otherwise required by law) that it shall not disclose to any other person information classified as proprietary, sensitive, or confidential in nature.
- b) The obligations of confidentiality undertaken during the Contract shall continue for the term of the Contract and for a period of 1 (one) year following the completion of execution of the order.

K) WAIVER

The failure of either Party (HEL/Bidder is herein referred as 'Party in singular or "Parties" to denote both HEL & Bidder) to enforce at any time any of the provisions of this Contract, or to require at any time performance by the other Party of any of the provisions hereof, shall in no way be construed to be a waiver of such provisions, nor in any way to affect the validity of this Contract or any part hereof, or the right of either Party thereafter to enforce each and every provision.

Waiver by either Party of any default, breach or non-performance hereunder shall not constitute nor be construed as a waiver of any succeeding default, breach, or non-performance, whether of the same type or kind as before or not.

L) INSTRUCTION TO BIDDER:

1. HEL may at his discretion, extend deadline for submission.
1. Bidders are advised to study the bid document carefully. Submission of bids against the tender notice shall be deemed to have been done after careful study and examination of the procedure, terms and conditions stipulated in the bid documents with full understanding of its implications.
2. Before Submission of the Bid, the Bidder is advised to fully familiarize himself with the site conditions and job requirements etc.
3. Bidders shall be fully responsible for providing all equipment, materials, system, and services etc.
4. No deviation from the Technical Scope of work & terms and shall be acceptable unless permitted in writing by the Owner.
5. The Bid shall be prepared and submitted strictly in accordance with the instruction contained in these specifications and shall be complete in all respects. The interpolations, insertion, striking out and corrections made in the Bid offers should be duly initialed by the Bidder.

6. In case the Bidder does not supply any of the required information at the time of Bid, necessary loading may be made by the Owner at its sole discretion while evaluating the prices of his offer without giving any further opportunity to supply or clarify the same. The Bidders are notified that in case the required information is not furnished in the specified proforma/schedules attached with the specification, the Owner shall not be responsible for any error in the evaluation of their Bids on this account. Further, failure to comply with this requirement may result in the rejection of the Bid at the discretion of the Owner.
7. Bidder shall adhere to the relevant safety norms for undertaking construction as specified in the scope of work.

8. **LIST OF ANNEXURES**

The following Annexures form an integral part of this Tender Document:

Annexure No.	Description	To be submitted with
Annexure I	Scope of Work	Technical-Commercial Bid
Annexure II	Price Schedule	Price Bid
Annexure III	General Conditions of Contract (GCC)	Technical-Commercial Bid
Annexure IV	Special Conditions of Contract (SCC)	Technical-Commercial Bid
Annexure V	Deviation Sheet / Schedule of Deviations	Technical-Commercial Bid
Annexure VI	Gatepass & Safety Guidelines	Technical-Commercial Bid

ANNEXURE-I TO TENDER NO. PUR:52802 DATED 29.07.2026

Complete Scope of Work for Annual Overhauling

Detailed Scope of Work - Boiler, ESP, Ducts & Dampers							
Sr. No.		Description	UOM	Qty.	Unit Rate	Total Price in Rs.	Remarks
1	HEAD	Access and Scaffolding/Approach for Boiler and Critical Pipes upto Turbine Inlet					
	1.01	Opening of all Manhole Doors of Boiler & Drum for Boiler Cooling and Air Lancing	LUMP SUM	1			
	1.02	Full Cup-lock scaffolding inside Boiler from 9 meter to Furnace Roof consisting of Bottom Sealed Blanketing/Top side full blanketing below PSH-DSH and coil approach for PHS-DSH-PRH-FRH & spacer tubes and approach for roof tubes. All Burner nozzle zones, full approach with landing platform, all four level wall sootblower peripheral platform with handrails, all corners SOFA nozzle platforms, 30-50 Degree slope Staircase with footsteps and handrails including landing platform for approach at all level of scaffolding from 9-meter Seal-off platform. Complete Cup-lock material will be under Contractor's scope includes bottom base frames, angles, channels, beams, stairs etc. Supplied scaffolding shall be as per IS/BIS standard. Scaffolding quality shall be duly certified by HEL HSE team during installation. Safety nets - 2 Layers (Burner Bottom & Burner Top)	LUMP SUM	1			1. All Scaffolding materials including Painted Perforated Scaffolding Boards/Gratings with hooks as Working Platforms shall be in Contractor's Scope 2. Scaffolding shall be inspected and certified by HEL HSE team before use by Engineers.
	1.03	Proper Scaffolding for Economiser Inlet Header and Bottom Ring Header Level (i.e. above Eco Hopper Zone)	LUMP SUM	1			
	1.04	Necessary scaffolding/platform erection for proper approach for Final RH, Platen RH, Platen SH, Final SH, in between Pendant/Divisional SH Bank upto Roof , LTSH Terminal Tube, Water Walls, Backpass Screen Tubes, S-Panel Bottom Dead Chamber,	LUMP SUM	1			

		Vestibule Dead Chamber and other areas, as required, for proper inspection, slag cleaning, thickness gauging and tube/bends rectification/replacement job.					
	1.05	All other auxiliary platforms/scaffolding jobs for thickness gauging / tube repair & replacement / shielding job / other AOH activities.	LUMP SUM	1			
	1.06	Economiser Hopper & casing area inside scaffolding and inspection, repairing of Baffle plate/diversion plate, if required. Cleaning of Economiser Hopper & removal of all damaged refractory before & after completion of all Boiler back-pass jobs.	LUMP SUM	1			
	1.07	Complete Scaffolding for All Critical Pipes' Supports Cleaning/Checking/Rectification, Cold & Hot Readings, for both Boiler & TG Area upto Turbine Inlet	LUMP SUM	1			
	1.08	Complete Removal of all scaffolding materials, debris and scraps from inside the Boiler Frontpass, Intermediate Pass & Backpass, Bottom and Vestibule Dead Chambers, after job completion with proper housekeeping.	LUMP SUM	1			
Sub total							
2	HEAD	Boiler Water Lancing (LP JET CLEANING)					
	2.01	Water washing of Front Pass through peep holes & Intermediate Pass entering through Manholes with Fire Water & Complete Back Pass including LTSH coils, ECO coils & Back Pass water walls by DM WATER	LUMP SUM	1			
Sub total							
3	HEAD	Boiler Pressure Parts Physical Inspection, Thickness Gauging & Repair					
	3.01	Physical Inspection and Condition Assessment of Complete Boiler & Pressure Parts' 1st and 2nd Pass by Contractor's competent	LUMP SUM	1			Hydraulic Tube Bending Machine, if required for tube bending, during AOH, shall be under the

		supervisor and submission of reports to HEL's EIC for decision making for necessary corrective measures within AOH. (includes Water walls, Burner panels, SOFA panels, Waterwall Screen Tubes and Hanger tubes, Div SH, Platen SH, Platen RH, Final RH, Final SH, WW relief tubes, Back-pass front screen tubes, Back-pass walls, Wall RH, LTSH, Economiser, LTSH hanger tubes, both pass Roof SH, Extended Walls of SH & RH etc.) - Physical inspection and tube / bend repair / replacement / buttering / insert, as required.					Contractor's Scope.
	3.02	All Pendant Coils' Spacer and Spacer tubes checking and repairing; Locking Checking of Steam Cooled Spacer Tubes	LUMP SUM	1			
	3.03	Complete SLAG removal and cleaning inside Boiler: Front Panel Div SH, Platen SH, Platen RH, Wall RH, Water Walls and from BURNER adjacent FURNACE wall including checking and rectification	LUMP SUM	1			
	3.04	Separate Thickness Gauging/De-metering Agency shall be deployed by HEL. However, all necessary assistance like cleaning manpower, light including scaffolding will be under Contractor's Scope. (At approx. 14000 points)	LUMP SUM	1			Providing Assistance for HEL's Third Party for throughout AOH with Approach & Lighting arrangement
	3.05	Repair/Replacement of Tubes and Valves, based on thickness gauging and physical inspection & feedback by Contractor's Competent Supervisor, as per instruction of EIC of HEL. Inspection & rectification of Backpass drain line, Economiser inlet vent & drain lines, BPLSW HDR & BPRSW HDR drain lines.	PER JOINT	200			Approx. 200 Nos. of High Pressure/IBR joints (includes Joints for Valve replacement)
	3.06	Final SH/Div SH/Platen SH/Platen RH/Final RH coils' individual tube male-female fixture correction/installation which	LUMP SUM	1			

		includes welding process as per metallurgy of tubes					
	3.07	LTSH Coils checking & inspection by making gaps between adjacent Coils (all Banks) and rectification as required. Tubes/Bends replacement and Metal build-up, as required. Fixing of Protection Guards on all eroded coil tubes and restoration of all attachments. Replacement of damaged protection guards at various zones, as required.	LUMP SUM	1			All necessary arrangement & T&Ps for coil gapping / coil lifting, platform etc. will be under Contractor's Scope. Total Coil Gap creation & Inspection: 10 (Left)+5(Middle)+10(Right) = 25 Nos.
	3.08	Inspection of all erosion shields / protection guards of all LTSH/ECO banks/BPFW/BPBW (fixed at LTSH/ECO coil tubes adjacent to hangers) and rectification / re-installation, as required. Shield plates / Protection Guards cutting as per requirement / suit at site, to be done by Contractor. 1-2 meter length, half round SS shield plates will be provided by HEL.	LUMP SUM	1			Visual inspection of all shields. Re-fixing or replacement Qty. tentatively 150 - 200 nos.
	3.09	Economiser Coil lifting for necessary maintenance (tubes/bends repair/replacement), alignment & normalization, as required, after thorough physical condition assessment and based on thickness gauging reports.	Each	10			No. of Coils to be lifted:- Min. 4, Max. 10; Bills will be released based on Actual Execution All necessary arrangement & T&Ps for coil lifting, platform etc. will be under Contractor's Scope.
	3.10	LTSH/ECO Coil fixtures/clamps/attachments inspection and rectification, as required	LUMP SUM	1			
	3.11	Any previously balance fin welding or leakage point in wall soot-blower area to be re-welded; All fins repair and rectification by full welding wherever gap observed.	Per Mtr.	50			Bills will be released based on Actual Measurement Sheet;

	3.12	Top Dead Chamber (Rear Arch) Checking & Sealing; Bottom Dead Chamber Support (incl. Fasteners) & S-Panel Sealing Checking & rectification, if required; PENTHOUSE sealing checking and rectification;	LUMP SUM	1			All sealing rectification, if required (to be observed by ash leakage points)
	3.13	New Erosion Shield Plates/Protection Guards (1 – 2.5 m length) installation (To cut suit to site and fit)	LUMP SUM	1			Approx. Qty. - 200 Nos.
	3.14	Furnace Bottom Sealing (Dipper Plate) and its Attachment Checking and rectification, if required.	LUMP SUM	1			
	3.15	All Horizontal & Vertical Buckstays/leveller guides/buckstay-connecting pins/plates/drain line supports - Inspection and rectification, if required	LUMP SUM	1			
	3.16	Dry Inspection & Hydrotest for IBR Statutory Requirement, necessary IBR formalities and obtaining Steaming Certificates. Unit#1: Renewal of Steaming Certificate Unit#2: Extension of Steaming Certificate [without hydrotest & without stopping the Boiler]	Unit / Boiler	2			Internal Hydrotest must be performed 48 hrs. before IBR Hydro
	3.17	DP Test/Radiography/Preheating /PWHT of 100% HP/IBR Joints etc. as applicable. DP Test of 1st and 2nd stage Attemperator's Nozzles etc.	LUMP SUM	1			All Equipment & necessary arrangement will be under Contractor's Scope.
	3.18	Physical checking and DP Tests of root/stub joints of all Sampling Lines, PG Test Points, Pressure Tapings, Instrument Tapings, Valve Socket Joints, etc. in Boiler Area incl. Penthouse & Drum Enclosure and Critical Piping upto Turbine inlet. Welding and necessary rectification, if required.	Points / Joints	1000			Approx. [IN BOITH BOILER AND TURBINE AREA] Approach and insulation <u>removal only</u>, for this job, will be under Contractor's Scope.
Sub total							
4	HEAD	Coal/Air Nozzles & Tips					

		repair/replacement, SADC & Windbox Inspection/Repair (In-situ)					
	4.01	Coal Burner panels-Inspection in running condition to assess quantum of leakage from all corner burner panels. Thorough inspection of burner panel internal structure for cracks, DP Test and repair (after removal of all coal nozzles and tips). HEL EIC to give clearance for coal nozzle/tip fitment.	Corner	4			Insulation removal and application between inside and outside burner panels is in Contractor's Scope.
	4.02	Coal Nozzles & Nozzle Tips Replacement	Nos	8			Installed Quantities:- Coal Nozzles-24 nos. Air Nozzles-28 nos. CCOFA-8 nos. SOFA-8 nos. For detailed Job Procedure, may please refer detailed General Guidelines for Burner & Coal Bends Jobs.
		Coal Nozzles Removal & Repairing (After Repair, Re-installation of same Nozzles and fit with New Tips) Common Note: Billing will be on actual execution basis only.	Nos	16			
	4.03	Inspection of Coal Nozzle lock pin/pivot and burner tilting mechanism freeness checking & rectification, as required. Removal of Tilting mechanism lever from Corner-3 for new lever making. Corner-3 A elevation nozzle tip is inoperative. To be restored. Gland packings renewal of connecting rod from tilting mechanism to coal nozzles	LUMP SUM	1			
	4.04	Flame scanner removal/repair/new re-installation, for which IBR Welding/Grinding support required. Removal of all Oil gun assemblies, repair of damaged hoses, re-fitment at location. IBR welding/grinding support required.	LUMP SUM	1			
	4.05	Coal Nozzles, Secondary Air, CCOFA & SOFA nozzles thorough inspection and in-situ rectification/repairing by welding/hard facing as per	LUMP SUM	1			Inspection assistance & In-situ weld repair may be required

		condition assessment. Plasma Cutting of 8 nos. of Diverter Plates of SOFA Nozzles Tips from inside Furnace.					
	4.06	Repairing/Replacement of Coal Bends (Near Coal Nozzle):-					
	4.06.1	1. Repairing of bends will be done by fixing ceramic tiles/putties at the location, where tiles are missing/uprooted. All loose tiles lying inside coal bends shall be removed from inside.	Nos.	12			Billing will be on actual execution basis only
	4.06.2	2. Erection and Replacement of Coal Pipe Bend, if required.	Nos.	4			Billing will be on actual execution basis only
	4.07	Attending all Windbox leakages, identification of source of leakages from Expansion Bellow & its sealing points with Water Walls and rectification of all leakage points.	LUMP SUM	1			IBR Welders to be deployed for attachment welding for this job.
	4.08	Truss buckstay inside windbox, its welding lugs & connection, windbox inside hanger support - Inspection & rectification.	LUMP SUM	1			
	4.09	Complete SADC flaps repair, inspection & rectification i.e. SADC delinking from C&I Actuator, approach platform erection inside Windbox upto all SADC levels at all four corners, SADC dampers freeness checking and linking actuator; Joint checking with Operation Team.	LUMP SUM	1			Scaffolding inside Windbox for SADC checking, is under Contractor's Scope
Sub total							
5	HEAD	Hangers & Support Checking, Cleaning, Inspection & Rectification					
	5.01	Internal Inspection & cleaning and rectification of all hangers and supports of all Critical Pipes, as per Drawings. Hangers inspection at Penthouse Inside & Outside, cleaning and includes SHO, HRH, CRH, Feed water pipe & Boiler riser pipes hanger & fixed support, Downcomer, SOFA Duct Constant Hanger Supports etc. Protocol to be maintained for all supports.	LUMP SUM	1			Critical Pipes' Support Checking/Serviceing in both Boiler & TG Area, are under Contractor's Scope.

	5.02	Checking and taking Hot and Cold Readings of all Hanger Supports of Critical Pipes and Submission of Reports.					
	5.03	SHO/RHO headers restraint support inspection, cleaning and rectification, if required. Protocol to be maintained for all supports.					
	5.04	Inspection & Cleaning of all Hanger Supports of all critical pipings and necessary rectification, if any (MS/HRH/CRH/Feed water upto Turbine inlet)					
Sub total							
6	HEAD	Complete Ash cleaning					
	6.01	Ash cleaning from following locations (includes removal, transportation from point of origin to designated location includes transportation vehicle, gunny bag arrangement).	LUMP SUM	1			
	6.02	Boiler Penthouse, Rear Arch Gallery Top Dead Chamber, S-Panel, Bottom Dead Chamber, SH Floor, Drum Enclosure, Boiler outside/Buckstay Area					
	6.03	Windbox					
	6.04	Hot PA, Hot Secondary ducts includes mill inlet duct					
	6.05	Flue gas duct (from Boiler to ID Fan outlet)					
	6.06	Complete Ash Cleaning inside APH					
Sub total							
7	HEAD	Ducts, Dampers & Gate, Coal Pipe, Metallic / Non-Metallic Bellows					
	7.01	Complete Air & Flue Gas Ducts including De-NOx ducts - Complete Visual inspection, random thickness survey as per requirement & its recording; Damaged duct plates repair/replacement of Hot and Cold PA + SA & De-Nox and Flue path as instructed by HEL's EIC.	LUMP SUM	1			Separate Thickness Gauging Agency to be deployed by HEL; Contractor to assist. Scaffolding as per requirement, in Contractor's Scope for rectification & inspection of Ducts, Dampers & Bellows Note: Scaffolding must be inspected and certified by

							HEL HSE team.
	7.02	Hot Secondary, Hot PA (Mill side) and De-Nox Ducts' Aerofoil Inspection, Cleaning & Repair	Nos.	10			Approx.
	7.03	All duct support inside Bracings repairing/rectification/shielding with angles (including Air and flue path) Note: Approx. 80 - 90 Nos Bracing Pipes	Mtrs.	350			
	7.04	Economizer to APH inlet duct diverter area inspection and repairing including scaffolding & platform erection, as already mentioned	LUMP SUM	1			
	7.05	Mill side Hot PA duct damper gland, shaft, gland bush, bearing repairing & rectification and gland addition	Sets	18			Approach/ scaffolding for inspection or repair is in Contractor's Scope.
	7.06	Mill inlet Hot Air gates- Complete dismantling of gate and cylinder, replacement of sealing packing rope and rectification of any other abnormalities. Repaired cylinders will be provided for re-installation.	Sets	6			
	7.07	APH inlet flue path dampers (double deck blades) for Pass-A & Pass-B REPLACEMENT of damaged top deck of blades only, including replacement of blade seals. Area below damper to be sealed properly to ensure uninterrupted APH hot end works.	Sets	8			Final quantity will be certified based on actual number of blades replaced
	7.08	REPAIR of remaining blades (top and bottom) of APH - A and B inlet flue path dampers by patch work and associated blade seal repair. Area below damper to be sealed properly to ensure uninterrupted APH hot end works.	Sets	15			Final quantity will be certified based on actual number of blades replaced
	7.09	All REMAINING Air & Flue gas path and De-Nox Dampers & Gates - Inspection and Rectification includes damper freeness, link repairing, lip seal repairing/replacement, shaft, gland replacement/addition,	Nos.	39			List of these 39 Gates and Dampers, is enclosed in Separate Sheet.

		bearing freeness/greasing/repair & replacement. Actuator foundation inspection & strengthening, as per requirement. For all dampers, separate protocols to be maintained for freeness / repair / rectification.					
	7.10	All Metallic Expansion Bellows between Economizer outlet flue path to APH inlet (both passes) and APH outlet to ESP inlet (both passes) - Protection Sleeve cutting for leaf inspection from inside and necessary repair	Nos.	15			Note: Special tools / Small size Argon torch as required for bellow repairing/welding to be arranged by the Contractor.
	7.11	Leakage attending, New additional protection sleeve fitting & welding on Metallic Expansion Joints from inside of De-Nox ducts	Nos.	12			Small size Expansion Joints
	7.12	Replacement of MILL-1E mixed air duct inlet Non-Metallic Bellow & its METAL TRAY including CORRECTION of Duct Misalignment	No.	1			
	7.13	Tentative replacement of following Non-Metallic Bellows: - a) ID Fan-1B inlet above IGV- Both legs- Qty- 2Nos. b) ESP O/L Pass A chamber-2- Qty- 1 No. c) ESP O/L Pass B chamber-1- Qty- 1 No. d) APH inlet (PA + SA) Cold End- Qty-3 Nos. OR APH outlet (PA + SA) Hot End- Qty- 4 Nos (If found damaged)	Nos.	8			Min Qty. 4 Max Qty. 8 Bills will be released based on actual quantities executed.
	7.14	Air & Flue Gas Duct & Coal Pipes Supports (Hanger + Fixed support + Movable Support) Cleaning, Inspection and Rectification as required. Protocol to be maintained for the same.	LUMP SUM	1			
	7.15	PF piping-Leakage points of metallic expansion bellows and flange joints of all PF pipings from Mill Bay to Boiler - To be repaired & rectified	Nos.	15			Involvement of Scaffolding jobs. Bills will be released as per actual quantities executed/certified.

	7.16	De-coupling, dismantling and re-coupling of actuators of dampers, as required by E&I department	Nos.	40			
Sub total							
8	HEAD	Refractory & Insulation Work					
	8.01	Inspection of Refractory at Penthouse, S-panel Bottom Dead Chamber, Furnace Hopper Slope, Rear Arch Gallery, Top Dead Chamber, Screen Tube zones, Headers, Manholes, Peepholes and repairing/re-casting, as required.	Ton (Castable Refractory)	5			
	8.02	Application of plastic refractory, around all 72 nos. of Wall Soot Blowers and on Burner Panels, Wall RH entry zone, S-panels and other Manhole area as per HEL's EIC.	Ton (Plastic Refractory)	2			
	8.03	Refractory application on all Loose Headers inside Back-Pass, if required.	Ton (Castable Refractory)	3			
	8.04	Refractory at SH Floor and Duct Side Wall - Checking/Rectification.	Ton (Castable Refractory)	2			
	8.05	Removal and Application of Ceramic Insulation between Inner and Outer Doors of Burner Panels	Lump Sum	1			For other major Insulation Jobs, separate agency shall be deployed by HEL.
Sub total							
10	HEAD	Valves Servicing & Maintenance					
	10.01	Valve Gland Packing Renewal/Addition (in Nos. of Valves of different sizes from 1" to 4"). Old gland packings to be removed completely. For removal of old gland packing of valve sizes upto 2", handwheel, stem along with bonnet are to be opened for complete gland renewal.	LUMP SUM	120			Approx. 120 Nos. Valves Billing will be as per actual nos. of valves executed

	10.02	Assistance with Manpower & T&Ps for servicing of Safety Valves. [T&Ps include chain blocks, hammering spanner, ring and “d” spanner, socket spanner with extension rod of length 850 mm (single or joint both acceptable). Spanner sizes upto 55 mm (41 mm included). Single “D” spanner of size 85 mm. Grinding, welding and rigging assistance required.	LUMP SUM	7			7 Nos of Valves. OEM Service Engg. & Skilled Technician to be called upon by HEL.
	10.03	Servicing, Lapping, Bearing	LUMP SUM	60			Considering Approx. 60
		maintenance of Boiler & TG side valves of different sizes, including Seal Replacement of HRH Isolator Valve					Nos. However, Billing will be as per actual nos. of valves executed
	10.04	Support to EMD for dismantling and installation of Actuators (Motorised/Pneumatic) of Valves	LUMP SUM	1			
Sub total							
11	HEAD	ESP					
	11.01	DOOR OPENING AND CLEANING	LUMP SUM	1			
	11.02	Receive PTW after proper isolation with safety permit					
	11.03	Open all door (DERM insulator chamber, CERM floor and Inlet duct door with communication with duct side job owner.					
	11.04	Fixing life line for each row and each elevation with ensure safety person.					Lifelines to be provided by HEL. However, to be returned back intact.
	11.05	Opening expansion bellow/adaptor piece above ash vessel.					
	11.06	Cleaning each field with air jetting after ensuring require amount of air flow by ID fan and balance draught.					
	11.07	Ensure adequate (low voltage-24Volt DC) illumination inside ESP.					
	11.08	Ensure the cleanliness quality by supervisor/team leader.					
	11.09	Opening fluidising pad and hopper door after ensuring hopper emptiness.					
	11.10	INSPECTION AND NECESSARY RECTIFICATION OR REPLACEMENT FOR CERM.					

	11.11	Inspection and necessary rectification of all CERM shaft and bearing.				
	11.12	Inspection and necessary rectification of rapping hammer assembly.				
	11.13	Inspection and necessary rectification of Shock bar, Anvil and if required, then replace.				
	11.14	Inspection and necessary rectification of collecting plate condition throughout the length.				
	11.15	Inspection and necessary replacement of CERM Gear Box along with its coupling.				
	11.16	Field trip chain to be checked and missing chains to be fitted back.				
	11.17	INSPECTION AND NECESSARY RECTIFICATION OR REPLACEMENT FOR DERM.				
	11.18	Inspection and necessary rectification of all DERM shaft and bearing.				
	11.19	Inspection and necessary rectification of hammer impact point support plate. Metal Build up on hammer impact zone.				
	11.20	Inspection and necessary rectification of small wheel, big wheel, thrust block, thrust pad, Hammer, vertical shaft all 5 nos. bush, dust guard etc.				
	11.21	Inspection and necessary rectification of emitting electrode. If required, then replace the emitting electrode with proper arrangement.				
	11.22	Inspection and necessary rectification of Emitting Frames				
	11.23	Inspection and necessary replacement of DERM Gear Box along with its coupling.				
	11.24	INSPECTION AND NECESSARY RECTIFICATION OR REPLACEMENT FOR GDPRM including outlet GD plate				
	11.25	Inspection and necessary rectification of all GDPRM shaft and bearing.				

	11.26	Inspection and necessary rectification of hammer, horizontal bush etc.				
	11.27	Inspection and necessary rectification of hammer impact point support plate				
	11.28	Inspection and necessary rectification of inlet and outlet GD plate and it's bracing pipe. Plate thickness gauging to be done. Inlet GD screen supporting box channel condition to be checked, if required, then rectification to be done.				
	11.29	Inspection and necessary replacement of GDPRM Gear Box along with its coupling.				
	11.30	INSPECTION AND NECESSARY RECTIFICATION OR REPLACEMENT FOR Insulator (shaft and support) chamber.				
	11.31	Replacement of defective shaft bearing (above shaft insulator) Approx. 15 nos.				
	11.32	Inspection and necessary replacement of damaged shaft insulator and support insulator				
	11.33	Inspection and necessary rectification of shaft insulator chamber and it's door frame.				
	11.34	Inspection and necessary rectification of support insulator chamber top cover bolts.				
	11.35	Inspection and necessary replacement of shaft insulator chamber door fixing eye bolt				
	11.36	INSPECTION AND NECESSARY RECTIFICATION OF HOPPER AND ITS ACCESSORIES				
	11.37	Hopper inside accumulated ash to be cleaned and all welding joint thorough checking to be done.				
	11.38	Hopper O/L defective KGV, bellow to be replaced.				
	11.39	ESP Hopper vent line leakages to be attended, line de-choking to be done. If required, then vent line Y-pieces and spool pieces to be replaced.				

