



M.P. POWER GENERATING COMPANY LIMITED
OFFICE OF THE ADDITIONAL CHIEF ENGINEER (P&W)
SHREE SINGAJI THERMAL POWER PROJECT, MPPGCL,
Dongalia, Distt. Khandwa (MP)
An ISO 9001:2015, ISO 14001:2015, ISO 45001:2018 Certified
Station

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Sub: - “Biennial Work contract for assistance in routine maintenance of TG (onsite) & associated auxiliaries of unit 3&4 at 2x660 MW, SSTPP, MPPGCL, Dongalia.”

TENDER SCHEDULE & DETAILED SCOPE OF WORK

S. No	PARTICULARS OF WORK	Quantity
1	Biennial Work contract for assistance in routine maintenance of TG (onsite) & associated auxiliaries of unit 3&4 at 2x660 MW, SSTPP, MPPGCL, Dongalia.	(One Job per month) for 24 Months

Details of the Plant and Auxiliaries List of Auxiliaries & Equipment

- a. The following is the list of major Auxiliaries and Equipment, provided for reference. The list is indicative and prepared on best effort basis. The same cannot be considered as comprehensive and final.
- b. In case, during execution of the contract O&M of any additional equipment / auxiliary etc is required to be undertaken, the same shall also be considered as part of the contract.
- c. The Bidders are requested to kindly visit the site and acquire additional information, as may be needed by them in their own interest.
- d. Technical Details of these are also provided.

Particulars		Qty
1	Turbines HIP & LPT - 1 & 2	1 No./ Unit
2	Turbine Lube oil system, tank, pumps, duplex filters, changeover valves, PHE/cooler, oil accumulator, oil purifier and associated components.	1 No./ Unit
3	EH oil Pump unit and associated filters, accumulators, valves and components and piping etc.	1 No./ Unit
4	Jacking Oil Unit, accumulator and associated components	1 No./ Unit
5	Oil Purifying System (Centrifuge / Portable Centrifuge/ Coalscer Filter), COT, DOT	9 Nos
6	Condenser HP & LP and associated internals and piping, bellows and flash tanks etc.	2 No./ Unit each
7	Condensate Extraction Pumps and associated components, Condensate Cycle valves.	3 Nos./ Unit
8	Condenser Vacuum Pumps and associated piping and valves	4 Nos./ Unit
9	HP, LP heaters and TDSH and associated components (FW Valves, Extraction Steam Valves, Drain, Vent etc.)	Shell and Tube type with 3 Zone for HP heaters & Shell and Tube type (Two Zone) for LP heaters, TDSH 01 No./Unit
10	De-aerator and its control station, its steam charging system	1 No./ Unit

11	Boiler feed pumps (motor driven& turbine driven), feed control station and valves OSU of TDBFP, Its Oil Purification System, Flash Tanks and Drip Pumps.	TDBFP (Incl. Associated System) =2 Nos. and MDBFP=1 No. Per Unit
12	N2 preservation system of turbine side	
13	Generator Seal oil system and associated components	1 No./ Unit
14	Main Oil Pump	2 Nos./ Unit
15	Emergency Oil Pump	1 No./ Unit
16	Stator water cooling system and associated components	1 No./ Unit
17	HP-LP Bypass system along with its OSU and associated components	1 No./Unit
18	Gland Steam Condenser, its exhausters fans and associated components	1 No./Unit
19	LP heater Drip Pumps and storage Tanks	Pumps= 2 Nos. /Unit and Tank 01 No/ Unit
20	DMCW Pumps, Storage Tanks, valves and associated piping and dosing system	03 Nos./Unit
21	ACW System having Pumps& Self-Cleaning Strainer at inlet, valves and piping	Pumps (02 Nos./Unit+1Stand by/Unit) and Strainer 02 Nos./ Unit
22	Condenser on line tube cleaning system (COLTCS)	01 Nos./Unit
23	Plate heat exchangers system (PHE) TGCCW/ACW	03 Nos./Unit
24	Hydrazine, Ammonia, Nitrogen, Oxygen Dosing system	1 No. each/ Unit
25	Diesel Generator Set(Only Mechanical Portion)	2 Nos. working + 1 Nos. Stand by
26	Air washer and ventilation system unit	8 Nos.
27	All Cranes including EOT cranes in TG building(TMD Onsite Area)	16 Nos.
28	Dewatering Pumps of Pit leading to ETP Pit and OWS pit (Condense, TG, CEP, TDBFP, portable)	16 Nos.
29	Turbine preservation system / dehumidifier	2 nos.
30	CPU service vessel, associated valves and piping	6 nos.
31	Potable water pumps (2 no's) and one tank	01 no. between two units
32	Condensate Storage Tank	02 Nos.
33	Hot well make-up, O/H make-up tank pump, Boiler Fill Pump	03/02/02 Nos.

Scope of Work: will include preventive, breakdown and predictive maintenance of all the auxiliaries in above table which are installed in TG Building as per details below:

1. The activities provided are the minimum activities to be discharged by the successful bidder. Any equipment/ work/ services not mentioned specifically in the scope but required for satisfactory execution of work shall be provided by the contractor without any extra cost.
 - a. The Maintenance of plant and equipment shall cover both preventive as well as breakdown maintenance.
 - b. During entire period of the contract, the Contractor shall provide regular work status/ progress on daily basis to the EIC/ OIC/ their representatives.
 - c. The exclusions to the scope of work are elaborated in separate section.
 - d. The scope of work broadly consists of providing maintenance services (including preventive, predictive maintenance, regular maintenance and break down maintenance) for Turbo-Generator and its auxiliaries, details of which are detailed in subsequent sections. Removal & application of Thermal Insulation on various equipment falling in scope of work and Condition (Vibration)

- Monitoring of Rotary Equipment for both units of 2x660 MW SSTPP-II.
- e. The following scope is a minimum and is not an exhaustive scope as the work includes entire Maintenance of the STG and its auxiliaries.
 - f. Since the work includes mechanical part of maintenance of the Steam Turbine-Generator package, it includes all mechanical works of maintenance of the system. The works listed at length hereunder are indicative of the quantum of the job. The equipment operational parameters and condition monitoring equipment indicate the required work of maintenance, which is to be taken up by the contractor on top priority. Further, the Predictive maintenance of the TG and auxiliaries are also the part of contract to be taken up on priority. Furthermore, the preventive maintenance as per the schedule of the OEM and Various works mentioned under the section are reviewed by EIC is to be carried out on all the systems, sub-systems, auxiliaries and equipment. These include regular cleaning, lubrication schedule, filter replacement hot tightening, leak repair including online steam water leakage repair etc.
 - g. All the above are to be done with the intent to keep all the auxiliaries and systems available all the time during the contract. Forced outages though not desirable will attract penalty shall be required to be attended on priority.
 - h. Operation and Maintenance manuals and other publications and standard industry practices, following and ensuring utmost safety and reliability during the work and as per requirement of MPPGCL. The Procedures laid down by the OEMs of the equipment and machineries is the basic guiding criteria for technically safe, efficient and appropriate operation of the plant. The scope of work shall include all works required to enable the operation staff to have plant which is environmentally suitable, statutorily correct and commercially viable.
 - i. The auxiliaries shall be brought to condition which can be operated properly viz. the following-
 - a. Safety
 - b. Efficiency
 - c. Low Auxiliary Power Consumption (APC)
 - d. Non-Repetition of outages
 - e. Running the units and auxiliaries within permissible parameters
 - j. For ease of reference it is to mention that the scope of work has been grouped in the following heads:
 - a. General Scope of Maintenance
 - i. Running / Routine / Preventive Maintenance.
 - ii. Breakdown Maintenance.
 - iii. Attention Issues for Maintenance Work.
 - i. General Scope of Maintenance
 - i. The maintenance contract would mainly comprise of running / routine maintenance, preventive maintenance & breakdown maintenance of Turbine & Generator and minor modification of equipment as well as maintenance of its auxiliary system.
 - ii. The Contractor is required to follow maintenance program as per schedule.
 - iii. The Contractor has to ensure the availability of stand-by equipment in good condition.
 - iv. The Contractor will have to ensure that sufficient manpower (highly skilled / skilled / semi-skilled/unskilled) is engaged round the clock including Sundays & holidays for repair, preventive & breakdown maintenance so that equipment can run effectively & smoothly.

