GMDC/_____ **Date: _____**

Letter of Award (LoA)

To,

_____

Email:

Kind attention:

Subject: Turbine Generator (TG) Package for Overhaul of GMDC's 250 (2x125) MW Akrimota Thermal Power Station (ATPS), Gujarat

Ref: RFP No:

Dear Sir / Madam,

With reference to the above subject and reference RfP, GMDC is pleased to award this LoA to your entity for Overhaul of Turbine Generator (TG) at GMDC's 250 (2x125) MW Akrimota Thermal Power Station (ATPS), Gujarat

Scope of work:

1. Responsibilities of the Successful Bidder

The responsibilities of the Successful Bidder as part of the Contract have been segregated into two key categories – services and supply. The terms of reference / scope of work have been detailed for each category below.

1.1. Scope of services

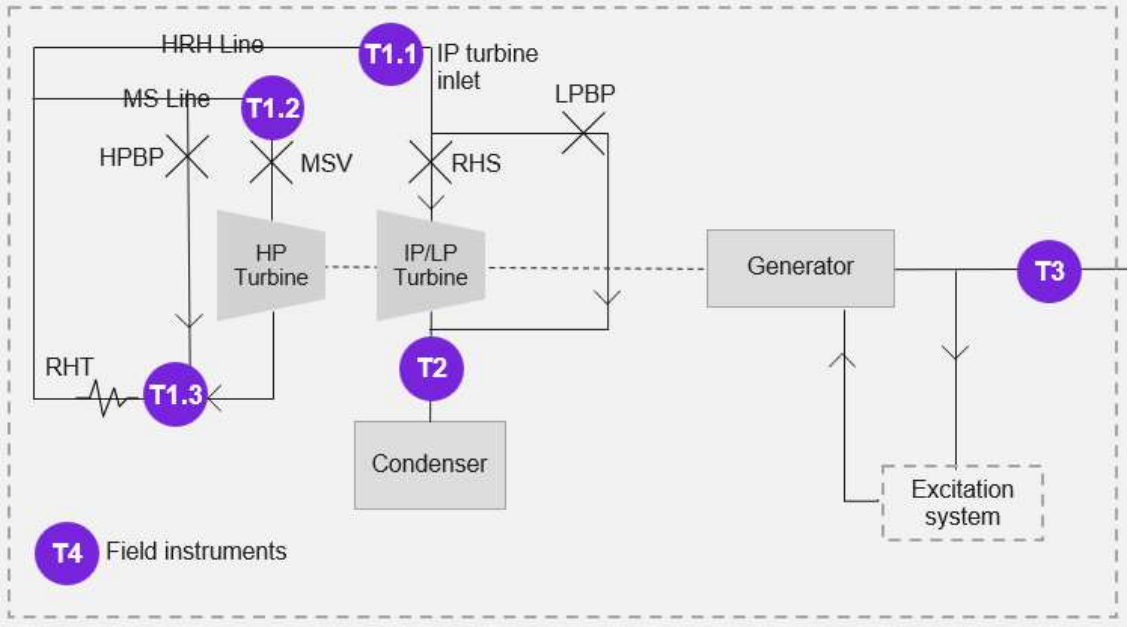
The scope of the Contract shall be providing end-to-end services for Overhaul of the turbine, generator and TG auxiliaries and pumps across both units of the Plant, as part of the TG package. The Successful Bidder shall ensure execution of the scope of work is done in accordance with OEM suggested practice, standards of safety, and mutually agreed terms with the Owner.

Battery limits

The Successful Bidder shall be responsible for maintenance of all mechanical, electrical, instrumentation, and civil equipment within the turbine building across the elevations, as part of the scope of work, as detailed in Part __ of this document. This shall include all equipment starting at Terminal 1 and ending at Terminals 2, and 3 as detailed below:

- Terminal 1: Starting from main steam entry to the HP turbine including main steam valve, and entry to the IP/LP turbine, including the LP bypass
- Terminal 2: Up to IPBD, including the generator and the excitation system
- Terminal 3: All TG field instruments including wiring up to the field junction boxes

The equipment in the scope of the Successful Bidder is detailed in the diagram below.



1.1.1. Pre-Overhauling activities

1.1.1.1. Detailed Overhaul planning

1. The Successful Bidder shall create a detailed consolidated 'Overhaul Execution Plan' for the TG package in collaboration with the PMC, focusing on sequencing of activities, identification of interdependencies, and indicating clear milestones, in line with the contract duration and Section __ (Payment Milestones)
2. The 'Overhaul Execution Plan' shall be used as the single source of truth for monitoring schedule compliance for the Successful Bidder, i.e., deviations in actual timelines vis-à-vis planned timelines
3. The 'Overhaul Execution Plan' shall be at an equipment level, encompassing all activities including but not limited to dismantling, inspecting, cleaning, repairing, installation, commissioning, and testing
4. The Successful Bidder shall prepare appropriate Quality Assurance Plan (QAP) or Quality Inspection Plan (QIP) and Quality Control Plan (QCP), as per OEM guidelines, for execution of the Overhaul and shall get it reviewed by competent authority from the PMC and the Owner. The Successful Bidder shall apprise the Owner about the plans to enable frequent audits, and highlight potential concerns, if any
5. The Successful Bidder shall prepare an Overhaul protocol indicating the sequence of activities to be conducted along with set of readings (before and after Overhauling) to be measured in line with OEM recommendation / suggestion / guideline

1.1.1.2. Owner readiness assessment and support

1. The Successful Bidder shall, in collaboration with the PMC, conduct audits and physical verification of existing inventory at the Plant to identify the equipment and associated spares and material readily available to be utilized during the Overhaul.
2. Successful Bidder will assess the availability of required spares at the Plant. They will conduct a gap analysis and incorporate the additional material to be procured in the 'Procurement Register' (detailed in Section __) to ensure optimal Procurement and consumption of material
3. The Successful Bidder shall ensure availability and working condition of the special tools and tackles required for successful completion of Overhaul, including rotor lifting devices, special slings, special torque wrenches, etc. with the Owner prior to initiation of the Overhaul. The list of special tools and tackles provided by the OEM at the time of commissioning has been detailed in Annexure 4
4. The Successful Bidder shall assess the workshop equipment prior to the start of the Overhaul. The details of the equipment available in the workshop as on date has been summarized below:

S. No	Description	Make	Status
1	Precision Lathe (12 feet)	Panther	Working
2	Lathe machine (3 feet)	Esteem	Working
3	Piller Drilling Machine	Eifco	Working
4	Rough grinder	Eifco	Working
5	Power Hacksaw	Eifco	Working

5. The Overhaul Plan created by the Successful Bidder shall mention requirement for equipment from the GMDC workshop. The Successful Bidder shall create an equipment usage plan in collaboration with PMC incorporating all interdependencies
6. The Successful Bidder shall be given access to the workshop equipment as per availability and Overhaul plan indicating requirement of workshop equipment. The Successful Bidder shall coordinate with the PMC to access the existing equipment and ensure no impact on execution timelines. If the Successful Bidder requires additional equipment to deliver the services defined in Section __ of this document, the same shall be in the scope of the Successful Bidder
7. The Successful Bidder shall arrange and depute necessary operators as required for operating the equipment.

1.1.1.3. Statutory approvals

The Successful Bidder shall obtain, on behalf of the owner, all necessary statutory approvals from DISCOM, Inspection Authorities, or other government authorities, as may be required, as per Applicable Laws along with the associated cost. All necessary documentation prepared and / or obtained for such statutory approvals shall be submitted to the Owner for review prior to submitting for approvals to relevant authorities. Coordination and liaising with competent authority is in the scope of Successful Bidder.

1.1.1.4. Workforce deployment

1. The Successful Bidder shall deploy a 'TG Package Leader' with strong technical expertise and experience of over 15 years, with prior experience in Overhauling, having successfully completed at least 2 TG Overhauls of >125 MW in the last 7 years, preferable of Ansaldo make, in coal or lignite-based thermal power plants in India
2. The 'TG Package Leader' shall coordinate with the PMC and the Owner on all matters pertaining to the execution of the Overhaul
3. The minimum requirements for the Successful Bidder to ensure coverage of all equipment within the battery limits has been summarized below:

S. No	Member	Role	Minimum requirement	Minimum Qualification
1	TG Package Leader	Overall package coordinator	1	Graduation in Mechanical / Electrical / Power / Instrumentation / or equivalent Engineering (BE / B.Tech) with at least 10 years' experience
2	Mechanical Lead	Supervisor for mechanical activities	1	Graduation in Mechanical / Electrical / Power / Instrumentation / or equivalent Engineering (BE / B.Tech) with at least 7 years' experience
3	Electrical Lead	Supervisor for electrical activities	1	
4	Instrumentation Lead	Supervisor for C&I activities	1	
5	Civil Lead	Supervisor for civil activities	1	
6	Safety Lead	Supervisor for ensuring EHS (environment, health and safety) activities	1	

4. The Successful Bidder shall ensure that all deployed personnel are available at the Plant at all times during the execution of the Overhaul. The 'TG Package Leader' shall be present at the owner's corporate office in Ahmedabad for progress review and other meetings that may be organized during the course of the Overhaul, as needed. The Successful Bidder shall arrange for their own accommodation for representatives travelling to Ahmedabad for such meetings
5. The Successful Bidder shall submit details of all deployed personnel for execution of the Overhaul to the PMC prior to deployment and ensure they are in line with Contractual requirements

6. The Successful Bidder shall arrange for at least 02 (two) IBR certified welders and other resources for performing all welding activities and other tests as part of the TG package, as needed
7. The Successful Bidder should deploy sufficient workforce for simultaneous work on both the turbines at the Plant, in assurance with the 'Detailed Overhaul Plan', as detailed in Section __ of Part __ of this document

1.1.1.5. Onboarding of OEM supervisory team

The Successful Bidder shall be responsible for onboarding a supervisory team from the OEM (Ansaldo). The supervisory team shall include a 'Technical Expert' with strong technical expertise and experience of over 12 years, and prior experience in Overhauling, having successfully completed at least 2 TG Overhauls of >125 MW in the last 7 years of Ansaldo make, to oversee the execution of the Overhaul. In addition to the 'Technical Expert', the supervisory team shall comprise of at least 05 (five) technical members with an experience of over 7 years, and prior experience of overhauling steam turbine generators. The minimum requirements for the supervisory team to ensure coverage of all equipment within the battery limits has been summarized below:

S. No	Member	Role	Minimum Experience
1	Technical Expert	Overall supervisor	12 years
2	Technical Member #1	Turbine supervisor	7 years
3	Technical Member #2	Turbine supervisor	7 years
4	Technical Member #3	Generator supervisor	7 years
5	Technical Member #4	Generator supervisor	7 years
6	Technical Member #5	Auxiliaries supervisor	7 years

The supervisors from the OEM will be physically present at the Plant during the entire duration of the execution of the Overhaul. Further, the supervisory team will assist with inspections, troubleshooting, and ensuring the Overhauling is done keeping in mind OEM recommended practices. The Successful Bidder shall deploy additional personnel if it is required to perform scope of services specified in Part __ of the RfP. The entire cost for onboarding the supervisory team, including travel and accommodation costs shall be borne by the Successful Bidder.

