

ASSAM POWER GENERATION CORPORATION LIMITED

Office of the Chief General Manager, APGCL (Generation)
Bijulee Bhawan, 3rd Floor, Paltanbazar , Guwahati-1: Assam

CIN: U40101AS2003SGC007239

Phone /Fax no: 0361-2739546 E-mail: cgm-g@apgcl.com



TENDER NO: TENDER NO: APGCL/CGM (G)/LTPS(R&M)/Overhauling of Unit-6/109 (AH)/3 of 2015-16

Name of Work:

**Major Inspection of GE/BHEL make Frame-V Gas Turbine Unit
no.6, at LTPS, APGCL, Maibella**

Serial No.

.....
Signature and Seal of the Issuing Officer

Cost of Tender: Rs. 1000/-

Assam Power Generation Corporation Limited

NOTICE INVITING BID

TENDER NO: APGCL/CGM (G)/LTPS(R&M)/Overhauling of Unit-6/109 (AH)/3 of 2015-16

Invitee	The Chief General Manager (Gen), APGCL, Bijulee Bhawan, Paltan Bazar, Ghy-1.
Name of work	Major Inspection of GE/BHEL make Frame-V Gas Turbine Unit no. 6 at LTPS, APGCL, Maibella
Eligibility of the bidder	The bidder must have sufficient experience in carrying out major overhauling works of GE/BHEL make Frame-5 Gas Turbine Units and must fulfill all the criteria stipulated in the tender.
Tender fee (Non-refundable)	Rs. 1000/- (Rupees one thousand only) in the shape of Demand Draft duly pledged in favour of the Asstt. Manager (Accts.), LTPS, APGCL, Maibella-785689.
Earnest Money Deposit (EMD)	Rs. 80,000/- (Rupees eighty thousand only) in the shape of Demand Draft of any Nationalized Bank, duly pledged in favour of the Asstt. Manager (Accts.), LTPS, APGCL, Maibella- 785689.
Start date of issue of Tender Paper	From 26/02/16
Date of Pre-Bid Discussion	15/03/16 at 11.00 hrs , to be held in the Office Chamber of General Manager, LTPS, Maibella.
Last date of bid submission	Up to 15.00 hrs of 28.03.2016
Date of Tender Opening: Technical Bid: Price Bid:	At 15.30 hrs on. 28.03.2016. To be intimated after evaluation of Technical bid.

Note: Bidder may also download the Tender Document from the website www.apgcl.org in which case the tender fee has to be submitted along with the technical part of the submitted bid.

Chief General Manager (Gen),
APGCL, Guwahati.

(A) OBJECTIVE:

Lakwa Thermal Power Station is a Gas Based Power Plant with total installed capacity of 157.2 MW. It has three power houses-Phase-I, II & III. Phase-I comprises of 04 nos. of gas turbines (open cycle units) & Phase-II comprises of 03 nos. of gas turbines, running in combined cycle.

The Gas Turbines of Phase-II Power House are of GE/BHEL make, Model: MS 5001, each of installed capacity of 20 MW. The control system used with these GTs is Spedtronic Mark-IV Control system. Presently, it is intended to undergo Major Overhauling of one of these GE/BHEL make gas turbine unit, GT Unit no. 6, at Phase-II Power House of LTPS through third party outsourcing. The overhauling shall comprise of activities related to Mechanical, Electrical & Instrumentation works.

(B) BRIEF DESCRIPTION OF THE MACHINES:

It is a combine cycle, Single Shaft Gas Turbine which drives a 20 MW generator through one reduction gear box. The starting mechanism of the turbine unit is a turbocharged six cylinder inline Diesel Engine which transmits initial rotating torque to the turbine through torque convertor, hydraulic clutch system and Auxiliary Gear Box. The Auxiliary component of the turbine consists of ___

- | | |
|-----------------------------------------|-------------|
| a) Lube Oil Pump | = 03 nos. |
| b) Hydraulic Oil Pump | = 02 nos. |
| c) Lube Oil Cooler | = 02 nos. |
| d) Lube Oil Filter Unit | = 02 units. |
| e) Trip Oil Filter | = 02 nos. |
| f) Hydraulic Oil Filter | = 02 nos. |
| g) Ratchet Mechanism | = 01 no. |
| h) Vapour Extractor fan | = 01 no. |
| i) Cooling Tower (cooling water module) | = 1 unit. |

The Air Inlet System consist of air filter house with 360 nos. filter elements, duct with silencer and the turbine exhaust system has a duct with silencer and by-pass exhaust stack.

(C) INTENT OF SPECIFICATION:

This tender specification is intended to furnish the technical specification/information related to the overhauling work of the Turbo generator Unit as well as to inform other commercial requirements to be furnished/fulfilled by the bidders along with their bid documents.

(D) ELIGIBILITY OF BIDDER:

(i) The bidder must have sufficient experience in the field of carrying out major overhauling works of GE/BHEL make Frame-5 Gas Turbine Units. The bidder must have successfully executed at least 05 nos. of GE Frame-V Gas Turbine Overhauling works out of which at least 02(two) nos. should be during last 02(two) years. Documentary evidence for such past work, i.e., Work Order Copy and Work Completion Certificate, along with clients' comment in original or attested copy by Gazetted Officer regarding the performance of such overhauling works must be furnished in the technical part of the Bid, in absence of which the bidder's past experience in this regard shall not be taken into consideration. Further, the intending bidder must fulfill all the requisite clauses of tender.

(ii) The bidder must have financial capability for executing overhauling works. Bidder is to produce documentary evidence on carrying out of major overhauling work of GT worth Rs.1.0 (One) Crore in last 03(three) years with the technical bid.

