

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



RFP No: GMDC/Power/ATPS/02/23-24

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Glossary

Abbreviation	Full form
APC	Auxiliary Power Consumption
ATPS	Akrimota Thermal Power Station
BN	BN Blading
BOQ	Bill of Quantities
C&I	Control and Instrumentation
CV	Control Valve
DIM	Dimensional Check
DISCOM	Distribution Company
EMD	Earnest Money Deposit
EOT	Electric Overhead Travelling
ERP	Enterprise Resource Planning
FAT	Factory Acceptance Test
FiS	Financial Score
GCB	Generator Circuit Breaker
GMDC	Gujarat Mineral Development Cooperation
GUVNL	Gujarat Urja Vikas Nigam Ltd.
HP	High Pressure
HPH	High Pressure Heater
HSE	Health Safety and Environment
IBR	Indian Boiler Regulations
IP	Intermediate Pressure
KPI	Key Performance Indicator
LOA	Letter of Appointment
LOI	Letter of Intent
LP	Low Pressure
LPH	Low Pressure Heater
LVDT	Linear Variable Differential Transformer
MT	Magnetic Particle Test
NRV	Non-return Valve
OEM	Original Equipment Manufacturer
PGT	Performance Guarantee Testing
PLF	Plant Load Factor
PMC	Project Management Consultancy
PPA	Power Purchase Agreement
PSU	Public Sector Undertaking
PT	Liquid Penetration Test
QAP	Quality Assurance Plan

Abbreviation	Full form
QCBS	Quality cum Cost Based Score
QCP	Quality Check Plan
QIP	Quality Inspection Plan
R.S.O	Recurrent surge oscillator
RFP	Request for Proposal
RPM	Rotations per minute
RSO	Reflectometric test with rotor running
SAT	Site Acceptance Test
SHR	Station Heat Rate
SRCC	Strikes, Riots and Civil Commotion
TDS	Tax Deducted at Source
TeS	Technical Score
TG	Turbine Generator
THR	Turbine Heat Rate
TMCR	Turbine Maximum Continuous Rating
UT	Ultra-Sonic Test
VT	Visual Inspection
VWO	Valves Wide Open

Disclaimer

This RFP is being issued by the Gujarat Mineral Development Corporation Ltd (GMDC) (hereunder called "Authority"/ "GMDC") to the Bidders interested in providing services for the Overhaul of Turbine Generator at 250 (2*125) MW lignite based Akrimota Thermal Power Project in Kutch District, Gujarat.

It is hereby clarified that this RFP is not an agreement, and the purpose of this RFP is to provide the Bidder(s) with information to assist in the formulation of their proposals/Bids. While the RFP has been prepared in good faith with due care and caution, GMDC does not accept any liability or responsibility for the accuracy, reasonableness, or completeness of the information, or for any errors, omissions, or misstatements, negligent or otherwise, relating to any feasibility / detailed project report or any other reference document mentioned, implied, or referred herein. This RFP may not be appropriate for all persons. It is not possible for GMDC to consider the investment objectives, financial situation and particular needs of each Proposer/Bidder who reads or uses this RFP. Each Proposer/Bidder should conduct its own investigations and analysis and should check the accuracy, reliability, and completeness of the information in this RFP and where necessary obtain independent advice from appropriate sources.

Bidder should carefully examine and analyze the RFP and bring to the notice of GMDC any error, omission, or inaccuracies therein that are apparent and to carry out its own investigation with respect to all matters related to the captioned subject, seek professional advice on technical, financial, legal, regulatory and taxation matters and satisfy himself of consequences of entering into any agreement and / or arrangement relating to the captioned subject. GMDC and its employees make no representation or warranty, express or implied, and shall incur no liability under any law, statute, rules, or regulations as to the accuracy, reliability or completeness of the information contained in the RFP or in any material on which this RFP is based or with respect to any written or verbal information made available to any Proposer or its representative(s).

GMDC may in their absolute discretion, but without being under any obligation to do so, update, amend or supplement the information in this RFP as per its requirements. GMDC reserves the right not to proceed with the project, to alter the timetable reflected in this document or to change the process or procedure to be applied. It also reserves the right to decline to discuss the Project further with any Party submitting a Proposal. No reimbursement of cost of any type will be paid to persons, entities submitting a Proposal/Bid.

The Bidder shall bear all costs associated with or relating to the preparation and submission of its Bid including but not limited to preparation, copying, postage, delivery fees, expenses associated with any demonstrations or presentations which may be required by GMDC, or any other costs incurred in connection with or relating to its Bid, regardless of the conduct or outcome of the Bidding process.

Part 1: Introduction

1. Background about GMDC

Gujarat Mineral Development Corporation Ltd (GMDC) is a leading state-owned mining and minerals company in the western Indian state of Gujarat with operational experience spanning nearly 50 years. GMDC is a zero-debt company listed on national and Bombay Stock Exchanges. The Government of Gujarat (GoG) disinvested 26% stake to the public shareholders vide an IPO in 1997 while the balance ownership is held by the Government of Gujarat.

GMDC's product portfolio spans across mining, value added products, and power, with mining activities spread across the state of Gujarat in districts Kutch, Devbhoomi Dwarka, Panchmahal, Vadodara, Bhavnagar, Bharuch, Surat and Chotaudepur. It currently mines Lignite from five operational mines, with five upcoming mines in the pipeline, and other minerals including Bauxite, Fluorspar, Manganese, Ball Clay, Silica Sand, Bentonitic Clay, and Limestone. It provides value added services through works such as Pyrite removal from Lignite, Beneficiation of Bauxite, low-grade Manganese, and Fluorspar.

To leverage its experience in mining operations, GMDC has set up a diversified power portfolio with forward integration into a 2X125 MW lignite-based thermal power Plant in Nani Chher, Gujarat, and clean energy sources including 200.9 MW of Wind power assets in Maliya, Jodiya, Gorsar, Bhanvad, Bada, Varvala, Rojmal, and a 5 MW Solar power project in Panandhro.

2. Plant details

2.1 Background about ATPS

GMDC has been operating a 250 MW lignite-based thermal power Plant (Akrimota Thermal Power Station, ATPS) over the past 15 years. ATPS has two units of 125 MW each commissioned in July 2006, and March 2007 respectively.

ATPS procures lignite required for generation of power from GMDC's mines (Mata na Madh, and Umarsar) located at proximity (~60 km) and transported directly to the Plant via road. Furthermore, the water supply to the power Plant is ensured through nearest Kori creek (through 1.4 km long sea water intake channel).

ATPS has a long-term power purchase agreement with GUVNL for supply of power till 2036, for the recovery of fixed charges and variable charges as per the actual Plant performance parameters (net availability, station heat rate, auxiliary power consumption).

The ATPS asset has been under-performing on key performance parameters with Net Availability, Station Heat Rate (SHR), and Auxiliary Power Consumption (APC) values having large deviations from normative values defined in the PPA, leading to cash burn for GMDC. Further, absence of adequate capital infusion for upkeep of the asset post commissioning, and lack of well-defined O&M and contracting practices have affected the overall performance of the asset.

2.2 Technical specifications

ATPS has electro-hydraulic steam turbines (125 MW, 3000 rpm) and generators in both units, supplied by Ansaldo at the time of commissioning.

The key technical specifications and process parameters for the main turbine, generator, and associated auxiliaries as per the OEM design and commissioning documents have been detailed below. The detailed technical specifications are enclosed in Annexure 1.

2.2.1 Design specifications

Design specifications of the main turbine have been detailed below:

Equipment Name:	Main Turbine
Make:	Ansaldo
Governing type	Electrohydraulic
No of cylinders	2
Number plate Speed	3000 RPM
Number of stages (HP / IP / LP)	Control stage + 22/16/7

Equipment Name:	Generator
Make	Ansaldo WX21Z
Number of phases	3
Type of stator winding connection	Star
Number of parallel paths/phases	2
Line terminals brought out	3
Neutral terminal brought out	3

2.2.2 Process parameters

Subsystems	Parameters	Units	Values	Remarks
Main Turbine	Rated output	MW	135.99	VWO
	Rated output	MW	125	100% load
	Speed	rpm	3000	
	Condenser vacuum	kg/cm ² abs	0.102	Both VWO and 100%
	Throttle steam pressure at HP turbine inlet	kg/cm ²	132.6	Both VWO and 100%
	Throttle steam temperature at HP turbine inlet	degrees C	535	Both VWO and 100%
	Steam pressure at HP Turbine Outlet	kg/cm ²	39.01	VWO
	Steam pressure at HP Turbine Outlet	kg/cm ²	35.48	100%
	Steam temperature at HP Turbine Outlet	degrees C	352.8	VWO

Subsystems	Parameters	Units	Values	Remarks
	Steam temperature at HP Turbine Outlet	degrees C	343.1	100%
	Total auxiliary power consumption	KW	2878	
	Steam pressure before emergency stop valve	kg/cm ² (abs)	132.6	
	Steam temperature before emergency stop valve	degrees C	535	
	Steam flow through turbine when operating on normal regenerative cycle at rated condition	T/hr.	367.177	
	Max. flow at VWO conditions and power generated	T/hr.	405	
	First critical speed for HP rotor	rpm	below 2300	
	First critical speed for IP/LP rotor	rpm	below 2400	
	Second critical speed for HP rotor	rpm	above 4000	
	Second critical speed for IP/LP rotor	rpm	above 4000	
Generator	Rated terminal voltage	KV	15.75	
	Rated frequency	Hz	50	
	Rated power factor		0.8 Lag	
	rotor current	A	1246	at MCR
	rotor voltage	V	261	at MCR
	Rated stator current	A	6232	
	Generator efficiency at 100% load	%	98.56	
	Generator efficiency at 80% load	%	98.41	
	Rated cooling water pressure	kg/cm ² (g)	10	
	Max. permissible capacitive loading at full load	MVAR	71	
	Max. Capacitive loading for stability at rated voltage and zero power factor	MVAR	75	
	Iron loss at no load	KW	406	
	Stator copper loss at full load	KW	155	at 95 deg C
	Stray load loss at full load	KW	206	at 95 degC
	rotor copper loss at full load	KW	315	at 95 deg C
	Friction and windage loss at full load	KW	650	
Mechanical loss including bearing loss at full load	KW	230		

3. Context of RFP

3.1 Intent of specification

The intent of this specification is to carry out a complete Overhaul of the turbine, generator, and associated auxiliaries according as the terms of reference / scope of work detailed in Part 2 of this document.

The Successful Bidder shall guarantee the performance parameters stipulated in Section 7.1 of Part 2 of this document towards successful execution and completion of the Overhaul.

The scope of work for the Overhaul shall include provision of services under the supervision of OEM experts and supply of OEM spares. Services shall include refurbishment, retrofitting, inspection of equipment, replacing, repairing, Overhauling, carrying out all pre-commissioning tests and or checks, trial runs, running performance tests of various equipment and systems covered under the specification, and any other work required to ensure sustainable performance of the system. Supply shall include procurement, inspection of material at suppliers' works, packing, transportation, machining, and installation of requisite spares for Overhaul of the turbine, generator, and associated auxiliaries.

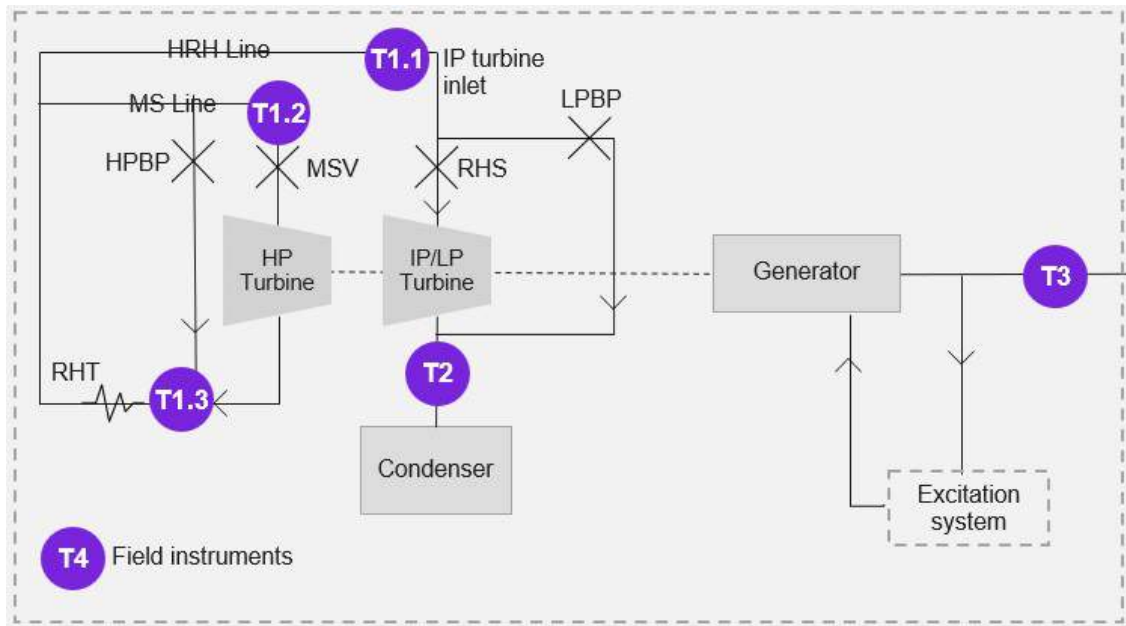
The Successful Bidder shall conform in all respects to the highest standard of engineering, design, quality, and workmanship so that after completion of the Overhaul, the Plant shall be capable of operating safely, reliably, and sustainably in a manner acceptable to the owner.

3.2 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 2 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
- Terminal2: 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.



3.3 Onboarding of OEM supervisory team

The Successful Bidder shall be responsible for on boarding 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 2 of the RfP. The entire cost for onboarding the supervisory team, including travel and accommodation costs shall be borne by the Successful Bidder.

3.4 Plant visits

The Bidders are invited to visit the Plant and understand the equipment installed and their working conditions, prior to submission of the Bids. The objective of the Plant visits shall be to understand the scope of work, feasibility of execution, and make the Bidders fully conversant with the job, site conditions, constraints, and collect all information as required and as available before quoting against this specification.

The visits are optional, the Bidders can opt to visit the Plant at their own discretion. Should they opt to visit the Plant, the Bidder shall submit a Plant visit plan to the Owner indicating the timelines and the key personnel visiting, for prior consent and approval. The Owner shall facilitate the visits for the Bidders and make necessary arrangements at the Plant. The cost of the Plant visit, including transportation and accommodation, shall be borne by bidder.

3.5 Integration of equipment / system

Out of complete unit comprising of mechanical, electrical, C&I systems, and civil works, some components/systems are envisaged to be replaced with new ones having better design features while some of the other components are to be refurbished / upgraded or repaired/ Overhauled by the Successful Bidder under the scope of work.

It shall be the responsibility of the Successful Bidder to ensure the components / equipment / systems being supplied, refurbished / upgraded, or repaired / Overhauled are fully integrated with the existing equipment / systems so as to get safe, reliable, and sustained operations of the Plant.

The OEM 'Technical Expert' shall approve, advice and supervise the complete execution of the Overhaul upto commissioning to ensure integration of equipment/systems.

In this context, GMDC is looking for an OEM approved service provider for comprehensive Overhaul of the turbine generator across both units of the Plant and is inviting Bids from bona fide and experienced Bidders of financial standing, reputation, and providing such services across India, for the following job:

Name of work:	Request for Proposal (RFP) for Turbine Generator (TG) Package for Overhaul of GMDC's 250 (2x125) MW Akrimota Thermal Power Station (ATPS), Gujarat
RFP no.:	GMDC/Power/ATPS/02/23-24

Part 2: Terms of reference / Scope of Work

1. Definitions of the terms and conditions of the RFP

1.1. Definitions

For the purpose of the Contract, the following words and expressions in this Section shall have the respective meanings set forth below:

“Applicable Laws” shall mean all laws, treaties, ordinances, rules, regulations applicable in India and amendments, re-enactments, revisions, applications, and adaptations thereto made from time to time and in force and effect, judgments, decrees, injunctions, writs and orders of any court, arbitrator or governmental agency or authority, rules, regulations, orders and interpretations of any Governmental Instrumentality, court or statutory or other body having jurisdiction over construction of the Plant, performance of the Work or supply of Goods, operation and maintenance of the Plant, including Applicable Permits, as may be in effect at the time of performance of work or supply of Goods hereunder by the Bidder, which time would include Latent Defects Period as appropriate, provided, however, that if at any time the Applicable Laws are less stringent than the standards set forth in the Contract hereto, the standard set forth in the Contract hereto shall be deemed to be the standards under Applicable Laws.

“Applicable Permits & Clearances” shall mean any and all Permits, Clearances, Authorizations, consents, licenses (including without limitation any import or export licenses), lease, ruling, exemption, filing, agreements, or Approvals, required to be obtained or maintained in connection with construction of the Plant, performance of Work, and the operation of the Plant respectively by the Bidder and the Owner in accordance with the Contract and their maintenance, as may be in effect at the time of Bidder’s supply of Goods hereunder; which time would include Latent Defects Period as appropriate.

“Approval” shall mean the written approval of the Owner and of the statutory authorities, wherever such authorities are specified by any codes or otherwise.

“Arbitration Act” shall mean Arbitration and Conciliation Act, 1996, or any amendment or re-enactment thereof.

“Authorization” shall mean approvals required under Applicable Law.

“Bid” shall mean the offer of the Bidder to the Owner in response to the Bid Enquiry

“Bidder” shall mean single corporate entity Bidding for the Contract and shall be an OEM OR OEM approved service provider for capital overhauling of turbine generators of the OEM’s make

“Bidder Permits” shall mean all Permits, required by the Bidder from any Government Instrumentality for the performance of his obligations

“Bidder’s Representative” shall mean the person named as such in the Contract or other person appointed and from time to time communicated to the Owner by the Bidder in his place in accordance with the terms of the Contract.

“Bid Security/Earnest Money Deposit (EMD)” shall mean the security provided by the Bidder to the Owner along with the Bid.

“Commencement Date” shall be the date 7 (seven) days from the date of signing of the LoA for services to be provided by the Bidder

“Contract” shall mean the documents as set out in the form of Contract Agreement as may be amended, supplemented, or modified from time to time by agreement in Writing between the Parties.

“Contract Period” shall mean the period from the Commencement Date up to and including the last day of the Contract.

“Documents” shall mean and includes all design documents, engineering documents, Drawings, calculations, computer software (programs), computer media, samples, patterns, models, construction documents, erection documents, Operation and Maintenance Manuals, and other manuals, and the like as well as, all other data and information to be submitted by the Bidder and shall include without limitation, engineering, design and construction drawings, data sheets, specifications, plans, bills of Materials and estimates.

“Governmental Authority” shall mean the Government of India, the state government, any local authority constituted under an act of legislature, and any other authority exercising any power or function in pursuance of an act of legislature, or any rules and regulations made there under, and any successor thereof having legal jurisdiction over the matter or person in question.

“Goods” shall mean all of the equipment, machinery, apparatus, appliances, components and/or other Materials and things, which the Vendors are required to supply to the Owner under the Contract.

“Good Industry Practice” shall mean those practices, methods, acts, techniques and standards as may be followed or employed in the performance of the Work or supply of Goods and discharge of its obligations by the Bidder and which (i) are generally accepted internationally for use in the electric utility industry, taking into account conditions in India, in connection with power stations of the same or similar size and type as the Plant, (ii) are commonly used in prudent electric utility engineering, construction, project management and operations, and (iii) would be expected to result in performance of the Services and completion of Works in a manner consistent with Applicable Laws, Applicable permits, reliability and safety.

“GUVNL” shall mean Gujarat Urja Vikas Nigam Limited

“Lumpsum TG Charge” shall mean the comprehensive Turbine Generator (TG) Overhaul charges payable by the Owner to the Bidder in respect of execution of all the services and provision of OEM spares as indicated in Section 3 of Part 2 in this document.

“Notice in Writing” or **“Written Notice”** shall mean a Notice in Writing, typed, or printed or handwritten characters, sent (unless delivered personally or otherwise proved to have been received) by registered post or by electronic transmission to the last known private or business address or registered office of the addressee and shall be deemed to have been

received when in the ordinary course of post or by electronic media it would have been delivered.

“Overhaul” shall refer to the planned maintenance being undertaken for the 2X125 MW Akrimota Thermal Power Station to enhance performance and reliability of the asset

“Overhauling Activities” shall refer to all the activities that are needed to be performed for successful Overhaul of the 2X125 MW Akrimota Thermal Power Station

“Owner” shall mean Gujarat Mineral Development Corporation Limited hereinafter referred to “GMDC”, in its capacity as Owner and shall include its successors and assigns, as well as authorized officers.

“Owner’s Representative” shall mean the person appointed by the Owner from time to time and notified as such to the Bidder to act as Owner’s Representative for the purposes of the Contract.

“PMC” shall mean the Project Management Consultancy appointed by Authority / GMDC for providing PMC services for turnaround of GMDC’s 2X125 MW Akrimota Thermal Power Station (ATPS)

“Package” shall mean a group of ATPS systems that are Packaged together for the execution of Overhaul

“Party” shall mean Owner or Bidder individually and “Parties” means Owner and Bidder collectively.

“Personnel” shall mean employees/personnel engaged by the Bidder who are based in India and are directly or indirectly engaged by the Bidder in the performance of the Bidder's obligations under this Agreement at the Plant.

“Plant” shall mean the 2X125 MW lignite based thermal power Plant operated by GMDC in Akrimota (Akrimota Thermal Power Station, ATPS), comprising of 2 units of 125 MW each

“Procurement Activities” shall mean the activities needed to be performed for Procurement of all the raw materials and services for Turbine Generator Overhaul of the 2X125 MW Akrimota Thermal Power Station

“Successful Bidder” shall mean the Bidder who is selected by Authority / GMDC in providing services under OEM supervision and OEM spares for Turbine Generator Overhaul of GMDC’s 2X125 MW Akrimota Thermal Power Station (ATPS) and shall include such Successful Bidder’s legal representatives, successors and permitted assigns

“Turnaround” shall refer to the planned maintenance being undertaken for the 2X125 MW Akrimota Thermal Power Station to enhance performance and reliability of the asset

“Willful Default” shall mean an intentional or reckless breach or/ and omission by a Party of any of its obligations under the Contract

1.2. Interpretation

Words importing Persons or Parties shall include related firms and corporations and any organization having legal capacity. Words importing the singular also include the plural and

vice versa where the context requires. Words importing one gender also include other genders.

Unless inconsistent with the provisions of the Contract, the meaning of any shipping terms and the rights and obligations of the Parties there under shall be as set forth in the latest International Chambers of Commerce (ICC) official rules for interpretation of trade terms as per "INCOTERMS 2010"

1.3. Law, language, and measurements

Applicable Law to this Contract shall be the Indian Law. The respective rights, privileges, duties and obligations of the Owner and the Successful Bidder under the Contract shall be governed and determined by the Laws of State and of the Republic of India.

All correspondence, information, literature, data, manuals, definitive documents, notices, waivers, and all other communication, written or otherwise, between the Parties in connection with this Contract shall be in English. The official text of this Contract shall be English.

All measurements shall be in metric system.

1.4. Stamp duty and similar charges

The costs of stamp duties and similar charges imposed by law on the Contract or Agreement, or any part thereof shall be borne by the Successful Bidder.

1.5. Commencement of Contract

The Successful Bidder, along with the payment of Performance Security, will enter into a Contract with the Owner on appropriate Stamp Paper (to be provided by the Successful Bidder) in token of acceptance of the terms and conditions of the contract, within 7 (seven) days of submission of its acceptance of the Letter of Award (LOA). In case of any necessity arising after executing the Contract and during the execution of the work, which requires alteration/modifications in the Contract, the same can be made in writing by either party, after mutual understanding and consent of both the parties. The Successful Bidder will have to start the work as per the Scope of Work described in the Section 3 of Part 2 of this document, within 7 (seven) days from the date of acceptance of the LOA. In case of failure to commence the work within the abovementioned period, the liquidated damages shall be levied as per the provision of Section 7.1 of Part 2 of this document

1.6. Successful Bidder's use of Owner's documents

Copyright in the Owner's requirements and other Documents issued by the Owner to the Successful Bidder shall (as between the Parties) remain the property of the Owner. Ownership in all documents provided by the Successful Bidder to the Owner pursuant to the Contract including design, engineering, Drawings and Works layout (but excluding proprietary information and Manuals provided by Vendors of equipment for use of the Owner) shall vest in the Owner. The Successful Bidder may, at its Cost, copy, use and communicate any such documents for the purposes of the Contract. They shall not, without the Owner's consent, be used, copied, or communicated to a third-party by the Successful

Bidder, except as necessary for the purposes of the Contract including performance of Work or supply of Goods.

The Successful Bidder shall indemnify the Owner in case of breach of this Section by the Successful Bidder. If these Documents are received by a third-party from the Successful Bidder and the third-party makes use of these Documents to cause harm or monetary loss to the Owner or use these Documents for their personal gain / monetary gain, the Successful Bidder shall compensate the Owner for the loss suffered as well as for the value of gain derived by third-party.

1.7. Confidential details

The Successful Bidder shall treat the details of the Contract as private and confidential, except to the extent necessary to carry out his obligations hereunder. The Successful Bidder shall not publish, permit to be published, or disclose any particulars of the Contract in any trade or technical paper or elsewhere without the previous consent in writing of the Owner and at the Owner's sole discretion.

The Successful Bidder shall indemnify the Owner in case of breach of this Section. If the confidential details relating to this Contract or its contents are received by a third-party from the Successful Bidder and the third-party makes use of these details to cause harm or monetary loss to the Owner or use these Documents for their personal gain/ monetary gain, the Successful Bidder shall compensate the Owner for the loss suffered as well as for the value of gain derived by the third-party. The Successful Bidder shall not use the confidential details of the Contract for any other purpose except for the strict purpose of this Contract.

2. Appointment of Successful Bidder

2.1. Appointment terms

Based on the results of this Bid as per the evaluation criteria mentioned in Section 5 of Part 3 of this document, the Owner shall appoint the Successful Bidder, and the Successful Bidder shall accept the appointment to deploy skilled, qualified, and competent manpower, and necessary systems, infrastructure, equipment, spares, system, software, and tools as required for efficient execution of the Overhaul subject to the terms and conditions mentioned in the Contract.

The Owner reserves the right to increase or decrease the contractual work during the Contract period by giving prior notice in writing. Successful Bidder shall not be entitled to any compensation or indemnity on account of increase or decrease in the contractual work.

In case of requirement of execution of additional work as part of the scope of work detailed in Section 3 of Part 2 of this document during the Contract period, contractor shall be responsible to execute such additional work during the Contract period at the same rate finalized for the respective works. No escalation in the rate of the works for such additional work during the contract period shall be considered.

In case of a requirement of other works which are not covered in the scope of work detailed in Section 3 of Part 2 of this document, but the same is necessary for successful completion of the capital overhauling of the turbine generator, the Successful Bidder may be assigned

that work at the lowest rate derived and mutually agreed between the Successful Bidder and the Owner.