	11.40	Fluidising pad frame welding to be checked, if required then welding to be done. Check all hopper fluidizing pad condition and fabric healthiness. Replace if torn or hardened.					
	11.41	Hopper spoiler plate checking and necessary rectification to be done.					
	11.42	Hopper bracing pipes checking and necessary rectification to be done.					
	11.43	INSPECTION AND NECESSARY RECTIFICATION OF AMMONIA DOSING SYSTEM AND STRUCTURE SUPPORT					
	11.44	Inspection and necessary rectification of only guard angles of ammonia dosing pipes					Ammonia Dosing pipe inspection job not to be done
	11.45	TRIAL RUN OF RAPPING DRIVE.					
	11.46	Ensure there are no loose material inside ESP. Life line is properly fitted and not touching with rotary part.					
	11.47	Ensure that there will be no manpower inside ESP from top to bottom. No manpower should be there outside hopper area.					
	11.48	Ensure that all replaced material is properly tightened.					
	11.49	Give clearance for trial and take trial. Fitter with proper manpower should be present at all three elevations inside ESP with HEL officer during trial to check any defect is there or not. Write down the defect for rectification purpose.					
	11.50	After completion of trial, take again isolation PTW to attend those defects.					
	11.51	FINAL BOLT TIGHTENING AND TAG WELDING					
	11.52	After attending defects (arising during trial) final bolts tightening and tack welding to be done.					
	11.53	BOX UP AND MEGGER TEST					
	11.54	Remove the life line. Check inside and ensure that there is no scrap/loose material inside ESP.					
	11.55	Ensure no manpower inside ESP.					

	11.56	Close all the Door of ESP (from top to bottom) with good conditioned rope and Holdtite in presence of your safety personnel as well as HEL safety personnel.				
	11.57	Give clearance for Megger test				
	11.58	Housekeeping				
	11.59	If Megger value is ok, then final housekeeping to be done and all scraps to be shifted at designated Scrap Yard and to be returned Good Condition materials to HEL Store with proper count.				
	11.60	A Report of exact quantities of				
		each & every spare material, consumed during AOH, to be submitted.				
	11.61	Approx. 1200 nos. of identified Emitting Coil replacement in 1st field, 4 chambers of both Passes	Nos.	1200		
	11.62	Inspection and necessary rectification of collecting plate support frames and cleat welding at required positions. (Balance 50%)	Lump Sum	1		Remaining 50% to be done in Unit-1
Sub total						

BURNER, SADC AND COAL BENDs JOBS – General Guidelines			
1	Locking of Coal pipe	Removal of insulation & cladding from coal pipe. Anchoring/fixing of coal pipe by welding the supporting channel/angle with coal pipe and nearby platform/structure	All four corners (24 nos. required to lock)
2	Removal of hoses & pipes of LDO station	All oil guns should be removed then flexible hoses & pipes should be removed. Removal should be done from flanged end. Qty-12 nos.	
3	Removal of side panel doors & insulation from its inside	Removal of Side panel external (From Top to bottom) door by removal of all fasteners then removal of insulation and finally removal of inside door panel by removing its fasteners	
4	Removal of first coal bend and gate valve (before removal of coal nozzle)	All bolts should be loosened and removed from flanged joints(top to bottom). After removal of bend downside bend should be covered up properly so that no material can go inside it.	

5	Removal of front panel door & Insulation	Removal of all bolts of external front door and then removal of door (top to bottom). Then after removal of insulation.	
6	Removal of Coal nozzles with tip along with its accessories .	All pins should be removed from turn-buckle, nozzle tip should be in horizontal position by arrangement of belt sling, arrangement of chain pulley block should be made for pulling coal nozzle assembly from compartment. Before removal, Coal nozzle & its tip both should be fastened together with belt sling so that both parts come together. For lifting and positioning on permanent platform proper chain pulley block arrangement should be made. Qty-24	
7	Complete assessment of coal nozzle, tip and other associated parts and its Repairing/R eplacement	Coal nozzle assembly should be placed on permanent platform. Marking of top-bottom on coal nozzle and tip should be done. After joint assessment, repairing/replacement action should be taken. Removal-24 nos. Repairing of Coal nozzles-12 nos. (Tentative) Replacement of coal nozzle-12 nos. (Tentative)	
8	Servicing of Tilting mechanism	All external and internal pin joints, turn-buckles, lever arm etc should be properly cleaned and then after inspection to be done. After inspection, repairing/replacement action should be taken. At each interconnection joint, pin, lever arm, turn-buckle joint Molykote spray should be applied properly. All four corners in set	
9	Repairing/ Replacement of Air Tip, Oil tip including OFA	1. All four corners air tip & Oil tip should be inspected from inside of furnace by sky-climber. 2. After joint inspection further course of action will be taken for repairing/replacement. 3. For Replacement air tip or oil tip should be pulled outside with proper arrangement of chain pulley (suitable capacity 1T) 4. Air tip and Oil tip should be removed outside for assistance for burner tube job (pressure parts), if required, Quantity shall be finalised after job assessment of pressure parts gang. 5. Then after, gate valve and coal bend should be restored. QTY-36 nos	
10	After repairing, restoration and Boxed up Coal nozzle assembly, gate valve and bends.	1. After repairing/replacement of coal nozzle & its tips, assembly will be done for its restoration. 2. Insertion of Coal nozzle assembly shall be done after alteration of assembly arrangement. 3. Before load release from chain pulley block, coal nozzle assembly should be placed in coal compartment and then after proper fastening should be done for any unwanted incident	
11	Restoration /Boxed up of Air tip & Oil tip	Repaired/Replaced air tip & oil tip should be properly fixed with its mechanical linkage and pin should be properly fixed.	

12	Checking of Zero setting of Burner for all four corners	1. After fixing of All coal nozzles and air/oil tips, pin and linkage mechanism will be restored (delinking with tilting actuator). Tilting mechanism will be fixed at horizontal position. Now, angle of each coal nozzle and air/oil tip will be checked from inside by bevel protector and zero position will be adjusted by turn buckles accordingly. 2. All four corners should be checked and adjusted.	
13	Linking of tilting actuator and witness by Operation Department	1. Using sky-climber witnessing of tilting mechanism to be done after linkage of tilting actuator. 2. As per Operational practices tilting will be checked by MPO and subsequently adjustment will be done, if any required.	
14	1. Final Box up of Panel doors inside-outside and insulation 2. Restoration of oil gun/barrel and LDO station pipes/hoses	1. After successful zero setting and witnessing of tilting mechanism, inside panel door then insulation and finally external door will be closed. 2. Oil gun/barrel should be inspected before installation, if required repairing to be done.	
15	Lifting/Lowering of material and restoration of other system	1. Available coal nozzle/tip/air tip/oil tip should be shifted/lifted/lowered to/from different platforms by winch machine (5T/10T capacity). 2. All removed handrailing/structure whichever has been cut for ease of installation should be restored at the same location. 3. All scraps from different platforms should be cleaned and witnessed to concerned officers.	
16	SECONDARY AIR DAMPER CONTROL (SADC) JOB	Inspection, repairing and servicing of SADC dampers (all elevation and all four corners) 1. At each corner, from inside of windbox, scaffoldings should be made and subsequently platforms should be fixed so that inspection can be done properly. 2. Joint inspection for dampers will be done for its free operation/movement. 3. De-linking from actuator may also be required for proper inspection of dampers. 4. Full opening and full closing should be checked and should be adjusted, if required, as per instruction. 5. All pins should be properly lubricated by high temperature grease. 6. After witness healthy operation, all arrangements made inside windbox should be cleared before final box up of wind box.	All four corners in set

17	COAL BEND JOB	Internal inspection of Coal bend tiles,qty-24 nos 1. Inspection of coal bends from Boiler to Mill shall be inspected by Robotic system, for this sufficient and dedicated manpower assistance should be given. 2. Based on inspection, decision will be taken for replacement/repairing of bends. Repairing/ Replacement of coal bend -As per assessment (tentative 4 nos.) 1. Repairing of bends will be done by fixing tiles at the location where tiles are missing/uprooted. All tiles lying inside coal bend should be removed from inside. 2. The bend which will be decided to replaced. For that proper arrangement for its removal, lowering on ground, lifting from ground(new one) should be done. 3. For hoisting these tools manual chain pulley block should be used. 4. Cutting, welding and assembly of coal bends should be done on ground as much as possible. Only site joint shall be welded on location after proper fixing. All temporary platforms/scaffoldings should be dismantled before giving final clearance.	
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UNIT-1

LIST OF DAMPERS AND GATES

Sl. No.	Description
1	FD fan-A discharge damper
2	FD fan-B discharge damper
3	FD fan-A to APH-A inlet (Cold sec) damper
4	FD fan-B to APH-B inlet (Cold sec) damper
5	APH-A hot secondary outlet damper
6	APH-B hot secondary outlet damper
7	FD fan-A to Hot secondary duct bypass damper
8	FD fan-B to Hot secondary duct bypass damper
9	PA fan-A outlet damper
10	PA fan-B outlet damper
11	PA fan-A to APH-A inlet (Cold primary) damper
12	PA fan-B to APH-B inlet (Cold primary) damper
13	APH-A hot primary outlet damper
14	APH-B hot primary outlet damper
15	Seal Air Fan-A suction damper
16	Seal Air Fan-A discharge damper
17	Seal Air Fan-B suction damper
18	Seal Air Fan-B discharge damper
19	Mill-A Cold Air damper
20	Mill-B Cold Air damper
21	Mill-C Cold Air damper
22	Mill-D Cold Air damper
23	Mill-E Cold Air damper
24	Mill-F Cold Air damper
25	Mill-A Hot Air damper
26	Mill-B Hot Air damper
27	Mill-C Hot Air damper
28	Mill-D Hot Air damper
29	Mill-E Hot Air damper
30	Mill-F Hot Air damper
31	Mill-A Cold Air gate
32	Mill-B Cold Air gate
33	Mill-C Cold Air gate
34	Mill-D Cold Air gate
35	Mill-E Cold Air gate
36	Mill-F Cold Air gate
37	Mill-A Hot Air gate
38	Mill-B Hot Air gate
39	Mill-C Hot Air gate

40	Mill-D Hot Air gate
41	Mill-E Hot Air gate
42	Mill-F Hot Air gate
43	APH-A flue gas inlet damper
44	APH-B flue gas inlet damper
45	ESP pass-A Ch-1 guillotine gate
46	ESP pass-A Ch-2 guillotine gate
47	ESP pass-B Ch-1 guillotine gate
48	ESP pass-B Ch-2 guillotine gate
49	ESP pass-A Ch-1 outlet damper
50	ESP pass-A Ch-2 outlet damper
51	ESP pass-B Ch-1 outlet damper
52	ESP pass-B Ch-2 outlet damper
53	ESP outlet common duct damper
54	ID fan-A inlet damper
55	ID fan-B inlet damper
56	ID fan-A IGV
57	ID fan-B IGV
58	ID fan-A outlet damper
59	ID fan-B outlet damper
60	FD-A Recirculation duct gate (9 mtrs)
61	FD-B Recirculation duct gate (9 mtrs)
62	De-Nox SOFA inlet dampers (4 corners)

Detailed Scope of Work for Rotary Air-Preheaters (APH – 1A & 1B)	
1	General Activities for APH Jobs: -
1.1	Pre outage job has to be started 5 Days before AOH Zero date.
1.2	Mobilization of Tools and Tackles, Gate Pass Preparation and Workers' Training to be completed before Zero date.
1.3	Installation of winch machine and TPI testing (With system certification- pulley, rope, machine etc.)
1.4	Erection of scaffolding for the removal of insulation from 1. Cold end Basket removal door -One permanent and One temporary. 2. Axial Sector Plate area (3 Big Doors per APH)
1.5	Manhole opening after PTW.
1.6	Fixing of lighting arrangements required for inspection of Internal & External portions.
1.7	Shifting of all the materials/spares/seals from HEL Central store to designated area & area barricading to be done.
1.8	During inspection, all internal sub components like all types of seals, sector plates & axial seal plate, Drive unit / Gear Box, Rack and Pinion Assembly, Hot End and Cold End Baskets, stiffener & bar supports, Diaphragm plates, Fire suppression System, Centre section, bracing supports, connecting plate & corner duct assembly are to be checked and damages / abnormalities to be identified and listed out for recording the healthiness of equipment before overhauling.
1.9	Any site correction, site modification to be done if required is in the scope of the Contractor.
1.10	All the Electrical Tools and Tackles are to be certified and tagged by HEL E&I Dept.
1.11	All the lifting Tools/Tackles and Machinery to be certified by TPI and HEL Safety department.
1.12	All spare parts, Special electrodes / Alloy electrodes will be supplied by HEL.
1.13	All types of Tools and tackles, material handling equipment like Hydra, winch machine set, trailer truck/tractor, hydraulic hand pallet truck etc. will be in the Contractor's scope. All material handling equipment, tools etc. shall conform to statutory requirement.
1.14	The Contractor has to arrange adequate welding machines, grinding machines, grinding wheel, cutting wheel, argon cylinders, Oxygen, DA, scaffolding pipes, clamps, jallis, slippers, jute bags/gunny bag for ash cleaning etc.
1.15	The Contractor shall ensure adequate illumination at all the job fronts as required to safely execute the jobs. The Contractor shall be responsible for providing temporary power supply / illumination required for the work as and when required.
1.16	HEL will provide a single power source for APH overhauling. The Contractor has to arrange local distribution of power up to the job location with proper wiring.
1.17	Job shall be carried out round the clock basis, in both day and night shifts with dedicated & separate manpower for each shift. Working beyond 12 hours at a stretch should strictly be prohibited.

1.18	Opening of all Hot End & Cold End Manholes
1.19	Complete Ash Cleaning from inside and outside & Laying of Tarpaulin Sheets, GI Sheets etc.
1.20	Cold End Inside Scaffolding making and seal-off platform, with complete sealing to cover the entire duct opening.
1.21	Checking & Rectification/Replacement of all Internal Bracings, Duct Welding
1.22	In-Situ Cleaning of Hot, Intermediate & Cold End Baskets by Air Lancing
1.23	ALWAYS ENSURE cable disconnection of both (AC & DC) motors before entering into the APH.
2	Inspection and Servicing of Guide Bearing and Support Bearing & Air seal Assembly: -
2.1.1	Inspection and Servicing of Guide Bearing.
2.1.2	Before start of inspection all the ash and insulation to be removed.
2.1.3	The bearing housing cover, air pipeline connections and fittings with basement frame are to be dismantled.
2.1.4	Draining of oil from bearing housing.
2.1.5	Breather to be cleaned & replaced if required.
2.1.6	Guide bearing locking nut to be adjusted if necessary.
2.1.7	Inspection and cleaning of all subcomponents is to be carried out.
2.1.8	Clearance between housing and bearing, roller and outer race to be recorded.
2.1.9	Bearing healthiness to be checked and if found damaged, to be replaced.
2.1.10	Re assembly of components as per the instruction of EIC.
2.1.11	All Softkits -gaskets, 'O'-Ring & ropes are to be replaced.
2.1.12	Guide fixtures of bearing housing are to be checked and rectified.
2.1.13	Guide bearing housing level to be checked and rectified.
2.1.14	Reassembly of all the connections to the bearing housing.
2.1.15	Replacement of gasket/Gland rope of air seal assembly
2.1.16	Box up the guide bearing & Filling the oil quantity or quality as per OEM instructions.
2.1.17	DPT of guide bearing housing to be done.
2.1.18	Complete renewal of Guide bearing oil.
2.2.1	Inspection and Servicing of APH-1A Support Bearing and Replacement of APH-1B Support Bearing.
2.2.2	Inspection of all components, cleaning & level checking for support bearings.
2.2.3	Clearance between housing and bearing, roller and outer race to be recorded.
2.2.4	1A Support Bearing healthiness to be checked with Borescope. 1B Support Bearing to be replaced
2.2.5	All Softkits - gaskets, O-Ring and ropes to be replaced.
2.2.6	Re assembly of components and oil filling in the housing as per OEM instructions.
2.2.7	Guide fixtures of the bearing housing are to be checked and rectified.
2.2.8	Bearing housing level to be checked and recorded.
2.2.9	Complete renewal of Support bearing oil.

2.2.10	Replacement of APH-1B Support Bearing with all necessary procedures and as per OEM & Expert Guidelines.
2.2.11	Hydraulic Jacks will be provided by M/s HEL.
2.2.12	Dry Ice and bearing heating machine arrangement to be done by Contractor.
2.2.13	Scaffolding fixing at cold end for rotor lifting arrangement to be done
2.2.14	Locking of rotor with HE connecting plate at least 6 locations
2.2.15	Sufficient gap between Pin Rack bottom and pinion to be ensured
2.2.16	Sufficient gap between HE sealing angle and HE sector plates to be ensured
2.2.17	Free movement of Guide Bearing Housing Assembly to be ensured
2.2.18	Rotor Lifting and lowering using hydraulic jacks.
2.2.19	DPT of support bearing housing to be done
2.3	Inspection & servicing of Air seal Assembly
2.3.1	Inspection of all components, cleaning & level checking for air seal assembly.
2.3.2	Cleaning the adjacent area from ash and damaged rope assembly.
2.3.3	Install new gland rope assembly & Gland Packings.
2.3.4	Removal, cleaning and refixing of tension springs.
2.3.5	Application of Sealant/Silastic material and covering with new nut Bolts.
3	Inspection and Servicing of Lube oil system: -
3.1	Cleaning/replacement of LOP discharge filter
3.2	Servicing of LOP, change of coupling and spider.
3.3	Oil cooler cleaning and hydrotest.
3.4	Attend all oil Leakage.
3.5	Cleaning of oil skid
4.1	All types of Seal Replacement and Setting
4.1.1	Levelling of Hot, Cold End Radial Sector Plate and Axial Seal Plates: -
4.1.2	Fix the Aluminum finger tabs at inboard and outboard for all three sector plates.
4.1.3	Record the previous setting readings of sector plates.
4.1.4	Level all the three sector plate as per the directions of EIC.
4.1.5	Repair/replace the sector plate & its lifting mechanism if required.
4.1.6	Locking of sector plate adjusting bolts after completion of levelling.
4.1.7	Replacement of gland in stuffing box of Tracking rod
4.1.8	One Team Maning to be done for 24x7 comprising of (5+5) person, for on line adjustment of sector plate and leakage arresting.
4.1.9	Inspect, repair & replacement and alignment of Static seals.
4.2	Checking of Rotor Run Out and Rotor Levelling: -
4.2.1	Run out of both top and bottom flanges of air heater rotor as well as rotor radius to be checked and recorded.
4.2.2	High point of rotor flanges to be marked.
4.2.3	Rotor to be levelled as per the norms by adjusting the jacket of guide bearing housing.

4.2.4	Foundation bolts have to be tightened.
4.2.5	Defective fasteners /lock plates, U type Shims found damaged are to be repaired or replaced.
4.3	Setting and Replacement of Hot and Cold End Radial Seals: -
4.3.1	Fix the radial straight edge to set seals at pre-determined seal leaf to sector plate gap & hot end spool ring gap, as per the direction of EIC.
4.3.2	Loosen all the fasteners of seals to be set.
4.3.3	Replace all worn-out/damaged fasteners and seals. Repair damage diaphragm plates.
4.3.4	Set all the seals one by one against straight edge and tighten all the seal with holding strips fixing bolts & nuts lock the adjusting mechanism.
4.3.5	Washers to be provided on both sides of seals
4.3.6	Set all the seals of every sector in the same way.
4.3.7	Remove the straight edge and check free rotation of the rotor by hand.
4.3.8	Check seal gap reading as instructed by EIC and record the same future purpose.
4.4	Setting and Replacement of Axial and Bypass Seals Hot and Cold End: -
4.4.1	Loosen all the fasteners of seals to be set.
4.4.2	Fix the straight edge to set seals at pre-determined gap, as directed by EIC.
4.4.3	Repair/replace bypass seal angle and strip at both Hot & Cold ends.
4.4.4	Replace all worn-out/damaged fasteners and seals.
4.4.5	Set all the seal with holding strip one by one and tighten all the seal fixing fasteners.
4.4.6	Check seal gap reading as instructed by EIC and record the same future purpose.
4.4.7	Check the free rotation of the rotor by hand.
4.4.8	Attend the defects if any.
4.5	Setting and Replacement of Rotor Post Seal Hot and Cold End: -
4.5.1	Cut the all-rotor post seal & set the pre-determined gap with Rotor post & trunnion assembly if required.
4.5.2	Install new seals and weld as per the drawing.
4.5.3	Check seal gap reading as instructed by EIC and record the same future purpose.
4.5.4	Attending all existing the defects
5	In-situ Repair of CE Sector Plates & Replacement of HE Sector Plates and Trunnion Spool Piece
5.1	Cutting and grinding the eroded portion.
5.2	Repair the eroded portion by patch of plates & welding work
5.3	Installation, alignment & welding of spool piece
5.4	Replacement of all Hot End Sector Plates with all necessary arrangement & associated jobs

5.5	Cutting of casing for removal of old sector plate and insertion of new sector plate.
5.6	Lowering of old sector plate and lifting of new sector plate using Winch and chain block pulley.
5.7	Levelling (Hot, Cold & Axial ends) of both Hot End (New) & Cold End (Old) Sector Plates.
5.7	Rewelding (both from inside & outside) of casing opening after job completion. 100% DP Test to be carried out to ensure ZERO leakage after
6	Adjustment of Sector Plates during running/Trial: -
6.1	Full range smooth movement of sector plate to be checked
6.2	Gap between the radial sector plate and the rotor to be set as per the instruction of Engineer.
6.3	Hot adjustment of sector plate (with APH on load).
6.4	Gap between the Axial sector plate and the axial seal to be set as per the instruction of Engineer.
6.5	Position indicator and stopper to be provided for indicating /guiding the movement of the sector plate.
7	Structure work Repair and Replacement and Complete Refractory Removal & Application
7.1	Repair/Replace damage fire-fighting pipes including supports.
7.2	Replace Fire Fighting pipe nozzles, if found defective.
7.3	Repairing of APH Casing at all defective & probable leakage areas including Axial Seal Plate Assy. by opening all 3 Big Doors per APH, Axial door casing cutting & axial seal plate cover opening & fixing with asbestos tape & sealant. Proper sealing and leakage arresting from all Axial Seal Plate Assy. areas must be ensured.
7.4	Repairing of APH casing support bracing
7.5	Repairing of APH casing to duct expansion bellow and its liner
7.6	Repairing of flue gas side duct bracing above APH.
7.7	Thorough inspection and physical condition assessment of Cold End Gratings and repair/replacement, as required.
7.8	All Gaps between Diaphragm Plates and Baskets to be sealed properly with Flats, to prevent by-passing of Flue Gas.
7.9	Any kind of welding, repairing, patching, support welding, scaffolding to be done to attend the job.
7.10	Repairing & Strengthening of APH Washing Service water header line and its nozzles and supports.
7.11	Repairing/Replacement & Strengthening of APH Soot Blower accessories & its components including supports.
7.12	Repairing & Strengthening/Replacement of APH Sonic Soot Blower Horns & associated components.
7.13	Replacement of all APH Sootblower lance tubes and gland packing
7.14	Removal/Breaking of refractory by electric breaker machine (Hilti m/c) from center section and PA-SA axial sector plate area, repair the center section and

	axial sector plate area and application of new refractory after work.
7.15	100% DP Test to be carried out at all Re-Welded & Welding Joints after proper chipping/grinding and necessary rectification. Absolutely zero leakage to be ensured after re-commissioning
8	REMOVAL & RE-INSTALLATION OF COLD END BASKETS [36 NOS. (only D-Baskets) PER APH] – OPTIONAL/ADDITIONAL JOB, if required.
8.1	Removal of cold end basket (Side Pulling, by cutting openings and removal of basket removal doors)
8.2	Spreading of Baskets on Boiler Gratings for Air Lancing
8.3	Re-Installation of baskets.
8.4	Reinstallation of basket removal doors and re-welding of casing doors. 100% DP Test to be carried out at all Re-Welded & Welding Joints after proper chipping/grinding and necessary rectification. Absolutely zero leakage to be ensured after re-commissioning
9	Reducer Gearbox & Motor replacement job (2 nos. for 2 APHs)
9.1	Decoupling of AC & DC motor side coupling
9.2	Removal of old Gearbox & Motor with 2T Electric chain block. (Electric Chain block in vendor's scope)
9.3	Lowering to ground floor from 14 mtr. elevation with the help of winch machine.
9.4	Shifting of reducer gearbox with hydra to designated place as instructed by HEL EIC.
9.5	Lifting of serviced gearbox to 14mtr elevation using winch.
9.6	Installation of new gearbox & motor & coupling
9.7	Inspection and servicing of Pin Rack and Pinion
9.8	Checking of rack & pinion axial & radial clearance during installation
9.9	Gearbox Output Shaft Air Seal checking and Gland renewal
9.10	Replacement of old Oil with recommended Oil
9.11	Cleaning of filters/breathers
9.12	Alignment of AC & DC motor with gear box
9.13	Replacement of old spider of DC motor side coupling
9.14	Installation of magnetic coupling, setting & checking of air gap.
10	Ash Cleaning & House Keeping
10.1	Ash to be cleaned and shifted in poly bags (Contractor's Scope).
10.2	Old/used material to be shifted to zero mtr. on daily basis.
10.3	Old/used material to be shifted from zero mtr. to allocated area on daily basis.
10.4	Old, Damaged refractory need to be shifted to designated place.
	Total numbers of APHs: 02 Nos.

ADDITIONAL/OPTIONAL ACTIVITIES				
Scope of Work and Unit Price for Jobs as Additional/Optional Activities, if Required. Payment will be as per actual execution				
Sl. No.	Description	UOM	Qty	Unit Rate
1	Bend Fabrication by Hydraulic Bending Machine	No.	1	
2	All Preparatory Jobs for BLU and Trevi Safety Setting by NICCO for all Safety Valves incl. Deaerator Safety Valves, after Synchro with Coal	No.	1	
3	LTSH Coil Lifting for necessary maintenance, alignment & normalization, if required	Each	1	
4	Dismantling of Drum internals (Scrubbers & Cyclone Separators), inspection and re-assembly	Each	1	
5	Extra HP/IBR joints beyond 200 joints, mentioned above.	No.	1	
6	APH Cold End Basket Removal, if required	Each	1	

Notes:

1. Each maintenance gang shall consist at least one Head fitter/Mill Wright fitter along with one junior fitter & other supporting and necessary manpower. At least two Foremen and one Supervisor/Engineer should be present from each area viz. Boiler PP, Quality Control, Burner, ESP, Duct, Damper, Hanger, Boiler Valves, TG Valves & APH side along with adequate Safety Officers & Safety Supervisors, as per Factory Rules.
2. The ash cleaning, if required, shall be equipped with all necessary tools & tackles.
3. All working persons availability at site has to be ensured at Site before Unit desynchronization.
4. All required T&Ps - in Contractor's scope. Non-availability of required T&Ps will attract serious penalty. Decision of HEL in this matter shall be final. Dedicated Hydras working in double shifts throughout 24 hours a day would have to be deployed to complete all Jobs within scheduled Overhauling time period.
5. The Contractor has to ensure safety of their workmen at site while working and provide all kinds of special safety equipment required for the job. All necessary safety tools & tackles, Fire blanket, PPEs & others necessary apparatus (to execute the job with proper safety) has to be arranged by the Vendor. Before execution of the job at site the Vendor has to take necessary permits to work from the concerned department. A maximum penalty amounting to 5% of the order value will be applicable for non-compliance of safety norms. All tools and tackles should be tested by third party agency duly approved by Factory inspector.
6. Scaffolding materials and Hydra will be arranged by the Contractor as & when required.