[A] Main Turbines & Control/ Stop Valves

- 1) Top up/replace oil of the main oil tank as per requirement.
- 2) Checking alignment of all oil pumps & drain tank pumps with correction if required.
- 3) Cleaning/replacement of oil filters of turbine main valves as per requirement/ OEM recommendations.
- 4) Maintaining, repair and replacement of nitrogen accumulators and associated equipment in circuit.
- 5) Arresting any leakage (oil, steam & water) by bolt tightening, gland/ gasket replacement and welding as per requirement.
- 6) Maintaining all flow sight and gauge glasses.
- 7) Opening and dismantling the valves.
- 8) Dismantling and repair of strainers of oil/ water/ steam cycle
- 9) Removal of internals, inspection and replacement of damaged parts.
- 10) Control/ Stop Valve assembly and re-fixing including provision of actuator.
- 11) Control/ Stop Valves- Servicing of servomotors.
- 12) Removal of oil piping and opening of servomotor.

- 13) Removal of internals, cleaning, inspection and replacement of damaged parts.
- 14) Re-assembly of servomotor including oil piping.
- 15) Oil filtration using centrifuge & maintenance of the same.
- 16) Checking tightness of all hold down bolts.
- 17) Cleaning of oil tank as per designated frequency.
- 18) Servicing of oil skid valves as per requirement
- 19) Checking coupling bolt tightness as per requirement.
- 20) Adjustment of catenary through valve.
- 21) Attending to all oil leakages in the turbine lube, jacking and hydraulic oil systems.
- 22) Inspection, testing and replacement of safety diaphragms of LP turbine.
- 23) Installation and removal of turbine preservation system.
- 24) Installation and removal of covers adjacent to LPTs on TG floor.
- 25) Installation and removal of fire hydrant and inert gas piping across TG.
- 26) Cleaning and greasing of turbine valves spindle and associated system as per requirement at 17m.
- 27) Maintenance and repair of all the NRVs, Ext NRVs, turbine drains system valves, associated piping.
- 28) Maintenance and repair of all the equipment in turbine oil system.
- 29) Works not specified above but required for smooth, trouble-free and efficient operation of the TG system.

Note: The above scope does not include overhaul works. Only the rectification and fault finding activities during break down shall be performed at site.

[B] HP-LP Bypass System:

Capacity is 65% of BMCR. System has 2x50% HP & LP PRV Maintenance work shall include all the jobs related to Components of HP LP Bypass for trouble free efficient operation of HP LP Bypass system. The Scope is broadly as under-

- 1) Arresting gland leakages by tightening/replacement of glands. Arresting flange leakages
- 2) Arresting hydraulic side valve actuator leakages as per condition.
- 3) Servicing of main valves during stoppage/opportunity
- 4) Servicing of servomotors.
- 5) Servicing of spray line valves (stop, check and control valves) /nozzles as per opportunity
- 6) Servicing of Spray line valves (Stop, check, control valves)/ nozzles as per opportunity.
- 7) Arresting gland leakages by tightening/ replacement of glands.
- 8) Arresting flange leakages.
- 9) Arresting hydraulic side valve actuator leakages as per condition.
- 10) Servicing of main valves during stoppage/opportunity.
- 11) Servicing of servomotors.
- 12) Replacement of actuator/ valve bush in case of requirement.
- 13) LP BP Steam CV servicing.
- 14) LP BP Spray CV and block servicing.

Note: The above scope does not include overhaul works. Only the rectification and fault finding activities during break down shall be performed at site.

a. Hydraulic Skid Units of HP-LP Bypass

- i. Check oil level in OSU skid, if level is low top-up with the specified oil.
- ii. Check all valves/level gauges in skid and attend leakages. Check N2 Pressure in accumulator and top up N2, if required. Replacement of Accumulator bladder as and when required
- iii. Attend all leakages on the N2 gas side.
- iv. Cleaning/ replacement of breather/filters
- v. Servicing of main pump/ filter pump and hand pump. Servicing of cooler
- vi. Replacement of ruptured hose against routine defects
- vii. Oil tank to be cleaned as per requirement
- viii. Cleaning, arresting leakage & servicing of view glass & level glass.
- ix. Cleaning/replacement of filters.
- x. Checking and maintaining inlet, outlet, relief and other valves, including replacement.
- xi. Servicing of the flow pump, pressure setting etc.
- xii. Cleaning of oil skid, cleaning of radiator installed in the skid.

Note: The above scope does not include overhaul works. Only the rectification and fault finding activities during break down shall be performed at site.

b. Centrifuge / Portable Centrifuge:

- i. Cleaning of bowls to be done as and when necessary.
 - ii. Replacement of gear box oil as per requirement.
 - iii. Arresting leakage from view glass & servicing the same.
 - iv. Replacement of friction pads of centrifuge.
 - v. Replacement of brake pads of centrifuge.
 - vi. Complete servicing of Centrifuge that includes servicing of oil pump,
 - vii. Booster pump, main pump, three way valve, and replacement of worm gear, belt etc.
 - viii. Works not specified above but required to facilitate smooth, trouble free and efficient operation of the system
- Note: The above scope does not include overhaul works. Only the rectification and fault finding activities during break down shall be performed at site.

[C] Lube/ Jacking Oil System

Lube Oil System:

- i. Checking of any leakage from MOT and associated piping and equipment attending the same if possible.
- ii. Attending all leakage from valves, piping, MOPs and EOP.
- iii. Oil top up in MOT as and when required.
- iv. Removing of all waste oil drums and shifting to central stores, either empty or filled from MOT or any other area inside the Turbine house.
- v. Removal & re-fixing of gratings for assisting housekeeping personnel for cleaning of MOT area.
- vi. Cleaning of plate type heat exchangers by back-flushing/dismantling.
- vii. Servicing of Test valves/6way valves/Emergency shut-off valves/Temp. Control valves etc.
- viii. Cleaning of Duplex Strainer/ basket strainers & Control oil line filters.
- ix. Providing assistance for taking of oil sample from MOT, as and when required.
- x. Cleaning of Dirty oil tank and clean oil tank.
- xi. Servicing and cleaning of the oil transfer pumps.
- xii. Attending gland leakage/ Line/ Flange of all valves in the MOT area.
- xiii. Replacement of glands, Mechanical Seal bearings and couplings of MOT transfer and COT/DOT transfer pumps.
- xiv. Replacement of bearings, gland packing and coupling of oil vapour extraction fans and servicing of its valves/NRVs.
- xv. Maintenance and servicing of vapour extraction fans and concerned stripper.
- xvi. Cleaning of external area of tank and associated area near it, identifying and rectifying defects/leakages.
- xvii. Check all valves/level gauges in skid and attend leakages. Check N2 Pressure in accumulator and top up N2, if required.
- xviii. Replacement of Accumulator bladder as and when required.
- xix. Works not specified above but required for smooth, trouble free and efficient operation of the system.

Note: The above scope does not include overhaul works. Only the rectification and fault finding activities during break down shall be performed at site.

Jacking Oil System:

- i. Carry out external cleaning of equipment.
- ii. Check all associated impulse lines for leakages if any arrest it. Cleaning/ replacement of inline filters as per requirement.
- iii. Repairing/replacement of all valves in the skid.
- iv. Alignment checking of all pumps and correction if required.
- v. Servicing of needle valves installed upstream of bearings as per requirement.
- vi. Check all valves/level gauges in skid and attend leakages. Check N2 Pressure in accumulator and top up N2, if required.
- vii. Replacement of Accumulator bladder as and when required.
- viii. Works not specified above but required for smooth, trouble free and efficient operation of the system.

Note: The above scope does not include overhaul works. Only the rectification and fault finding activities during break down shall be performed at site.

Lube Oil Purifier:

- i. Servicing/replacement of breather as per requirement. Repairing/replacement of all valves in the skid.
- ii. Alignment checking of all pumps and correction if required. Flushing/cleaning of coolers.
- iii. Servicing of gear/screw pumps.
- iv. Replacement and cleaning of filters as and when required.
- v. Housekeeping of MOT oil purifier (coalescer purifier) skid.
- vi. Works not specified above but required for smooth, trouble free and efficient operation of the system.

Note: The above scope does not include overhaul works. Only the rectification and fault finding activities during break down shall be performed at site.

[D] EH OIL System:

- i. Check all joints till actuator blocks for leakages if any arrest it by ensuring availability of all corresponding consumables to attend the same.
- ii. Servicing/ repair/replacement of Pumps, control system.
- iii. Defect repair of EH Oil system.
- iv. Removal and replenishment of the oil as per requirement.
- v. Replacement of filters as per OEM's recommendation/opportunity/system requirement.
- vi. Cleaning/replacement of all the filters which also includes filters installed in actuator blocks as per requirement.
- vii. Maintaining Sight flow & gauge glasses and housekeeping of skid.
- viii. Check all valves/level gauges in skid and attend leakages. Check N2 Pressure in accumulator and top up N2, if required.
- ix. Replacement of Accumulator bladder as and when required.
- x. Works not specified above but required for smooth, trouble free and efficient operation of the system.

Note: The above scope does not include overhaul works. Only the rectification and fault finding activities during break down shall be performed at site.

[E] Condenser, Vacuum Pumps, Howell:

Maintenance work shall include all the jobs related to Components of Condenser, Vacuum pumps etc. have to be such that it facilitates trouble free and efficient operation apart from full availability of Units. The following works are broadly worked out-

- i. Inspection and external cleaning of equipment.
- ii. Checking of all joints leakages and arrest
- iii. Replacement of Gaskets/ pressure seals as and when required.
- iv. Ensuring tightness of all holding down bolts, Foundation bolts tightness.
- v. Repair and replacement of Pumps, its bearings, gland sealing arrangements etc.
- vi. Replacement of coupler spider in case of damage.
- vii. Maintenance of DP flushing line/ Ball separator screens/ suction/ Discharge valves of ball vessels and ball collecting strainer of CW line.
- viii. Loading, sorting and replacement of balls.
- ix. Checking the alignment of pumps with motor and its rectification in case of misalignment.
- x. Checking of vacuum pumps and ball recirculation pump oil level and its top up if required
- xi. Complete cleaning of surrounding area and floor of this skid.
- xii. Checking of pump gland leakage and its replacement and rectification.
- xiii. Inspection of Pump bearing and internals and repairs as required.
- xiv. Cleaning of strainers and make up water & seal liquid line and y stainer installed.
- xv. Cleaning of seal water coolers and PHE of vacuum pump Gear box oil level checking, roller checking for wear out, Liner plate.
- xvi. Maintenance and Cleaning of condenser both water box side and hotwell side during shutdown and rectifications as and when observed.

- xvii. Welding of damaged condenser internals by ensuring proper consumables and its NDT.
- xviii. Maintenance of ARVs of condenser waterbox, Condenser inlet and outlet valves, associated piping.
- xix. Works not specified above but required for smooth, trouble free and efficient operation of the system.

Note: The above scope does not include overhaul works. Only the rectification and fault finding activities during break down shall be performed at site.

[F] Condensate Extraction Pumps and LP heater drain pumps:

- i. Complete maintenance and related activities for ensuring availability of these pumps.
 - ii. Dismantling, inspection, assembly, alignment of pump.
 - iii. Servicing of all valves and associated piping including thermal relief valves.
 - iv. Cleaning and servicing of sight flow glasses and level glasses.
 - v. Checking of all holding down bolts, coupling bolts for tightness.
 - vi. Checking and top up of oil level thrust bearing sump and maintenance of its level gauge.
 - vii. Attending all leakages by welding/ replacement of gland/gaskets.
 - viii. Ensuring lubrication of equipment(pump) by all necessary equipment maintenance.
 - ix. Checking/ repair/ replacement of pump mechanical seal leakage and concerned piping.
 - x. Checking/ repair/ replacement of pump thrust bearing cooling line leakage and concerned piping.
 - xi. Checking of alignment of Pump with respect to Motor and its alignment in case of requirement.
 - xii. Cleaning/ replacement of suction strainers and associated valves and piping.
 - xiii. Replacement of Pump inlet line Bellow.
 - xiv. Maintenance of pump discharge piping, recirculation piping, equipped valves and associated equipment in it.
 - xv. Works not specified above but required for smooth, trouble free and efficient operation of the system.
- Note: The above scope does not include overhaul works. Only the rectification and fault finding activities during break down shall be performed at site.

[G] Hot well make up Pumps/ DMCW OH tank make up pumps, Boiler fill pumps

- i. Cleaning and servicing of sight flow glasses and level glasses.
- ii. Servicing of all valves.
- iii. Servicing of pumps in the system.
- iv. Checking of bearing oil level in the gauge glass and its top up as and when required.
- v. Checking of coupling bolts for tightness.
- vi. Coupling replacement of components as per requirement.
- vii. Checking/ repair/ replacement of pump mechanical seal/ attending glands leakage.
- viii. Checking of alignment of Pump with respect to Motor and its alignment in case of requirement.
- ix. Works not specified above but required for smooth, trouble free and efficient operation of the system.

Note: The above scope does not include overhaul works. Only the rectification and fault finding activities during break down shall be performed at site.

[H] Valve/ NRV/ hangers and supports /Expn. Joint & Actuator

- i. Attending gland leakages either by tightening or by replacing the glands.
- ii. Hot tightening of gland nuts.
- iii. Greasing of valves of all sizes as per requirement.
- iv. Attending flange / Bonnet leakages either by tightening or by replacing the gasket / seal ring.
- v. Hot tightening of flange or bonnets.
- vi. Removal / re-fixing of cladding / insulation required for completion above job.
- vii. Servicing of valves including lapping and blue matching by ensuring availability of necessary components like lapping compound etc of all grades.
- viii. Replacement of valves by welding by ensuring availability of necessary consumables and NDT of joint as per IBR norms.
- ix. Attending the problems encountered like valve mechanical jamming.
- x. Welding of handles / putting new handles to the valve.
- xi. Repair and revival of damaged valves/ parts of valves such as discs, spindles, bonnets
- xii. Servicing of level gauges of Hot well, De-aerator, HP Heaters, LP Heaters & Tubular gauge Glasses.
- xiii. Attending oil leakage from actuators / expansion joint and topping up oil.

- xiv. Greasing of valves & oil top up in actuators of all sizes as per requirement.
- xv. Adjust the setting of rubber expansion joints.
- xvi. Welding of handles / putting new handles to the valve.
- xvii. Repair and revival of damaged valves/ parts of valves such as discs, spindles, bonnets etc. including lapping and blue matching.
- xviii. Repair, greasing, replacement of gearbox of valve as and when required.
- xix. Removal of grating & fixing the same as and when required.
- xx. Arranging heat treatment agency for stress relieving as per site requirement shall be in contractor's scope.
- xxi. Works not specified above but required for smooth, trouble free and efficient operation of the system.

II]Condenser On Line Tube Cleaning System (COLTCS):

- i. Servicing of all associated valves.
- ii. Attending leakages.
- iii. Servicing of ball transfer and ball circulation pumps, maintaining oil level in it, attending leakages in it.
- iv. Alignment checking of all pumps with their drives.
- v. Repair and replacement of glands while leakages observed.
- vi. Check coupling spider for damage and replacement in case of damage.
- vii. Complete servicing of pump/ replacement of bearings.
- viii. Maintenance of DP flushing line/ Ball separator screens/ suction/ Discharge valves of ball vessels and ball collecting strainer of CW line
- ix. Servicing of ball collector vessels and flow sight glasses.
- x. Soaking of balls used for online cleaning.
- xi. Maintenance and housekeeping of associated pumps and skid.
- xii. Counting, charging of balls in the system, and record keeping of the same.
- xiii. Cleaning and maintenance of ball collecting screen as and when required and opportunity permits.
- xiv. Maintenance and repair of collecting screen operating arrangement including gear box and coupling.

II]Self cleaning strainer System (SCS):

- i. Servicing of Debris filter system during stoppage and debris extraction assembly.
- ii. Servicing of all associated valves.
- iii. Attending leakages in Debris filter system.
- iv. Alignment checking of all pumps with their drives.
- v. Repair and replacement of gland leakages
- vi. Check coupling spider for damage and replacement in case of damage.
- vii. Complete servicing of pump/ replacement of bearings.
- viii. Maintenance of DP flushing line/ Ball separator screens/ suction/ Discharge valves of ball vessels and ball collecting strainer of CW line
- ix. Servicing of ball collector vessels and flow sight glasses.
- x. Soaking of balls used for online cleaning.
- xi. Maintenance and housekeeping of associated pumps and skid.
- xii. Counting, charging of balls in the system, and record keeping of the same

II]Seal Oil System:

- i. Preventive, predictive, routine and Breakdown maintenance (Mechanical aspect only) of Seal Oil System including troubleshooting, cleaning, checking, repair.
- ii. Cleaning of seal oil Duplex filters (Air/H2/return oil) on need basis or during short shutdown.
- iii. Cleaning of PHE by back-flushing/dismantling as per requirement followed by assembly.
- iv. Attending any oil leakages in seal oil unit.
- v. Servicing of all valves of the seal oil skid including Diff. Pr. Regulator (DPR) and Pr. Equalizing valves.
- vi. Draining/cleaning of loop seal tank, de-foaming tank and drain regulating tank.
- vii. Servicing of float valves.
- x. Servicing and maintenance of vapor extractor fan.

Note: The above scope does not include overhaul works. Only the rectification and fault finding activities during break down shall be performed at site.