(iii) In addition to clauses D (i) & D (ii), the bidder must have Net Profit of minimum Rs. 50 lakhs during the last financial year. Audited balance sheet & profit and loss statements of last financial year (2014-15) must be furnished along with the technical bid. The actual financial capability of the bidder shall be assessed by APGCL during bid evaluation.

(iv) The bidder must be a single entity experienced firm or a partnership firm. In case of a partnership firm, the judicial agreement of the parent firm with the partnership firm has to be submitted in original. However, the parent firm shall have to satisfy the terms and conditions as laid down in the bid document as well as the terms of the experience criteria. Only the parent firm shall be responsible related to the terms and condition of the bid.

(E) GENERAL INSTRUCTIONS TO THE BIDDER:

1) One set of Bidding document (Tender document) will be issued to intending bidder on submission of Rs. 1000/- (Rupees one thousand only) in the shape of Demand Draft duly pledged in favour of the **Asstt. Manager (Acct.), LTPS, APGCL, Maibella**. The Tender document may also be downloaded from the APGCL's website (www.apgcl.org) in which case the Tender fee has to be submitted along with the Technical Bid in the shape of Demand Draft duly pledged in favour of **Asstt. Manager (Accounts), LTPS, APGCL, Maibella, payable at Lakwa TPP Branch, SBI, Maibella**. **Bidder shall submit tender document duly signed and stamped on each page of tender in token of his acceptance along with his bid.**

2) The bid shall be completed in two bid system as directed below:
Technical & un-priced commercial part – **Technical bid.**
Priced commercial part – **Price bid.**

3) Page number in the bottom of the entire bid document is mandatory.

4) Pre bid discussion – The bidder or their authorized agent (with documentary proof) may participate in the pre bid discussion. The clarification if any during the pre bid discussion from APGCL end will be noted/recorded. The correction or modification in the pre bid discussion will be binding to all the bidders and the same shall be uploaded on APGCL'S website.

5) Technical and Un-priced Part – Technical Bid:

This part shall contain technical and commercial (Un-priced) bid and shall have to contain the following as mentioned below. This envelop shall comprise the signed copy of bidding document (Tender document), Drawings, Addendum (if any).

Techno-commercial bid disclosing price shall be summarily rejected.

a) Bidding document (Tender document) and Earnest Money Deposit (EMD) in original and its details.

b) Power of Attorney in favor of authorized signatory of the Bidding document.

c) Organization details –

- In case of a proprietorship firm, the name & address of the proprietor and attested copy of 'Certificate of registration of the Firm'.
- In case of a partnership firm, attested copy of the partnership deed.
- In case a company (whether private or public), attested copy of 'Certificate of Incorporation' together with attested Memorandum / Articles of Association.

d) Technical offer required as per bidding document.

e) Any other relevant document, bidder desires to submit.

6) Priced Commercial Part – Price Bid:

Priced commercial part shall contain "Offered Price" dully filled in two copies i.e. one ORIGINAL COPY and one DUPLICATE COPY, shall be submitted. Priced part shall have to include all taxes and duties. No stipulation, deviation, terms and conditions, presumption, etc shall be stipulated in Priced part of bid. APGCL shall not take cognizance of any such statement and may at their discretion reject such price bids.

7) Submission of Bid:

Technical & Un-priced and Priced part must be submitted in two separate **sealed** envelopes. The two sealed envelopes of both un-priced and priced parts shall have to be put to an outer cover which is also to be sealed. The outer cover should duly bear the Tender Number, date and time of opening of the bid along with address of the office.

Part-I: Technical and un-priced part:

The envelope shall have following information clearly written on the outside of the envelope, failing which APGCL will assume no responsibility for the misplacement or premature opening of the bid.

Sealed Technical and un-priced part - Technical Bid)

Tender Name:

Tender No:

Due date & time of opening:

Name & address of Bidder:

Note: Original Earnest Money Deposit (EMD) shall be enclosed in this part.

Part-II: Priced Part:

This part of the bid shall contain the Price bid with Offered Price of the item filled in all respects and other information specially requested for submission of price part. The following information shall have to be clearly written on outside of the envelope, failing which APGCL will assume no responsibility for the misplacement or premature opening of the bid.

(Priced commercial Part – Price Bid)

Tender Name:

Tender No:

Due date & time of opening:

Name & address of Bidder:

Note: This part of Bid will be submitted in original plus one copy in duplicate.

8) Date, Time & Place of Submission:

(a) Bid must be submitted by the due date and time mentioned in the Notice Inviting Tender or any extension thereof as duly notified in writing by APGCL at any one of the following addresses. Address to which bids are to be sent (by Speed Post/Courier/Regd. Post/By Hand, etc):

(i) (By Speed /Registered Post)

***The General Manager, LTPS, APGCL, Maibella,
P.O.-Suffry, Dist. Sivasagar, Assam, PIN-785 689.***

(ii) (By DTDC/Blue dart Courier)

***The General Manager, LTPS, APGCL, Maibella,
P.O.-Sonari, Dist. Sivasagar, Assam, PIN-785 690.Phone: (03772- 254322)***

(b) Bid received after the time and date fixed for receipt of bid is liable for rejection.

9) BID Opening:

(a) Opening of Techno-commercial & Un-priced Part of Bid:

i) On the date and time mentioned in 'Notice Inviting Tender', the Technical and Un-priced Commercial Part will be opened in the office of the General Manager, LTPS, APGCL, Maibella, P.O.-Suffry, Dist. Sivasagar, Assam, Pin-785 689.

ii) In the event the specified date of bid opening is declared a holiday for APGCL, the bid shall be opened on the next working day at the specified time and location.

iii) Clarification and Additional Information: During evaluation, APGCL may request bidder for any clarification on the bid, additional or outstanding documents. Bidder shall submit all additional documents in one original and one copy, duly signed. However, seeking clarification shall be on sole discretion of APGCL.

iv) Bid of the bidder who submits the required EMD shall be taken up for detailed evaluation.

v) During pre bid discussion, Techno-commercial discretions with bidder shall be arranged. If needed, bidder shall depute authorized representative(s) for attending the discussion. The representative(s) attending the discussions shall produce authorization from the organization to attend the discussions and sign the minutes on behalf of the organization. The authorized representative(s) must be competent and empowered to settle all technical and commercial issues.