<u>Common Points under Contractor's Scope (Applicable for all Areas)</u>		
1		AOH Schedule: 16 days (De-Sync. to BLU Clearance) Complete Mobilization of Resources and Completion of all Pre-Survey Activities: From (-) 7 days to (-) 1 day to AOH start
2		Apart from the above list of jobs, Contractor's representative shall have to visit Site 15 days in advance before AOH and shall collect list of all existing/prevalent defects at that time and plan for attending those defects during AOH.
3		Scaffolding erection and dismantling for valve maintenance includes scaffolding material

4		Support services (including manpower, Tools & tackles) required for E&I service jobs
5		Labour License Liaison will under contractor scope
6		Coordination with IBR (Boiler inspector) for successful hydro test and for obtaining steaming certificates for both Units and liaison with factory inspector for obtaining labour license, during AOH shall be in the scope of Contractor
7		Contractor has to follow HEL's Safety Norms
8		All T&Ps including lifting tools and tackles, hydraulic jacks, Measuring Instruments for jobs are in Contractor's Scope
9		Pre and Post weld Heat treatment for applicable weld joints with Machine
10		Radiography testing of valve joints and power cycle piping tubes/pipes. Complete arrangement & RT source will be under Contractor's Scope
11		Material Handling including the arrangement of adequate nos. of Hydraulic/Mobile Cranes/Hydras/Winch Machines/Motorised Chain Pulley Blocks etc. will be under Contractor's Scope on round the clock basis with Operator, TO COMPLETE AOH within Schedule
12		Ash removal up to our designated place including Tractor-trolley set/or other device arrangement on round the clock basis. Big jumbo bags/gunny bags to be arranged by Contractor
13		Signed Protocols and Job Reports to be submitted as per HEL EIC's guidelines

Consumables for AOH (Applicable for all Areas)			Scope Matrix	
			HEL	Contractor
1		DA, Oxygen, Argon gas	NO	YES
2		Cutting, Grinding, Emery & Buffing wheels, Emery papers, Wire Brush etc.	NO	YES
3		Cotton Waste, Marking Cloth, Sari Cloth, Jute, Purging Paper/Purging Tape, Diesel etc.	NO	YES
4		Rustolene, WD-40/AC-90, Moly Kote, Sealant, Thread locker, Lapping Paste, Hylomer, DP Kit etc.	YES	NO
5		Structural & Non-Pressure Parts Electrodes & Fillers - 6013, 7018, 308L, 309L of D&H Secheron/Bohler make only	NO	YES
6		Electrodes & Fillers for all HP/IBR/Attachment/Pressure Parts Welding Joints and all Special Electrodes	YES	NO

GENERAL SAFETY GUIDELINES

Safety Guidelines General):

- a) The Contractor shall abide by all safety, health and environment rules of HEL and obtain safety training from HEL's Safety Officer before starting the work.
- b) The Contractor shall ensure the medical fitness of your supervisors and workmen before start of work.
- c) The Contractor must ensure the statutory health checkup of all employees as per the directives of the Directorate of Factories.
- d) The Contractor must strictly follow the Safety and Environmental policy of HEL.
- e) The safety plan of the work shall be submitted before start of the work to the Engineer-in-charge.
- f) The Contractor must ensure that their adequate nos. of safety personnels are available round the clock.
- g) All the tools & tackles (specially Welding, Grinding machines, Cutting sets and load bearing tools & plants) shall be inspected by M/s. HEL's Safety Dept prior to certification for usage in jobs.
- h) The Contractor needs to provide adequate facilities and PPEs **(from HEL's approved / certified Vendors only) specific to job condition and requirement.**
- i) Penalty will be imposed in case of any deviation / non-conformance by the Contractor.
- j) The following safety items are minimum and mandatory requirement (not exhaustive):

	GENERAL REQUIREMENTS	
1.	Organization Safety Manual	
2.	Hazard Identification and Risk Assessment Procedure	
3.	Job Safety Analysis	
4.	Work Procedure	
5.	Emergency Evacuation Plan.	
6.	MSDS of Chemicals	
7.	Test Certificate of all lifting tools and tackles and equipment	
8.	Two Safety Supervisors for 24 hours safety supervision.	
9.	Operators to operate Dehumidifier for 24 hours.	
	ITEMS	SPECIFICATIONS
1.	SAFETY PPE Safety Helmet, Safety Shoes, Gum Boots, Hand Gloves, Sufficient Nose Musk, Ear Plug, Face Shield,	As per IS code and EN Certification
2.	Copper Grit Blasting suit for blasting purpose.	As per IS code and EN Certification
3.	SAFETY EQUIPMENT Safety Belt	Full Body harness safety belt with double lanyard conforming national standards. Load Carrying capacity 2000 Kgs. Make: Karam or any certified vendor.
4.	Retractable Fall Arrestor as per the requirement.	Retractable wire rope fall arrestor block, plastic casing, with galvanised steel cable of 20 m length with PN 162 attachment at one end. Make: Karam or any certified vendor.

5.	Steel wire lifelines of 8 mm or 10mm dia for all height work in Boiler and ESP Polyamide Lifeline rope to be used inside CW Pipeline.	Certified vendor. Load Capacity 150 to 180 kgs.
6.	Rescue Rope: Kermentile Polyamide rope of dia 12 mm and 50 m length with one side loop and other side end stop knot.	Make: Karam or any certified vendor.
7.	Safety Net as per the requirement.	Mesh size: 25 mm, Mesh rope 2 mm Double Cord, Load carrying capacity: 2200 kg
8	Non asbestos high silica Fire Blanket	Tested Fire Blankets (IS 11871 Gr A&B for flame resistivity from third part NABL approved lab, with 750 SS non asbestos closely interwoven 96% silica welding blanket to withstand welding spark, cutting spatter etc. four sides stitched with fiber glass tape having brass eyelets at a distance of 1 metre and can operate at Temperature resistance: 1100 deg C (continuous), 1400 deg C short term, 1800deg C- Melting Point Yarn chemically treated (no surface treatment/no vermiculation) Nature: 1005 free from itching. Colour: Golden Weight: 1200gm/sq.m
9	ELCB for welding rectifiers and electrical distribution boards	Rating: 30 mA
10	Flash back Arrestors	As per IS standards. The NRV to be checked at site.
11	Guards of grinding machines	As per IS standards
12	LED Hand Torch	As per IS standards
13	Low voltage (24V) LED Hand Lamps	Power 12 W, Input Voltage 24V/140 - 270 AC 90(Dia)X230(H) Make: Pyrotech Electronics PVT ltd or any standard vendor
14	LED halogens	As per Standard specifications Power Consumption: 80- 120 watt Input voltage: 140-270V AC,110/220V DC Dimension(mm): 280(L)X253(W)X70(H) LED Colour: CW/WW/NW
15	Industrial electrical distribution boards with RCCB and with proper sockets	As per Standard specifications
16	Step down transformer for LED lamps	As per specification
17	Suitable Exhaust Fan on two ends of pipeline.	As per IS standards
18	Dehumidifier System with accessories	Standard Vendor with relevant documents.

19	Two numbers Self-Contained Breathing Apparatus Set for Emergency Rescue.	Standard Vendor.
20	Arrangement for Additional Air Line Hose of 500 meters Length to supply air.	
21	Cup lock scaffold system with Scaffolding pipes, clamps, ledgers or transoms etc.	As per standards.
22	Mild steel scaffolding board/gratings with hooks as Working platform. Length 2.5 m or standard sizes. Load carrying capacity 3KN (300 Kg/square metre.)	 As per standards.
23	Dustbins or metallic drums for keeping loose materials	
24	Standard metallic Top cover of all gas cylinders during hot work	
25	Temporary S hook for hanging cables	
26	GI wire in sufficient amount to tie working platforms and gas cylinders.	
27	Sufficient scaffolding pipes for handrails at height.	
28	Aluminum Ladders as per requirement.	
29	Sufficient rags/cotton/jute for wiping out Paint.	
30.	Barricading Tape Sufficient Rolls.	
31.	Blue Coloured Flags 7 numbers for identification of Confined Spaces.	
32.	Multi Gas detector to check oxygen level and obnoxious gases at 1 hour interval. To be done by Client safety.	

Detailed Scope of Work for AOH of FANs						
Sl. No.	Description	UOM	Qty.	Unit Rate	Total Price in Rs.	Remarks
1.1	PARTIAL OVERHAUL OF FD FANS 1A and 1B (2 NOS.)	Nos.	2			
1.1.1	Cleaning and repairing of silencer hood & mesh; cleaning and air lancing of suction & discharge duct of the fan, suction guide vanes. Scaffolding making, as required, to be done by the Contractor.					Silencer Splitters Assy. will NOT be replaced
1.1.2	Replacement and handling of Motors, Coupling dismantling and refitting. Fan-Motor alignment.					
1.1.3	Replacement of Fan Driving End Oil Seals and Sleeves.					
1.1.4	Servomotor leakage oil measurement and replacement of Control & Lube Oil Hoses.					
1.1.5	Disconnection of blade pitch control regulating drive link, removal of rotary oil seal and hydraulic hoses, before pulling out diffuser.					
1.1.6	Removal of diffuser and inspection of blades, hub internals, regulating arms/levers, gliding blocks, guide pins etc.					
1.1.7	Proper Marking of blades, Outer & Inner Cone etc. W.R.T to Impeller, before dismantling.					
1.1.8	Check clearance between blade tip and casing for reference value before and after servicing, as per manual.					
1.1.9	Removal, Cleaning, Inspection of Fan Blades and DP Test of Fan blades, recording of blade defects with blade nos. Weighment of all Blades. Weigh Machine in contractor's scope up to 3 decimals.					
1.1.10	Checking floats of blade shafts for reference values, both before and after servicing of blade bearing assembly.					
1.1.11	Blade Bearings Dismantling and Assembly, Inspection, greasing and renewal, (if required)					
1.1.12	Replacement of HAD (Hydraulic					

	Adjustment Device/Servomotor)					
	including run out correction within 0.01/0.02 mm.					
1.1.13	Servicing of Blade Pitch Control links, levers, Check freeness of Sliding block with Thrust Disc, Lubrication of Sliding Blocks.					
1.1.14	Servicing of Blade Pitch regulating drive assembly, including bearing replacement.					
1.1.15	Calibration of Blade Pitch Actuator & Servomotor both from Local and DCS.					
1.1.16	Fan final box-up and assistance for re-commissioning & trial of fan.					
1.1.17	Assistance in Balancing (drilling and fixing up of balancing blocks), if required. If balancing required, diffuser to be again pulled out					
1.1.18	Cleaning & servicing of lube oil system components like lube oil tanks both from inside and outside (Tank Top Cover removal reqd.), filters, gauge glasses, Lube Oil replacement by connecting flushers, replacement of Filters, Valves etc. IBR FITTER, WELDER, GRINDER MAY BE REQUIRED FOR ANY WELDING JOB IN LUBE OIL PIPELINES.					
1.1.19	Cleaning, Flushing & Hydro test of Cooler					
1.1.20	Servicing of Lube Oil Pumps & Seals, Renewal of couplings, spiders, if required					
1.1.21	Removal of Lube oil pump-motors & handing over to EMD and Installation of the same after receipt of overhauled motor.					
	Sub Total					
1.2	PARTIAL OVERHAUL OF PA FANS 1A AND 1B (2 NOS.)	Nos.	2			

1.2.1	Replacement and handling of Motor, Coupling dismantling and refitting. Fan-Motor alignment and correction. One Motor is to be renewed; Motor Journal bearings inspections (Top & Side Clearance measurement, visual check, DP Test and UT); Bearing and labyrinth seals renewal, if required.					
	NDT Agency for UT of Journal Bearings to be arranged by the Contractor.					
1.2.2	Cleaning of Silencer hood mesh, Thorough Cleaning of Silencer Splitters, Suction & Discharge duct of the fan. Scaffolding making, as required, to be done by the Contractor.					
1.2.3	Lifting and Shifting of PA Fan-1B Rotor assembly to TG Maintenance Bay, by Hydra, for overhauling.					
1.2.4	Removal of top casing after pre-dismantling checks; Check clearance between blade tip and casing for reference values.					
1.2.5	General cleaning of fan casing & cleaning/greasing/oiling of all components, repair of damaged parts, if required.					
1.2.6	Proper Marking of blades, Outer & Inner Cone, Covers etc. W.R.T to Impeller, before dismantling.					
1.2.7	Removal, Cleaning, Inspection of Fan Blades and DP Test of Fan blades, recording of blade defects with blade nos. Weighment of all Blades. Weigh Machine in contractor's scope up to 3 decimals.					
1.2.8	Overhauling of Impeller Hub Assembly (one fan, 1B) includes servicing & cleaning of blade bearing assembly, renewal of bearing balls, bearings, seal kits, Sliding Blocks, grease renewal, freeness checking and lubrication of Sliding blocks with Thrust discs.					One ready spare Rotor Assy. to be replaced in 1A
1.2.9	Dismantling/Assembly of Servomotor; Run-out correction within 0.01 mm/0.02 mm.					

1.2.10	Servicing of Blade Pitch Control actuating shaft bearings, coupling bush etc. & Actuator replacement.					
1.2.11	Servomotor leakage oil measurement and replacement of Control & Lube Oil Hoses.					
1.2.12	Calibration of Blade Pitch actuator & Servomotor both from Local and DCS.					
1.2.13	Fan final box-up and assistance for re-commissioning & trial of fan.					
1.2.14	Assistance in balancing (welding of balancing blocks), if required (for balancing, top casing to be opened and closed for multiple times)					
1.2.15	Cleaning & servicing of lube oil system components like lube oil tanks both from inside and outside (Tank Top Cover removal reqd.), filters, gauge glasses, Lube Oil replacement by connecting flushers, replacement of Filters, Valves etc. IBR FITTER, WELDER, GRINDER MAY BE REQUIRED FOR ANY WELDING JOB IN LUBE OIL PIPELINES.					
1.2.16	Cleaning, Flushing & Hydro test of Cooler					
1.2.17	Servicing of Lube Oil Pumps & Seals, Renewal of couplings, spiders, if required					
1.2.18	Removal of Lube oil pump-motors & handing over to EMD and Installation of the same after receipt of overhauled motor.					
	Sub Total					
1.3	PARTIAL OVERHAULING OF SEAL AIR FAN 1A AND 1B (2 NOS.)	Nos.	2			
1.3.1	Inspection of Impellers and inside ash cleaning					
1.3.2	Inspection of DE & NDE bearings, cleaning and clearance checking					
1.3.3	Decoupling and Replacement of Coupling Bush					
1.3.4	Flushing and replacement of bearing oil					
1.3.5	Motor Handling, if required.					
1.3.6	Alignment checking of Fan & Motor. Correction if required.					

1.3.7	Arresting of Air leakages from impeller shaft and casing by dismantling and replacing air seals (both DE & NDE);					
1.3.8	Servicing/ Cleaning/ Replacement of Suction Filter, Valve, Damper & Bellow					
1.3.9	Servicing/ Cleaning/ Replacement of Discharge - Bellow & Swing Flap					
	Sub Total					
1.4	CHECKING OF SCANNER AIR FAN AC AND DC (2 NOS.)	Nos.	2			
1.4.1	Assist EMD in replacement of Motor bearing; Pulling out impeller and re-assembly.					
1.4.2	Assistance in balancing of impeller, if required.					
1.4.3	Filter cleaning/replacement; Casing Gasket renewal.					
1.4.4	Base strengthening, if required, due to high vibration.					
1.4.5	Inspection/repairing of discharge V-flap.					
1.4.6	Repair/Replacement of bellow, suction strainer.					
	Sub Total					
1.5	OVERHAULING OF ID FAN 1A AND 1B (2 NOS.) [RADIAL FANS]	Nos.	2			
1.5.1	Erection of scaffolding and making safe approach to 3 manholes per fan [2 manholes for suction chamber and 1 manhole for discharge chamber]. Removal & restoration of insulation, if required.					Pre-Survey Job, to be completed before zero date
1.5.2	Motor lowering to ground and re-erection; Coupling removal and re-assembly to enable EMD for bearing replacement.					
1.5.3	Opening of Manholes and making safe approach inside suction and discharge chambers.					
1.5.4	Ash Cleaning and removal from Suction & Discharge chamber for proper inspection					
1.5.5	Cleaning, Inspection and thickness gauging of impeller/vanes.					
1.5.6	Cleaning, Inspection and tightness checking of Suction Cone bolts from both suction and discharge sides, by making scaffolding.					

1.5.7	ID Fan-1A: DE & NDE bearings sump cleaning, bearing visual inspection, clearance checking, seal rings checking, felt seals, "O" rings renewal; ZERO OIL LEAKAGE MUST BE ENSURED FROM BRG. HSG. LABYRING SEAL AFTER BOX-UP					
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1.5.8	General cleaning of Fan and Voith components & cleaning/greasing/oiling of all components, repair of damaged parts, if required.					
1.5.9	Inspection /cleaning of Voith Coupling Tank by VOITH Top Cover removal, Filter elements; All leakage arresting by "O" ring replacement / Gasket replacement; Oil replacement through Flushers and assistance in connection & disconnection of flushers.					
1.5.10	ID Fan-1B: DE & NDE bearings replacement along with various enabling activities associated with it. ZERO OIL LEAKAGE & ZERO AIR INGRESS MUST BE ENSURED FROM BRG. HSG. LABYRING SEAL AFTER BOX-UP					
1.5.11	Final Box-up; Alignment of Motor to Voith and Voith to Fan					
1.5.12	Cleaning & servicing of lube oil system components like lube oil tanks both from inside and outside (Tank Top Cover removal reqd.), filters, gauge glasses, Lube Oil replacement through flushers, replacement of Filters, Valves etc. IBR FITTER, WELDER, GRINDER MAY BE REQUIRED FOR ANY WELDING JOB IN LUBE OIL PIPELINES.					
1.5.13	Cleaning, Flushing & Hydro test of both Lube Oil and Working Oil Coolers					
1.5.14	Servicing of Lube Oil Pumps & Seals, Renewal of couplings, spiders, if required					
1.5.15	Removal of Lube oil pump-motors & handing over to EMD and Installation of the same after receipt of overhauled motor.					
	Sub Total					
NOTE: FINAL BILL SHALL BE CERTIFIED ONLY AFTER SUBMISSION OF COMPLETE O/H REPORTS WITH SIGNED PROTOCOLS						

MINIMUM TENTATIVE REQUIRED TOOLS FOR O/H OF ID, FD & PA FANS (APART FROM THE BELOW LIST OF ITEMS, ANY OTHER TOOLS AS DEEMED NECESSARY BY THE CONTRACTOR, FOR SMOOTH COMPLETION OF THE JOB, SHALL HAVE TO BE MOBILISED)

SL NO	NAME OF THE TOOLS WITH DESCRIPTION	QTY	UNIT	Remarks
1	DIAL GAUGE	8	NOS.	
2	MAGNETIC STAND FOR DIAL GAUGE	8	NOS.	
3	MIRROR	6	NOS.	
4	VERNIER SCALE 0-150 MM	2	NOS.	
5	VERNIER SCALE 0-300 MM	2	NOS.	
6	VERNIER SCALE 0-450 MM	1	NOS.	
7	INSIDE MICROMETER 0-50 MM	1	NOS.	
8	INSIDE MICROMETER (50MM-300MM)	1	NOS.	
9	OUTSIDE MICROMETER(0MM-150MM)	1	NOS.	
10	OUTSIDE MICROMETER(0MM-300MM)	1	NOS.	
11	HYDROLIC JACK 50 TON WITH PUMP	4	NOS.	
12	20 TON JACK APPROX HEIGHT 30 MM WITH PUMP	2	NO.	
13	100 TON JACK WITH PUMP	2	NO.	
14	FILLER GAUGE (150 MM)	2	NOS.	
15	FILLER GAUGE (300 MM)	2	NOS.	
16	FILLER STRIPS 150 MM	2	NOS.	
17	COPPER ROD (1" X 200 MM)	4	NOS.	
18	COPPER ROD (2" X 200 MM)	4	NOS.	
19	ALLEN KEY SET (MM)	4	SET	
20	ALLEN KEY SET (INCH)	2	SET	
21	ALLENKEY 12 MM	2	NOS.	
22	ALLENKEY 14 MM	3	NOS.	
23	ALLENKEY 17 MM	3	NOS.	
24	ALLENKEY 19 MM	2	NOS.	
25	ALLENKEY 22 MM	2	NOS.	
26	HAMMER (BALL PIN)-800GM	4	NOS.	
27	HAMMER-1000GM	3	NOS.	
28	HAMMER-2000GM	2	NOS.	
29	HAMMER-5000GM	2	NOS.	
30	HAMMER-7500GM	1	NOS.	
31	NYLON MALLET HAMMER	2	NOS.	
32	HAMMERING SPANNER-24MM	6	NOS.	
33	HAMMERING SPANNER-27MM	6	NOS.	
34	HAMMERING SPANNER-30MM	6	NOS.	
35	HAMMERING SPANNER-32MM	4	NOS.	
36	HAMMERING SPANNER-36MM	4	NOS.	
37	HAMMERING SPANNER-41MM	6	NOS.	
38	HAMMERING SPANNER-46MM	6	NOS.	
39	HAMMERING SPANNER-48MM	2	NOS.	
40	HAMMERING SPANNER-50MM	3	NOS.	
41	HAMMERING SPANNER-55MM	2	NOS.	
42	HAMMERING SPANNER-60MM	2	NOS.	

43	HAMMERING SPANNER-65 MM	1	NOS.	
44	HAMMERING SPANNER-70 MM	1	NOS.	
45	HAMMERING SPANNER-75 MM	1	NOS.	
46	HAMMERING SPANNER-80 MM	1	NOS.	
47	HAMMERING SPANNER-85 MM	1	NOS.	
48	HAMMERING SPANNER-90 MM	1	NOS.	
49	HAMMERING SPANNER-95 MM	1	NOS.	
50	HAMMERING SPANNER-100 MM	1	NOS.	
51	HAMMERING SPANNER-105 MM	1	NOS.	
52	RING & DE SPANNER-6/7	3	SET	
53	RING & DE SPANNER-8/9	3	SET	
54	RING & DE SPANNER-10/11	3	SET	
55	RING & DE SPANNER-12/13	3	SET	
56	RING & DE SPANNER-14/15	3	SET	
57	RING & DE SPANNER-16/17	6	SET	
58	RING & DE SPANNER-18/19	6	SET	
59	RING & DE SPANNER-20/22	2	SET	
60	RING & DE SPANNER-24/26	2	SET	
61	RING & DE SPANNER-24/27	6	SET	
62	RING & DE SPANNER-25/28	2	SET	
63	RING & DE SPANNER-30/32	4	SET	
64	RING & DE SPANNER-32/36	2	SET	
65	RING & DE SPANNER-41/46	2	SET	
66	RING & DE SPANNER-21/23	2	SET	
67	RING & DE SPANNER-36/41	4	SET	
68	RING & DE SPANNER-41/46	2	SET	
69	RING & DE SPANNER-46/50	2	SET	
70	RING & DE SPANNER-50/55	2	SET	
71	RING & DE SPANNER-60/65	2	SET	
72	BOX SPANNER (8MM -32MM)	1	SET	1. ALLEN SOCKET RATCHED SET 8 MM TO 32 MM WITH RATCED, ALLEN SOCKETS, T HANDLE BIG SIZE MEDIUM SIZE, EXTENSION PIECES (FOR ALLEN BOLT) 2. HEX RATCHED SOCKET SET 16 MM TO 50 MM WITH RATCHED, T HANDLE MEDIUM SIZE, BIG SIZE, EXTENSION PIECES (FOR HEX BOLT) 3. BOX SPANNER 41 5 NOS.,46 3NOS.,50,55, 60 2 NOS. EACH,65,70,75,80 1 NO. EACH
73	GUTI SPANER (16 to 24 mm)	1	SET	

74	ADJUSTABLE SPANNER-12"	2	NOS.	
75	PLIERS (INSIDE & OUTSIDE) 8"	2	NOS.	INDUSTRIAL CIRCLIP PLIER INSIDE AND OUTSIDE BOTH SET, SMALL TO DIFFERENT SIZE
76	SHIM CUTTER	1	NOS.	
77	PIPE WRENCH (12",18",24", 36",48")	2	NOS.	
78	SCREW DRIVER -8"	3	NOS.	
79	SCREW DRIVER -10"	3	NOS.	
80	SCREW DRIVER -12"	3	NOS.	
81	SCREW DRIVER -18"	3	NOS.	
82	CENTRE PUNCH-4"	3	NOS.	
83	CENTRE PUNCH-6"	3	NOS.	
84	NUMBER PUNCH	3	SET	
85	LETTER PUNCH	3	SET	
86	HOLE PUNCH 8,10,12,16,20 MM	2	SET	
87	CHISEL-6"	3	NOS.	2 NOS.
88	CHISEL-10"	3	NOS.	2 NOS.
89	CHAIN BLOCK-3T	2	NOS.	2 NOS. CHAIN LENGTH 30 MTR REQUIRED
90	CHAIN BLOCK-2T	4	NOS.	2 NOS. CHAIN LENGTH 30 MTR REQUIRED, 2 NO. CHAIN LENGTH 3 MTR REQUIRED
91	WEB SLING-1T	6	NOS.	WEB BELT SLING 1 TON 3 MTR 2 NOS, 4 MTR 4 NOS.
92	WEB SLING-2T	5	NOS.	WEB BELT SLING 2 TON 3 MTR 2 NOS, 4 MTR 3 NOS.
93	WEB SLING-3T	5	NOS.	WEB BELT SLING 3 TON, 4 MTR 5 NOS.
94	WEB SLING-4T	4	NOS.	WEB BELT SLING 4 TON, 3 MTR 2 NOS. ,4 MTR 2 NOS.
95	WEB SLING-5T	4	NOS.	WEB BELT SLING 5 TON, ,4 MTR 4 NOS.
96	WEB SLING-6T	1	NOS.	
97	WEB BELT SLING 10 TON 6 MTR	4	NOS.	
98	WIRE ROPE SLING			WIRE ROPE SLING 6MM 1.5 MTR I SIZE 150, 6 MM 2MTR I SIZE 400, 8MM I SIZE 400 2.5MTR.,10MM I SIZE 250, 300,350,450 2 MTR ,12 MM I SIZE 400 2.5 MTR 450 MTR 2,5 AND 4 MTR, , 16 MM I SIZE 350, 400 2.5 MTR EACH, 18 MM 1.5 MTR, 25 MM I SIZE 600

				6 MTR AND 2 MTR, 30 MM I SIZE 900 5 MTR, 40 MM I SIZE900 5.5 MTR EACH WIRE ROPE SLING 2NOS.
99	DE-SACKLE-1T	8	NOS.	
100	DE-SACKLE-2T	8	NOS.	
101	DE-SACKLE-3T	8	NOS.	
102	DE-SACKLE-4T	8	NOS.	
103	DE-SACKLE-5T	8	NOS.	
104	DE-SACKLE-6T	4	NOS.	
105	DE-SACKLE-10 T	6	NOS.	
106	DE-SACKLE-17 T	4	NOS.	
107	EYE BOLT 6 MM	4	NOS.	
108	EYE BOLT 8 MM	4	NOS.	
109	EYE BOLT 10 MM	4	NOS.	
110	EYE BOLT 12 MM	4	NOS.	
111	EYE BOLT 16 MM	4	NOS.	
112	EYE BOLT 20 MM	4	NOS.	
113	EYE BOLT 24 MM	4	NOS.	
114	EYE BOLT 30 MM	4	NOS.	
115	GRINDING M/C-AG5	2	NOS.	
116	GRINDING M/C-AG4	3	NOS.	
117	NEEDLE FILE	2	SET	
118	FILE (ROUND,HALF ROUND,TRINGAL)	3	NOS.	
119	RIGHT ANGLE (6",12")	3	NOS.	
120	GRINDING GOGGLES	3	NOS.	
121	AG5 KEY	1	NOS.	
122	CUTTING WHEEL-5"	15	NOS.	
123	WELDING M/C	4	NOS.	One Argon Set, as and when required
124	CUTTING SET (RED & BLUE)	1	SET	MIN. 3 SET CUTTING SETS REQUIRED EXCLUSIVELY FOR FAN JOBS
125	O2 REGULATOR	2	NOS.	
126	DA REGULATOR	2	NOS.	
127	FLASH BACK ARRESTOR	4	NOS.	
128	CUTTING TORCH	2	NOS.	
129	O2 KEY	1	NOS.	
130	SPARK LIGHTER	2	NOS.	
131	CUTTING NOZZLE (B 1/16)	1	NOS.	
132	CUTTING NOZZLE (B 1/32)	1	NOS.	
133	CUTTING NOZZLE (B 3/34)	1	NOS.	
134	CUTTING NOZZLE (A 1/16)	1	NOS.	
135	CUTTING NOZZLE (A 1/32)	1	NOS.	