1.1.1.6. Infrastructure arrangement

1. While the Owner will arrange for the accommodation and food for Successful Bidder's personnel deployed in the Plant on the basis of availability and on a chargeable basis, in case infrastructure is not available, the Successful Bidder shall be responsible for arranging the same for the entire course the Overhaul.
2. The Successful Bidder shall maintain a dedicated shed for conducting necessary works including but not limited to fabrication, repair, storage of material, etc. The Owner shall

provide access to the available facilities and workshop in the Plant with prior written consent, as per availability

3. For timely and successful completion of the Overhaul, if new set of skilled operators are required for workshop equipment, the Successful Bidder shall arrange the same at its own cost
4. The Successful Bidder shall install a blast-cleaning shed, where the blaster shall be provided with breathing apparatus / blasting suit. The Successful Bidder shall provide requisite training to the operator for proper use of the equipment

1.1.1.7. Civil works

The Successful Bidder shall be responsible for all types of civil works including but not limited to modification of existing foundations base plates, regrouting if any, making new foundation (if applicable), dismantling, restoration, supply and erection of any temporary supports or any other construction work required for execution of the Overhaul.

1.1.1.8. Structural modifications / strengthening

1. The Successful Bidder shall be responsible for all structural modifications/ strengthening of existing structure including supply, fabrication, and erection of any new structure to support piping, equipment, and provision of any additional platform if required for access to new equipment, or any other structural modification works required for execution of the Overhaul
2. The Successful Bidder shall also be responsible for strengthening of the TG foundation, if required, post assessment of the structural integrity of the TG foundation

1.1.1.9. Hanger inspection

1. The Successful Bidder shall inspect all installed hangers, spring supports, flexible supports, rigid supports, etc. as per the battery limits defined in Section __ of Part __, and assess their load bearing capacities, prior to commencement of Overhaul. A detailed list of hangers available at the Plant has been appended in Annexure __.
2. The Successful Bidder shall replace all damaged / unsuitable / non-functional hangers, supports, and associated components, as needed for the execution of the Overhaul

1.1.1.10. Scaffolding and platforms

Successful Bidder's scope shall include supply of all scaffolding, and / or platforms, as may be required for repair / Overhaul and commissioning. These items shall be specifically brought to the Plant solely for repair / Overhaul purpose and if no more needed for regular maintenance of the equipment, can however, be taken back by the Successful Bidder after completion of the work at the Plant.

1.1.1.11. Cranes

1. Since the Overhauling will be conducted on both turbines simultaneously, the Successful Bidder shall arrange for additional jib cranes with skilled operator on the turbine floor, as required
2. The Successful Bidder shall be responsible for load testing and certification of EOT cranes along with qualified crane operators available at the Plant prior to the start of the Overhaul

1.1.1.12. Air compressors

Since the Overhauling will be conducted on both turbines simultaneously, the Successful Bidder shall arrange for portable air compressors for carrying out the works during the shutdown, as needed. The Successful Bidder shall arrange suitable cables, Terminations/ Joints for extending power from the existing source/ socket to portable compressors/ other power machines.

1.1.1.13. Consumables for Overhauling

The Successful Bidder shall be responsible for ensuring availability of sufficient quantities of all consumables for the Overhauling of turbine and generator (e.g., acetone, petroleum jelly, oil, lubricants, grease, Molykote, gland packing, gasket etc.). The Successful Bidder shall ensure filtration of MOT lubricant oil and maintain the quality of lubricant prior to commissioning of the equipment. Further, the Successful Bidder shall also ensure safe disposal of sewage and other wastes, as necessary, to ensure safe and clean operations.

1.1.1.14. Dismantling of existing equipment

1. The Successful Bidder shall be responsible for dismantling of existing equipment prior to the initiation of the Overhaul, as needed, including but not limited to the turbine top casing, piping, insulation, cables, trays, supports, and other components
2. The Successful Bidder shall prepare a checklist for dismantling and list of readings to be taken at the time of dismantling and submit to competent authority from the PMC and the Owner for review
3. The Successful Bidder shall submit a floor plan for storing the dismantled TG components and submit it to the PMC for approval. The Successful Bidder shall ensure the components are appropriately stored in the area, as per the floor plan approved by the PMC, during the course of the Overhaul

1.1.1.15. Safety arrangements

1. The Successful Bidder shall ensure the personnel deployed in the Plant adhere to the appropriate health, safety, and environment (HSE) requirements at the time of deployment. This will include medical tests required, if any, among other requirements to be aligned with the Plant HSE team

2. The Successful Bidder shall make own arrangement for proper electrical grounding of all systems, supplied by him as required by the system design. All required accessories including grounding cables are also included in Successful Bidder scope

3. While carrying out the Overhauling as per the scope, the Successful Bidder may have to modify the existing equipment foundations or do the excavation work and make new foundations. The Successful Bidder may also have to make new supporting arrangements with / without modified loads for the items / equipment supplied by him. Under all such conditions Successful Bidder shall be solely responsible for ensuring the safety of the adjacent equipment / foundations and of the existing supporting structures. The Overhauling work by the Successful Bidder shall be carried out in such a manner that no damage is caused to existing equipment / foundations / structure and all precautions, including strengthening of existing structures, as may be necessary, shall be taken by the Successful Bidder to ensure safety of existing Plant / equipment / foundation / structures

4. In the blast-cleaning shed, the Successful Bidder shall ensure the blaster is provided with breathing apparatus / blasting suit. The Successful Bidder shall provide requisite training to the operator for proper use of the equipment

1.1.1.16. Permits

1. The Successful Bidder shall obtain and maintain in effect all applicable Contractor permits required in connection with the Successful Bidder's performance of its obligations hereunder, including but not limited to licenses to permit the Successful Bidder to do business in the jurisdictions where the work is to be performed, design, engineering, procurement, fabrication, construction, erection, testing and commissioning, start-up testing, tests before taking-over, export, import, and other applicable permits required to move, transport, and deliver material / equipment to and fro from the Plant

2. Successful Bidder shall obtain all necessary Contractor and Construction permits. If the Successful Bidder at any time becomes aware, whether as a result of notice from Owner or otherwise, of any applicable permit not obtained by him, the Successful Bidder shall promptly give notice thereof to Owner and the Successful Bidder shall be responsible for obtaining such applicable Permits

3. The Successful Bidder shall provide support to the owner in obtaining necessary Owner's permits, including but not limited to the following activities:

   i. Overall co-ordination of permitting requirements
   ii. Attendance at meetings with Owner and third parties designated by Owner
   iii. Preparation of permit applications or, as applicable, application to transfer permits to the Owner
   iv. Assistance in preparation of responses to inquiries by governmental instrumentalities/ agencies
   v. Assistance in presentations at hearing of governmental instrumentalities / agencies
   vi. Provision of all available information and documents required by Owner in connection with obtaining any Owner Permits; and
   vii. Such other services as Owner may request from time to time required for Owner permits

1.1.2. Overhauling activities (Turbine and auxiliaries)

The Successful Bidder shall prepare a comprehensive list of activities to be undertaken during the Overhaul post completion of inspection of the turbine and the auxiliaries, as part of the 'Overhaul Execution Plan', detailed in Section __. of Part __ of this document.

1.1.2.1. Measurement of parameters

The Successful Bidder shall be responsible for measurement of all essential parameters, as per OEM guidelines, prior to dismantling of the turbine, as per Section __. The Successful Bidder shall maintain a log of all the readings to be furnished to the PMC and the Owner

Further, the Successful Bidder shall measure the said essential parameters as per OEM guidelines once again post inspection, maintenance, and assembly of the turbine, and compare the deviations observed to the OEM design parameters.

The Successful Bidder shall ensure that the readings observed post inspection, maintenance, and assembly of the turbine are at par or better than the readings measure prior to dismantling. In case of deviations, the Successful Bidder shall furnish appropriate documental evidence justifying the deviations. The detailed performance guarantee requirements have been incorporated in Section __.

1.1.2.2. Dismantling and cleaning

The Successful Bidder shall be responsible for dismantling of the turbine, storage of dismantled components in the areas earmarked by the PMC, and cleaning of the equipment with appropriate tools and safety precautions, prior to inspection and non-destructive testing of the components.

1.1.2.3. Overhaul plan

The Successful Bidder shall be responsible for performing comprehensive capital Overhaul of the turbine. The list of activities to be carried out, with the associated tests, as per OEM guidelines, have been detailed below:

I. VT: Visual Inspection
II. DIM: Dimensional Check
III. PT: Liquid Penetration Test
IV. MT: Magnetic Particle Test
V. UT: Ultra Sonic Test
VI. CA: Capital Overhauling Activities

Turbine and control valves

Plan P1– Live steam valves / intercept valves / bypass valves / check valves (extraction NRV) /misc. valve (LPH 1/2/3 and HPH 5/6 and heater group bypass)

Place	Activity	Type of activity
Valve casing / housing	Check visually the housing inner surface for cracks and erosion	VT
	Surface crack test for structural welds Ultrasonic test for determining the defect geometry in case of cracks	MT UT
	Check inner surface for cracks, and the outer surfaces if cracks are likely	MT
	Measure wall thickness after $T_a > 10^5$ h for calculating the residual life	DIM
	Check the external sealing elements and casing sealing surfaces	VT
Valve seats	Check visually for proper contact, damages, or cracks	VT
	Check the contact and visually inspect for cracks (Seats with Stellite layers)	PT
Valve internal (valve cone, head, disk, body)	Check visually for cracks, deformation, and erosion	PT
	Check the seat area surface, the guide sections and backseat (if applicable) for cracks	PT
Spindles	Check for deformation (run out check) and erosion and for crack indications at the transitions to thecone, coupling etc.	VT PT
Guide bushing	Check the clearance; check visually for grooves. Make a dye penetrant check for cracks	VT PT
Coupling (actuator – spindle)	Check the matching of the actuator/spindle coupling Check for tight assembly	VT
Valve housing support	Check housing position according to original adjustment	VT
Elongation studs	Visual inspection, surface crack test	VT MT UT
	Replace the studs exposed to operating temperatures > 420°C after $T_a > 1.5 \times 10^5$ hours	CA
Drains	Check for unobstructed flow	VT
Dirt traps	Open and clean	VT
Drain valves	Check the condition of valve seat and spindle Check the functioning of the actuators	VT
Residual life	If $T_a > 10^5$, evaluate the inspection results and	CA

Place	Activity	Type of activity
calculation	calculate residual life of critical parts. Determine further maintenance measures	

Plan P2 – HP inner and outer casing

Place	Activity	Type of activity
Elongation bolts	Loosen bolts and measure permanent elongation Visual inspection, surface crack test	VT MT UT
	Replace the bolts exposed to operating temperature> 420°C after T_a> 1.5 x 10^5 hours	AC
Elongation studs	Loosen studs and measure permanent elongation If ε>1.0% or T_a> 1.5 x 10^5 hours, replace studs with operating temperatures >350°C	DIM
Joint / horizontal flanges	Visual inspection, check of contact surface and deformation. Rework if necessary	VT
Outer casing: inner surface	Check visually for cracks. Magnetic particles check of surfaces at transitions to casing stubs and flanges, of structural welds and points specified by the manufacturer. Check casing outer surface only if cracks or crack-prone points were found on the inner surface. Make ultrasonic test for determining the defect geometry if cracks were found	VT MT UT
Inner casing, blade carrier: inner surface	Check visually for cracks. Magnetic particles check of surfaces at transitions to casing stubs and flanges, of structural welds and bleed points Check casing outer surface only if cracks or crack-prone points were found on the inner surface .Make ultrasonic test for determining the defect geometry if cracks were found	VT MT UT
	Check of concentricity, diameters, and ovalization of the shrink ring seats	DIM
	Check expansion clearance	DIM
Guide keys / wedges: external/internal/casing Claws	Check of clearances and surface quality Check sliding behavior and improve sliding properties, if necessary	VT

