	COASTAL ENERGEN PVT LTD	RFQ REFERENCE
	(2X600MW Mutiara Thermal Power Plant) 4/36-D; Duraisampuram Post, Melamarudhur Village, Ottapidaram Tk., Tuticorin-628105. Tamilnadu.	RFQ/TG/May.22/433 dt 21/05/2022

Sub: Enquiry for Removal, Repairing & Re-blading of Stage 5 & 6 blades of LP-2 Turbine Unit -1. Turbine & Generator- 600 MW HTC make Turbine at MTPP - 2 x 600 MW Mutiara Thermal Power Plant, Tuticorin.

Technical Details

1. **Turbine** -N600-16.7/535/535 TYPE, 600MW CONDENSING REHEAT STEAM TURBINE, Rated Power (Rated Condition): 600MW, Rated speed : 3000r/min, Make: Harbin Turbine Company., Harbin, China.


SCOPE OF WORK FOR REMOVAL, REPAIRING & RE-BLADING OF LP-2 ROTOR UNIT #1

Stage-6 - Governing End

1. Removal of locking plates by grinding and sliding as applicable
2. Sliding of the blades along the axis stage by stage uniformly and bringing the whole lot of blades to the edge of the root portion
3. Removal of all blades individually with proper identification.
4. Inspection of Rotor disc and NDT inspection as applicable
5. Packing of blades and loading on truck for sending to repair facility.
6. Transportation of Blades to Repair Facility.
7. Repairing of LP 6th stage blades by Laser Cladding using Stellite.
8. Any machining to be done in blades shall be in vendor scope.
9. Blades Quality Checks at repair facility and Clearing of Blades for transportation.
10. Transportation of Blades from Repair Facility back to site and Unloading of blades at site
11. Fitting of blades in position as per the Identification mark.
12. Fixing of locking plates and welding them at the openings by using suitable electrodes. Proper WPS approval shall be obtained before commencing the work.
13. T&P for the Blades dismantling and Assembly

Stage-5- Governing end

1. Removal of locking plates by grinding and sliding as applicable
2. Sliding of the blades along the axis stage by stage uniformly and bringing the whole lot of blades to the edge of the root portion
3. Removal of all blades individually with proper identification
4. Inspection of Rotor disc and NDT inspection as applicable
5. Replacement of damaged blade with new one
6. MPI/UT of all blades and replacement of any other defective blades

	COASTAL ENERGEN PVT LTD	RFQ REFERENCE
	(2X600MW Mutiara Thermal Power Plant) 4/36-D; Duraisamipuram Post, Melamarudhur Village, Ottapidaram Tk., Tuticorin-628105. Tamilnadu.	RFQ/TG/May.22/433 dt 21/05/2022

7. Fitting of blades and sliding them in position as per the Identification mark.
8. Fixing of locking plates and welding them at the openings by using suitable electrodes. Proper WPS approval shall be obtained before commencing the work.
9. T&P for the Blades dismantling and Assembly
10. Any machining to be done in blades shall be in vendor scope.

RLA OF LP-2 ROTOR

MPI, DPT, microstructure Examination or any other suitable checks of LP Turbine blades to identify any deterioration of blade material and ascertain the root cause of 5th Stage blade failure.

SUPPLY OF BLADES & SPARES


1. Supply of Stage -6 Blade assembly spares and required consumables.
2. Supply of Stage- 5 Blades and assembly spares and required consumables.

SUPERVISION OF FINAL ASSEMBLY AND INSITU BALANCING.

1. Final assembly Checks of LP Turbine and Box up.
2. Slow speed balancing if required.
3. In-situ Balancing of Rotor if required.
4. Supply of Balancing weights as needed.
5. L3 Schedule.