136	CUTTING NOZZLE (A 3/34)	1	NOS.	
137	CUTTING GOGGLES	2	NOS.	
138	HAND LAMP WITH WIRE	6	SET	
139	INDUSTRIAL BOARD	6	NOS.	
140	SAFETY HELMET		NOS.	
141	TORCH LIGHT	6	NOS.	
142	OIL STONE	5	NOS.	
143	1 MTR SCALE	2	NOS.	
144	SAFETY BELT		NOS.	
145	POLYPOLINE ROPE (16,18,20 MM)	4	ROLL	
146	MEASUREMENT TAPE (3 MTR, 5MTR)	4	NOS.	
147	TARPOLIN -12 FEETX18 FEET	12	NOS.	
148	SCAFFOLDING MATERIALS	1	LOT	
149	WELDING CABLE	50	MTR	
150	LEAD WIRE			
151	BLOWER	2	NOS	
152	FIRE BLANKETS			
153	NORMAL HAND GLOVES			
154	HEAT RESISTANCE HAND GLOVES FOR BEARING /COUPLING FITTING	4	PAIRS	
155	BEARING PULLER			3 LEG 6",8" 2 LEG 6",8" 1 NO. EACH
156	24 V DC CONVERTER/LED LIGHTS FOR CONFINED SPACE	2	NOS	
157	HAND HELD DRILL MACHINE	1	NO	
158	DRILL BIT 1 TO 13 MM	1	SET	
159	5 MM DRILL BIT	6	NOS.	
160	TAP SET 6,8,10,12,16,20,24,30	1	SET	
161	HAND OIL PUMP	1	NO	
162	TORQUE WRENCH 37NM-800NM	1	SET	
163	REQUIRED SOCKET ADAPER MATCHING WITH THE TORQUE WRENCH AND BOLT SIZE 8,10,12,16,20,24,30,36 BOLT BOTH ALLEN AND HEX BOLT	1	NO. EACH	
164	ROTARY CUTTER MACHINE WITH BIT	1	NO	
165	OIL TRAY	6	NOS.	
166	SPIRIT LEVEL	1	NO	
167	BEARING TEMP GUN	2	NOS	
168	CHAPSA MACHINE	1	NO	
169	PACKING GUTKA MS FOR JACK 60 MM DIA 130 MM LENGTH	1	NO	
170	PACKING GUTKA MS FOR JACK 45 MM DIA 125 MM LENGTH	2	NO	
171	PACKING GUTKA MS FOR JACK 80 MM DIA 50 MM LENGTH	10	NOS	

172	HOLE BARI	2	NOS	
173	SETTING CHAP BARI 12 MM DIA 300 MM LENGTH	4	NOS	
174	CHAP BARI DIA 24 MM , L 600MM	4	NOS	
175	CHAP BARI DIA 16 MM , L 800MM	4	NOS	
176	CHAP BARI DIA 24 MM , L 850MM	4	NOS	
177	CHAP BARI DIA 16 MM , L 850MM	6	NOS	
178	CHAP BARI DIA 16 MM , L 600MM	3	NOS	
179	PIPE BARI	4	NOS	
180	SOLID BARI 36 MM DIA 1 MTR	4	NOS.	
181	WOODEN GUTKA			
182	WOODEN SLIPPERS			
183	CUTTING SET COVER	2	NOS.	
184	CUTTING SET TROLLEY	2	NOS	
185	RUBBER GASKET CUTTING KNIFE	1	NO	
186	HOSIERY CLOTHS & SARI & CLEAN MARKING CLOTHS			LOT REQUIRED

Notes:

- Each maintenance gang shall consist at least one Head fitter/Mill Wright fitter along with one junior fitter & other supporting and necessary manpower. At least 2 Foremen and 1 Supervisor/Engineer must be present from Fan Side, along with adequate Safety Officers & Safety Supervisors, as per Factory Rules. Total Tentative Manpower 35- 40 Nos. should be required to complete the job within Target Schedule.
- The ash cleaning, if required, shall be equipped with all necessary tools & tackles.
- All working persons availability at site has to be ensured at Site before Unit desynchronization.
- All required T&Ps - in Contractor's scope. Non-availability of required T&Ps will attract serious penalty. Decision of HEL in this matter shall be final.
- The Contractor has to ensure safety of their workmen at site while working and provide all kinds of special safety equipment required for the job. All necessary safety tools & tackles, Fire blanket, PPEs & others necessary apparatus (to execute the job with proper safety) has to be arranged by the Vendor. Before execution of the job at site the Vendor has to take necessary permits to work from the concerned department. A maximum penalty amounting to 5% of the order value will be applicable for non-compliance of safety norms. All tools and tackles should be tested by third party agency duly approved by Factory inspector.**
- Scaffolding materials and Hydra will be arranged by the Contractor as & when required.**

<u>Common Points under Contractor's Scope (Applicable for all Areas)</u>		
1		AOH Schedule: 16 days (De-Sync. to BLU Clearance) Complete Mobilization of Resources and Completion of all Pre-Survey Activities: From (-) 7 days to (-) 1 day to AOH start
2		Apart from the above list of jobs, Contractor's representative shall have to visit Site 15 days in advance before AOH and shall collect list of all existing/prevalent defects at that time and plan for attending those defects during AOH.
3		Scaffolding erection and dismantling for valve maintenance includes scaffolding material

4		Support services (including manpower, Tools & tackles) required for E&I service jobs		
5		Labour License Liaison will under contractor scope		
6		Coordination with IBR (Boiler inspector) for successful hydro test and for obtaining steaming certificates for both Units and liaison with factory inspector for obtaining labour license, during AOH shall be in the scope of Contractor		
7		Contractor has to follow HEL's Safety Norms		
8		All T&Ps including lifting tools and tackles, hydraulic jacks, Measuring Instruments for jobs are in Contractor's Scope		
9		Pre and Post weld Heat treatment for applicable weld joints with Machine		
10		Radiography testing of valve joints and power cycle piping tubes/pipes. Complete arrangement & RT source will be under Contractor's Scope		
11		Material Handling including the arrangement of adequate nos. of Hydraulic/Mobile Cranes/Hydras/Winch Machines/Motorised Chain Pulley Blocks etc. will be under Contractor's Scope on round the clock basis with Operator, TO COMPLETE AOH within Schedule		
12		Ash removal up to our designated place including Tractor-trolley set/or other device arrangement on round the clock basis. Big jumbo bags/gunny bags to be arranged by Contractor		
13		Signed Protocols and Job Reports to be submitted as per HEL EIC's guidelines		
<u>Consumables for AOH (Applicable for all Areas)</u>			Scope Matrix	
			HEL	Contractor
1		DA, Oxygen, Argon gas	NO	YES
2		Cutting, Grinding, Emery & Buffing wheels, Emery papers, Wire Brush etc.	NO	YES
3		Cotton Waste, Marking Cloth, Sari Cloth, Jute, Purging Paper/Purging Tape, Diesel etc.	NO	YES
4		Rustolene, WD-40/AC-90, Molykote, Sealant, Thread locker, Lapping Paste, Hylomer, DP Kit etc.	YES	NO
5		Structural & Non-Pressure Parts Electrodes & Fillers - 6013, 7018, 308L, 309L of D&H Secheron/Bohler make only	NO	YES
6		Electrodes & Fillers for all HP/IBR/Attachment/Pressure Parts Welding Joints and all Special Electrodes	YES	NO

Sr. No.	Activity	LD Condition	Guarantee	Defect Liability
			Duration	
1	Fans:			
1.1		Oil Leakage from hoses	6 Months	10% of activity cost
	Rotor Assy	Increase in Fan Vibration & High Current from last value	6 Months	10% of activity cost

	Replacement	BPC jamming & Malfunction	6 Months	10% of activity cost
1.2	Catastrophic Failure of Equipment	Attributed to faulty workmanship	6 Months	50% of activity cost
1.3	Final successful Commissioning	Within 18 days (Bar to Bar) [De-sync to Sync]	Schedule	10% of activity cost

GENERAL SAFETY GUIDELINES

Safety Guidelines General):

- a) The Contractor shall abide by all safety, health and environment rules of HEL and obtain safety training from HEL's Safety Officer before starting the work.
- b) The Contractor shall ensure the medical fitness of your supervisors and workmen before start of work.
- c) The Contractor must ensure the statutory health checkup of all employees as per the directives of the Directorate of Factories.
- d) The Contractor must strictly follow the Safety and Environmental policy of HEL.
- e) The safety plan of the work shall be submitted before start of the work to the Engineer-in-charge.
- f) The Contractor must ensure that their adequate nos. of safety personnels are available round the clock.
- g) All the tools & tackles (specially Welding, Grinding machines, Cutting sets and load bearing tools & plants) shall be inspected by M/s. HEL's Safety Dept prior to certification for usage in jobs.
- h) The Contractor needs to provide adequate facilities and PPEs **(from HEL's approved / certified Vendors only) specific to job condition and requirement.**
- i) Penalty will be imposed in case of any deviation / non-conformance by the Contractor.
- j) The following safety items are minimum and mandatory requirement (not exhaustive):

	GENERAL REQUIREMENTS	
1.	Organization Safety Manual	
2.	Hazard Identification and Risk Assessment Procedure	
3.	Job Safety Analysis	
4.	Work Procedure	
5.	Emergency Evacuation Plan.	
6.	MSDS of Chemicals	
7.	Test Certificate of all lifting tools and tackles and equipment	
8.	Two Safety Supervisors for 24 hours safety supervision.	
9.	Operators to operate Dehumidifier for 24 hours.	
	ITEMS	SPECIFICATIONS
1.	SAFETY PPE	
	Safety Helmet, Safety Shoes, Gum Boots, Hand Gloves, Sufficient Nose Musk, Ear Plug, Face Shield,	As per IS code and EN Certification
2.	Copper Grit Blasting suit for blasting purpose.	As per IS code and EN Certification

3.	SAFETY EQUIPMENT Safety Belt	Full Body harness safety belt with double lanyard conforming national standards. Load Carrying capacity 2000 Kgs. Make: Karam or any certified vendor.
4.	Retractable Fall Arrestor as per the requirement.	Retractable wire rope fall arrestor block, plastic casing, with galvanised steel cable of 20 m length with PN 162 attachment at one end. Make: Karam or any certified vendor.
5.	Steel wire lifelines of 8 mm or 10mm dia for all height work in Boiler and ESP Polyamide Lifeline rope to be used inside CW Pipeline.	Certified vendor. Load Capacity 150 to 180 kgs.
6.	Rescue Rope: Kermantile Polyamide rope of dia 12 mm and 50 m length with one side loop and other side end stop knot.	Make: Karam or any certified vendor.
7.	Safety Net as per the requirement.	Mesh size: 25 mm, Mesh rope 2 mm Double Cord, Load carrying capacity: 2200 kg
8	Non asbestos high silica Fire Blanket	Tested Fire Blankets (IS 11871 Gr A&B for flame resistivity from third part NABL approved lab, with 750 SS non asbestos closely interwoven 96% silica welding blanket to withstand welding spark, cutting spatter etc. four sides stitched with fiber glass tape having brass eyelets at a distance of 1 metre and can operate at Temperature resistance: 1100 deg C (continuous), 1400 deg C short term, 1800deg C- Melting Point Yarn chemically treated (no surface treatment/no vermiculation) Nature: 1005 free from itching. Colour: Golden Weight: 1200gm/sq.m
9	ELCB for welding rectifiers and electrical distribution boards	Rating: 30 mA
10	Flash back Arrestors	As per IS standards. The NRV to be checked at site.
11	Guards of grinding machines	As per IS standards
12	LED Hand Torch	As per IS standards
13	Low voltage (24V) LED Hand Lamps	Power 12 W, Input Voltage 24V/140 - 270 AC 90(Dia)X230(H) Make: Pyrotech Electronics PVT ltd or any standard vendor
14	LED halogens	As per Standard specifications Power Consumption: 80- 120 watt Input voltage: 140-270V AC,110/220V DC Dimension(mm): 280(L)X253(W)X70(H) LED Colour: CW/WW/NW

15	Industrial electrical distribution boards with RCCB and with proper sockets	As per Standard specifications
16	Step down transformer for LED lamps	As per specification
17	Suitable Exhaust Fan on two ends of pipeline.	As per IS standards
18	Dehumidifier System with accessories	Standard Vendor with relevant documents.
19	Two numbers Self-Contained Breathing Apparatus Set for Emergency Rescue.	Standard Vendor.
20	Arrangement for Additional Air Line Hose of 500 meters Length to supply air.	
21	Cup lock scaffold system with Scaffolding pipes, clamps, ledgers or transoms etc.	As per standards.
22	Mild steel scaffolding board/gratings with hooks as Working platform. Length 2.5 m or standard sizes. Load carrying capacity 3KN (300 Kg/square metre.)	 As per standards.
23	Dustbins or metallic drums for keeping loose materials	
24	Standard metallic Top cover of all gas cylinders during hot work	
25	Temporary S hook for hanging cables	
26	GI wire in sufficient amount to tie working platforms and gas cylinders.	
27	Sufficient scaffolding pipes for handrails at height.	
28	Aluminum Ladders as per requirement.	
29	Sufficient rags/cotton/jute for wiping out Paint.	
30.	Barricading Tape Sufficient Rolls.	
31.	Blue Coloured Flags 7 numbers for identification of Confined Spaces.	

32.	Multi Gas detector to check oxygen level and obnoxious gases at 1 hour interval. To be done by Client safety.	
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Detailed Scope of Work – Bottom Ash & Fly Ash Handling System

Sl. No.	Description	UOM	Remarks
1	All manhole opening at Bottom Ash Hopper		
2	Complete internal inspection of Bottom Ash Hopper and necessary rectification job.		
3	Damage Refractory Breaking, Removal and application of fresh refractory [Quantum: Approx. 20-22 MT , as per previous experience]; ICE REQUIRED DURING MIXING REFRACTORY & CURING MUST BE AS PER REFRACTORY OEM GUIDELINES. Refractory Mixing Machine is in Contractor's scope.		
4	Removal of damaged SS ducts & refractory Anchors and fixing of new ducts & anchors inside bottom ash hopper		
5	Repairing/Replacement of hopper view glass inside & outside structure, if reqd.		
6	Inspection & renewal of screen panel as per requirement		
7	Erection of complete internal scaffolding as required for refractory application and screen panel renewal, up to Boiler S-Panel & removal of the same after entire job completion.		
8	Replacement of defective feed gate power cylinders and servicing of feed gates.		
9	Hopper plate repairing and All HP jetting nozzles inspection & renewal if required		
10	U-1 All Clinker Grinder Enclosers body repairing work		
11	Damaged pipe, Bend & support Structure renewal at BAH area		
12	Maintenance of all HP & LP line valves at BAH		
13	U-2 slurry line rotation and throughout patch welding at top, by cutting U-Clamps and cutting & rewelding pipes at 4 locations only and refixing U-Clamps. Approx. Length of Pipe to be rotated- 150 mtrs.		
14	CG jet pump line straightening (cutting & rewelding) along with support		
15	U-1 LP line throughout patch welding at bottom portion.		
16	Silo-1 bag filter cleaning or replacement as per requirement.		AMC + Additional Resources
17	Unit-1 Conveying Air receiver and Common receiver internal inspection.		AMC + Additional Resources
18	Unit-1 ESP All vessel one flow pad removal and box-up after ESP Gang clearance.		
19	Unit-1 ECO & APH all vessel bottom bellow removal & box-up as per instruction.		
20	Diverter valve replacement at Silo-1 top (Approx. 3 nos.)		

21	Damaged spools and PIP replacement at Silo top and its vertical portion		
22	ECO and APH vessel-vessel PIP inspection & replacement, if reqd.		
23	Damage PIP (35 nos.) and spools replacement (Unit-1 A & B pass and ECO line)		AMC + Additional Resources
24	4 Nos. Silo-1 RVF Overhauling		AMC + Additional Resources
25	U-1 OTP line seam welding (Approx. 20 mtrs. at staggered locations)		AMC + Additional Resources
26	U-1 OTP badly damaged line renewal work DM plant to PLL office and main store to road crossing (Approx- 42 mtrs.)		AMC + Additional Resources

Notes:

1. Each maintenance gang shall consist at least one Head fitter/Mill Wright fitter along with one junior fitter & Supervisor/Engineer, along with other supporting and necessary manpower and adequate Safety Officers & Safety Supervisors, as per Factory Rules.
2. The ash cleaning, if required, shall be equipped with all necessary tools & tackles.
3. All working persons availability at site has to be ensured at Site at least 2 days before Unit desynchronization.
4. All required T&Ps - in Contractor's scope. Non-availability of required T&Ps will attract serious penalty. Decision of HEL in this matter shall be final.
5. The Contractor has to ensure safety of their workmen at site while working and provide all kinds of special safety equipment required for the job. All necessary safety tools & tackles, Fire blanket, PPEs & others necessary apparatus (to execute the job with proper safety) has to be arranged by the Vendor. Before execution of the job at site the Vendor has to take necessary permits to work from the concerned department. A maximum penalty amounting to 5% of the order value will be applicable for non-compliance of safety norms. All tools and tackles should be tested by third party agency duly approved by Factory inspector.
6. Scaffolding materials and Hydra will be arranged by the Contractor as & when required.

<u>Common Points under Contractor's Scope (Applicable for all Areas)</u>		
1		AOH Schedule: 16 days (De-Sync. to BLU Clearance) Complete Mobilization of Resources and Completion of all Pre-Survey Activities: From (-) 7 days to (-) 1 day to AOH start
2		Apart from the above list of jobs, Contractor's representative shall have to visit Site 15 days in advance before AOH and shall collect list of all existing/prevalent defects at that time and plan for attending those defects during AOH.
3		Scaffolding erection and dismantling for valve maintenance includes scaffolding material
4		Support services (including manpower, Tools & tackles) required for E&I service jobs

5		Labour License Liaison will under Contractor's scope
6		Coordination with IBR (Boiler inspector) for successful hydro test and for obtaining steaming certificates for both Units and liaison with factory inspector for obtaining labour license, during AOH shall be in the scope of Contractor
7		Contractor has to follow HEL's Safety Norms
8		All T&Ps including lifting tools and tackles, hydraulic jacks, Measuring Instruments for jobs are in Contractor's Scope
9		Pre and Post weld Heat treatment for applicable weld joints with Machine
10		Radiography testing of valve joints and power cycle piping tubes/pipes. Complete arrangement & RT source will be under Contractor's Scope
11		Material Handling including the arrangement of adequate nos. of Hydraulic/Mobile Cranes/Hydras/Winch Machines/Motorised Chain Pulley Blocks etc. will be under Contractor's Scope on round the clock basis with Operator, TO COMPLETE AOH within Schedule
12		Ash removal up to our designated place including Tractor-trolley set/or other device arrangement on round the clock basis. Big jumbo bags/gunny bags to be arranged by Contractor
13		Signed Protocols and Job Reports to be submitted as per HEL EIC's guidelines

<u>Consumables for AOH (Applicable for all Areas)</u>			Scope Matrix	
			HEL	Contractor
1		DA, Oxygen, Argon gas	NO	YES
2		Cutting, Grinding, Emery & Buffing wheels, Emery papers, Wire Brush etc.	NO	YES
3		Cotton Waste, Marking Cloth, Sari Cloth, Jute, Purging Paper/Purging Tape, Diesel etc.	NO	YES
4		Rustolene, WD-40/AC-90, Molykote, Sealant, Threadlocker, Lapping Paste, Hylomer, DP Kit etc.	YES	NO
5		Structural & Non-Pressure Parts Electrodes & Fillers - 6013, 7018, 308L, 309L of D&H Secheron/Bohler make only	NO	YES
6		Electrodes & Fillers for all HP/IBR/Attachment/Pressure Parts Welding Joints and all Special Electrodes	YES	NO

GENERAL SAFETY GUIDELINES

Safety Guidelines General):

a) The Contractor shall abide by all safety, health and environment rules of HEL and obtain safety training from HEL's Safety Officer before starting the

work.

b) The Contractor shall ensure the medical fitness of your supervisors and workmen before start of work.

c) The Contractor must ensure the statutory health checkup of all employees as per the directives of the Directorate of Factories.

d) The Contractor must strictly follow the Safety and Environmental policy of HEL.

e) The safety plan of the work shall be submitted before start of the work to the Engineer-in-charge.

f) The Contractor must ensure that their adequate nos. of safety personnels are available round the clock.

g) All the tools & tackles (specially Welding, Grinding machines, Cutting sets and load bearing tools & plants) shall be inspected by M/s. HEL's Safety Dept prior to certification for usage in jobs.

h) The Contractor needs to provide adequate facilities and PPEs **(from HEL's approved / certified Vendors only) specific to job condition and requirement.**

i) Penalty will be imposed in case of any deviation / non-conformance by the Contractor.

j) The following safety items are minimum and mandatory requirement (not exhaustive):

GENERAL REQUIREMENTS		
1.	Organization Safety Manual	
2.	Hazard Identification and Risk Assessment Procedure	
3.	Job Safety Analysis	
4.	Work Procedure	
5.	Emergency Evacuation Plan.	
6.	MSDS of Chemicals	
7.	Test Certificate of all lifting tools and tackles and equipment	
8.	Two Safety Supervisors for 24 hours safety supervision.	
9.	Operators to operate Dehumidifier for 24 hours.	
	ITEMS	SPECIFICATIONS
1.	SAFETY PPE Safety Helmet, Safety Shoes, Gum Boots, Hand Gloves, Sufficient Nose Musk, Ear Plug, Face Shield,	As per IS code and EN Certification
2.	Copper Grit Blasting suit for blasting purpose.	As per IS code and EN Certification
3.	SAFETY EQUIPMENT Safety Belt	Full Body harness safety belt with double lanyard conforming national standards. Load Carrying capacity 2000 Kgs. Make: Karam or any certified vendor.
4.	Retractable Fall Arrestor as per the requirement.	Retractable wire rope fall arrestor block, plastic casing, with galvanised steel cable of 20 m length with PN 162 attachment at one end. Make: Karam or any certified vendor.
5.	Steel wire lifelines of 8 mm or 10mm dia for all height work in Boiler and ESP Polyamide Lifeline rope to be used	Certified vendor. Load Capacity 150 to 180 kgs.

	inside CW Pipeline.	
6.	Rescue Rope: Kermantile Polyamide rope of dia 12 mm and 50 m length with one side loop and other side end stop knot.	Make: Karam or any certified vendor.
7.	Safety Net as per the requirement.	Mesh size: 25 mm, Mesh rope 2 mm Double Cord, Load carrying capacity: 2200 kg
8	Non asbestos high silica Fire Blanket	Tested Fire Blankets (IS 11871 Gr A&B for flame resistivity from third part NABL approved lab, with 750 SS non asbestos closely interwoven 96% silica welding blanket to withstand welding spark, cutting spatter etc. four sides stitched with fiber glass tape having brass eyelets at a distance of 1 metre and can operate at Temperature resistance: 1100 deg C (continuous), 1400 deg C short term, 1800deg C- Melting Point Yarn chemically treated (no surface treatment/no vermiculation) Nature: 1005 free from itching. Colour: Golden Weight: 1200gm/sq.m
9	ELCB for welding rectifiers and electrical distribution boards	Rating: 30 mA
10	Flash back Arrestors	As per IS standards. The NRV to be checked at site.
11	Guards of grinding machines	As per IS standards
12	LED Hand Torch	As per IS standards
13	Low voltage (24V) LED Hand Lamps	Power 12 W, Input Voltage 24V/140 - 270 AC 90(Dia)X230(H) Make: Pyrotech Electronics PVT ltd or any standard vendor
14	LED halogens	As per Standard specifications Power Consumption: 80- 120 watt Input voltage: 140-270V AC,110/220V DC Dimension(mm): 280(L)X253(W)X70(H) LED Colour: CW/WW/NW
15	Industrial electrical distribution boards with RCCB and with proper sockets	As per Standard specifications
16	Step down transformer for LED lamps	As per specification
17	Suitable Exhaust Fan on two ends of pipeline.	As per IS standards
18	Dehumidifier System with accessories	Standard Vendor with relevant documents.
19	Two numbers Self-Contained Breathing Apparatus Set for Emergency Rescue.	Standard Vendor.

20	Arrangement for Additional Air Line Hose of 500 meters Length to supply air.	
21	Cup lock scaffold system with Scaffolding pipes, clamps, ledgers or transoms etc.	As per standards.
22	Mild steel scaffolding board/gratings with hooks as Working platform. Length 2.5 m or standard sizes. Load carrying capacity 3KN (300 Kg/square metre.)	 As per standards.
23	Dustbins or metallic drums for keeping loose materials	
24	Standard metallic Top cover of all gas cylinders during hot work	
25	Temporary S hook for hanging cables	
26	GI wire in sufficient amount to tie working platforms and gas cylinders.	
27	Sufficient scaffolding pipes for handrails at height.	
28	Aluminum Ladders as per requirement.	
29	Sufficient rags/cotton/jute for wiping out Paint.	
30.	Barricading Tape Sufficient Rolls.	
31.	Blue Coloured Flags 7 numbers for identification of Confined Spaces.	
32.	Multi Gas detector to check oxygen level and obnoxious gases at 1 hour interval. To be done by Client safety.	