Place	Activity	Type of activity
Casing fix points	Check fixations for clearance	VT
Casing supports	Check spacer bolts, adjust vertical clearance	VT
Gland seals	Check mobility of segments, check springs and seal teeth for damages and wear. Replace the springs after $T_a > 10^5$ hours	VT
Seal strips	Check for damages, deformation, and tight fit	VT
Steam ducts	Ensure mobility and tightness of piston rings. Replace the springs, if provided, after $T_a > 10^5$ hours	VT
Residual life calculation	If $T_a > 10^5$, evaluate the inspection results and calculate residual life of critical parts. Determine further maintenance measures	CA

Plan P3 – IP / LP single flow casing (with axial, lateral, downward, or upward exhaust)

Place	Activity	Type of activity
Outer casing	Check horizontal joints for damage and tightness Check the cross-flange General visual inspection for cracks and crack test of all transition points to casing supports and flange points.	VT
Inner casing	Check casing fixed points	VT
	Check caulked seal strips for damage and tight fit	DIM
	Inspect the casing visually for cracks and erosion at horizontal joints, blade and seal strip attachments	VT
	Check concentricity	VT
	Check expansion possibilities	VT
Gland seals	Check springs and seal strips for damage.	VT
	Replace the springs if $T_a > 10^5$ hours	CA
Bearing Support (exhaust side)	Check for corrosion and erosion	VT
	Check the weld seams for cracks	PT
Elongation studs	Loosen studs and measure permanent elongation Check their condition. Surface crack test Replace the bolts exposed to operating temperature> 420°C after $T_a > 1.5\ 10^5$ hours	MT
Guide keys	Check for marks caused by pressure and seizing.	VT

Place	Activity	Type of activity
and supports	Ensure proper sliding	
Casing fix points	Check fixations for clearance	VT
Casing supports	Check spacer bolts, adjust vertical clearance	VT
Rupture diaphragms	Check tightness Check visually the surface for damages Replace diaphragms after every 50000 operating hours	VT
Water injection system	Check feed orifices and spray nozzles for erosion	VT
Axial expansion Joint	Check for cracks deformation and tightness (Vacuum drop test)	VT
Steam inlet ducts	Check free movement and tightness of piston rings. Replace the springs, if provided, after $T_a > 10^5$ hours	VT
Residual life calculation	If $T_a > 105$, evaluate the inspection results and calculate residual life of critical parts. Determine further maintenance measures	CA
Water injection (as applicable)	Check feed orifices and spray nozzles for traces of erosion	VT
Exhaust steam injection	Check valve for tightness Check switching point and compare with commissioning value	VT

Plan P4 – Shrink rings

Place	Activity	Type of activity
Shrink rings	Measure the expansion according to the test certificate for shrink ring supervision. Replace the rings, if $\varepsilon > 0.5\%$ (see test certificate) $Ta > 1.5 \times 10^5$ hours and the ring temperature > 420°C.	MT

Plan P5 – HP rotor

Place	Activity	Type of activity
Rotor	Check run out (at the coupling flanges).	VT
	Check run out (at various planes)	VT
	Check visually for scaling, erosion, corrosion and	VT

Place	Activity	Type of activity
	Cracks	
	Check the surfaces of structural welds, transitions with notch effect, crack-prone points after visual inspection and points specified by the manufacturer for cracks	MT
Bearings	Visual inspection of surface quality, rework if necessary	VT
Journal areas and thrust runner surface	Check visually the surface quality.	VT
Balancing bores	Descale and clean. Check the locking of the balancing weights. Re-machine seized weights. Draw up distribution plan of existing weights	VT
Gland seal strips / Shaft sealing strips	Check for damages, scaling, erosion, and tight fit	VT
Residual life calculation	If Ta > 10^{3}, evaluate the inspection results and calculate residual life of critical parts. Determine further maintenance measures	CA

Plan P6 – IP / MP rotor

Place	Activity	Type of activity
Rotor	Check true run.	CA
	Inspect visually for scaling, erosion, corrosion and Cracks	VT
	Check the surface of structural welds, transitions with notch effect, crack-prone points after visual in inspection and points specified by the manufacturer for cracks	MT
	Check the fir-tree grooves of the last and last-but-one blade rows for cracks	MT
	If the C-inspection is carried out after 100,000 equivalent operating hours (option), make an ultrasonic check of the fir-tree grooves of the last rotating blade row after approx. 50,000 equivalent operating hours. This can be done in the assembled condition.	MT UT
Journal areas	Inspect visually the surface quality.	VT
Balancing bores	Descale and clean. Check locking of balancing weights. Re-machine	VT

Place	Activity	Type of activity
	seized weights. Prepare distribution plan of existing weights.	
Gland seal strips	Check for damage, scaling, erosion and tight fit.	VT MT

Plan P7 – Blading

Place	Activity	Type of activity
Impulse wheel	Ultrasonic test of shroud welds Magnetic particle test of the surface Eddy current test of the relief bores between individual blades	VT MT
Reaction blading, general	Inspect visually (endoscopic check) the stationary and rotating blades for damages, erosion, deposits, and friction marks	VT
	Check proper fitting of blades, spacers, and end pieces, re-calk if necessary **Note:** Consult OEM if austenitic (non-magnetic) blades are used	VT
	Check the axial and radial blade clearances	DIM
	Check for cracks	MT
Welded stationary and rotating blades	Check the welded shrouds / joints for surface cracks	MT PT
Shrouds on blading	Check the welded joints for cracks.	VT
	Check the condition of the riveted joints and for cracks	VT
Damping wire	Check for wear, breakages, and fixation	VT
Lacing wire	Check brazing points, if necessary, reattach loose blades	VT
Last stage moving blades	Visual inspection for erosion and corrosion, possibly crack test of airfoil	VT
	Check axial fixations	VT
	Measure axial clearance of blades with bent fir tree root (Acceptable shifting allowance max 2 mm)	DIM
	Measure tangential flexibility at the blade tip (Allowable max 1% of blade length)	DIM
	Check blade and blade root for cracks, remove blades	MT
	Replace backing springs when removing the blades	

Plan P8 – Steam and drainpipes

Place	Activity	Type of activity
Inlet pipes, flanges and flanges bolting between valves and turbine	Inspect visually the pipe outer surface for cracks and the pipe inner surface, if accessible, for cracks and erosion	VT
	Check the surface of welds, transitions with notch effect and stub welds for cracks. Make an UT inspection of welds which are not accessible from the inside	MT UT
	Measure wall thickness of pipes after $T_a > 10^5$ for calculating the residual life	DIM
	Inspect visually the flange surface for cracks and tightness	VT
	Visual inspection of the bolts for cracks and tightness at $T_a \sim 10^5$ hours	VT MT UT
	If $T_a > 1.5 \times 10^5$ hours, replace the flange bolts exposed to operating temperature > 420°C.	CA
Drains	Check for unobstructed flow	VT
Flanges and flange bolts of the cross-over pipes	Visual inspection of the flange surface for cracks, tightness	VT
	Crack test of the bolts at $T_a \sim 10^5$h	PT
	If $T_a > 1.5 .10^5$ hours, replace the flange bolts exposed to operating temperature > 420°C.	CA
Dirt traps / sludge containers	Open and clean	CA
Drain valves	Check condition of valve seat and spindle	VT
	Check functioning of actuators	VT
	Check proper functioning of drives	VT
Compensators	Visual inspection for damage and offset	VT
Residual life calculation	If $T_a > 10^5$, evaluate the inspection results and calculate residual life of pipes at operating temperatures > 350°C	CA

Plan P9 – HP bolted joints

Place	Activity	Type of activity
HP bolted joints	Check tightness of HP bolted joints in operation	VT
	Check nut surface for cracks	MT

Place	Activity	Type of activity
	Check surface of threaded nipple and collar for cracks	MT
	Inspect visually the sealing surface. Replace gasket	VT

Bearings

Plan P10 – Bearings (pocket type journal bearings and combined journal thrust bearings) and bearing supports

Place	Activity	Type of activity
Journal bearing	Measure shaft lift at all bearings.	DIM
	Check the thermocouples for the babbitt metal temperatures	VT
	Inspect visually for proper contact and grooves	VT
	Check adjusting plates and shims	VT
	Measure bearing clearance; readjust, if required	DIM
	Check pipe unions of jacking oil supply line for tightness. Check functioning of check valves, if provided.	VT
	Check bonding of bearing metal by ultrasonic and dye penetrant tests	UT PT
	Check insulating values of the generator bearings, and of auxiliary exciter bearings if applicable	VT
Thrust bearing	Check radial and axial clearances	DIM
	Inspect visually thrust bearing segments for wear	VT
	Check spring ring and pins according to test certificate, readjust if required	VT
	Check thickness of the pads	DIM
	Check floating rings for wear	VT
Shaft position indicator	In case of a mechanical device: Check the shaft position indicator	VT
	Check functioning, readjust if required	CA
Bearing supports (bearing pedestals)	Check guide keys, fixed points	VT
	Check alignment (elevation, center line)	VT
Adjustable keys	Check sliding properties, improve surface quality if necessary.	VT
Claw bolts	Inspect them visually, adjust clearance	VT
Oilshield	Inspect oil shields visually, check oil shield and adjust clearance if required	VT

Place	Activity	Type of activity
Foundation bolts	Check prestress	VT
Grounding brushes	Check grounding brushes for wear and impurities, replace or clean them if required Polish shaft in the contact area of the grounding brushes	VT
Grounding cable of bearing pedestals	Check proper fastening of grounding cable	VT

Power transmission equipment

Plan P11 – Couplings (with expansion sleeves)

Place	Activity	Type of activity
Couplings	Check run out	CA
	Level measurements if couplings are not opened	DIM
	Check that no clearance exists between flanges (coupling closed). Check bolt prestress if clearance is found	VT
	Check pedestal elevation and tilt if couplings are not opened	CA VT
	Check shaft line by measuring the parallelism; before disassembly and after reassembly	VT DIM
	Check coupling rabbet fit for clearance, corrosion and damage	VT
	Check undercut of coupling offset for cracks by conducting a dye test	MT PT
	Check the protective coating at the non-load face sides of the coupling, renew coating if required	VT
Coupling bolts	Inspect visually the condition	VT
	Measure length, replace bolts if $\varepsilon > 1.0\%$	DIM
Shear sleeves, expansion sleeves, nuts	Inspect them visually for cracks, corrosion, and deformation	VT

Plan P12 – Turning Gear (Hydraulic)

Place	Activity	Type of activity

Place	Activity	Type of activity
Turning gear	Renew oil fillings, bearings, and seal of turbo coupling	CA
	Measure run-up time to turning gear operation for comparison to previous measurement	CA
	Dismantle and inspect visually the individual parts, bearing bushings, coupling, bellows of the operating arm	VT
	Visual inspection of gear wheel on rotor, rework if necessary	VT
	Check condition of piston rings, replace them if necessary	VT
	Visually inspect springs, replace them, if necessary	VT
	Check worm shaft and drive gear wheel for cracks	PT MT
	Check flank clearance between the swivel pinion and gear wheel	VT
	Check the start-up interlocks	VT

Plan 13 – Gears

Place	Activity	Type of activity
Gear wheel set	Check tooth contact pattern, realign, if necessary, on assembly, according to special instructions	VT
	Check seating of thrust discs	VT
	Check thrust disc/wheel clearance	VT
	Check backlash, readjust if necessary	VT
Bearings	Visual inspection of bearing surfaces for grooves and contact pattern, rework, if necessary	VT
	Check condition of adjusting plates	VT
	Check bonding of bearing metal using a special measuring method	VT

stem

Plan P14 – Medium supply system (lube oil system, hydraulic fluid system, air supply system)

Place	Activity	Type of activity
Lube oil, hydraulic fluid regeneration plants	Determine characteristics according to OEM special Instructions	CA
	Replace or clean filter elements	CA