The MD is authorized to take suitable decision and action in case of requirement to amend/alter the contract conditions/quantities of the works/ extension of the contract period/allotment of additional works/revision of the rates of the work etc., if necessary, in the interest of the Owner.

2.2. Duration of the Contract

The Contract shall be deemed to have come into force and effect 7 (seven) days from the date of acceptance of the Letter of Award (LOA) by the Owner to the Successful Bidder and the Successful Bidder shall execute the scope of work for provision of services and supply of material as covered in Section 3 within a period of 40 weeks from the date of acceptance of LoA. In the said duration, the Successful Bidder shall complete the following key activities in the Package as per the stipulated timelines, where T shall mean the date of acceptance of the LOA:

S. No	Activity	Duration
1	Mobilization	T + 2 weeks
2	Completion of supplies for both units	T + 30 weeks
3	Completion of pre-Overhauling activities for both units	T + 30 weeks
4	Capital Overhauling and commissioning of turbines across both units	T + 36 weeks
5	Completion of Performance Guarantee Testing for both units	T + 40 weeks

1. Detailed procurement and Overhaul execution planning
2. Procurement of equipment / material as per BoQ for the TG package across both units
3. Delivery of equipment / material as per BoQ for the TG package at the Plant
4. Completion of pre-shutdown activities (e.g., mobilization, inspections, civil works, etc.)
5. Repairing, Overhauling, installation, commissioning, and testing of systems for the TG package as per specifications, and scope of work across both units

The Contract shall be deemed to be successfully executed post completion of the aforementioned activities, as certified by competent authority from the PMC and Owner. The Successful Bidder shall strive to complete the execution within the stipulated period of 40 weeks, however, in case of a delay, the Successful Bidder shall ensure completion of its contractual obligations as early as possible, while the Owner reserves the right to levy penalties/liquidated damages as described in Section 7.1 of Part 2 of this document.

3. 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.

3.1. 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.

3.1.1. Pre-Overhauling activities

3.1.1.1. 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 timelines mentioned in Section 2.2 (Contract Duration) and Section 9.2 (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

3.1.1.2. 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 3.2.1) 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 3

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	Pillar 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 3 of Part 2 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

3.1.1.3. 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.

3.1.1.4. 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 3.1 of Part 2 of this document

3.1.1.5. 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

3.1.1.6. 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.

3.1.1.7. 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

3.1.1.8. 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 3.2 of Part 1, 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 4
2. The Successful Bidder shall replace all damaged / unsuitable / non-functional hangers, supports, and associated components, as needed for the execution of the Overhaul

3.1.1.9. 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.

3.1.1.10. 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

3.1.1.11. 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.

3.1.1.12. 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.

3.1.1.13. 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

3.1.1.14. 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

3.1.1.15. 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

3.1.2. 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 3.1.1.1 of Part 2 of this document.

3.1.2.1. 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 3.1.1.13. 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 5.

3.1.2.2. 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.

3.1.2.3. 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 the cone, 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 $> 420^\circ\text{C}$ 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

Place	Activity	Type of activity
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 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 $> 420^\circ\text{C}$ after $T_a > 1.5 \times 10^5$ hours	AC
Elongation studs	Loosen studs and measure permanent elongation If $\epsilon > 1.0\%$ or $T_a > 1.5 \times 10^5$ hours, replace studs with operating temperatures $> 350^\circ\text{C}$	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
Casing fix points	Check fixations for clearance	VT
Casing	Check spacer bolts, adjust vertical clearance	VT

Place	Activity	Type of activity
supports		
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 $> 420^\circ\text{C}$ after $T_a > 1.5 \cdot 10^5$ hours	MT
Guide keys and supports	Check for marks caused by pressure and seizing. Ensure proper sliding	VT
Casing fix points	Check fixations for clearance	VT
Casing supports	Check spacer bolts, adjust vertical clearance	VT

Place	Activity	Type of activity
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 $T_a > 10^5$, 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 $\epsilon > 0.5\%$ (see test certificate) $T_a > 1.5 \times 10^5$ hours and the ring temperature $> 420^\circ\text{C}$.	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 Cracks	VT
	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

Place	Activity	Type of activity
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 $Ta > 10^5$ 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 seized weights. Prepare distribution plan of existing weights.	VT
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	Inspect visually (endoscopic check) the stationary	VT

Place	Activity	Type of activity
blading, general	and rotating blades for damages, erosion, deposits, and friction marks	
	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	VT

Place	Activity	Type of activity
	tightness at $T_a \sim 10^5$ hours	MT UT
	If $T_a > 1.5 \times 10^5$ hours, replace the flange bolts exposed to operating temperature $> 420^\circ\text{C}$.	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 $T_a \sim 10^5\text{h}$	PT
	If $T_a > 1.5 \cdot 10^5$ hours, replace the flange bolts exposed to operating temperature $> 420^\circ\text{C}$.	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 $> 350^\circ\text{C}$	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
	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

Place	Activity	Type of activity
	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
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	VT

Place	Activity	Type of activity
	(coupling closed). Check bolt prestress if clearance is found	
	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 $\epsilon > 1.0\%$	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
Turning gear	Renew oil fillings, bearings, and seal of turbocoupling	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
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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
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 vaporfan/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;	VT

Place	Activity	Type of activity
	repair or replace, as required	
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 and hydraulic fluid filters)	Clean/Replace filters and filter element.	VT
	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	Check functioning of all devices according	CA

Place	Activity	Type of activity
<ul style="list-style-type: none"> - Mechanical over speed trip - Test device - Thrust wear - CV tightening test. - Monitors 	to test instructions. Record adjusted values and compare with values, determined during commissioning. Readjust if necessary to set values	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
Solenoid valves	Carry out functional test	CA
Limit valves	Check limit value adjustment according to signal flow diagram or test certificate	VT
Electronic turbine Over speed 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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Plan 18–Open and closed-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 with initial measurements	DIM
	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

Place	Activity	Type of activity
	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
Over speed 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	Check packings, replace them if necessary	VT

Place	Activity	Type of activity
injection and gland steam shutoff valve		
Actuators and controllers	Check functioning, record characteristics and compare with characteristics determined during commissioning.	VT
	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

3.1.2.4. 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.

3.1.2.5. 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

3.1.3. Overhauling activities (Generator)

3.1.3.1. 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
Reflect metric 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 support	Fouling
	Fastening to the clamping plate
Seating of the	Inspect the wedging, tangential wedging, rewedging

Component	Activity
slot-wedges	
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 journals	Check for condition of surface. If needed, remachine
Coupling flange	Check for rotary run-out
	Measurement of parallelism, corrosion, and protective coating.
	If needed check for cracking with dye penetrant test

Component	Activity
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
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

Component	Activity
	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
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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 spring	Check the pressure spring. If needed, replace the worn springs

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	Check for condition

Component	Activity
connections	
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
	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

3.1.3.2. 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.

3.2. 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 2. The Successful Bidder shall procure 02 (two) sets of all material / equipment / spares detailed in Annexure 2 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 2 and tools / tackles specified in Annexure 3, 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 3, 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 9.1 of this document.

3.2.1. 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 2.2 (Contract Duration) and Section 9.2 (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 Owner, and share necessary summaries for reporting purpose, if requested

3.2.2. 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.

3.2.3. 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 3.2.1 of Part 2 of this document.

3.2.4. 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.

3.2.5. 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

3.2.6. 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

3.2.7. 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.

3.3. 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

3.4. 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

4. Responsibilities and rights of the Owner

4.1. Responsibilities of the Owner

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

4.1.1. 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 requisite consent from the Owner with prior intimation through a Written Notice in case of any changes in availability of Personnel.

4.1.2. 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.

4.1.3. Shutdown and startup activities

The shutdown (prior to commencement of the Overhaul), and startup of the plant (post successful completion of the performance guarantee tests) shall be done by the Owner, in the presence and supervision of the Successful Bidder.

4.2. 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.

4.2.1. 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.

4.2.2. 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.

4.2.3. 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

5. Performance Guarantee Testing (PGT) and acceptance procedures

5.1. 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

5.2. Performance guarantee parameters

The Successful Bidder shall adhere to the performance based KPIs set forth in Section 7.1.2 of Part 2 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 5.4, subsequently reject the equipment, forfeit associated payments set forth in Section 9 of Part 2 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 5.4, subsequently reject the equipment, forfeit associated payments set forth in Section 9 of Part 2 of this document, and recover any payments already made.

5.3. 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.

5.4. 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.

5.5. 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.

5.6. 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.

5.7. 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

5.8. 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.

5.9. 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.

6. 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.

7. Contract performance measurement

7.1. 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:

7.1.1. 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 3.2.1 of Part 2 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 Bidder	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
	as per Section 3.1.1.1 of Part 2 of this document	'Overhaul Execution Plan'	completion of 'Overhaul Execution Plan'

7.1.2. 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 ANSI/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 Was serdampftafeln – 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:

$$G_{6ex} = \frac{(G_{ffw} \times (H_{6wo} - H_{6win}))}{(H_{6s_in} - H_{6w_d})}$$

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:

$$G_{5ex} = \frac{(G_{ffw} \times (H_{5wo} - H_{5win})) - (G_{6ex} \times (H_{6wd} - H_{5wd}))}{(H_{5sm} - H_{5wd})}$$

Where,

G_{5ex} - #5 extraction steam flow rate
 H_{5wo} - #5 HP heater outlet water enthalpy
 H_{5win} - #5 HP heater inlet water enthalpy
 H_{5s_in} - #5 HP heater inlet steam enthalpy
 H_{5wd} - #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

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

Where,

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

Turbine Heat Rate (THR):

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

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

7.2. 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 7.1, as per the liquidated damages defined in Section 7.1, 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 9.1 of Part 2 of this document
2. All incentives due to the Successful Bidder arising out of the enhanced performance levels mentioned under Section 7.1, as per the incentives defined in Section 7.1, 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 9.1 of Part 2 of this document

8. 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/replacement 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 in herentlylying 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 12.6 (Arbitration) as deemed fit

9. Payment terms

9.1. 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 15 of this document.

9.2. 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, material - satisfactory evidence of FATs and shipment to be provided, and invoices to be produced	45%	T + 16 weeks
	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
	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

10. Insurance

10.1. 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

10.2. 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.

10.3. 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.

10.4. 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.

10.5. 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.

10.6. 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.

10.7. 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.

10.8. 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.

10.9. 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

11. 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 7.3 of Part 3 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 7.3 of Part 3 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.

12. Contract terms and conditions

12.1. Statutory Obligations

1. That the Successful Bidder shall obtain license under the Bombay Shops and Establishment Act, and it shall pay wages and benefits in accordance with the applicable laws and shall not pay less than as notified by the Government Authorities from time to time and shall maintain the employment records as required under applicable laws
2. That the Successful Bidder shall get his own License under Contract Labor (Regulation and Abolition) Act. It shall be binding to get the same renewed from time to time and shall maintain all the records as per the act
3. That the Successful Bidder shall be responsible to enroll his employees, deduct, add and deposit in the relevant accounts the contributions as required under the Employees State Insurance Act, 1952 and the Employees Provident Funds and Miscellaneous Provisions Act 1952 and any other enactment's covered under the various applicable labor laws as well as maintain all books of records for the staff and employees deputed by it for this contract such as required under any laws applicable. The Successful Bidder shall also furnish a copy of such statements as documentary proof to the Owner
4. That if the Successful Bidder is not covered under the Employees State Insurance Act, 1952 then it shall be the duty of the Successful Bidder to take appropriate insurance cover under the Workmen Compensation Act and take Group Personal Accident Policy for all the employees deputed at the project site
5. The Successful Bidder has to issue to the employee's Identity card with their photos and shall also maintain relevant register
6. That the Successful Bidder shall give leave/holiday to its workforce as per the provisions of labor laws applicable
7. Every person deployed by the Successful Bidder in a Plant must wear safety gadgets to be provided by the Successful Bidder
8. Any statutory clearance, permission required for the work, its completion, commissioning shall be in the Successful Bidder's scope
9. The Successful Bidder will be required to obtain License from the office of the Labor Commissioner for the required strength of labor, before commencement of work at site and the same shall be maintained updated and valid throughout the currency of the contract
10. If any amount becomes payable by the Owner as a result of any claim or application in terms of the provisions or non-compliance of provision of the any Acts, and the Rules and Regulations, By-laws or the Orders made there under, applicable from time to time, such amounts shall be recoverable from the Successful Bidder for which the Owner will not be responsible for any compensation
11. That the Successful Bidder would obey with all applicable laws and maintain all such necessary records as necessitated under such enactments
12. The Successful Bidder shall also indemnify the Owner against any claims, compensations, damages, loss, liquidated damages etc. for breach and / or non-

fulfillment of the prevailing Rules and Regulations and other statutory provisions in force from time to time and applicable to the work during the currency of contract

13. The Successful Bidder shall comply with other statutory provisions of Law. The Successful Bidder shall comply with all applicable laws, ordinances, approved standards, rules and regulations, and shall procure all necessary municipal and governmental permits, licenses and inspection and shall pay all fees and charges in connection with the items covered by the contract. The Successful Bidder shall serve the Owner harmless as a result of any in factious thereof. Successful Bidder will be solely liable for all non-compliances. The following are some of the major Government of India Acts and Regulations to be complied with by the Successful Bidder. The List is illustrative and not exhaustive.
 - a. The Factories Act of 1948 (63 to 1948) and Amendments and Rules (Amended up to date)
 - b. The Electricity Act, 2003 and rules made there under
 - c. The Indian Boiler Regulation Act, 1950 and rules made there under
 - d. The Minimum Wages Act, 1948
 - e. The Employees Compensation Act 1923 and Amendment Act 2010
 - f. The Payment of Wages Act 1936 and Amendment Act 2012
 - g. Payment of Bonus Act 1965 and Amended up to date
 - h. Contract Labor Regulations & Abolition Act 1970
 - i. Interstate Migrant Workmen (Regulations) Act 1979

12.2. Bankruptcy

1. If the Successful Bidder commits an act of Bankruptcy or goes into liquidation except for construction purposes, or if its business is carried on by a receiver, such receiver, liquidator or any person in whom the contract may become vested shall forthwith give notice thereof in writing to the Owner and in reasonable time during which he shall take all reasonable steps to prevent stoppage of performance of the contract, have the option of carrying out the contract subject to his or their providing such guarantees as may be required by the Owner but not exceeding the value of the work for the time being remaining unexecuted
2. In the event of stoppage of performance under the contract, the period of option under this clause shall be decided by the Owner considering the situation, provided that the above option is not exercised, the Owner may terminate the contract by serving notice in writing to the Successful Bidder. The power and provision so reserved to the Owner on taking of the work out of the Successful Bidder's hands shall apply as far as they may be when the contract is so terminated

12.3. Notice

Written notice shall be deemed to have been duly served if delivered to the individual or to Successful Bidder or to the Signing Authority of the Owner from whom it is intended, or if delivered at or sent by mail or post, to the last business address known to him who gives the notice.

12.4. Canvassing not Permitted

1. Successful Bidder should not canvass their offer personally or otherwise by approaching the Chairman or the Member of the Owner. If any Successful Bidder wants to make any representation regarding his offer, he should write to the General Manager (Power), if he desires, but personal and oral representations are not permitted
2. In spite of the above clear instructions, any Successful Bidder is found to canvass his offer or against his competitor's offer through personal approach to the competent authority or the officials of the Owner, their offer will be rejected without assigning any reason and the firm even is blacklisted

12.5. Indemnification

The Successful Bidder shall fully indemnify, save harmless and defend Owner, Owner's shareholders, the Owner, and the directors, agents and employees of the Owner (the "Owner Indemnified Parties") from and against any and all claims, including reasonable legal costs, (collectively the "Damages") by third Parties in respect of death or bodily injury or in respect to loss or damage to any property (other than the Plant or part there of not yet taken over) which arises out of or in consequence of the Services whilst the Successful Bidder has responsibility for the care of the works to the extent resulting from Successful Bidder's or their agents or employees intentional act, negligence, or strict liability or omission in the performance of the Services hereunder; provided that the foregoing obligation shall not apply to the extent the Owner Indemnified Parties are contributory negligent or strictly liable or to the extent such damages are caused by the intentional acts or omissions of the Owner Indemnified Parties. The Successful Bidder shall provide Undertaking of Indemnity, in the form of Annexure 14 of this document.

12.6. Arbitration

All questions, disputes, differences whatsoever which may at any time arises between the parties to this RFP and subsequent contract in connection with the RFP and subsequent contract or any matter arising out of or in relation thereto, shall be referred to Sole Arbitrator as per the provisions of Arbitration and Conciliation Act, 1996 and subsequent amendment thereto and the venue of arbitration proceedings shall be at Ahmedabad only. The Language of the Arbitration shall be in English only.

12.7. Governing Law

This RFP and subsequent Contract shall be construed and interpreted in accordance with and governed by the laws of India.

12.8. Jurisdiction

The matter related to any dispute or difference arising out of this RFP and subsequent contract shall be subject to the exclusive jurisdiction of Court at Ahmedabad only.

12.9. Completion of Work

1. Upon the Successful Bidder fulfilling the entirety of its obligations under the Contract to the satisfaction of the Owner and subject to terms and conditions of the Contract, it shall become eligible to apply for a Completion Certificate. The General Manger of the Owner shall formally issue the Completion Certificate, after verifying from the completion documents and satisfying himself that the Works under the Contract have been completed in accordance with all the provisions of this Contract. The Successful Bidder, after obtaining the Completion Certificate shall become eligible to present the final bill for the Works executed by it under the Contract
2. Upon completion of Works under the Contract and before the application for the Completion Certificate, the Successful Bidder shall clear the project of the Owner of all rubbish, dirt, structures, scrap, oily rags etc. Failure to clear the project may constrain the Owner to clear the said site at the risk and cost of the Successful Bidder
3. The Successful Bidder shall provide the Owner with any and all documents/records/proofs that may be demanded before issuance of Completion Certificate

12.10. Accident and Responsibilities of Successful Bidder

1. The entire responsibility on account of any accidents, damage or personal injury which may occurred to any of the Successful Bidder's vehicles/ equipment or his/its employees, or any outside party shall be exclusively that of the Successful Bidder and no claim whatsoever shall be entertain by the Owner on this account. The Successful Bidder shall keep the Owner indemnified from all the consequence
2. In the event of any breakdown or accident during the course of any operation, the Successful Bidder shall notify the facts to the Project Authority, or any other officer immediately present there of such incidence and shall simultaneously make adequate remedial arrangements on his/its own cost and risk and as per the instruction of the Project Authority
3. The Successful Bidder shall pay all claims, damages and compensation with cost arising out of or resulting there from to the third party(s) and in case the Owner would be required to face any proceedings all to pay any amount on the aforesaid account, it shall be deemed to have been discharge on behalf of the Successful Bidder, the same amount shall be recovered half-an hour rest interval in between. The Successful Bidder shall ensure that the attendance of all the supplied manpower shall be taken through biometric attendance machine

12.11. Foreclosure

1. In case of any necessity arising due to local working conditions or any unforeseen reason not in the control of the Owner or of the Successful Bidder, Committee comprising of representative of the Owner, Successful Bidder and Outside Expert from Technical and Financial background shall be constituted and Committee will look into the reasons/causes and analyze the conditions as to whether the work

awarded is feasible to continue with the existing terms and conditions of the contract or any other available option or to Fore Close the contract in the interest of both the Owner and the Successful Bidder

2. If after study of the prevailing conditions of the contract under execution, committee recommends to Foreclose the contract keeping in view the financial implication to both the Owner and Successful Bidder, guideline/Modality of the Fore Closure of the contract shall be decided by the committee considering the work executed and unexecuted, period of the contract completed and balance period of the contract, value of the work executed and value of the work unexecuted etc.

12.12. Force majeure

1. Force majeure is herein defined as any cause which is beyond the control of the Successful Bidder or the Owner as the case may be which they could not foresee or with a reasonable amount of diligence could not have foreseen and which substantially affect the performance of the contract, such as:
 2. Natural phenomena such as flood, draughts Cyclone, earthquake and epidemics, declaration of war
 3. Acts of any government, including but not limited to war, declared or undeclared priorities, quantities, embargoes, providing either party shall within fifteen (15) days from the occurrence of such a cause notify the other in writing of such cases
 4. The Successful Bidder will advise, in the event of his having resort to this clause by a registered letter duly certified by the statutory authorities, the beginning and end of the cause of delay, within fifteen days of the occurrence and cessation of such Force Majeure condition. In the event of delay lasting over two months, if arising out of Force Majeure, the contract may be terminated at the discretion of the Owner
 5. For delay arising out of Force Majeure, the Successful Bidder will not claim extension in completion date for a period exceeding the period of delay attributable to the causes of Force Majeure and neither company nor the Successful Bidder shall be liable to pay extra costs (like increase in rates, remobilization, advance, idle charges for labor and machinery etc.) provided it is mutually established that the Force Majeure conditions did actually exist
 6. If any of the Force Majeure conditions exists in the place of operation of the Successful Bidder even at the time of submission of bid, he will categorically specify them in his bid and state whether they have been taken into consideration in their quotations
 7. The Successful Bidder or the Owner shall not be liable for delays in performing his obligations resulting from any Force Majeure cause as referred to and/ or defined above. The date of completion will, subject to hereinafter provided, be extended by a reasonable time

Part 3: Instruction to Bidders

1. Introduction

1.1. Bidding process overview

GMDC has adopted a single stage two packet envelope Bidding system separately for Technical Bid and Price Bid with evaluation as per Quality cum Cost Based System (QCBS) method as detailed out in Section 5.4 of Part 3 of this document.

Technical Bid and Price Bid shall be submitted online through <https://gmdc.nprocure.com>.

The Bids for which the Price Bid is submitted in hard copy / physical form shall be rejected as non-responsive.

Complete Bid shall be submitted on or before the time and date fixed for submission of technical and price Bids as detailed in Section 1.6 of Part 3 of this document. Bids delivered after the due dates will be rejected.

The Bidders need to offer their Bids which conform to the scope of work and terms and conditions detailed in Part 2 of this document.

As a first step, evaluation of Technical Bid will be conducted as per Section 6.2 of Part 3 of this document. Post the evaluation of Technical Bids, the Price Bids of only those Bidders meeting the pre-qualification and technical criteria detailed in Sections 5.1 and 5.2 of Part 3 of this document shall be opened.

Subsequently, a Price Bid evaluation of technically qualified Bidders will be carried out as per Section 6.3 of Part 3 of this document. The Bids will finally be ranked from the highest to lowest according to their combined technical and price scores (described as 'Composite Score') derived based on the Quality cum Cost Based Score (QCBS) specified Section 5.4 of Part 3 of this document. The Bidder obtaining the highest composite score shall be considered as the 'Preferred Bidder'.

1.2. Due diligence

Before Bidding, the Bidder shall undertake and shall be deemed before Bidding to have undertaken a thorough study of the proposed work, the job(s) involved, the Plant conditions, the labor, power, water, material and equipment availability, transport and communication facilities and temporary offices and accommodation quarters, and all other factors, constraints, and facilities necessary for the formulation of the Bid, supply of materials and the performance of the work.

The Bidder shall inspect and examine the Plant and its surroundings and shall satisfy themselves before submitting their Bid as to the nature of the ground present, physical conditions and all roads, approaches and lands which may be used temporarily otherwise in connection with the works, means of access to the Plant accommodation they may require

and in general shall themselves obtain all necessary information as to risks, contingencies & other circumstances which may influence or affect their Bid.

The intending Bidders shall be deemed to have visited the Plant and familiarized themselves thoroughly with the working conditions at the Plant before submitting the Bid. Non-familiarity with the Plant conditions will not be considered a reason either for extra claims or for not carrying out the work in strict conformity with the specifications.

It will be imperative on each Bidder to acquaint himself of all local laws, conditions and factors which may have any effect on the execution of works and supplies under the Bid document. In their own interest, Bidder is requested to familiarize themselves with (but not limited to) the Indian Income Tax Act 1961, Indian Companies Act 2013, Customs Act 1962, Factory Act, Contract Labor Act 1970, Arbitration Act 1996, EPF Act 1952, Employees State Insurance Act (ESI) 1948 & other related applicable Acts and Laws & Regulations of India, with their latest amendments, as prevalent in India. Owner shall not entertain any request for clarification from the Bidder regarding such local conditions.

It must be understood and agreed that such factors have properly been investigated and considered while submitting the Bid. No claim for financial and other adjustments to the Contract price, on account of lack of clarity or proper understanding of such factors, shall be entertained.

1.3. Acknowledgement by Bidder

By submitting the Bid, the Bidder acknowledges that:

1. It has made a complete and careful examination of the scope of work and terms and conditions mentioned in Part 2 of this document
2. It has made available all the relevant information requested by GMDC
3. It accepts the risks of inadequacy, or error due to improper due diligence on its part as described in Section 1.2 of Part 3 of this document
4. It does not have any conflict of interest
5. It is bound by the undertakings provided by it under and in terms hereof

GMDC shall not be liable for any omission, mistake, or error in respect of any of the above or on account of any matter or thing arising out of or concerning or relating to the RFP or the Bidding Process, including any error or mistake therein or in any information or data given by GMDC.

1.4. Cost of Bidding

The Bidders shall be responsible for all of the costs associated with the preparation of their Bids and their participation in the Bid Process. GMDC will not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the Bidding Process.

1.5. RFP Fee

Bidder shall have to submit non-refundable RFP Document Fee of INR 17,700 (i.e., RFP fee of INR 15,000 plus 18% GST). The RFP Document Fee shall be submitted in the form of a

Demand Draft in favor of “**Gujarat Mineral Development Corporation Limited**” and **payable at Ahmedabad** along with the Bid as per marking and sealing section. This Demand Draft for RFP document shall be non-refundable. Bids that are not accompanied by the RFP Fee in acceptable amount and form shall be considered non-responsive and shall be consequently rejected.

Relaxation in terms of submission of Rfp fee shall be given to the bidder who is holding valid Certificate issued under the MSME Act, 2006 on the date of submission of Tender.

1.6. Schedule of Bidding

The key activities and timelines for the Bidding process have been detailed below. While GMDC shall endeavor to adhere to the timelines, it is subject to approvals and other external contingencies.

Category	Activity	Schedule
RFP release	Issuance of Bid package to Bidders	RFP shall be available from 23 rd May 2023 from the website http://www.gmdcltd.com and https://gmdc.nprocure.com
Bid queries	Deadline for receiving queries from Bidder	Bidders may send their queries by 2 nd June 2023 up to 1700 hrs. on the following e-mail ID: jndave@gmdcltd.co.in , power@gmdcltd.co.in
	Pre-Bid meeting	The pre-Bid meeting shall be held at 1100 hrs. on 9 th June 2023 at the following address: Gujarat Mineral Development Corporation Ltd Khanij Bhavan, 132-Ring Road, Gujarat University Ground, Vastrapur, Ahmedabad- 380052
Bid submission and evaluation	Online submission of Price Bid	Bidders shall submit their Price Bids online on https://gmdc.nprocure.com on or before 19 th June 2023
	Submission of Technical Bid (hard copy), RFP Fee and EMD in person	Bidders shall submit their Technical Bids strictly after the submission of the Price Bid but on or before 20 th June 2023 up to 1800 hrs. at the following address: Gujarat Mineral Development Corporation Ltd Khanij Bhavan, 132-Ring Road, Gujarat University Ground, Vastrapur, Ahmedabad- 380052 The Technical Bid, RFP fee, and EMD shall be made by Speed Post / RPAD / Hand / Courier
	Technical presentations by Bidders	To be informed to the Bidder in advance
Vendor selection	Evaluation of Technical and Price Bids and selection of Vendor	To be informed to the Bidder after the Bid submission date

2. Bid requirements

2.1. Bid validity

Bids shall remain valid for a period of not less than 180 (one hundred and eighty) days from the Bid submission date (described as 'Bid Validity Period'). The Bid shall be considered non-responsive if such Bid is valid for a period less than the Bid Validity Period.