(b) Opening of Priced part of the Bid:

Price Commercial Part will be opened of only those bidders whose bids are considered Techno-commercially acceptable.

(c) BID Evaluation Criteria:

Techno-commercial Part:

(i) The Techno-commercial Part of bid shall be evaluated as per bid evaluation criteria stipulated below:

(a) All necessary supporting documents in relation with experience and eligibility of the bidder. These include-Past Work Order & Work Completion Certificate copies, audited balance sheet and profit & loss statements and any other relevant document.

- (b) Acceptance of bidder to all scope of work along with other technical requirements and clauses stipulated in this tender.
- (c) Submission of complete work schedule with breakup of activities along with details of manpower engagement.
- (d) The bid must be accompanied with EMD as specified in the tender.
- (ii) **Deviation to critical stipulation:**
Deviations to critical stipulations of bidding document as mentioned below are not acceptable. Bidder taking deviations to the following bid stipulations may not be considered for price bid opening.
 - a. EMD.
 - b. Guarantee Clause.
 - c. Performance Bank Guarantee.
 - d. Firm Price.
 - e. Payment terms.
 - f. Compensation for delay (LD).
 - g. Security Deposit.
 - h. PAN, valid Sales Tax Registration Certificate/GRN/WC-II and valid Service Tax Registration Certificate.
 - i. Experience/Eligibility Criteria.
 - j. Acceptance to safety guidelines of this tender.
- iii) Bidders must ensure that complete bid along with all details as sought are submitted as per provisions of the bidding document.
- iv) Bid Rejection Criteria: The bids must conform to the specifications and terms and conditions of this tender. Bids shall be rejected in case the item (s) offered do not conform to the required minimum/maximum parameters stipulated in the technical specifications and to the respective international/ national standards wherever stipulated. Vendors would be qualified based on data and documents provided by them
- v) If any of the clauses of the Bid rejection criteria/ Bid evaluation criteria (BEC/BRC) contradict or if any clauses of this tender contradicts with the clauses of the document- "General Terms and Conditions for Supply & Erection of APGCL", then in that case, the clauses of this tender shall prevail.

Price Part:

The 'Offered Price' and its break up quoted by the bidder shall be taken up for evaluation on overall basis. Price breakup material supply if any to be shown separately from work part for assessment of service tax. Price bids containing additional qualifications not mentioned in Techno-commercial Part of the bid shall be summarily rejected.

(d) OWNER'S RIGHT TO ACCEPT OR REJECT A BID:

APGCL reserves the right to accept a bid other than the lowest and to accept or reject any bid in whole or part, or to reject all bids with or without notice or reasons. Such decisions by APGCL shall bear no liability whatsoever consequence upon such decisions.

(e) Award of Supply:

(i) The bidder whose bid is accepted by APGCL shall be issued Confirmed Order/Letter of Intent prior to expiry of bid validity. Bidder shall confirm acceptance by returning a signed copy of the Order within 10 (Ten) days from the date of issue of Confirmed order.

(ii) APGCL shall not be obliged to furnish any information / clarification / explanation to the unsuccessful bidders as regards of non-acceptance of their bids. Except for refund of EMD (without interest) to unsuccessful bidder, APGCL shall correspond only with the successful bidder.

(f) Exceptions and Deviations:

EXCEPTION AND DEVIATION PROFORMA

SI.No.	Ref of Bid Document		Subject	Deviations
	Page No.	Clause No.		

NOTE: Bidders are advised not to stipulate any deviation(s) / condition(s) and to confirm compliance to tender conditions in Toto. However, in the event of bidder seeking any deviation(s) other than the clause 9(c)(ii), the same should be submitted separately for commercial and technical sections strictly as per the format given above, otherwise, the same shall not be considered and it will be presumed that the bidder has accepted all terms and conditions of the tender.

Tender Name:

Tender No:

Signature:

Company Seal:

(g) Location:

The location of work shall be in Gas Turbine Unit no. 6 at Phase-II Power House of LTPS, APGCL, Maibella.

(F) SCOPE OF WORK OF BIDDER:

(I) Pre-Shutdown Activity

1. Recording of all operating parameters at base load and no load condition
2. All preparatory activity related to shutdown
3. Complete mobilization of man and materials at site.

(II) Shutdown Activity

4. Removal of load coupling guard and decouple
5. Check initial alignment between LGB and Turbine
6. Remove Accessory coupling guard and decouple
7. Check initial alignments between AGB and Turbine
8. Removal of exhaust, Turbine Compartment Fans, Roofs and Side panels
9. Removal of Flame Detectors and spark plugs
10. Removal of wheel space thermo couples
11. Removal of Gas , water/steam and atomizing air lines
12. Removal of liquid fuel/Purge tubing's
13. Removal of Cooling and sealing air lines
14. Removal of Fuel Nozzles , can covers
15. Removal of Crossfire tubes, retainers and liners
16. Removal of false start drain lines
17. Removal of Combustion Cans
18. Removal of Fwd flex seals and Fwd. C Wall
19. Take initial compressor rotor positioning checks
20. Provide support jacks under GT
21. Remove inlet elbow, transition piece and inlet plenum
22. Removal of Turbine casing bolts and U/H Turbine casing
23. Removal of Transition Pieces and check stage # 1 nozzle radial concentricity check
24. Removal of 1st stage support ring and Nozzle (top half)
25. Removal of compressor casing
26. Removal of exhaust diffuser and slide towards LGB end to facilitate easy removal of exhaust casing.
27. Removal of exhaust casing
28. Removal of inlet casing
29. Removal of compressor discharge casing
30. Removal of inner CDC
31. Take rotor thrust float
32. Measure and record initial Turbine Clearances and compressor clearances
33. Dis-assemble Brg.1 and 2 and take initial clearances
34. Rig and remove rotor
35. Removal of stage # 1 nozzle bottom half and 2nd stage Nozzles
36. Removal of stage # 1 and 2 buckets
37. Removal of stage # 1 and 2 shrouds