Place	Activity	Type of activity
Oil tank, combined lube / actuation oil tank	Empty; clean tank	CA
	Measure vacuum (300 Pa = 3 mbar) and under pressure (set value: 30-50 mm water column) in tank	CA DIM VT
	Measure under pressure in rear bearing pedestal (set value +- 10 mm water column)	CA DIM VT
	Clean motor oil vapor fan/exhauster; Overhaul drive motor	CA
	Clean vent filter	CA
Lube oil system, combined oil system, hydraulic fluid system (if installed)	Check tightness, seal if necessary	VT
	Inspect hydraulic lines for damage. Replace if $T_a > 5 \times 10^4$ hours	VT
	Check tightness of pipe unions on lube oil pipes (Straub coupling). Replace them principally after 20 years	VT
Main oil pump (gear pump)	Check pump internals and drive for wear. If required repair/replace	VT
Main oil pumps (electric driven)	Check of functioning and of the functional interlocks.	VT
	Check pumps and motors, measure pressure, speed and power consumption.	VT
Auxiliary and emergency oil pumps	Check pumps and motors, measure pressure, speed and power consumption; Dismantle the pump completely, check parts for damage and wear; repair or replace, as required	VT
Jacking oil pumps	Check functioning, check motors; Overhaul drive motors; Dismantle the pump completely, check parts for damage and wear; repair or replace.	VT
Actuation oil or hydraulic fluid pumps	Check start-up and operating interlocks with pressure trip	VT
	Check pumps and motors, measure pressure, speed and power consumption of motor with values measured during commissioning	VT
	Check and Overhaul pumps for wear; Overhaul drive motors	VT
	Clean strainers in suction connection	VT
	Check free movement of check valves in pressure Connection	VT
Filters (lube	Clean/Replace filters and filter element.	VT

Place	Activity	Type of activity
and hydraulic fluid filters)	Check switch-over device of double filters (pressure drop, free movement, venting)	VT
	Measure Δp of clean filter, compare with characteristic	DIM
Coolers (lube oil, hydraulic fluid)	Check tightness on the water and the medium side, replace gasket if needed.	VT
	Check free movement of fittings	VT
	Check functioning of the water and the medium side vents. Clean orifices at continuous venting	VT
	Dismantle oil cooler, clean it on water and medium side; check tube bundle for damage	CA
Constant pressure valves, reducing valves (if installed)	Dismantle them and check them for friction marks and free movement; eliminate friction marks	VT
	Compare pressures and settings with values measured during commissioning	VT
Control air system	Clean filter, oil and moisture separators, check functioning	CA
	Check tightness of air lines and connections	VT

Open and closed-loop control units, monitoring equipment

Plan P15 – Protection equipment

Place	Activity	Type of activity
Safety system	Check tightness and check for leakages	VT
Safety devices - Mechanical overspeed trip - Test device - Thrust wear - CV tightening test. - Monitors	Check functioning of all devices according to test instructions. Record adjusted values and compare with values, determined during commissioning. Readjust if necessary to set values	CA VT DIM
	Dismantle and clean all safety devices, remove friction marks, and check free movement. Replace damaged parts. Readjust limit values and characteristics according to values determined during commissioning.	VT
Electric turbine protection: Transmitters	Check transmitter adjustment	VT

Place	Activity	Type of activity
Solenoid valves	Carry out functional test	CA
Limit valves	Check limit value adjustment according to signal flow diagram or test certificate	VT
Electronic turbine overspeed protection	Check transmitter adjustment	VT
Test program for emergency trip	Carry out functional test according to test instructions	CA

Plan P17 – Supervisory instrumentation

Place	Activity	Type of activity
Speed and load measurement	Check according to test certificate or functional description.	VT
Recorders and indicators	Check indicators and recorders; recalibrate if necessary	VT
Local instrumentation and Transmitters	Check and verify indications on the recording systems	VT
Vibration and expansion measurement: transmitters	Checking of sensor, thermocouples, Gap adjustment, voltage checking and calibration of all Vibration and expansion measurement instrument according to instructions. During checking found any abnormality in sensor / transmitter same shall be replaced by agency.	VT
Limit values	Check limit value adjustment according to test certificate or signal flow diagram	VT
Switches and transmitters of position of mainstream valves	Check functioning and conditions	VT
Alarms and trips	Check limit values	VT
Starting probes	Check thermocouples, their functioning, and their assembly	VT
Instrumentation (miscellanea)	Check functioning	CA

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ed-loop control units

Place	Activity	Type of activity
Actuator, servomotor Control valve side	Record characteristics of servomotor and compare with characteristic determined during commissioning.	VT
	Clean feed oil orifices and compare dimensions	DIM

Place	Activity	Type of activity
	with initial measurements	
	Dismantle and clean actuators and servomotors, remove friction marks Check parts for wear and control edges of the control slide valve for damages, replace parts if required.	VT
	Inspection of the electrical/mechanical of the LVDT displacement transducer	VT
	Check cam disks for tight fit and wear; retighten or replace disk if necessary	VT
	Replace ball bearing unrolling on cam disk	CA
Actuator, servomotor stop valve side	Measure max. stroke and compare with value measured during commissioning	VT
	Clean discharge amplifier, compare diameter of feed orifice with initial value	CA
	Dismantle pilot control system, check sealing surfaces for damages and friction marks, replace parts if required, or eliminate friction marks	CA
	Dismantle actuators and servomotors completely, check parts for damage and wear, replace parts if necessary	VT
Pressure reducer on stop valve side (if provided)	Check setting, readjust set pressure (set value approx.15-20 bar)	CA
Actuator Servomotor Check valve	Functional test Stroke measurement	CA
	Replace diaphragm. O-ring seals, gaskets	CA
Water control valve Bypass Cooling steam valve (IP) (HP) (gland Steam)	Record characteristic and compare with characteristic determined during commissioning.	VT
	Dismantle and clean drive, Check parts for wear and control edges of control slide valve for damage.	VT
Electronic control devices	Function test	CA
Trip – block	Function test	CA
	Overhaul	CA
Trip test and resetting mechanism	Function test	CA
	Roll-in roll out of spare block if available. Send the block to be Overhauled in OEM shop	CA
Overspeed trip mechanism	Dismantle and clean	VT

Leakage system, gland steam system

Plan P19 – Leak steam system

Place	Activity	Type of activity
Leak steam lines	Check tightness of steam relief and leak-off lines and their connections at the gland seals during operation	VT
	Check the weld seams at the connections to the live steam stop valves, supply valves and relief valves for cracks	PT
Drains	Check for unobstructed flow, check orifice for erosion and proper diameter in the case of continuous drainage	VT
	Open and clean dirt traps	
Drain valves	Check condition of valve seat and spindle	VT
	Check functioning of drives/actuators	
Under pressure in suction system	Measure at seal steam condenser, set value: approx. 0.98 bar	
Water injection system	Clean and check the filter	VT
	Check the spray nozzles for erosion and proper Diameter	VT

Plan P20 – Gland sealing system

Place	Activity	Type of activity
Valves	Inspect visually for cracks, deformation, and erosion	VT
	Check of the spindle for deformation and wear	VT
	Check spindle packings.	VT
Spindles	Check for deformation and wear	VT
Packings at supply, suction and water injection and gland steam shutoff valve	Check packings, replace them if necessary	VT
Actuators and controllers	Check functioning, record characteristics and compare with characteristics determined during commissioning.	VT

Place	Activity	Type of activity
	Check tightness of diaphragms, bellows, replace them if necessary	VT
	Dismantle and clean controllers and actuators, remove friction marks and check free movement. Replace damage parts. Readjust characteristic according to characteristic determined during commissioning	VT
	Open and clean dirt traps	CA
Vacuum in leak-off system	Measure at gland seal, set value	VT
Gland steam condenser	Inspect and clean the trap	VT
	Maintenance of the fans and of the electric motor of the fans	CA
	Check the tube bundle for erosion and corrosion	VT

1.1.2.4. Turbine assembly insulation and cladding

On completion of replacement / refurbishment / Overhauling of Steam turbine and related auxiliary equipment the Successful Bidder shall box up and couple /connect the equipment /systems and shall apply new insulation including cladding (for new equipment / dismantled and Overhauled equipment / for equipment where insulation is in damaged condition) as per OEM specification, on the equipment /systems for both units. The supply of insulation material for the same is included in the Successful Bidder scope.

1.1.2.5. Civil Work

The Successful Bidder shall be responsible for civil work involved with the Overhaul of the TG package. Key civil work activities to be undertaken shall include, but not be limited, to the following:

1. Roof sealing and side cladding in the TG Hall which shall include turbine floor roof replacement work, side cladding work, replacement of turbo ventilator
2. Installation of P/F turbine floor roof drain
3. Installation of shutters and windows at turbine floor area
4. Replacement of Turbine roof and turbine roof cladding
5. Repair and replacement of rolling sheet in TG
6. Construction of cable trench in TG area

1.1.3. Overhauling activities (Generator)

1.1.3.1. Overhaul Plan

The Successful Bidder shall be responsible for performing comprehensive Overhaul of the generator. The list of activities to be carried out, with the associated tests, as per OEM guidelines, have been detailed below:

Plan P1 – Tests to be performed before shutdown inspection and after inspection and start up

Test
Shaft voltage measurement and spectrum analysis, check of shaft earthing device efficiency
Vibration recording
Reflectometric test with rotor running (RSO)
Impedance, tan delta measurement ,during shutdown and after completion of OH
Operation data recording before shutdown
Slip rings roundness check (on turning gear)

Stator

Plan P2 – Stator core

Component	Activity
Stator core attachment	Visual checks and examination of welding seams
Stator core fouling	Inspect for fouling such as oil, dust, corrosion
	Inspect the air ducts for free passage, cleanliness
Stator core clamping	Check stator core clamping for dust spacers, clamping fingers and for loose laminations
Clamping plates	Check the pressure between the clamping pin lug and the clamping plate

Plan P3 – Stator winding

Component	Activity
Stator end-winding	Fouling, damage of the colored coating
	Traces of vibration
	Insulation caps for crack, brittleness as well as binding
	Freedom from play of the end-winding support
End-winding	Fouling

Component	Activity
support	Fastening to the clamping plate
Seating of the slot-wedges	Inspect the wedging, tangential wedging, rewedging
Stator winding	Slot openings appraisal
Insulation resistance	Measurement as well as recording of the insulation resistance and if need:-improvement of IR value by suitable corrective methods including insulating varnish for insulation level improvement and heat relieving thereof, PI, Overvoltage proof, Tan delta, PD, Bump Test shall also be carried out.
DC voltage examination	High voltage test including PI, Overvoltage proof, Tan delta, PD, Bump Test , etc. according to relevant OEM guidelines
Resistance thermometer	Functional test, calibration
Phase Rings	Inspection of general condition, and checking for fouling (oil, dust), damage to the coating, marks of vibration
Generator leads	Inspection of general condition, and checking for fouling (oil, dust), damage to the coating, marks of vibration
Lead-ins	Inspection of general condition, and checking for fouling (oil, dust), damage to the coating, marks of vibration

Plan P4 – Casing

Component	Activity
Inner cover	Cleaning
	If needed, take out and replace the locking plates
Air guide	Check condition of rubber gaskets and locking bolts
Outer cover	Inspection of gasket
Air Filter	Inspection, supply, and replacement of air filters of casing and cabinet as needed

Rotor

Plan P5 – Rotor assembly

Component	Activity
Rotor	Fouling due to oil, dust or corrosion
	Determine cause and correct
Bearing	Check for condition of surface. If needed, remachine