In exceptional circumstances, prior to expiry of the original Bid Validity Period, relevant authorities from GMDC may request the Bidders to extend the period of validity for a specified additional period. The request and the responses thereto shall be made in writing. A Bidder may refuse the request without forfeiting its Bid Security / EMD. A Bidder agreeing to the request will not be required or permitted to modify his Bid but will be required to extend the validity of his Bid Security/EMD for the period of the extension, and in compliance with Section 2.5 of Part 3 of this document in all respects.

2.2. Number of Bids by Bidder

No Bidder shall submit more than one Bid pursuant to this RFP. If a Bidder submits or participates in more than one Bid, such Bids by the Bidder shall be disqualified.

2.3. Governing law and jurisdiction

The Bidding process shall be governed by and construed in accordance with the Indian laws and the courts at Ahmedabad, Gujarat shall have exclusive jurisdiction over all disputes arising under, pursuant to, and / or in connection to the Bidding process.

2.4. GMDC's right to accept and reject any Bids or all Bids

Notwithstanding anything contained in this RFP, GMDC reserves the rights to accept or reject any Bid and to annul the Bidding process / Bid evaluation process and reject all Bids at any time without any liability or any obligations for such acceptance, rejection, or annulment, without assigning any reasons thereof.

It shall be deemed that by submitting the Bids, the Bidder agrees and releases GMDC, its employees, agents and advisers, irrevocably, unconditionally, fully and finally from any and all liability for claims, losses, damages, costs, expenses or liabilities in any way related to or arising from the exercise of any rights and / or performance of any obligations hereunder, pursuant hereto and / or in connection to the Bidding process and waives, to the fullest extent permitted by Applicable Laws, any and all rights and/or claims it may have in this respect, whether actual or contingent, whether present or in future.

Without prejudice to the generality of the above terms, GMDC reserves the right to reject any Bid if:

1. The Bid does not meet the technical eligibility and qualification criteria specified in this RFP
2. A material misrepresentation is made or discovered at any time, or if the Bidder is found to be indulging in fraudulent and corrupt practices

3. The Bidder does not provide, within the time specified by GMDC, the supplemental information sought by GMDC for evaluation of the Bid
4. The Bidder submits a conditional Bid

If such disqualification / rejection occurs after the Bids have been opened and the Preferred Bidder as per award criteria gets disqualified / rejected, then GMDC reserves the right to consider the next best Bidder or take any other measure as may be deemed fit in the sole discretion of GMDC, including annulment of the process.

2.5. Earnest Money Deposit (EMD) / Bid Security

The Bidder shall furnish a separate Bid Security (described as 'Earnest Money Deposit') as part of its Bid as per the given format. The Bid Security / EMD shall be sealed in separate sealed envelope along with the RFP fee, as described in Section 4.4 of Part 3 of this document. An amount of INR 90 Lakhs shall be approved as EMD from the banks approved by Government of Gujarat except cooperative banks, in favor of "Gujarat Mineral Development Corporation Ltd." The list of approved banks has been listed in Annexure 16.

The EMD shall be in any of the below mentioned format:

1. Account payee Demand Draft / Banker's Cheque
2. An irrevocable Bank Guarantee, as per Annexure 16, payable at Ahmedabad and valid for a period of 210 (two hundred and ten) days from the Bid submission date in the prescribed format. The validity of the bank guarantee may be extended as per mutual agreement between GMDC and the Bidder, as per Section 2.1 of Part 3 of this document

Any Bid not accompanied with valid Earnest Money Deposit and RFP fee in the acceptable amount, form, and validity period will be summarily rejected by GMDC as being non-responsive and Bids of such Bidder shall not be evaluated further. The Bidder shall also submit a blank cheque along with the bid submission, providing the Bidder's bank details to GMDC.

GMDC shall not be liable to pay any interest on the Bid Security/EMD deposit and the same shall be interest free.

The EMD shall be furnished in Indian Rupees only.

The Bid Security of unsuccessful Bidders will be returned by GMDC, as promptly as possible on acceptance of the Bid of the Preferred Bidder or if and when GMDC cancels the Bidding process. Where Bid Security has been paid by Demand Draft/ Banker's Cheque deposit, the refund thereof shall be in the form of an account payee demand draft in favor of the unsuccessful Bidder(s). Bidders may, by specific instructions in writing to GMDC, give the name and address of the person in whose favor the said demand draft shall be drawn by GMDC for refund, failing which it shall be drawn in the name of the Bidder and shall be mailed to the address given on the Bid.

The Preferred Bidder's EMD will be returned, without any interest, upon the Preferred Bidder signing the Agreement and furnishing the Performance Security in accordance with the provision thereof or if and when GMDC cancels the Bidding.

GMDC shall be entitled to forfeit and appropriate the Bid Security as damages inter alia in any of the events specified below. The Bidder, by submitting its Bid, shall be deemed to have acknowledged and confirmed that GMDC will suffer loss and damage on account of withdrawal of its Bid or for any other default by the Bidder during the period of Bid validity as specified in this RFP. No relaxation of any kind on Bid Security shall be given to any Bidder.

1. If a Bidder engages in corrupt, fraudulent, coercive, undesirable, or restrictive practices as specified in Section 8 of Part 3 of this document
2. If a Bidder withdraws its Bid during the Bid validity period as specified in this RFP and as extended by mutual consent of the respective Bidder(s) and GMDC
3. In the case of a Successful Bidder if it fails within the specified time limit:
 - a. to sign and return the duplicate copy of LOA
 - b. to sign the Agreement within the time period specified by GMDC
 - c. to furnish the Performance Security within the period prescribed therefore in the RFP, or commits any breach prior to furnishing the Performance Security

Relaxation in terms of submission of EMD shall be given to the bidder who is holding valid Certificate issued under the MSME Act, 2006 on the date of submission of Tender.

3. Pre-Bid activities

3.1. Content of the RFP

This RFP comprises of the content listed below and may additionally include any addenda issued in accordance with Section 3.4 of Part 3 of this document.

Part 1: Introduction

Part 2: Terms of reference / Scope of work

Part 3: Instructions to Bidders

Part 4: Annexures

3.2. Clarification to RFP document

Bidders requiring any clarification on the RFP may notify GMDC in writing through email at the address provided in Section 1.6 of Part 3 of this document.

Bidders must send in their queries on or before the date mentioned in Section 1.6 of Part 3 of this document in order to enable GMDC to have adequate notice of the said queries so that the same can be addressed at the Pre-Bid Meeting or shortly later.

GMDC shall endeavor to respond to the queries within a short span of time prior to the Bid submission date.

GMDC is not bound to take cognizance of any queries raised after the date specified in Section 1.6 of Part 3 of this document.

GMDC shall endeavor to respond to the questions raised or clarifications sought by the Bidders. However, GMDC reserves the right not to respond to any question or provide any

clarification, at its sole discretion, and nothing in this section shall be taken or read as compelling or requiring GMDC to respond to any question or to provide any clarification.

GMDC may also on its own motion, if deemed necessary, issue interpretations and clarifications and amendment to RFP. All clarifications and interpretations issued by GMDC shall be deemed to be part of the Bidding documents. Verbal clarifications and information shall not in any way or manner be binding on GMDC.

3.3. Pre-Bid meeting

A pre-Bid meeting would be held at time and an address specified in Section 1.6 of Part 3 of this document. Bidders are advised to attend the meeting and will do so at their own expense.

During the course of pre-Bid meeting, the Bidders will be free to seek clarifications and make suggestions for consideration of GMDC. GMDC shall endeavor to provide clarifications and such further information as it may, in its sole discretion, considered appropriate for facilitating a fair, transparent and competitive Bidding process.

Responses to Bidders' clarification would be shared by uploading such responses online on GMDC's website (i.e. <http://www.gmdcltd.com> and <https://gmdc.nprocure.com>), if required, in the form of an addendum and or corrigendum.

Non-attendance at the pre-Bid meeting shall not be a cause for disqualification of a Bidder. However, terms and conditions of the addendum(s) shall be legally binding on all the Bidders irrespective of their attendance at the pre-Bid meeting.

3.4. Amendment of Bidding documents

At any time prior to the Bid submission date, GMDC may, for any reason, whether at its own initiative or in response to clarifications requested by a Bidder, modify the RFP by the issuance of an addenda/corrigendum.

Any addendum/corrigendum issued hereunder will be in writing and shall be uploaded on GMDC's website <http://www.gmdcltd.com> and <https://gmdc.nprocure.com>.

In order to afford the Bidders a reasonable time for taking an addendum into account, or for any other reason, GMDC may, in its sole discretion, extend the Bid submission date.

4. Preparation and submission of Bids

4.1. Language of Bid

The Bids and all related correspondence and documents in relation to the Bidding process shall be in English language. All supporting documents and printed literature furnished by the Bidders with the Bid may be in any other language provided that they are accompanied by translations in the English language, duly authenticated and certified by the Bidder.

The Bidders shall ensure that any number mentioned in the Bid shall be followed by words in relation to such numerical format of the number, and in the event, there is a conflict in the numerical and the word format of the number, the number provided in words shall prevail.

4.2. Bid currency

All prices quoted in the Bid shall be quoted in Indian National Rupee(s) (INR).

4.3. Format and signing of Bid

The Bidder shall provide all the information sought under this RFP. GMDC will evaluate only those Bids that are received in the required formats and complete in all respects.

The Bid must be properly signed by the authorized signatory as detailed below:

1. Proprietor, in case the Bidder is a proprietary firm, or
2. Duly authorized person holding a Power of Attorney, in case Bidder is either a Limited Company or a Limited Liability Partnership firm

In case of the Bidder being Company incorporated under Indian Companies Act 1956/2013, the Power of Attorney shall be supported by a Board Resolution in favor of the person vesting power to the person signing the Bid.

4.4. Sealing and marking of Bids

4.4.1 EMD and RFP fee

The original instruments of the Bid Security of the required value and in the approved format as specified in Section 2.5, along with the RFP fee as specified in Section 1.5 shall be sealed in an envelope on which the following shall be superscribed:

“RFP No. GMDC/Power/ATPS/02/23-24 for Turbine Generator (TG) Package for Overhaul of GMDC’s 250 (2x125) MW Akrimota Thermal Power Station (ATPS), Gujarat– EMD and RFP Fee”.

4.4.2 Technical Bid

The technical Bid shall be submitted in hard copy and shall include the following documents:

S. No	Reference	Document details
1	Annexure 6	Letter of Bid submission signed by authorized signatory of Bidder
2	Annexure 7	Bidder’s experience and credentials <ul style="list-style-type: none">– Certificate of incorporation, MoA, AoA, GSTIN registration– Evidence for work experience of similar nature – copy of work order, Contract and completion certificate, or Contract awarded, and threshold amount received if client documents are confidential

S. No	Reference	Document details
3	Annexure 8	Declaration of Key Personnel as per requirements of the RFP
4	Annexure 9	Statutory auditor/registered chartered accountants statement specifying revenue for last three financial years, net worth, and working capital for last financial year
5	Annexure 10	No blacklisting certificate on stamp paper
6	Annexure 11	No deviation certificate
7	Annexure 12	Authorization of signatory in the form of Board Resolution/ or Power of Attorney (POA notarized and Applicable in case of Bid not being signed by the person directly authorized by the firm), as applicable
8	Annexure 13	Undertaking
9	Annexure 17	Undertaking of Indemnity
10		RFP documents issued along with updated addendums/amendments thereto, duly signed by the Bidder through its authorized signatory on all pages.

The documents required as part of the Technical Bid shall be submitted in hard copy in person as per the required format. All the documents shall be placed and sealed in an envelope on which the following shall be superscribed:

“RFP No. GMDC/Power/ATPS/02/23-24 for Turbine Generator (TG) Package for Overhaul of GMDC’s 250 (2x125) MW Akrimota Thermal Power Station (ATPS), Gujarat– Technical Bid”.

Both envelopes specified in sections 4.4.1 and 4.4.2 shall be placed in an outer envelope and the following shall be superscribed:

“RFP No. GMDC/Power/ATPS/02/23-24 for Turbine Generator (TG) Package for Overhaul of GMDC’s 250 (2x125) MW Akrimota Thermal Power Station (ATPS), Gujarat– Bid Submission”.

4.4.3 Price Bid

Price Bid shall be duly filled by the Bidder at designated places on <https://gmdc.nprocure.com> as per the format provided in the Annexure 18.

4.5. Bid submission date

The last date and time of submission of the Bids (the “Bid submission date”) are specified in Section 1.6. The Bidders shall duly submit their Technical and Price Bids according to the dates specified.

GMDC may, in its sole discretion, extend the Bid submission date by issuing an addendum uniformly for all Bidders as per Section 3.4. In such event, the extended Bid submission date shall be applicable for all Bidders. Any such change in the Bid submission date shall be notified to the Bidders by uploading the addenda on GMDC's website <http://www.gmdcltd.com> and <https://gmdc.nprocure.com>.

4.6. Late submission

Physical submissions for Technical Bid and EMD and RFP fee received by GMDC after the specified time and date shall not be eligible for consideration and shall be summarily rejected.

GMDC shall not be responsible for any delay or non-receipt / non-delivery of any documents/ or technical issues pertaining to online Bid. The Bidder is expected to take its registration for e-tendering well in time and complete all procedure relating to e-submission well in time so that there is time for handling any technical glitches. Bidders who are not familiar with the procedure for online Bidding may use the training made available by e Bidding platform nProcure. The contact details of nProcure are as follows:

nCode Solutions (A Division of GNFC Ltd.)

403, GNFC Infotower, Bodakdev,

Ahmedabad - 380054. India

Sales : 079- 4000 7323

Support : 079- 4000 7300

Email : nprocure@ncode.in

4.7. Modification and withdrawal of Bids

Bidder shall not be able to modify any part of its Bid after the Bid submission date. In order to avoid forfeiture of Bid Security, a Bidder may withdraw its Bid after online submission thereof. The Bidder may modify, substitute, or withdraw its Bid online after submission, prior to the Bid submission date.

Any alteration/ modification in the Bid or additional information supplied subsequent to the Bid submission date, unless the same has been explicitly sought for by GMDC, shall be disregarded.

5. Bid evaluation criteria

5.1. Pre-qualification criteria

Category	Parameter	Supporting docs
Statutory	Registered in India under Indian Companies Act 1956/2013 or Limited Liability Partnership firm registered under LLP act in India	Registration certificate/certificate of Incorporation of business
	At least one office in India which has been operational for the last three years or more	Certificate of incorporation, MoA, AoA, GSTIN registration

Category	Parameter	Supporting docs
	Not blacklisted by any Public Sector Undertaking (PSU) / Central or State Government in India / Central or State Government undertaking	- No blacklisting certificate - On 300 Rs. Stamp paper
	Consortiums are not permitted to participate in the Bidding process	
Financial	Average audited annual revenue of INR 20 Cr per annum for last three years (FY2020 to FY2022)	- Revenue and net worth statement - On auditor's / CA's letterhead, signed with seal
	Positive net worth as on 31 st March 2022	- Revenue and net worth statement - On auditor's / CA's letterhead, signed with seal
Operational	At least one Contract of similar works ¹ of value > INR 28Cr, or two Contracts of value > INR 21Cr, or three Contracts of value > INR 14Cr in the last seven years (FY2017 to FY2023)	Relevant portions of the work order /Contract / completion certificate for Contracts undertaken. In case the client serviced is confidential, the Bidder shall provide a self-certification with document evidence including work order / relevant sections of the contract / agreement. In case the similar work has been done in-house, self-certification with a logical methodology to assess the value of the work.
	OEM, subsidiary of the OEM, or OEM authorized service providers in ongoing business with the OEM	Certificate of incorporation (for OEM), Article of Association (for subsidiary of OEM), or letter of authorization from the OEM (for authorized service providers)

5.2. Technical Score

The Technical Bids of Bidders meeting pre-qualification criteria shall be considered for evaluation and assignment of technical scores. The technical evaluation will be conducted in

¹ Similar works include – Capital Overhauling of steam turbine generators for coal or lignite-based thermal power plants of 250 MW capacity or higher, and each unit of 100 MW or higher, carried out under a single LOI / work order / agreement

two steps, evaluation of technical Bids and evaluation of technical presentation. The Technical Score (TeS) will be computed as the sum of the scores in technical Bid and technical presentation.

5.2.1. Technical Bid

The score of the Bidder's Technical Bid shall be evaluated as per the scoring system detailed below.

Category	Criteria	Thresholds	Score	Verification
Prior experience (25 marks)	No. of years of experience in erection, commissioning and Overhauling of steam turbine generators in coal or lignite-based thermal power plants	5 points - >= 15 years 4 points - >= 12 years 3 points - >= 10 years 2 points - >= 8 years 1 point - >=5 years 0 points - <5 years	5	Document evidence including relevant portions of the work order / Contract / completion certificate for contracts undertaken (Annexure 10)
	Portfolio of experience in the erection, commissioning and Overhauling of steam turbine generators in coal or lignite-based thermal power plants	5 points - >= 800MW 4 points - >= 700MW 3 points - >= 600 MW 2 points - >= 500 MW 1 point - <400 MW	5	
	Largest individual steam turbine generator Overhaul undertaken in India for a coal or lignite-based thermal power Plant	5 points - >= 125 MW 4 points - >= 100 MW 3 points - >= 75 MW 2 points - >= 50 MW 1 points - < 50 MW	5	
	Prior experience undertaking projects involving the erection, commissioning, and Overhauling of Ansaldo turbines	10 points - Yes 0 points - No	10	
Workforce capabilities (15 marks)	TG Package leader's years of experience	10 points - 15+ years' 5 points - <15 years' 0 points - <10 years'	10	Self-declaration of workforce capabilities (Annexure 11)
	OEM deployed Technical Expert's years of experience (leader of the supervisory team)	5 points - 12+ years' 3 points - <12 years' 0 points - <10 years'	5	

Category	Criteria	Thresholds	Score	Verification
Supply chain capabilities (15 marks)	Have previously undertaken projects involving the procurement of Ansaldo spare parts for Capital overhauling	15 points - Yes 0 points - No	15	Document evidence including relevant portions of the work order / Contract / PO (Annexure 10)
Accreditations (5 marks)	ISO 9001, 14001, 18001/45001 certification	5 points - Yes 0 points - No	5	Document evidence comprising of relevant certificates (Annexure 10, Part B)
Technical Presentation (40 marks)	As per scores defined in Section 5.2.2	As per scores defined in Section 5.2.2	40	
	Total		100	

5.2.2. Technical Presentation

The Technical Bid will be accompanied by a Technical Presentation to the Bid evaluation committee. Bidders shall prepare a presentation in PPT format and will be evaluated along the parameters detailed below. The Bidder shall, therefore, ensure appropriate details are incorporated in the presentation to be evaluated comprehensively. The score of the Bidder's Technical Presentation shall be evaluated as per the scoring system detailed below.

Category	Parameter	Score
Technical capabilities (10 marks)	Successful case studies of performance improvement of Turbine Generator at coal or lignite based thermal power projects post capital Overhauling	10
Key personnel (10 marks)	Personnel with prior experience in Capital Overhauling of Turbine Generator at coal or lignite based thermal power plants	10
	Proposed team, including details of the 'TG Package Leader', 'Technical Expert' and the supervisory team from the OEM	
Approach and methodology	Plan for Procurement of all equipment / material / spares / services / works for the Overhaul and estimated timelines	20

Category	Parameter	Score
(20 marks)	Plan for timely execution of Capital Overhaul activities at Plant post procurement, including potential risk mitigation measures	
	Plan for testing (FATs, SATs, and Performance Guarantee Tests) and commissioning of the turbine generators	
Total		40

5.3. Financial Score

The Bidders obtaining a Technical Score (sum of scores of Technical Bid and Technical Presentation) of minimum 60 (sixty) shall be considered as technically qualified Bidders. The Price Bid of only the technically qualified Bidders shall be opened.

The Bidders shall be required to quote the Lumpsum Charges for TG Package for the duration of the Contract, as per the format provided in Annexure 18, through online submission of Price Bids.

The Financial Score shall then be evaluated as follows:

$$\text{Financial Score (FiS)} = \frac{\text{FiL}}{\text{FiC}} \times 100$$

Where,

FiL is the L1 (Lowest Bidder)'s Lumpsum Charges for TG Package

FiC is the Lumpsum Charges for TG Package quoted by the Bidder

The Bidder recording the lowest aggregate Supply and Services charges for the tenure of the Contract among all technically qualified Bidders shall be given maximum score of 100.

5.4. Composite score

The Composite Score of the Bidders shall be computed using the Technical Score and the Financial Score as follows:

$$\text{Composite Score (CS)} = \text{Technical Score (TeS)} \times 70\% + \text{Financial Score (FiS)} \times 30\%$$

The technical criteria have been assigned a weightage of 70% while the commercial criteria have been assigned a weightage of 30%.

The Bidder obtaining the highest Composite Score shall be declared the Preferred Bidder. In case of a tie between two or more Bidders based on the Composite Score (i.e., two or more Bidder obtain the same Composite Score), the Bidder securing the higher Technical Score (TeS) among the tied Bidders shall be declared as the Preferred Bidder.

After discussions at the discretion of GMDC, the LOA would be granted to the Preferred Bidder who would then be the Successful Bidder with whom the Agreement shall be signed.

6. Bid evaluation process

6.1. Opening of technical Bid

The Bidder's names, the presence or absence of requisite RFP Fee and Bid Security and such other details, as GMDC in its sole discretion may consider appropriate, shall be announced at the opening of Technical Bid.

GMDC will subsequently examine and evaluate Technical Bids in accordance with the provisions set out hereunder in Section 6.2.

6.2. Evaluation of technical Bid

The Bidders shall be required to submit documents as per Section 4.4.2 along with supporting documents. GMDC shall examine and evaluate the Technical Bids as per the evaluation steps specified below.

6.2.1. Test of responsiveness

Prior to evaluation of the Technical Bids, GMDC shall determine whether each Bid is responsive to the requirements of the RFP. A Bid shall be considered responsive only if:

1. The EMD, RFP Fee, and Technical Bids are submitted in hard copy as per the appropriate formats in person as per Section 4.4.1 and 4.4.2 within the Bid submission date
2. The Price Bid is submitted online as per the appropriate format within the Bid submission date
3. It does not contain any conditionality
4. It is not non-responsive to the terms hereof and any other condition specified elsewhere in the RFP

GMDC reserves the right to reject any Bid which is non-responsive and no request for alteration, modification, substitution, or withdrawal shall be entertained by GMDC in respect of such Bid.

Evaluation of pre-qualification criteria and document checks of only those Bidders shall be carried out whose Bids determined to be responsive.

6.2.2. Assessment of pre-qualification criteria

GMDC shall examine and evaluate the pre-qualification of each Technical Bid upon determining its responsiveness as per Section 6.2.1.

The Bidder must meet pre-qualification criteria specified in Section 5.1 and have submitted all documents as per Section 4.4.2 in order to qualify for next stage of assessment.

Evaluation of Technical Bids to assign Technical Score of only those Bidders shall be carried out whose Bids are meeting the pre-qualification criteria and submitted all required documents.

6.2.3. Determination of technical score

GMDC shall examine and assign Technical Score to each pre-qualified Bid as per the scoring mechanism described in Section 5.2

Responsive and pre-qualified Bidders shall be called to make a Technical Presentation as per the parameters specified in Section 5.2.2 and shall be scored by the committee.

The Technical Score of each Bid shall be calculated as the sum of the scores obtained in Technical Bid and Technical Presentation.

The Bids of the Bidders determined to be responsive, meeting the pre-qualification criteria, and obtaining a Technical Score of minimum 70 will be declared as technical qualified Bids, and the Bidders thereby shall be declared as technically qualified Bidders.

6.3. Evaluation of Price Bid

The Bidders shall be required to submit documents as per Section 4.4.3. GMDC shall examine and evaluate the Price Bids as per the evaluation steps specified below.

6.3.1. Opening of Price Bid

The Price Bids of only the Bidders determined to be responsive and meeting the Pre-Qualification Criteria and obtaining required Technical Score in accordance with Section 6.2 shall be opened.

The time and date of opening of Price Bids shall be informed to the Bidders who are declared as technical qualified Bidders pursuant to Section 6.2.3 in advance. The name of Bidder, Bid rates, etc. will be announced at such opening.

6.3.2. Determination of financial score

GMDC shall determine the Financial Score for each technical qualified Bid as specified in Section 5.3.

6.4. Determination of composite score

The Technical Score and Financial Score obtained by the Bidder shall be combined as per the formula provided in Section 5.4.

The Bidder obtaining the highest Composite Score shall be declared the Preferred Bidder. In case of a tie between two or more Bidders based on the Composite Score (i.e., two Bidder obtain the same Composite Score), the Bidder securing the higher Technical Score (TeS) among the tied Bidders shall be declared as the Preferred Bidder.

After discussions at the discretion of GMDC, the LOA would be granted to the Preferred Bidder who would then be the Successful Bidder with whom the Agreement shall be signed.

6.5. Clarification of Bids and request for information

To facilitate evaluation of Bids, GMDC may, at its sole discretion, seek in writing, clarifications / documents / missing information from any Bidder pertaining to its Bid. If the

response from the Bidder is not received by GMDC before the expiration of the deadline prescribed in the written request, GMDC reserves the right to proceed with the evaluation process at the total risk and cost of the Bidder.

6.6. Verification and disqualification

GMDC reserves the right to verify all statements, information and documents submitted by the Bidder in response to the RFP and the Bidder shall, when so required by GMDC, make available all such information, evidence and documents as may be necessary for such verification. Any such verification or lack of such verification by GMDC shall not relieve the Bidder of its obligations or liabilities hereunder nor will it affect any rights of GMDC there under.

GMDC reserves the right to reject any Bid and / or appropriate EMD if:

1. At any time, a material misrepresentation in terms of misleading or false representation is made or uncovered, or
2. The Bidder does not provide, within the time specified by GMDC, the supplemental information sought by GMDC for evaluation of the Bid
3. In case of fraudulent Bid and the Bidder is found to be involved in fraudulent and corrupt practice as per Section 8
4. In case the Bidder has any conflict of interest as per Section 9
5. A Bidder makes an effort to influence GMDC in its decisions on the evaluation process / selection process
6. While evaluating the Bid, if it comes to GMDC's knowledge expressly or implied, that some Bidders may have compounded in any manner whatsoever or otherwise joined to form an alliance resulting in distorting competitive price discovery or delaying the processing of proposal
7. Record of poor performance such as abandoning the work, rescinding of Contract for which the reasons are attributable to the non-performance of the Bidder, consistent history of litigation awarded against the applicant or financial failure due to bankruptcy
8. A Bidder submits or participates in more than one Bid under this RFP

If such disqualification / rejection occurs after the Bids have been opened and the Preferred Bidder as per award criteria gets disqualified / rejected, then GMDC reserves the right to consider the next best Bidder or take any other measure as may be deemed fit in the sole discretion of GMDC, including annulment of the process.