Clean/Inspect the following

38. Fuel nozzles and Check Valves
39. Liners, Transition pieces, Crossfire tubes and Retainers (NDT)
40. 1st and 2nd Stage Nozzles (NDT)
41. 1st and 2nd Stage Buckets (Zyglo)
42. 1st and 2nd Stage Shrouds
43. IGV Inspection (NDT)
44. Inspect 1 and 2 bearing and seals
45. Compressor stator vanes and rotor blades (NDT)

Parts Replacement

46. Stage # 1 and 2 Buckets
47. Stage # 1 and 2 shrouds
48. Stage # 1 and 2 nozzles
49. Replacement of IGV
50. Stator vanes pinning if required
51. Replacement of HP seal if required

Machining/ Drilling work

52. Cleaning all tapped holes
53. Removal of broken bolts / tapping can bolts
54. Stage #1 and 2 shrouds

Assembly

55. Install stage # 2 Nozzle segments, radial pins and stage #1 nozzle bottom half
56. Check wheel space thermocouples entry into stage # 2 nozzle segments
57. Reassemble both bearings bottom half
58. Rig and position the rotor
59. Reassemble both bearings and check rotor thrust float
60. Check final compressor and Turbine clearance
61. Install inner compressor discharge casing
62. Install compressor discharge casing
63. Install compressor inlet casing
64. Install compressor casing
65. Install exhaust casing
66. Install exhaust diffuser
67. Install stage #1 nozzle support ring, stage # 1 nozzle top half
68. Recheck stage #1 nozzle radial concentricity and adjust
69. Install transition pieces
70. Install turbine casing
71. Removal of support jacks underneath casings
72. Take final compressor rotor positioning checks
73. Install inlet plenum
74. Install transition pieces and inlet elbow
75. Install Fwd and Aft flex seals
76. Install wheel space thermocouples and wiring
77. Re-assemble Combustion cans and align
78. Install false start drain lines
79. Install liners x-fire tubes and retainers
80. Install combustion can covers and fuel nozzles
81. Install spark plugs and flame detectors
82. Install cooling and sealing air lines
83. Install check valves and tubing's
84. Install gas, water/steam lines, atomizing air lines
85. Install exhaust roof, turbine compartment roofs and side panels
86. Check alignment between turbine to AGB and correct
87. Install coupling and coupling guard

88. Check alignment between turbine to LGB and correct
89. Clean Up, visual inspection and Pre-Start Checks
90. FSNL and Load

(III) GEARBOX WORK SCOPE

Aux. Gear Box and Main Oil Pump

91. Disassembly of oil deflectors of shaft I
92. Disassembly of aux. coupling flange bolts
93. Disassembly of water pump, hydraulic pump, warren pump and atomizing air comp. from the aux. Gear Box
94. Removing the aux. Gear Box
95. Taking out of gear trains from the Gear box
96. Taking out of MOP bearings
97. Taking out of MOP gears
98. Inspection of the MOP gears and bearings, replacement if required
99. Replacing the hydraulic P/P coupling and oil seal
100. Inspection of all the bearing of shaft-1,2,3A,3B and 4
101. Replacing the shafts if gear backlash is found beyond acceptable limits
102. Assembly of Gear Box
103. Re-fixing of the accessories like waterP/P, Main Oil P/P, Atom air Compressor, Hydraulic pump etc. in position
104. Checking of bolt on speed overhauling and replacement of its seal if required
105. Checking of starting clutch bearing, replacement if required
106. Aligning the AGB to GT and AGB to Starting motor/ diesel engine

Load Gear box (LGB)

107. Decoupling offload gear shafts from turbine and generator side
108. Opening of the top cover of Load Gear Box
109. Removal of high speed gears
110. Removal of intermediate housing
111. Removal of low speed gear
112. Inspection of oil seals
113. Inspection of all bearings and seals and clearances are measured
114. Replacement of bearings and seals if required
115. Fixing of intermediate housing
116. Placement of high speed gear
117. Boxing up of the top cover
118. Aligning the LGB to Turbine and Generator
119. Assembly of the coupling bolts on both turbines and generator side

(IV) Generator Work scope

Disassembly

120. Recording of Polarization Index of Generator Stator and Rotor as found before dismantling.
121. Remove coupling guard and check run out on Gen-LGB coupling flanges
122. Removing enclosures and bus bars
123. Remove GAG if applicable
124. Remove exciter bearing and check run out and loading
125. Remove Exciter yoke and Check Run out
126. Disassemble exciter rotor
127. Remove generator both end covers
128. Check fan clearances and remove fan guards
129. Remove bearing upper housing, bearing and check Bearing and seal clearances
130. Prepare for generator rotor thread out
131. Thread out rotor

Cleaning and Inspection

Stator

132. Cleaning of winding/ core/end covers
133. Checking of Stator Core looseness/ condition of teeth/rusting etc
134. Visual inspection of ventilation passages for any blockages
135. Check tightness of overhangs and Inspection of overhangs bracings and tying
136. Visual Inspection of slot discharges
137. ELCID test of Stator Core.
138. Checking of RTDs healthiness
139. Inspection and cleaning of heat exchangers for closed circuit generator cooling air
140. Dismantling, cleaning and inspection of duct breathers and breather lines.
141. Measurement and necessary improvement of IR & PI of stator winding.