Component	Activity
journals	
Coupling flange	Check for rotary run-out
	Measurement of parallelism, corrosion, and protective coating.
	If needed check for cracking with dye penetrant test
Retaining rings	Inspect visually on corrosion and damage
	If needed, check for cracking using dye penetrant or U.S test

Plan P6 – Rotor winding

Component	Activity
Rotor winding	Dynamic impedance and recurrent surge oscillator (R.S.O) test
Rotor end-winding	Visual inspection using mirror or endoscope
	Check for loose spacer pieces or insulation out of place
End-winding bracing	Check for loose spacer pieces or insulation out of place
	Clean fouled location
Insulation resistance	Measure and check insulation resistance and if needed:-improvement of IR value by suitable corrective methods including insulating varnish for insulation level improvement and heat relieving thereof, Resistance measurement and RSO Test.
Slot wedging	Visual check for cleanliness of holes and for insulation out of place
	Check for correct tightening and securing of balancing weights
Rotor leads	Supply line bolt and winding connection
	Check on tightening torque for bolts and bolting

Plan P7 – Axial fans

Component	Activity
Fan blades	Rechecking the setting angle
	Check for scrape marks and mechanical damage
Locking pins	Check on the fan blade fastening
Bolts	Check on the fan blade fastening
Nuts	Check on the fan blade fastening

Bearing

Plan P8 – Bearing assembly

Component	Activity

Component	Activity
High pressure jacking oil connections (when foreseen)	Functional test of rotor jacking at all bearings. If needed, measurement of jacking oil pressure
	Check all screwed connections for leaks
Bearing shells	Visual inspection for scoring and support pattern
	Checking adhesion of bearing metal using ultrasonic and dye penetrant test
	Measurement and if needed, adjustment of bearing clearance
Bearing insulation	Check the insulation values
Bearing pedestal	Housing guide, check alignment and fastening bolts
Oil deflectors / baffles	Checking of condition and of clearances
Bearing white metal temperature detector	Functional test, calibration

Plan P9 – Oil monitoring system

Component	Activity
Bearing oil temperature detector	Functional test, calibration
Bearing oil pressure detector	Functional test, calibration

Generator monitoring system

Plan P10 – Cooling air system

Component	Activity
Liquid leakage detector	Functional test
Resistance thermometer	Functional test and calibration
Dial thermometer	Functional test and calibration
Make-up filter	Clean, if needed take out and replace

Plan P11 – Standstill heating

Component	Activity
Space heaters	Functional test

Plan P12 – Rotor grounding

Component	Activity
Stranded copper wire	Check for condition

Coolers

Plan P13 – Coolers

Component	Activity
Condition	Check general condition of cooler. If needed, carry out repairs
	Leakage test (overpressure test)
Sealing of the water chambers	Check for condition. If needed, replace
Sealing of the cooler casing to stator frame or connection ducts	Check for condition. If needed, replace

Plan P14 – Water monitoring

Component	Activity
Monitoring instruments	Functional test, calibration

Brush gear and slip rings

Plan P15 – Brush gear

Component	Activity
General	Check general conditions of brush holder
Securing of bolts	Check that all electrical and mechanical screws are correctly tightened
Flat spital	Check the pressure spring. If needed, replace the worn springs

Component	Activity
spring	

Plan P16 – Brushes

Component	Activity
Operating conditions	Visual check for correct running of brushes (with no excessive sparks or vibrations)
	Verify the normal noise of the system
	Monitor excitation current and verify brushes current density
Flexible connections	Check for condition
Brush wearing	Verify wearing
Brushes	Replace brushes

Plan P17 – Slip ring assembly

Component	Activity
Rings surface	Visual check the condition using a stroboscopic lamp
	At standstill measure wear, dept of scratches, eccentricity
	If needed reground or replace
Brush-holder	Check conditions
Duct	Replacement of slip ring duct filter
Air deflectors	Check conditions and insulation

Plan P18 – Monitoring system

Component	Activity
Monitoring instruments	Functional test, calibration
Air filter	Check for conditions. As needed, clean or replace

Protection system

Plan P19 – Instrumentation and detectors

Component	Activity
Instrumentation and detectors	Measurements of ohmic resistance of RTDs (slot, stator core, coolers, bearings)
	Ground insulation resistance measurement of RTDs

Component	Activity
	Verify of water leakage detectors
	Check of shaft earthing device

Excitation system

Plan P20 – Excitation Panels

Test
Inspection, functional tests, parameter checking, preventive maintenance, including supply and replacement of defective / non-functional accessories and static excitation system cards, if required

Plan P21 – Excitation Transformer

Test
Inspection, preventive maintenance, including supply and replacement of defective / non-functional accessories, if required
Inspect excitation protection relay and replace if needed

1.1.3.2. Commissioning and synchronization activities

The Successful Bidder shall be responsible for commissioning and synchronization of the turbine generator system across both units of the Plant and ensuring observation for 72 hours after synchronization at full load with design parameters and continuous operation of machine, with observation of performance parameters and supervisory parameters. During the commissioning and synchronization, the Successful Bidder shall be responsible for arranging vibration specialists who will monitor and record the vibration parameters during system run up and till the system is stabilized at full load, for each Unit of 125 MW.

1.2. Scope for supply of material

The Successful Bidder shall be responsible for supply of all the material / equipment / spares only from OEM detailed as part of Annexure 3. The Successful Bidder shall procure 02 (two) sets of all material / equipment / spares detailed in Annexure 3 for capital overhauling of both units of the Plant simultaneously.

Further, if any additional material / equipment / spares are required over and above the list specified in Annexure 3 and tools / tackles specified in Annexure 4, the Successful Bidder shall arrange for the same to ensure timely and successful completion of the Overhaul.

Successful Bidder has to submit certificate from OEM of the procurement with test certificate of the spares as evidence. The Successful Bidder shall also be responsible for supply of special tools and tackles detailed as part of Annexure 4, post assessing current availability and condition of the same at

the Plant. The Successful Bidder shall quote a lump sum price for supply of spares as indicated in Section __ of this document.

1.2.1. Procurement planning

1. The Successful Bidder shall create a 'Procurement Register' for the TG package in collaboration with the PMC, including all the detailed item-wise Bills of Quantity (BoQs) with associated costs and technical specifications to ensure adherence to desired quality and exercise cost control within Contractual limits
2. The Successful Bidder shall prepare a 'Procurement Plan' for the TG package for the purpose of monitoring all Procurement activities and ensuring timely delivery of all material across all Packages, in line with the timelines mentioned in Section __ (Contract Duration) and Section __ (Payment Milestones)
3. The Successful Bidder shall coordinate with the PMC in maintaining a digital data sheet (in excel format) of the 'Procurement Plan', with the desired timelines and costs vis-à-vis the actual timelines followed and costs incurred to track compliance. The Successful Bidder and PMC shall grant all requisite access to the data sheet to the the Owner, and share necessary summaries for reporting purpose, if requested

1.2.2. Physical verification

The Successful Bidder shall, in coordination with the PMC, conduct physical verification of existing inventory at the Plant to identify the equipment and associated spares and material readily available to be utilized during the Overhaul. Further, the Successful Bidder shall integrate the existing inventory with the 'Procurement Register' to ensure optimal Procurement and consumption of material.

1.2.3. Material management

The Successful Bidder shall deploy appropriate material management systems (e.g., ERP solutions) to track movement of material and adherence to schedules and quality. Further, the Successful Bidder shall integrate the system with the digital data sheet described in Section __ of Part __ of this document.

1.2.4. Quality management

The Successful Bidder shall ensure the procurement of material is as per the technical and design specifications provided by the OEM, and adhere to highest standard of engineering and workmanship, to ensure after completion of the Overhaul, the Plant shall be capable of performing in a safe, reliable, sustainable, and in a manner acceptable to the owner.

1.2.5. Packing and transportation

1. The Successful Bidder shall be responsible for packing and transportation of all material to be repaired / refurbished from the Plant to the Successful Bidder's / supplier's facilities and back to the Plant. The Successful Bidder shall also be responsible for loading, unloading, preservation, and storage of the material during transit

2. The Successful Bidder shall arrange for appropriate transit insurance and clearances from relevant authorities for all material to be transported from the Plant to the Successful Bidder's / supplier's facilities and back

3. The Successful Bidder shall be solely responsible to replace the material that may be damaged or lost in transit and shall bear the cost for all such material. Further, the Successful Bidder shall provide notice in writing to the owner, copying the PMC and the Owner with the details of the issue, as needed

1.2.6. Factory (FATs) and site acceptance tests (SATs)

1. The Successful Bidder shall arrange for factory acceptance tests to be conducted for all the material / equipment at the Successful Bidder's/ supplier's facilities, prior to shipping, in the presence of the owner, the PMC, and other representatives deployed by the owner, if needed
2. The Successful Bidder shall arrange for appropriate certificate through Government approved NABL labs for material of construction (MOC) used for the material/equipment procured. Further, the Successful Bidder shall ensure the certificates are in line with OEM guidelines and acceptable specifications.
3. The Successful Bidder shall provide a notice of at least 3 weeks prior to arranging for factory acceptance tests at the Successful Bidder's/ supplier's facilities and provide the procedure for conducting the test for the owner's approval
4. The factory acceptance tests shall include, but shall not be limited to, the following key activities:
    i. Visual inspection: Inspection of the material / equipment for any physical defects, damage, or other issues
    ii. Functional testing: Testing the material / equipment to ensure that it performs the intended functions and meets the specified performance criteria, as applicable
    iii. Safety testing: Testing the safety features of the material / equipment to ensure that they function as intended and meet any applicable safety standards or regulations, as applicable
    iv. Documentation review: Reviewing the documentation related to the material / equipment, such as user manuals, technical specifications, and test reports
5. The Successful Bidder shall ship the material / equipment to the Plant only upon successful completion of the factory acceptance tests and sign-off by the owner and owner's representatives
6. Upon delivery and installation of material / equipment at the Plant, the Successful Bidder shall arrange for a site acceptance test in the presence of the owner, the PMC, and other representatives deployed by the owner, if needed
7. The Successful Bidder shall provide a notice of at least 3 weeks prior to arranging for site acceptance tests at the Plant and provide the procedure for conducting the test for the owner's approval

8. The site acceptance tests shall include, but shall not be limited to, the following key activities:

   i. Verification of installation: Verifying that the equipment or system has been installed correctly, according to the manufacturer's instructions and any applicable standards or regulations

   ii. Functional testing: Testing the material / equipment to ensure that it performs the intended functions and meets the specified performance criteria

   iii. Integration testing: Testing the integration of the material / equipment with other systems or components that it will be working with, prior to commissioning

   iv. Operational testing: Testing the material / equipment under various operating conditions to ensure that it can perform reliably and consistently

   v. Documentation review: Reviewing the documentation related to the material / equipment, such as user manuals, technical specifications, and test reports

1.2.7. Storage of material in Plant

The Successful Bidder shall be responsible for storage of all procured material / equipment at the Plant within the Successful Bidder's shed. The Successful Bidder shall be solely responsible for security of the material / equipment at the Plant. In case of theft / burglary / loss of material, the Successful Bidder shall bear the cost of replenishing the material and ensure timely delivery to minimize impact on the execution of the Overhaul.