In case it is found during the evaluation of Bids or at any time before signing of the Contract or after its execution and during the period of subsistence thereof, that one or more of the pre-qualification criteria / technical criteria have not been met by the Bidder, or the Bidder has made material misrepresentation or has given any materially incorrect or false information, the Bidder shall be disqualified forthwith if not yet appointed as the Bidder either by issue of the LOA or entering into the Contract, and if the Successful Bidder has already been issued the LOA or has entered into the Contract, as the case may be, the same shall, notwithstanding anything to the contrary contained therein or in this RFP, be liable to be terminated, by a communication in writing by GMDC to the Successful Bidder or the Bidder, as the case may be, without GMDC being liable in any manner whatsoever to the Successful Bidder or the Bidder. In such an event, GMDC shall be entitled to forfeit and

appropriate the EMD or Performance Security, as the case may be, without prejudice to any other right or remedy that may be available to GMDC under the RFP and/or the Contract.

6.7. Contacts during Bid evaluation

Bids shall be deemed to be under consideration immediately after they are opened and until such time GMDC makes official intimation of award/ rejection to the Bidders. While the Bids are under consideration, Bidders and/ or their representatives or other interested Parties are advised to refrain, save and except as required under the Bidding documents, from contacting by any means, GMDC and/ or their consultants/ employees/representatives on matters related to the Bids under consideration.

6.8. Correspondence with Bidder

Save and except as provided in this RFP, GMDC shall not entertain any correspondence with any Bidder in relation to acceptance or rejection of any Bid.

6.9. Confidentiality

Information relating to the examination, clarification, evaluation, and recommendation for the Bidders shall not be disclosed to any person who is not officially concerned with the process or is not a retained professional advisor advising GMDC in relation to, or matters arising out of, or concerning the Bidding process. GMDC will treat all information, submitted as part of the Bid, in confidence and will require all those who have access to such material to treat the same in confidence. GMDC may not divulge any such information unless it is directed to do so by any statutory entity that has the power under law to require its disclosure or is to enforce or assert any right or privilege of the statutory entity and/ or GMDC or as may be required by law or in connection with any legal process.

7. Appointment of Bidder

7.1. Notification of award

Prior to expiry of the Bid Validity Period, GMDC shall notify the Preferred Bidders the Successful Bidders through letter that their Bid has been accepted. This letter ("Letter of Award"/ "LOA") shall be issued, induplicate, and shall specify the sum which GMDC shall pay to the Successful Bidder and sum that the Successful Bidder shall pay to GMDC in consideration of scope as per the terms of Contract.

Successful Bidder shall, within 7 (seven) days of the receipt of the LOA, sign and return the duplicate copy of the LOA in acknowledgement thereof. In the event the duplicate copy of the LOA duly signed by the Successful Bidder is not received by the stipulated date, GMDC may, unless it consents to extension of time for submission thereof, appropriate the Bid Security of such Bidder as damages on account of failure of the Successful Bidder to acknowledge the LOA, and the next eligible and qualified Bidder may be considered.

7.2. Signing of agreement

After acknowledgement of the LOA as aforesaid by the Successful Bidder, it shall cause the Successful Bidder, subject to furnishing the Performance Security as per the RFP provisions, to execute/sign the Agreement within the 30 (thirty) days from the date of LOA .

The Successful Bidder shall get 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 the Successful Bidder.

After the signing of Agreement, the Successful Bidder shall be called the “Contractor”.

7.3. Performance Security

The Successful Bidder shall furnish 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 20) for amount of equivalent to 10% (Ten percent) of the Lumpsum Charges for TG Package (without GST) quoted, payable to GMDC by the Successful Bidders (the “Performance Security”) from the banks approved by Government of Gujarat except Co-Operative banks. 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. The list of approved banks has been listed in Annexure 21.

The Successful Bidder will be bounded for conflict resolution for a period of 12 (twelve) months after the completion of the Contract. Hence, the Bidder shall maintain a valid and binding Performance Security for a period of 24 (twenty-four) months. The Bidder 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 three months. In case tenure of the Contract is extended then the Bidder shall have to renew Performance Security for a period of extended tenure.

If the Successful Bidder, fails to furnish the Performance Security, it shall be lawful for GMDC to forfeit the EMD and cancel the Contract or any part thereof.

GMDC shall be entitled to forfeit and appropriate the amount of the Performance Security in whole or in part:

1. in the event GMDC requires to recover any sum due and payable to it by the Bidder including but not limited to damages; and which the Bidder has failed to pay in relation thereof; and
2. in relation to Bidder’s breach in accordance with the terms contained in the Agreement

At any time during the Validity Period, the Performance Security has either been partially or completely been encashed by GMDC in accordance with the provision of the Agreement, the Bidder shall within 15 (fifteen) days of such encashment either replenish, or provide a

fresh Performance Security, as the case may be, failing which GMDC shall be entitled to terminate the Agreement.

At the end of the tenure of the Contract, the Performance Security shall be returned to the Bidder without any interest, subject to any deductions which may be made by GMDC in respect of any outstanding dues under the terms of the Agreement.

7.4. Proprietary data

Subject to the provisions of Section 6.9, all documents and other information provided by GMDC or submitted by Bidder to GMDC shall remain or become the property of GMDC. Bidder is to treat all information as strictly confidential. GMDC will not return any Bid, or any information related thereto. All information collected, analyzed, processed or in whatever manner provided by the Bidder to GMDC in relation to the assignment pursuant to the scope of work / terms of reference shall be the property of GMDC.

7.5. Tax liability

The rates quoted in Price Bid Annexure 18 shall be inclusive of all taxes, duties, surcharge Levies etc. as applicable except applicable Goods and Service Tax. Applicable GST at the time of invoicing shall be reimbursed by GMDC.

GMDC 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.

8. Fraudulent and corrupt practices

The Bidders and their respective officers, employees, agents, and advisers shall observe the highest standard of ethics during the Bidding process and subsequent to the issue of the LOA and during the subsistence of the Contract. Notwithstanding anything to the contrary contained herein, or in the LOA or the Contract, GMDC may reject a Bid, withdraw the LOA, or terminate the Contract, without being liable in any manner whatsoever to the Bidder, if it determines that the Bidder or as the case may be, has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice, or restrictive practice in the Bidding process. In such an event, GMDC shall be entitled to forfeit and appropriate the EMD, as the case may be, without prejudice to any other right or remedy that may be available to GMDC under the Bidding documents and/ or the Contract, or otherwise. In case of cancellation of Contract, if already awarded, GMDC shall be entitled to recover from the Bidder the amount of any loss arising from such cancellation in accordance with provisions of RFP document.

Without prejudice to the rights of GMDC hereinabove and the rights and remedies which GMDC may have under the LOA or the Contract or otherwise if a Bidder as the case may be, is found by GMDC to have directly or indirectly or through an agent, engaged or indulged in any corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice during the Bidding process, or after the issue of the LOA or the execution of the Contract and/or otherwise, such Bidder shall not be eligible to participate in any RFP or RFP issued by GMDC during a period of 2 (two) years from the date of identification of such practice.

For the purposes of this Section 8, the following terms shall have the meaning hereinafter respectively assigned to them:

1. **“Corrupt practice”** shall mean (i)the offering, giving, receiving, or soliciting, directly or indirectly, of anything of value to influence the actions of any person connected with the Bidding process (for avoidance of doubt, offering of employment to or employing or engaging in any manner whatsoever, directly or indirectly, any official of GMDC who is or has been associated in any manner, directly or indirectly, with the Bidding process or the LOA or has dealt with matters concerning the Contract or arising there from, before or after the execution thereof, at any time prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of GMDC, shall be deemed to constitute influencing the actions of a person connected with the Bidding process); or (ii) engaging in any manner whatsoever, whether during the Bidding process or after the issue of the LOA or after the execution of the Contract, any person in respect of any matter relating to the LOA or the Contract or otherwise, who at any time has been or is a legal, financial or technical adviser of GMDC in relation to any matter concerning the assignment
2. **“Fraudulent practice”** shall mean a misrepresentation or omission of facts or suppression of facts or disclosure of incomplete facts, in order to influence the Bidding process
3. **“Coercive practice”** shall mean impairing or harming, or threatening to impair or harm, directly or indirectly, any person or property to influence any person's participation or action in the Bidding process
4. **“Undesirable practice”** shall mean(i)establishing contact with any person connected with or employed or engaged by GMDC with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Bidding process; or (ii)having a Conflict of Interest as per Section 9
5. **“Restrictive practice”** shall mean forming a cartel or arriving at any understanding or arrangement among Bidders with the objective of restricting or manipulating a full and fair competition in the Bidding process

9. Conflict of interest

The Bidder shall not have a conflict of interest that may affect the selection process. Any Bidder found to have a conflict of interest shall be disqualified. In the event of disqualification, GMDC shall forfeit and appropriate the Bid Security, if available, or as mutually agreed genuine pre-estimated compensation and damages payable to GMDC for, inter alia, the time, cost, and effort of GMDC including consideration of such Bid, without prejudice to any other right or remedy that may be available to GMDC hereunder or otherwise.

GMDC requires that the appointed Bidder provide professional, objective, and impartial advice and at all times hold GMDC's interests paramount, avoid conflicts with other assignments or its own interests, and act without any consideration for future work. The Bidder shall not accept or engage in any assignment that would be in conflict with its prior or current obligations to other clients, or that may place it in a position of not being able to carry out the assignment in the best interests of GMDC.

Without limiting the generality of the above, shall be deemed to have a conflict of interest affecting the selection process, if the relationship between two Bidders is established through common holding, either directly or through associates, of at least 26% holding of equity/profit sharing in another company/firm, or in each other and other terms as specified hereunder:

1. The Bidder, its member or associate (or any constituent thereof) and any other Bidder, its member or associate (or any constituent thereof) have common controlling Ownership interest. Common controlling Ownership interest for Company, Limited Liability Partnership Firm is defined as follows. Associates of the Bidding firm shall mean parent and/or subsidiary and/or sister concerned firm having meaning specified in definition Section:
 - a. **If Bidder is a Company:** In such case, the Bidder (including its associate or any shareholder thereof of Bidder and/or its associates) possessing over 26% of the paid up and subscribed capital in its own company or associate as the case may be, also holds:
 - i. more than 26% of the paid up and subscribed equity capital in the other Bidder, its member or associate of such other Bidder or associates is company and/or
 - ii. More than 26% of profit sharing in other Bidder or associates such other Bidder or associates is a Limited Liability Partnership firm and/or
 - b. **If Bidder is a Limited Liability Partnership Firm:** In such case, the Bidder or its partners or associate having a profit sharing of more than 26% of such Bidder or its partners or associate as the case may be also holds:
 - i. more than 26% of the paid up and subscribed equity capital in the other Bidder or associate of such other Bidder, its member or associates is company and/or
 - ii. more than 26% of profit sharing in other Bidder or its associates such other Bidder or its associates is a Limited Liability Partnership firm and/or
2. A constituent of such Bidders is also a constituent of another Bidders, or
3. Such Bidders receive or has received any direct or indirect subsidy or grant from any other Bidder/s, or has provided any such subsidy to any other Bidders, or
4. Such Bidder has the same legal representative for purposes of this Bid as any other Bidders or
5. such Bidders have a relationship with another Bidders, directly or through common third Parties, that puts them in a position to have access to each other's' information about, or to influence the Bid of either or each of the other Bidders or
6. there is a conflict among this and other assignments of the Bidder (including its personnel and other members, if any) and any subsidiaries or entities controlled by such Bidder or having common controlling shareholders. The duties of the Bidder will depend on the circumstances of each case. While providing services to GMDC for this assignment, the Bidder shall not take up any assignment that by its nature will result in conflict with the present assignment
7. The Bidder shall furnish an affirmative statement as to the existence of, or potential for conflict of interest on the part of the Bidder due to prior, current Contracts, engagements, or affiliations with GMDC. Additionally, such disclosure shall address

any and all potential elements (time frame for service delivery, resource, financial or other) that would adversely impact the ability of the Bidder to complete the requirements as given in the RFP

Part 4: Annexures

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Annexure 1: Turbine and Generator Technical Specifications

1. Main Turbine

S. No	Particulars	Units	Specifications
1.	Make/Manufacturer		ANSALDO
2.	Type		Reaction
3.	Type of governing		Electrohydraulic
4.	Number of cylinders		2
5.	Speed	(rpm)	3000
6.	Parameters at various loads		VWO 100% 80% 60% 40%
	a) Rated output	(Mw)	135.99 125 100 75 50
	b) Maximum continuous rating	(kw)	135.99
	c) Most economical rating	(kw)	135.99
	d) Condenser vacuum	(kg/cm ² abs)	<-----0.102----->
	e) <u>Main Steam:</u>		
	1. At HP Turbine Inlet		
	a) Throttle steam pressure	(kg/cm ²)	<-----132.6----->
	b) Throttle steam temp.	(°C)	<-----535----->
	c) Throttle steam flow	(T/hr)	405367.177289.664219.033151.132
	2. At HP Turbine Outlet		
	a) Steam pressure	(kg/cm ²)	39.01 35.48 28.21 21.5 14.97
	b) Steam temp.	°C	352.8 343.1 325.9 313.9 304.3
	c) Steam flow	(T/hr.)	374.743340.435269.831205.046142.2 24
	f) <u>Reheat Steam:</u>		
	1. At IP Turbine Inlet		
	a) Steam pressure	(kg/cm ²)	35.1 31.93 25.39 19.35 13.47
	b) Steam temp.	(°C)	535 535535* 535* 535*
	c) Steam flow	(T/hr)	374.743340.435 269.831205.046142.224
	2. At LP Turbine Exhaust		

S. No	Particulars	Units	Specifications
	a) Steam pressure	(kg/cm ²)	0.102 0.102 0.102 0.102 0.102
	b) Steam temp.	(°C)	45.8 45.8 45.8 45.8 45.8
	c) Steam flow	(T/hr.)	283.614 260.442 211.587 165.164 118.342
	g) Gross heat rate of turbine under constant and variable pressure mode with 0% makeup		1959 1963 1997 2071 2210
	h) Total auxiliary power consumption	(kw)	2878
7.	Steam pressure before emergency stop valve in	[kg/cm ² (abs)]	132.6
8.	Steam temp. before emergency stop valve	(°C)	535
9.	Temp. before IP reheat stop valve	(°C)	535
10.	Number of HP exhaust connections		1
11.	Size and number of cross around/over pipes from IP to LP cylinders	(mm)	None
12.	Total weight of turbine	(Tonnes)	228
13.	Name and weight of the heaviest part of turbine for erection	(Tonnes)	HP section
14.	Weight of the HP Turbine	(Tonnes)	46.5
15.	Mass moment of Inertia of Turbine rotors	(Tm ²)	4.3
16.	Weight of the IP rotor	(Tonnes)	Combined with LP rotor
17.	Weight of LP rotor	(Tonnes)	33
18.	Number of stages (HP/IP/LP)		Control stage + 22/16/7
19.	Number of Impulse stages		1
20.	Number of reaction stages		Prelim 45
21.	Height of first stage moving blade	(mm)	Prelim 25
22.	Mean diameter of first stage moving blade	(mm)	Prelim 745
23.	Height of last stage moving blade	(mm)	780

S. No	Particulars	Units	Specifications
24.	Mean diameter of last stage moving blade	(mm)	2200
25.	Type of blade roots		Hammer type
26.	Total exhaust area (LP turbine)	(m ²)	5.5
27.	Rated pressure and temperature of:		
	a) Valve chest (HP)		Integral with casing
	b) HP cylinder casing		132.6/535
	c) IP/LP cylinder casing		40/535
28.	Bearings: (Specify no.of each location)		
	i) Journal		
	a) Size	(mm)	180/315
	b) Type		Pocket
	c) Lining material		White metal
	d) Operating temperature	(°C)	110 max.
	e) Lube oil pressure	(kg/cm ²)	1.5
	ii) Thrust		
	a) Size	(mm)	315
	b) Type		Tilting sectors
	c) Lining material		Bronze
	d) Operating temperature	(°C)	110 max.
	e) Lube oil pressure	(kg/cm ²)	1.5
29.	Type of couplings (Quantity, location)		Integral with rotor (2 couplings)
30.	Operating Conditions:		
31.	a) No load throttle flow with TG set spinning at 3000 rpm	(T/hr)	40
	b) Steam flow through turbine when operating on normal regenerative cycle at rated condition	(T/hr)	367.177
32.	Minimum steam pressure at which machine may be rolled in	[kg/cm ² (abs)]	20°C superheated

S. No	Particulars	Units	Specifications
33.	Permissible values of variation of steam temp. and pressure before the emergency stop valve and reheat stop valve with duration of each such occurrences and total duration in one year.		According to IEC 45
34.	Max. flow at VWO conditions and power generated	(T/hr)	405
35.	Exhaust hood relief diaphragm		
	a) Type		Sealing element
	b) No.		1
	c) Bursting pressure	(kg/cm ²)	1.5
	d) Material of construction		Teflon
	e) Max. allowable temperature at LP turbine exhaust hood	(°C)	75 (alarm)
36.	Maximum speed rise at MCR condition with ESV full open and control valve in full closed condition		≤ 8%
37.	Critical speeds for turbine shafts (state for individual shaft)		<u>HP rotor</u> <u>IP/LP rotor</u>
	a) First critical speed	(rpm)	below 2300 below 2400
	b) Second critical speed	(rpm)	above 4000 above 4000
38.	Turning gear speed,	(rpm)	16
39.	Auxiliary power consumption considering following items		
	a) Boiler feed pump	(kw)	2573
	b) Condensate pumps	(kw)	276
	c) Ejectors		Not applicable
	d) Turbine lube oil system		29
	e) Ventilation system if any		Not applicable
	f) Excitation system		Not applicable
40.	Coast down time to turning gear speed stand still condition after turbine trip out		
	a) with vacuum	(minutes)	50

S. No	Particulars	Units	Specifications
	b) with vacuum broken	(minutes)	25
41.	a) Power output continuously by TG set at generator terminal in case of any of the closed feed water heater is out of service	(Mw)	125
	b) Power output continuously by T.G set at generator terminal with both heaters	(Mw)	125
42.	Max. permissible steam metal temp. differential for conditions		
	a) Cold start	(°C)	~120
	b) Hot start	(°C)	~50
	c) Warm start	(°C)	~90
43.	For safe operation of unit under cold/warm/hot condition max. permissible values for the following as the machine is required to operate under house load operation		Cold Warm Hot
	a) Absolute expansion		HP Casing Expansion: Range :0-50 MM, IP/LP casing Expansion : 0-50
	b) Differential expansion		HP Diff Exp.: -10 to +10 MM, IP/LP DIFF. Exp.: -10 to +10 MM
	c) Vibrations		Shaft Vibration: Range-0 to 400 micro MM, Alarm- 165 Micro MM, Tripping – 260 Micro MM)
	d) Eccentricity		Range: 0-20 mm, Alarm 0.15 mm
44.	Material of Construction:		
45.	Turbine Casing		Outer Inner
	a) HP shell		Stg 50T Stg 50T
	b) IP casing		GGG 40 Stg 50 T
	c) IP/LP casing		Carbon steel GGG 40
46.	Blades		
	a) HP moving blades		St 12T
	b) HP stationary blades		St 12T
	c) IP moving blades		St 12T

S. No	Particulars	Units	Specifications
	d) IP stationary blades		St 12T
	e) LP moving blades		St 12T
	f) LP stationary blades		St 12T
47.	Turbine rotor		
	a) HP rotor		St 461 TS
	b) IP/LP rotor		St 463 TS/St 573 S

2. Governing System

S. No	Particulars	Units	Specifications
1.	Constant speed governor		
	a) Type		Digital
	b) Steady state speed regulation	(%)	3 to 7
	c) Dead band	(%)	0.03
2.	Emergency Governor		
	a) Speed setting (in % of rated speed)		110
	b) Range of adjustment of emergency trip setting (in % of rated speed)		0-120
3.	Motor operated speeder gear		
	a) Type of motor		Software device
	b) Adjustable no load speed change	(%)	± 1 (Tunable)
	c) Speed droop adjustment	(%)	3 to 8
4.	Load limit device whether remote and/or local operated		Remote
5.	Initial pressure regulator		
	a) Type		Digital
	b) Range of regulation (in % of rated steam pressure)		0-100
	c) Maximum speed rise in the event of tripping at MCR	(rpm)	3240

S. No	Particulars	Units	Specifications
6.	a) Parameter at which low vacuum alarm should be fixed	(bar)	0.2
	b) Vacuum at which trip occurs	(bar)	0.25
7.	Emergency Main Steam Stop Valve Strainers		
8.	Number		1 per SV
9.	Mesh screen material		10 Cr Mo 910
10.	Max. particle size which will pass screen	(mm)	2.5 (Mesh size)
11.	Pressure drop across strainer		Negligible
12.	Emergency Main Steam Stop Valve		
13.	Number		2
14.	Nominal diameter	(mm)	200
15.	Type		Poppet
16.	Maximum pressure drop across the valve assembly	(kg/cm ²)	Negligible
17.	Material of construction		
	Valve body		Stg 50T
	Valve trim		St 16/13 Mo VNbL
	State (stellited otherwise hardened)		Stellited
18.	Limit Switches (Nos.)		2
19.	HP Control Valve		
20.	Number		3
21.	Nominal diameter		80/100/112
22.	Type		Poppet
23.	Sequence of opening control valves		7 valve points possible
24.	Material of construction		
	Valve body		Stg 50T
	Trim		St 16/13 Mo VNbL
	Stem		St 16/13 Mo VNBL

S. No	Particulars	Units	Specifications
25.	Interceptor Valve strainer		
26.	Number off		1 per CV
27.	Mesh screens material		10 CrMo 910
28.	Max. particle size which will pass screen (in microns)		2.5 mm (Mesh size)
29.	Interceptor valves		
30.	Number off		2
31.	Nominal diameter	(mm)	250
32.	Type		Poppet
33.	Material of construction		
	a) Valve body		Stg 50 T
	b) Valve trim		St 16/13MoVNbL
	c) Seats (stellite or other wise hardened)		Stellite
34.	Limit switches (Nos.)		2
35.	IP control valve		
36.	Number off		2
37.	Nominal diameter	(mm)	200
38.	Type		Poppet
39.	Sequence of opening control valve		Parallel Operation
40.	Material of construction		
	a) Valve body		Stg 50 T
	b) Trim		Stg 16/13 MoVNbL
	c) Stem		Stg 16/13 MoVNbL
41.	Lubricating and Governing oil system		
	a) Oil flow through lubricating system lit/m		18
	b) Recommended type of turbine oil and specification		ISO VG 46
	c) Oil flow through governing system - max. and normal	(lit/min.)	Successful bidder to refer to relevant OEM drawings/manuals

S. No	Particulars	Units	Specifications
42.	Shaft driven oil pump		
	a) Type of pump		Gear
	b) Capacity	(m3/hr.)	96.12
	c) Discharge pressure	(kg/Cm2)	4.9
	d) Pump speed	(rpm)	Successful bidder to refer to relevant OEM drawings/manuals
43.	Oil injector in 2 stages to feed the main oil pump		Self-priming main oil pump; and hence not applicable
44.	Full capacity auxiliary oil pump AC Motor driven:		
	a) Type of pump/No.		Centrifugal/2
	b) Capacity	(m3/hr.)	64.8
	c) Suction pressure	(bar)	Submerged
	d) Discharge pressure	(bar)	4.5
	e) Pump speed	(rpm)	2900
	f) Size of motor	(kw)	19
45.	DC motor drive emergency oil pump:		
	a) Type of Pump/No.		Centrifugal/1
	b) Capacity	(M3/hr.)	26
	c) Suction pressure	(bar)	Submerged
	d) Discharge pressure	(bar)	0.9
	e) Pump speed	(rpm)	1500
	f) Size of motor	(kw)	3
	g) Type of enclosure		TEFC
	h) Insulation class		Successful bidder to refer to relevant OEM drawings/manuals
	i) Temperature rise		Successful bidder to refer to relevant OEM drawings/manuals
	j) FL current		Successful bidder to refer to relevant OEM drawings/manuals
46.	A. Jacking Oil Pump (AC driven)		
	a) Type of pump/No.		Piston/1

S. No	Particulars	Units	Specifications
	b) Delivery pressure	(kg/cm ²)	350 max.
	c) Flow	(m ³ /hr.)	1.5
	d) Pump speed	(rpm)	2900
	e) Motor rating		21
	B. Jacking Oil Pump (DC driven)		
	a) Type of pump/No.		Piston/1
	b) Delivery pressure	(kg/cm ²)	350 (max.)
	c) Flow	(m ³ /hr)	1
	d) Pump speed	(rpm)	1500
	e) Motor rating		20
47.	Vapour Extractor		
	a) Type/No.		Fan/1+1
	b) Capacity of each extractor	(m ³ /hr.)	150
	c) Size of motor	(kw)	1
48.	Main Oil Tank		
	a) Capacity	(m ³)	10
	b) Size (max.)		Successful bidder to refer to relevant OEM drawings/manuals
	c) Type of strainer and Nos.		Metallic/2
	d) Material of strainer and size of meshwire		Steel
	e) Maximum particle size which will pass through strainer (microns)		25
	f) Level indicator with alarm		Provided
	g) Lubricating oil moisture eliminator		Provided
	h) Overflow type sight flow indicator		Provided
	i) Purifier capacity rating	(m ³ /hr)	20%
49.	Turbine Oil Purification System		

S. No	Particulars	Units	Specifications
50.	Lubricating and Governing Oil System:		
	a) Capacity and size of dirty oil tank	(m3)	10
	b) Capacity and size of clean tank	(m3)	10
	c) Purifier capacity motor rating	(m3/hr)	2.5/3
	d) Type/No. of turbine oil transfer pump/motor rating.		Centrifugal 2 Nos/3 KW
	e) Delivery head	(kg/cm2 abs)	3.5
	f) Flow		
	i. Total system oil	(m3/hr)	5
	ii. Oil in piping and bearing	(m3/hr)	Successful bidder to refer to relevant OEM drawings/manuals
	g) Transfer pump speed	(rpm)	1480
	h) Heaters if provided		
	i. Type and number		Successful bidder to refer to relevant OEM drawings/manuals
	ii. Rating	(kw)	Successful bidder to refer to relevant OEM drawings/manuals
	iii. Design temperature of oil	(°C)	Successful bidder to refer to relevant OEM drawings/manuals
	iv. Thermostatic control range and type		Successful bidder to refer to relevant OEM drawings/manuals
51.	Turning Gear		
52.	Type of drive		Hydraulic Motor
53.	Rating of motor driven	(kw)	Successful bidder to refer to relevant OEM drawings/manuals
54.	Speed		16
55.	Hand bearing facility provided		Yes
56.	Non-Return extraction valves		
57.	Extraction LPH1		Not applicable
58.	Extraction LPH2		Pneumatic