PRICE BREAKUP

Sl. No	Description	UOM	Amount
1	Removal, Repairing, Re-blading of Stage -6 blade LP-2 Unit#1	LS	
2	Removal, Repairing, Re-blading of Stage -5 blade LP-2 Unit#1	LS	
3	Supervision of Final Assembly of LP-2 turbine and In-situ Balancing	LS	
4	Slow speed balancing if required.	LS	
5	In-situ / High Speed Balancing of Rotor if required.	LS	
6	Supply of Stage -6 Blade assembly spares and consumables required.	LS	
7	Supply of Stage- 5 Blades and assembly spares and consumables required	LS	
8	RLA of LP-2 Rotor	LS	

	COASTAL ENERGEN PVT LTD	RFQ REFERENCE
	(2X600MW Mutiara Thermal Power Plant) 4/36-D; Duraisamipuram Post, Melamarudhur Village, Ottapidaram Tk., Tuticorin-628105. Tamilnadu.	RFQ/TG/May.22/433 dt 21/05/2022

DELIVERABLE POINTS BY SERVICE PROVIDER:

- Guarantee for Material Supply, workmanship and Performance. In case of any defect the same shall be rectified at Contactors Risk and Cost.
- 72 hrs running in Steady vibration after synchronization of turbine and should be less than existing values.
- The TG running parameters shall be within the OEM recommended operating limits.

LD:

LD shall be applicable for the reason solely attributed to vendor subjected to Force majeure conditions. Recover from the Vendor ascertained and agreed, genuine pre-estimate liquidated damages, and not by way of penalty, a sum equivalent to 0.5% (of total value of order) per week or part thereof for each week's delay, beyond the schedule each subject to maximum of 5% of the total order value,


RISK PURCHASE CLAUSE:

If Service provider fails to complete/execute the Work after issuing of WO, We will deploy other vendors to complete the job at your risk and cost. Whatever be the differential amount coming over and above your order price shall be debited from the service provider account. (Risk purchase)

PAYMENT TERM:

The contractor shall raise separate running invoices in triplicate (Plus soft copy in Excel form indicating the part of works completed) every month to the Concerned Energen Engineer in respect to the work performed or completed during the month. The payment shall be made within 30 days of receipt of invoice complete in all respects subject to the following conditions:


1. Billing breakup for Supply:
 - 100% payment shall be made within 30 days from the date of receipt of materials at site.
2. Billing breakup for Service:
 - Mobilization advance- 10% of the order Value
 - Dismantling of 5 & 6 Stage blades -20 % of the order Value
 - Receipt of 6 Stage blades at site after repairing- 30 % of the order Value

	COASTAL ENERGEN PVT LTD	RFQ REFERENCE
	(2X600MW Mutiara Thermal Power Plant) 4/36-D; Duraisamipuram Post, Melamarudhur Village, Ottapidaram Tk., Tuticorin-628105. Tamilnadu.	RFQ/TG/May.22/433 dt 21/05/2022


- LP turbine box & Final alignment and coupling of rotor - 20% of the order Value
- Rolling of turbine - 10%. of the order Value
- 10% amount as retention for defect liability and shall be released after completion of three months from the date of synchronization and successful trail run i.e 72 hrs running in steady vibration after synchronization of turbine.

GENERAL TERMS AND CONDITIONS:

- Submission of documents informing the list of site in-charge, supervisors, manpower details, list of tools & tackles, vehicles, equipment's etc. prior to clearing the first RA Bill.
- Contractor shall commence the work after getting PTW (Permit to work) from Energen. Any violation of the process shall entail penalties which shall be debited directly to the Bills/Invoices.
- All works method statement, JSA & HIRA is to be submitted by contractor to M/s. Energen for review/approval.
- Contractor shall deploy necessary technical & safety personnel for supervision of works.
- Inspection to be offered to Energen Engineer at all the stages and recording of observations/readings to be maintained in the form of field register/protocol.
- Contractor shall provide necessary safety equipment's (PPE) eg. Gloves, goggles, safety belts, safety helmets, etc. as per existing norms/factories act to its employees/workers as and when required. Penalty shall be levied on workmen not using the safety devices during the course of work and directly debited in the Bills / invoices.
- Scaffolding materials and installation of scaffolding/staging required for the above services shall be in contractor's scope. Scaffolding erection to be initiated after getting due approval from Energen Engineer for its Quantity/Quality/Stability.
- All lifting tools shall be tested, calibrated and certificates shall be produced before commencing of job.