Rotor

142. Rotor cleaning and inspection
143. Visual inspection of journals and polishing
144. Conducting of Ultrasonic and DP test on retaining rings/journals and fan blades
145. Checking of worn out surfaces due to labyrinths/scrapper
146. Visual inspection of rotor slot emerging faces and ventilation holes blockages
147. Checking and locking of all rotor plugs and balancing weights
148. Varnishing of rotor with Becktol Red
149. Measurement and necessary improvement of IR rotor.

Exciter

150. Checking of contacts-input pins for their tolerances
151. Checking of DC connecting leads and earth-fault monitor
152. Inspection of Yoke and Armature
153. Inspection of Permanent Magnet Generator (PMG). QA coils, main poles and its locking
154. Checking of Diodes and Fuses
155. Checking of Armature shafts journals/ Polishing/Cleaning entire Exciter if necessary by removing parts, etc.
156. Insulation checks of Bearing housing of Exciter/ Bearing Pedestal

Bearings

157. Checking of General condition of bearings
158. Blue matching/ suiting and dimensional measurement of bearings
159. Dye-penetrant (DP) and Ultrasonic Tests on Babbitt surface
160. Checking of bearing oil seals/ scrapers and repairs/ replacement (if required)
161. Checking of Bearing RTD
162. Checking of Bearing Insulation/ Replacement (if required)
163. Bearing bedding, loading and interference checks.

Coolers and Filters

164. Removal and cleaning/ replacement of oil filters
165. Chemical cleaning of oil and water cooler.

Dismantling, Cleaning & Assembly of Rotating Diode Wheel

166. Unlock, unbolt and removal of all 18 nos. diode fuses, 18 nos. diodes special designed spanner and 06 nos. RC blocks.
167. Unbolt & removal of 06 nos. bus bars & their insulations and 24 nos. heat sinks, Cleaning of bus bars & insulations.
168. Cleaning of diode wheel cover & other accessories by suitable solvent.
169. Cleaning & removal of carbon from diodes, RC blocks, heat sinks & DC Bus Bars, etc.
170. Checking healthiness of RC blocks, diodes & fuses and replace if found abnormal.
171. Installation, connection & locking of RC block & measurement of IR of individual block.
172. Installation of heat sinks and measurement of IR of each heat sink.
173. Installation & connection of all diodes.
174. Installation & locking of all diode fuses.

(V) Control & Instrumentation Section:

- (VI) Removal and re-fixing of all mounted Pressure and Temperature Gages in the GT. Calibration check and correction (wherever required) of these Pressure and Temperature Gages.
- (VII) Removal and re-fixing of all mounted Pressure and Temperature Switches in the GT. Calibration check and correction (wherever required) of these Pressure and Temperature Switches.
- (VIII) Calibration check and correction (wherever required) of Pressure Transducers.
- (IX) Removal and re-fixing of Wheel space Thermocouples, Turbine Exhaust Thermocouples and Brg. Drain Thermocouples in the GT. Healthiness check of all these thermocouples by measuring the milli volt outputs at a range of temperatures. Repairing of junction boxes (wherever required).
- (X) Operation check of both Gas Stop/Speed Ratio & Gas Control Valves and correcting for any error, if detected. This shall include measuring the positions of the valves with dial gage at 0.00%, 50.00% & 100.00% opening of the valves and comparing the readings with that on Mark-IV panel. Necessary correction shall be done by bidder for any error (if detected).

- (XI) Removal and refixing of spark plugs and flame scanners. Healthiness check of these spark plugs and flame scanners.
- (XII) Checking the operation of IGV and physically measuring its angles & comparing the result with the reading on Mark-IV panel. Necessary corrective measures (wherever required) like LVDT adjustments and so on shall be at bidder's scope. The Hydraulic Cylinder of the IGV shall also be removed and refitted after necessary checking for its physical condition.
- (XIII) Removal & refixing of bleed valve limit switches. Checking the operation of Bleed Valves and rectifying for any erroneous operation (if detected).
- (XIV) Removal & refixing of vibration transducers with their cables. Checking the healthiness of vibration transducers and their cables.
- (XV) Removal & refixing of GT Speed Probes along with its junction box.
- (XVI) Removal & refixing of Generator Bearing RTDs.

Note: For the above stated calibration works, bidder must arrange to bring their own calibrating instruments and master gages to LTPS site. Also, any addition work that may be required to execute the above instrumentation section works during the overhauling shall entirely be at bidder's scope with no additional charge.

Assembly

- (XVII) Install rotor
- (XVIII) Bearing loading
- (XIX) Check alignment between Gen and LGB and correction
- (XX) Check generator Air gap and correction
- (XXI) Install fan guards and adjust fan clearances
- (XXII) Install of End covers
- (XXIII) Check bearings and seal clearances and assembly of Bearing upper half housings
- (XXIV) Assembly of Exciter yoke
- (XXV) Exciter air gap checks and correction
- (XXVI) Exciter bearing loading check and correction
- (XXVII) Coupling Gen to LGB
- (XXVIII) Install enclosures and bus bars
- (XXIX) Install GAG if applicable
- (XXX) Clean up, visual inspection, pretest and start up checks

Additional Activities:

- (a) Cooling Tower (cooling water module) chemical cleaning followed by hydro jet/Bullet and inspection/checking etc.**
- (b) Cleaning of both the lube oil coolers, draining out of lube oil including filter assembly and cleaning of the oil compartment. Refilling of lube oil to the entire system with proper centrifuging.**

Any activities or works which is not covered in the above scope of work but requires to be carried out for the overhauling and commissioning purposes will also be under the scope of bidder without any / extra cost involvement. All the works are to be performed to the full satisfaction of APGCL.