1.3. Standards for performance of obligations

The Successful Bidder represents and warrants that it has the requisite skills, experience, expertise, and capacity to fulfill its obligations and responsibilities under the Contract. The Successful Bidder shall perform all of its services hereunder in accordance and compliance with:

1. Accepted prudent industry practices
2. OEM specified operating procedures, OEM specified maintenance and overhauling procedures
3. Incident reporting with corrective and preventive measures
4. Implementation of lessons learnt from incidents on similar facilities
5. Timely implementation of technical corrections suggested by the OEM to the existing setup if any
6. All Applicable Laws
7. All applicable clearances to be obtained and maintained including but not limited to all relevant health and safety legislations, environment permits and licenses

The Successful Bidder shall have round-the-clock qualified, trained, and experienced, with valid necessary certifications, crew of adequate strength who are alert and vigilant for carrying out all the normal and emergency operations, start-up, and shutdown of TG. Startup and shutdown of the plant will be done by ATPS engineers under OEM supervision

1.4. Standards for Sub-contracting

For the purpose of performing its obligations under the Contract, the Successful Bidder may appoint Sub-Contractors with prior written intimation to the Owner as deemed fit. Appointment of such Sub-Contractors by the Successful Bidder shall at no time mean that the Successful Bidder is relieved of its primary duty and liability to perform its obligations as set out in the Contract. The Contractor shall be responsible for:

1. Obtaining any and all necessary authorizations required for use of all Plant infrastructure / facilities in connection with the performance of its obligations hereunder
2. Ensuring adherence to standard operating procedures and safety standards by the Sub-Contractor and be liable in the event of any issue affecting the performance of the asset

2. Responsibilities of the Owner

2.1. Responsibilities of the Owner

The Owner shall be responsible for the following key activities pertaining to the execution of the Overhaul of the Plant

2.1.1. Access to Plant infrastructure

The Owner will arrange for the Successful Bidder's accommodation and food and beverage requirements at the Plant for the key Personnel deployed on ground to oversee the execution of the Overhaul, on chargeable basis and on the basis of availability of accommodation. In case infrastructure is not available, the Successful Bidder shall be responsible for arranging the same. The Successful Bidder shall ensure that the Personnel are available at the Plant for the entire course of Overhaul and shall take requite consent from the Owner with prior intimation through a Written Notice in case of any changes in availability of Personnel.

2.1.2. Access to documents and data

The Owner shall provide the Successful Bidder with access to available drawings, documents, OEM manuals, and operational information required for the successful execution of the Overhaul. In case any technical drawing, document is unavailable with the owner, then the same shall be developed by the Successful Bidder at its own cost and risk.

2.2. Rights of the Owner

The Owner, throughout the tenure of the Contract, reserves the following rights relating to preparation and execution of the Overhaul of the Plant, not specifically granted to the Successful Bidder.

2.2.1. General policies and procedures

The Owner reserves the rights for review and determination of general policies and procedures not previously delegated to the Successful Bidder as part of the scope of work.

2.2.2. Audits

The Owner may, from time to time, designate any responsible person on its behalf to conduct audits, pertaining to the Owner's capacity defined in the Contract, of financial (billing and invoicing), technical, safety, and to visit and inspect the Plant to discuss such affairs, which relate to the services provided by the Successful Bidder, with its authorized representatives.

2.2.3. Access to data

The Owner reserves the rights to access all records, documents, and data relating to the services provided by the Successful Bidder during the preparation and the execution of the Overhaul, including for making copies thereof or extracts.

The Owner shall have the right, at all times, on reasonable notice and at the premises of the Successful Bidder to examine drawings / design documents which have been prepared by the Successful Bidder

3. Performance Guarantee Testing (PGT) and acceptance procedures

3.1. Performance Guarantee Testing (PGT)

1. The Successful Bidder shall submit for PMC and Owner's approval, the detailed Performance Test procedure containing the following:
    i. Object of the test
    ii. Various guaranteed parameters and tests as per contract
    iii. Method of conductance of test and test code
    iv. Duration of test, frequency of readings and number of test runs
    v. Method of calculation
    vi. Correction curves
    vii. Instrument list consisting of range, accuracy, least count, and location of instruments
    viii. Scheme showing measurement points
    ix. Sample calculation
    x. Acceptance criteria
    xi. Any other information required for conducting the test
2. The Performance /Acceptance tests shall be carried out by the Successful Bidder as per the procedures approved by competent authority of the PMC and the Owner in accordance with the procedures as per the OEM
3. The Successful Bidder shall make the equipment ready for carrying out the performance guarantee tests post completion of the Overhaul
4. The tests shall be binding on the Successful Bidder to determine compliance of the equipment with the performance guarantees. No separate performance tests need be done on equipment which is already tested at shop
5. All instruments required for performance testing shall be of the type and accuracy required by the code and prior to the test, the Successful Bidder shall get these instruments calibrated in an

independent test institute. All test instrumentation required for performance tests shall be supplied by the Successful Bidder and shall be retained by him upon satisfactory completion of all such tests at site. All costs associated with the supply, calibration, installation, and removal of the test instrumentation shall be borne by the Successful Bidder. All calibration procedures and standards shall be subjected to the approval of the owner. The protecting tubes, pressure connections and other test connections required for conducting guarantee test shall conform to the relevant codes

6. Tools and tackles, thermo wells (both screwed and welded) instruments/ devices including flow devices, matching flanges, impulse piping, and valves etc., and any special equipment, required for the successful completion of the tests, shall be provided by the Successful Bidder.

7. After the conductance of Performance test, the Successful Bidder shall submit the test evaluation report of Performance test results to owner promptly but not later than two weeks from the date of conductance of Performance test. However, preliminary test reports shall be submitted to the owner after completing each test run

3.2. Performance guarantee parameters

The Successful Bidder shall adhere to the performance based KPIs set forth in Section __ of Part __ of this document in order to ensure successful completion of the Overhaul and obtain an 'Operation Acceptance Certificate' by the PMC. Further, the Successful Bidder shall ensure the supervisory parameters (e.g., vibration, clearance, etc.) are in the line with the OEM technical and design specifications detailed in Annexure 1.

A 'Maximum Acceptable Limit' has been defined for the turbine heat rate (THR). If at the time of PGT the THR is found to be greater than the Maximum Acceptable Limit, the owner has the right to ask for a retest as per Section __, subsequently reject the equipment, forfeit associated payments set forth in Section __ of Part __ of this document, and recover any payments already made.

Similarly, if at the time of PGT, the power output for each unit is found to be lower than 125 MW, and / or the noise levels are found to be greater than 85 dB, the owner has the right to ask for a retest as per Section __, subsequently reject the equipment, forfeit associated payments set forth in Section __ of Part __ of this document, and recover any payments already made.

3.3. Notice of tests

The Successful Bidder shall issue 21 (twenty-one) days' notice to the Owner of the date after which he will be ready to commence the tests and the Successful Bidder shall commence the tests promptly thereafter.

3.4. Retesting

If the unit fails to pass the test (which in the case of performance tests means not achieving the acceptable limits), the Owner reserves the right to ask the Successful Bidder to repeat such tests on the same terms and conditions. The retest shall be conducted by the Successful Bidder within 14 (fourteen) days of notification from the Owner.

3.5. Delayed tests

If the tests could be carried out but are being unduly delayed by the Successful Bidder, the Owner may by notice inform the Successful Bidder to conduct the tests within 14 (fourteen) days after the receipt of such notice. The Successful Bidder shall conduct the tests on such days within that period as the Successful Bidder may fix and of which he shall issue notice to the Owner.

If the Successful Bidder fails to conduct the tests within such notice the Owner may himself proceed with the tests. All tests so conducted by the Owner shall be at the risk and cost of the Successful Bidder and the cost thereof shall be deducted from the contract price or charged to the Successful Bidder. The tests shall then be deemed to have been conducted by the Successful Bidder and the test results shall be binding on the Successful Bidder.

3.6. Independent inspector

The Owner reserves his right to appoint an independent inspector, at its own cost, as its representative to discuss the test program, to approve the instrumentation, to witness the tests and to analyze the test results.

It is Successful Bidder's responsibility to co-ordinate for suitably carrying out the performance tests. The duration of the test shall be in accordance with the agreed test codes at the loads after necessary stabilizing period to obtain steady state conditions. All other tests to prove the guarantees as indicated in the Successful Bidder's offer shall also be conducted.

The equipment parameters during the performance test shall be adjusted as far as practicable to the guaranteed performance test conditions. The tests shall be conducted to prove guaranteed parameters as defined in the contract.

The performance test results shall be reported as computed from the performance test observations with corrections for site conditions, variations in load, etc., and test conditions. Such correction curves shall be submitted along with the bid. No additional allowances for errors in measurement are permissible. The measurement uncertainty on the performance test guarantee values, as reported on the basis of above tests shall not exceed the uncertainty limits specified.

3.7. Reporting of test results

Immediately after the conclusion of the performance test, The Successful Bidder shall submit a test report (Six copies of each test) to the Owner stating whether the unit has passed or failed such test, accompanied by sufficient test data and calculations to demonstrate the level of performance attained with respect to each of the tested parameters.

The report(s) shall include as a minimum, the following:

i. Description of the test procedures
ii. Standards that were used
iii. Instrumentation details and calibration
iv. Full schematic diagrams with indication of instrument test location and identification tag of same
v. Test logs and summary of test readings used for performance calculations

vi. Full set of correction curves, if applicable
vii. Computation of test results
viii. Computations to prove measurement uncertainty is within acceptable limits
ix. Electrical output from steam turbine generator
x. Turbine Heat Rate (THR)
xi. Plant performance parameters
xii. Templates for calculations (validated by the PMC)
xiii. Data reduction
xiv. Chronology of events
xv. List of exceptions to procedure
xvi. Operator log sheets
xvii. Detailed calculations at guaranteed loads
xviii. Conclusions of performance tests: test passed or not

3.8. Acceptance of test report

Within 14 (fourteen) days of receipt such test report(s), the Owner shall submit a notice to the Successful Bidder stating either:

i. That Owner concurs with the information provided in the Successful Bidder's test report(s), or
ii. That Owner disputes some or all of the information provided in the Successful Bidder's test report(s), the areas being disputed, and the levels of performance being disputed.

If Owner concurs with the information in the Successful Bidder's test report(s), the Owner shall, within 14 (fourteen) days of receipt of the test report, provide a written notice to the Successful Bidder accepting the results of the tests.

If Owner disputes any or all of the results contained in the Successful Bidder's test report(s), representatives of the Successful Bidder, Owner and the Engineer shall meet within 14 (fourteen) days of the receipt of the Owner notice at a mutually acceptable location to review and discuss the dispute.

3.9. Disagreements as a result of tests

If the Owner and the Successful Bidder disagree on the interpretation of the test results, each shall give a statement of his views to other within reasonable time after such disagreement arises. The statement shall be accompanied by all relevant evidence. The Owner and the Successful Bidder shall mutually discuss and agree regarding the results of the test.

4. Reporting requirements and deliverables

The Successful Bidder shall prepare and submit a comprehensive 'Overhaul Completion Report' incorporating the key activities undertaken, results of the Performance Guarantee test, and list of material supplied to the Owner as part of the Overhaul, within 2 weeks of completion of the Overhaul, to mark the completion of the Overhaul.

Further, the Successful Bidder shall prepare and submit fortnightly progress reports with the PMC, and the Owner. Each progress report shall include:

1. Photographs and detailed descriptions of progress including each stage of design, procurement, manufacture, delivery at Site, construction, erection, testing and commissioning
2. A detailed description of the milestones achieved, and the Work/ Services performed prior to the date of the fortnightly progress report and the extent to which payments therefore have been received against the milestones
3. A description of the current status (the name of manufacturer, manufacture location, percentage progress, and the actual or expected dates of commencement of manufacture, Successful Bidder's inspections, tests, and delivery) of supplies and Equipment and of Successful Bidder's and all Major Sub-Contractors activities and engineering, manufacturing and construction progress as compared with the Project Schedule.
4. Copies of quality assurance reports including test results (i) from the manufacturing and fabrication facilities of all Sub-Contractors and (ii) with respect to all construction activity at the Facility Site
5. Safety statistics required under Applicable Laws, including details of any hazardous incidents and activities relating to environmental aspects and public relations.
6. Comparisons of actual and planned progress, with details of any aspects which may jeopardize the completion in accordance with the Contract, including Overhaul Execution Plan and the mitigation measures / action plan being (or to be) adopted to overcome such aspects. It shall include a clear identification and evaluation of problems and deficiencies in the Services (including but not limited to an evaluation of any factors which are anticipated to have a material effect on the Project Schedule).
7. Any other information as considered necessary by Owner / Owner's Representative.