S. No	Particulars	Units	Specifications
59.	Extraction LPH3		Pneumatic
60.	Extraction to deaerator		Pneumatic
61.	Extraction to HPH5		Pneumatic
62.	Extraction to HPH6		Pneumatic
63.	CRH NRV		Pneumatic
64.	HP bypass valve		Hydraulic
65.	LP bypass valve		Hydraulic

3. Turbine Bypass Valves

S. No	Particulars	Units	Specifications
A.	Bypass valve		<u>LP bypass</u> <u>HP bypass</u>
1.	Manufacturer		<----- BTG or Equivalent ----->
2.	Numbers		1 1
3.	Types of valve		Angle Angle
4.	Type of actuator		Hydraulic
5.	Rated flow capacity	(tphr)	280 243
6.	Inlet/outlet temp	(°C)	Successful bidder to refer to relevant OEM drawings/manuals
7.	Trim material		<---- x19CrMoVNbN111 or Equal----->
B.	Water Injection Valve		
8.	Manufacturer		<----- BTG or Equivalent ----->
9.	Number of valves		1 1
10.	Type of valve		Angle Globe
11.	Type of actuator		Hydraulic
12.	Capacity of each valve	(tphr)	Successful bidder to refer to relevant OEM drawings/manuals

4. Thermal Insulation and Associated Piping

S. No	Particulars	Units	Specifications
A.	Insulated Material		

S. No	Particulars	Units	Specifications
1.	Type of Insulated material		Successful bidder to refer to relevant OEM drawings/manuals
2.	Insulation material standard		Successful bidder to refer to relevant OEM drawings/manuals
3.	Maximum temperature the insulating material can withstand	(°C)	Successful bidder to refer to relevant OEM drawings/manuals
4.	Density of insulating material	(kg/cm ²)	Successful bidder to refer to relevant OEM drawings/manuals
5.	Resistance to micro-organism		Successful bidder to refer to relevant OEM drawings/manuals
6.	Incombustibility		Successful bidder to refer to relevant OEM drawings/manuals
7.	Maximum outside surface temp	(°C)	Successful bidder to refer to relevant OEM drawings/manuals
8.	Cladding		
9.	Material of sheet		Successful bidder to refer to relevant OEM drawings/manuals
10.	Thickness of sheet	(mm)	Successful bidder to refer to relevant OEM drawings/manuals
11.	Covering		Successful bidder to refer to relevant OEM drawings/manuals

5. Turbine Oil Coolers

S. No	Particulars	Units	Specifications
A.	Technical Data		
1.	No. of coolers in service and stand by cooler		1/1
2.	Type of coolers		Shell and Tube
3.	Capacity of each cooler	(lit/min)	1100
4.	Cooling water requirement		
	a) Flow	(lit/min)	2400
	b) Pressure	(kg/cm ²)	5
	c) Temperature	(°C)	34
	d) Quality		Desalinated/Osmosis

S. No	Particulars	Units	Specifications
5.	Water side pressure drop in each cooler		0.2
6.	Shell arrangement		Not furnished
7.	Orientation		Not furnished
B.	Performance of One Unit		Shell side Tube side
8.	Fluid circulated		Oil Water
9.	Liquid (Cooling water)	(Cu.m/hr)	144000
10.	Turbine oil		
	a) Liquid SG		ISO VG46
	b) Liquid viscosity	(M ² /s)	42 CST
	c) Liquid specific heat	(kcal/kg °C)	Successful bidder to refer to relevant OEM drawings/manuals
	d) Th. Cond	(kcal/hrm ² °C)	Successful bidder to refer to relevant OEM drawings/manuals
	e) Quantity	(CuM)	15 m3
11.	Fluid Temperature (In)	(°C)	60 34
12.	Fluid Temperature (Out)	(°C)	45 37
13.	Number of Passes per shell		1
14.	Velocity	(M/Sec)	0.7 1.5
15.	Max. allowable pressure drop MWC		1 0.3
16.	Fouling resistance hr.	(m ² (°C) kcal)	TEMA C
17.	Heat transfer	(kcal/hr)	380000
18.	Transfer service	(kcal/hr. M ² /°C)	400
C.	Construction of each shell		
19.	Design pressure	(kg/cm ²)	4
20.	Test pressure	(kg/cm ²)	6
21.	Design Temp.	(°C)	80
22.	Tubes		
	a) Number		340

S. No	Particulars	Units	Specifications
	b) OD	(mm)	15.875
	c) Thickness	(mm)	1.245
	d) Length	(mm)	30.5
	e) Pitch	(mm)	20.5
23.	Shell		
	a) ID		665
	b) OD		685
24.	Connections - Shell		
	a) Internal dia (Nom)		125 mm (5 inch)
	b) Out dia (Nom)		125 mm (5 inch)
25.	Connections - Channel		
	a) In dia (Nom)		200 mm (8 inch)
	b) Out dia (Nom)		200 mm (8 inch)
26.	Corrosion allowance - Shell side	(mm)	2
27.	Materials of Construction		
28.	Shell		Carbon steel
29.	Shell nozzles		Successful bidder to refer to relevant OEM drawings/manuals
30.	Shell cover flange		Successful bidder to refer to relevant OEM drawings/manuals
31.	Shell nozzle flanges		Successful bidder to refer to relevant OEM drawings/manuals
32.	Channel/Bonnets flanges		Successful bidder to refer to relevant OEM drawings/manuals
33.	Channel nozzle		Successful bidder to refer to relevant OEM drawings/manuals
34.	Channel nozzles flanges		Successful bidder to refer to relevant OEM drawings/manuals
35.	Tubes		OTS 76
36.	Tube sheets		
	a) Stationary		Muntz

S. No	Particulars	Units	Specifications
	b) Floating		Successful bidder to refer to relevant OEM drawings/manuals
37.	Baffles		Successful bidder to refer to relevant OEM drawings/manuals
	a) Cross		Successful bidder to refer to relevant OEM drawings/manuals
38.	Pass partition		Successful bidder to refer to relevant OEM drawings/manuals
39.	Spacers		Successful bidder to refer to relevant OEM drawings/manuals
40.	Bolting		
	a) Fixed tube sheet joint		Successful bidder to refer to relevant OEM drawings/manuals
	b) Floating tube sheet joint		Successful bidder to refer to relevant OEM drawings/manuals
	c) All other shell side joint		Successful bidder to refer to relevant OEM drawings/manuals
	d) All other tube side joint		Successful bidder to refer to relevant OEM drawings/manuals
41.	Gaskets		
	a) Fixed tube sheets shell side		Successful bidder to refer to relevant OEM drawings/manuals
	b) Fixed tube sheets channel side		Successful bidder to refer to relevant OEM drawings/manuals
	c) Floating tube shell side		Successful bidder to refer to relevant OEM drawings/manuals
	d) Floating tube shell channel side		Successful bidder to refer to relevant OEM drawings/manuals
42.	Saddle supports/brackets		Successful bidder to refer to relevant OEM drawings/manuals
43.	Name Plate		Successful bidder to refer to relevant OEM drawings/manuals

6. Generator

S. No	Particulars	Units	Specifications
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S. No	Particulars	Units	Specifications
1.	Manufacturer's Name		
	a) Make of Generator		ANSALDO
	b) Type/Model No.		WX21Z
2.	Max cont. output at secondary cooling water temp. of 34°C	(MVA) (MW)	170 136
3.	Rated terminal voltage	(KV)	15.75
4.	Rated stator current	(A)	6232.00
5.	Rated frequency	(Hz)	50.00
6.	Rated power factor		0.8 Lag
7.	rotor current at MCR	(A)	1246
8.	rotor voltage at MCR	(V)	261
9.	Max. Continuous permissible variation range in:		
	a) Rated terminal voltage	(%)	±10
	b) Rated frequency	(%)	±5
	c) Combined permissible variation in frequency and voltage	(%)	10
10.	Number of:		
	a) (i) Phases		3
	(ii) Type of stator winding connection		star
	b) Number of parallel paths/phase		2
	c) Line terminals brought out		3
	d) Neutral terminals brought out		3
11.	Space provided between generator leads to mount bushing current transformers.	(Yes/No)	No
12.	Compliance with IEC standard number		IEC-34-1,34-3, 34-15
13.	Generator efficiency at:		
	a) 100 % load		98.56
	b) 80 % Load		98.41

S. No	Particulars	Units	Specifications
	c) 60 % Load		98.09
	d) 40 % Load		97.38
	e) 25 % Load		96.06
14.	Short circuit ratio corresponding to maximum capability		≥ 0.45 at 170 MVA, 15.75kV (calc./expected value 0.55)
15.	Permissible tolerance in SCR		As per IEC (i.e) (-) zero % (+) 30%
16.	Regulation at:	(%)	
	a) Unity Power Factor		25.00
	b) 0.8 Lag Power Factor		33.00
17.	Rated cooling water pressure	(kg/cm ² (g))	10
18.	Air cooling water flow at normal load	(m ³ /hr)	320
19.	Basic impulse insulation withstand voltage of stator winding with respect to earth (for standard wave shape of 1.2/50 micro sec) (peak)	(kv)	68.00
20.	Symmetrical rms short circuit current with generator isolated initial saturated value and sustained value at rated conditions		<u>Initial value</u> <u>Sustained value</u>
	a) Three phase initial value	(KA)	84 9.4
	b) Single phase to earth	(KA)	100 25.7
21.	3 Phase short circuit withstand time	(sec)	As per IEC (3 sec)
22.	Saturation factor		1.5
23.	Waveform factor		As per IEC
24.	Permissible unbalanced loading subject to rated current not being exceeded in any phase		
	a) Max. Continuous negative phase sequence current	(A)	10% I nom
	b) Min. value of $I_2^2 \times t$ for transient operation under system fault conditions (where 't' is in seconds)		8.00
25.	Max. permissible capacitive loading at full load	(MVAR)	71

S. No	Particulars	Units	Specifications
26.	Max. Capacitive loading for stability at rated voltage and zero power factor	(MVAR)	75
27.	Generator reactance at rated KV and MVA		Calculated values referred to 170 MVA and 15.75 kV.
28.	Direct axis synch. reactance, X_d	(%)	203
29.	Quadrature axis synch. reactance, X_q	(%)	189
30.	Direct axis, transient reactance X'_d	(%)	19.9 unsat
31.	Quadrature axis, transient reactance X'_q	(%)	32.4 unsat
32.	Direct axis, sub-transient reactance X''_d	(%)	15.2/11.4 unsat/sat
33.	Quadrature axis, sub-transient reactance X''_q	(%)	16.2 unsat
34.	Negative phase sequence reactance X_2	(%)	15.5 unsat
35.	Zero phase sequence reactance X_0	(%)	7 unsat
36.	Potier reactance X_p	(%)	20.4
37.	Leakage reactance X_t	(%)	
	a) Combined	(%)	13.6
	b) Stator	(%)	Successful bidder to refer to relevant OEM drawings/manuals
	c) rotor	(%)	Successful bidder to refer to relevant OEM drawings/manuals
	d) Damper	(%)	Successful bidder to refer to relevant OEM drawings/manuals
38.	Permissible tolerance in all guaranteed reactance values	(±%)	As per IEC
39.	Effective winding capacitance to earth		
	a) Per phase	(Micro farad)	0.427
	b) All phases connected together	(Micro farad)	1.06
40.	Effective surge impedance to neutral per phase	(Ohms)	Successful bidder to refer to relevant OEM drawings/manuals
41.	Synchronous impedance	(Ohms)	1.46

S. No	Particulars	Units	Specifications
42.	a) Harmonics voltage generated by the generator at 100%, 75%, 50%, 25% and no load		As per IEC
	b) (X/R) ratio from fundamental to 20th harmonic		Successful bidder to refer to relevant OEM drawings/manuals
	c) Harmonic impedance at each harmonic upto 20th harmonic		Successful bidder to refer to relevant OEM drawings/manuals
	d) Permissible current at each harmonic other than fundamental		Successful bidder to refer to relevant OEM drawings/manuals
43.	Armature resistance per phase at		
	a) 25°C	(Ohms)	0.00105
	b) 75°C	(Ohms)	0.00125
44.	Field resistance per phase at:		
	a) 25°C	(Ohms)	0.157
	b) 75°C	(Ohms)	0.188
45.	Effective negative sequence resistance		0.0104 p.u
46.	Time constants		
47.	Direct axis transient open circuit time constant T'do	(sec)	10.6
48.	Direct axis 3 phase transient short circuit time constant T'd3	(sec)	1.04
49.	Direct axis 2 phase transient short circuit time constant T'd2	(sec)	Successful bidder to refer to relevant OEM drawings/manuals
50.	Direct axis 1 phase transient short circuit time constant T'd1	(sec)	Successful bidder to refer to relevant OEM drawings/manuals
51.	Direct axis sub-transient short circuit time constant (T''d)	(sec)	0.022
52.	A periodic 3 phase short circuit time constant Ta3	(sec)	0.577
53.	A periodic 2 phase short circuit time constant Ta2	(sec)	Successful bidder to refer to relevant OEM drawings/manuals
54.	A periodic 1 phase short circuit time constant Ta1	(sec)	Successful bidder to refer to relevant OEM drawings/manuals

S. No	Particulars	Units	Specifications
55.	Armature winding short circuit time constant T_a	(sec)	0.577
56.	Quadrature axis transient open circuit time constant T''_qo	(sec)	1.27
57.	Direct axis sub-transient short circuit time constant T'_d	(sec)	1.04
58.	Direct axis sub-transient open circuit time constant T''_{do}	(sec)	0.029
59.	Quadrature axis sub-transient open circuit time constant T''_qo	(sec)	0.044
60.	Quadrature axis sub-transient short circuit time constant T''_q	(sec)	0.022
61.	Direct axis open circuit excitation winding time constant T_{fdo}	(sec)	9.3
62.	Direct axis open circuit equivalent damper circuit time constant T_{kdo}	(sec)	1.28
63.	Direct axis short circuit excitation winding time constant T_{fd}	(sec)	0.92
64.	Direct axis short circuit equivalent damper winding time constant T_{kd}	(sec)	0.098
65.	Acceleration time T_j	(sec)	3 approx.
66.	Stored energy constant H for generator rotor only	(KW sec/KVA)	1.59
67.	Maximum temperature with the secondary cooling water inlet temperature as 34°C		Successful bidder to refer to relevant OEM drawings/manuals
68.	Max. absolute temp. for specified ambient temperatures at 136 MW 0.8 p.f. at its terminals		
	a) Stator windings	($^\circ\text{C}$)	120
	b) Stator core		125
	a. In contact with insulated winding	($^\circ\text{C}$)	Not detrimental as per IEC 34-1
	b. Not in contact with insulated winding	($^\circ\text{C}$)	Not detrimental as per IEC 34-1
	c) Stator teeth temperature	($^\circ\text{C}$)	Not detrimental as per IEC 34-1
	d) rotor windings	($^\circ\text{C}$)	105

S. No	Particulars	Units	Specifications
	a. Mechanical parts in contact with or adjacent to insulation	(°C)	Not detrimental as per IEC 34-1
	b. Damper winding	(°C)	Successful bidder to refer to relevant OEM drawings/manuals
	c. rotor surface	(°C)	Successful bidder to refer to relevant OEM drawings/manuals
	d. Other miscellaneous parts	(°C)	Successful bidder to refer to relevant OEM drawings/manuals
	e) Cooled air	(°C)	40
	a. Hot air in the stator and rotor	(°C)	79
	b. Water to inlet of air cooler	(°C)	34
	c. Water at outlet of air cooler	(°C)	39
69.	Generator losses		Conventional losses as per IEC-34.1 core losses at no load RI^2 losses at 95°C
	a) No load loss		
	a. Iron loss	(kW)	406
	b. rotor copper loss	(kW)	43
	b) Full load loss		
	a. Iron loss	(kW)	406 at no load
	b. Stator copper loss	(kW)	155 at 95°C
	c. Stray load loss	(kW)	206 at 95°C
	d. rotor copper loss	(kW)	315 at 95°C
	e. Friction and windage loss	(kW)	650
	f. Mechanical loss including bearing loss	(kW)	230
	g. Collector brush contact loss	(kW)	Included in item (d)
	h. Fan loss	(kW)	Included in item (e)
	i. Eddy current loss	(kW)	Included in item (c)
	j. Total loss at full load	(kW)	1980 conventional

S. No	Particulars	Units	Specifications
	k. Any other loss	(kW)	18 fully static excitation system
70.	Dissipation losses in		
	a) Air cooler	(kW)	1800 rated conditions
	b) Excitation system panels	(kW)	18
	Main weights		
	a) Heaviest lift of generator stator with trunnions etc.	(Tonnes)	157.00
	b) Weight of complete generator stator	(Tonnes)	157.00
	c) Weight of complete rotor	(Tonnes)	41.00
	d) Weight of complete generator	(Tonnes)	214.0 214.00
	Critical speeds for generator rotor		
	a) First	(rpm)	870.00
	b) Second	(rpm)	2300.00
	c) Third	(rpm)	>= 3600

7. Generator Air Cooler

S. No	Particulars	Units	Specification
1.	Generator air cooler		
	a) Air volume flow	(m ³ /s)	43
	b) Heat flow rate	(kw)	1900
	c) Cold air temperature	(°C)	40
	d) Hot air temperature	(°C)	80
	e) Air pressure drop	(milli bar)	< 50
	f) Cooling water volume flow	m ³ /hr	330
	g) Maximum cooling water temperature	(°C)	34
	h) Cooling water outlet temperature	(°C)	39
	i) Water pressure drop	(bar)	≤ 0.5
2.	Materials		

S. No	Particulars	Units	Specification
	a) Fin		Aluminum
	b) Tubes		CuNi 90/10
	c) Tube plates		Steel
	d) Water box		Galvanized steel
3.	Pressures		
	a) Design pressure	(bar)	10
	b) Test pressure	(bar)	15
4.	Weight		
	a) Air cooler unit	(kg)	5000

8. Excitation System

S. No	Particulars	Units	Specification
1.	Type of system		Static type excitation system
	a) Manufacturer		ANSALDO
	b) Type of rectifier		3-phase Graetz type
	c) Total number bridges		Two
	d) Number of parallel paths per bridge arm		One (1)
	e) Number of arms per bridge		Three (3)
	f) Maximum number of rectifier/ bridges required to give output corresponding to Generator MCR		One (1)
	g) Maximum peak inverse voltage rating of cell	(Volts)	100%
	h) Number of rectifier cells in series in each cell		One (1)
	i) Method of over-voltage protection		Crow-bar system
	j) Overload rating of the rectifier cell		Successful bidder to refer to relevant OEM drawings/manuals
	k) Ceiling output voltage of rectifier assembly	(Volts)	522

S. No	Particulars	Units	Specification
	l) Ceiling output current of rectifier assembly	(Amp)	2 p.u. for 10 s
	m) Maximum junction temperature of rectifier		$\leq 105^{\circ}\text{C}$
	n) Method of mounting cells to cooling fins		Pressed
	o) Make and type of cooling fins		Aluminum heat sinks
	p) Type of visual indication provided for faulty rectifier cells		LED
2.	Exciter Field Breaker		Static excitation system equipped with a fully static field circuit breaker (crowbar)
3.	Exciter Field Discharge Resistance		
	a) Manufacture		Primary Firm
	b) Type		Linear
	c) Material		Successful bidder to refer to relevant OEM drawings/manuals
	d) Current rating		Successful bidder to refer to relevant OEM drawings/manuals
	e) Power rating		Successful bidder to refer to relevant OEM drawings/manuals

9. Auxiliary Systems

S. No	Particulars	Units	Specification
1.	Permissible overload and duration		According to "Short Time Thermal Requirement of ANSI C 50.13 Clause 7.1
2.	"Rapid defluxing" time and the technique used.		Negative ceiling + linear discharge resistor
3.	Surge capacitor requirement for the generator must be stated with reasons.		Not strictly necessary for the generator but generally adopted for the whole electrical system optimum design.

S. No	Particulars	Units	Specification
4.	What provisions are made for automatic generator runback (turbine control point set back) and loss of cooling?		None
5.	Type of excitation system		Fully static excitation system to reach the required response ratio.
6.	Details of Generator rotor winding temperature monitoring system and rotor winding earth fault detection system.		rotor winding temperature to be evaluated by voltamperecmetric method.
7.	Type of cooling		
	a) Stator winding		Indirect by air
	b) Stator core		Direct by air
	c) rotor		Direct by air
8.	Rated output	(MW)	136
9.	Transient rise of volt. On sudden rejection of full load at rated p f		
	a) With AVR	(%)	<=20
	b) Without AVR	(%)	33
10.	Zero sequence resistance	(p.u)	0.00086
11.	Inertia constant H	(KW-SEC/KVA)	
	a) Generator rotor		1.59
	b) Complete turbine Generator unit		2.78
12.	Short circuit current (P.U.)		
	Subtransient current (P.U.)		
	a) On 3 phase short circuit		8.76
	b) On 2 phase short circuit		7.4
	c) On 1 phase short circuit		10.5
	Transient current	(P.U.)	
	a) On 3 phase short circuit		5.40
	b) On 2 phase short circuit		5.70
	c) On 1 phase short circuit		8.40
	Steady state current on 2 phase short circuit	(P.U.)	2.4

S. No	Particulars	Units	Specification
13.	Permissible earth fault current and duration	(Amps/sec .)	Successful bidder to refer to relevant OEM drawings/manuals
14.	Voltage regulation under conditions of rated speed voltage and output	(%)	
	a) At 0.8 Pf lag		33.00
	b) At unity pf		25.00
	c) At 0.9 p.f lead		32.00
15.	– Maximum continuous capacity of Generator	(MVA)	170
	– With one cooler out of operation	(MVA)	114 (67% of rated load)
16.	Excitation requirements at		
	a) Rated load	(A)	1246
	b) No load	(A)	459
	c) At maximum capacitive load (at zero active power)	(A)	46
	d) Under field forcing condition		2 pu of 1246 A
17.	Short circuit torque as a ratio of full load torque		11.4 from rated conditions
18.	Fly wheel moment (GD^2) of generator rotor	(kg/m^2)	21920
19.	Capacity of space heaters at 415 V	(kW)	5
20.	Number, Type and rating of CTs and PTs used exclusively for EHG and generator excitation system.		21, loose supplied to be installed on the IPB.
21.	Design and construction features		
	Stator core		
	a) Type of spring mounting		Flexible
	b) Grade of sheet steel (thickness and loss)		0.5 mm, 3.3 W/kg at 1.5T, 50 Hz
	Stator winding		
	a) Type and class of insulaton		Lap type, two layer shortened pitch class F.
	b) Resistance per phase at 20°c	(ohms)	0.001028
	c) Capacitance per phase	(micro-farad)	0.427

S. No	Particulars	Units	Specification
	d) Dielectric test voltage		32.50
	e) Impulse voltage strength peak (for wave shape of 1.250 μsec)	(kV)	68
	f) Is the winding transposed?		Yes.
	Terminals		
	a) No. of terminals brought out		6
	b) Type of cooling of terminals and connectors		Indirect by air
	c) Type of terminal bushings		Copper bars insulated as the stator winding
	d) No. of distributed multi-ratio bushing CTs relaying accuracy class that can be accommodated in the bushing furnished		21., loose supplied with accuracy chosen according to protection and measuring needs.
	e) Dielectric test voltage	(kV)	32.5 for 60s
	f) Impulse voltage strength (for a wave shape of 1.2/50 microsec)	(KV)	68
	rotor		
	a) Material of rotor forging		Forged steel
	b) Material of retaining ring forging		Cr Mn 18-18
	c) Material of rotor wedge		Copper Nickel alloy
	d) Type of retaining ring mounting		Shrunk on rotor body
	e) Material of damper winding		Copper Nickel alloy
	f) Overspeed test value and duration		3600 rpm for 120 sec
	rotor winding		
	a) Class and type of insulation		Class F
	b) Turns per pole		95
	c) Resistance at 20°C	(OHMS)	0.1557
	d) Dielectric test voltage value	(KV)	2.65
	Bearing		
	a) Type of bearing		Pedestal
	b) Oil quantity per bearing	(m ³ /hr)	23.1 total, preliminary
	c) Oil pressure	(kg/cm ²)	According to turbine lube oil system

S. No	Particulars	Units	Specification
	d) Grade of oil		According to turbine lube oil system
	Air Coolers		
	a) Number of coolers		4
	b) Material of		
	i. Tubes		Cu Ni 90/10
	ii. Fins		Aluminum
	c) Material of tube plate		Steel
	d) Quantity of cooling water required per cooler	(m ³ /hr)	80
	e) Material of water boxes		Galvanized steel
	f) Pressure drop across cooler on water side	(mwc)	5
22.	Automatic Voltage Regulator		
	a) Manufacturer		Ansaldo
	b) Type		Digital type
	c) Power supply to regulator	(V)	UPS or battery
	d) Range of generator voltage adjustment	(%)	
	i. In auto position	(%)	80-110
	ii. In manual position	(%)	35-110
	e) Frequency range of operation	(Hz)	As per generator range
	f) Temp. Range of operation	(°C)	40 (max.)
	g) Accuracy	(%)	±0.5
	h) Dead band		No dead band
	i) Excitation system response time with AVR (the time for the generator field voltage to attain 95% of the difference between field forcing voltage and rated field voltage with 5% drop in generator terminal voltage and generator at rated MVA)	(Milli sec.)	≤50

S. No	Particulars	Units	Specification
	j) Time req. For gen. Terminal volt. To get restored to within 2% of the nominal preset value when subjected to sudden loss of rated output.	(Sec)	<=1.5
23.	Enclosure		(Optional supply)
	a) Type of enclosure		External
	b) Degree of protection		IP54 for generator
	c) Type and thickness of sheet steel		Successful bidder to refer to relevant OEM drawings/manuals
	d) Overall dimensions approx.	(M x M x M)	11x5x3.5
	e) Weight approx.	(kg)	6000

Annexure 2: Spares for Turbine and TG Overhaul

The list of required spares to be procured as per OEM guidelines is provided below. The Successful Bidder shall be responsible for procuring **02 (two)** sets of the spares mentioned below.