(VI) Post Shutdown Activity:

1. Recording of operating parameters in no-load full speed and base load during the trial run are to be recorded. The bidder is to ensure proper performance of the GT unit during the trial run and during guarantee period. All operating parameters shall be within the available limit as per the OEM's guideline. Corrective action if any shall have to be performed by the bidder without any cost involvement.
2. Cleaning / Clearing of site

(VII) Report:

The bidder after completion and proper commissioning of the unit has to submit report (2 Sets) on detail overhauling activities with various clearances, parameters etc. along with two hard copies and one soft copy of the report to be submitted.

(F) EQUIPMENT, TOOLS ,MANPOWER AND CONSUMABLES:

(i) BIDDER'S SCOPE:

- a)** All types of tools including lifting slings/ropes, machines, equipments, testing and repairing instruments, air compressors that will be needed for carrying out the

complete overhauling. Bidder is to furnish details of equipments & machineries including tool list.

b) All consumables such as waste Cotton, Markin cloth, Anti seize compound, detergent, cleaning oil, cleaning compound, DP Test chemical, gases, welding electrodes and filler rod, sealing compound, STP compound, M- seal, Lead wires of different sizes, Gaskets, etc.

c) All consumables such as cleaning compound, varnish, anti-track paint etc.

d) Manpower: Furnishing of complete man power strength with technical engineering supervisory staff to be furnished as per attached **Annexure-B**. The successful bidder is to furnish the detail particular of the manpower including engineering staff immediately after receipt of order. Complete bio-data with identity card of each manpower as per the list shall have to be furnished prior to start of work. Any deviation in manpower engagement from that of the original list shall be considered as violation of work agreement. At least one each Mechanical, Electrical and Instrumentation engineering personnel not below the rank of diploma engineering having sufficient experience in performing such overhauling work in gas turbine units (experience of undertaking five major overhauling in last 05 years period) shall have to be engaged during entire working period.

e) Compensation of equivalent value of components shall have to be borne by the bidder in case of any damage due to lack of knowledge, misappropriation, mishandling, etc.

(ii) APGCL'S SCOPE:

- i)** LTPS will give shutdown notice of the unit three weeks ahead of the shutdown.
- ii)** Available technical literatures /service manual of OEM for proper guidance of overhauling procedure etc.
- iii)** Service of EOT crane.
- iv)** Special tools for turbine rotor lifting and generator rotor removal.
- v)** Electrical power, water supply, air supply for pneumatic tools can be made available.
- vi)** Detail specification of various kind of cleaning compound, welding electrodes and filler materials.
- vii)** All spare directly related to the turbine and its auxiliaries.
- viii)** Guest House accommodation with one double seated room can be arranged on Chargeable basis. For skilled/ un-skilled labors, free area for hutment will be provided with necessary water supply & lighting facility. The Contractor will make makeshift arrangement for accommodation of his workers.
- ix)** Workshop facility will be provided, if required, on Chargeable basis.
- x)** Repairing material of inlet/exhaust plenum & duct (material sheet only).

- (H)**
- (i) The successful Bidder is to furnish complete work schedule along with details of manpower engagement within 10 days of issue of LOI/ Order.
 - (ii) During the work execution, the Contractor shall have to submit daily work progress report to the site Engineer of APGCL.
 - (iii) Final measurement results are to be recorded in the standard format of data sheet in the shape of technical report duly signed by the responsible officer of both party (Contractor & APGCL).A sample copy of such format is to be collected from the APGCL'S site engineer prior to start of the overhauling works for making required number of copies.

(I) Warranty:

The overhauling work shall have to carry Warranty against performance for a period of 06(six) months from the date of completion of the work. The completion of work shall be considered after successful completion of 72 hours trial run of the GT Unit. Free service shall have to be provided pertaining to any defect that may develop under normal running condition of the machine during the Warranty period.

(J) Work Completion Period:

Time of completion of the whole overhauling work shall be **30 (thirty) days** (from the 3rd day of the unit shut down i.e., after 48 hrs of the unit shutdown). The work completion shall be accepted if the GT unit runs at full speed no load with all operating parameters within the acceptable limit of OEM's guideline.

Liquidated damage due to delay in completion of overhauling work shall be levied as per the Liquidated Damage Clause of this tender.

- (K) **Terms of Payment:**
- (a) 10% payment of the total order value for 'mobilization purpose' shall be made by APGCL to the Contactor on submission of Bank Guarantee (of any Nationalized Bank) of equal amount by the Contractor. 80% payment of the order value shall be made after completion of overhauling work and satisfactory trial run of the GT Unit for 72 hrs, subjected to fulfillment of Performance Bank Guarantee Clause of the Tender. The balance 10% payment shall be made on furnishing of Major Overhauling report by the Contractor and on issue of work completion certificate by APGCL.
Note: The total order value as mentioned above shall be inclusive of all taxes & duties.
- (b) The bidder shall submit the bills in triplicate for payment.
- (L) **Earnest Money:**
EMD of Rs. 80,000/- (Rupees Eighty thousand only) in the shape of Demand Draft in original of any Nationalized Bank shall be submitted as Earnest Money, duly pledged in favour of the Asstt. Manager (Acctts.), LTPS, APGCL. APGCL will refund the Earnest Money of the unsuccessful bidders directly to the bidders within a reasonable period of time without any interest. Our Banker is SBI, Lakwa TPP Branch
- (M) **Performance Bank Guarantee:**
On receipt of the formal work order, the successful bidder shall have to furnish a Performance Bank Guarantee for an amount equivalent to 10% of the total order value including taxes and duties as performance security. The Performance Security Deposit shall be valid upto 30 days beyond the warranty period.
- (N) **Liquidated Damage:**
In case of failure of completing the job within the time of completion of work as referred in clause-J for the reasons attributable to the contractor, then Liquidated Damage @ Rs. 1,00,000/- (Rupees One Lakh) Only against each additional day [Maximum amount of Rs. 10,00,000/- (Rupees Ten Lakhs Only)] will be recovered from the contractor. The amount will be deducted from the 80% bill payable to the contractor after completion of overhauling work and satisfactory trial run of the GT Unit for 72 hrs.
- (O) **Security Deposit:**
On receipt of the formal Work Order/ LOI, the successful bidder shall deposit to the extent of 5% of the total order value as Security Deposit in the shape of Demand Draft of any Nationalized Bank drawn in favour of the Assistant General Manager (F/A) , LTPS, APGCL, Maibella-785689 within 15 (Fifteen) days time. The Security Deposit shall be released on successful completion of the Work and against submission of Performance Bank Guarantee at LTPS site. No interest shall be paid against the Security Deposit.
- (P) **Supervision & Inspection:**
The Work shall have to be completed to full satisfaction of APGCL and as per OEM's standard guidelines.
- (Q) **Safety/Insurance:**
The bidder is to take all safety measures during the working period. These include man and machinery safety as per industry statutory rule. Insurance of working personnel is mandatory and authentic document of insurance to be submitted to APGCL before starting of the work.
- (R) **Validity of the Offer:**
The Offer shall be valid for a period of **120** (one hundred twenty days) from the date of opening of the technical bid.
- (S) **Arbitration Clause:**
All disputes or differences whatever so arising between the parties out of or relating to this tender/order shall be settled by arbitration as per clause 33.00 of "General Conditions for Supply & Erection of APGCL". The venue of arbitration shall be at Guwahati.
- (T) **Force majeure:**
The terms & conditions mutually agreed upon with respect to this agreement shall be subject to Force majeure. Neither the contractor nor APGCL shall be considered to be in default in the performance of their obligations constrained therein, if such performance is prevented or delayed or restricted or interfered with by reason of War, Hospitalities, Revolution, Civil commotion, Strike, Epidemic, Accident, fire, Cyclone, Storm, Flood, Earthquake, Regulation or ordinance or Requirement of any Govt. or any Sub-division thereof, or Authority or Representative of any such Govt. and / or due to Technical snag/Reasons, or any other act whatsoever, whether similar or dissimilar to those enumerated , beyond reasonable control of the parties thereto, or because of any Act of God. The party so affected, upon giving prompt notice to the other party, shall be excused from such performance to the extent of such prevention, delay, restriction or interference for the period it persists, provided that the party so affected shall use its best effort to avoid or remove such causes of non-performance, if possible, and shall

continue performance hereunder with the utmost dispatch whenever such causes are removed. Should one or both parties be prevented from fulfilling their contractual obligations by a state of force-majeure lasting continuously for a period of those months, the two parties to the contract shall meet and decide about the future course of action for implementation of the contract.

Any clause not included in the above shall be governed by "General Conditions for Supply and Erection of APGCL." The undersigned reserved the right to accept or reject any or all of the bids without assignee any reason thereof. He is not bound to accept the lowest rate also.

(U) Jurisdiction:

Subject to arbitration clause, all questions, disputes of differences arising under out of or in connection with the contract shall be subject the exclusive jurisdiction of Courts of Guwahati.

The undersigned reserves the right to accept or reject any or all of the bids without assigning any reason thereof. He is not bound to accept the lowest rate also.

Further, any bidder who has failed to execute past overhauling (MI) job of GT of APGCL within the stipulated schedule period may not be considered in bid evaluation.

**Chief General Manager (G),
APGCL, Guwahati.**

ANNEXURE – A

TECHNICAL BID

The bidders are requested to ensure that the following points/aspects in particular have been compiled within their offer failing which the offer is liable to be rejected.

- 1. Please tick (✓) the box, whichever is applicable, and cross (X) the box(es), whichever is/are not applicable (NA).
- 2. Please sign on each sheet.
- 3. This "Bid Information Sheets" duly filled in must be submitted along with the offer.

(A) COMMERCIAL

1.0 Whether requisite tender fee has been paid?

YES	NO	NA
-----	----	----

2.0 If so, furnish the following

- i) Demand Draft no. & date:.....
- ii) Name of the Bank:
- iii) Value:
- iv) Period of Validity:

3.0 Earnest Money Deposit (EMD):

i) Whether requisite EMD has been enclosed?

YES	NO	NA
-----	----	----

ii) If yes, furnish the following

- a) Name of the Bank:
- b) Value:
- c) Name:
- d) Date of Issue:
- e) Period of Validity:

4.0 Whether the period of validity of the offer is as required in the tender document?

YES	NO
-----	----

5.0 If not, mention the extent of variation:
(You can use extra sheet also)

Extent of variation

6.0 Has the bidder given the details of parties to whom the bidder has offered service

YES	NO	NA
-----	----	----

7.0 Is the offer being sent by Regd. Post, Courier Services or proposed to be dropped in Tender Box?

Sent by Regd. Post	<table border="1"><tr><td>YES</td><td>NO</td></tr></table>	YES	NO
YES	NO		
Sent by Courier Services	<table border="1"><tr><td>YES</td><td>NO</td></tr></table>	YES	NO
YES	NO		
Dropped in Tender Box	<table border="1"><tr><td>YES</td><td>NO</td></tr></table>	YES	NO
YES	NO		

8.0 Has it been ensured that there is no overwriting in the tender? Have corrections been properly attested by the person signing the tender?