MMD ASSISTANCE REQUIRED U#1- SURVEY 2026-2027

Sl. No.	Job Description	Type of Assistance	Remarks
1	MILL-1A TO 1F PA FLOW AEROFOIL INSPECTION JOB	FIRM SCAFFOLDING AND DEDICATED APPROACH FOR INSPECTION OF THE AEROFOILS.	
2	DISMANTLING AND REFIXING OF MILL-1A TO 1F HAG POWER CYLINDERS FOR SEAL KIT REPLACEMENT JOB.	MANPOWER FOR DISMANTLING AND REFIXING THE CYLINDER. SEAL KIT REPLACEMENT AND POWER CYLINDER BOX-UP WILL BE DONE BY E&I	
3	DISMANTLING AND REFIXING ACTUATOR WITH GEARBOX FOR SERVICING JOB	MANPOWER FOR DISMANTLING AND REFIXING THE ACTUATOR WITH GEARBOX	LIST MENTIONED AT ANNEXTURE-1
4	DECOUPLE & COUPLING OF THE ACTUATOR WITH GEARBOX FROM DAMPER	MANPOWER FOR DECOUPLE AND COUPLING THE ACTUATOR WITH GEARBOX. IF ANY FAULT OCCURS THEN ONLY DISMANTLING AND REFIXING THE ACTUATOR WITH GEARBOX REQUIRED.	LIST MENTIONED AT ANNEXTURE-1
5	Any fault comes in any mov before shutdown then actuator will be replaced	ACTUATOR REPLACEMENT	
6	Any fault comes in any Scoop cylinder before shutdown then cylinder will be replaced	MANPOWER FOR DISMANTLING AND REFIXING THE CYLINDER. SEAL KIT REPLACEMENT AND POWER CYLINDER BOX-UP WILL BE DONE BY E&I	
7	Physical checking of aerofoil in both pass and purging job	A PASS SIDE MANUAL DOOR OPENING AND MIDDLE PORTION SCAFFOLDING FOR B PASS AND PATCH WORK TO BE DONE IF ANY DAMAGE FOUND IN AIRFOIL	
8	FO guide pipe hose portion replacement	GRINDER & WELDER SUPPORT REQUIRED	
9	ALL LOP MOTORS BEARING REPLACEMENT & SERVICEING	DECOUPLING & RE-COUPLING OF MOTOR AFTER SERVICING	
10	HIGH & LOW SIDE HEADER REPLACEMENT OF SECONADRY AIR FLOW TX IN BOTH PASS	INSULATION REMOVAL & OLD HEADER REPLACED BY NEW PRE FABRICATED HEADER OVER THE DUCT	
11	DISMANTLING AND REFIXING ACTUATOR WITH GEARBOX FOR SERVICING JOB BY ROTORK	MANPOWER FOR DISMANTLING AND REFIXING THE ACTUATOR WITH GEARBOX	1. PAF 1A-BLADE PITCH 2. PAF 1B-BLADE PITCH 3. FDF 1A-BLADE PITCH 4. FDF 1B-BLADE PITCH
12	DISMANTLING OF 02 NO.S POWER CYLINDER FOR BOTTOM ASH HOPPER FEEDWATER GATE	MANPOWER FOR SHIFTING & DISMANTLING THE POWER CYLINDER AND FIXING BACK WITH GATE AFTER SEAL KIT REPLACEMENT.	
13	U#1 EXTRACTION-8 MOV ACTUATOR DISMANTLING FOR SERVICING	DECOUPLING & RE-COUPLING OF ACTUATOR AFTER SERVICING	
14	U#1- DEAERATOR TO CONDENSER MOV ACTUATOR DISMANTLING FOR ARRSETING OF OIL SEEPAGE.	DECOUPLING & RE-COUPLING OF ACTUATOR AFTER SERVICING	
15	ASSISTANCE FOR BEARING REPLACEMENT OF ID FAN-1A AND 1B MOTORS	DECOUPLING AND REFIXING OF MOTOR. BEARING REPLACEMENT WOULD BE DONE BY E&I.	
16	ASSISTANCE FOR MOTOR REPLACEMENT OF PA FAN-1B MOTOR	DECOUPLING AND REFIXING OF MOTOR	
17	ASSISTANCE FOR MOTOR REPLACEMENT OF FD FAN-1B MOTOR	DECOUPLING AND REFIXING OF MOTOR	
18	ASSISTANCE FOR BEARING REPLACEMENT OF FD FAN-1A MOTOR	DECOUPLING AND REFIXING OF MOTOR. BEARING REPLACEMENT WOULD BE DONE BY E&I.	
19	ESP HOPPER HEATER ASH WELL ASH LEAKAGE ARRESTING JOB	E&I WILL REMOVE HOPPER HEATERS FOR FURTHER CHECKING AND NECESSARY ACTION BY MMD	
20	ASSISTANCE FOR REPLACEMENT OF BROKEN SHAFT AND SUPPORT INSULATORS	REPLACEMENT OF BROKEN INSULATOR WITH NEW ONE.	

Detailed Scope of Work: Main TG-1 (Unit-1 AOH)

Main Turbine Bearing & Valves Inspection

Bearing inspection:

- I. Inspection of 4 TG bearings (bearing no. 1, 2, 6 & 7) and the thrust bearing. Additional one more bearing to be inspected if required. Bearing inspection 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, journal slope and diameter, 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, journal slope and diameter, pedestal interference etc.
 - g) Cleaning of pedestals and connected supply and drain lines.
 - h) Replacement and/or Inspection of thrust pads and any one (1) no. bearings, if required, will be under the job scope.
- II. Measurement of final axial float and assistance in rotor position instrument setting.
- III. Swing check and bearing loading 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 for Brg. Pedestal Nos 1, 2, 3, 4, 5, 6 and 7 including the Thrust Bearing. Pedestal Oil Fins and Bearing Oil Glands (rings) will be replaced by caulking at site, as required.

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, (TV Flange bolts by heat induction Roa)
 - c) Cleaning of valves and its components,
 - d) Measurement of clearances and valve stem runout,
 - e) Replacement/refurbishment of valve components including Bonnet assembly, as applicable,
 - f) Ensuring proper blue contact between valve cone and valve seat, assembly of components,
 - g) Bonnet assembly Flange fit-up & welding if required.
 - h) Inspection and refitting of actuators including replacement of actuator filters and O-rings.
 - i) Actuators filters with O-ring replacement.
- 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 with valve spares.
- 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. GV HP & LP Leak up line chocking inspection.
- VI. Assembly of valves and actuators, ensuring proper Hot & Hand tightening of bolts, couplings, zero position checking of flanges, if required, involving replacement and proper caulking of pins.

- VII. Assistance during Stroke adjustment/ Functional tests of TV, GV, IV & RSV valves.
- VIII. Readiness of Scaffolding platforms.

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

- 1. Replacement of more than 1 no. bearing,

Other TG related Jobs:

- I. Cleaning of orifice of Emergency trip block.
- II. Leak test of LP rupture disk and replacement of diaphragm if required. Renewal of LP manhole cover gaskets.
- III. 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.
- IV. Cleaning and Greasing of Front pedestal base plates, LPT turbine base plates and HIP Cylinder supports paws (4 legs), as required.
- V. Cleaning and flushing of all bearing pedestals including disassembly and assembly of related pipework including JOP lift setting.
- VI. Inspection and overhaul of barring gear including backlash measurement, inspection of oil seals, chains and rectifications if required.

Note:

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

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

Generator inspection:

The scope of work includes but not limited to the following:

- 1. Assistance during Helium leak test of Stator Water Circuit at both ends both inside and outside Generator involving dismantling and refitting of Manholes, Dismantling, inspection, attending leakage at Stator Water - Conductor Teflon hose connections and other probable areas both at EE and TE, if required after Helium leak test.
 - 3. Complete assistance during ATT of Generator and Stator Water system inclusive soap bubble test and rectification as required.
 - 4. Assistance during electrical tests of Generator if reqd. Also, assistance during scaffolding will be required as deemed necessary.
- Above jobs are an estimation of probable job scope. Actual scope may vary depending on the findings of ATT, Helium leak test etc.
- 5. Tools and tackles and all required Tools and tackles for the above works Include. Scaffolding pipes with Jallis & Clamps be arranged by vendor for the above job.

Other Exclusions:

- 1. Turbine body & Valve area insulation removal & re-application. (90 Meter Square)
- 2. Application of Paint.
- 3. Any machining required outside the plant

Common Points under Contractor's Scope (Applicable for all Areas)		
1		AOH Schedule: 16 days (De-Sync. to BLU Clearance) Complete Mobilisation of Resources and Completion of all Pre-Survey Activities: From (-) 7 days to (-) 1 day to AOH start

2		Apart from the above list of jobs, Contractor's representative shall have to visit Site 15 days in advance before AOH and shall collect list of all existing/prevalent defects at that time and plan for attending those defects during AOH.
3		Scaffolding erection and dismantling for valve maintenance includes scaffolding material
4		Support services (including manpower, Tools & tackles) required for E&I service jobs
5		Labour License Liaison will under Contractor scope
6		Contractor has to follow HEL's Safety Norms
7		All T&Ps including lifting tools and tackles, hydraulic jacks, Measuring Instruments for jobs are in Contractor's Scope
8		Pre and Post weld Heat treatment for applicable weld joints with Machine
9		Radiography & PWHT testing of valve joints and power cycle piping tubes/pipes. Complete arrangement & RT source will be under Contractor's Scope
10		Material Handling including the arrangement of adequate nos. of Winch Machines/Motorised Chain Pulley Blocks etc. will be under Contractor's Scope on round the clock basis with Operator, TO COMPLETE AOH within Schedule
11		Signed Protocols and Job Reports to be submitted as per HEL EIC's guidelines

<u>Consumables for AOH (Applicable for all Areas)</u>			Scope Matrix	
			HEL	Contractor
1		DA, Oxygen, Argon gas	NO	YES
2		Cutting, Grinding, Emery & Buffing wheels, Emery papers, Wire Brush etc.	NO	YES
3		Cotton Waste, Marking Cloth, Sari Cloth, Jute, Purging Paper/Purging Tape, Diesel etc.	NO	YES
4		Rustolene, WD-40/AC-90, Molykote, Sealant, Threadlocker, Lapping Paste, Hylomer, DP Kit etc.	YES	NO
5		Structural & Non-Pressure Parts Electrodes & Fillers - 6013, 7018, 308L, 309L of D&H Secheron/Bohler make only	NO	YES
6		Electrodes & Fillers for all HP/IBR/Attachment/Pressure Parts Welding Joints and all Special Electrodes	YES	NO

GENERAL SAFETY GUIDELINES

Safety Guidelines General):

- a) The Contractor shall abide by all safety, health and environment rules of HEL and obtain safety training from HEL's Safety Officer before starting the work.
- b) The Contractor shall ensure the medical fitness of your supervisors and workmen before start of work.
- c) The Contractor must ensure the statutory health checkup of all employees as per the directives of the Directorate of Factories.
- d) The Contractor must strictly follow the Safety and Environmental policy of HEL.
- e) The safety plan of the work shall be submitted before start of the work to the Engineer-in-charge.
- f) The Contractor must ensure that their adequate nos. of safety personnels are available round the clock.
- g) All the tools & tackles (specially Welding, Grinding machines, Cutting sets and load bearing tools & plants) shall be inspected by M/s. HEL's Safety Dept prior to certification for usage in jobs.
- h) The Contractor needs to provide adequate facilities and PPEs **(from HEL's approved / certified Vendors only) specific to job condition and requirement.**
- i) Penalty will be imposed in case of any deviation / non-conformance by the Contractor.
- j) The following safety items are minimum and mandatory requirement (not exhaustive):

	GENERAL REQUIREMENTS	
1.	Organization Safety Manual	
2.	Hazard Identification and Risk Assessment Procedure	
3.	Job Safety Analysis	
4.	Work Procedure	
5.	Emergency Evacuation Plan.	
6.	MSDS of Chemicals	
7.	Test Certificate of all lifting tools and tackles and equipment	
8.	Two Safety Supervisors for 24 hours safety supervision.	
9.	Operators to operate Dehumidifier for 24 hours.	
	ITEMS	SPECIFICATIONS
1.	SAFETY PPE Safety Helmet, Safety Shoes, Gum Boots, Hand Gloves, Sufficient Nose Musk, Ear Plug, Face Shield,	As per IS code and EN Certification
2.	Copper Grit Blasting suit for blasting purpose.	As per IS code and EN Certification
3.	SAFETY EQUIPMENT Safety Belt	Full Body harness safety belt with double lanyard conforming national standards. Load Carrying capacity 2000 Kgs. Make: Karam or any certified vendor.

4.	Retractable Fall Arrestor as per the requirement.	Retractable wire rope fall arrestor block, plastic casing, with galvanised steel cable of 20 m length with PN 162 attachment at one end. Make: Karam or any certified vendor.
5.	Steel wire lifelines of 8 mm or 10mm dia for all height work in Boiler and ESP Polyamide Lifeline rope to be used inside CW Pipeline.	Certified vendor. Load Capacity 150 to 180 kgs.
6.	Rescue Rope: Kermentile Polyamide rope of dia 12 mm and 50 m length with one side loop and other side end stop knot.	Make: Karam or any certified vendor.
7.	Safety Net as per the requirement.	Mesh size: 25 mm, Mesh rope 2 mm Double Cord, Load carrying capacity: 2200 kg
8	Non asbestos high silica Fire Blanket	Tested Fire Blankets (IS 11871 Gr A&B for flame resistivity from third part NABL approved lab, with 750 SS non asbestos closely interwoven 96% silica welding blanket to withstand welding spark, cutting spatter etc. four sides stitched with fiber glass tape having brass eyelets at a distance of 1 metre and can operate at Temperature resistance: 1100 deg C (continuous), 1400 deg C short term, 1800deg C- Melting Point Yarn chemically treated (no surface treatment/no vermiculation) Nature: 1005 free from itching. Colour: Golden Weight: 1200gm/sq.m
9	ELCB for welding rectifiers and electrical distribution boards	Rating: 30 mA
10	Flash back Arrestors	As per IS standards. The NRV to be checked at site.
11	Guards of grinding machines	As per IS standards
12	LED Hand Torch	As per IS standards
13	Low voltage (24V) LED Hand Lamps	Power 12 W, Input Voltage 24V/140 - 270 AC 90(Dia)X230(H) Make: Pyrotech Electronics PVT ltd or any standard vendor
14	LED halogens	As per Standard specifications Power Consumption: 80- 120 watt Input voltage: 140-270V AC,110/220V DC Dimension(mm): 280(L)X253(W)X70(H) LED Colour: CW/WW/NW
15	Industrial electrical distribution boards with RCCB and with proper sockets	As per Standard specifications
16	Step down transformer for LED lamps	As per specification
17	Suitable Exhaust Fan on two ends of pipeline.	As per IS standards
18	Dehumidifier System with accessories	Standard Vendor with relevant documents.
19	Two numbers Self-Contained Breathing Apparatus Set for Emergency Rescue.	Standard Vendor.
20	Arrangement for Additional Air Line Hose of 500 meters Length to supply air.	
21	Cup lock scaffold system with Scaffolding pipes, clamps, ledgers or transoms etc.	As per standards.
22	Mild steel scaffolding board/gratings with hooks as Working platform. Length 2.5 m or standard sizes. Load carrying capacity 3KN (300 Kg/square metre.)	 As per standards.

23	Dustbins or metallic drums for keeping loose materials	
24	Standard metallic Top cover of all gas cylinders during hot work	
25	Temporary S hook for hanging cables	
26	GI wire in sufficient amount to tie working platforms and gas cylinders.	
27	Sufficient scaffolding pipes for handrails at height.	
28	Aluminum Ladders as per requirement.	
29	Sufficient rags/cotton/jute for wiping out Paint.	
30.	Barricading Tape Sufficient Rolls.	
31.	Blue Coloured Flags 7 numbers for identification of Confined Spaces.	
32.	Multi Gas detector to check oxygen level and obnoxious gases at 1 hour interval. To be done by Client safety.	

Detailed Scope of Work – TG Auxiliaries (Unit-1 AOH)

Sl. No.	Job Description	Period of Activity	Agency (AMC-PMPL)
1	Complete BFP-Voith-Booster Pump - 2A, 2B, 2C and 1A, 1B & 1C Overhauling & associated defects attending, including Working Oil Coolers back flushing & All Strainers cleaning, Main Motor Bearing Inspection/rectification	Pre Survey & Post Survey	AMC additional resource requirement
2	DMCW - 1A & 1B Overhauling, suction strainers checking & and associated defects attending	Survey	AMC additional resource requirement
3	CEP 1A & 1B O/H, Suction strainers checking & associated defects attending	Survey	AMC additional resource requirement
4	Seal Oil Skid and Vapor Extraction System overhauling & associated defects attending	Survey	AMC additional resource requirement
5	Stator Water Coolant System overhauling & associated defects attending	Survey	AMC additional resource requirement
6	Vacuum Pumps with PHE A&B Overhauling, Separator Tanks Borescope inspection, flushing & associated defects attending	Survey	AMC additional resource requirement
7	MOT inspection, all 3 Pumps maintenance with cooler cleaning & vapor extraction fan maintenance & associated defects attending, Temporary water connection for Working Cooler and its restoration.	Survey	AMC additional resource requirement
8	Condenser & Flash-box Inspection & cleaning & associated defects attending	Survey	AMC additional resource requirement
9	All existing TG & TG-Auxiliaries defects attending (Approx. 30 nos. till date); All archived defects (for Survey) till Unit#1 Shutdown, to be attended.	Survey	AMC + AMC additional resource requirement
10	Critical & LP Piping Hanger Support Inspection & Rectification.	Pre Survey & During Survey	AMC + AMC additional resource requirement

Sl. No.	Job Description	Period of Activity	Agency (AMC-PMPL)
11	TG Force Cooling only Hose fitting & insulation fixing on piping, Temporary ACW Pipe erection for Condenser Tubes Cooling during TG on BG & restoration.	Pre Survey, During Survey & Post Survey	AMC + AMC additional resource requirement
12	H2 & CO2 system maintenance & associated defects attending	Survey	AMC + AMC additional resource requirement
13	Turbine IBD Flash Tank Inspection & associated defects attending	Survey	AMC + AMC additional resource requirement
14	GSC, GSC Fan, Gland Steam Header filters & Desuperheater Spray Nozzle Inspection & associated defects attending	Survey	AMC + AMC additional resource requirement
15	HPLP Bypass Valves Maintenance & Other Critical Valves: Assistance to valve expert technicians with Necessary Tools & Tackles and Argon Welding, if required	Survey	AMC + AMC additional resource requirement
16	DEH & HP-LP Bypass Hydraulic System Maintenance & associated defect attain	Survey	AMC + AMC additional resource requirement
17	HPH & LPH Inspection & parting planes rectification, HPH-8 shell side & Extraction Line inspection, HPH Shell Side flushing and associated defects attending	Survey	AMC + AMC additional resource requirement
18	Deaerator Internal Inspection & associated defects attending	Survey	AMC + AMC additional resource requirement

Common Points under Contractor's Scope (Applicable for all Areas)		
1		AOH Schedule: 16 days (De-Sync. to BLU Clearance) Complete Mobilization of Resources and Completion of all Pre-Survey Activities: From (-) 7 days to (-) 1 day to AOH start
2		Apart from the above list of jobs, Contractor's representative shall have to visit Site 15 days in advance before AOH and shall collect list of all existing/prevalent defects at that time and plan for attending those defects during AOH.
3		Scaffolding erection and dismantling for valve maintenance includes scaffolding material

4		Support services (including manpower, Tools & tackles) required for E&I service jobs
5		Labour License Liaison will under Contractor scope
6		Contractor has to follow HEL's Safety Norms
7		All T&Ps including lifting tools and tackles, hydraulic jacks, Measuring Instruments for jobs are in Contractor's Scope
8		Pre and Post weld Heat treatment for applicable weld joints with Machine
9		Radiography & PWHT testing of valve joints and power cycle piping tubes/pipes. Complete arrangement & RT source will be under Contractor's Scope
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2		Cutting, Grinding, Emery & Buffing wheels, Emery papers, Wire Brush etc.	NO	YES
3		Cotton Waste, Marking Cloth, Sari Cloth, Jute, Purging Paper/Purging Tape, Diesel etc.	NO	YES
4		Rustolene, WD-40/AC-90, Molykote, Sealant, Threadlocker, Lapping Paste, Hylomer, DP Kit etc.	YES	NO
5		Structural & Non-Pressure Parts Electrodes & Fillers - 6013, 7018, 308L, 309L of D&H Secheron/Bohler make only	NO	YES
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16	Step down transformer for LED lamps	As per specification
17	Suitable Exhaust Fan on two ends of pipeline.	As per IS standards
18	Dehumidifier System with accessories	Standard Vendor with relevant documents.
19	Two numbers Self-Contained Breathing Apparatus Set for Emergency Rescue.	Standard Vendor.
20	Arrangement for Additional Air Line Hose of 500 meters Length to supply air.	
21	Cup lock scaffold system with Scaffolding pipes, clamps, ledgers or transoms etc.	As per standards.

22	Mild steel scaffolding board/gratings with hooks as Working platform. Length 2.5 m or standard sizes. Load carrying capacity 3KN (300 Kg/square metre.)	 As per standards.
23	Dustbins or metallic drums for keeping loose materials	
24	Standard metallic Top cover of all gas cylinders during hot work	
25	Temporary S hook for hanging cables	
26	GI wire in sufficient amount to tie working platforms and gas cylinders.	
27	Sufficient scaffolding pipes for handrails at height.	
28	Aluminum Ladders as per requirement.	
29	Sufficient rags/cotton/jute for wiping out Paint.	
30.	Barricading Tape Sufficient Rolls.	
31.	Blue Coloured Flags 7 numbers for identification of Confined Spaces.	
32.	Multi Gas detector to check oxygen level and obnoxious gases at 1 hour interval. To be done by Client safety.	

MMD ASSISTANCE REQUIRED U#1- SURVEY 2026-2027

Sl. No.	Job Description	Type of Assistance	Remarks
1	Any fault comes in any MOV before shutdown then actuator will be replaced	ACTUAOTR REPLACEMENT	
2	ALL LOP MOTORS BEARING REPLACEMENT & SERVICING	DECOUPLING & RE-COUPING OF MOTOR AFTER SERVICING	
3	LEAKAGE ARRSETING JOB AT HP-8 FEEDWATER INLET LINE AT TG-12.6 MTRS.	IBR WELDER AND FITTER REUIRED.	
4	U#1 EXTRACTION-8 MOV ACTUATOR DISMANTLING FOR SERVICING	DECOUPLING & RE-COUPING OF ACTUATOR AFTER SERVICING	
5	U#1- DEAERATOR TO CONDENSER MOV ACTUATOR DISMANTLING FOR ARRSETING OF OIL SEEPAGE.	DECOUPLING & RE-COUPING OF ACTUATOR AFTER SERVICING	
6	LP-1/2 EXTRACTION TEMPERATURE ELEMENT CHECKING AND THERMOWELL FIXING (IF REQUIRED) AND CHECKING OF CONDEDNSER NECK TEMPERATURE ELEMENT.	FIRM SCAFFOLDING AND DEDICATED APPROACH FOR INSPECTION INSIDE CONDENDER NECK .FIXING OF THERMOWELL TO BE DONE BY MMD, THERMOWELL WILL BE PROVIDED TO MMD.	
7	GENERATOR H2-DRIER BLOWER MOTOR -1 AND 2 BEARING REPLACEMENT JOB.	DECOUPLING AND REFIXING OF MOTOR. BEARING REPLACEMENT WOULD BE DONE BY E&I.	
8	BFP-2A,2B AND 2C AOP MOTOR DISMANTLING AND REFIXING FOR BEARING REPLACEMENT JOB.	DECOUPLING AND REFIXING OF MOTOR. BEARING REPLACEMENT WOULD BE DONE BY E&I.	
9	VACUUM PUMP-1A AND 1B RECYCLE PUMP MOTOR DISMANTLING AND REFIXING FOR BEARING REPLACEMENT JOB.	DECOUPLING AND REFIXING OF MOTOR. BEARING REPLACEMENT WOULD BE DONE BY E&I.	
10	EH OIL PUMP-1A AND 1B MOTOR BEARING REPLACEMENT JOB.	DECOUPLING AND REFIXING OF MOTOR. BEARING REPLACEMENT WOULD BE DONE BY E&I.	
11	EH OIL CIRCULATING PUMP-MOTOR FITMENT CHECKING WITH KIRLOSKAR MAKE MOTOR.	DECOUPLING AND REFIXING OF MOTOR AFTER FITMENT CHECKING.	
12	AIR SIDE SEAL OIL AC MOTOR DE AND NDE BEARING REPLACEMENT JO B.	DECOUPLING AND REFIXING OF MOTOR. BEARING REPLACEMENT WOULD BE DONE BY E&I.	
13	H2 SIDE SEAL OIL AC MOTOR DE AND NDE BEARING REPLACEMENT JO B.	DECOUPLING AND REFIXING OF MOTOR. BEARING REPLACEMENT WOULD BE DONE BY E&I.	
14	STATOR WATER PUMP-1A AND 1B MOTOR DE AND NDE BEARING REPLACEMENT JOB.	DECOUPLING AND REFIXING OF MOTOR. BEARING REPLACEMENT WOULD BE DONE BY E&I.	
15	TURBINE LUB OIL AND HP SEAL OIL AC MOTOR BEARING REPLACEMENT	DECOUPLING AND REFIXING OF MOTOR. BEARING REPLACEMENT WOULD BE DONE BY E&I.	
16	HP-LP BYPASS SKID ALL MOTOR BEARING REPLACEMENT	DECOUPLING AND REFIXING OF MOTOR. BEARING REPLACEMENT WOULD BE DONE BY E&I.	
17	ASSISTANCE FOR UT OLTC REMOVAL JOB	2 NO.S RIGGERS REQUIRED	

ANNEXURE-II TO TENDER NO. PUR:52802 DATED 29.07.2026

PRICE SCHEDULE

1. OVERHAULING OF BOILER AND AUXILIARIES

PART A: BOILER, ESP, DUCTS AND DAMPERS

Sr. No.		Description	UOM	Qty.	Unit Rate (FY27)	Unit Rate (FY 28)	Unit Rate (FY 29)	Amount (FY 27)	Amount (FY 28)	Amount (FY 29)	Total amount (FY27+ FY28+FY 29)
1	HEAD	Access and Scaffolding/Approach for Boiler and Critical Pipes upto Turbine Inlet Turbine Inlet									
	1.01	Opening of all Manhole Doors of Boiler & Drum for Boiler Cooling and Air Lancing	LUMP SUM	1							
	1.02	Full Cup-lock scaffolding inside Boiler from 9 meter to Furnace Roof consisting of Bottom Sealed Blanketing/Top side full blanketing below PSH-DSH and coil approach for PHS-DSH-PRH-FRH & spacer tubes and approach for roof tubes. All Burner nozzle zones, full approach with landing platform, all four level wall sootblower peripheral platform with handrails, all corners SOFA nozzle platforms, 30-50 Degree slope Staircase with footsteps and handrails including landing platform for approach at all level of scaffolding from 9-meter Seal-off platform. Complete Cup-lock material will be under Contractor's scope includes bottom base frames, angles, channels, beams, stairs etc. Supplied scaffolding shall be as per IS/BIS standard. Scaffolding quality shall be duly certified by HEL HSE team during installation. Safety nets - 2 Layers (Burner, Bottom & Burner Top)	LUMP SUM	1							
	1.03	Proper Scaffolding for Economiser Inlet Header and Bottom Ring Header Level (i.e. above Eco Hopper Zone)	LUMP SUM	1							
	1.04	Necessary scaffolding/platform erection for proper approach for Final RH, Platen RH, Platen SH, Final SH, in between Pendant/Divisional SH Bank upto Roof, LTSH Terminal Tube, Water Walls, Backpass Screen Tubes, S-Panel Bottom Dead Chamber,Vestibule Dead Chamber and other areas, as required, for proper inspection, slag cleaning, thickness gauging and tube/bends rectification/replacement job.	LUMP SUM	1							
	1.05	All other auxiliary platforms/scaffolding jobs for thickness gauging / tube repair & replacement / shielding job /other AOH activities.	LUMP SUM	1							
	1.06	Economiser Hopper & casing area inside scaffolding and inspection, repairing of Baffle plate/diversion plate, if required. Cleaning of Economiser Hopper & removal of all damaged refractory before & after completion of all Boiler back-pass jobs.	LUMP SUM	1							
	1.07	Complete Scaffolding for All Critical Pipes' Supports Cleaning/Checking/Rectification, Cold & Hot Readings, for both Boiler & TG Area upto Turbine Inlet	LUMP SUM	1							