Spares for Turbine Overhauling: S3

Items	Description	UOM	Qty
1	WELD-IN RING	Pcs	2
2	SEAL RING	Pcs	2
3	CYLINDRICAL PIN	Pcs	3
4	CYLINDRICAL PIN 8 X 60	Pcs	2
5	ELASTIC RING	Pcs	1
6	GASKET	Pcs	1
7	"DU" BUSHING	Pcs	2
8	GUIDE STRIP L=391,3	Pcs	1
9	GUIDE STRIP L=290,8	Pcs	1
10	SLIDING RING	Pcs	2
11	SLIDING RING	Pcs	1
12	STRIPPER, PLASTIC	Pcs	1
13	OIL SCRAPER	Pcs	1
14	GASKET O-RING 164,5x5,34	Pcs	1
15	GASKET O-RING 139,1x7,0	Pcs	1
16	GASKET OR 4462 GACO P5 O	Pcs	2
17	GASKET O-RING 88,27x5,34	Pcs	1
18	GASKET O-RING 29,75x3,53	Pcs	1
19	GASKET 7,66x1,78 DF150	Pcs	2
20	SOCKET HEAD SCREW M16x55	Pcs	2
21	HEXAGONAL HEAD SCREW M12x40	Pcs	3
22	ELASTIC RING	Pcs	1
23	GASKET	Pcs	1
24	"DU" BUSHING	Pcs	2
25	GUIDE STRIP L=391,3	Pcs	1
26	GUIDE STRIP L=290,8	Pcs	1
27	SLIDING RING	Pcs	2
28	SLIDING RING	Pcs	1
29	STRIPPER, PLASTIC	Pcs	1
30	OIL SCRAPER	Pcs	1
31	GASKET O-RING 164,5x5,34	Pcs	1
32	GASKET O-RING 139,1x7,0	Pcs	1
33	GASKET OR 4462 GACO P5 O	Pcs	2
34	GASKET O-RING 88,27x5,34	Pcs	1
35	GASKET O-RING 29,75x3,53	Pcs	1
36	GASKET 7,66x1,78 DF150	Pcs	2
37	SOCKET HEAD SCREW M16x55	Pcs	2
38	HEXAGONAL HEAD SCREW M12x40	Pcs	3
39	SEAT FD-STVM100	Pcs	1
40	STEAM FLOW DISPENSER	Pcs	1
41	MAIL WITH STEM	Pcs	1
42	VALVE COVER	Pcs	1
43	SEAL ELEMENT COMPLETE	Pcs	1
44	GUIDE BUSHING	Pcs	1

Items	Description	UOM	Qty
45	PISTON RING	Pcs	2
46	SEAL RING	Pcs	1
47	CLAMP RING	Pcs	1
48	RING IN FOUR PARTS	Pcs	1
49	NUT M27	Pcs	1
50	SPACER	Pcs	2
51	CYLINDRICAL PIN	Pcs	2
52	CYLINDRICAL PIN 8 X 60	Pcs	1
53	HEXAGONAL HEAD SCREW M16X90	Pcs	3
54	HEXAGONAL NUT M16	Pcs	3
55	ELONGATION BOLT M20-Tx90	Pcs	4
56	HEXAGONAL NUT M20	Pcs	4
57	SEAT	Pcs	1
58	FLUXUM DISPENSER	Pcs	1
59	MAIL WITH STEM	Pcs	1
60	VALVE COVER	Pcs	1
61	SEAL ELEMENT COMPLETE	Pcs	1
62	GUIDE BUSHING	Pcs	1
63	PISTON RING	Pcs	2
64	SEAL RING	Pcs	1
65	CLAMP RING	Pcs	1
66	RING IN 4 PARTS	Pcs	1
67	NUT M27	Pcs	2
68	SPACER	Pcs	2
69	CYLINDRICAL PIN	Pcs	2
70	CYLINDRICAL PIN 8 X 60	Pcs	1
71	HEXAGONAL HEAD SCREW M16X90	Pcs	3
72	HEXAGONAL NUT M16	Pcs	3
73	ELONGATION BOLT M20-Tx90	Pcs	4
74	HEXAGONAL NUT M20	Pcs	4
75	FLOW EQUALIZER,COMPLETE	Pcs	1
76	VALVE STEM	Pcs	1
77	BODY VALVE	Pcs	1
78	SEAL ELEMENT COMPLETE	Pcs	1
79	GUIDE BUSHING	Pcs	1
80	PISTON RING	Pcs	2
81	SEAL RING	Pcs	1
82	RING	Pcs	1
83	RING IN FOUR PARTS	Pcs	1
84	NUT M27	Pcs	1
85	SPACER	Pcs	2
86	CYLINDRICAL PIN	Pcs	2
87	CYLINDRICAL PIN 8 X 60	Pcs	1
88	HEXAG. HEAD SCREW M16x140	Pcs	3
89	HEXAGONAL NUT M16	Pcs	4
90	ELONGATION BOLT M20-Tx90	Pcs	4
91	HEXAGONAL NUT M20	Pcs	4
92	PISTON ROD	Pcs	1
93	BELLEVILLE SPRING	Pcs	17
94	ELASTIC RING	Pcs	1
95	TRANSMISSION DISC	Pcs	1
96	GASKET	Pcs	1

Items	Description	UOM	Qty
97	TRANSMISSION STEM	Pcs	1
98	INTERMEDATE RING NUT	Pcs	1
99	INDUCTIVE DISPLACEMENT TRANSDUCER	Pcs	1
100	COMPRESSION SPRING 12.5/3.15x20	Pcs	1
101	COMPRESSION SPRING 31.5/2.5x50	Pcs	1
102	SLIDING RING	Pcs	2
103	SLIDING RING	Pcs	1
104	GASKET O-RING 151,8x5,34	Pcs	1
105	GASKET O-RING 139,1x7,0	Pcs	1
106	GASKET OR 4462 GACO P5 O	Pcs	2
107	GASKET O-RING 88,27x5,34	Pcs	1
108	GASKET O-RING 26,58x3,53	Pcs	1
109	GASKET O-RING 31,34x3,53	Pcs	1
110	LOCKING RING 67.2	Pcs	1
111	CYLINDRICAL PIN 6X50	Pcs	1
112	CYLINDRICAL PIN 10X20	Pcs	1
113	PISTON ROD	Pcs	1
114	BELLEVILLE SPRING	Pcs	15
115	ELASTIC RING	Pcs	1
116	TRANSMISSION DISC	Pcs	1
117	TRANSMISSION STEM	Pcs	1
118	RING NUT	Pcs	2
119	HELICOIDAL BELLEVILLE SPRING	Pcs	1
120	COMPRESSION SPRING 12.5/3.15x20	Pcs	1
121	COMPRESSION SPRING 31.5/2.5x50	Pcs	1
122	SLIDING RING	Pcs	2
123	SLIDING RING	Pcs	1
124	GASKET O-RING 151,8x5,34	Pcs	1
125	GASKET O-RING 139,1x7,0	Pcs	1
126	GASKET OR 4462 GACO P5 O	Pcs	2
127	GASKET O-RING 88,27x5,34	Pcs	1
128	GASKET O-RING 26,58x3,53	Pcs	1
129	GASKET O-RING 31,34x3,53	Pcs	1
130	THREADED ROD	Pcs	1
131	DISC	Pcs	1
132	LOCKING RING 67.2	Pcs	1
133	CYLINDRICAL PIN 6X50	Pcs	1
134	CYLINDRICAL PIN 10X20	Pcs	1
135	PISTON ROD	Pcs	1
136	BELLEVILLE SPRING	Pcs	19
137	ELASTIC RING	Pcs	1
138	TRANSMISSION DISC	Pcs	1
139	GASKET	Pcs	1
140	TRANSMISSION STEM	Pcs	1
141	INTERMEDATE RING NUT	Pcs	1
142	HELICOIDAL BELLEVILLE SPRING	Pcs	1
143	COMPRESSION SPRING	Pcs	1
144	COMPRESSION SPRING 12.5/3.15x20	Pcs	1
145	COMPRESSION SPRING 31.5/2.5x50	Pcs	1
146	SLIDING RING	Pcs	2
147	SLIDING RING	Pcs	1
148	GASKET O-RING 151,8x5,34	Pcs	1

Items	Description	UOM	Qty
149	GASKET O-RING 139,1x7,0	Pcs	1
150	GASKET OR 4462 GACO P5 O	Pcs	2
151	GASKET O-RING 88,27x5,34	Pcs	1
152	GASKET O-RING 26,58x3,53	Pcs	1
153	GASKET O-RING 31,34x3,53	Pcs	1
154	THREADED ROD	Pcs	1
155	DISC	Pcs	1
156	LOCKING RING 67.2	Pcs	1
157	CYLINDRICAL PIN 6X50	Pcs	1
158	CYLINDRICAL PIN 10X20	Pcs	1
159	SPRING	Pcs	1
160	CU-ETP FLAT GASKET 28X20,8X1	Pcs	1
161	STUD BOLT M16	Pcs	6
162	NUT M16	Pcs	6
163	HEXAGONAL HEAD SCREW M10x25	Pcs	3
164	LOCKING PLATE 10.5X20X32	Pcs	3
165	SPRING	Pcs	1
166	CU-ETP FLAT GASKET 28X20,8X1	Pcs	1
167	STUD BOLT M16	Pcs	6
168	NUT M16	Pcs	6
169	HEXAGONAL HEAD SCREW M10x25	Pcs	3
170	LOCKING PLATE 10.5X20X32	Pcs	3
171	STUD BOLT M80	Pcs	14
172	NUT M80x6	Pcs	14
173	SPACER	Pcs	14
174	STUD BOLT M100x6x760	Pcs	9
175	HEXAGONAL NUT M100x6	Pcs	9
176	TINGLE	Pcs	9
177	TAPER PIN 36x500	Pcs	1
178	STUD BOLT M30	Pcs	8
179	HEXAGONAL NUT M30	Pcs	8
180	SCREW M36-T	Pcs	1
181	SEAL RING	Pcs	1
182	CONICAL PIN 36x450	Pcs	1
183	STUD BOLT M110	Pcs	2
184	NUT M110x6	Pcs	2
185	SPACER	Pcs	2
186	SEAL RING	Pcs	3
187	SEAL RING	Pcs	2
188	STUD BOLT M72x6x520	Pcs	12
189	SPACER 72	Pcs	12
190	NUT M72x6	Pcs	12
191	CAP NUT M56	Pcs	3
192	SPACER	Pcs	3
193	STUD BOLT M56	Pcs	3
194	COMPRESSION SPRING	Pcs	30
195	LOCKING SCREW (M10)	Pcs	5
196	COMPLETE PIN 36x245	Pcs	2
197	SUPPORT DISK	Pcs	4
198	RING FOR STEAM SEAL TYPE 1 DN200	Pcs	1
199	STEAM SEAL RING DN 160 (ASM.)	Pcs	1
200	RING FOR STEAM SEAL TYPE 1 DN200	Pcs	1

Items	Description	UOM	Qty
201	SEAL RING	Pcs	1
202	MOUNTING RING IN TWO HALVES	Pcs	1
203	MOUNTING RING IN TWO HALVES	Pcs	1
204	SEAL RING	Pcs	1
205	CYLINDRICAL SCREW M12x16	Pcs	24
206	CENTERING SECTOR LB1	Pcs	1
207	CENTERING SECTOR LOB1	Pcs	1
208	SEAL RING DN315/SB65-7,33	Pcs	2
209	SPRING	Pcs	4
210	COMPRESSION SPRING	Pcs	20
211	SPRING	Pcs	16
212	LOCKING SCREW (M10)	Pcs	6
213	LOCKING SCREW (M6)	Pcs	2
214	HEXAGONAL HEAD SCREW M12x30	Pcs	4
215	WIRE 1,5 (600 mm)	KG	0.009
216	PACKING CASING	Pcs	1
217	SEAL RING DN315/SB35-T6,0	Pcs	1
218	SEAL RING DN315/SB65-13,2	Pcs	2
219	SPRING	Pcs	4
220	COMPRESSION SPRING	Pcs	20
221	SPRING	Pcs	16
222	LOCKING SCREW (M10)	Pcs	6
223	LOCKING SCREW (M6)	Pcs	2
224	HEXAGONAL HEAD SCREW M12x30	Pcs	4
225	WIRE 1,5 (600 mm)	KG	0.009
226	OIL PUMP N.29 PINION	Pcs	1
227	CHIAVETTA	Pcs	1
228	CYLINDRICAL HEAD SCREW UNI 5931 M6x16 - 8.8	Pcs	1
229	BALANCING SCREW M24	Pcs	5
230	BALANCING SEGMENT	Pcs	10
231	BALANCING SEGMENT	Pcs	10
232	COUPLING BOLT M39	Pcs	8
233	EXPANSION SLEEVE	Pcs	8
234	SAFETY BOLT M39	Pcs	16
235	SAFETY RING	Pcs	16
236	BALANCING SCREW	Pcs	4
237	BALANCING SCREW	Pcs	4
238	INNER LOCKING COVER	Pcs	1
239	VALVE STEM	Pcs	1
240	RING IN FOUR PARTS	Pcs	1
241	CLOSING RING	Pcs	1
242	RING (SHIM 4)	Pcs	2
243	THREATED BUSHING	Pcs	2
244	STEAM STRAINER	Pcs	1
245	SEAL ELEMENT COMPLETE	Pcs	1
246	SEAL RINGS	Pcs	1
247	CYLINDRICAL PIN	Pcs	2
248	CYLINDRICAL PIN 8 X 60	Pcs	2
249	FILTER	Pcs	1
250	INNER LOCKING COVER	Pcs	1
251	BELL-TYPE VALVE BODY	Pcs	1
252	FLOW EQUALIZER, COMPLETE	Pcs	1

Items	Description	UOM	Qty
253	SPINDLE	Pcs	1
254	ELONGATION BUSHING	Pcs	2
255	GUIDE BUSHING	Pcs	2
256	SEAL ELEMENT COMPLETE	Pcs	1
257	BLOCKING RING	Pcs	2
258	RING IN FOUR PARTS	Pcs	1
259	CLOSING RING	Pcs	2
260	SEAL RING	Pcs	2
261	PIVOT	Pcs	2
262	NUT M36	Pcs	2
263	CYLINDRICAL PIN	Pcs	3
264	PISTON RING	Pcs	2
265	BLOCKING PLATE	Pcs	2
266	SOCKET HEAD SCREW	Pcs	12
267	PIN	Pcs	2
268	ELONGATION STUD M24	Pcs	12
269	HEXAGONAL HEAD SCREW M12X35	Pcs	4
270	HEXAGONAL NUT M24	Pcs	12
271	HEXAGONAL NUT M16	Pcs	8
272	SAFETY PLATE 13/25X20	Pcs	4
273	LOCKING PLATE 8.4X18X30	Pcs	8
274	CYLINDRICAL PIN 8x60	Pcs	2
275	PISTON ROD	Pcs	1
276	BELLEVILLE SPRING	Pcs	86
277	ELASTIC RING	Pcs	2
278	TRANSMISSION DISC	Pcs	2
279	GASKET	Pcs	2
280	TRANSMISSION STEM	Pcs	2
281	RING NUT	Pcs	4
282	COMMAND DISC	Pcs	4
283	COMPRESSION SPRING 12.5/3.15x20	Pcs	2
284	COMPRESSION SPRING 31,5x2,24x50	Pcs	2
285	SLIDING RING	Pcs	4
286	SLIDING RING	Pcs	2
287	GASKET O-RING 164,5x5,34	Pcs	2
288	GASKET O-RING 139,1x7,0	Pcs	2
289	GASKET OR 4462 GACO P5 O	Pcs	4
290	GASKET O-RING 88,27x5,34	Pcs	2
291	GASKET O-RING 29,75x3,53	Pcs	2
292	GASKET 7,66x1,78 DF150	Pcs	4
293	DISC	Pcs	2
294	PISTON ROD	Pcs	1
295	BELLEVILLE SPRING	Pcs	62
296	ELASTIC RING	Pcs	2
297	TRANSMISSION DISC	Pcs	2
298	GASKET	Pcs	2
299	TRANSMISSION STEM	Pcs	2
300	RING NUT	Pcs	4
301	INTERMEDATE RING NUT	Pcs	2
302	HELICOIDAL BELLEVILLE SPRING	Pcs	1
303	COMPRESSION SPRING 12.5/3.15x20	Pcs	2
304	COMPRESSION SPRING 31.5/2.5x50	Pcs	2

Items	Description	UOM	Qty
305	SLIDING RING	Pcs	4
306	SLIDING RING	Pcs	2
307	GASKET O-RING 151,8x5,34	Pcs	2
308	GASKET O-RING 139,1x7,0	Pcs	2
309	GASKET OR 4462 GACO P5 O	Pcs	4
310	GASKET O-RING 88,27x5,34	Pcs	2
311	GASKET O-RING 26,58x3,53	Pcs	2
312	GASKET O-RING 31,34x3,53	Pcs	2
313	DISC	Pcs	2
314	LOCKING RING 67.2	Pcs	2
315	CYLINDRICAL PIN 6X50	Pcs	2
316	CYLINDRICAL PIN 10X20	Pcs	2
317	BELLEVILLE SPRING - A 140 GR 3	Pcs	16
318	BELLEVILLE SPRING - A 140 GR 3	Pcs	16
319	CU-ETP FLAT GASKET 28X20,8X1	Pcs	1
320	GASKET	Pcs	1
321	THERMOELEMENT	Pcs	2
322	GASKET	Pcs	1
323	GASKET	Pcs	1
324	CYLINDRICAL PIN 12 X 25	Pcs	1
325	GASKET	Pcs	1
326	KEY	Pcs	1
327	GASKET	Pcs	1
328	GASKET	Pcs	1
329	SEAL SCREW	Pcs	2
330	GASKETS 26X16.5X1	Pcs	2
331	GASKET 22x13,1x1	Pcs	2
332	GASKET 32X20, 8X1	Pcs	2
333	GASKET OR 2025 GACO P5 O	Pcs	2
334	CONICAL PIN D16X160	Pcs	2
335	CYLINDRICAL PIN 6x20	Pcs	6
336	CYLINDRICAL PIN 16x45	Pcs	1
337	H.P. PLUG M8	Pcs	1
338	OIL GUARD	Pcs	2
339	ELASTIC RING	Pcs	1
340	PARALLEL PIN	Pcs	1
341	SEAL (L=400 mm)	MT	4
342	SEALING RING D355 (0.7 KG)	KG	3.5
343	SEALING RING D355 (0.7 KG)	KG	0.3
344	GASKET 25,9x21,2 CU ETP	Pcs	1
345	SLIDING RING	Pcs	1
346	RING	Pcs	1
347	RING	Pcs	1
348	PRESSURE SPRING	Pcs	1
349	SEAL RING D14x18	Pcs	2
350	SEAL RING D48x55	Pcs	2
351	SEAL RING D21x26	Pcs	1
352	SEAL RING D27x32	Pcs	1
353	SEAL RING D17x21	Pcs	1
354	O-RING	Pcs	2
355	INSERT FOR CHECK VALVE	Pcs	1
356	SPECIAL NIPPLE	Pcs	2

Items	Description	UOM	Qty
357	GASKET 3/4"	Pcs	4
358	CYLINDRICAL HEAD SCREW M3X10	Pcs	10
359	WASHER 3.1	Pcs	10
360	ELASTIC WASHER FOR SCREW CODES	Pcs	7
361	HEXAGONAL NUT M6	Pcs	2
362	GASKET 3/4"	Pcs	2
363	SPLIT TUBULAR PIN 6 X 20	Pcs	2
364	GASKET 1/2"	Pcs	6
365	GASKET 3/4"	Pcs	2
366	WASHER 10.2	Pcs	2
367	LOCK WASHER A6.1	Pcs	4
368	PARALLEL PIN 6x16	Pcs	2
369	GASKET 107X61X2 PT2500 AF	Pcs	3
370	GASKET	Pcs	3
371	GASKET	Pcs	3
372	GASKET 273X220X1 PT2500AF	Pcs	2
373	GASKET 262X220X1 PT2500AF	Pcs	1
374	O RING 32.9X3.55-N (VITON)	Pcs	4
375	O RING 32.9X3.55-N (VITON)	Pcs	4
376	WASHER 8.4/25 ST/ZN	Pcs	2
377	GASKET 1/2"	Pcs	2
378	ELASTIC WASHER FOR SCREW CODES	Pcs	5
379	CYLINDRICAL HEAD SCREW M6x10	Pcs	5
380	ELASTIC PIN 10x50	Pcs	2
381	ELASTIC PIN 8x50	Pcs	2
382	GASKET 1/2"	Pcs	200
383	GASKET 3/4"	Pcs	120
384	GASKET 1"	Pcs	150
385	GASKET 2"	Pcs	100
386	GASKET 1" 1/2	Pcs	300
387	GASKET 3/8"	Pcs	10
388	GASKET 230x330 Sp.3	Pcs	2
389	GASKET 200x230 Sp.3	Pcs	7
390	GASKET 230x280 Sp.3	Pcs	7
391	SPLIT TUBULAR PIN 6 X 20	Pcs	4
392	ELASTIC WASHER B12,2	Pcs	4
393	GASKET 1/2"	Pcs	8
394	ELASTIC WASHER FOR SCREW CODES	Pcs	34
395	HEXAGONAL NUT M6	Pcs	8
396	SOCKET HEAD CYL. SCREW M6x14	Pcs	20

Spares for Turbine Overhauling: S5

Items	Description	UOM	Qty
1	DIFFUSER	Pcs	2
2	VALVE STEM	Pcs	2
3	VALVE HEAD	Pcs	2
4	GUIDE SLEEVE	Pcs	2
5	THREADED BUSHING	Pcs	2
6	SEAL ELEMENT COMPLETE	Pcs	2
7	HEX. SOCKET HEAD SCREW	Pcs	12
8	GUIDE BUSHING	Pcs	2
9	NUT	Pcs	8

Items	Description	UOM	Qty
10	ELONGATION STUD M24	Pcs	6
11	HEXAGONAL HEAD SCREW M16X80	Pcs	8
12	HEXAGONAL NUT M24	Pcs	12
13	WASHER 10.5	Pcs	5
14	BELLEVILLE SPRING	Pcs	4
15	COMPRESSION SPRING 12.5/3.15x20	Pcs	1
16	COMPRESSION SPRING 31,5x2,24x50	Pcs	1
17	WASHER 12.2	Pcs	9
18	WASHER 16.2	Pcs	4
19	BELLEVILLE SPRING	Pcs	4
20	COMPRESSION SPRING 12.5/3.15x20	Pcs	1
21	COMPRESSION SPRING 31,5x2,24x50	Pcs	1
22	WASHER 12.2	Pcs	9
23	WASHER 16.2	Pcs	4
24	ORIFICE	Pcs	2
25	ORIFICE	Pcs	1
26	TINGLE	Pcs	1
27	CLAMP PIVOT	Pcs	2
28	COMPRESSION SPRING	Pcs	1
29	ORIFICE	Pcs	3
30	ORIFICE	Pcs	3
31	"DU" BUSHING	Pcs	2
32	GUIDE STRIP L=391,3	Pcs	1
33	GUIDE STRIP L=290,8	Pcs	1
34	DISC	Pcs	1
35	ORIFICE	Pcs	2
36	ORIFICE	Pcs	1
37	CLAMP PIVOT	Pcs	2
38	COMPRESSION SPRING	Pcs	1
39	ORIFICE	Pcs	3
41	"DU" BUSHING	Pcs	2
42	STRIP L=391,3	Pcs	1
43	STRIP L=290,8	Pcs	1
44	ORIFICE	Pcs	2
45	ORIFICE	Pcs	1
46	TINGLE	Pcs	1
47	CLAMP PIVOT	Pcs	2
48	ORIFICE	Pcs	3
49	ORIFICE	Pcs	3
50	"DU" BUSHING	Pcs	2
51	GUIDE STRIP L=391,3	Pcs	1
52	GUIDE STRIP L=290,8	Pcs	1
53	SET SHIM	Pcs	4
54	SUBSTITUTION KEY	Pcs	2
55	SUPPORT KEY	Pcs	4
56	CENTERING PIN ASM.	Pcs	2
57	BUSHING	Pcs	2
58	GUIDE SLEEVE	Pcs	2
59	GUIDE BUSHING	Pcs	2
60	ORIFICE	Pcs	2
61	CLAMP PIVOT	Pcs	2
62	"DU" BUSHING	Pcs	2

Items	Description	UOM	Qty
63	GUIDE STRIP L=391,3	Pcs	2
64	GUIDE STRIP L=290,8	Pcs	2
65	ORIFICE	Pcs	2
66	ORIFICE	Pcs	2
67	CLAMP PIVOT	Pcs	4
68	COMPRESSION SPRING	Pcs	2
69	ORIFICE	Pcs	6
70	ORIFICE	Pcs	6
71	"DU" BUSHING	Pcs	4
72	GUIDE STRIP L=391,3	Pcs	2
73	GUIDE STRIP L=290,8	Pcs	2
74	CYLINDRICAL HEAD SCREW M24x130	Pcs	2
75	WASHER 25/44	Pcs	2
76	WITHOUT HEAD SCREW M12x30	Pcs	3
77	CYLINDRICAL HEAD SCREW M24x130	Pcs	2
78	WASHER 25/44	Pcs	2
79	WITHOUT HEAD SCREW M12x30	Pcs	3
80	COUPLING	Pcs	1
81	DISC FOR SPRING	Pcs	1
82	SPRING	Pcs	1
83	STUD BOLT M16	Pcs	3
84	NUT M16	Pcs	3
85	HEXAGONAL HEAD SCREW M10x25	Pcs	3
86	LOCKING PLATE 10.5X20X32	Pcs	3
87	COCKPIT	Pcs	1
88	SEAL RING	Pcs	1
89	LOCKING PLATE 8,4/18x15	Pcs	3
90	HEXAGONAL HEAD SCREW M20x45	Pcs	4
91	STUD BOLT M64	Pcs	26
92	STUD BOLT M64	Pcs	20
93	STUD BOLT M42	Pcs	20
94	STUD BOLT M36	Pcs	6
95	STUD BOLT M36	Pcs	20
96	HEXAGONAL NUT M64	Pcs	26
97	HEXAGONAL SOCKET HEAD M42	Pcs	20
98	HEXAGONAL NUT M64	Pcs	24
99	HEXAGONAL NUT M36	Pcs	26
100	SPRING WASHER	Pcs	26
101	SEAL RING	Pcs	3
102	THERMOWELL	Pcs	1
103	COMPLETE PIN 36x245	Pcs	2
104	HEXAGONAL FEAD SCREW M36x240	Pcs	3
105	SEAL RING	Pcs	2
106	SEAL RING	Pcs	2
107	SPRING WASHER	Pcs	20
108	HEXAGONAL HEAD SCREW M10X12	Pcs	55
109	STUD BOLT M64	Pcs	4
110	SUPPORT RING	Pcs	4
111	THERMOWELL	Pcs	2
112	SEAL RING	Pcs	1
113	SEAL RING DN934	Pcs	4
114	COMPRESSION SPRING	Pcs	64