5. Contract Performance Measurement

5.1. Key Performance Indicators (KPIs)

The Successful Bidder shall adhere to the following KPIs and targets during the Overhaul. In case of shortfall, liquidated damages shall be applicable and in case of superior performance, incentives shall be applicable as per the following sections:

5.1.1. Time-based KPIs

Phase	KPI	Liquidated damages	Incentive
Procurement of material / equipment	Schedule compliance with 'Procurement Plan' for TG package prepared by the Successful Bidder as per Section __ of Part __ of this document	0.5% of total lumpsum price for supply of material / equipment for every week of delay in completion of 'Procurement Plan'	NA
Execution of Overhaul	Schedule compliance with 'Overhaul Execution Plan' for TG package prepared by the Successful	0.5% of total lumpsum price for Overhaul execution for every week of delay in completion of	0.5% of lump sum price for Overhaul execution for every week of delivering ahead of schedule in

Phase	KPI	Liquidated damages	Incentive
	Bidder as per Section __ of Part __ of this document	'Overhaul Execution Plan'	completion of 'Overhaul Execution Plan'

5.1.2. Performance-based KPIs

KPI	Threshold (for each unit)	Liquidated damages
Turbine Heat Rate (THR) and 100% TMCR	1963 kCal/kWh Maximum Acceptable Limit: 1970 kCal/kWh	INR 0.72 Cr per 1 kCal/kWh increase in THR for each unit, up to Maximum Acceptable Limit, rejection of equipment thereafter
Power output at 100% TMCR load, rated steam conditions, rated backpressure, and zero makeup	125 MW	Rejection of equipment below 125 MW
Generator efficiency at 100% load	98.56%	Rejection of equipment below 98.56%
Noise level	85 dB (at a distance of 3m)	Rejection of equipment above 85 dB

Testing Conditions and Standards

Testing conditions:

During the tests the Plant shall operate at conditions as near as possible to the reference conditions and the Plant systems shall be set-up according to the heat balances taking care of the isolation in order to avoid the imposing and the exporting of unwanted flows and/or electrical energy.

Before starting the tests, an adequate period of steady state operation will be necessary. The parties will decide about the attainment of steady state conditions following the guidelines set forth in ASNI/ASME Code PTC 6.

The turbine temperature has to be stable before starting any test and the recommended duration of each test shall not be less than two hours.

Testing standards:

The acceptance tests shall be performed in accordance with applicable ANSI/ASME standards specifications as stated below:

1. ANSI/ASME PTC 6 – 1996: Performance Test Code 6 on Steam Turbines

2. ANSI/ASME PTC 6 Report – 1985: Guidance for Evaluation of Management Uncertainty in a performance test of steam Turbine
3. ANSI/ASME PTC 6S Report – 1985: Simplified procedure for routine performance test of steam turbine
4. VDI Wasserdampftafeln – 1986: Steam Table

Test instrumentation:

The Successful Bidder shall use dedicated calibrated equipment earmarked by the PMC to measure quantities entering directly into the performance guarantee calculations.

The instruments that shall be used to measure quantities entering directly into the performance guarantee calculations shall have the class of accuracy specified by the OEM guidelines.

The instruments shall be calibrated before the tests by a qualified laboratory (except for the Bourdon type pressure gauges which can be calibrated at site using a dead weight tester). The Owner shall reserve the right to witness the instrument calibration. Calibration certificates shall be submitted by the Successful Bidder to the Owner.

Upon completion of the tests, the normal operating instruments shall be reinstalled if they have been removed for the test and re-calibrated, if required.

Calculation methods:

The Successful Bidder shall use the following methodology to estimate the Turbine Heat Rate (THR) required for delivering the performance guarantee, as per the OEM design specifications.

Main steam flow rate:

$G_{ms} = G_{ffw} – G_{rhsw}$

Where,

G_{ms} – Main steam flow rate
G_{rhsw} – Flow rate of boiler Reheater spray water
G_{ffw}– Feed water flow rate

#6 Extraction steam flow rate:

$$G_{6ex} = \frac{(G_{ffw} \times (H_{6w_O} - H_{6w_{In}}))}{(H_{6s\_In} - H_{6w\_d})}$$

Where,

G_{6ex} – #6extraction steam flow rate
H_{6w_o} – #6 HP heater outlet water enthalpy
H_{6w_in} – #6 HP heater inlet water enthalpy
H_{6s_in} – #6 HP heater inlet steam enthalpy
H_{6w_d} – #6 HP heater drain water enthalpy

#5 Extraction steam flow rate:

$$G_{5ex} = \frac{\left(G_{ffw} \times (H_{5w_O} - H_{5w_{In}})\right) - \left(G_{6ex} \times (H_{6w\_d} - H_{5w\_d})\right)}{(H_{5s\_m} - H_{5w\_d})}$$

Where,

G_{5ex} - #5 extraction steam flow rate
H_{5w_o} - #5 HP heater outlet water enthalpy
H_{5w_in} - #5 HP heater inlet water enthalpy
H_{5s_in} - #5 HP heater inlet steam enthalpy
H_{5w_d} - #5 HP heater drain water enthalpy

Cold – reheat steam flow rate

$G_{crh} = G_{ms} - G_{6ex} - G_L$

Where,

G_{crh} - Cold reheat steam flow rate
G_{6ex} - #6 extraction steam flow
G_L - Gland steam out of HP turbine (design value from HBD)

Hot reheat steam flow rate

$G_{hrh} = G_{crh} + G_{rhsw}$

Where,

G_{hrh} - Hot reheat flow
G_{rhsw} - Reheat spray flow

Turbine Heat Rate (THR):

$$HR_m = \frac{\left(\left(G_{ms} \times H_{ms} - G_{fw} \times H_{fw}\right) + (G_{hrh} \times H_{hrh} - G_{hrh} \times H_{cr})\right) \times 860}{1000 \times P_m}$$

Where,

$G_{ms}$is the Main steam flow rate
H_{ms} is the Main steam enthalpy
H_{fw} is the Boiler feed water enthalpy
G_{fw} is the Boiler feed water flow rate
G_{hrh} is the Hot reheat steam flow rate
H_{hrh} is the Hot reheat steam enthalpy
H_{crh} is cold reheat steam enthalpy
P_m is the power output measured at generator terminals

5.2. Overall ceiling on Liquidated Damages and incentives

1. All liabilities due from the Successful Bidder arising out of the shortfall of performance levels mentioned under Section __, as per the liquidated damages defined in Section __, during the course of the Overhaul, shall be restricted to a maximum of 20% of the lump sum price for supply of material and Overhaul execution defined in Section __ of Part __ of this document

2. All incentives due to the Successful Bidder arising out of the enhanced performance levels mentioned under Section __, as per the incentives defined in Section __, during the course of the Overhaul, shall be restricted to a maximum of 5% of the lump sum price for Overhaul execution defined in Section __ of Part __ of this document

6. **Defect liability**

1. The Successful Bidder warrants that the TG and associated auxiliaries or any part thereof shall be free from defects in the design, engineering, materials, and workmanship of the equipment supplied and of the work executed
2. The Defect Liability Period shall be 18 (eighteen) months from the date of Completion of the Overhaul (or any part thereof) or 12 (twelve) months from the date of Operational Acceptance of the equipment (or any part thereof), whichever first occurs, as certified by the PMC/owner /any agency on behalf of owner
3. If during the Defect Liability Period any defect should be found in the design, engineering, materials, and workmanship of the equipment supplied or of the work executed by the Successful Bidder, the Successful Bidder shall promptly, in consultation and agreement with the Owner regarding appropriate remedying of the defects, and at its cost, repair, replace or otherwise make good (as the Successful Bidder shall, at its discretion, determine) such defect as well as any damage to the equipment caused by such defect
4. The Owner shall give the Successful Bidder a notice stating the nature of any such defect together with all available evidence thereof, promptly following the discovery thereof. The Owner shall afford all reasonable opportunity for the Successful Bidder to inspect any such defect.
5. The Owner shall afford the Successful Bidder all necessary access to the Plant to enable the Successful Bidder to perform its obligations under this clause
6. The Successful Bidder may, with the consent of the Owner, remove from the Plant, any equipment or any part of the equipment that are defective if the nature of the defect, and/or any damage to the Plant caused by the defect, is such that repairs cannot be expeditiously carried out at the Plant
7. If the repair, replacement or making good is of such a character that it may affect the efficiency of the equipment or any part thereof, the Owner may give to the Successful Bidder a notice requiring that tests of the defective part of the equipment shall be made by the Successful Bidder immediately upon completion of such remedial work, whereupon the Successful Bidder shall carry out such tests.
8. If such part fails the tests, the Successful Bidder shall carry out further repair, replacement or making good (as the case may be) until that part of the equipment passes such tests. The tests in character shall in any case be not less than what has already been agreed by the Owner and the Successful Bidder for the equipment

9. If the Successful Bidder fails to commence the work necessary to remedy such defect or any damage to the equipment caused by such defect within a reasonable time (which shall in no event be considered to be less than fifteen (15) days), the Owner may, following written notice to the Successful Bidder, proceed to do such work, and the reasonable costs incurred by the Owner in connection therewith shall be deducted by the Owner from any payment due to the Successful Bidder or claimed under the Performance Security

10. If the equipment or any part thereof cannot be used by reason of such defect and/or making good of such defect, the Defect Liability Period shall be extended by a period equal to the period during which the equipment or such part cannot be used by the Owner because of any of the aforesaid reasons. Upon correction of the defects in the equipment or any part thereof by repair/ replacement, such repair/re placement shall have the Defect Liability Period extended by a period of twelve (12) month from the time such replacement/repair of the equipment or any part thereof

11. At the end of the Defect Liability Period, the Successful Bidder liability ceases except for latent defects. The Successful Bidder's liability for latent defects warranty shall be limited to a period of five (5)years from the end of Defect Liability Period. For the purpose of this clause, the latent defects shall be the defects inherently lying within the material or arising out of design deficiency which do not manifest themselves during the Defect Liability Period

12. In case, there is any dispute between Owner and Successful Bidder regarding latent defects, a third party as mutually agreed upon by the Owner and the Successful Bidder shall be engaged by the Owner for settling the dispute

13. The third party, so engaged by the Owner, shall be paid fee plus reasonable expenditures incurred in the execution of its duties as mentioned above. These costs shall be recoverable from the Successful Bidder and the Successful Bidder shall bear and / or reimburse such costs to the Owner if the latent defect has been proved. If the dispute regarding latent defects cannot be settled as above, then the dispute shall be settled as per Section __ (Arbitration) as deemed fit

6. Payment terms

6.1. Lumpsum Charges for TG Package

The Successful Bidder shall quote the lumpsum charge for supply of material and lumpsum charge for Overhaul execution (services) for the duration of the execution of the Overhaul, as per the Price Bid format specified in Annexure 18 of this document.