	1.08	Complete Removal of all scaffolding materials, debris and scraps from inside the Boiler Frontpass, Intermediate Pass & Backpass, Bottom and Vestibule Dead Chambers, after job completion with proper housekeeping.	LUMP SUM	1							
2	HEAD	Boiler Water Lancing (LP JET CLEANING)									
	2.01	Water washing of Front Pass through peep holes & Intermediate Pass entering through Manholes with Fire Water & Complete Back Pass including LTSH coils, ECO coils & Back Pass water walls by DM WATER	LUMP SUM	1							
3	HEAD	Boiler Pressure Parts Physical Inspection, Thickness Gauging & Repair									
	3.01	Physical Inspection and Condition Assessment of Complete Boiler & Pressure Parts' 1st and 2nd Pass by Contractor's competent supervisor and submission of reports to HEL's EIC for decision making for necessary corrective measures within AOH. (includes Water walls, Burner panels, SOFA panels, Waterwall Screen Tubes and Hanger tubes, Div SH, Platen SH, Platen RH, Final RH, Final SH, WW relief tubes, Back-pass front screen tubes, Back-pass walls, Wall RH, LTSH, Economiser, LTSH hanger tubes, both pass Roof SH, Extended Walls of SH & RH etc.) - Physical inspection and tube / bend repair / replacement / buttering / insert, as required.	LUMP SUM	1							
	3.02	All Pendant Coils' Spacer and Spacer tubes checking and repairing; Locking Checking of Steam Cooled Spacer Tubes	LUMP SUM	1							
	3.03	Complete SLAG removal and cleaning inside Boiler: Front Panel Div SH, Platen SH, Platen RH, Wall RH, Water Walls and from BURNER adjacent FURNACE wall including checking and rectification	LUMP SUM	1							
	3.04	Separate Thickness Gauging/De-metering Agency shall be deployed by HEL. However, all necessary assistance like cleaning manpower, light including scaffolding will be under Contractor's Scope. (At approx. 14000 points)	LUMP SUM	1							
	3.05	Repair/Replacement of Tubes and Valves, based on thickness gauging and physical inspection & feedback by Contractor's Competent Supervisor, as per instruction of EIC of HEL. Inspection & rectification of Backpass drain line, Economiser inlet vent & drain lines, BPLSW HDR & BPRSW HDR drain lines.	PER JOINT	200							
	3.06	Final SH/Div SH/Platen SH/Platen RH/Final RH coils' individual tube male-female fixture correction/installation which includes welding process as per metallurgy of tubes	LUMP SUM	1							
	3.07	LTSH Coils checking & inspection by making gaps between adjacent Coils (all Banks) and rectification as required. Tubes/Bends replacement and Metal build-up, as required. Fixing of Protection Guards on all eroded coil tubes and restoration of all attachments. Replacement of damaged protection guards at various zones, as required.	LUMP SUM	1							
	3.08	Inspection of all erosion shields / protection guards of all LTSH/ECO banks/BPFW/BPBW (fixed at LTSH/ECO coil tubes adjacent to hangers) and rectification / re-installation, as required. Shield plates / Protection Guards cutting as per requirement / suit at site, to be done by Contractor. 1-2 meter length, half round SS shield plates will be provided by HEL.	LUMP SUM	1							

	3.09	Economizer Coil lifting for necessary maintenance (tubes/bends repair/replacement), alignment & normalization, as required, after thorough physical condition assessment and based on thickness gauging reports.	Each	10							
	3.1	LTSH/ECO Coil fixtures/clamps/attachments inspection and rectification, as required	LUMP SUM	1							
	3.11	Any previously balance fin welding or leakage point in wall soot-blower area to be re-welded; All fins repair and rectification by full welding wherever gap observed.	Per Mtr.	50							
	3.12	Top Dead Chamber (Rear Arch) Checking & Sealing; Bottom Dead Chamber Support (incl. Fasteners) & S-Panel Sealing Checking & rectification, if required; PENTHOUSE sealing checking and rectification;	LUMP SUM	1							
	3.13	New Erosion Shield Plates/Protection Guards (1 – 2.5 m length) installation (To cut suit to site and fit)	LUMP SUM	1							
	3.14	Furnace Bottom Sealing (Dipper Plate) and its Attachment Checking and rectification, if required.	LUMP SUM	1							
	3.15	All Horizontal & Vertical Buckstays/leveler guides/buckstay-connecting pins/plates/drain line supports - Inspection and rectification, if required	LUMP SUM	1							
	3.16	Dry Inspection & Hydrotest for IBR Statutory Requirement, necessary IBR formalities and obtaining Steaming Certificates. Unit#1: Renewal of Steaming Certificate Unit#2: Extension of Steaming Certificate [without hydrotest & without stopping the Boiler]	Unit / Boiler	2							
	3.17	DP Test/Radiography/Preheating /PWHT of 100% HP/IBR Joints etc. as applicable. DP Test of 1st and 2nd stage Attemperator's Nozzles etc.	LUMP SUM	1							
	3.18	Physical checking and DP Tests of root/stub joints of all Sampling Lines, PG Test Points, Pressure Tapings, Instrument Tapings, Valve Socket Joints, etc. in Boiler Area incl. Penthouse & Drum Enclosure and Critical Piping upto Turbine inlet. Welding and necessary rectification, if required.	Points / Joints	1000							
4	HEAD	Coal/Air Nozzles & Tips repair/replacement, SADC & wind box Inspection/Repair (In- situ)									
	4.01	Coal Burner panels-Inspection in running condition to assess quantum of leakage from all corner burner panels. Thorough inspection of burner panel internal structure for cracks, DP Test and repair (after removal of all coal nozzles and tips). HEL EIC to give clearance for coal nozzle/tip fitment.	Corner	4							
	4.02	Coal Nozzles & Nozzle Tips Replacement	Nos	8							
		Coal Nozzles Removal & Repairing (After Repair, Re-installation of same Nozzles and fit with New Tips) Common Note: Billing will be on actual execution basis only.	Nos	16							

	4.03	Inspection of Coal Nozzle lock pin/pivot and burner tilting mechanism freeness checking & rectification, as required. Removal of Tilting mechanism lever from Corner-3 for new lever making. Corner-3 A elevation nozzle tip is inoperative. To be restored. Gland packings renewal of connecting rod from tilting mechanism to coal nozzles	LUMP SUM	1							
	4.04	Flame scanner removal/repair/new re-installation, for which IBR Welding/Grinding support required. Removal of all Oil gun assemblies, repair of damaged hoses, re-fitment at location. IBR welding/grinding support required.	LUMP SUM	1							
	4.05	Coal Nozzles, Secondary Air, CCOFA & SOFA nozzles thorough inspection and in-situ rectification/repairing by welding/hard facing as per condition assessment. Plasma Cutting of 8 nos. of Diverter Plates of SOFA Nozzles Tips from inside Furnace.	LUMP SUM	1							
	4.06	Repairing/Replacement of Coal Bends (Near Coal Nozzle):-									
	4.06.1	1. Repairing of bends will be done by fixing ceramic tiles/putties at the location, where tiles are missing/uprooted. All loose tiles lying inside coal bends shall be removed from inside.	Nos.	12							
	4.06.2	2. Erection and Replacement of Coal Pipe Bend, if required.	Nos.	4							
	4.07	Attending all Windbox leakages, identification of source of leakages from Expansion Bellow & its sealing points with Water Walls and rectification of all leakage points.	LUMP SUM	1							
	4.08	Truss buckstay inside windbox, its welding lugs & connection, windbox inside hanger support - Inspection & rectification.	LUMP SUM	1							
	4.09	Complete SADC flaps repair, inspection & rectification i.e. SADC delinking from C&I Actuator, approach platform erection inside Windbox upto all SADC levels at all four corners, SADC dampers freeness checking and linking actuator; Joint checking with Operation Team.	LUMP SUM	1							
5	HEAD	Hangers & Support Checking, Cleaning, Inspection & Rectification									
	5.01	Internal Inspection & cleaning and rectification of all hangers and supports of all Critical Pipes, as per Drawings. Hangers inspection at Penthouse Inside & Outside, cleaning and includes SHO, HRH, CRH, Feed water pipe & Boiler riser pipes hanger & fixed support, Downcomer, SOFA Duct Constant Hanger Supports etc. Protocol to be maintained for all supports.	LUMP SUM	1							
	5.02	Checking and taking Hot and Cold Readings of all Hanger Supports of Critical Pipes and Submission of Reports.									
	5.03	SHO/RHO headers restraint support inspection, cleaning and rectification, if required. Protocol to be maintained for all supports.									
	5.04	Inspection & Cleaning of all Hanger Supports of all critical pipings and necessary rectification, if any (MS/HRH/CRH/Feed water upto Turbine inlet)									
6	HEAD	Complete Ash cleaning									
	6.01	Ash cleaning from following locations (includes removal, transportation from point of origin to designated location includes transportation vehicle, gunny bag arrangement).	LUMP SUM	1							

	6.02	Boiler Penthouse, Rear Arch Gallery Top Dead Chamber, S-Panel, Bottom Dead Chamber, SH Floor, Drum Enclosure, Boiler outside/Buckstay Area									
	6.03	Windbox									
	6.04	Hot PA, Hot Secondary ducts includes mill inlet duct									
	6.05	Flue gas duct (from Boiler to ID Fan outlet)									
	6.06	Complete Ash Cleaning inside APH									
7	HEAD	Ducts, Dampers & Gate, Coal Pipe, Metallic / Non-Metallic Bellows									
	7.01	Complete Air & Flue Gas Ducts including De-NOx ducts - Complete Visual inspection, random thickness survey as per requirement & its recording; Damaged duct plates repair/replacement of Hot and Cold PA + SA & De-Nox and Flue path as instructed by HEL's EIC.	LUMP SUM	1							
	7.02	Hot Secondary, Hot PA (Mill side) and De-Nox Ducts' Aerofoil Inspection, Cleaning & Repair	Nos.	10							
	7.03	All duct support inside Bracings repairing/rectification/shielding with angles (including Air and flue path) Note: Approx. 80 - 90 Nos Bracing Pipes	Mtrs.	350							
	7.04	Economizer to APH inlet duct diverter area inspection and repairing including scaffolding & platform erection, as already mentioned	LUMP SUM	1							
	7.05	Mill side Hot PA duct damper gland, shaft, gland bush, bearing repairing & rectification and gland addition	Sets	18							
	7.06	Mill inlet Hot Air gates- Complete dismantling of gate and cylinder, replacement of sealing packing rope and rectification of any other abnormalities. Repaired cylinders will be provided for re- installation.	Sets	6							
	7.07	APH inlet flue path dampers (double deck blades) for Pass-A & Pass-B REPLACEMENT of damaged top deck of blades only, including replacement of blade seals. Area below damper to be sealed properly to ensure uninterrupted APH hot end works.	Sets	8							
	7.08	REPAIR of remaining blades (top and bottom) of APH - A and B inlet flue path dampers by patch work and associated blade seal repair. Area below damper to be sealed properly to ensure uninterrupted APH hot end works .	Sets	15							
	7.09	All REMAINING Air & Flue gas path and De-Nox Dampers & Gates - Inspection and Rectification includes damper freeness, link repairing, lip seal repairing/replacement, shaft, gland replacement/addition, bearing freeness/greasing/repair & replacement. Actuator foundation inspection & strengthening, as per requirement. For all dampers, separate protocols to be maintained for freeness / repair / rectification.	Nos.	39							
	7.10	All Metallic Expansion Bellows between Economizer outlet flue path to APH inlet (both passes) and APH outlet to ESP inlet (both passes) - Protection Sleeve cutting for leaf inspection from inside and necessary repair	Nos.	15							

	7.11	Leakage attending, New additional protection sleeve fitting & welding on Metallic Expansion Joints from inside of De-Nox ducts	Nos.	12							
	7.12	Replacement of MILL-1E mixed air duct inlet Non-Metallic Bellow & its METAL TRAY including CORRECTION of Duct Misalignment	No.	1							
	7.13	Tentative replacement of following Non-Metallic Bellows: - a) ID Fan-1B inlet above IGV-Both legs- Qty- 2Nos. b) ESP O/L Pass A chamber-2- Qty- 1 No. c) ESP O/L Pass B chamber-1- Qty- 1 No. d) APH inlet (PA + SA) Cold End-Qty-3 Nos. OR APH outlet (PA + SA) Hot End- Qty- 4 Nos (If found damaged)	Nos.	8							
	7.14	Air & Flue Gas Duct & Coal Pipes Supports (Hanger + Fixed support + Movable Support) Cleaning, Inspection and Rectification as required. Protocol to be maintained for the same.	LUMP SUM	1							
	7.15	PF piping-Leakage points of metallic expansion bellows and flange joints of all PF pipings from Mill Bay to Boiler - To be repaired & rectified	Nos.	15							
	7.16	De-coupling, dismantling and re-coupling of actuators of dampers, as required by E&I department	Nos.	40							
8	HEAD	Refractory & Insulation Work									
	8.01	Inspection of Refractory at Penthouse, S-panel Bottom Dead Chamber, Furnace Hopper Slope, Rear Arch Gallery, Top Dead Chamber, Screen Tube zones, Headers, Manholes, Peepholes and repairing/re-casting, as required.	Ton (Casta ble Refrac tory)	5							
	8.02	Application of plastic refractory, around all 72 nos. of Wall Soot Blowers and on Burner Panels, Wall RH entry zone, S-panels and other Manhole area as per HEL's EIC.	Ton (Plasti c Refrac tory)	2							
	8.03	Refractory application on all Loose Headers inside Back-Pass, if required.	Ton (Casta ble	3							
	8.04	Refractory at SH Floor and Duct Side Wall - Checking/Rectification.	Ton (Casta ble	2							
	8.05	Removal and Application of Ceramic Insulation between Inner and Outer Doors of Burner Panels	Lump Sum	1							
10	HEAD	Valves Servicing & Maintenance									
	10.01	Valve Gland Packing Renewal/Addition (in Nos. of Valves of different sizes from 1" to 4"). Old gland packings to be removed completely. For removal of old gland packing of valve sizes upto 2", handwheel, stem along with bonnet are to be opened for complete gland renewal.	LUMP SUM	120							
	10.02	Assistance with Manpower & T&Ps for servicing of Safety Valves. [T&Ps include chain blocks, hammering spanner, ring and "d" spanner, socket spanner with extension rod of length 850 mm (single or joint both acceptable). Spanner sizes upto 55 mm (41 mm included). Single "D" spanner of size 85	LUMP SUM	7							

		mm. Grinding, welding and rigging assistance required.									
	10.03	Servicing, Lapping, Bearing maintenance of Boiler & TG side valves of different sizes, including Seal Replacement of HRH Isolator Valve	LUMP SUM	60							
	10.04	Support to EMD for dismantling and installation of Actuators (Motorised/Pneumatic) of Valves	LUMP SUM	1							
11	HEAD	ESP									
	11.01	DOOR OPENING AND CLEANING	LUMP SUM	1							
	11.02	Receive PTW after proper isolation with safety permit									
	11.03	Open all door (DERM insulator chamber, CERM floor and Inlet duct door with communication with duct side job owner.									
	11.04	Fixing life line for each row and each elevation with ensure safety person.									
	11.05	Opening expansion bellow/adaptor piece above ash vessel.									
	11.06	Cleaning each field with air jetting after ensuring require amount of air flow by ID fan and balance draught.									
	11.07	Ensure adequate (low voltage-24Volt DC) illumination inside ESP.									
	11.08	Ensure the cleanliness quality by supervisor/team leader.									
	11.09	Opening fluidising pad and hopper door after ensuring hopper emptiness.									
	11.1	INSPECTION AND NECESSARY RECTIFICATION OR REPLACEMENT FOR CERM.									
	11.11	Inspection and necessary rectification of all CERM shaft and bearing.									
	11.12	Inspection and necessary rectification of rapping hammer assembly.									
	11.13	Inspection and necessary rectification of Shock bar, Anvil and if required, then replace.									
	11.14	Inspection and necessary rectification of collecting plate condition throughout the length.									
	11.15	Inspection and necessary replacement of CERM Gear Box along with its coupling.									
	11.16	Field trip chain to be checked and missing chains to be fitted back.									
	11.17	INSPECTION AND NECESSARY RECTIFICATION OR REPLACEMENT FOR DERM.									
	11.18	Inspection and necessary rectification of all DERM shaft and bearing.									
	11.19	Inspection and necessary rectification of hammer impact point support plate. Metal Buildup on hammer impact zone.									
	11.2	Inspection and necessary rectification of small wheel, big wheel, thrust block, thrust pad, Hammer, vertical shaft all 5 nos. bush, dust guard etc.									
	11.21	Inspection and necessary rectification of emitting electrode. If required, then replace the emitting electrode with proper arrangement.									
	11.22	Inspection and necessary rectification of Emitting Frames									
	11.23	Inspection and necessary replacement of DERM Gear Box along with its coupling.									
	11.24	INSPECTION AND NECESSARY RECTIFICATION OR REPLACEMENT FOR GDPRM including outlet GD plate									

	11.25	Inspection and necessary rectification of all GDPRM shaft and bearing.								
	11.26	Inspection and necessary rectification of hammer, horizontal bush etc.								
	11.27	Inspection and necessary rectification of hammer impact point support plate								
	11.28	Inspection and necessary rectification of inlet and outlet GD plate and it's bracing pipe. Plate thickness gauging to be done. Inlet GD screen supporting box channel condition to be checked, if required, then rectification to be done.								
	11.29	Inspection and necessary replacement of GDPRM Gear Box along with its coupling.								
	11.3	INSPECTION AND NECESSARY RECTIFICATION OR REPLACEMENT FOR Insulator (shaft and support) chamber.								
	11.31	Replacement of defective shaft bearing (above shaft insulator) Approx. 15 nos.								
	11.32	Inspection and necessary replacement of damaged shaft insulator and support insulator								
	11.33	Inspection and necessary rectification of shaft insulator chamber and it's door frame.								
	11.34	Inspection and necessary rectification of support insulator chamber top cover bolts.								
	11.35	Inspection and necessary replacement of shaft insulator chamber door fixing eye bolt								
	11.36	INSPECTION AND NECESSARY RECTIFICATION OF HOPPER AND ITS ACCESSORIES								
	11.37	Hopper inside accumulated ash to be cleaned and all welding joint thorough checking to be done.								
	11.38	Hopper O/L defective KGV, bellow to be replaced.								
	11.39	ESP Hopper vent line leakages to be attended, line de-choking to be done. If required, then vent line Y-pieces and spool pieces to be replaced.								
	11.4	Fluidising pad frame welding to be checked, if required then welding to be done. Check all hopper fluidizing pad condition and fabric healthiness. Replace if torn or hardened.								
	11.41	Hopper spoiler plate checking and necessary rectification to be done								
	11.42	Hopper bracing pipes checking and necessary rectification to be done.								
	11.43	INSPECTION AND NECESSARY RECTIFICATION OF AMMONIA DOSING SYSTEM AND STRUCTURE SUPPORT								
	11.44	Inspection and necessary rectification of only guard angles of ammonia dosing pipes								
	11.45	TRIAL RUN OF RAPPING DRIVE.								
	11.46	Ensure there are no loose material inside ESP. Life line is properly fitted and not touching with rotary part.								
	11.47	Ensure that there will be no manpower inside ESP from top to bottom. No manpower should be there outside hopper area.								
	11.48	Ensure that all replaced material is properly tightened.								
	11.49	Give clearance for trial and take trial. Fitter with proper manpower should be present at all three elevations inside ESP with HEL officer during trial to check any defect is there or not. Write down the defect for rectification purpose.								
	11.5	After completion of trial, take again isolation PTW to attend those defects.								

	11.51	FINAL BOLT TIGHTENING AND TAG WELDING								
	11.52	After attending defects (arising during trial) final bolts tightening and tack welding to be done.								
	11.53	BOX UP AND MEGGER TEST								
	11.54	Remove the life line. Check inside and ensure that there is no scrap/loose material inside ESP.								
	11.55	Ensure no manpower inside ESP.								
	11.56	Close all the Door of ESP (from top to bottom) with good conditioned rope and Holdtite in presence of your safety personnel as well as HEL safety personnel.								
	11.57	Give clearance for Megger test								
	11.58	Housekeeping								
	11.59	If Megger value is ok, then final housekeeping to be done and all scraps to be shifted at designated Scrap Yard and to be returned Good Condition materials to HEL Store with proper count.								
	11.6	A Report of exact quantities of each & every spare material, consumed during AOH, to be submitted.								
	11.61	Approx. 1200 nos. of identified Emitting Coil replacement in 1st field, 4 chambers of both Passes	Nos.	1200						
	11.62	Inspection and necessary rectification of collecting plate support frames and cleat welding at required positions. (Balance 50%)	Lump Sum	1						
	Sub Total:									
	GST @18%:									
	Total All Inclusive of Taxes:									

PART B: FANS

Sl. No.	Description	UOM	QTY	Unit Rate (FY27)	Unit Rate (FY 28)	Unit Rate (FY 29)	Amount (FY 27)	Amount (FY 28)	Amount (FY 29)	Total Amount (FY27+ FY28+FY 29)
1.1	PARTIAL OVERHAUL OF FD FANS 1Aand 1B (2 NOS.)									
1.1.1	Cleaning and repairing of silencer hood & mesh; cleaning and air lancing of suction & discharge duct of the fan, suction guide vanes. Scaffolding making, as required, to be done by the Contractor.	Nos.	2							
1.1.2	Replacement and handling of Motors, Coupling dismantling and refitting. Fan-Motor alignment.									
1.1.3	Replacement of Fan Driving End Oil Seals and Sleeves.									
1.1.4	Servomotor leakage oil measurement and replacement of Control & Lube Oil Hoses.									

1.1.5	Disconnection of blade pitch control regulating drive link, removal of rotary oil seal and hydraulic hoses, before pulling out diffuser.									
1.1.6	Removal of diffuser and inspection of blades, hub internals, regulating arms/levers, gliding blocks, guide pins etc.									
1.1.7	Proper Marking of blades, Outer & Inner Cone etc. W.R.T to Impeller, before dismantling.									
1.1.8	Check clearance between blade tip and casing for reference value before and after servicing, as per manual.									
1.1.9	Removal, Cleaning, Inspection of Fan Blades and DP Test of Fan blades, recording of blade defects with blade nos. Weighment of all Blades. Weigh Machine in contractor's scope up to 3 decimals.									
1.1.10	Checking floats of blade shafts for reference values, both before and after servicing of blade bearing assembly.									
1.1.11	Blade Bearings Dismantling and Assembly, Inspection, greasing and renewal, (if required)									
1.1.12	Replacement of HAD (Hydraulic Adjustment Device/Servomotor) including run out correction within 0.01/0.02 mm.									
1.1.13	Servicing of Blade Pitch Control links, levers, Check freeness of Sliding block with Thrust Disc, Lubrication of Sliding Blocks.									
1.1.14	Servicing of Blade Pitch regulating drive assembly, including bearing replacement.									
1.1.15	Calibration of Blade Pitch Actuator & Servomotor both from Local and DCS.									
1.1.16	Fan final box-up and assistance for re-commissioning & trial of fan.									
1.1.17	Assistance in Balancing (drilling and fixing up of balancing blocks), if required. If balancing required, diffuser to be again pulled out									

1.1.18	Cleaning & servicing of lube oil system components like lube oil tanks both from inside and outside (Tank Top Cover removal reqd.), filters, gauge glasses, Lube Oil replacement by connecting flushers, replacement of Filters, Valves etc. IBR FITTER, WELDER									
1.1.19	Cleaning, Flushing & Hydro test of Cooler									
1.1.20	Servicing of Lube Oil Pumps & Seals, Renewal of couplings, spiders, if required									
1.1.21	Removal of Lube oil pump-motors & handing over to EMD and Installation of the same after receipt of overhauled motor.									
1.2	PARTIAL OVERHAUL OF PA FANS 1A AND 1B (2 NOS.)	Nos.	2							
1.2.1	Replacement and handling of Motor, Coupling dismantling and refitting. Fan-Motor alignment and correction. One Motor is to be renewed; Motor Journal bearings inspections (Top & Side Clearance measurement, visual check, DP Test and UT); Bearing and labyrinth seals renewal, if required.									
1.2.2	NDT Agency for UT of Journal Bearings to be arranged by the Contractor. Cleaning of Silencer hood mesh, Thorough Cleaning of Silencer Splitters, Suction & Discharge duct of the fan. Scaffolding making, as required, to be done by the Contractor.									
1.2.3	Lifting and Shifting of PA Fan-1B Rotor assembly to TG Maintenance Bay, by Hydra, for overhauling.									
1.2.4	Removal of top casing after pre-dismantling checks; Check clearance between blade tip and casing for reference values.									

1.2.5	General cleaning of fan casing & cleaning/greasing/oiling of all components, repair of damaged parts, if required.									
1.2.6	Proper Marking of blades, Outer & Inner Cone, Covers etc. W.R.T to Impeller, before dismantling.									
1.2.7	Removal, Cleaning, Inspection of Fan Blades and DP Test of Fan blades, recording of blade defects with blade nos. Weighment of all Blades. Weigh Machine in contractor's scope up to 3 decimals.									
1.2.8	Overhauling of Impeller Hub Assembly (one fan, 1B) includes servicing & cleaning of blade bearing assembly, renewal of bearing balls, bearings, seal kits, Sliding Blocks, grease renewal, freeness checking and lubrication of Sliding blocks with Thrust discs.									
1.2.9	Dismantling/Assembly of Servomotor; Run-out correction within 0.01 mm/0.02 mm.									
1.2.10	Servicing of Blade Pitch Control actuating shaft bearings, coupling bush etc. & Actuator replacement.									
1.2.11	Servomotor leakage oil measurement and replacement of Control & Lube Oil Hoses.									
1.2.12	Calibration of Blade Pitch actuator & Servomotor both from Local and DCS.									
1.2.13	Fan final box-up and assistance for re-commissioning & trial of fan.									
1.2.14	Assistance in balancing (welding of balancing blocks), if required (for balancing, top casing to be opened and closed for multiple times)									
1.2.15	Cleaning & servicing of lube oil system components like lube oil tanks both from inside and outside (Tank Top Cover removal reqd.), filters, gauge glasses, Lube Oil replacement by connecting flushers, replacement of Filters, Valves etc. IBR FITTER, WELDER, GRINDER MAY BE REQUIRED FOR ANY WELDING JOB IN LUBE OIL PIPELINES.									
1.2.16	Cleaning, Flushing & Hydro test of Cooler									

1.2.17	Servicing of Lube Oil Pumps & Seals, Renewal of couplings, spiders, if required									
1.2.18	Removal of Lube oil pump-motors & handing over to EMD and Installation of the same after receipt of overhauled motor.									
1.3	PARTIAL OVERHAULING OF SEAL AIR FAN 1A AND 1B (2 NOS.)									
1.3.1	Inspection of Impellers and inside ash cleaning									
1.3.2	Inspection of DE & NDE bearings, cleaning and clearance checking									
1.3.3	Decoupling and Replacement of Coupling Bush									
1.3.4	Flushing and replacement of bearing oil									
1.3.5	Motor Handling, if required.	Nos.	2							
1.3.6	Alignment checking of Fan & Motor. Correction if required.									
1.3.7	Arresting of Air leakages from impeller shaft and casing by dismantling and replacing air seals (both DE & NDE);									
1.3.8	Servicing/ Cleaning/ Replacement of Suction Filter, Valve, Damper & Bellow									
1.3.9	Servicing/ Cleaning/ Replacement of Discharge - Bellow & Swing Flap									
1.4	CHECKING OF SCANNER AIR FAN AC AND DC (2 NOS.)									
1.4.1	Assist EMD in replacement of Motor bearing; Pulling out impeller and re-assembly.									
1.4.2	Assistance in balancing of impeller, if required.									
1.4.3	Filter cleaning/replacement; Casing Gasket renewal.	Nos.	2							
1.4.4	Base strengthening, if required, due to high vibration.									
1.4.5	Inspection/repairing of discharge V-flap.									
1.4.6	Repair/Replacement of bellow, suction strainer.									
1.5	OVERHAULING OF ID FAN 1A AND 1B (2 NOS.) [RADIAL FANS]	Nos.	2							

1.5.1	Erection of scaffolding and making safe approach to 3 manholes per fan [2 manholes for suction chamber and 1 manhole for discharge chamber]. Removal & restoration of insulation, if required.									
1.5.2	Motor lowering to ground and re-erection; Coupling removal and re-assembly to enable EMD for bearing replacement.									
1.5.3	Opening of Manholes and making safe approach inside suction and discharge chambers.									
1.5.4	Ash Cleaning and removal from Suction & Discharge chamber for proper inspection									
1.5.5	Cleaning, Inspection and thickness gauging of impeller/vanes.									
1.5.6	Cleaning, Inspection and tightness checking of Suction Cone bolts from both suction and discharge sides, by making scaffolding.									
1.5.7	ID Fan-1A: DE & NDE bearings sump cleaning, bearing visual inspection, clearance checking, seal rings checking, felt seals, "O" rings renewal; ZERO OIL LEAKAGE MUST BE ENSURED FROM BRG. HSG. LABYRING SEAL AFTER BOX-UP									
1.5.8	General cleaning of Fan and Voith components & cleaning/greasing/oiling of all components, repair of damaged parts, if required.									
1.5.9	Inspection /cleaning of Voith Coupling Tank by VOITH Top Cover removal, Filter elements; All leakage arresting by "O" ring replacement / Gasket replacement; Oil replacement through Flushers and assistance in connection & disconnection of flushers.									
1.5.10	ID Fan-1B: DE & NDE bearings replacement along with various enabling activities associated with it. ZERO OIL LEAKAGE & ZERO AIR INGRESS MUST BE ENSURED FROM BRG. HSG. LABYRING SEAL AFTER BOX-UP									
1.5.11	Final Box-up; Alignment of Motor to Voith and Voith to Fan									

1.5.12	Cleaning & servicing of lube oil system components like lube oil tanks both from inside and outside (Tank Top Cover removal reqd.), filters, gauge glasses, Lube Oil replacement through flushers, replacement of Filters, Valves etc. IBR FITTER, WELDER, GRINDER MAY BE REQUIRED FOR ANY WELDING JOB IN LUBE OIL PIPELINES.									
1.5.13	Cleaning, Flushing & Hydro test of both Lube Oil and Working Oil Coolers									
1.5.14	Servicing of Lube Oil Pumps & Seals, Renewal of couplings, spiders, if required									
1.5.15	Removal of Lube oil pump-motors & handing over to EMD and Installation of the same after receipt of overhauled motor.									
Sub Total:										
GST @18%:										
Total All-inclusive Price:										

PART C: APH

Item Description	UOM	Qty	Unit Rate (FY27)	Unit Rate (FY28)	Unit Rate (FY29)	Amount (FY 27)	Amount (FY 28)	Amount (FY 29)	Total Amount (FY27+ FY28+FY 29)
Overhauling of Rotary APH 1A and 1B	LUMPSUM	1							
GST @18%:									
Total All-inclusive Price:									

PART D: ADDITIONAL/OPTIONAL JOB

Sl. No.	Description	UOM	Qty	Unit Rate (FY27)	Unit Rate (FY 28)	Unit Rate (FY 29)	Amount (FY 27)	Amount (FY 28)	Amount (FY 29)	Total Amount (FY27+ FY28+FY 29)
1	Bend Fabrication by Hydraulic Bending Machine	No.	1							
2	All Preparatory Jobs for BLU and Trevi Safety Setting by NICCO for all Safety Valves incl. Deaerator Safety Valves, after Synchro with Coal	No.	1							
3	LTSH Coil Lifting for necessary maintenance, alignment & normalization, if required	Each	1							

4	Dismantling of Drum internals (Scrubbers & Cyclone Separators), inspection and re-assembly	Each	1							
5	Extra HP/IBR joints beyond 200 joints, mentioned above.	No.	1							
6	APH Cold End Basket Removal, if required	Each	1							
Sub Total:										
GST @18%:										
Total All-inclusive Price:										

PART E: BA & FA System

Item Description	UOM	Qty	Unit Rate (FY27)	Unit Rate (FY28)	Unit Rate (FY29)	Amount (FY 27)	Amount (FY 28)	Amount (FY 29)	Total Amount (FY27+ FY28+FY 29)
Overhauling of BA and FA System	LUMPSUM	1							
GST @18%:									
Total All-inclusive Price:									

2. OVERHAULING OF MAIN TURBINE & GENERATOR SET

S. No.	Item Description	Qty	Unit	Unit Rate (FY27)	Unit Rate (FY 28)	Unit Rate (FY 29)	Amount (FY 27)	Amount (FY 28)	Amount (FY 29)	Total Amount (FY27+ FY28+FY 29)
1	Overhauling of Main Turbine & Generator Set	1	AU							
	(Please Attach Detailed Price Break-up)									
GST @18%:										
Total All-inclusive Price:										

3. OVERHAULING OF TG AUXILIARIES

S. No.	Item Description	Qty	Unit	Unit Rate (FY27)	Unit Rate (FY 28)	Unit Rate (FY 29)	Amount (FY 27)	Amount (FY 28)	Amount (FY 29)	Total Amount (FY27+ FY28+FY 29)
1	Overhauling of TG Auxiliaries	1	AU							
	(Please Attach Detailed Price Break-up)									
	GST @18%:									
	Total All-inclusive Price:									

TOTAL:

S. No.	Item Description	Qty.	Unit	All Inclusive Value for 3 years (Rs.)
1	Overhauling of Boiler & Its Auxiliaries (PART A + PARTB+ PART C + PART D + PART E)	1	LUMPSUM	
	(Please Attach Detailed Price Break-up)			
2	Overhauling of Main Turbine & Generator Set	1	LUMPSUM	
	(Please Attach Detailed Price Break-up)			
3	Overhauling of TG Auxiliaries	1	LUMPSUM	
	(Please Attach Detailed Price Break-up)			
	Grand Total			

Note: Without detailed Price Breakup, Bid will not be considered.

ANNEXURE III TO TENDER NO. PUR:52802 DATED 29.07.2026

GENERAL CONDITIONS OF CONTRACT (GCC)

A) DELAYS BY EMPLOYER OR HIS AUTHORISED REPRESENTATIVE

In case Contractor's performance is delayed due to any act of delay of work on the part of the Employer or his authorized representative, then Contractor shall be given appropriate extension of time for completion of the works, to the extent such delay of work has caused delay in their performance. Regarding reasonableness or otherwise of the extension of time, the decision of Engineer in Charge shall be final.

If such delays by the Employer have resulted in any increase in the cost to Contractor, they shall be eligible to claim reasonable costs as Mobilization and Demobilization costs supported by full price break up and details of such increased costs incurred by Contractor with all documentary evidence. The Employer shall examine the justification for such a request for claim and if satisfied in all respects, the extent of compensation shall be mutually agreed depending upon the circumstances at the time of such occurrence.

B) MEDICAL FACILITIES

You shall provide necessary first-aid facilities for all your employees, representatives and workmen working at the Site. Enough number of your personnel shall be trained in administering first aid.

C) RESPONSIBILITIES:

You shall be responsible inter-alia for the following:

- You are entirely responsible for satisfactory execution of the work under this contract. Any preliminary approval which the HEL has given in respect of the work or workmanship involved in the contract shall not bind HEL and shall not be considered relieving you of your responsibilities for satisfactory execution of the work.
- You shall employ skilled workmen, experienced supervisors and necessary tools & tackles, in sufficient numbers to maintain the progress of the work as per schedule and to step up any activity as and when required and directed by the HEL's Engineer.
- You shall observe and comply with all statutory regulations of Central/State Government or regulations of any other authorities applicable in the locality in respect of labour/tools & tackles engaged by him for the purpose of execution of the contractual obligation under this Contract.
- You shall indemnify HEL against any payments to be made under and for observance of any of the statutory regulations. HEL shall have the power to recover from you any sum

required or estimated to be required for making good the loss suffered by a worker or workers by reasons of non-fulfilment of the rules and regulations for the benefit of workers or non-payment of wages or of deductions made from his / her or their wages which are not justified.

- You shall arrange all labour, all required handling equipment, plant/machinery, tools & tackles and other instrument and set out the works true to the drawings and Quality Manual of the HEL and shall be responsible for accuracy of the same.
- You shall not, at any time, do any work at site which may cause inconvenience to HEL or hamper the activities of HEL. You shall always take sufficient precautions to avoid any damage to these existing installation/structures.
- You shall at all times exercise abundant precautions for the safety of your men/women and public and comply with all applicable provisions of the safety laws drawn up by HEL, state or Central Government and other authorities of India. You shall at all times indemnify the HEL against all claims and disputes arising out of death or injury to his men / women or public or any employee of HEL and / or any damage to HEL's machinery or surrounding Assets in course of execution of contract work.
- Labour license, insurance, P.F. Registration & payment, ESI, third party insurance etc. shall be your responsibility till the entire work is completed and taken over by us.
- You shall post a permanent technical representative at site that will be authorized to take all instructions on your behalf. Immediately on receipt of the Purchase order/Contract, you shall nominate his representative in writing for the purpose of executing the Contract.
- The entire job shall be carried out as per the approved drawings / instruction of HEL's Engineer/ Quality Manual.
- You shall provide requisite security guards to avoid damage to or loss of any materials supplied by us at site.
- Housekeeping at site should be maintain properly and housekeeping audit to be performed by your Supervisor and Audit report to be submitted to concerned Site In charge every after 15 days. All floors, staircase to be left in clean condition after end of each day's work. The cost of final site clearance is included in the above rates. All rubbish / garbage to be removed out of site before submission of final bill.
- Supervision & Monitoring: Full time competent supervisor must be provided during the progress of work.

D) SUB CONTRACTS:

After the award of the Contract, Contractor shall not subcontract the Works / any part of the works without the prior written consent of the Engineer-in- Charge. Any such consent shall not relieve Contractor from any liability or obligation under the contract and he shall be responsible for the acts, defaults and neglects of any Sub Contractor, his agents, servants or workmen as fully as if they were the acts, defaults or neglects of the contractor. In the event Contractor proposes a sub-contractor for any part of the works after the award of the contract, he shall be required to take approval from the Engineer in Charge. Contractor shall then submit requisite credential of such agencies he proposes to engage. The details so submitted shall be reviewed by the Employer. In case the agency (ies) proposed by the Contractor for the purpose of subcontracting are not considered acceptable, the contractor will be required to furnish credentials of alternate agency (ies) for approval of Engineer in Charge. Based on the final review and assessment, the agency (ies) shall be approved by the Engineer in Charge within 15 days of furnishing of credentials by Contractor.

E) OBLIGATIONS OF THE BIDDER:

- a) Bidders ought to be well acquainted and aware of the local conditions and factors through strict surveillance/monitoring, which may have any effect on rendering of services.
- b) Bidder shall have contingency backup of manpower and equipment as per exigencies.
- c) Besides conditions as mentioned above, Bidder shall undertake to appoint a nodal person for monitoring activities related to quality, safety, and time adherence of jobs. He would work as the co-coordinating person with HEL.
- d) Bidder shall maintain proper documentation as required in the job scope and further advised by HEL.
- e) They shall comply with all applicable labour Laws/ model standing orders and other statutory provisions as applicable and fully observe all safety Rules and Regulations. It shall be their responsibility to ensure all related safety measures.
- f) Bidder shall strictly adhere to all applicable environmental norms and avoid any violation of the same.
- g) Bidder shall be directed to disburse prevailing Minimum Wages, as in force and revised from time to time, in accordance with the Minimum Wages Act to all the guarding personnel.
- h) Bidder shall ensure actual payment given to the personnel on or before 10th every month and shall produce evidence of payment of wages, PF, ESI etc. Income tax and other taxes, if any will

be deducted from the bill as per applicable tax. The disbursement should be done in the presence of OCM and/ or uses C IR department of HEL, if so desired. After making the payment the BIDDER will submit Payment Register as a proof thereof.

- i) Comprehensive & appropriate insurance policies must be arranged by Bidder in respect of all risks involved in execution of this Work Order, covering liabilities related to third party as well as Bidder's own staff and Bidder shall keep HEL indemnified against all eventualities in the matter. Bidder will cover their employees under ESIC/ Medclaim/WC and for third party liabilities Bidder will take maximum one-month service charges liability; it would be decided after joint inquiry.
- j) Bidder is required to submit a copy of the valid Labour License, as per Contract Labour (R C A) Act, 1970.
- k) Bidder shall bear all incidental expenses.
- l) The Bidder shall be responsible for providing the requisite man-hours as detailed above on round-the- clock basis on all days or as specified. If the persons falling sick avail leave or remains absent appropriate replacement should be made immediately. If at any time additional man-hours are required, the same will be provided by the bidder for which payment will be made on pro-rate basis.
- m) The Bidder shall be responsible for providing the requisite man-hours as detailed above on round the clock basis on all days or as specified. If the person falling sick avail leave or remains absent appropriate replacement should be made immediately.

F) INDEMNIFICATION

Bidder shall indemnify, defend, and hold harmless HEL and all of their directors, officers, employees, agents and representatives, from and against any claim, demand, cause of action, liability, loss or expense arising:

- i. By reason of Bidder's and / or its Sub-vendor's (or their directors, employees etc.) failure to comply with any law, ordinance, regulation, rule, or order, or with the Contract. This includes, but is not limited to, fines or penalties by government authorities and claims arising from bidder's / Sub-vendor's failure to pay taxes, wages and alike.
- ii. HEL shall be entitled to retain from payments otherwise due to bidder such amounts as shall reasonably be considered necessary to satisfy any claims, suits or liens for damages that fall within bidder 's indemnity obligations under this Clause, until such claims suits or liens have been settled and satisfactory evidence to that effect has been substantiated to HEL.

G) RISK PURCHASE:

In case of default or failure by the Bidder to carry out any supplies, work, replace and/or rectify any defective item of work despite follow up by HEL, HEL may employ and pay other persons or agencies to carry out the so referred supplies / works and all actual additional costs (over and above the agreed Contract issued to the first Bidder) which HEL will incur / will have to incur in order to get the supply or job executed plus 20% of the additional costs for referred supplies / works towards HEL's administrative charges and expenses thereof, consequent thereon and incidental thereto shall be to the account of the Bidder and such costs and expenses etc. shall be recovered from the Bidder's Performance Bank Guarantee/pending payments etc.

H) GRAFTS AND COMMISSION:

Any graft, commission, gift or advantage given, promised or offered by or on behalf of bidder's or its partner, agent, officers, director, employee or servant or any one on his or their behalf in relation to obtaining or to the execution of this or any other Contract with HEL, shall, in addition to any criminal liability which it may incur, subject to the cancellation of this and all other Contracts and also to payment of any loss or damage to HEL resulting from any such cancellation. HEL shall then be entitled to deduct the amounts so payable from any money otherwise due to bidder under the Contract.

I) NO PARTNERSHIP OR AGENCY:

Nothing in the Contract shall be deemed to constitute a joint venture or partnership between the Parties and the Parties acknowledge and agree that a principal-to-principal relationship exists between the Parties.

J) FORCE MAJEURE

In the event of occurrence of any or all of the following events (Force Majeure events), if the affected party is prevented from performing any or all of its obligations arising out of this work order, no adverse step shall be taken against the affected party by the other party, during subsistence of the event of Force Majeure: act of God namely fire, flood, epidemics, quarantine restrictions, war, hostility of public enemy, civil commotion, sabotage, explosions, strikes or severe labour unrest, earthquake and other events beyond the reasonable control of affected party.

The affected party shall forthwith, but in no case later than 24 hrs from the time of occurrence of any of the event of Force Majeure inform the other party indicating the obligations that may be prevented to be performed for such event of Force Majeure and shall continue to serve notice in every 3 days during subsistence of such event of Force Majeure. The affected party shall forthwith inform the other party the cessation of the event of Force Majeure and resume performing such obligations which were so long prevented due to event of Force Majeure. The affected party shall take all reasonable

steps to prevent and/or early cessation of the event of Force Majeure. The affected party shall, however, perform all other obligations which are not affected by the event of Force Majeure. If the event of Force Majeure continues for a period of 15 days, the parties may be at liberty to re-negotiate this work order.

K) TERMINATION OF CONTRACT:

HEL reserves the right to terminate the contract immediately if the Contractor fails to meet agreed timelines, deliverables, or quality standards, or is found to be in breach of any contractual obligations. No compensation shall be payable beyond the value of work completed and accepted.

L) DISPUTE RESOLUTION AND ARBITRATION:

The Contract shall be governed by and construed in accordance with the laws of India. In the event of any dispute or difference between the Parties arising out of the Contract including the interpretation of the terms thereof, the Parties shall attempt to resolve the dispute in good faith through senior level negotiations. In case any such dispute or difference is not amicably resolved within forty-five days of such referral, it shall be referred for arbitration to an arbitral tribunal comprising of a sole Arbitrator in accordance with the provisions of the Arbitration and Conciliation Act 1996 or any statutory amendment, modification or re-enactment thereof as may be in force at the material point of time of reference of the disputes. The sole Arbitrator shall adopt a fast-track procedure mandated under the provisions of the Act. The Arbitrator shall give a reasoned award which shall be binding upon the Parties. The place of arbitration shall be Kolkata, West Bengal and the language of the arbitration shall be English.

During settlement of disputes and pendency of the arbitration proceedings, both Parties shall be obliged to carry out their respective obligations under the Contract.

M) CONDUCT OF BIDDER'S STAFF

If any of the employees of the Bidder, in opinion of HEL Officials, is guilty of any misconduct or incompetence or negligence, then if so directed by HEL, the Bidder shall at once remove such employees and replace him by a qualified and competent substitute. The Bidder shall submit/intimate all records of the field staff to the nearest police station and acknowledgement thereof to HEL, to avoid any mis-happenings. The Id-card will be issued only after furnishing a list of persons duly acknowledged by the police station.

N) COST OF REPAIRS

Loss or damage to the any equipment/material/structure/property of HEL during the work due to negligence on the Bidder's part or its persons during the contract period is to be on Bidder's account.

0) ELECTRICITY RULES AND REGISTRATION

All works shall be carried out in accordance with the latest provision of the Indian Electricity Act/Electricity Supply Act and Indian Electricity Rules made thereunder applicable in the State of West Bengal.

P) STATUTORY OBLIGATION

- a. You shall not employ for the purpose of the Work, any person below the age of 18 years. HEL shall have the right to decide whether any person employed by you is below the age limit, and to refuse to allow any person, whom he considers to be under-aged to be employed by you.
- b. The Bidder shall pay wages to his personnel, which shall comply those prescribed under the Payment of Wages Act 1936 and Minimum Wages Act, 1948, The Payment of Bonus Act 1965 etc. and subsequent amendments.
- c. The Bidder shall pay wages to his personnel without any deductions of any kind except those specified by the Central Government or as permissible under the Payment of Wages Act, 1936.
- d. The Bidder shall comply with all relevant provisions of Employees' Provident Funds and Miscellaneous Provisions Act, 1952, the Employees' State Insurance Act, 1948 (in ESI Implemented area), The Employees Compensation act 1923 (in non-ESI implemented area), Contract Labour (RCA) Act 1970, or any other applicable Act and the regulations made thereunder.
- e. The Bidder shall also be responsible for and shall pay full compensation to his personnel, payable against injury/accident on duty under the Workmen's Compensation Act, 1923 and amendments thereto without waiting for claim amount. Under no circumstances, HEL shall be liable for any payment on such account to the Bidder's personnel. The Bidder shall keep HEL indemnified against the same and from all proceedings in respect thereof.
- f. The Bidder is required to get separate code under the provision of EPF and ESI Acts, if not already taken and deposit the employer's contribution along with employee subscription, as per rule and submit copy of challans at the time of claiming payment, failing which an amount equivalent to employer's contribution and employee's subscription shall be deducted from each of Bidder's bill and deposited with the concerned authorities. The Bidder shall be solely responsible for any consequences arising out of breach of any legislation.

- g. In every case in which by virtue the provisions of Section 12 (1) of the Workmen Compensation Act, 1923, HEL becomes obliged to pay compensation to a personnel engaged by the Bidder, HEL shall recover from the Bidder the amount of compensation so paid, and without prejudice to the rights of HEL under Section 12 (2) of the said Act, HEL shall be at liberty to recover such amount or any part thereof by deducting the same from any sum due from HEL to the Bidder whether under the concerned Contract or otherwise or as a debt payable by the Bidder.
- h. The Bidder shall comply with and must ensure that all its personnel shall comply with all applicable laws and ordinances and all orders, rules and regulations issued by the State of West Bengal from time to time. In the event of non-compliance, the Bidder shall take prompt corrective measures and shall keep HEL indemnified against any loss that may arise against HEL in this regard.
- i. For Generating Stations and elsewhere, declared as 'Prohibited Place' under the Official Secrets Act, 1923 strict security measures must be followed in accordance with our Security Instruction No.SR:226 dated 12.11.68, including its latest amendments, charges for which are deemed included in your quoted rates and our accepted amount.
- j. The Bidder shall ensure full compliance of above ('a' to 'i') and HEL shall not be responsible for any violation of the above by the Bidder.

Q) PAYMENT OF MINIMUM WAGES:

Wages paid to the workmen by you should not be less than the rates notified by Commissioner of Labour, West Bengal published in the West Bengal Gazette from time to time OR guidelines / circulars issued by IEPL - NAGPUR, Maharashtra with regard to the minimum wages applicable to the respective category of workmen, whichever is more. Wages to the workmen should be paid on or before the 7th of the subsequent month. If 7th of any month falls on a holiday or weekly off day the payment should be made one day prior to that. Labour payment has to be made strictly as per the date mentioned above, irrespective of receipt of monthly progressive payment from HEL. Payment of Provident Fund (PF) for the month, both HEL and Employee's (in this case workmen employed by you) contributions should be deposited in the bank in the permanent PF code numbers and challan obtained before the 15th of the subsequent month and forwarded to the "Engineer".

If it is found that the wages and/or PF of the workers are not paid regularly, the Contract is liable to be terminated and/or the HEL will pay and recover from you the said dues including penalty as per Law in the following manner:

- a) Payment of wages at rates less than those notified under the minimum wages notification An amount equivalent to the differential amount between wages to be paid under the minimum

wages' notification of the Government applicable for the period less actual wages paid shall be recovered from the bills as certified by the Engineer.

b) Non-payment of wages

An amount equivalent to wages payable by you applicable for the relevant period shall be recovered from the bills as certified by the Engineer.

c) Non-payment of PF

Recovery of the PF amount and an amount equivalent to maximum penalty livable by Regional Provident Fund Commissioner for the delayed period under the provisions of EPF & MP Act and Rules for delayed remittance of PF contributions (both the Employee's and HEL's contributions), shall be recovered from your bills as certified by the Engineer.

d) Delayed payment of PF

An amount equivalent to maximum penalty leviable by Regional Provident Fund Commissioner for the delayed period under the provisions of EPF & WB Act and Rules for delayed remittance of PF contributions (both the Employee's and HEL's contributions), shall be recovered from your bills as certified by the Engineer.

The aforesaid amount shall be recoverable from the bills by us from any money due or which may become due under the Contract or any other Contract between you and HEL or HEL's Subsidiary units/Companies.

R) **STATUTORY DOCUMENTS**

1. **ESI related documents** (ESI coverage is to be done for employees having monthly gross wages **up to 21000/-**) – please refer guideline as enclosed.

- a. In case of newly covered employees under ESI Scheme
 - i) Copy of Temporary Insurance Card duly signed by ESI Local Office Manager
 - ii) Two copies of Post card size family photograph
- b. In case of ESI covered employees
 - i) Photocopy of Return of Contribution (Form V) – last submitted
 - ii) Photocopy of ESI Challan for the previous month

2. In case of **Non- ESI Covered employees (gross wages more than Rs. 21000 /-)**

- i) Photocopy of WC (Workmen Compensation) Policy papers along with premium receipts
- ii) Photocopy Mediclaim Policy papers along with accident coverage documents

3. PF related documents – please refer guideline as enclosed

- i) In case of New Gate Pass: Documents related to Employer's PF Code No. to be submitted.
- ii) In case of renewal of Gate Pass: Photo copy of monthly Challan of PF to be submitted.

S) **REPORTING OF ACCIDENTS:**

You shall be responsible for the safety of all employees and/or workmen employed or engaged by him on and in connection with the work and shall report to HEL and other local authorities concerned all cases of accidents howsoever caused and where ever occurring on the works. You shall make adequate arrangements for rendering immediately all possible aid to the victims of the accidents and any compensation required to be paid to any of your employees and / or workmen employed shall be responsibility of you only.

T) WORKMAN'S COMPENSATION:

You shall at all times indemnify HEL against all claims for compensation under the provision of the Workmen's Compensation Act, 1923 or any other Law for the time being in force, while carrying out the Contract and against all costs and expenses incurred by HEL in connection there with. Without prejudice to other means of recovery, the HEL shall be entitled to deduct from any money due or to become due under the Contract or any other Contract between you and HEL or HEL's Subsidiary units/Companies, all moneys paid or payable by HEL by way of compensation aforesaid or for costs or expenses in connection with any claim thereto. You shall abide by the decision of HEL as to the sum payable by you under the provision of this clause.

U) DEFAULT AT YOUR PART FOR NON-COMPLIANCE:

You shall give all notices and pay all fees required to be given or paid under any Central or State statute, Ordinance or other Law or any regulation or bye-Law of any local or other duly constituted authority in relation to the execution of the Work or of any temporary work and by the rules and regulations of all public bodies whose property or rights are affected or may be affected in any way by the Work or any temporary work. The Contract shall be governed by the law for the time being in force in the Republic of India.