Items	Description	UOM	Qty
115	STUD BOLT M90x6	Pcs	5
116	STUD BOLT M72x6	Pcs	3
117	STUD BOLT M56	Pcs	10
118	NUT M90x6	Pcs	5
119	NUT M72x6	Pcs	3
120	CAP NUT M56	Pcs	10
121	SPRING WASHER	Pcs	5
122	WASHER	Pcs	3
123	WASHER	Pcs	10
124	LOCKING SCREW (M10)	Pcs	8
125	CONICAL PIN 24x355	Pcs	2
126	HEXAGONAL FEAD SCREW M36x240	Pcs	4
127	STEAM SEAL RINGS TYPE 1 DN315	Pcs	2
128	STEAM SEAL RINGS TYPE 2	Pcs	1
129	STEAM SEAL RINGS TYPE 2	Pcs	1
130	SUPPORT SHIMS SERIES	Pcs	8
131	ASSIAL KEY	Pcs	4
132	LATERAL KEY	Pcs	2
133	CENTERING PIN ASM.	Pcs	1
134	CONICAL PIN 36x375	Pcs	2
135	CYLINDRICAL SCREW M10x55	Pcs	8
136	CYLINDRICAL HEAD SCREW M24x50	Pcs	4
137	LOCKING SCREW (M10)	Pcs	2
138	THERMOWELL	Pcs	1
139	THERMOWELL	Pcs	1
140	ISO 4017 SCREW - M24 X 50 - 8.8	Pcs	20
141	GASKET	Pcs	2
142	ASSIAL CENTERING PIN 36	Pcs	2
143	TAPER NOZZLE 4.05	Pcs	7
144	COUNTERSUNK SCREW ISO 2009 - M10X20	Pcs	4
145	SPRING	Pcs	6
146	COMPRESSION SPRING	Pcs	24
147	LOCKING SCREW (M10)	Pcs	5
148	HEXAGONAL HEAD SCREW M12x30	Pcs	2
149	SEAL RING DN630/SB35-T6.0	Pcs	1
150	SEAL RING DN630/SB65-8.25	Pcs	4
151	CROWN GEAR FOR TURNING GEAR	Pcs	1
152	BALANCING SCREW M24	Pcs	3
153	BALANCING SCREW M36	Pcs	3
154	BALANCING SEGMENT	Pcs	3
155	BALANCING SEGMENT	Pcs	3
156	STUD BOLT M64	Pcs	4
157	HEXAGONAL NUT M64	Pcs	5
158	SPRING WASHER	Pcs	4
159	STUD BOLT M64-TK	Pcs	2
160	ALIGNMENT BUSHING	Pcs	4
161	SUBSTITUTING KEY FOR BOLT M64	Pcs	4
162	SCREW ISO 4017 - M36x120 - 8.8	Pcs	15
163	HEXAGONAL HEAD SCREW M36x140	Pcs	3
164	CONICAL PIN 24x112	Pcs	4
165	STUD BOLT M48X345	Pcs	10
166	NUT M48	Pcs	10

Items	Description	UOM	Qty
167	CONICAL PIN 36x335	Pcs	4
168	WASHER 83.5/53	Pcs	10
169	POSITIONING WASHER	Pcs	4
170	COMPRESSION SPRING	Pcs	24
171	LOCKING SCREW (M10)	Pcs	4
172	LOCKING SCREW (M8)	Pcs	3
173	ELASTIC SPACER	Pcs	3
174	WIRE 1,5 (600 mm)	KG	0.009
175	SEAL RING DN630/SB65-6,0	Pcs	4
176	RING IN TWO HALVES	Pcs	3
177	LP ROTOR BLADE ST.5 CW	Pcs	13
178	SPRING	Pcs	61
179	KEY FOR CLOSING BLOCK	Pcs	1
180	AXIAL LOCKING SEGMENT	Pcs	19
181	AXIAL LOCKING SEGMENT	Pcs	3
182	AXIAL LOCKING SEGMENT	Pcs	19
183	AXIAL LOCKING SEGMENT	Pcs	3
184	LOCKING SEGMENT	Pcs	1
185	LOCKING SEGMENT	Pcs	1
186	LP ROTOR BLADE ST.6 CW	Pcs	12
187	SPRING	Pcs	212
188	KEY FOR CLOSING BLOCK	Pcs	1
189	AXIAL LOCKING SEGMENT	Pcs	16
190	AXIAL LOCKING SEGMENT	Pcs	4
191	AXIAL LOCKING SEGMENT	Pcs	16
192	AXIAL LOCKING SEGMENT	Pcs	4
193	LOCKING SEGMENT	Pcs	1
194	LOCKING SEGMENT	Pcs	1
195	COUPLING BOLT M48	Pcs	8
196	EXPANSION SLEEVE	Pcs	8
197	SAFETY NUT M48	Pcs	16
198	SAFETY RING	Pcs	16
199	BALANCING SCREW M24	Pcs	2
200	BALANCING SCREW M24	Pcs	2
201	TAPERED PIN D16X132	Pcs	2
202	TINGLE	Pcs	2
203	HEXAGONAL HEAD SCREW M10X25 - 8.8	Pcs	8
204	DIAPHRAGM SUPPORT	Pcs	1
205	ORIFICE	Pcs	1
206	HEXAGONAL HEAD SCREW M16x35	Pcs	2
207	CYLINDRICAL PIN 12 X 25	Pcs	1
208	SCREW FOR LATERAL PRESSURE PLATE	Pcs	6
209	SUPPORT FOR KEY	Pcs	1
210	SUPPORT FOR KEY	Pcs	1
211	CYLINDRICAL HEAD SCREW M42x80	Pcs	4
212	SPHERICAL SUPPORT (ASSEMBLY)	Pcs	2
213	SET OF SHIMS, COMPLETE	Pcs	2
214	WASHER 10.5/21	Pcs	2
215	CYLINDRICAL SCREW M10x25	Pcs	2
216	ADJUSTMENT PLATE	Pcs	2
217	SLIPPAGE PLATE	Pcs	2
218	COUNTERSUNK SCREW M8x12	Pcs	3

Items	Description	UOM	Qty
219	CYLINDRICAL HEAD SCREW M12x65	Pcs	2
220	ADJUSTING PLATE	Pcs	2
221	SLIDING ELEMENTS	Pcs	2
222	HEXAGONAL HEAD SCREW ISO 4014 - M12x100 - 8.8	Pcs	4
223	SAFETY PLATE	Pcs	2
224	SLIDING ELEMENTS	Pcs	2
225	HEXAGONAL HEAD SCREW M16x25	Pcs	4
226	KEY	Pcs	1
227	SET OF SHIMS, COMPLETE	Pcs	2
228	SLIDING ELEMENT	Pcs	2
229	COUNTERSUNK SCREW M6x12	Pcs	6
230	VERTICAL ALIGNMENT SHIMS	Pcs	2
231	PLATE TYPE SPRING 31X55X112	Pcs	2
232	HEXAGONAL HEAD SCREW ISO 4014 - M30x140 - 8.8	Pcs	2
233	GASKET	Pcs	1
234	HEXAGONAL HEAD SCREW M24X65	Pcs	7
235	GASKET	Pcs	1
236	SAFETY PLATE	Pcs	1
237	HEXAGONAL HEAD SCREW M16x50	Pcs	2
238	THICKNESS	Pcs	2
239	HEXAG. HEAD SCREW ISO 4014 M20x300 8.8	Pcs	4
240	STUD BOLT M56	Pcs	2
241	BUSHING	Pcs	2
242	TINGLE	Pcs	2
243	HEXAGONAL NUT M56	Pcs	2
244	HEXAGONAL NUT M56	Pcs	2
245	SPHERICAL SUPPORT (ASSEMBLY)	Pcs	2
246	SET OF SHIMS, COMPLETE	Pcs	2
247	ADJUSTMENT PLATE	Pcs	2
248	SLIPPAGE PLATE	Pcs	2
249	ADJUSTING PLATE	Pcs	2
250	SET OF SHIMS, COMPLETE	Pcs	2
251	SLIDING ELEMENT	Pcs	2
252	VERTICAL ALIGNMENT SHIMS	Pcs	2
253	PLATE TYPE SPRING 31X55X112	Pcs	2
254	SAFETY PLATE	Pcs	2
255	TINGLE	Pcs	2
256	BUSHING	Pcs	4
257	TINGLE	Pcs	4
258	STUD BOLT M42	Pcs	4
259	HEXAGONAL SOCKET HEAD M42	Pcs	4
260	CONICAL PIN D16X160	Pcs	2
261	STUD BOLT M42	Pcs	6
262	HEXAGONAL SOCKET HEAD M42	Pcs	6
263	CYLINDRICAL HEAD SCREW M8x16	Pcs	4
264	CALIBRATED SCREW M10	Pcs	4
265	HEXAGONAL NUT M10	Pcs	2
266	CYLINDRICAL PIN 4x14	Pcs	2
267	SCREW M6x20	Pcs	2
268	HEXAGONAL HEAD SCREW M8x12	Pcs	9

Items	Description	UOM	Qty
269	LOCKING PLATE 8,4/18x15	Pcs	9
270	THRUST BEARING RING DIAM.315	Pcs	1
271	SLIDING BLOCKS SET	Pcs	1
272	SLIDING BLOCKS SET	Pcs	1
273	RING IN TWO HALVES	Pcs	1
274	SET THICKNESS	Pcs	1
275	SET THICKNESS	Pcs	4
276	SET THICKNESS	Pcs	1
277	SET THICKNESS	Pcs	2
278	CYLINDRICAL HEAD SCREW M8x20	Pcs	14
279	ORIFICE	Pcs	2
280	SET THICKNESS	Pcs	1
281	COPPER GASKET A 18X22	Pcs	1
282	COPPER GASKET A 18X22	Pcs	1
283	SUPERIOR DISC	Pcs	1
284	INFERIOR DISC	Pcs	1
285	DIAPHRAGM	Pcs	1
286	GRUB SCREW M12x25	Pcs	1
287	SCREW M20x50	Pcs	25
288	ADHESIVE COMPOUND EC880 AD.EC880S	Pcs	2
289	BUSHING	Pcs	1
290	WORM	Pcs	1
291	BUSHING	Pcs	1
292	SEGMENT	Pcs	2
293	TAPER PIN 12x65	Pcs	2
294	THROTTLE PIN NG6	Pcs	1
295	CYLINDRICAL PIN S-SW 3X25 STNR	Pcs	1
296	COMPRESSION SPRING 80/9x200 ST	Pcs	1
297	BEARING FLANGE-NS	Pcs	1
298	TOOTH PISTON	Pcs	1
299	TOOTH PISTON	Pcs	1
300	RADIAL BEARING	Pcs	2
301	FORGED-ON SHAFT COLLAR	Pcs	1
302	WEDGE	Pcs	1
303	BEARING FLANGE-AS	Pcs	1
304	SPARE PARTS SET FOR CONSTANT PRESSURE VALVE	Pcs	1
305	CALIBRATED SCREW	Pcs	4
306	WASHER 22.5	Pcs	4
307	LOCKING SCREW	Pcs	1
308	TORSION SPRING	Pcs	1
309	RING	Pcs	2
310	PIVOT	Pcs	1
311	"DU" BUSHING	Pcs	1
312	CLAMP PISTON	Pcs	1
313	RING 20	Pcs	2
314	LOCK WASHER A6.1	Pcs	1
315	CYLINDRICAL HEAD SCREW M6x16	Pcs	1
316	SPRING 31,5x3,15x63	Pcs	1
317	RING 59.2	Pcs	1
318	HEXAGONAL NUT M12	Pcs	1
319	CYLINDRICAL PIN 3x20	Pcs	1

Items	Description	UOM	Qty
320	WASHER 10.2	Pcs	2
321	CYLINDRICAL HEAD SCREW M10x20	Pcs	2
322	SUPPORT SENSOR	Pcs	2
323	CYLINDRICAL HEAD SCREW M3X10	Pcs	10
324	WASHER 3.1	Pcs	10
325	ELASTIC WASHER FOR SCREW CODES	Pcs	7
326	HEXAGONAL NUT M6	Pcs	2
327	SPECIAL PLUG	Pcs	1
328	WASHER 3.1	Pcs	5
329	ELASTIC WASHER FOR SCREW CODES	Pcs	7
330	HEXAGONAL NUT M6	Pcs	2
331	SPECIAL PLUG	Pcs	3
332	HEXAGONAL HEAD SCREW M8x12	Pcs	7
333	CILINDRICAL HEAD SCREW M16x45	Pcs	8
334	CILINDRICAL HEAD SCREW M20x150	Pcs	8
335	HEXAGONAL NUT M20	Pcs	8
336	WASHER 12.2	Pcs	3
337	SAFETY PLATE 6,4/15x15	Pcs	2
338	THREE-CORES SHIELDED CABLE 3x1,5	MT	350
339	CHROMEL CABLE EYELET LUG	Pcs	20
340	ALUMEL CABLE EYELET LUG	Pcs	20
341	EYELET TERMINAL M4 Cu 31902	Pcs	15
342	EYELET TERMINAL M4 Cu 31886	Pcs	90
343	"KX" EXTENSION COMPENSATION CABLE	MT	450
344	EYELET CABLE LUG M5 COPPER 31903	Pcs	20
345	TWO-CORES SHIELDED CABLE 2x1,5	MT	500
346	TWO-CORES SHIELDED CABLE	MT	100
347	THREE CORES SHIELDED CABLE 3x0,75	MT	600
348	SHIELDED CABLE 2X0.75	MT	350
349	EIGHT-CORES SHIELDED CABLE 8x1,5	MT	150
350	1x1.5 FR/4 SINGLE CORE EARTH CABLE	MT	600
351	1x2.5 FR/4 SINGLE CORE EARTH CABLE	MT	800
352	EARTH EYE-LUG M5 CU-EPT UNI56	Pcs	20
353	EARTH PIN-LUG W17 CU-EPT UNI5	Pcs	60
354	SIX-CORES SHIELDED CABLE 6x0,75	MT	300
355	0,5 CABLE PIN LUG	Pcs	400
356	PIN 1,5 CABLE-LUG	Pcs	1000
357	CABLE 6x1	MT	80
358	SHIELDED CABLE 4x1.5	MT	350

Spares for TG Overhaul: G3

Items	Description	UOM	Qty
1	WATER BOX FLAT GASKET	Pcs	8
2	WATER BOX U SHAPED GASKET	Pcs	12
3	PRE-FILTER	Pcs	1
4	SLIP RING HOUSING AIR PRE-FILTER	Pcs	1
5	COPPER PLAIT 5,5 X 38 X 300	Pcs	3
6	FIBER GASKET (G5)	Pcs	2
7	SPAZZOLA 38.1X25.4	Pcs	32
8	GASKET	MT	10
9	GASKET FOR AIR SEAL RING BOX B45	MT	37

Items	Description	UOM	Qty
10	GASKET	Pcs	8
11	MAKE UP FILTER	Pcs	2
12	GASKET	Pcs	2
13	SYNTHETIC RUBBER PLATE 6 X 15	MT	30
14	PROFILE "WIELAND" 2X8 L = 3010 mm	MT	6.02
15	PROFILE "WIELAND" 2X8 L = 3010 mm	MT	6.02
16	PLATE 6X15 GOMMA SINTETICA	MT	10
17	PLATE 6X15 GOMMA SINTETICA	MT	10
18	ROUND 15 SPONGE RUBBER	MT	1
19	SYNTHETIC RUBBER PLATE 6 X 15	MT	25
20	FLAT GASKET DN.150 - 150lb	Pcs	4
21	GASKET ANSI DN 2"1/2	Pcs	3
22	CU-ETP FLAT GASKET 28X20,8X1	Pcs	1
23	FLAT GASKET DN.150 - 150lb	Pcs	4
24	GASKET ANSI DN 2"1/2	Pcs	3
25	CU-ETP FLAT GASKET 28X20,8X1	Pcs	1
26	"WIELAND" SECTION 2X9 (O.C.E. - C.E.)	MT	4.51
27	MATERIAL FOR SEAL MA.1287 0	KG	1
28	"WIELAND" SECTION 2X9 (O.C.E. - C.E.)	MT	4.51
29	MATERIAL FOR SEAL MA.1287 0	KG	1
30	"WIELAND" SECTION 2X9 (O.C.E. - C.E.)	MT	4.51
31	MATERIAL FOR SEAL MA.1287 0	KG	1
32	"WIELAND" SECTION 2X9 (O.C.E. - C.E.)	MT	4.51
33	MATERIAL FOR SEAL MA.1287 0	KG	1
34	ADJUSTMENT SHIM FOR DN425 BEARING	Pcs	12
35	ADJUSTMENT SPACER FOR DN425 BEARING	Pcs	12
36	ADJUSTMENT SPACER FOR DN425 BEARING	Pcs	24
37	ADJUSTMENT SPACER FOR DN425 BEARING	Pcs	24

Spares for TG Overhaul: G5

Items	Description	UOM	Qty
1	GASKET	Pcs	4
2	GASKET L = 4150 mm	Pcs	4
3	HEXAGONAL HEAD SCREW M12x20	Pcs	26
4	ELASTIC WASHER B12,2	Pcs	75
5	INTERNAL WRENCHED HEAD BOLT M12X45	Pcs	42
6	SCREW FOR LATERAL PRESSURE PLATE	Pcs	30
7	PLATE (13 MM DIA)	Pcs	24
8	NUT FOR HYDROGEN SEAL RINGS BOX	Pcs	24
9	SACRIFICIAL ANODE	Pcs	16
10	DROPS SEPARATOR	Pcs	1
11	BLOCK	Pcs	2
12	STUD BOLT M8X30	Pcs	3
13	HEXAGONAL HEAD SCREW M12x30	Pcs	1
14	HEXAGONAL HEAD SCREW M10x40	Pcs	2
15	HEXAGONAL NUT M8	Pcs	3
16	HEXAGONAL NUT M10	Pcs	2

Items	Description	UOM	Qty
17	WASHER M10	Pcs	2
18	DOUBLE SAFETY PLATE	Pcs	1
19	SAFETY PLATE	Pcs	1
20	NYLON STRIP 197 X 4,8	Pcs	2
21	HEXAGONAL HEAD SCREW M8X65	Pcs	2
22	ARANDELA 8	Pcs	1
23	WASHER 8.4/25 ST/ZN	Pcs	3
24	SAFETY PLATE 10.5	Pcs	2
25	HEXAGONAL HEAD SCREW M12x110	Pcs	2
26	SPACER	Pcs	2
27	HEXAGONAL HEAD SCREW M12x20	Pcs	1
28	MALE CONNECTION 1/2" - DN18	MT	1.5
29	CORRUGATED BRACKET 26 FE360B	Pcs	4
30	FILLISTER HEAD SCREW M4X6	Pcs	4
31	UNIPOLAR FLEXIBLE WIRING	MT	10
32	TERMINAL CABLE M12 CU-ETP	Pcs	2
33	16X28 RUBBER BUSH	Pcs	2
34	STIFFENING RIB 38 FE360B	Pcs	8
35	HEXAGONAL NUT G 1 1/2and#34;	Pcs	6
36	FIBER GASKET (G7)	Pcs	20
37	LOCK NUT G 1"	Pcs	3
38	FIBER GASKET (G5)	Pcs	15
39	HEXAGONALE NUT G 1/2"	Pcs	1
40	FIBER GASKET (G3)	Pcs	2
41	FLEXIBLE PIPE 1" - DN 25	MT	1
42	MALE PIPE UNION 1and#34; - DN 25	Pcs	2
43	HEXAGONAL NUT G 1and#34;	Pcs	1
44	LOCK NUT G 1"	Pcs	1
45	BLOCK	Pcs	1
46	BLOCK	Pcs	1
47	BLOCK	Pcs	1
48	BLOCK	Pcs	1
49	INSULATING RING IN TWO HALVES	Pcs	1
50	GROUNDING CONNECTION	Pcs	1
51	HEXAGONAL HEAD SCREW M12x40	Pcs	7
52	ELASTIC WASHER B12,2	Pcs	7
53	HEXAGONAL HEAD SCREW M12x30	Pcs	2
54	LOCKING PLATE	Pcs	4
55	HEX. HEAD SCREW M16x40	Pcs	2
56	HEXAGONAL NUT M16	Pcs	4
57	DOUBLE LOCKING PLATE	Pcs	8
58	HEXAGONAL HEAD SCREW M16x50	Pcs	2
59	WASHER DIA. 17 FOR COMPRESSION STRAPS	Pcs	2
60	ELASTIC WASHER B16,2	Pcs	6
61	THREADED INSERT M16X24	Pcs	2
62	SCREW M10X30	Pcs	10
63	ELASTIC WASHER 10.2	Pcs	8
64	WASHER M10	Pcs	4
65	HEXAGONAL HEAD SCREW M10X25 - 8.8	Pcs	2
66	HEXAGONAL HEAD SCREW M10x20	Pcs	4
67	SCREW	Pcs	2
68	WASHER 13/24	Pcs	1

Items	Description	UOM	Qty
69	HEXAGONAL NUT M10	Pcs	2
70	LOCKING PLATE	Pcs	12
71	SCREW ISO 4017 - M10X35 - 8.8	Pcs	1
72	HEXAGONAL HEAD SCREW M12x20	Pcs	1
73	HEXAGON SOCKET HEAD CAP SCREW M12X35	Pcs	4
74	WASHER 12.2	Pcs	4
75	WASHER 13 STAINLESS STEEL	Pcs	4
76	HEXAGONAL HEAD SCREW M12X25	Pcs	4
77	SAFETY PLAQUE	Pcs	8
78	WASHER 12.5/32X3	Pcs	5
79	WASHER 13/28 STAINLESS STEEL	Pcs	5
80	HEXAGONAL HEAD SCREW M12 X 90	Pcs	5
81	PLUG V 40	Pcs	5
82	HEXAGONAL HEAD SCREW M8x20	Pcs	3
83	WASHER (6.4X12.5 DIAMETER)	Pcs	3
84	ELASTIC WASHER FOR SCREW CODE 189	Pcs	5
85	HEXAGONAL HEAD SCREW M10 X 50	Pcs	5
86	ELASTIC WASHER 10.2	Pcs	5
87	HEXAGONAL NUT M10	Pcs	5
88	WASHER M10	Pcs	5
89	CONICAL PIN 8X60	Pcs	2
90	INSULATING RING IN TWO HALVES	Pcs	1
91	INSULATING RING IN TWO HALVES	Pcs	1
92	INSULATING RING IN TWO HALVES	Pcs	1
93	FLEXIBLE PIPE L = 550 mm	Pcs	4
94	FLEXIBLE PIPE L = 470 mm	Pcs	4
95	HOSE CLAMP 23 - 45	Pcs	8
96	DOUBLE SAFETY PLATE	Pcs	32
97	WASHER 13X40X3	Pcs	6
98	HEXAGONAL HEAD SCREW M16x50	Pcs	16
99	HEXAGONAL HEAD SCREW M12X50	Pcs	6
100	THREADED BOLT M16X140	Pcs	1
101	THREADED BOLT M16X220	Pcs	3
102	DISCO	Pcs	12
103	WASHER THK.3	Pcs	6
104	HEX. HEAD SCREW M16x45	Pcs	4
105	HEXAGON SOCKET HEAD CAP SCREW M10X60	Pcs	7
106	WASHER 10.5/18	Pcs	7
107	HEXAGONAL HEAD SCREW M8x30	Pcs	6
108	THREADED BOLT M16X175	Pcs	1
109	HEXAGONAL NUT M16	Pcs	9
110	SCREW M16X30	Pcs	2
111	THREADED BOLT M16X1000	Pcs	1
112	HEXAGONAL HEAD SCREW M16X20	Pcs	3
113	BUSHING	Pcs	3
114	DISCO	Pcs	3
115	HEXAGONAL HEAD SCREW M12X80	Pcs	4
116	HEXAGONAL NUT M12	Pcs	4
117	WASHER 13/24	Pcs	2
118	HEX. HEAD SCREW M16x40	Pcs	16
119	HEXAGONAL HEAD SCREW M12X60	Pcs	13

Items	Description	UOM	Qty
120	HEXAGONAL NUT M12	Pcs	13
121	HEXAGONAL HEAD SCREW M12x35	Pcs	2
122	WASHER 13/24	Pcs	28
123	HEX. HEAD SCREW M16x40	Pcs	6
124	HEXAGONAL NUT M16	Pcs	6
125	CYLINDRICAL THREADED INSERT M12	Pcs	6
126	HEXAGONAL HEAD SCREW M10X60	Pcs	5
127	HEXAGONAL HEAD SCREW M8x20	Pcs	3
128	HEXAGONAL NUT M8	Pcs	2
129	ELASTIC WASHER FOR SCREW CODE 189	Pcs	3
130	GASKET FOR AIR SEAL RING BOX B45	KG	1.25
131	HEXAGONAL HEAD SCREW ISO 4014 - M12x120 - 8.8	Pcs	2
132	WASHER 13/24	Pcs	2
133	HEX. HEAD SCREW M16x40	Pcs	2
134	HEXAGONAL NUT M16	Pcs	2
135	DOUBLE LOCKING PLATE	Pcs	2
136	HEXAGONAL HEAD SCREW M36X3X120 UNI 5740	Pcs	2
137	WASHER	Pcs	2
138	LEVELLING SCREW	Pcs	3
139	BOTTOM GROOVE SHIM	Pcs	20
140	INTERMEDIATE SHIM	Pcs	20
141	FILLING STRIPE	Pcs	20
142	UNDER WEDGE SHIM	Pcs	20
143	STATOR WINDING WEDGE ASSEMBLY	Pcs	1
144	BRAZING PLATE	Pcs	15
145	INSULATING INSERT ASSEMBLY	Pcs	6
146	HEXAGONAL HEAD SCREW M16x90	Pcs	24
147	HEXAGONAL NUT M16	Pcs	24
148	HEXAGONAL HEAD SCREW M16x40	Pcs	48
149	WASHER 17/34 STAINLESS STEEL	Pcs	48
150	BOLT	Pcs	9
151	WASHER 17/30 STAINLESS STEEL	Pcs	9
152	HEXAGONAL HEAD SCREW M16x80	Pcs	9
153	WASHER 17/34 STAINLESS STEEL	Pcs	24
154	INSULATING NUT M16 HM34	Pcs	12
155	NEOPRENE GASKET THK.3 MM	Pcs	2
156	NEOPRENE GASKET 3 mm THICKNESS	Pcs	12
157	SHIM	Pcs	6
158	SHIM 5X135X310	Pcs	2
159	HEXAGONAL HEAD SCREW M16x70	Pcs	50
160	DOUBLE SAFETY PLATE	Pcs	50
161	HEXAGONAL NUT M16	Pcs	50
162	ISO 4014 HEX. HEAD SCREW M12 X 70 - 8.8	Pcs	10
163	WASHER 13X35X5	Pcs	10
164	PLAQUE INSULATING	Pcs	2
165	HEXAGONAL HEAD SCREW M16x70	Pcs	2
166	4017 ISO SCREW M16X45 - A1 - 50	Pcs	2
167	HEXAGONAL NUT M16	Pcs	2
168	WASHER 17/30 STAINLESS STEEL	Pcs	6
169	HEXAGONAL HEAD SCREW M10X25 - 8.8	Pcs	10

Other Required Spares

The following spares are already identified to be replaced. However, if other spares required, then Supply and replacement those spares shall also be in the Bidder's scope.