AC/ DC Seal Oil Pump- Air, H2 and Float Pump& Seal Oil Vapor Extractor:

- i. Check mechanical seal leakages and attend the same. Seal replacement to be done as per requirement.
- ii. Attend all oil leakages.
- iii. Check alignment of Pump with Motor and do the necessary correction if required.
- iv. Servicing of AC / DC Seal oil Pumps/Replacement of bearings of Seal oil Pumps/Extractors
- v. Servicing of all valves on the skid including DPRV, float valve etc.
- vi. De-coupling of motors of seal oil pumps/Extractors.
- vii. Maintenance and housekeeping of drain regulator, loop seal tank and associated system and equipment.

[L]Stator Coil Cooling Water System:

- i. Check mechanical seal leakages and attend the same. Seal replacement to be done as per requirement.
- ii. Check coupling bush for damage, if necessary, replace it.
- iii. Attend all oil leakages and water leakages.
- iv. Checking of alignment of Pump with Motor and do the necessary correction if required. Cleaning/replacement of the filters.
- v. Repair and replacement of all valves as per requirement.
- vi. Cleaning and replacement of inline filter/strainer.
- vii. Cleaning/repairing/replacement of constant level oiler installed in pump as per requirement. Cleaning of PHE by back-flushing/dismantling as per requirement followed by assembly.
- viii. Flushing/cleaning of the tank & demineralizer.
- ix. Repair/replacement of the valves as per requirement.
- x. Cleaning/repairing of sight flow and gauge glasses.

Note: The above scope does not include overhaul works. Only the rectification and fault finding activities during break down shall be performed at site.

[M] MDBFP, Booster Pump, Hydraulic Coupling: Maintenance work shall include all the jobs related to Components of MDBFP required for trouble free efficient operation of MDBFP.

- i. Replacement/ Top up of oil of the main tank as and when needed.
- ii. Alignment checking of all oil pumps and drain tank pumps with correction if required.
- iii. Cleaning and replacement of oil filters, magnetic filters, if needed.
- iv. Maintenance of all flow sight and gauge glasses.
- v. Removal and replacement of actuators, internals, damaged parts, if any.
- vi. Replacement of Gland, bearings
- vii. Filtration of oil using centrifuge and maintenance of the same
- viii. Cleaning of oil tank and servicing of oil skid valves as and when needed.
- ix. Arresting any leakage (Oil, Steam, Water) by bolt tightening, gland/gasket replacement and welding as per requirement
- x. Inspection/Servicing/Replacement of Booster Pump DE/NDE bearings and thrust pads, as and when required.
- xi. Attending all related mechanical seal leakages and replacing the same if required
- xii. Servicing of Lubricating Oil pump.
- xiii. Servicing/ Repair/ Replacement of Hydraulic coupling
- xiv. Servicing of Gear Box
- xv. Replacement of BFP Cartridges
- xvi. Maintenance of all flexible coupling
- xvii. Flushing/cleaning of lube oil coolers/working oil coolers.
- xviii. Top up of oil in BFP hydraulic coupling as and when required.
- xix. Cleaning of Duplex filters and replacement of Hydraulic coupling fusible plugs.
- xx. Cleaning and replacement of both suction strainers of main pump and booster pump.

Note: The above scope does not include overhaul works. Only the rectification and fault finding activities during break down shall be performed at site.

[N]TDBFP, BOOSTER AND GEARBOX: Maintenance work shall include all the jobs related to

Components of TDBFP required for trouble free efficient operation of TDBFP

- i. Replacement/ Top up of oil of the main tank as and when needed.
- ii. Alignment checking of all oil pumps and drain tank pumps with correction if required.
- iii. Cleaning and replacement of oil filters, magnetic filters, if needed.
- iv. Maintenance of all flow sight and gauge glasses.
- v. Maintenance of and servicing of breather, emergency stop valve, governing valves, servomotors
- vi. Removal and replacement of actuators, internals, damaged parts, if any.
- vii. Replacement of Gland/ Mechanical Seal, bearings
- viii. Filtration of oil using centrifuge and maintenance of the same.
- ix. Cleaning of oil tank and servicing of oil skid valves as and when needed.
- x. Servicing of BFPT exhaust valve to condenser.
- xi. Arresting any leakage (Oil, Steam, Water) by bolt tightening, gland/gasket replacement and welding as per requirement.
- xii. Inspection/ Servicing/ Replacement of Booster Pump DE/NDE bearings and thrust pads.
- xiii. Attending all related mechanical seal leakages.
- xiv. Cleaning of suction strainer of BFP and Booster pump.
- xv. Servicing of Lubricating Oil pump
- xvi. Servicing/ Repair/ Replacement of Hydraulic coupling.
- xvii. The Drive Turbine of TDBFP is complete turbine unit which includes, steam piping, control valves, stop valves, governing system, jacking/ lub oil system, turning gear system, exhaust piping to main turbine, its protections, interlocks, controls, logics etc., which is coupled to the BFP. The Availability of TDBFP shall be vital for achieving low APC. The TDBFP must be maintained in such a way that these are available all the time when unit is on load.
- xviii. Cleaning and replacement of both suction strainers of main pump and booster pump.

IOI DEAERATOR: Maintenance work shall include all the jobs related to Components of Deaerator required for trouble free efficient operation of Deaerator.

- i. Inspection of Deaerator Heater, all trays, spray nozzles and its repair & replacement as and when needed.
- ii. Ensuring proper working order of deaerator level controller.
- iii. Removal and repair/ Replacement of Deaerator internals as and when required.
- iv. Performing internal inspection and rectification if required of Deaerator storage tank. It also includes visual inspection of tank shell, heads, penetrations, and welds and rectification of defects if any.
- v. Repair or replacement of safety valve as and when needed.
- vi. Deaerator that requires a weld repair identified during NDE testing must be reviewed before the Deaerator is put back into service.

Note: The above scope does not include overhaul works. Only the rectification and fault finding activities during break down shall be performed at site.

PIHP/ LP Feed Water Heaters and TDSH: Maintenance work shall include all the jobs related to Components of HP/ LP Heaters required for trouble free efficient operation of feed water heaters.

- i. Inspection and external cleaning of equipment.
- ii. Checking of all joints leakages and arrest
- iii. Replacement of Gaskets/ pressure seals as and when required.
- iv. Ensuring tightness of all flange bolts/ stud and replacement if needed.
- v. Checking of all flanges/ pipelines/ valves of level indicators/ hydra step/ level pots/ drains etc and rectification/ replacement if required.
- vi. Setting and checking of all safety valves.
- vii. Complete cleaning of surrounding area and floor.
- viii. Cleaning and painting of equipment and associated systems
- ix. Identification, rectification of tube leakage and related repair work during breakdown

Note: The above scope does not include overhaul works. Only the rectification and fault finding activities during break down shall be performed at site.

QITG-CCW PUMPS: Maintenance work shall include all the jobs related to Components of TGCCW Pumps required for trouble free efficient operation of these Pumps.

- i. Checking of all valves for gland leakage and its arrest by replacement/ tightening.

- ii. Inspection/ Replacement of bearings, couplings of CCW pump
- iii. Inspection/ Replacement of gland seal/mechanical of CCW pump.
- iv. Replacement/ Repair of NRV as per requirement.
- v. Replacement/ Repair of discharge valve as per requirement.
- vi. Minor modification in drain/ vent piping as per requirement.
- vii. Checking of alignment of pump with motor and its rectification in case of misalignment.
- viii. Inspection and lubrication of Pump Bearings.
- ix. Complete cleaning of surrounding area and floor.
- x. Servicing of CCW pump and associated valves.
- xi. Inspection/ adjustment/ replacement of Mechanical seal of CCW pump.

IRI ACW System:

- i. Carry out external cleaning of equipment.
- ii. Carry out the inspection /replacement of strainer mesh in the DMCW electric strainer
- iii. Check all valves for gland leakage, if leakage is to be observed, same to be attended either by replacing the glands or mechanical seal or by adjusting it.
- iv. Check the foundation bolt tightness and take corrective action if required.
- v. Inspection / Replacement of bearings of Pumps.
- vi. Inspection / Replacement of coupling of Pumps.
- vii. Carry out bearing greasing.
- viii. Removal of coupling guards and checking the tightness of coupling bolts.
- ix. Attend all leakages
- x. Check the freeness of discharge NRV, if required attending gland leakage of the NRV.
- xi. Check the condition of discharge valve, if there is any leakage in flanges or gland same to be attended.
- xii. Cleaning of Plate Heat Exchanger as and when required.
- xiii. Checking of alignment of Pump with Motor and do the necessary correction if required.
- xiv. Spill over oil / water / grease / cotton waste / etc in surrounding area and floor to be cleaned up to the satisfaction of EIC.
- xv. ACW system includes maintenance of self cleaning strainer and its associated components.