	COASTAL ENERGEN PVT LTD	RFQ REFERENCE
	(2X600MW Mutiara Thermal Power Plant) 4/36-D; Duraisamipuram Post, Melamarudhur Village, Ottapidaram Tk., Tuticorin-628105. Tamilnadu.	RFQ/TG/May.22/433 dt 21/05/2022

- All necessary stage-wise inspection to be carried out based on approved ITP.
- Erected scaffolding to be certified for its fitness & shall be approved by Energen safety personnel.
- The measurement sheet shall be prepared and submitted to Energen for certification. After completion of work shall be submitted.
- Housekeeping shall be ensured in working areas on daily basis. Area of works shall be maintained clean of debris, scrap etc immediately and not accumulated at work spot.
- The wastages like consumables; debris etc will be removed from the working places after completion of job.
- In the event of any injury or loss of life to any Worker / Staff due to any Negligence, Energen shall not responsible for the same. The entire responsibility lies with the Service Agency. Service Agency is liable to pay the total compensation and all incidentals Cost arising out of such incident, if any and indemnify Energen.
- Contractor shall arrange necessary protection for HT cable from any damages during the works. The works carried out shall not damage the equipment / affect the plant operations at any moment. Stringent action shall be meted out in the event of any damages to the running equipment's.
- Work fronts clearance shall be issued subject to availability
- All the necessary Consumables in all aspects will be in service provider's scope i.e. Cutting/Grinding machine, cutting wheel, Gas Cutter, Gas Cylinder, Welding Rods, Welding Machine...etc. whichever required.
- Workmen compensation like ESI, PF, and Insurance etc shall be followed as per statutory regulations. Payment certificate towards wages, ESI, PF challan and PF remittance etc. shall be submitted periodically to Energen.
- All COVID 19 safety precautions like Social Distancing, Mask etc shall be followed.
- Site Premises shall be treated as "plastic free zone"
- Power Supply at one-point shall be made available by Energen @Free of Cost
- Boarding/Lodging, Food & Accommodation, Transportation in bidder scope.
- Hydra shall be in bidder scope. If required Energen shall provide Hydra based on availability on chargeable basis. Same shall be debited from RA/final bills.

	COASTAL ENERGEN PVT LTD	RFQ REFERENCE
	(2X600MW Mutiara Thermal Power Plant) 4/36-D; Duraisamipuram Post, Melamarudhur Village, Ottapidaram Tk., Tuticorin-628105. Tamilnadu.	RFQ/TG/May.22/433 dt 21/05/2022

Pre-Qualification Criteria.

- Bidder should have average annual turnover of minimum Rs 3 crores, during three consecutive financial years and should have positive net worth as on latest audited accounts.
- Bidder must have earned profit in three consecutive financial years.
- Bidder should have executed at least one job "Re-blading and assembly of LP turbine including re-blading of rating 600 MW or atleast above 300 MW LMZ/Harbin/Dongfong/Shangahi set in any Industrial project in last 5 years.
- Relevant supporting document from end user shall be submitted.
- Joint venture bidding (Reputed turbine manufacturer) is allowed.
- Consideration of offer will be subject to owner's approval.
- Bidder should have Design, Engineering & Manufacturing facility in India or supply agreement with reputed OEM.
- Bidder should stand workmanship guarantee for 1 years.
- Relevant documents for the above said perquisites shall be submitted along with your offer.

NOTE:

1. Existing manpower who are already working inside CEPL site premises shall not be engaged to carry out this Job.
2. Supplier/service providers are requested to visit site & meet the below 2 technical persons for job planning/execution if any query or clarification.

<u>For technical queries please contact.</u>	<u>For Commercial Queries Please Contact.</u>
Mr. T Gopinarayanan (DGM-Mechanical); Mob: 95000 36988	Mr. Jeyakannan (AGM - Procurement); Mob: 91599 39425

For & On behalf of Coastal Energen

Jeyakannan
(Head - Procurement & Stores, CEPL)