YES	NO
-----	----

9.0 Has the tender been prepared in sufficient details clearly so as to avoid post tender opening clarifications?

YES	NO
-----	----

10.0 Acceptance of the following clauses in to:

i) Guarantee clause:

YES	NO
-----	----

ii) Performance Bank Guarantee clause:

YES	NO
-----	----

iii) Terms of Payment clause:

YES	NO
-----	----

iv) Delivery Period including Liquidated damage clause:

YES	NO
-----	----

v) Arbitration clause:

YES	NO
-----	----

vi) Security Deposit:

YES	NO
-----	----

(B) BIDDER'S PAST WORK PROFORMA

SL. NO.	NAME AND ADDRESS OF CLIENT(S)	BRIEF DESCRIPTION OF WORK	ORDER VALUE	REMARKS

NOTE:

Certificate from client to be enclosed along with the above proforma.
(Use separate sheets if required)

Signature and Seal of the Bidder

PRICE BID

1. Tender No.:
2. Tender Name:.....
3. Due Date:
4. Validity of the Bid:
5. Delivery Period:.....
6. Payment Terms:

Sl. no.	Particulars	Major Overhauling Work		Remarks
		Amount (in figures) (INR)	Amount (in words) (Rupees)	
1.	Total Quoted Price for the work			
2.	Taxes (if any)			
3.	Other Charges (if any)			
	Total =			

Service Tax will be extra as per the prevailing rate

NOTE:

1. The above prices shall be firm without any variation in any way till expiry of the offer validity period.
2. Statutory charges which will not be borne by the bidder must specifically be indicated in the above format, failing which the bidder shall bear the same and APGCL will not be liable for payment of such charges.
3. Any increase in taxes & duties during the period until completion of work shall be extra.
4. Use additional sheets if required.

.....
Signature and Seal of the Bidder

ANNEXURE – B**(To be submitted with Technical Bid)**

Sl. No.	Designation/ Trade	Qualification/Experience	Minimum quantity to be deputed	Remarks
1.	Service Engineer (Mech.)		1	
2.	Service Engineer (Elect.)		1	
3.	Service Engineer (C&I)		1	
4.	Rigger		3	
5.	Fitter		3	
6.	Grinder		3	
7.	Welder		2	
8.	Helper		30	
9.	Mechanic		2	
10.	Electrician		3	
11.	Instrument Mechanic		2	
12.	Any other Trade			
	Total =			

Note:

- a. For Sl. No. 1, 2&3 above, the experience criteria of the person concerned shall be supported with authentic documentation for working at least in five numbers major overhauling of GE/BHEL Frame-V GT Units, without which their suitability shall not be accepted.
- b. For Sl. No. 4,5,10 & 11, experience certificate of minimum experience of at least 02 nos. each during last 05 years in major inspection of GT Units shall have to be provided.
- c. All the above mentioned experienced personnel with valid authenticity such as PAN card/voter ID card will be verified. Vendor may furnish for more than the minimum quantity specified in the Annexure.

.....
Signature and Seal of the Bidder

TECHNICAL SCHEDULE

PROFORMA FOR JOINT UNDERTAKING BY THE ACCOCIATE ALONG WITH THE PRIME BIDDER.

(To be Stamped in accordance with stamp act)

Ref. No..... Dtd.....

To,
The Chief General Manager (Generation),
Assam Power Generation Corporation Ltd.
Bijulee Bhawan, Paltan Bazar,
Guwahati-1, Assam.

Dear Sir,

In terms of Clause-- D entitled “**ELIGIBITY OF BIDDER**” appearing in tender specification no.....for....., it is a condition precedent that the bidder as well as their associates shall jointly and severally undertake the responsibility for the successful performance of contract (herein after referred to as the contract) which is qualified for the award on the basis of the expertise of prime bidder and Associate. We,....., having our registered office at.....(herein after referred to as associate), which in turn shall include our successor, administrator, executor and assign and we,, having our register office at.....(herein after referred to as bidder or contractor) are held jointly and severally liable and bound un to (Name of owner) (herein after referred to as the owner, which expression shall include its successor, administrator and assign) for the successful performance of the contracts, including the overall responsibilities for the successful performance of the contacts for.....(Name of package) strictly in accordance with terms and conditions in the tender specification.

The associate hereby agrees to depute their technical experts from time to time to the Contractor’s works/Project Site as mutually agreed upon between the owner and the Contractor in order to discharge the Contractor’s obligations as stipulated in the contract and subsequent modification/Alterations of the contract from time to time. The bidder and the associate hereby agree that this undertaking shall be irrevocable and it shall form an integral part of the contract as may be entered upon by the bidder. The witness thereof the Associate and the bidder have, through their authorized representatives, set their hands and seals of this.

..... day of.....200—

<p>Common seal of has been Affixed in my/our presence Pursuant to the Board of Director’s resolution *no..... dated.....</p> <p>Name.....</p> <p>Signature.....</p> <p>Designation: Company secretary</p>	<p>For Prime Bidder</p> <p>Name.....</p> <p>Signature.....</p> <p>Designation.....</p> <p>Common Seal of the company</p>
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<p>Common seal of has been Affixed in my/our presence Pursuant to the Board of Director’s resolution *no..... dated.....</p> <p>Name.....</p> <p>Signature.....</p> <p>Designation: Company secretary</p>	<p>For Associate</p> <p>Name.....</p> <p>Signature.....</p> <p>Designation.....</p> <p>Common Seal of the company</p>
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Authenticated by me....

Signature with name and seal of Notary Public or Magistrate 1st Class

*Company Board of director’s resolution intending participation in the bid and authorized signatory in consortium agreement as per technical schedule.