[S] DIESEL GENERATOR SET:

- i. Carry out external cleaning of equipment.
- ii. Check the Lube oil level if low top-up with approved brand of oil.
- iii. Check the tightness of foundation bolt & take corrective action if required.
- iv. Check the coupling in between engine and generator if found damaged then replace and realignment to be done
- v. Check the radiator water level if low top up with water.
- vi. Check the tightness of radiator fan belt.
- vii. Clean the inlet air filter elements if damaged replace the same.
- viii. Check for any leakage in oil, diesel & water system if found then attend the same.
- ix. Clean / check the lube oil filter element.
- x. Check the alignment of engine and generator and take corrective action
- xi. Change the lube oil & lube oil filter element. Thoroughly soak the density type strainer element in clean fuel oil before installing.
- xii. Change the diesel filter element as per OEM recommendation.
- xiii. Assisting for inspection / repair / servicing during expert visit as per instructions.
- xiv. Spill over oil / water / grease / cotton waste / etc in surrounding area and floor to be cleaned up to the satisfaction of EIC.
- xv. Repair/ replacement of turbocharger.
- xvi. Preventive maintenance to be done as per the schedules or as per instruction of EIC.

[T]EOT CRANES & Hoists

- i. Lubricate the bearing with specified lubricant and replace bearing as per requirement.
- ii. Check the oil level of thruster brake, if low top-up with transformer oil.
- iii. Lubricate the wire rope at regular intervals and replace wire rope as per requirement.
- iv. Servicing of all associated gear boxes (LT &CT).
- v. Check the brake adjustment / liner condition, replace as per requirement.
- vi. Check the foundation bolt tightness, DSL correction, Wheel bearing greasing.
- vii. Coupling inspection and necessary correction as per requirement.

- viii. Check the rail alignment and holding down bolts of rail.
- ix. Inspection of wheels of EOT crane.
- x. Spill over oil / water / grease / cotton waste / etc. in surrounding area and floor to be cleaned up to the satisfaction of EIC.
- xi. Assisting and carrying out load test of the above as per designated frequency.
- xii. Yearly renewal load test certification from industrial safety officer shall be in contractors scope.

[U]Condensate Polishing unit (only service area inside TG building) and associated piping

- i. Inspection/ Replacement of valves in associated piping.
- ii. Inspection/ Replacement of gaskets in flange joints.
- iii. Replacement/ Repair of NRV as per requirement.
- iv. Replacement/ Repair of discharge valve as per requirement.
- v. Minor modification in drain/ vent piping as per requirement.
- vi. Checking of CPU service vessel for abnormalities and rectification of the same.
- vii. Inspection of piping, vessel, valves etc in system and repair the same.
- viii. Complete cleaning of surrounding area and floor.
- ix. Cleaning of inlet, outlet nozzles and resin trap.

Above scope excludes special repair procedures for restoration of the system.

[V]Internal cleaning of various tanks, vessels, coolers, PHEs etc. of TG onsite scope

- i. It includes internal cleaning and maintenance of all the tanks and vessels like Deaerator, Hotwell, CST, AFTs, TFTs, HP and LP flash tanks, DMCW overhead tank, COT, DOT, TDBFP oil tanks, MOT, MDBFP hydraulic coupling tanks, EH oil tank, HP and LP bypass skid tank and all other oil tanks and vessels in TG onsite area.
- ii. Further the contractor shall be responsible for internal cleaning and maintenance of all kinds of PHEs and coolers including ACW/TGCCW PHEs, vacuum pump PHEs, radiators of HP/LP bypass skids, turbine lube oil system PHE, EH oil coolers, TDBFP oil coolers, MDBFP working oil and lube oil coolers etc. in TG scope and associated valves and equipment.
- iii. The contractor has to arrange special equipment if required for cleaning of these coolers and PHEs including the chemicals, consumables and reagents required for cleaning.

[W]Dewatering pumps

- i. Supply New Dewatering Pumps (7.5 HP & 15 HP- 03 nos. each), repair, maintenance, oil top up of all TG area dewatering pumps including those at Condenser pit, TG sump , TDBFP pits, CEP pits, other temporary dewatering pumps.
- ii. All necessary arrangements for equipping the temporary dewatering pumps as and when required at various locations including power cables etc. shall be in the contractor's scope.

[X]Miscellaneous

- i. Contractor has to arrange for temporary power supply from the point provided in plant by MPPGCL. Contractor shall provide all the hardware required for making these arrangements.
- ii. Contractor has to arrange for machining of small size valve spindle and shafts which require turning.
- iii. Contractor has to fabricate platforms and approaches permanent in nature as required at site.
- iv. Contractor has to arrange for mobile crane (Hydra), pick-up truck of appropriate capacity for movement of material from store to site. The availability of Hydra crane and pick-up truck should be made for all the time.
- v. Contractor has to arrange for heat treatment of welded joints at site as and when required.
- vi. Contractor has to arrange for sorting of material and housekeeping of the same as instructed by the EIC.
- vii. Contractor has to separately maintain and deal with waste gaskets and oil as per the norms followed in the power station and instructed by the EIC.

[Y]Air washer units

- i. Entire maintenance and related activity of Air washer units in TG building installed above the MCR, air washer unit installed above COT and DOT area, and the one installed above DG sets. Components include pumps, fans air washer. Branch pipe nozzle assembly and tank.
- ii. Contractor has to arrange for temporary air supply line, from the point provided at site for maintenance, and repair works execution. Contractor shall provide all the hardware required for making these

arrangements.

[Z]Chemical dosing system

- i. Entire maintenance and related activity of ammonia, hydrazine, oxygen system comprising of tanks, pumps, valves and associated piping.

a. Maintenance Planning

- i. Carry-out repairs and replacement of the equipment under the instruction / supervision.
- ii. Ensuring optimum Plant / Equipment availability for the operations.
- iii. Quality workman ship for the Maintenance work carried out for the MPPGCL.
- iv. Periodic maintenance reports as per the following
 1. Daily report
 2. Weekly Report
 3. Monthly Report
 4. Annual Report
- v. A log book shall be maintained by contractor in which, dates, observations, defects noticed and corrective action taken shall be recorded at the end of every activity. All defect noticed will also be entered and the personnel shall fill up their findings/corrective action taken, in the remarks column, after the job has been completed.

b. Spare Planning:

- i. Transportation and shifting of spares to site/ site store and returning to store/ scrap yard shall be to contractor's scope and cost.

c. Removal of old and used unserviceable spares:

- i. Replaced old & used unserviceable spares & scraps at TG/BOP area to be shifted from area to the store of MPPGCL with their own arrangement at no extra cost to MPPGCL. Used old unserviceable spares / scraps shall be collected immediately from site and shall be kept at specified places. Old serviceable spares shall be collected from site immediately & shall be kept at specified places for repair / maintenance of the same. All will be in the scope of contractor. After replacement of belts, old belts shall be brought to the specified place on the same day.
- ii. New spares should be kept orderly at specified areas. No new spares should be noticed here & there. Unused spare will be collected after completion of work & they will be kept at proper place.

Attention Issues for Maintenance Work

- i. Any other requirement of activity under execution which have not been envisaged/ covered above, but are essential for satisfactory performance of TG/ its auxiliaries shall be deemed to have been included within the scope of work without any additional cost burden to MPPGCL.
- ii. The additional jobs under exigency as & when situation would warrant or getting the job done by the contractor. The breakdown / maintenance jobs will be treated as work of exigent nature & shall have to be done by the contractor with augmentation of required resources, if felt essential at no extra cost to MPPGCL.
- iii. Following works, which are not of regular nature, if required to be done during the contract period, the contractor shall be required to undertake the same without any additional charges to MPPGCL:
 - a. The Scope of work mentioned for various systems, sub-systems, auxiliaries, equipment etc. is indicated to give a brief of various works. However, maintenance related works not specified above but required for smooth, reliable, trouble free and efficient operation of the system shall be inclusive in the contractor's scope.

Exclusions to the Scope of Work

The following supplies, works and activities are excluded from the scope of works. The items not specifically mentioned here shall be considered as part of the Scope of Work in the contract.

- a. Major Consumables
- b. Civil Works (if not damaged by the contractor during O&M works)

- c. Supply of Capital & O&M Spares- It is to specifically clarify Spares of O&M and Capital Nature- O&M and Capital spares shall be provided by MPPGCL, however the decision of replacement of spares shall be of EIC.
- d. Major Modification /Fabrications
- e. Annual & Capital Overhaul
- f. Security by MPPGCL at complex boundary

List of Minimum Items & T&P to be provided by the Contractor

- a. The list below provides the minimum T&P and other facilities to be provided by the Contractor. Please note that the list below is minimum and not comprehensive. In-case, during the execution of the contract, anything required and not mentioned in the scope of supplies by MPPGCL (as elaborated in below), the same shall be provided by the Contractor at his own cost.

T&P

The table below elaborates the minimum T&P required for O&M work, to be provided by the contractor: -

b. List of Minimum Tools

Name of Tools		Quantity
1	Allen key set (inches/mm)	4
2	Hydraulic Bearing Pullers as required size	3
3	Bore gauge	2
4	Box Spanner Set	2
5	Buffing Machine GQ-4	2
6	Center Punch	4
7	Chisels	4
8	Circlip Pliers (Inside/Outside)	4
9	Cutting Knife	4
10	Cutting set with ISI flash back arrestor & gauges	4
11	Heating sets along with hose and flashback arrestor (best quality)	4
12	Dial gauges	14
13	Dial gauge stand (magnetic)	14
14	Die sets (Inch and MM)	2
15	Diesel/Oil Fill Pump (hand operated)	2
16	Divider	4
17	Double ended open spanner set 6 to 32 mm	8
18	Double ended open spanner – 32 to 55 mm	6
19	Double ended Ring spanner set 6 to 32 mm	8
20	Double ended Ring spanner – 32 to 55 mm	6
21	Feeler gauges	6
22	File set	4
23	Tap Set	2
24	Flexible grinding machine	2
25	Hacksaw Frame with blades	4
26	Hammer-4lb, 6lb, 8lb, 10lb, (each)	4
27	Hammer Heavy duty	2
28	Hammering Open Spanner – 27 mm to 75 mm	2
29	Hammering Ring Spanner – 27 mm to 75 mm	2
30	Hand drilling machines	2
31	Magnetic based drilling machine)	2

32	Hand grinding machine -AG4	4
33	Hand grinding machine -AG5	3
34	Hand grinding machine -AG7	3
35	Hand Lamp 24V DC – Set	18
36	Hot Blower	2
37	Ladder - 10 mtr long – Alumina	4
38	Lubricating oil Can	4
39	Magnifying glasses.	3
40	Master level	2
41	Material shifting trolley	3
42	Measuring tapes different sizes	6
43	Mechanical bearing pullers of type 3 jaw & 4 jaw for bearing size up to 350 mm	3
44	Nose Plier, Monkey Plier	4
45	Pincer	2
46	Pipe Wrench different sizes	4 Sets
47	Pitch gauge both in inches & milimeters	2
48	Plump Bob	3
49	Right angle	6
50	Rope heavy duty (Mtrs) , Tarpolyne (good quality make)	300
51	Rope ladder	2
52	Rotary cutting machine with cutter	2
53	Screw drivers different sizes	6
54	Screw Spanner	6
55	Screw driver set	4
56	Set Needle file, Flat file, Round file , half round file	4
57	Set of Aluminium rod for hammering	4
58	Set of Bearing scraper	3
59	Set of Copper rod for hammering	2
60	Set of Rubber mallet	2
61	Set of Teflon mallet	2
62	Set of telescopic gauge	2
63	Set of thread cleaner (Inch and MM)	2
64	Set of thread remover (Inch and MM)	2
65	Shim Cutter different sizes	4
66	Slip gauge	2
67	Spirit Level	6
68	Sufficient wooden planks	As required
69	Switch boards & cables	15
70	V Blocks for up to 200 mm shaft	2
71	Valve in-situ lapping tool	2
72	Canvas slings of different sizes (sizes & lengths as per job requirement) – sets	3
73	Wire rope slings of capacity upto 135T (sizes & lengths as per job requirement)	4
74	D-shackle sets of different sizes as per requirement	4

75	Eye Bolts sets of different sizes as per requirement	4
76	Chain Block – 2T, 3T, 5T, 10T,20T	4 each
77	Hook chuck upto 10T (varying sizes & lengths)	2
78	Ratchet hoist – 1.5 Ton	2
79	Diversion pulleys	4
80	Rope pull lift – 3T, 5T	3
81	Heavy and Portable Welding machines with power cable of at least 15M, Welding & earthing cable at least 50 meter-400 AMP	6
82	Portable welding machines with power cable of at least 30M. -200AMP	4
83	Hand Grease gun with hose and adapter up to 2 kg	6
84	Machine Grease gun with hose and adapter up to 5kg	3
85	Hydraulic bearing pullers of type 3jaw & 4 jaw for bearing size up to 350 mm	2
86	Hydraulic Bottle Jack (5 T)	2
87	Hydraulic Bottle Jack (10 T)	4
88	Hydraulic Bottle Jack (20 T)	4
89	Hydraulic Jack – 50 T	4
90	Hydraulic Jack – 100 T	2
91	Screw Jack (heavy duty)	4
92	Hydro testing pump – Capacity 15 ksc Pressure water pressure pump (manual)	2
93	Inside micrometer 0-1000mm, 0-2500 mm	2 each
94	Micro meters- Outside up to 750 mm	2
95	Pipe bending machine with die up to 3” size	2
96	Power Hack saw for pipe cutting	2
97	Straight edge 300mm, 600mm, 2000 mm Length	2
98	Straightedge for VT pumps (For CW & SWIP pump)	2
99	Sufficient scaffolding pipes	As required
100	Vernier Calipers upto 750 mm	2
101	Vernier Calipers	4
102	Winch Machine with Rope	1
103	Welding machine single phase	2
104	Welding machine 3 phase	2
105	Internal micrometer of 2100mm range	1
106	Belt alignment tool- make (SKF/Fluke)- Laser based	1
107	Dewatering Pump Set (make-Kirloskar/SU/Darling)- 7.5 HP/15 HP	03/03

- ii. Apart from the T&P mentioned above, all other minor and major necessary T&P which would be required for Maintenance work shall also be arranged by contractor.

Consumables

The contractor shall be required to provide the following consumables. In case the work requires additional consumables, the same shall also be provided by the contractor, at his own cost:

Diesel/Petrol- 10 litre should be all the time available

CTC, Benzene etc.

Hacksaw blades.

Cotton waste.

MarkinG cloth and old cloth and muslin.

Asbestos cloth.
Prussian blue.
Lead wire (1.0 mm, 1.5 mm, 0.5 mm)
Liquid soap/soap powder.
Carborundum grinding paste (fine, medium and coarse)
Cut off wheels.
Grinding wheels.
Oil stones.
Mounted wheels and rotary cutters.
Oxygen and D/A cylinders.
DP test kit and coir rope.
Welding and brazing electrodes (except Special electrodes)
Industrial Quality oil sample bottles (Glass)-10 Nos.
Cardium compound.
Chalks, marking pens, and thermal chalks up to 600°C
Sander discs and wheel.
Medical tapes.
Polythene sheets.
Hand gloves (asbestos and rubber), manila rope.
Electric switchboards and floor light arrangements
Emery Paper & Tape (Grit No.) 36, 50, 80, 120 & 200, 500 Carborandum
Teflon tape Pocket box / Roll
M-Seal Set Pidlite
Graphite power Compound (Tube) Tubes.
DPT Kit Set Check-Mate
Cutting disc 2", 3", 4", 6" Norton
Buffing wheel 2", 3", 4", 6" Grindwell Norton /Carborandum
Wire brush Different size

Auxiliary Monitoring Equipment

In order to ensure effective running of unit, below items to be positively ensured at site which will aid in maintenance: The calibration certificate is to be submitted and recalibration after due period shall be in contractor scope

1. Temperature gun up to range 800Deg C
2. Portable Vibration sensing device to record and analyze equipment vibrations- - SKF/FLUKE make.
3. Sound level meter (decibel meter).

Machinery

The contractor has to arrange below machinery along with its operator for shifting of components inside plant premises available at all the time, invariably failing to which penalty shall be imposed on the contractor.

- a) 01no 14T capacity crane.
- b) Tractor trolley in good condition.
- c) Pick-up Truck (make -Toyota/Isuzu) payload capacity -minimum 1000 kg.

Safety Items

The contractor shall be required to provide all the safety items list is given for convenience but the provision shall not be limited the following to its work force during execution of contract. In case the work requires additional safety items, the same shall also be provided by the contractor, at his own cost:

1. Safety Helmets.
2. Gas cutting and welding goggles.
3. Argon gas welding equipment.
4. Hand gloves Cotton &Leather.
5. Grinding goggles
6. Dust Mask
7. Flash back arrestor

8. Safety belts
9. Safety nets
10. Safety Shoes

Minimum Manpower & its Type

- i. The contractor should clearly understand that competent manpower is extremely important for the work specified in the contract and as such must deploy the same. The contractor should have a sound site organization to take care of this aspect of work.
- ii. The contractor has to ensure supervision of work in progress by deploying technically competent & authorized site supervisors equipped with mobile phone for communication and prompt action.
- iii. For attending routine & breakdown maintenance work, the shift site supervisor of the contractor has to be available inside the plant round the clock for the entire period of contract (including holidays).
- iv. Shift site supervisor of the contractor has to be in close contact with the OIC or his authorized representative to take instruction regarding commencement of work & to report progress of work.
- v. The names of shift site supervisors shall be communicated in writing to the OIC prior to the commencement of work.
- vi. In case of emergency, if required, it is the responsibility of supervisor to call extra manpower as directed by OIC.
- vii. For the management of site store of contractor, if any storekeeper is deployed, that will be in contractors scope and shall not be included amongst the minimum manpower required for operating the site. Those person shall be in contractor's scope only.
- viii. The table below elaborates the **minimum manpower required**, the same has been arrived based on the routine work to be carried out at site on daily basis. In case, if work requires, the contractor shall be required to provide additional manpower at his own cost for successful discharge of the work.

Categories		General Duties	Shift Duties			Total	Required Exp. / Qualification
			A	B	C		
A	Manpower for Maintenance of Entire Turbine Area						
1	Engineer (Site In-charge)	1				1	B.E./B. Tech (Mech Engg) with 5-year Experience of 600 MW and Above units. (Maint. of TG Aux.)
2	Supervisor Diploma Engineers Mech.	1				1	Diploma (Mech Engg) 3-4-year Experience
3	High Pressure Welder	1				1	IBR Certified Welder (Skilled)
4	Technician (General Fitter) and Crane Operator	10	2	2	2	16	3-4 years of Experience, ITI in fitter trade (Skilled)
5	Welder Cum Gas Cutter/Grinder	0	1	1	1	3	Skilled (Exp.2/3 Years)
6	Rigger	0	1	2	2	5	Skilled (Exp.2/3 Years) certification of rigger level-II
7	Helpers	8	4	4	4	20	Semi-Skilled
Grand Total (A)		21	8	9	9	47	

Note:

1. Cleaning and servicing of auxiliary and sub-systems during AOH (Annual Overhaul) shall be under the contractor's scope. Accordingly, additional manpower with T&P shall be deployed, if required, to ensure completion within the AOH schedule at no extra cost to MPPGCL as per given manpower schedule). The arrangement of additional manpower shall be done well in advance, before AOH and written permission shall be received from MPPGCL to deploy the 3rd party manpower. Additional Manpower Schedule deployed during AOH/COH of Units are as follows:

Skilled Technician (Fitter) -08 Nos., Helper (SS) – 32 Nos.

2. Prior to the deployment of site engineers and labours at the site, the contractor shall submit all relevant educational and experience certificates of the contractual staff to the Officer-in-Charge (OIC). Work under the contract shall commence only after verification and approval of these documents by the OIC.

Note: - In case, if the rate quoted by any bidder is found lower than the minimum workable rate [in line with MPPGCL guidelines and labour wage rates for different categories of workers fixed by the Labour Commissioner, Indore GoMP time to time]; their offer will not be considered for award of contract.

Facilities / Items to be provided by MPPGCL

- a. The list below elaborates the items to be provided by MPPGCL free of cost basis.
- b. In case any item / facility is not specifically mentioned in the list, the same shall be provided by the Contractor at no extra cost.

T&P

- i. Special T&P provided with the original equipment, machineries shall be handed over to the Contractor.
- ii. While using, the Contractor shall also be responsible to maintain and upkeep these T&P at its own cost.
- iii. At the end of contract, these T&P shall be returned to MPPGCL in the condition at which it was handed over to the contractor.

Spares

- i. O&M spares/ Capital spares for replacement shall be provided by MPPGCL. However, the decision on changing the spares shall be as per OIC/EIC.
- ii. The contractor shall maintain the record of spares used, inventory record etc.
- iii. The contractor shall assist MPPGCL in spares/ inventory planning and intimate well in advance about the requirement of spares based on MPPGCL's trend of procurement time.
- iv. Transportation and shifting of spares to site/ site store and returning to store/ scrap yard shall be to contractor's scope and at no extra cost to MPPGCL.

Consumables

- i. Welding electrodes/ Filler wire (except 6013, 7018, 308, 308L 309, 309L, and 680 CGS) shall be provided by MPPGCL.
- ii. Special consumable of Turbine-Generator such as special sealing compound, lubricants, FRF, shall be provided by MPPGCL.

Statutory Compliance by the Contractor

- c. The list below elaborates the indicative list of statutory compliances and is not limiting in any manner. The Contractor shall be liable to comply all statutory compliances at his own cost.

b. Labour related compliances

- a. The contractor has to comply with all labour related statutory rules and laws of the land prevailing at the time of contract or modified w.e.f. retrospective dates of the contract. Various rules/ compliances mentioned here under to be followed include but not limited to the following-
 - i. EPF
 - ii. Labour Minimum wages Act
 - iii. Factory Act
 - iv. Workman compensation Act
 - v. Leave and Bonus Rules
 - vi. Employment to local workers: The contractor shall comply with the policy of the state to employ local labour/worker, subjected to fitment for job (Physically and Skill wise).

C. Health & Safety Related Compliances

- i. The contractor is required to take adequate steps to ensure the safety for his workers or staff employed by him or his sub-contractors. He shall abide by the safety precautions and instructions enforced concerning safety to the plant and personnel at MPPGCL (SSTPP Khandwa) site.
- ii. All employees will be given adequate Safety Training before they are asked to work at MPPGCL (SSTPP Khandwa) site. A certificate duly signed and stamped by Safety Department will be handed over to the OIC.
- iii. Contractor will provide all Safety Equipment and PPEs to all the workmen working at the site, as per the type of work and Safety Guidelines Rules and ensure their usage by the contractor's personnel. In case the contractor fails to provide necessary personal protective equipment to the workers and tools tackles etc. confirming the rules in force and for safe execution of work, the same shall be provided by the MPPGCL on the expenses of the contractor.
- iv. Contractor will ensure all Safety and Health related Compliance are followed at SSTPP site.
- v. OIC/ Safety In charge or their representatives are authorized to check for any Safety Violation and will recommend suitable deductions/ action against the respective contractor for not complying with Safety Instructions and the respective contractor Security Inspector will take immediate action as directed.
- vi. The contractor shall take all necessary safety precaution for his worker working inside the plant premises and shall be responsible for any first aid / emergency treatment and any subsequent treatment for his employee/workmen engaged by him. He shall have workmen compensation policy for all his workmen. He shall abide by all fire, safety and environment policies and statutory.
- vii. The contractor is required to take adequate steps to ensure the safety for his workers or staff employed by him or his subcontractors and he shall abide by the safety precautions and instructions enforced concerning safety to the plant and personnel at SSTPP site.

d. Quality & Environment Protection Related Compliances

The contractor will comply with the following:-

- i. The standards of the quality to be followed as per standard/mutually agreed Field Quality and material quality assurance plan.
- ii. Contractor will make all good efforts to ensure that there shall be no adverse impact on environment within and surrounding SSTPP by the way of activities being carried out under the works of the purchase order. All fugitive/ dust emission to be kept within statutorily permitted limits.
- iii. Contractor will ensure that disposal of all type of waste to be done as per the procedures and in case there is no reference then the same shall be disposed as per the standards practices being followed in the Industry of similar type and size.

TENDER SPECIFIC CONDITION

- i. **Clause no. 2.17 of General Condition of contract i.e. CONTRACT PERIOD shall be read as Under: -**
The period of contract shall be for two years from the date of actual commencement of work. The Company however reserves the right to increase or decrease the contract period. The contract may also be extended subsequently for a period of 3 months or upto 50% of original contract value on the same rates, terms & conditions if desired by MPPGCL.
- ii. **Clause no. 2.26 of General Condition of contract i.e. PENALTY shall be read as Under: -**
The contractor is required to perform the work in an efficient and timely manner. In order to ensure the same, MPPGCL shall impose the following Penalties. It may please be noted that these Penalties shall be exclusive from each other and shall be applied independently:
 - A. Total Penalties towards poor performance, taken together shall be limited to 10% of the total order value excluding Taxes & Duties.
 - B. Penalties towards poor performance may be imposed due to any of the following:
 - i. **Poor housekeeping at work site:** After completion of work the contractor should ensure that the work area / job site is clear of from debris and scraps. The debris and scraps should be disposed as per the procedure specified by the MPPCGL. If the site is left un-cleaned after the work,

penalty@Rs.10,000/- per instance shall be applicable and shall be retained from the monthly RA bill. Further, if housekeeping of any part of entire scope area is found unsatisfactory, then a penalty @ Rs. 20,000/- per instance will be imposed & shall be retained from the contractor's monthly RA bills.

- ii. **Breach of discipline/violation of instructions:** The contractor shall ensure that its entire staff are well behaved and maintain discipline inside the plant premises. If it is observed that any individual or group of workmen engaged by the Contractor do not obey the instructions of the CONTROLLING OFFICER / MPPGCL's representative or misbehave, then in case of such breach of discipline, penalty shall be applicable. The amount will be decided by the CONTROLLING OFFICER subjected to maximum 1% of the monthly contract price of the subjected month.
- iii. **Poor quality of work execution:** In the event of failure of the equipment within three months of repair / service due to reason attributable to the Contractor which lead to long outage of the equipment / affect the system operation / generation loss, penalty will be imposed @ 0.5 % per instance (monthly contract price), limited to maximum of 10% of monthly contract price for the subject month shall be retained for the loss/ damage occurred to the company from the contractor's monthly RA bill.
- iv. **Non-availability of T&P and Consumables:** In case of any work delay due to non- availability of T&P and Consumables which are in the scope of the contractor, Penalty @ Rs. 500 (Rupees Five hundred only) per instance shall be applicable. In case T&P and Consumables which are in the scope of the contractor are arranged by the MPPGCL to expedite the work, the cost of the material along with 24% overhead cost shall be retained from the contractor's monthly RA bill.
- v. **Non-compliance of EHS (Environment, Health & safety) requirements:** The contractor shall fulfil the EHS requirements of the MPPGCL in totality. In case of violation of EHS norms, penalty@Rs.500/-per instance shall be imposed by the CONTROLLING OFFICER/safety Officer and the amount shall be retained from the contractor's monthly RA bill. The rules and regulation of M.P pollution control board shall be strictly complied and any violation of the above shall be dealt seriously. If any penalty imposed by the district, state, central Govt. Pollution control authority due to poor maintenance of stack emission or water effluent shall be retained from the running bill of contractor.
- vi. **Repetition of Work:** The Contractor shall ensure to avoid repetition of work and maintain work quality at site by strict supervision and monitoring. If the repetition of work found, penalty @ Rs.2000/- (Rupees Two thousand only) per instance / job shall be applicable and shall be retained from the monthly RA bill.
- vii. **Penalty for noncompliance of Preventive Maintenance schedule:** It is expected that the contractor should comply the Preventive Maintenance (PM) schedule. Execution of the PM works shall be monitored on monthly basis and in case average compliance of PM works in subjected month is not found to be satisfactory, the Engineer in Charge shall be entitled to impose the penalty. In-case the PM schedule is not properly adhered to, due to reason attributed to the Contractor, a minimum Penalty @ 0.1% of the monthly contract price shall be imposed. The penalty amount shall be retained from the Contractor's monthly RA bill subjected to maximum of 1% of the monthly contract price. In case persistent default to adhere to the PM Schedule, MPPGCL at its desecration may terminate the contract.
- viii. **Delay in completion of specified works:** - In case of delay in completion of specified works within stipulated time schedule, a penalty of 0.05% of proportionate daily contract price per instance may be levied, subject to a maximum of 5% of monthly contract price for a particular month.
- ix. **Inadequate deployment of Workers:** In case of workers are found short / less than the required as per work contract as specified by CONTROLLING OFFICER, a retention of amount of double the

minimum labour wages for per worker per day/ shift shall be applicable. In case persistent default to in the matter, MPPGCL at its desecration may terminate the contract.

- x. **Damage to Property by Contractor Workforce:** In case of any unwanted strike by the contractor's staff / labours or any kind of damage to any person or the equipment caused by the contractor's staff or any kind of nuisance created by their staff, penalty would be imposed as per the decision of CONTROLLING OFFICER. However, the contractor shall also be responsible to make good the damaged equipment /property.
- xi. **Leakages of Water/ Steam/ Air/oil:** In case leakage of water, steam, oil or air is found in steam/ water/ air circuit of plant i.e. steam cycle, water cycle, cooling water cycle, circulating water system, air conditioning system, service water, firefighting, drinking water and instrument/service air from valves/ lines/ tanks/ receivers/ equipment/ auxiliaries drain points etc., a [penalty@Rs.1000/-per](#) day will be imposed.
- xii. **Manpower absence rate for all parts of contract:** In case, if the manpower deployed are found short / less than the minimum manpower schedule as specified in the in this document, during the currency of the contract, penalty @ twice the minimum wages applicable for labour will be retained per absentee labour / day from the contractor's monthly RA bills.
- xiii. **Timely Payment to Workers:** The contractor has to abide by the law of the land for labour payment and has to make payment to its labours within 7 days after completion of the month. As such, he has to make all possible efforts to disburse the payment to labour within stipulated period.

In extreme and rare cases for bonafide reasons, if contractor fails to make the payment within 7 days after completion of the month, then 7 days grace period for making payment may be considered. Beyond this, penalty @ 1% per Month or part thereof, on gross value of bill for the period for which wage is due shall be imposed & deducted from the running bill of for the said period.

Note

- i. Attributability of the Contractor for levy of penalty shall be finalized at the end of the contract. The GST on account of Penalty shall be recovered from contractor only.
 - ii. Retention of penalty shall in no way relieve the contractor from completing the works and discharging all its other obligations under this contract.
 - iii. If any auxiliary/ equipment/ part damaged due to negligence in O&M in the contractor's scope then a penalty equivalent to the current cost of repair/ replacement of auxiliary/ equipment/ part will be recoverable from the contractor's bill or any payable.
 - iv. The owner shall have the right to recover the Penalty from any amount due or becoming due.
 - v. Payment or deduction of Penalty shall in no way relieve the contractor from completing the works and discharging all its other obligations under this purchase order.
- iii. **GUARANTEE/ WARANTEE:** -The GUARANTEE/ WARANTEE clause shall be read as under: -The work shall be of highest standard and shall be guaranteed for satisfactory performance during the contract period.
- In the event of firms inability to adhere to the aforesaid provisions, suitable penal action will be taken against them which may interlaid include black listing of firm for future business with MPPGCL for a certain period along with forfeiting the SD furnished.
- iv. **Clause 2.7 of General Conditions of Contract "EXECUTION OF AGREEMENT" shall be read as:** The successful bidder must assign & submit the acceptance of LOI/Order within 15 days from the date of issuance by MPPGCL. The bidder should present himself or his duly authorized representative in person within 15 days after acceptance of order to execute an agreement as per prescribed Proforma as per annexure -VI on non-judicial stamp paper (as per gazette notification of GoMP dtd. 09.09.2025) With revenue stamp of Rs.2 affixed on it before commencement of work for the due and faithful fulfilment of the contract asunder: -
- v.

S. No.	Contract value (in Rs.)	Worth of non-judicial stamp paper (in Rs.)
1.	Upto 50,00,000/-	1,000/-
2.	Above 50,00,000/-	0.2 % of contract value subject to a maximum of 10,00,000/-

The cost of stamp papers shall be borne by the contractor/his authorized representative.

ठेके के माध्यम से कराये जाने वाले कार्यों में निहित ठेका श्रमिकों को निर्धारित मजदूरी एवं अन्य सुविधाओं को सुनिश्चित करने हेतु निम्नलिखित शर्तों का पालन ठेकेदारों द्वारा किया जाना अनिवार्य होगा:

- 1) ठेका श्रम (विनियम एवं उत्पादन) अधिनियम- 1970 के प्रावधानों के तहत संबंधित फर्म/ठेकेदार का उक्त कार्य हेतु पंजीयन आवश्यक है।
- 2) न्यूनतम वेतन अधिनियम-1948 के प्रावधानानुसार ठेका श्रमिकों को न्यूनतम वेतन भुगतान करना होगा।
- 3) कर्मचारी भविष्य निधि और प्रकीर्ण उपबंध अधिनियम-1952 के परिपालन में ठेका श्रमिक एवं फर्म/ठेकेदार के द्वारा ई.पी.एफ. अंशदान की राशि जमा करना होगा। (@ 13%)
- 4) कर्मचारी क्षतिपूर्ति अधिनियम-1923 के तहत ठेका श्रमिकों का बीमा कराना होगा। (@ 3.5%)
- 5) बोनस भुगतान अधिनियम-1965 के अन्तर्गत ठेका श्रमिक द्वारा 30 दिन या अधिक अवधि तक कार्य किये जाने पर बोनस देना होगा। (8.33% of basic subject to maximum Rs. 7000/-)
- 6) राष्ट्रीय अवकाश पर कार्य करने पर ठेका श्रमिक को अतिरिक्त वेतन का भुगतान करना होगा। (Applicable for shift duty only)
- 7) कारखाना अधिनियम-1948 के प्रावधान अनुसार अर्जित अवकाश की सुविधा, आदि देनी होगी। (18 days for labours deployed in shift and 15 days for labour deployed in general shift)

कृपया विशेष ध्यान दे।

--SD--
(Rajesh Sahariya)
Superintending Engineer (Works)
SSTPP, MPPGCL, Dongalia