You shall conform in all respects with the provisions of any Statute, Ordinance or Laws as aforesaid and the rules, regulations or bye-Laws of any local or other duly constituted authority which may be applicable to the Work or to any temporary work and with such rules and regulations of public bodies as aforesaid and shall keep HEL indemnified against all penalties and liabilities of every kind for breach of any such Statute, Ordinance, Law, rule, regulation or bye-Law.

In case of default on the part of you in carrying out the order/orders the HEL shall be entitled to employ and pay other persons to carry out the same and all expenses consequent there on or incidental thereto shall be borne by you and shall be recoverable from him by the HEL or may be deducted by the HEL from any moneys due or which may become due under the Contract or any other Contract between you and HEL or HEL's Subsidiary units/Companies.

You shall ensure that the provisions of relevant Statutory Rules and Regulations are implemented by him / her, his / her employees and sub-contractor employed by you.

V) EXTENSION OF TIME FOR COMPLETION:

If you desire an extension of the time for completion of the work on the ground of unavoidably hindered in the work execution or on any other grounds for reasons purely attributable to HEL, you shall apply for time extension, in writing, to HEL within 7-days of the date of the hindrance on account of which you desire such extension, giving detail and full particulars supporting your claim. HEL, at their sole discretion, may or may not allow such additional time as they consider fit and justified by the circumstances of the case.

However, you shall have no other claim whatsoever against HEL such as revision of rates, price escalation, cost overrun or idle labour charges for the extended period of Contract and because of delay/disruption of Work in such cases.

HEL shall not be liable towards any additional taxes, duties, etc. whatsoever arising out of such time extension.

Such time extension, if granted, shall be without prejudice to all the obligations of you under the Contract and further shall be without prejudice to HEL of their rights as per the relevant provisions in the Contract.

W) UNFAVOURABLE WORKING CONDITIONS:

You shall confine all his field operations to those works which can be performed without subjecting the materials to adverse effects, during inclement weather conditions, like monsoon, storms etc. and during other unfavourable construction conditions. No field activities shall be performed by you under condition, which might adversely affect the quality of work, unless special precaution of measures are taken by him in a proper and satisfactory manner in the performance of such works with the concurrence of HEL. Such unfavourable construction conditions will in no way relieve you of his responsibility to perform the works as per the schedule.

X) REPRESENTATIONS AND WARRANTIES:

- a. The Bidder shall represent and warrant HEL that it possesses all licenses, permits, clearances, approvals registrations to operate and maintain the system as per scope.
- b. The Bidder shall represent and warrant HEL that is has complied with all the eligibility criteria and conditions and further undertakes to comply and fulfil the resource requirements from time to time.
- c. The Bidder shall further undertake and assure HEL that it shall utilize its complete skills, capacity and expertise towards successful job execution adhering to safety norms and environmental measures, to the complete satisfaction of HEL.

ANNEXURE IV TO TENDER NO. PUR:52802 DATED 29.07.2026

SPECIAL CONDITIONS OF CONTRACT (SCC)

A) PRICE BASIS

Bidders are required to quote their rates strictly in accordance with Annexure VI – Price Schedule, providing separate prices corresponding to each of the three years of the contract period.

The rates quoted shall remain **firm and fixed for the entire duration of the job/Work Order**. Billing shall be made based on the actual quantity of work executed and duly certified by the Engineer-in-Charge/ Authorized representative of HEL.

GST shall be payable extra at actuals as applicable. Any statutory variation in GST, clearly indicated in the Price Schedule, shall be considered upon submission of appropriate documentary evidence. However, any increase in GST liability arising due to delays attributable to the Contractor shall be borne solely by the Contractor.

The quantities indicated in the Price Schedule, if any, are indicative only and are intended solely for bid evaluation purposes. Actual quantities and scope of work may vary depending upon operational requirements, and HEL does not guarantee any minimum quantity or value of work under this Tender.

The quantities of works indicated in the Price Schedule are purely tentative and are provided only for the purpose of bid evaluation and rate comparison. These quantities do not constitute a commitment by HEL and shall not be construed as guaranteed quantities.

The actual quantity and scope of work to be executed may vary significantly depending upon operational requirements, plant conditions, and other factors as determined by HEL.

The Contractor shall have no claim whatsoever against HEL on account of any increase, decrease, or non-utilization of the indicative quantities specified in the Price Schedule. Payment shall be made only for the actual work executed and certified by the Engineer-in-Charge/Authorized Representative of HEL.

B) PAYMENT TERMS:

Subject to any deduction that the Purchaser may have the right to make under the terms of the Purchase Order, Contractor shall be entitled to receive payment, as follows:

- 15% of the contract value shall be paid as an advance against submission of an Advance Bank Guarantee (ABG) of equivalent value, valid till the completion of the job, issued by a nationalized/scheduled bank in the format prescribed by the Purchaser/Owner.
- 80% of the contract value shall be paid within 45 days from the date of submission of the invoice, duly certified, following completion of the job(s), subject to submission of all requisite documents as specified in the Tender/Contract.

- The remaining 5% of the contract value shall be released against submission of a Performance Bank Guarantee (PBG) of equivalent value, valid till the end of the Defect Liability Period, issued by a nationalized/scheduled bank in the format prescribed by the Purchaser/Owner.

C) PERFORMANCE BANK GUARANTEE

- 1) Bidder shall furnish in the form of an unconditional and irrevocable Performance Bank Guarantee (PBG) along with final bills covering 5 % of the Total Contract value valid till end of the defect liability period plus 3 Months claim period.
- 2) The Bank Guarantee shall be established through any schedule bank acceptable to HEL and the same is to be made available for all the purposes at the bank's branch in Kolkata.
- 3) We shall be entitled to realize from the aforesaid PBG any sum due from you in part or in full by invoking such PBG towards recovery of any loss or damage been suffered by HEL due to reasons attributable to you. In case of such part or full encashment of PBG, you shall replenish the same to its original amount in no case latter than 30 (thirty) days from date of such encashment failing which the same will be construed as breach of the terms of this work order.
- 4) The Performance Bank Guarantee shall be released and returned to Fusion after the expiry of the Defect Liability Period and after full settlement/reconciliation by HEL of all recovery amounts (if any) due from Fusion. Fusion shall be liable to pay to HEL such recoverable amounts or the same shall be deducted by HEL from Fusion's bill(s) before release and return of the Performance Bank Guarantee to Fusion.
- 5) In case the Contractor is not able to provide Performance Guarantee, Security Deposit equivalent to the amount of the Performance Guarantee will be kept & deposited to Company. There will be no interest claim on the same. In case of termination of the Contract, the Security deposit will be refunded back to the Contractor within 30 days after settlement of account. In case of PBG, the PBG document will be released within 30 days after settlement of account.
- 6) The format of Performance Bank Guarantee shall be provided by the HEL.

D) FORFEITURE OF PERFORMANCE GUARANTEE

Whenever any claim against the Contractor for the payment of a sum of money arises out of or under the Contract, Owner shall be entitled to recover such sum by in part or whole from the PBG / Security Deposit. In the event of the PBG / Security deposit being insufficient or if no other security has been taken from the Contractor, then the balance or the total sum recoverable as the case may be, shall be

deducted from any sum then due or which at any time thereafter may become due to the Contractor. The Contractor shall pay to Owner on demand any balance remaining due.

In the event of any material breach by the Contractor or any loss or damage suffered by Owner which in the opinion of Owner that the loss or damage has arisen due to reasons attributable to Contractor or in the event of the termination of the Contract for any such breach, the security deposit / PBG is liable to be forfeited. The decision of forfeiture by Owner shall be final and binding on the Contractor.

E) DEFECT LIABILITY PERIOD (DLP)

The job completed shall be guaranteed for a period of 12 months from the date of completion of the work. You will be liable against all defects or damages that are attributable to you due to bad workmanship /defective material. You shall rectify all such defects at free of cost on emergency basis. In case you fail to respond within a reasonable time, the job will be done from any other agency at your risk and cost.

In case of any boiler tube failure, at the zone where rectification job has been carried out by you during the overhauling, within 12 months from unit start-up (after overhauling), shall be rectified by you at free of cost.

F) LIQUIDATED DAMAGES

- a) In the event of completion of work in all respects is delayed beyond the completion time as mutually agreed & indicated in the Purchase Order, for reasons attributable to Contractor, Late Completion Penalty @ 1 % (One percent) of the basic price of the PO per day shall be deducted from the payable amount. However, the total Penalty thus deducted shall not exceed 10% (Ten percent) of the total order value (Excluding taxes & duties).
- b) HEL management may impose penalty clause for violation of safety norms depending on the level of non-compliance, as reported by HEL safety surveillance team or station engineers or supervisors, as per the guidelines mentioned in the "Safety Consequence Management Policy".
- c) The following documents shall form the principal basis for consideration of extension of time for completion pursuant with or without Liquidated Damages and determining the compensation amount based on the following points:
 - i. The joint recordings in the periodic meeting register.
 - ii. Written notices issued by HEL and / or the Engineer in Charge or his authorised representative to Contractor in the relevant period.
 - iii. Written requests/ notice by Contractor to HEL/ Engineer in Charge in the relevant period.

G) TIME OF COMPLETION:

Boiler Overhauling - 18 Days (BLU clearance by 16th Day)

TG Overhauling - 12 Days

TG Aux - 40 Days – Pre-outage Job 20 Days + 15 Days + Post Outage 5 Days

Note: Pre & Post -outage Duration 50% of resources

The job will be carried out in Unit # 1 tentatively in 3rd week of November 2026.

The exact date of commencement of job will be notified 7 Days in Advance within which you shall be required to mobilize entire resources and commence the job.

H) **PROGRESS JOB:**

You shall submit Bar chart with time schedules for all activities to our Engineers as soon as you receive the order. During execution you shall submit daily progress status report to HEL for the entire activity in agreed format.

I) **INSURANCE:**

Contractor shall procure and maintain the following insurance in full force and effect at all times from the date of the Work Order until all work under the contract is complete:

- a) Workmen Compensation Insurance: As required by applicable laws, including employer's liability insurance for all employees of Contractor engaged in the works at Site.
- b) Automobile Liability: To provide coverage against claims by third parties in respect of bodily injury (including death) and property damage arising out of or in connection with the use of all owned, leased, non-owned and hired vehicles used for performance of the job herein.
- c) Contractor's Plant & Machinery Insurance: Where appropriate, Contractor shall insure against loss or damage to all Contractor's tools & tackles, erection, testing and commissioning equipment (whether at site, in transit to the site, or in storage awaiting shipment to site).
- d) All Statutory insurances and any other insurances that may be required for execution of the contract.
- e) Should there be any delay in execution of the contract, extension of the insurance policy shall be arranged by Contractor at his own cost till execution is complete.

f) **Evidence of Insurance:**

Contractor shall furnish to HEL with such evidence of the terms of each policy of insurance required and its continued maintenance, in the form of insurance certificates reasonable satisfactory to HEL. All such insurance certificates shall include, but not be limited to the type of

insurance, the limits of insurance, the policy terms, the name(s) of the insurance company (or companies), the policy numbers and a list of the applicable endorsements as required.

J) **LOCAL ISSUES:**

Bidder should maintain good rapport with the local people during the work, so that the job can be completed smoothly. All the incidental expenses on account of any local issues are to be borne by the Bidder.

K) **GATE PASS & SAFETY REQUIREMENT:**

Bidder shall follow the standard safety guidelines provided by HEL.

It is to be distinctly understood that Bidder shall have to strictly follow such guidelines during execution of their work as per Section IV enclosed.

L) **STOPPAGE OF WORK:**

If at any time the Owner decides to abandon or reduce the scope of work for **any** reason whatsoever the payment shall be made according to the reduced scope of work and the Bidder shall not be eligible for any claim regarding payment of compensation.

ANNEXURE - V TO TENDER NO. PUR:52802 DATED 29.07.2026

Schedule of Deviations

Bidders are advised to refrain from taking any deviations on this TENDER. Still in case of any deviations, all such deviations from this tender document shall be set out by the Bidders, Clause by Clause in this schedule and submit the same as a part of the Technical Bid.

Unless specifically mentioned in this schedule, the tender shall be deemed to confirm the specifications:

SI No	Clause No.	Tender Clause Details	Details of deviation with justifications

By signing this document, we hereby withdraw all the deviations whatsoever taken anywhere in this bid document and comply to all the terms and conditions, technical specifications, scope of work etc. as mentioned in the standard document except those as mentioned above.

Seal of the Bidder:

Name:

Signature:

ANNEXURE VI TO TENDER NO. PUR:52802 DATED 29.07.2026

Gate Pass & Safety Requirements

Safety Guidelines General:

- a) The Contractor shall abide by all safety, health and environment rules of HEL and obtain safety training from HEL's Safety Officer before starting the work.
- b) The Contractor shall ensure the medical fitness of your supervisors and workmen before start of work.
- c) The Contractor must ensure the statutory health checkup of all employees as per the directives of the Directorate of Factories.
- d) The Contractor must strictly follow the Safety and Environmental policy of HEL.
- e) The safety plan of the work shall be submitted before start of the work to the Engineer-in-charge.
- f) The Contractor must ensure that their adequate nos. of safety personnels are available round the clock.
- g) All the tools & tackles (specially Welding, Grinding machines, Cutting sets and load bearing tools & plants) shall be inspected by M/s. HEL's Safety Dept prior to certification for usage in jobs.
- h) The Contractor needs to provide adequate facilities and PPEs **(from HEL's approved / certified Vendors only) specific to job condition and requirement.**
- i) Penalty will be imposed in case of any deviation / non-conformance by the Contractor.
- j) The following safety items are minimum and mandatory requirement (not exhaustive):

	GENERAL REQUIREMENTS	
1.	Organization Safety Manual	
2.	Hazard Identification and Risk Assessment Procedure	
3.	Job Safety Analysis	
4.	Work Procedure	
5.	Emergency Evacuation Plan.	
6.	MSDS of Chemicals	
7.	Test Certificate of all lifting tools and tackles and equipment	
8.	Two Safety Supervisors for 24 hours safety supervision.	
9.	Operators to operate Dehumidifier for 24 hours.	
	ITEMS	SPECIFICATIONS
1.	SAFETY PPE Safety Helmet, Safety Shoes, Gum Boots, Hand Gloves, Sufficient Nose Musk, Ear Plug, Face Shield,	As per IS code and EN Certification
2.	Copper Grit Blasting suit for blasting purpose.	As per IS code and EN Certification

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3.	SAFETY EQUIPMENT Safety Belt	Full Body harness safety belt with double lanyard conforming national standards. Load Carrying capacity 2000 Kgs. Make: Karam or any certified vendor.
4.	Retractable Fall Arrestor as per the requirement.	Retractable wire rope fall arrestor block, plastic casing, with galvanised steel cable of 20 m length with PN 162 attachment at one end. Make: Karam or any certified vendor.
5.	Steel wire lifelines of 8 mm or 10mm dia for all height work in Boiler and ESP Polyamide Lifeline rope to be used inside CW Pipeline.	Certified vendor. Load Capacity 150 to 180 kgs.
6.	Rescue Rope: Kermentile Polyamide rope of dia 12 mm and 50 m length with one side loop and other side end stop knot.	Make: Karam or any certified vendor.
7.	Safety Net as per the requirement.	Mesh size: 25 mm, Mesh rope 2 mm Double Cord, Load carrying capacity: 2200 kg
8	Non asbestos high silica Fire Blanket	Tested Fire Blankets (IS 11871 Gr A&B for flame resistivity from third part NABL approved lab, with 750 SS non asbestos closely interwoven 96% silica welding blanket to withstand welding spark, cutting spatter etc. four sides stitched with fiber glass tape having brass eyelets at a distance of 1 metre and can operate at Temperature resistance: 1100 deg C (continuous), 1400 deg C short term, 1800deg C- Melting Point Yarn chemically treated (no surface treatment/no vermiculation) Nature: 1005 free from itching. Colour: Golden Weight: 1200gm/sq.m
9	ELCB for welding rectifiers and electrical distribution boards	Rating: 30 mA
10	Flash back Arrestors	As per IS standards. The NRV to be checked at site.
11	Guards of grinding machines	As per IS standards
12	LED Hand Torch	As per IS standards
13	Low voltage (24V) LED Hand Lamps	Power 12 W, Input Voltage 24V/140 - 270 AC 90(Dia)X230(H) Make: Pyrotech Electronics PVT ltd or any standard vendor

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14	LED halogens	As per Standard specifications Power Consumption: 80- 120 watt Input voltage: 140-270V AC,110/220V DC Dimension(mm): 280(L)X253(W)X70(H) LED Colour: CW/WW/NW
15	Industrial electrical distribution boards with RCCB and with proper sockets	As per Standard specifications
16	Step down transformer for LED lamps	As per specification
17	Suitable Exhaust Fan on two ends of pipeline.	As per IS standards
18	Dehumidifier System with accessories	Standard Vendor with relevant documents.
19	Two numbers Self-Contained Breathing Apparatus Set for Emergency Rescue.	Standard Vendor.
20	Arrangement for Additional Air Line Hose of 500 meters Length to supply air.	
21	Cup lock scaffold system with Scaffolding pipes, clamps, ledgers or transoms etc.	As per standards.
22	Mild steel scaffolding board/gratings with hooks as Working platform. Length 2.5 m or standard sizes. Load carrying capacity 3KN (300 Kg/square metre.)	 As per standards.
23	Dustbins or metallic drums for keeping loose materials	
24	Standard metallic Top cover of all gas cylinders during hot work	
25	Temporary S hook for hanging cables	
26	GI wire in sufficient amount to tie working platforms and gas cylinders.	
27	Sufficient scaffolding pipes for handrails at height.	
28	Aluminum Ladders as per requirement.	

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29	Sufficient rags/cotton/jute for wiping out Paint.	
30.	Barricading Tape Sufficient Rolls.	
31.	Blue Coloured Flags 7 numbers for identification of Confined Spaces.	
32.	Multi Gas detector to check oxygen level and obnoxious gases at 1 hour interval. To be done by Client safety.	

I) Procedure for application of Gate Pass:

Requisite Enclosures:

- a. Two copies of recent passport size photograph of each employee /workman whose name appeared on that application duly signed by the employee himself at the back of the photo.
- b. One photocopy of Voters ID Card/Ration Card/Passport or any other ID acceptable by the government for the purpose has to be produced for further proceedings.
- c. Medical Test Certificates as mentioned above declaring fit for the work.
- d. ESI & PF Related documents as mentioned above.

Application procedure:

- a. Application duly filled in (along with the relevant documents) and addressed to Security Officer, shall be forwarded by the concerned Departmental Manager or any other manager (in absence of the concerned Manager) for onward transmission to Personnel Officer.
- b. If found OK, the Personnel Officer give clearance for necessary safety training (for new gate passes or training provided more than 6 months before).
- c. After endorsement of Safety training by Safety Officer / PTC, Personnel Officer on compliance shall give clearance to Security Officer for gate pass.
- d. Security Officer arranges for issuance / renewal of Gate Pass after ensuring the above steps.

II) Work Permit:

You shall follow the permit to work system established by us to do assigned job. Refer Permit to Work Standard for respective permit system.

a) Permit to work (PTW) for any kind of work:

- i. Contractor to take PTW for any kind of work from the concerned department before commencement of work along with the following permit appropriate for the job.
- ii. For working at Height above 2.0 m – Double layer steel scaffoldings with tied platform Scaffolding made of following materials & dimensions. A typical sketch can be obtained from the concerned engineer.

Material:

- Healthy Steel tubes (50 mm OD x 2.5mm thk) – IS Grade for horizontal, vertical, bracing support, guard rails & access
- Healthy clamps & holders
- Base Plate - Min size 230 X 400 mm and proper resting on concrete / solid ground

SAFETY NET – Compulsory at places, to ensure that the free fall of persons working at height should not be more than 2 meters from the working platform level. Decision of Safety Officer is FINAL & binding.

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- iii. **HOT PERMIT** – If any job involves generation of open / visible flame –All precautions against fire hazards (like keeping fire extinguishers of all kind, water source, sand, wet gunny bags etc.) to be taken during execution of work.
- iv. **PERMIT TO WORK AT CONFINED SPACE** - If any job involves persons working in enclosed space / vessel.

All **PERMITs** shall be issued by Department and forwarded to Safety Officer, for his concurrence/approval before commencement of work.

Unless mentioned otherwise all the PERMIT shall be issued in daily basis.

Requirement of different PERMIT, as spelt out by the Departmental Manager shall have to be strictly adhered to after approval from Safety Officer. Necessary assistance may be sought from Safety Officer.

After erection of a specific scaffolding and subsequent approval by Safety Officer, any change in scaffolding structure– MUST BE BROUGHT UNDER NOTICE to safety officer by the competent supervisor deployed for the job.

III) Tool Box Talk:

In addition to above safety requirement all the workers including the supervisors have to undergo a tool box talk (about 10 minutes) before commencement of work in each day wearing specific PPE suitable for the job.

IV) Personal Protective Equipment (PPE):

You shall ensure that all your staff and workmen have been issued appropriate PPE and they use the same at job sites. All these PPE shall conform to IS/CE/EN specification or other applicable international standards.

Sl. No.	Work Areas	PPE Required
1	All areas other than office areas/ 'no PPE zone'	Safety Shoes, Safety Helmet, General purpose Hand Gloves (Common PPEs).
2	Un-guarded elevated areas	Double lanyard full body safety harness, Fall Arrestor, Lifeline and any other job/ area specific PPE.
3	Confined space	High Visibility Fluorescent Jacket and any other job/ area specific PPE.
4	Public place/ road side	High Visibility Fluorescent Jacket and any other job/ area specific PPE.
5	Fabrication Yard	Material Handling Hand Gloves, Protective Eye wear and any other job/ area specific PPE.
6	Working on live lines	Protective Eyewear, FR Apron, FR Hand Gloves, Arm Guard (where applicable) and any other job/ area specific PPE.
7	Outdoor Switch/ Transformers Yard	Protective Eye wear, High Visibility Fluorescent Jacket and any other job/ area specific PPE.
8	Indoor Switch Room	Protective Eye wear and any other job/ area specific PPE.
9	Battery Room	Chemical Hand Gloves, Apron, Protective Eye wear, Nose Mask and any other job/ area specific PPE.
10	Pilot/ Cable Spreader Room	Protective Eye wear, High Visibility Fluorescent Jacket, Nose Mask, (where required) and any other job/ area specific PPE.

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11	Cable Basement	Protective Eye wear, High Visibility Fluorescent Jacket, Nose Mask, Respirator & lifeline (if required) and any other job/ area specific PPE.
12	Power Generation Plant Area - TG Room, Boiler House, Compressor House, ESP areas, etc.	Protective Eye wear, Ear plugs/ muffs (as applicable) and any other job/area specific PPE.
13	Power Generation Plant Area - Coal Handling areas including Wagon Tippler, Track Hopper, Crusher House, etc.	Shin-Guard, Nose Mask, Protective Eye wear, High Visibility Fluorescent Jacket and any other job/ area specific PPE.

You shall ensure that the above PPEs of approved standards are available at all times and shall be used by your employees with no exception whatsoever.

V) Safety Consequence Management Policy:

To improve safety in the workplace and to promote safe work practices, as per terms of the Safety Consequence Management Policy of the Company, while good performance in the workplace with regard to safety related behavior shall be rewarded, in the event of violations, unsafe behavior or deviations from the specified safety standards, rules, guidelines and relevant Regulations & Acts in force, are observed in activities performed by you or your sub-contractor and their employees, penal measures shall be imposed on you and concerned employees, which may be financial or suspension or both, as detailed hereunder, as per provisions of said policy in force:

<u>Penal Measures for Contractors for Safety violations</u>		
	Contractor	
Incident	Owner	Supervisor & Workmen
Fatal	Rs. 2,00,000/- will be deducted for every incident.	Suspension of the concerned group for 30 days
LWDC (Lost Work Day Case)	Rs. 20,000/- will be deducted for every incident.	Suspension of the concerned group for 7 days
Violation of Safe Work Practices (for every site audit score < set cut off marks of 75%)	Rs. 5,000/- will be deducted for each audit	NA
Non-availability of required quality PPEs and safety gadgets during Gear / PPE Audit (for every audit score < set cut off marks of 90%)	Rs. 5,000/- will be deducted for each audit	NA

The provisions of said policy in force may be ascertained from the respective dealing Officer of the Company. The assessment of the instances which may qualify for such reward or penalization shall be conducted by the empowered Officers of the Company, as laid down in the policy, and their decision shall be final and binding on you or their concerned employee, as applicable.

VI) Training:

You shall not deploy any person at work place/ site without safety Induction Training. The safety card issued by the Company must be with the workmen all the time and same shall be produced on demand at any time.

The Safety Induction Course will require approximately at least one hour. The information provided during the orientation will include, but is not limited to such topics as:

- Job rules, personal safety and conduct;

- Hazard reporting;
- Reporting of injuries/ pre-existing conditions;
- Emergency procedures;
- Working with Chemicals;
- Safety Activities and Programme including disciplinary measure and incentives;
- JHA/ SOP/ SMP/ SWP;
- Job specific; and Safety standards.
- Behavioral base.
- Skill development.

VII) Safety Orientation Programme

You will submit the names of new employees to receive the orientation programme, at least two working days in advance prior to commencement of work. The Company will then schedule the orientation programme and advise You of the time and venue for the orientation programme.

You shall provide for and ensure that all employees must use appropriate Personal Protective Equipment (PPE) such as safety shoes, safety helmets, hand gloves, safety harness, safety goggles and all other safety appliances while working at site. You must be fully aware of the conditions of the work site and surroundings, such as presence of dust and gas, frequent movement of overhead equipment, rail & road traffic, simultaneous activities carried out by various agencies in a congested area etc. and shall plan and execute his work accordingly in a safe manner.

You shall also obtain a proper work permit/ clearance/ prior permission from the Operating Department before starting the work in a running plant/ pipe lines/ gas lines/ air lines/ water lines/ hazardous areas and for working on shut down days etc. You shall keep concerned authorities of the Company informed well in advance if the work is to be carried out on Sundays/ National Holidays/ Shut down days or at night. Safety Supervisor must talk and explain about job hazards daily before starting the work and shall adopt safety measures accordingly. You shall provide for and ensure the availability of relevant safety appliances as required for the work.

You shall carry out regular safety inspection at the work site to ensure that all safety measures are being properly maintained/ followed and maintain a record of observations made and corrective actions taken. You shall also carry out load test on his erection equipment, tools, tackles, lifting devices etc. and maintain a record of test results. You shall get all his equipment, tools and tackles examined by the competent authority as required by the Inspector of Factories. You shall produce required certificates for their fitness as and when asked by representatives of the Inspector of Factories.

You shall nominate a competent and authorized person, in writing to the Company, who shall

- Be fully responsible for safety of the employees; and
- Ensure safety practices during the execution of the Contract. This person shall be a designated person coordinating, administering and managing the safety effort on behalf of You. He shall be the focal point of liaison between the Company and you for all matters related to Safety at work sites. You shall also engage required number of supervisors and workers adequately trained to execute the work safely.

A proper register/ document containing names and designation of workers shall be maintained by you for safety trained workmen.