Items	Equipment	Description	UOM	Qty
1	Excitation System	Make: MICROELETTRICA SCIENTIFICA MILANO ITALY, Type:LTNS01252*A00,U(V)- 750,Ith (A)-150,Volt Bob-220 Vcc (220 V dc),Spec.,Cod.,Conf.Comm- 1805/1,Sett./Anno-36/01 N*002	Nos.	2
2	Excitation panel	PLUG IN PCB MODULE EAA 20T0698#21ALIDI (Card no 1)	Nos	2
3	Excitation System	PLUG IN PCB MODULE EAA 20T0684#21ANSBI (Card no 2)	Nos.	2
4	Excitation System	PLUG IN PCB MODULE EAA 20T0700#21MCGD1 (Card no 3)	Nos.	2
5	Excitation System	PLUG IN PCB MODULE EAA 20T0683#21IOMC2 (Card no 4)	Nos.	2

Annexure 3: Special Tools and Tackles provided during commissioning

(Attached separately)

Annexure 4: List of Hangers

(Attached separately)

Annexure 5: Heat Balance Diagram

(Attached separately)

Annexure 6: Letter of bid submission

(To be printed on Bidder's letterhead)

Dated:

To,
General Manager (Power),
Gujarat Mineral Development Corporation Ltd
Khanij Bhavan,
132-Ring Road, Gujarat University Ground, Vastrapur,
Ahmedabad- 380052

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

Dear Sir/Madam,

We, the undersigned, offer to provide services and spares for [Insert title of assignment] in accordance with your Request for Proposal dated [Insert Date] and our Bid. We are hereby submitting our Bid, which includes this Technical Bid, and a Price Bid, as follows.

1. Physical submission of Technical Bid, RFP Fee, and EMD as per the requirement of the RFP
2. Online submission of Price Bid as per the requirement of the RFP

We are submitting our Bid in individual capacity. We hereby declare that all the information and statements made in this proposal are true and accept that any misinterpretation contained in it may lead to our disqualification.

If discussions are held during the period of validity of the Bid, i.e., before the date indicated in RFP, we undertake to negotiate on the basis of the proposed personnel. Our Bid is binding upon us and subject to the modifications resulting from Contract discussions.

We undertake, if our Bid is accepted, to initiate the Overhauling services related to the assignment not later than the period specified in the RFP.

We understand you are not bound to accept any proposal you receive.

We remain,

Yours sincerely,

Authorized Signature [In full and initials]:

Name and Title of Signatory:

Name of Firm:

Address:

Annexure 7: Bidders experience and credentials

A – Pre-Qualification Criteria

1. Bidder's organization

[Provide here a brief description of the background and organization of your firm/entity. The brief description should include Ownership details, date, and place of incorporation of the firm, objectives of the firm etc. Provide supporting documents such as Certificate of Incorporation, MOA, AOA, GSTIN Registration, which may be applicable etc.]

2. Similar works by Bidder

[Using the format below, provide information on each project for which your firm, was legally contracted either individually as a corporate entity or as one of the major partners within an association, for carrying out job similar to the ones specified in Pre-Qualification Criteria set forth in the RFP (If possible, the Bidder shall specify exact job for which experience details may be submitted)]

Parameter	Response
Name of work	
Description of work	
Value of the Contract (in INR)	
Duration of the work (in months)	
Start date (month and year)	
End date (month and year)	

Similar works include – Capital Overhauling steam turbine generators for coal or lignite-based thermal power plants of 250 MW capacity or higher, and each unit of 100 MW or higher, carried out under a single LOI / work order / agreement

The Bidder must provide document evidence including relevant portions of the work order / Contract / completion certificate for contracts undertaken.

B – Technical Criteria

1. Experience in EPC/Overhauling of steam turbine generator at coal or lignite based thermal power plants

[Using the format below, provide information on each work for which your firm, was legally contracted either individually as a corporate entity or as one of the major partners within an association, as per the Technical Criteria set forth in the RFP]

Parameter	Response
Name of work	
Description of the work	
Capacity of Contract (in MW)	
Value of the Contract (in INR)	
Make of the Turbine	
Duration of the work (in months)	
Start date (month and year)	
End date (month and year)	

The Bidder must provide document evidence including relevant portions of the work order / Contract / completion certificate for contracts undertaken.

2. Adequate supply chain capabilities
 - a) The Bidder must provide contracts for the sourcing of Ansaldo parts
 - b) Certificate of registration / lease agreements for office or warehouse
3. Accreditation Certificate
 - a) The Bidder must provide certificates for accreditations

Annexure 8: Declaration of key personnel

Format of Curriculum Vitae (to be provided by all the Key Personnel as mentioned in Section 5.2 of Part 3 of this document)

1. Name of the Personnel: _____
2. Proposed Position for the Project: _____
3. Date of Birth: _____
4. Nationality: _____
5. Education Qualifications: _____

School/College	Degree/Certification	Year of Graduation

6. Languages: _____
7. Years of experience: _____
8. Employment Record: _____

Name of the firm	From – To Date	Designation/Position

9. Work(s) Undertaken that illustrates the capabilities to handle the tasks defined in Part 2 of this document
 - a. Name of the assignment: _____
 - b. Year: _____
 - c. Location: _____
 - d. Client: _____
 - e. Position(s) held: _____
 - f. Key activities performed: _____
10. Any Relevant Certifications (e.g. – PMP): _____

Note: Kindly submit any other copies of CV (if needed) and appropriate certifications with this sheet. Additional sheets may be used to provide any additional information

Authorized Signature [In full and initials]:

Name and Title of Signatory:

Name of Firm:

Address:

Annexure 9: Revenue and net worth statement

(To be printed on Statutory Auditor's/ Registered Chartered Accountant's letterhead)

I hereby declare that I have scrutinized and audited the financial statement of M/s. _____ . Following is the audited revenue for the last three years, net worth and working capital for the last year.

Years	Revenue (INR Cr)
2019-2020	
2020-2021	
2021-2022	

Years	Net worth (INR Cr)
As on 31st March 2022	

Annexure 10: No deviation certificate

(To be printed on Bidder's letterhead)

Dated:

To,
General Manager (Power),
Gujarat Mineral Development Corporation Ltd
Khanij Bhavan,
132-Ring Road, Gujarat University Ground, Vastrapur,
Ahmedabad- 380052

Subject: No deviation certificate regarding Bid for Request for Proposal (RFP) for Turbine Generator (TG) Package for Overhaul of GMDC's 250 (2x125) MW Akrimota Thermal Power Station (ATPS), Gujarat

Dear Sir/Madam,

We _____ (Name of the Bidder), confirm our acceptance to all terms and conditions mentioned in the RFP document, and all subsequent clarifications, in totality and withdraw all deviations raised by us, if any.

We remain,

Yours sincerely,

Authorized Signature [In full and initials]:

Name and Title of Signatory:

Name of Firm:

Address:

Annexure 11: No Deviation Certificate

(To be printed on Bidder's letterhead)

Dated:

To,
General Manager (Power),
Gujarat Mineral Development Corporation Ltd
Khanij Bhavan,
132-Ring Road, Gujarat University Ground, Vastrapur,
Ahmedabad- 380052

Subject: No deviation certificate regarding Bid towards Request for Proposal (RFP) for Turbine Generator (TG) Package for Overhaul of GMDC's 250 (2x125) MW Akrimota Thermal Power Station (ATPS), Gujarat

Dear Sir/Madam,

We _____ (Name of the Bidder), confirm our acceptance to all terms and conditions mentioned in the RFP document, and all subsequent clarifications, in totality and withdraw all deviations raised by us, if any.

We remain,

Yours sincerely,

Authorized Signature [In full and initials]:

Name and Title of Signatory:

Name of Firm:

Address:

Annexure 12: Format for power of attorney

(On stamp paper of value INR 300)

KNOW ALL MEN by these presents that we, _____ [name of the firm], a FIRM incorporated under the and having its Registered Office/ office at _____[Address of the Company] (hereinafter referred to as “Company/firm”):

WHEREAS in response to the RFP for _____ [Name of the Assignment] (“Project”), the Company/ firm is submitting Bid comprising Technical Bid physically while Price Bid through online submission for the project and GMDC and is desirous of appointing an attorney for the purpose thereof.

WHEREAS the Company deems it expedient to appoint Mr. _____ son / daughter of _____ resident of _____, holding the post of _____ as the Attorney of the Company/firm.

NOW KNOW WE ALL BY THESE PRESENTS, THAT _____ [name of the company/firm] do hereby nominate, constitute and appoint _____ [name & designation of the person] _____ as its true and lawful Attorney of the Company/ firm to do and execute all or any of the following acts, deeds and things for the Company/ firm in its name and on its behalf, that is to say:

To act as the Company’s/firm’s official representative for submitting the Bid comprising Technical Bid and Price Bid for the said project and other relevant documents in connection therewith;

To sign all the necessary documents, papers, testimonials, applications, representations and correspondence necessary and proper for the purpose aforesaid;

To RFP documents, receive and make inquiries, make the necessary corrections and clarifications to the Proposal and other documents, as may be necessary;

To do all such acts, deeds, and things in the name and on behalf of the Company as necessary for the purpose aforesaid.

<p>The common seal of [name of the company/firm] was here unto affixed pursuant to a resolution passed at the meeting of Committee of Directors held on ____ Day of, 2023 in the presence of [name & designation of the person] and countersigned by [name& designation of the person] of the Company/firm of[name of the company]</p>	<p>_____</p> <p>[name & designation of the person]</p> <p>_____</p> <p>[name & designation of the person]</p>
--	---

Annexure 13: Undertaking regarding genuineness of documents

(On stamp paper of value INR 300)

I/We, _____, Partner/Director/Legal
Attorney/Accredited Representative of M/s. _____ solemnly
declare that:

1. I/We are submitting Tender for the work _____
_____ against Tender No. _____
2. None of the Partners/Directors of our firm/GMDC is relative of employee of GMDC.
3. All information furnished by us in respect of fulfillment of eligibility criteria and qualification information of this Tender is complete, correct and true.
4. All documents/credentials submitted along with this Tender are genuine, authentic, true and valid.
5. If it is found at any point of time that our documents are not genuine then in that case our tender will be rejected, earnest money deposited by us will be forfeited and we will be debarred from participating in further/future GMDC tenders and/or any action as deemed fit by GMDC may be taken against us, including termination of the contract, forfeiture of all dues including Earnest Money / Security deposit and banning/delisting of our entity and all related persons etc.

Dated this _____ day of 2023.

Signature

(Company Seal)

In the capacity of duly authorized to sign Bids for and on behalf of:

Signed by

Authorized Signatory with designation

Annexure 14: Undertaking of indemnity

(To be printed on Bidder's letterhead)

Dated:

To,
General Manager (Power),
Gujarat Mineral Development Corporation Ltd
Khanij Bhavan,
132-Ring Road, Gujarat University Ground, Vastrapur,
Ahmedabad- 380052

Dear Sir/Madam,

We M/s. ----- hereby undertake that, we shall at all times, indemnify and keep indemnified that GMDC Limited from any and all liability for damages resulting from or arising out of or in any way connected with the operations covered by the Tender No. _____. We shall be responsible for all risk arising in connection with or on account of the operations covered by the contract covered by the above tender and shall make good all losses and damages arising there from. In case, the GMDC Limited shall incur any cost or expense or suffer any loss on account of any claim demand or course of action brought against us and arising out of the operations covered by the Bidder/tender, the GMDC Limited shall have the power (without being bound to do so) to define, contest or compromise any such claim demand or cause of action. Any amount that may become payable by GMDC Limited and any cost expense etc. that may be incurred by the GMDC Limited in this behalf, shall also be recoverable from us, without prejudice to your other rights.

We remain,

Yours sincerely,

Authorized Signature [In full and initials]:

Name and Title of Signatory:

Name of Firm:

Address:

Annexure 15: Indicative format of Price bid

(This is indicative format for Bidder's reference only. The PRICE PROPOSAL SHOULD BE SUBMITTED ONLINE ONLY at designated places through <http://gmhc.nprocure.com>. Price Bid should not be submitted in hard copy and or placed with Technical Bid. Prices submitted in hard copy and or placed with Technical Bid shall result in outright rejection of Bid)

Dated:

To,
General Manager (Power),
Gujarat Mineral Development Corporation Ltd
Khanij Bhavan,
132-Ring Road, Gujarat University Ground, Vastrapur,
Ahmedabad- 380052

Subject: Price Bid for Request for Proposal (RFP) for Turbine Generator (TG) Package for Overhaul of GMDC's 250 (2x125) MW Akrimota Thermal Power Station (ATPS), Gujarat
Dear Sir,

After thoroughly reading and accepting the RFP terms, understanding the requirements, and scope of work under this RFP, and its terms and conditions, we hereby agree to provide our services at the following rates

Description	Total Amount (in INR, excl. GST)
Lumpsum Charges for Supply of material (A)	
Lumpsum Charges for Overhaul execution (B)	
Lumpsum Charges for TG Package (A + B)	

Note:

The Bidder to quote charges inclusive of all other taxes except applicable GST. Applicable GST, over and above approved Lumpsum Charges for TG Package, at the time of invoicing shall be reimbursed by GMDC. The risk of applicability of any taxes, duties, and levies except GST, shall rest with the Bidder.

GMDC 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.

Each Bidder must quote their rates after through reading of this RFP document and estimates of its cost through detailed due diligence of the Plant, statutory laws/regulations. GMDC reserves right to seek any clarifications regarding price quoted from Bidders before any decisions.

Please note the following details for Compulsory e-confirmation for Bank Guarantee through ICICI Bank through SFMS under our:

Gujarat Mineral Development Corporation Limited (GMDC)
132 Ft Ring Road, Near University Ground Vastrapur, Ahmedabad.
Bank Name: ICICI Bank Ltd
IFS Code: ICIC0000024
UIC GMDC530265584 for Field 7037 MT760

Annexure 16: Format for Bank Guarantee towards EMD

(On Non-judicial Stamp paper to be submitted along with submission of bids)

..... (Name of the Bank)
Address.....
Guarantee No.....
A/C Messrs..... (Name of Bidder)
Date of Expiry.....
Limit to liability (currency & amount)
Invitation For RFP No..... Dated..... (bidding document)
For..... (Name of Facilities)

Subject: Earnest Money Deposit Bank Guarantee.

Date.....2023

To,
General Manger (____),
Gujarat Mineral Development Corporation Ltd.
132 Ft Ring Road,
Near University Ground
Vastrapur,
Ahmedabad.

Dear Sir,

In consideration of Gujarat Mineral Development Corporation (hereinafter called "GMDC") which expression shall unless repugnant to the subject of context include his successors and assigns having agreed to exempt M/s..... (herein after called "Bidder") from demand under the terms and conditions of "Technical Bid Document" (hereinafter called the said "Bidding Document") issued by the GMDC vide RFP No. _____ for the work _____

(Name of the facilities) from Earnest Money Deposit (EMD) of Bid for the due fulfillment by the Bidder of the terms and conditions contained in the said Bidding Document on production of Bank Guarantee for INR _____

(_____ only) (figure in words).

1. We the _____ (Name of Bank) hereinafter referred to as "Bank" having our registered office at _____ (address of Bank) do hereby undertake and agree to indemnify and keep indemnified GMDC to extent of INR _____ (_____ only) (figures in words) against any losses, damage cost, charges and expenses caused to or suffered by or that may be caused or suffered by GMDC by reason of any breach or breaches by the Bidder of any of the terms and conditions contained in the said Bidding Document and unconditionally pay the amount claimed by GMDC on demand and without demur to the extent aforesaid.
2. We _____ (Name of Bank) do hereby undertake to pay the amounts due and payable under the guarantee without any demur merely on a demand by you stating that the amount claimed is due by way of loss or damage caused to or would be caused or suffered by you by reason of any breach by the said Bidder of any of the terms or conditions contained in the said Bidding Document by reason of the Bidder's failure to fulfill the conditions of said Bidding Document. Any such demand on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding INR _____.
3. We _____ (Name of Bank) further agree that GMDC shall be the sole judge of and as to whether the Bidder has committed any breach or breaches of terms and conditions of the said Bidding Document and the extent of loss, damages, costs, charges and expenses caused to or suffered by or that may cause to or suffered by GMDC on account hereof to the extent of the Bid Security required to be deposited by the Bidder in respect of the said document and the decision of GMDC that the Bidder has committed such breach or breaches and as to the amount or amounts of loss, damages, costs, charges, and expenses caused to or suffered by or that may be caused to or suffered by GMDC shall be final and binding on us.
4. We _____ (Name of Bank) further agree that guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance on the said Bidding Document and that it shall continue to be enforceable till you certify that terms and conditions of the said Bidding Document have been fully and properly carried out by the said Bidder and accordingly discharge the guarantee. Unless a demand or claim under this guaranteed is made on us in writing on or before the (date) _____ we shall be discharged from all liability under this guarantee.

5. We _____ (Name of Bank) further agree with you that you have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Bidding Document or to extend time of performance by the said Bidder from time to time or to postpone for any time or from time to time any of the powers exercisable by you against the said Bidder and to forbear or enforce any of the terms and conditions relating to the said Bidding Document and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said Bidder or for any forbearance act or omission on your part or any indulgence by you to the said Bidder or any such matter or thing whatsoever under the law relating to sureties would but for this provision have effect of so relieving us.
6. It shall not be necessary for GMDC to proceed against the Bidder before proceeding against the Bank and the Guarantee herein contained shall be enforceable against the Bank, notwithstanding any security which GMDC may have obtained from the Bidder at this time when proceeding are taken against Bank hereunder be outstanding or unrealized.
7. We _____ (Name of Bank) further undertake to unconditionally pay the amount claimed by GMDC merely on demand and without demur to the extent aforesaid.
8. We, the said Bank lastly undertake not to revoke this guarantee during its currency except with the previous consent of GMDC in writing.
9. This Guarantee will not be discharged due to the change in the constitution of the Bank or the said bidder.
10. The Bank has under its constitution power to give this guarantee and _____ Mr. _____ who has signed it on behalf of the Bank have authority to do so.

Yours faithfully

For.....

(Name of the Bank)

Notwithstanding anything contained hereinabove

- (I) Our liability under this Bank Guarantee shall not exceed **Rs** _____/-
(Rupees _____ only)
- (II) This Bank Guarantee is valid up to _____ (Date).
- (III) We are liable to pay the guarantee amount or any part thereof under this bank Guarantee only and only if you serve upon us a written claim or a demand on or before _____ (date).
- (IV) This bank guarantee is operative only when accompanied with SFMS advice from us.

Yours faithfully

For _____(Name of the Bank)

Yours faithfully

For.....

(Name of the Bank)

Please note the following details for Compulsory e-confirmation for Bank Guarantee through ICICI Bank through SFMS under our:

Gujarat Mineral Development Corporation Limited (GMDC)

132 Ft Ring Road, Near University Ground Vastrapur, Ahmedabad.

Bank Name: ICICI Bank Ltd

IFS Code: ICIC0000024

UIC GMDC530265584 for Field 7037 MT760

Annexure 17: Format for Bank Guarantee towards Performance Security

Name of the Bank :
Address :
Guarantee No :
Name of the Bidder : M/s _____
Date of Expiry :
Limit to liability : Rs _____/- (Rupees _____
only)

Ref: RFP bearing No. _____

Subject: Bank Guarantee towards Security Deposit.

Date.....2023

To,
General Manger (____),
Gujarat Mineral Development Corporation Ltd.
132 Ft Ring Road,
Near University Ground
Vastrapur,
Ahmedabad.

Dear Sir,

In consideration of Gujarat Mineral Development GMDC (hereinafter called "GMDC") which expression shall unless repugnant to the subject of context include his successors and assigns

having agreed to exempt M/s _____(hereinafter called "Bidder") from demand under the terms and conditions of "Technical Bid Document" (hereinafter called the said "Bidding Document") issued by the GMDC vide RFP _____ . **The present Bank Guarantee is towards Security Deposit (SD) of Bid in terms of Clause No. _____ of Chapter – _____ of the afore-said bidding document for the due fulfillment by the Bidder of the terms and conditions contained in the said Bidding Document on production of Bank Guarantee for Rs _____/- (Rupees _____ only)**

- 1) We the _____ (Name of the Bank) hereinafter referred to as "Bank" having our registered office at _____ do hereby undertake and agree to indemnify and keep indemnified GMDC to extent of **Rs _____/- (Rupees _____ only)** against any losses, damage cost, charges and expenses caused to or suffered by or that may be caused or suffered by GMDC by reason of any breach or breaches by the Bidder of any of the terms and conditions contained in the said Bidding Document and unconditionally pay the amount claimed by GMDC on demand and without demur to the extent aforesaid.
- 2) We _____ (Name of the Bank) do hereby undertake to pay the amounts due and payable under the guarantee without any demur merely on a demand by you stating that the amount claimed is due by way of loss or damage caused to or would be caused or suffered by you by reason of any breach by the said Bidder of any of the terms or conditions contained in the said Bidding Document by reason of the Bidder's failure to perform according to the terms and conditions of said Bidding Document. Any such demand on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding **Rs _____/- (Rupees _____ only)**.
- 3) We _____ (Name of the Bank) further agree that GMDC shall be the sole judge of and as to whether the Bidder has committed any breach or breaches of terms and conditions of the said Bidding Document and the extent of loss, damages, costs, charges and expenses caused to or suffered by or that may caused to or suffered by GMDC on account hereof to the extent of the Bid Security required to be deposited by the Bidder in respect of the said document and the decision of GMDC that the Bidder has committed such breach or breaches and as to the amount or amounts of loss, damages, costs, charges, and expenses caused to or suffered by or that may be caused to or suffered by GMDC shall be final and binding on us.
- 4) We _____ (Name of the Bank) undertake to pay to the GMDC any money so demanded notwithstanding any dispute or disputes raised by the said Bidder (s) in any suit or proceeding pending before any forum of law relating thereto our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the said Bidder (s) shall have no claim against us for making such payment.
- 5) We _____ (Name of the Bank) further agree that guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance on the said Bidding Document and that it shall continue to be enforceable till you certify that terms and conditions of the said Bidding Document have been fully and properly carried out by the said Bidder and accordingly discharge the guarantee. Unless a demand or claim under this guaranteed is made on us in writing on

or before the (date)_____we shall be discharged from all liability under this guarantee thereafter.

- 6) We _____ (Name of the Bank) further agree with you that you have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Bidding Document or to extend time of performance by the said Bidder from time to time or to postpone for any time or from time to time any of the powers exercisable by you against the said Bidder and to forbear or enforce any of the terms and conditions relating to the said Bidding Document and we shall not be relieved from our liability by reason of any such variation or extension being granted to the said Bidder or for any forbearance act or omission on your part or any indulgence by you to the said Bidder or any such matter or thing whatsoever under the law relating to sureties would but for this provision have effect of so relieving us. The Bank further agrees that in case this guarantee is required for a longer period, the bank may extend the same.
- 7) We _____ (Name of the Bank) further undertake to unconditionally pay the amount claimed by GMDC merely on demand and without demur to the extent aforesaid.
- 8) We, the said Bank lastly undertake not to revoke this guarantee during its currency except with the previous consent of GMDC in writing.
- 9) This Guarantee will not be discharged due to the change in the constitution of the Bank or the said Bidder.
- 10) The Bank has under its constitution power to give this guarantee and Mr. _____ who has signed it on behalf of the Bank have authority to do so.

Yours faithfully

For.....

(Name of the Bank)

Notwithstanding anything contained hereinabove

- (I) Our liability under this Bank Guarantee shall not exceed **Rs** _____/-
(Rupees _____ only)
- (II) This Bank Guarantee is valid up to _____ (Date).
- (III) We are liable to pay the guarantee amount or any part thereof under this bank Guarantee only and only if you serve upon us a written claim or a demand on or before _____ (date).
- (IV) This bank guarantee is operative only when accompanied with SFMS advice from us.

Yours faithfully

For _____(Name of the Bank)

Annexure 18: List of approved banks for EMD, RFP fees, and Performance Security

The following list of banks can get updated from time to time as per the latest notice provided by the Government of Gujarat. The Bidder can provide EMD / RFP Fee / Performance Security from any of the approved banks by the Government of Gujarat in the latest notice, except for the co-operative banks

**Acceptance of Bank Guarantee as
Security Deposit and Earnest
Money Deposit.**

Government of Gujarat

Finance Department

GR. No.: FD/MSM/e-file/4/2023/0057/D.M.O.

Date: 21/04/2023

Read: FD GR. No.: EMD/4/2022/0002/DMO Dt. 20/05/2022

Preamble:

Tendering authorities of the State Government and its Boards/Corporations/PSUs frequently take Bank Guarantee from the bidders towards Security Deposit and Earnest Money Deposit. The State Government had issued the list of eligible banks vide above read resolutions of this department dated 20/05/2022.

After careful consideration, the Government has decided to approve the list of Banks whose Bank Guarantees would be accepted for the purpose mentioned above. It has now been decided to resolve as follows:

Resolution:

Government Departments and State Government Boards / Corporations / PSUs would accept Bank Guarantee (towards Security Deposit and Earnest Money Deposit) issued by any of the banks included in the **Annexure I**, attached to this Resolution.

The tendering authority will be required to ascertain the authenticity of the Bank Guarantee and set up necessary internal control procedures.

By order and in the name of the Governor of Gujarat,


(S. Chhakehuak)

Additional Secretary (Budget)

Finance Department

To,
The Secretary to His Excellency Governor of Gujarat, Raj Bhavan, Gandhinagar
Principal Secretary to Hon. Chief Minister
PS to Hon. Finance Minister
PS to all Hon. Ministers, State Ministers and Deputy Ministers
PS to Chief Secretary
PS to Principal Secretary, Finance Department
PS to Secretary (EA), Finance Department
PS to Secretary (Expenditure), Finance Department
PS to Additional Secretary (B), Finance Department
All Administrative Departments, Sachivalaya, Gandhinagar
System Manager, Finance Department for put up on GSWAN website
Select File DMO-Finance Department

Annexure I.

Finance Department, GR. No.: FD/MSM/e-file/4/2023/0057/D.M.O.

Date: 21/04/2023

(A) Guarantees issued by the following banks will be accepted as SD/EMD on permanent basis:

❖ **All Nationalized Banks**

(B) Guarantees issued by the following Banks will be accepted as SD/EMD for the period up to March 31, 2024. The validity cut-off date in the GR is with respect to the date of issue of Bank Guarantee irrespective of the date of termination of Bank Guarantee.

Sr No	Name of Banks	Sr No	Name of Banks
1	AXIS Bank	17	Kotak Mahindra Bank
2	AU Small Finance Bank	18	South Indian Bank
3	Bandhan Bank	19	Standard Chartered Bank
4	BNP Paribas	20	Tamilnadu Mercantile Bank
5	City Union Bank	21	Utkarsh Small Finance Bank
6	CSB Bank	22	The Kalapur Commercial Co-op. Bank
7	DBS Bank India Limited	23	Ahmedabad Mercantile Co-op. Bank
8	DCB Bank	24	Nutan Nagarik Sahakari Bank Ltd.
9	Equitas Small Finance Bank	25	Rajkot Nagarik Sahakari Bank Ltd.
10	FEDERAL Bank	26	Saraswat Co-Operative Bank Ltd
11	HDFC Bank	27	SVC Co-Operative Bank LTD.
12	HSBC Bank	28	The Gujarat State Co-operative Bank
13	ICICI Bank	29	The Mehsana Urban Co-Op. Bank Ltd
14	IndusInd Bank	30	The Surat District Co-Operative Bank Ltd
15	Karnataka Bank	31	The Surat People's Co-Op. Bank Ltd
16	Karur Vysya Bank	32	Saurashtra Gramin Bank

All the eligible banks are instructed to collect the original documents/papers of guarantee from the concerned tendering authority.


(S. Chhakechhuak)

Additional Secretary (Budget)

Finance Department

-----XXXXX-----

Part 5: Draft Letter of Award (LoA)

Part 6: Draft Agreement