6.2. Payment milestones

The Owner hereby covenants to pay the Successful Bidder for performance of the Contractual terms as payment terms specified hereunder –

T – date of acceptance of LOA

Category	Activity	% of total contract value	Timelines
Supply of material	Mobilization fee	10%	T + 2 weeks
	Dispatch of all equipment / spares,	45%	T + 16 weeks

Category	Activity	% of total contract value	Timelines
	material - satisfactory evidence of FATs and shipment to be provided, and invoices to be produced		
	Receipt of equipment on site and physical verification and certification of the same	20%	T + 20 weeks
	Completion of SATs for equipment across both units and issue of certificate by PMC	5%	T + 24 weeks
	Completion of Guarantee Tests for both units and issue of Operation Acceptance Certificate by the PMC	5%	T + 40 weeks
	Submission of final 'Overhaul Completion Report' approved by Authority	10%	T + 42 weeks
	Completion of defect liability (warranty period)	5%	18 (eighteen) months from the date of Completion of the Overhaul or 12 (twelve) months from the date of Operational Acceptance of the equipment, whichever first occurs
Overhaul execution	Mobilization fee	5%	T + 2 weeks
	Monthly payments against progressive installation of equipment on site	15% (per month)	Monthly payments in equal installments for 3 months during Overhaul execution
	Completion of the Overhaul activities for TG including all associated auxiliaries and ancillary works for both units and issue of Completion Certificate by the PMC	15%	T + 36 weeks
	Completion of Guarantee Tests for both units and issue of Operation Acceptance Certificate by the PMC	20%	T + 40 weeks
	Submission of final 'Overhaul Completion Report' approved by Authority	10%	T + 42 weeks

Category	Activity	% of total contract value	Timelines
	Completion of defect liability (warranty period)	5%	18 (eighteen) months from the date of Completion of the Overhaul or 12 (twelve) months from the date of Operational Acceptance of the equipment, whichever first occurs

1. The Successful Bidder shall submit invoices upon achieving milestones stated in sub clause hereinabove. Authority shall make payment within 30 days of submission of invoices upon verifying the milestone for which invoice is submitted subject to deduction of any damages pursuant to Contract conditions
2. Applicable GST, over and above approved Lumpsum Charges for TG Package, at the time of invoicing shall be reimbursed by the Owner upon submission of proof thereof. The risk of applicability of any taxes, duties, and levies except GST, shall rest with the Successful Bidder
3. The Owner shall be entitled to deduct tax at source as may be applicable. The TDS certificate(s) shall be submitted as per the due date specified in the Income Tax Act

7. Insurance

7.1. Insurance of Plant

Successful Bidder shall, at their sole cost, in the joint names of Owner, Successful Bidder, and the Sub-Contractors, take insurance cover for full replacement value for the following:

1. "Material Damage Insurance" (Storage-cum-Erection Insurance) on an “All Risk" basis(including terrorists act, SRCC) of loss or of damage arising during period of Insurance coverage to any part of the Contract works, material and supplies Successful Bidder any transit and off-site storage, and anywhere in India for ex-works Indian factory and foreign supplies, materials, etc.
2. Such insurance shall be administered and managed by the Successful Bidder and shall be affected from the Commencement date of Contract and thereafter shall operate from the time the relevant property leaves the premises of the manufacturers in the country of origin, and shall continue during the ordinary course of transit and during storage on or off the Plant site, if any, and during erection and commissioning until the date on which Owner takes over the care, custody, and control of the Plant/Equipment, to the exclusion of the Successful Bidder

7.2. Rented Equipment

1. All construction equipment shall be brought to and kept at the Site at the sole cost, risk and expense of the Successful Bidder. Owner shall not be liable for any loss or damage thereto. The Successful Bidder, at his sole discretion, may maintain adequate, appropriate and prudent insurance with respect to such construction equipment. The Successful Bidder shall obtain adequate insurance to cover all construction equipment rented or leased from third parties and also for the construction equipment of Sub-Contractor.

2. Any insurance policy carried by the Successful Bidder, any Sub-Contractor or any third party on or in respect of any construction equipment shall provide for waiver of the underwriter's right to subrogation against Owner, their assignees, subsidiaries, parent companies, affiliates, employees, insurers, and underwriters.

7.3. Statutory Insurance Benefits

The Successful Bidder shall maintain with respect to the Work to be done under the Contract, in each applicable jurisdiction, all statutory benefits and other insurance required by law including without limitation unemployment insurance.

7.4. Third Party Insurance

1. Successful Bidder shall, in the joint names of Owner, Successful Bidder and the Sub-Contractor's prior to the commencement of any work in the Plant pursuant to this Agreement, insure in an amount not being less than project cost thereof against any liability for damage or death or personal injury occurring in the Plant, obstruction, loss of amenity, trespass, nuisance or advertising liability pursuant to the Contract. Such insurance shall be endorsed or amended as to be considered primary, and any other insurance maintained by Owner shall be in addition and not contributory to this insurance.
2. Indemnity amount indicated above shall be the minimum coverage that the Successful Bidder takes under the policy. Notwithstanding the above coverage, the Successful Bidder at their discretion will take policy for an appropriate coverage not less than the indemnification amount prescribed as above, so as to meet all the liabilities that may arise on account of third-party risks from the commencement of contract till the Owner takes over the care, custody, and control of the Plant, to the exclusion of Successful Bidder.

7.5. Insurance against Accident, etc. to Workmen; Other Insurance

The Successful Bidder shall, at its sole expense, insure and shall maintain insurance as required by Indian and all other applicable laws for all actions, suits, claims, demands, costs, charges, and expenses arising in connection with the death of or injury to any person employed by the Successful Bidder or its Sub-Contractor for the purpose of the performance of the Work.

7.6. Disclosure

Each Party shall, upon request, promptly furnish the other Party any information which is reasonably available and is related to the fulfillment of the contractual obligations as is necessary to enable the other Party to comply with its disclosure obligations under the insurance which it has taken out, the terms of which have been disclosed to the other Party in writing.

At the Owner's request, the Successful Bidder shall provide evidence of insurance covers, or a certificate of all insurances maintained.

7.7. Remedy on Failure to Insure

If the Successful Bidder fail to effect and keep in force the insurance for which it is responsible under the Contract, Owner may effect and keep in force any such insurance, and pay such premiums as may

be necessary for that purpose, and from time to time, after receipt of a reimbursement request therefore accompanied by relevant supporting documentation, deduct the amount so paid by Owner from any amounts due or which may become due to the Successful Bidder under the Contract or otherwise from the Owner.

7.8. No Limitation of Liability

The required coverage referred to and set forth in this Section __ shall in no way affect or limit the Successful Bidder's liability with respect to performance of the Work or any obligation under the Contract.

7.9. Claims for losses/damages

1. Successful Bidder/Sub-Contractor shall make all claims with the underwriter/s and undertake all formalities/step required for settlement of claims
2. Successful Bidder/Sub-Contractor shall hold harmless the Owner for non-settlement/short settlement/part settlement or repudiation of claims by the underwriter/s
3. Successful Bidder shall be obliged to replace / repair the Equipment/ components/parts/spares etc., without waiting for loss settlement by the underwriter/s

8. Non fulfilment of terms and conditions and Termination of Contract

1. If at any time during the currency of this contract, if any breach occurs due to the reasons attributed to the Successful Bidder, the Owner shall be at liberty to terminate this contract without assigning any reasons, whatsoever, for such termination and any losses and/or damages occurring due to such termination shall be borne by the Successful Bidder.
2. If the Successful Bidder fails to carry out the work as per terms and conditions of the contract to the satisfaction of the Owner, the Owner shall be entitled to forfeit the Performance Security paid by the Successful Bidder as per Section _ of Part __ of this document. This, however, shall not absolve the Successful Bidder from its obligation to fulfill the contract. In such event, the Owner shall have a right to complete and / or to get the work completed at the cost & risk of the Successful Bidder and the Successful Bidder shall be responsible to pay such cost incurred by the Owner to complete the work and / or to get the work completed
3. Likewise, if the Successful Bidder does not fulfill the terms and conditions of the Contract and does not carry out the work up to the entire satisfaction of the Owner, the Owner has the right to forthwith terminate the Contract at its sole discretion, without assigning any reason, Under such events, the Owner shall be entitled to forfeit the Performance Security paid by the Successful Bidder as per Section __ of Part __ of this document, and the Owner shall have a right to complete the work and / or to get the work completed at the risk and cost of the Successful Bidder
4. For any reasons, if it is required, the Owner reserves rights to cancel, terminate, amend and / or alter the Contract and / or bifurcate and / or increase and/or reduce the Contract work at any time without giving any notice or reason to the Successful Bidder and without incurring any responsibility.

Duration of the Contract

The Contract shall be deemed to have come into force and effect from _____ and shall remain effective for a period of 40 weeks, unless terminated or extended as per the terms of this Contract. Further, there shall be a provision for extension for a period as needed, as per the same terms and conditions of the Contract. The Lumpsum TG Charge for the extension period shall be the same as the Contract period. GMDC shall provide a Notice in Writing for further extension, 15 days before the expiry of the term of this Contract.

Contract Value

The total contract value, costs amounts to INR _____ (_____ only) excluding GST.

Performance Security

Your entity shall furnish a Performance Security to GMDC for securing the due and faithful performance of its obligations under the Agreement, within 7 (seven) days from the date of acceptance of LOA, in the form of Demand Draft or an unconditional and irrevocable bank guarantee (Annexure 13 of the RfP) for amount of equivalent to 10% (ten percent) of the Lumpsum TG Charge (without GST) quoted for the Overhaul of Turbine Generator at 2X125 MW Akrimota Thermal Power Station, i.e., _____ (Rupees _____ only), payable to GMDC by your entity (the "Performance Security") from approved bank to GMDC. Such Performance Security shall be in favor of "Gujarat Mineral Development Corporation Ltd" and admissible and payable at Ahmedabad branch from approved bank to GMDC.

You shall maintain a valid and binding Performance Security for a period of 24 months. Your entity shall ensure that the Performance Security shall subsist in full force and effect in terms hereof, throughout the tenure of the Contract and thereafter until expiry of twelve months. In case tenure of the Contract is extended then your entity shall have to renew Performance Security for a period of extended tenure.

Signing of agreement

After acknowledgement of the LOA as aforesaid, subject to furnishing the Performance Security as per the RfP provisions, your entity execute/sign the Agreement within the 30 (thirty) days from the date of LoA.

You shall get a correct amount of Stamp Duty adjudicated (Stamp Paper of Rs. 300 denominations can be used), at Ahmedabad in accordance with Applicable Law and submit the same in two copies duly stamped and executed within 30 (thirty) days from the dispatch of Letter of Award. GMDC shall return one copy duly sealed and signed as a token of acceptance of the Contract. Stamp Duty, and any other charges as may be levied under Applicable Law, shall be paid by your entity.

You are hereby requested to return the duplicate copy of this LoA within 7 (seven) days from the date of issue of this LoA, i.e., by _____ as a token of receipt and acknowledgement of this LoA, as well as an absolute, unconditional, and unqualified acceptance and compliance of the conditions mentioned.

All other terms and conditions of RFP No: _____and associated corrigendum shall be read with this LoA and shall be considered as a part of this LoA.

Thanking you,

Yours faithfully,

For Gujarat Mineral Development Corporation Ltd.

General Manager (Power and Purchase)

Copy to:

1. PA to MD, Corporate Office, Ahmedabad
2. CGM & CFO, Corporate Office, Ahmedabad
3. Sr. GM (Tech.), Corporate Office, Ahmedabad
4. GM (Accounts), Corporate Office, Ahmedabad

Acceptance

We hereby irrevocably and unconditionally accept the above award of work as per the terms and conditions stipulated in this LoA as well as all conditions of the RfP for Turbine Generator (TG) Package for Overhaul of GMDC's 250 (2x125) MW Akrimota Thermal Power Station (ATPS), Gujarat and subsequent corrigendum dated _____.

Date:

Place:

Signature with stamp: