

ASSAM GAS COMPANY LTD

(A Govt. of Assam Undertaking)

P.O. Duliajan, Dist: Dibrugarh 786602

Phone No.0374-280466/463 Extn 4230/4232

Fax: 0374-280557



(OPEN DOMESTIC COMPETITIVE BIDDING)

Design, Engineering, Manufacturing, Testing, Supply, Erection, Commissioning and Operation & Maintenance for 3(three) years of 1(one) number of Natural Gas Engine driven Reciprocating Gas Compressor Package for AGCL Duliajan Compressor Station OR any other place within operational area of AGCL on LSTK basis.

BID NO: AGCL/O&M/COMP_PKG/2021/02/6

Date: 07/07/2021

SECTION - I
INVITATION FOR BID(IFB)

INVITATION FOR BID

Ref No: AGCL/O&M/COMP_PKG/2021/02/6

Date: 07/07/2021

To,

PROSPECTIVE BIDDERS,

SUB: Design, Engineering, Manufacturing, Testing, Supply, Erection and Commissioning and Operation & Maintenance for 3 years of 1(one) number of Natural Gas Engine driven single stage variable reciprocating Gas Compressor Package for AGCL Duliajan Compressor Station OR any other place within operational area of AGCL on LSTK basis.

Dear Sir/Madam,

1. Assam Gas Company Ltd. (having registered office at Duliajan, Assam 786602 CIN No.U11101AS1962SGC001184), leading profit making company and wholly owned by the Government of Assam to carry out all kinds of business related to natural gas (Transportation and Distribution) in India. In connection with its operations, AGCL invites Bids from competent and experienced bidders for **“Design, Manufacture, Fabrication, Package, Test, Supply, Erection and Commissioning of 1(one) number of Gas Engine driven Reciprocating Gas Compressor Package on Turnkey (LSTK) basis”**. Successful bidder/packager will have to execute the project on purely lump sum turnkey basis. Apart from fulfilling all the mandatory package related obligations, all the Civil, Structural, Electrical, Instrumentation, Mechanical job envisaged to complete the project in all respect will be single point responsibility of the bidder/packager.

You are invited to submit your most competitive bid on or before the

scheduled bid closing date and time through e-procurement portal of Govt. of Assam i.e. www.assamtenders.gov.in in complete accordance with the following details and enclosed Tender documents

1.	Tender No. & Date:	AGCL/O&M/COMP_PKG/2021/02/6 dated 07.07.2021
2.	Type of Bid :	Single Stage-2(two) Bid System
3.	Tender Fee:	Rs.2000.00
4.	Last Date of receipt of Pre-Bid Queries	20.07.2021 at 2:00 PM (IST)
5.	Site Visit Date	22.07.2021 at 9:00 AM (IST)
6.	Pre-bid conference	23.07.2021 at 10:00 AM (IST)
7.	Venue of Pre-Bid Conference	Conference Hall Assam Gas Company Ltd. Duliajan - 786602 District - Dibrugarh, Assam, India. (Online through MS team)
8.	Bid Closing Date & Time	09.08.2021 time 2:00 PM (IST)
9.	Bid Opening Date & Time	09.08.2021 time 2.30 PM (IST)
10	Priced Bid Opening Date & Time	Will be intimated to the eligible bidders who satisfy conditions of Technical Bid through e-tender mode.
11.	Bid Submission Mode	Bid should be uploaded in <i>e-procurement portal of Govt. of Assam i.e. www.assamtenders.gov.in</i> . Hard copies of the documents submitted online except Price bids must reach below address within 12 days of bid closing date.
12.	Hard copies of uploaded documents (Technical & EMD + tender fees) to be sent	Chief Manager (M) Assam Gas Company Ltd. Duliajan - 786602 Dist. - Dibrugarh, Assam, India
13.	Bid Opening Place:	Technical bids will be opened online
14.	Bid Validity :	300 days from date of Closing of bid
15.	Bid Security:	Rs.20,00,000.00 (Rupees Twenty lakh only)
16.	Bid Security Validity :	330 days from date of closing of bid.
17.	Amount of Performance Guarantee	10% of the total ORDER value.
18	Validity of Performance Guarantee	Up to 12 months from the date of successful commissioning.
19.	Quantum of Liquidated Damage	0.5% of basic contract cost & applicable taxes for default in timely completion of work for delay per week or part thereof subject to maximum of 5% of total contract value.
20.	Work Completion	12 months from receipt of LOI/Work Order.

Note: If any date specified above happens to be a holiday in AGCL, then the next working day will be considered.

2. Bids received after closing hours as stipulated above shall not be accepted. AGCL will not be responsible for delay in submission of bid due to poor net connectivity / or any other reasons whatsoever.
3. E-mail/Fax/Telegraphic/Telephone bids will not be accepted. Scanned copies of the tender fee /EMD, technical specification, signed and sealed complete tender document etc. to be uploaded in .pdf format.
4. The Prices along with price related conditions should be filled in the Price-Bid (BOQ) only as provided in the website www.assamtenders.gov.in. All other techno-commercial documents other than price details to be submitted both ONLINE as well as hardcopies to be sent to AGCL within 12 days of bid submission date.
5. The bid including all documents shall be signed by duly authorized representative of the bidding company and put their official seal on every page of the tender and corrigendum's (if any) and must not overwrite on any numerical figures.
6. The cost of Bid Document i.e. **Tender fees** and the **Earnest Money Deposit (EMD)** to be paid through RTGS/NEFT/internet banking in Assam Government e-Procurement System www.assamtenders.gov.in.
 - i. **Option 1:** Internet banking through State Bank of India (SBI) or any other Banks listed at State Bank Multi Option Payment System (SBMOPS) on <http://assamtenders.gov.in>.
 - ii. **Option 2:** In case of non-availability of net banking facility, bidders may submit tender processing fee using NEFT/ RTGS option from any bank against system generated prefilled challan.

EMD/ Bid Security may be paid online in following Bank Account of AGCL:

Beneficiary Name	Assam Gas Company Limited
A/c No.	10494832011
Bank Name	State Bank of India, Duliajan Branch
IFSC Code	SBIN0002053

The payment receipts of Tender Processing Fee & Earnest Monetary Deposit (EMD) are to be scanned and uploaded in the techno-commercial bid folder in the website and submitted manually in sealed envelope super scribed with Tender no. and Bid Closing date addressed to The Managing Director and sent to Chief Manager (O&M), Compressor Department, Assam Gas Company Limited, Duliajan- 786602, Assam within 12 days of bid closing date.

7. Site Visit/Inspection: Prospective bidders or their authorized representative(s) may visit sites under the study, Assam (India) for preliminary assessment of the requirement of the service prior to Pre-Bid Conference at their own expenses. However necessary assistance for the visit shall be provided by AGCL during their visit.
8. A pre-Bid conference will be held at Duliajan, Dist. Dibrugarh, Assam, India on the dates as indicated in the online tender for providing clarifications to prospective bidders on Bid Rejection Criteria(BRC)/Bid Evaluation Criteria(BEC), Terms of Reference/Technical Specifications, Terms and conditions of the Tender to enable them to understand the exact service requirement of the Company.

At the most 2 (two) representatives from each prospective bidder shall be allowed to participate in the pre-bid conference. All cost for attending the pre bid conference shall be to prospective bidder's account.

For details of the venue, bidders may contact Chief Manager (M), Assam Gas Company Ltd. P.O. Duliajan-786602, **Phone:** +91-374-2800466 **E-mail:** paramananda.das@agclgas.com, nkdas@agclgas.com , **Mbl. No:** **7002818830, 9435038280,**

9. The prospective bidders shall submit their queries through E-mail / Courier addressed to **Chief Manager (M), Assam Gas Company Ltd., Duliajan-786602, Assam** prior to the date of pre-bid conference and such queries must reach AGCL's office at **Duliajan** latest by 20/07/2021. AGCL shall try to provide clarifications to the queries in the pre-bid conference. AGCL will not be responsible for non-receipt or late receipt of any bidder's query in AGCL's office.
10. AGCL reserves the right to increase/decrease the quantum of job at the time of award of contract and it will be obligatory on the part of the successful bidder to accept the same at the offered rates.
11. The Company reserves the right to reject any or all the tenders or accept any tender without assigning any reason whatsoever.
12. Offer must conform in all respect to the terms and conditions of the enquiry. Deviations, if any, must be clearly and specifically stated. Conditional bids are liable to be rejected at the discretion of the Company.
13. Canvassing in any other form by the bidder or by any other agency on their behalf may lead to disqualification of their bid.

14. The Tender is open for Domestic Competitive Bidding in **Indian Rupees only (INR)**.
15. Bidder cannot make any claim against AGCL towards its expense incurred in connection with the preparation and delivery of their bids, site visit, participating in the discussion and other expenses incurred during bidding process.
16. Submission of authentic documents is the prime responsibility of the bidder. Wherever AGCL has concern or apprehension regarding the authenticity/ correctness of any document, AGCL reserves the right to get the documents verified from issuing authority/any other relevant source. If documents (part or full) are found to be manipulated, false or forged, such offers will be summarily rejected.
17. All communication will be made through e-Tendering web site (www.assamtenders.gov.in). However, AGCL reserves the right to take cognizance of the communication made outside e-Tendering Portal under exceptional circumstances.
18. All amendments, clarifications, corrigenda, addenda, time extension etc. to the tender will be hosted on the company's website and in the e-tender portal only. No separate notice will be issued in the press. Prospective bidders are requested to regularly visit the website and e-portal to keep them self updated.
19. AGCL now looks forward to your active participation in the Bidding.

Thanking you,

Yours' faithfully

Managing Director
Assam Gas Company Ltd.

SECTION – II

BID EVALUATION CRITERIA & EVALUATION METHODOLOGY

BID REJECTION CRITERIA (BRC) / BID EVALUTION CRITERIA (BEC) (PROCUREMENT OF GAS COMPRESSORS)

PART (A) **TECHNICAL TERMS AND CONDITIONS**

1.0 The Compressor Unit shall conform to ISO 13631(Formerly API 11P). The bidder shall furnish the technical information in API packaged data sheet of API Standard 11 P/ISO13631.

2.0 Bidders must quote for full quantity of same make and model of Compressor and other ancillaries/accessories.

3.0 Finned tube , Air-cooled heat Exchanger, designed and constructed in accordance with API-661, shall be used for inter cooler , after cooler Gas Engine Jacket water cooler & Gas Engine Auxiliary water cooler. The fans for air-cooled heat exchanger shall be coupled to the gas engine shaft.

4.0 EXPERIENCE CRITERIA

4. A TECHNICAL EXPERIENCE:

i) The bidder should have relevant experience in Engineering, Packaging, Procurement, Supply, Installation & Commissioning of Gas engine driven Reciprocating Gas compressor units of minimum 1500 BHP driver rating and discharge pressure of minimum 20 kg/cm² g on LSTK basis in any Govt. PSU in hydrocarbon sector in India. At least 2(two) such units should have been supplied in last 7(Seven) years and at least one unit should have completed one year of successful operation.

Bidder should also in addition to above have an experience of O&M for a period of 3(three) years after commissioning of Gas Engine Driven Reciprocating Gas Compressor Packages having rating equal to or higher than 1500 BHP driver rating. O&M experience can be for same LSTK project or for any other project in Hydrocarbon sector in India.

Bidder has to provide documentary evidence regarding the experience of engineering, packaging, supply, installation and commissioning of gas compressor units with common skid design. The documentary evidence shall

be valid purchase order and as proof of execution of order, copy of invoice or inspection report from client or bill of lading.

ii) The bidder must be an authorised packager / distributor / channel partner of the Original Natural Gas Engine / Compressor Manufacturer (OEM) in India.

iii) The bidder must have its own facility in India for assembly, testing, etc. of the package prior to shipment to site.

iv) Offers of those Bidders who themselves do not meet the technical experience criteria as stipulated in the clause no. 4.0 (i) above shall also be eligible provided the Bidder is a subsidiary company of the parent company in which the parent company has 100% stake or parent company can also be considered on the strength of its 100% subsidiary. However, the parent/ subsidiary company of the Bidder should on its own meet the technical experience as stipulated in the clause no. 4.0 above and must not rely for meeting the technical experience criteria on its sister subsidiary/ co-subsiary company or through any other arrangement like Technical Collaboration agreement. In that case as the subsidiary company is dependent upon the technical experience of the parent company or vice-versa with a view to ensure commitment and involvement of the parent/ subsidiary company for successful execution of the contract, the participating bidder should enclose an Agreement (as per format enclosed at Attachment – I between the parent and the subsidiary company or vice-versa and Parent/ Subsidiary Guarantee (as per format enclosed at Attachment – II from the parent/ subsidiary company to AGCL for fulfilling the obligation under the Agreement, along with the techno-commercial bid.

4. B COMMERCIAL EXPERIENCE:

i) The minimum annual turnover achieved by the bidder as per their latest audited financial results during any of the last three financial years shall be minimum Rs. 20 Cr.or equivalent currency of the country of origin. The same shall is to be duly verified & certified by a Chartered Accountant (CA) for Indian bidders. In case of Foreign bidders, authorization at country of origin equivalent to CA certification in India will have to be submitted.

ii) Net worth of the bidder must be positive consecutively in last 3 years. The same is to duly verified & certified by a chartered accountant (CA). In case of foreign bidders authorization at country of origin equivalent to CA certification in India will have to be submitted in support of same.

5.0 Bidders shall categorically confirm that installation and commissioning of the compressor packages with all accessories shall be carried out by their competent personnel at AGCL's operational areas in upper Assam (India).

6.0 The bidder shall warrant that in the event of an order, all product(s) supplied shall be new and free from all defects and fault in material, workmanship, & manufacture and shall be in full conformity with the applicable API specification. **The clause shall be valid for 12 months from the date of successfully commissioning of the units.**

7.0 The bidder shall have single point responsibility for designing, engineering, packaging, supply, installation and commissioning of the complete package.

PART (B) **COMMERCIAL TERMS AND CONDITIONS**

1.0 Earnest Money & Security Deposit:

- i) Earnest money of Rs.20,00,000.00 (Rupee Twenty Lakhs) should be submitted from any nationalized/scheduled Bank along with the TECHNO-COMMERCIAL BID through e-Tendering web site (www.assamtenders.gov.in).
- ii) Security deposit in the form of a Bank Guarantee from a nationalized/scheduled bank has to be submitted within 15 days of placement of LOI. The Security Bank Guarantee should be equivalent to 10% of the Work Order value and valid for the entire scheduled supply/extended supply period. Bank Guarantee will be released after successful commissioning of the package.

The Bank Guarantee can also be obtained from a branch of an International Commercial Bank situated in India and register with the Reserve of Bank of India as a scheduled foreign Bank.

2. Payment Schedule:

- i) 10% of total contract value will be paid as Mobilization advance

ii) 10% of the contract value shall be paid after submission & approval of P&ID, GA, Foundation Drawings (Load details), and Placement of order for Compressor & Air Exchanger against submission of equivalent amount of Bank Guarantee valid till delivery period at site.

iii) 50% of the contract value shall be paid after receipt of supply and acceptance of the total package at AGCL operational site.

iv) 20% of the contract value shall be released after successful completion of commissioning and handover of the package to the Purchaser.

v) Final 10% of the payment shall be released after submission of Bank Guarantee as a Performance Guarantee for the warranty period after commissioning.

Note: Income tax deduction shall be made from all payment made to the Contractor as per the rules and regulation in force in accordance with the Income Tax Act prevailing time to time as per Govt. Of India.

3. Delivery Schedule:

The onsite delivery period of the package shall be 10(Ten) months from the date of award of contract in the form of LOI. The Installation, erection & commissioning of the package is required to be achieved within 2(Two) months from the date of delivery at site. The bidder shall submit and activity list in the form of bar chart meeting above delivery schedule.

4. Liquidated Damage:

For any delay in delivery and commissioning package beyond 12 months from the date of receipt of LOI, liquidated damage @ 0.5% of basic contract cost & applicable taxes for default in timely completion of work for delay per week or part thereof subject to maximum of 5% of total contract value

5. After sales service and Spares Support:

Bidders shall give detailed descriptions about the after sale service and arrangement for stocking and supply of spares/emergency spares etc.

BID REJECTION CRITERIA (BRC)

The bids shall conform generally to the specifications and terms and conditions given in the tender. Bids shall be rejected in case the goods offered do not conform to the required minimum / maximum parameters stipulated in the technical specifications and to the respective International / National Standards wherever stipulated. Notwithstanding the general conformity of the bids to the stipulated specifications and terms and conditions, the following requirements shall have to be considered as non-responsive and rejected. However owner reserve the right to take the final decision in this regard without assigning any reason.

1.0 Bids are invited under Single Stage Two Bids System. Bidders shall quote accordingly under Single Stage Two Bid System. Please note that no price details should be furnished in the Technical (i.e. Un-priced bid). The “Un-priced Bid” shall contain all techno-commercial details except the prices which shall be kept blank. The “Priced Bid” must contain the price schedule and the bidder’s commercial terms and conditions. Bidder not complying with above submission procedure will be rejected.

2.0 Security deposit in the form of a Bank Guarantee from a nationalized/scheduled bank has to be submitted within 15 days of placement of LOI. The Bank Guarantee can also be obtained from a branch of an International Commercial Bank situated in India and registered with the Reserve of Bank of India as a scheduled foreign Bank.

3.0 Bidders must confirm that Goods, materials or plant(s) to be supplied shall be new of recent make and of the best quality and workmanship and shall be guaranteed for a period of twelve months from the date of commissioning of the complete package at site against any defects arising from faulty materials, workmanship or design. Defective goods/materials or parts rejected by AGCL shall be replaced immediately by the supplier at the supplier’s expenses at no extra cost to AGCL.

4.0 Successful bidder will be required to furnish a Performance Bank Guarantee @10% of the order value. The Performance Bank Guarantee must be valid for one year from the date of successful commissioning of the complete package at site. Bidder must confirm the same in their Technical Bid. Offers not complying with this clause will be rejected.

5.0 The prices offered will have to be firm through delivery and not subject to variation on any account. A bid submitted with an adjustable price will be treated as nonresponsive and rejected.

6.0 Validity of the bid shall be minimum 180 days. Bids with lesser validity will be rejected.

7.0 Bids received after the bid closing date and time will be rejected. Similarly, modifications to bids received after the bid closing date & time will not be considered.

8.0 Bidders shall quote directly and not through Agents in India. Offers made by Indian Agents on behalf of their foreign principals will be rejected. Similarly offers from unsolicited bidders will be rejected.

9.0 Bids containing incorrect statement will be rejected.

10.0 Offers received without Integrity Pact duly signed by the authorized signatory of the bidder will be rejected.

11.0 No offers should be sent by Telex, Cable, E-mail or Fax. Such offers will not be accepted.

12.0 The bidder shall provide 1(one) year guarantee of the complete package and its accessories for a period of 12 months from the date of successful completion of commissioning.

13.0 Bid documents are non-transferable. The party to whom the bid documents are issued may only furnish the bid. The bid received from any party other than to whom the bid documents are issued shall be rejected immaterial of fact of any relationship between party to whom bid documents are issued and party who furnished the bid.

14.0 Price quoted by the bidder shall be firm and fixed during the bidder's performance of the contract and not subject to variation on any account. All corrections and alteration in the entries shall be signed full by the bidder with date. No erasures or overwriting are permissible else the offers will not be accepted.

NOTES:

Installation/Commissioning charges must be quoted separately on lumpsum basis which shall be considered for evaluation of the offers. These charges should include to and fro fares; boarding/lodging, local transport at Duliajan and other expenses of supplier's commissioning personnel during their stay at Duliajan, Assam(India). All Income, Service, Corporate Taxes etc. towards the services provided under installation / commissioning/training shall be borne by the supplier and will be deducted at source at the time of releasing the payment. Bidder should also confirm about providing all these services in the Technical Bid including training charges of AGCL's representatives. The to and fro fares, boarding/lodging and other en-route expenses of AGCL's personnel shall be borne by AGCL.

BID EVALUATION CRITERIA

The bids conforming to the specifications, terms and conditions stipulated in the tender and considered to be responsive after subjecting to the Bid Rejection Criteria will be considered for further evaluation as per the Bid Evaluation Criteria given below:

1.0 The evaluation of bids will be done as per the summary of the prices in their commercial bids as per (SOR).

2.0 If there is any discrepancy between the unit price and the total price, the unit price will prevail and the total price shall be corrected. Similarly, if there is any discrepancy between words and figure, the amounts in words shall prevail and will be adopted for evaluation.

SECTION-III
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INSTRUCTIONS TO BIDDERS [ITB]

A. GENERAL

1. SCOPE OF BID

- a) The Employer as defined in the "General Conditions of Contract [GCC]", wishes to receive Bids as described in the Bidding Document/Tender document issued by Employer. Employer/Owner/AGCL occurring herein under shall be considered synonymous.
- b) SCOPE OF BID: The scope of work/ Services shall be as defined in the Bidding documents.
- c) The successful bidder will be expected to complete the scope of Bid within the period stated in IFB.
- d) Throughout the Bidding Documents, the terms 'Bid', 'Tender' & 'Offer' and their derivatives [Bidder/Tenderer, Bid/Tender/Offer etc.] are synonymous. Further, 'Day' means 'Calendar Day' and 'Singular' also means 'Plural'.

2. ELIGIBLE BIDDERS

- a) The Bidder is not put on 'Holiday' by any Public Sector Project Management Consultant or banned/blacklisted by Government department/ Public Sector on due date of submission of bid. Further, neither bidder nor their allied agency/(ies) (as defined in the Procedure for Action in case of Corrupt/ Fraudulent/ Collusive/ Coercive Practices) are on banning list of any PSU or the Ministry of Petroleum and Natural Gas.

In case there is any change in status of the declaration prior to award of contract, the same has to be promptly informed to AGCL by the bidder.

It shall be the sole responsibility of the bidder to inform AGCL in case the bidder is put on 'Holiday' by Public Sector Project Management Consultant or banned/blacklisted by Government department/ Public Sector on due date of submission of bid and during the course of finalization of the tender. Concealment of the facts shall tantamount to misrepresentation of facts and shall lead to action against such Bidders.

- b) The Bidder should not be under any liquidation court receivership or similar proceedings on due date of submission of bid.

In case there is any change in status of the declaration prior to award of contract, the same has to be promptly informed to AGCL by the bidder.

It shall be the sole responsibility of the bidder to inform AGCL in case the bidder is under any liquidation court receivership or similar proceedings on due date of submission of bid and during the course of finalization of the tender. Concealment of the facts shall tantamount to misrepresentation of facts and shall lead to action against such Bidders.

- c) Bidder shall not be affiliated with a firm or entity:
 - (i) That has provided consulting services related to the work to the Employer during the preparatory stages of the work or of the project of which the works/services forms a part of or
 - (ii) That has been hired (proposed to be hired) by the Employer as an Engineer/ Consultant for the contract.
- d) Neither the firm/entity appointed as the Project Management Consultant (PMC) for a contract nor its affiliates/ JV'S/ Subsidiaries shall be allowed to participate in the tendering process unless it is the sole Licensor/Licensor nominated agent/ vendor.
- e) Pursuant to qualification criteria set forth in the bidding document, the Bidder shall furnish all necessary supporting documentary evidence to establish Bidder's claim of meeting qualification criteria.
- f) Power of Attorney:

In case of a Single Bidder, Power of Attorney issued by the Board of Directors/ CEO /Chairman/ MD / Company Secretary of the Bidder/ all partners in case of Partnership firm/any person authorized in terms of Deed of LLP/Proprietor in favor of the authorized employee(s) of the Bidder, in respect of the particular tender for signing the Bid and all subsequent communications, agreements, documents etc. pertaining to the tender and to act and take any and all decision on behalf of the Bidder, is to be submitted.

In case of a Consortium/JV, Power of Attorney issued by Board of Directors/ CEO /Chairman MD / Company Secretary of the Consortium Leader as well as Consortium Member(s) of the Consortium/ partners of JV, in favor of the authorized employee(s) of the Consortium Leader/Lead member of JV, for signing the documents on behalf of the Bidder, in respect of this particular tender, to sign the Bid and all subsequent communications, agreements, documents etc. pertaining to the tender and act and take any and all decision on behalf of the Consortium/JV, are to be submitted

The authorized employee(s) of the Bidder shall be signing the Bid and any consequence resulting due to such signing shall be binding on the Bidder.

3. **ONE BID PER BIDDER**

- a) A Firm/Bidder shall submit only 'one [01] Bid' in the same Bidding Process. A Bidder who submits or participates in more than 'one [01] Bid' will cause all the proposals in which the Bidder has participated to be disqualified.
- b) Alternative Bids shall not be considered.

4. **COST OF BIDDING**

The Bidder shall bear all costs associated with the preparation and submission of the Bid including but not limited to Bank charges all courier charges including taxes & duties etc. incurred thereof. Further, AGCL will in no case, be responsible or liable for these costs, regardless of the outcome of the bidding process.

5. **SITE VISIT**

- a) The Bidder is advised to visit and examine the site of works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the Bid and entering into a Contract for the required job. The costs of visiting the site shall be borne by the Bidder.
- b) The Bidder or any of its personnel or agents shall be granted permission by the Employer to enter upon its premises and land for the purpose of such visits, but only upon the express conditions that the Bidder, its personnel and agents will release and indemnify the Employer and its personnel, agents from and against all liabilities in respect thereof, and will be responsible for death or injury, loss or damage to property, and any other loss, damage, costs, and expenses incurred as a result of inspection.
- c) The Bidder shall not be entitled to hold any claim against AGCL for non-compliance due to lack of any kind of pre-requisite information as it is the sole responsibility of the Bidder to obtain all the necessary information with regard to site, surrounding, working conditions, weather etc. on its own before submission of the bid.

[B] – BIDDING DOCUMENTS

6. CONTENTS OF BIDDING DOCUMENTS

- i. The contents of Bidding Documents / Tender Documents are those stated below, and should be read in conjunction with any 'Addendum / Corrigendum' issued in accordance with "ITB: Clause-8":
 1. Section-I: Invitation for Bid [IFB]
 2. Section-II: Bid Evaluation Criteria & Evaluation Methodology
 3. Section-III: Instructions to Bidders [ITB]
 4. Section-IV: Scope of Work
 5. Section-V: General Conditions of Contract [GCC]
 6. Section-VI: Schedule of Rates (**For reference only. Bidder has to quoted the prices in SOR attached in Price Bid only**)
 7. Annexure: A to G
 8. Attachment: I to VI

- ii. The Bidder is expected to examine all instructions, forms, terms & conditions in the Bidding Documents. The "Request for Quotation [RFQ] & Invitation for Bid (IFB)" together with all its attachments thereto, shall be considered to be read, understood and accepted by the Bidders. Failure to furnish all information required by the Bidding Documents or submission of a Bid not substantially responsive to the Bidding Documents in every respect will be at Bidder's risk and may result in the rejection of his Bid.

7. CLARIFICATION OF BIDDING DOCUMENTS

- a) A prospective Bidder requiring any clarification(s) of the Bidding Documents may notify AGCL in writing or by fax or email at AGCL's mailing address indicated in the IFB no later than 02 (two) days prior to pre-bid meeting (in cases where pre-bid meeting is scheduled) or 05 (five) days prior to the due date of submission of bid in cases where pre-bid meeting is not held. AGCL reserves the right to ignore the bidders request for clarification if received after the aforesaid period. AGCL may respond in writing to the request for clarification. AGCL's response including an explanation of the query, but without identifying the source of the query will be uploaded on tendering web site [<https://assamtenders.gov.in>; www.assamgas.org] / communicated to prospective bidders by e-mail/ fax.

- b) Any clarification or information required by the Bidder but same not received by the Employer at clause 7(a) above is liable to be considered as "no clarification / information required".

8. **AMENDMENT OF BIDDING DOCUMENTS**

- a) At any time prior to the 'Bid Due Date', Owner may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the Bidding Documents by addenda/ corrigendum.
- b) Any addendum/ corrigendum thus issued shall be integral part of the Tender Document and shall be hosted on the websites/communicated to prospective bidders by e-mail/ fax. Bidders have to take into account all such addendum/ corrigendum before submitting their Bid.
- c) The Employer, if consider necessary, may extend the date of submissions of Bid in order to allow the Bidders a reasonable time to furnish their most competitive bid taking into account the amendment issued thereof.

[C] – PREPARATION OF BIDS

9. **LANGUAGE OF BID:**

The bid prepared by the Bidder and all correspondence, drawing(s), document(s), certificate(s) etc. relating to the Bid exchanged by Bidder and AGCL shall be written in English language only. In case a document, certificate, printed literature etc. furnished by the Bidder in a language other than English, the same should be accompanied by an English translation duly authenticated by the Chamber of Commerce of Bidders Country, in which case, for the purpose of interpretation of the Bid, the English translation shall govern.

10. **DOCUMENTS COMPRISING THE BID**

- a) Bids are invited under Single Stage Two Bid System. Bids submitted manually shall be rejected; the bids must be submitted on the said e-tendering website. The bid to be uploaded by the Bidder in the e-Tender portal (www.assamtenders.gov.in) shall comprise of the following components:
 - i. 'Covering Letter' on Bidder's 'Letterhead' clearly specifying the enclosed contents.

- ii. Tender Document duly signed/ digitally signed by the Authorized Signatory.
- iii. Copy of the EMD as Bank Guarantee or Demand Draft submitted through e-Tender portal (www.assamtenders.gov.in).
- iv. Tender Fees.
- v. Document establishing the bidder having registered office in India.
- vi. Bidder quoting on behalf of OEMs shall submit valid authorization certificate from the OEM.
- vii. Documentary proof establishing the bidder having credentials of successful supply, erection, testing and commissioning of minimum 2 (two) units of similar type of Gas compressor packages in Central/State Govt./PSU/Public Ltd. organizations during 07(seven) years as on bid closing date.
- viii. Deviation of Commercial Terms, General conditions etc. if any
- ix. Copy of Income Tax PAN
- x. Copy of GST Registration.
- xi. Commercial Bid Compliance Statement as Annexure G
- xii. Technical Questionnaire filled up with comments as Annexure D & F
- xiii. An explicit confirmation accepting the complete scope of work and all terms & conditions given in this tender.
- xiv. Any other information/details required as per Bidding Document

Note: All the pages of the Bid must be signed by the "Authorized Signatory" of the Bidder.

- b) **PART-I: “TECHNO-COMMERCIAL/UN-PRICE BID”** comprising all the above documents mentioned at 10(a) along with copy of EMD/Bid Bond, copy of Power of Attorney should be uploaded in the e-tendering portal.

Further, Bidders must submit the Tender fees, Power of Attorney, and any other documents specified in the Tender Document to the address mentioned in IFB, in a sealed envelope, super scribing the details of Tender Document (i.e. tender number & tender for) within 12(twelve) days from the date of un-price bid opening.

- c) **PART-II: “PRICE BID”**

The Prices are to be filled strictly in the Schedule of Rate of the bidding documents and to upload in SOR attachment/Conditions of E-tendering portal.

11. SCHEDULE OF RATES / BID PRICES

- a) Unless stated otherwise in the Bidding Documents, the Contract shall be for the whole work as described in Bidding Documents, based on the rates and prices submitted by the Bidder and accepted by the Employer.

The prices quoted by the Bidders will be inclusive of all taxes except **GST**.

- b) Prices must be filled in format for "Schedule of Rates [SOR]" enclosed as part of Tender document. If quoted in separate typed sheets and any variation in item description, unit or quantity is noticed; the Bid is liable to be rejected.
- c) Bidder shall quote for all the items of "SOR" after careful analysis of cost involved for the performance of the completed item considering all parts of the Bidding Document. In case any activity though specifically not covered in description of item under "SOR" but is required to complete the works as per Specifications, Scope of Work / Service, Standards, General Conditions of Contract ("GCC") or any other part of Bidding Document, the prices quoted shall be deemed to be inclusive of cost incurred for such activity.
- d) All duties, taxes and other levies [if any] payable by the Contractor under the Contract, or for any other cause except final GST (CGST & SGST or IGST) shall be included in the rates / prices and the total bid-price submitted by the Bidder. Applicable rate of GST (CGST & SGST or IGST) on the contract value shall be indicated in SOR.
- e) Prices quoted by the Bidder, shall remain firm and fixed and valid until completion of the Contract and will not be subject to variation on any account. Any new taxes & Duties, if imposed by the State/ Govt. of India after due date of bid submission but before the Contractual Delivery Date, shall be reimbursed to the contractor on submission of documentary evidence for proof of payment to State/ Govt. Authorities and after ascertaining its applicability with respect to the contract.
- f) The Bidder shall quote the prices in 'figures' & words. There should not be any discrepancy between the prices indicated in figures and the price indicated in words. In case of any discrepancy, the same shall be dealt as per clause no.29 of ITB.

12. **GST (CGST & SGST or IGST)**

- a) Bidders are required to submit copy of the GST Registration Certificate while submitting the bids wherever **GST (CGST & SGST or IGST)** is applicable.
- b) Quoted prices should be inclusive of all taxes and duties, except **GST (CGST & SGST or IGST)**. Please note that the responsibility of payment of **GST (CGST & SGST or IGST)** lies with the Supplier of Goods / Services only. Supplier of Goods / Services (Service Provider) providing taxable service shall issue an Invoice/ Bill, as the case may be as per rules/ regulation of GST. Further, returns and details required to be

filled under GST laws & rules should be timely filed by Supplier of Goods / Services (Service Provider) with requisite details.

- c) Payments to Service Provider for claiming **GST (CGST & SGST or IGST)** amount will be made provided the above formalities are fulfilled. Further, AGCL may seek copies of challan and certificate from Chartered Accountant for deposit of **GST (CGST & SGST or IGST)** collected from Owner.

13. **BID CURRENCIES**

Bidders must submit bid in **Indian Rupees only (INR)**.

14. **BID VALIDITY**

- a) Bids shall remain valid for **180 days** from the date of closing of bid prescribed by the Company. Bids of shorter validity will be rejected as being non-responsive. If nothing is mentioned by the bidder in their bid about the bid validity, it will be presumed that the bid is valid for 180 days from Bid Closing Date.
- b) In exceptional circumstances, prior to expiry of the original 'Bid Validity Period', the Employer may request the Bidders to extend the 'Period of Bid Validity' for a specified additional period. The request and the responses thereto shall be made in writing or by fax/email. A Bidder may refuse the request without forfeiture of his 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 its EMD for the period of the extension and in accordance with "ITB: Clause-15" in all respects.

15. **EARNEST MONEY DEPOSIT**

- a) Bid must be accompanied with earnest money (**i.e. Earnest Money Deposit (EMD)**) also known as **Bid Security**) paid through RTGS/NEFT/internet banking in Assam Government e-Procurement System www.assamtenders.gov.in. **Bidder** shall ensure that EMD submitted shall be valid **for 210 days from the bid closing date**
- b) The Bid Security is required to protect the Company against the risk of Bidder's conduct, which would warrant forfeiture of the Bid Security, pursuant to sub-clause 15h.
- c) The bidders shall extend the validity of the Bid Security suitably, if and when specifically advised by AGCL, at the bidder's cost.
- d) Unsuccessful Bidder's Bid Security will be discharged and/or returned in due course.

- e) Successful Bidder's Bid Security will be discharged and/or returned upon Bidder's furnishing the Performance Security and signing of the contract. Successful bidder will however ensure validity of the Bid Security till such time the Performance Security is furnished.
- f) Bid Security shall not accrue any interest during its period of validity or extended validity.
- g) The Bid Security may be forfeited:
 - i) If any bidder withdraws their Bid during the period of bid validity.
 - ii) If any bidder alters their Bid during the period of bid validity or if the bidder increases the price during the period of bid validity.
 - iii) If the bidder does not accept the LOA issued by Company within the validity of the bid.
 - iv) If the bid is accepted by AGCL, and work is awarded but the contractor does not furnish the Performance Security.
- h) In case any bidder withdraws their bid during the period of bid validity, Bid Security will be forfeited and the party shall be debarred from bidding for a period of 2(two) years.
- i) The scanned copy of the original Bid Security in the form of Bank Guarantee must be uploaded by bidder along with the Technical bid in the "Technical Bid" of E-portal. The original Bid Security shall be submitted by bidder to the office of Assam Gas Company Ltd, Duliajan-786602 (Assam), India in a sealed envelope which must reach Chief Manager (M)'s office within 12 (twelve) days of the Bid Closing date failing which the bid shall be rejected.

16. **PRE-BID MEETING**

- a) The Bidder(s) or his designated representative(s) is invited to attend a "Pre-Bid Meeting" which will be held at address specified in IFB. It is expected that a bidder shall not depute more than 02 representatives for the meeting. There will be a provision of online Pre bid meeting depending upon the situation at due course of time.
- b) Purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage and give hands-on e-tendering.
- c) Non-attendance of the Pre-Bid Meeting will not be a cause for disqualification of Bidder.
- d) Text of the questions raised and the responses given, together with any responses prepared after the meeting, will be uploaded on e-tendering website against the Tender. Any modification of the Contents of Bidding Documents that may become necessary as a result of the Pre-Bid

Meeting shall be made by the owner exclusively through the issue of an Addendum / Corrigendum.

17. **FORMAT AND SIGNING OF BID**

- a) The original and all copies of the Bid shall be typed or written in indelible ink [in the case of copies, photocopies are also acceptable] and shall be signed by a person or persons duly authorized to sign on behalf of the Bidder (as per POA). The name and position held by each person signing, must be typed or printed below the signature. All pages of the Bid except for un amended printed literature where entry(s) or amendment(s) have been made shall be initialed by the person or persons signing the Bid.
- b) The Bid shall contain no alterations, omissions, or additions, unless such corrections are initialed by the person or persons signing the Bid.

18. **ZERO DEVIATION AND REJECTION CRITERIA**

- a) ZERO DEVIATION: Deviation to terms and conditions of "Bidding Documents" may lead to rejection of bid. AGCL will accept bids based on terms & conditions of "Bidding Documents" only. Bidder may note AGCL will determine the substantial responsiveness of each bid to the Bidding Documents pursuant to provision contained in clause 28 of ITB. For purpose of this, a substantially responsive bid is one which conforms to all terms and conditions of the Bidding Documents without deviations or reservations. AGCL's determination of a bid's responsiveness is based on the content of the bid itself without recourse to extrinsic evidence. AGCL reserves the right to raise technical and/or commercial query(s), if required, may be raised on the bidder(s). The response(s) to the same shall be in writing, and no change in the price(s) or substance of the bids shall be sought, offered or permitted. The substance of the bid includes but not limited to prices, completion, scope, technical specifications, etc. Bidders are requested to not to take any deviation/exception to the terms and conditions laid down in this "Tender Documents", and submit all requisite documents as mentioned in this "Tender Documents", failing which their offer will be liable for rejection. If a bidder does not reply to the queries in the permitted time frame then its bid shall be evaluated based on the documents available in the bid.
- b) **REJECTIONCRITERIA:** Notwithstanding the above, deviation to the following clauses of Tender document shall lead to summarily rejection of Bid:
 - (a) Firm Price
 - (b) Earnest Money Deposit / Bid Security
 - (c) Specifications & Scope of Work
 - (d) Schedule of Rates / Price Schedule / Price Basis
 - (e) Duration / Period of Contract/ Completion schedule
 - (f) Period of Validity of Bid
 - (g) Price Reduction Schedule

- (h) Contract Performance Security
- (i) Guarantee / Defect Liability Period
- (j) Arbitration / Resolution of Dispute/Jurisdiction of Court
- (k) Force Majeure & Applicable Laws
- (l) Any other condition specifically mentioned in the tender document elsewhere that non-compliance of the clause lead to rejection of bid

Note: Further, it is once again reminded not to mention any condition in the Bid which is contradictory to the terms and conditions of Tender document.

19. E-PAYMENT

AGCL has initiated payments to Suppliers and Contractors electronically, and to facilitate the payments electronically through 'e-banking'. The successful bidder should give the details of his bank account as per the bank mandate form.

[D] – SUBMISSION OF BIDS

20. SUBMISSION, SEALING AND MARKING OF BIDS

- a) For e-tendering, bids shall be submitted through e-tender mode in the manner specified in tender document.

Bids are invited under “Single Stage two Bid System”. Bidders have to submit both the “Techno-commercial Un-price Bids” and “Price Bids”.

- b) The techno commercial bid is to be uploaded in the website and also submitted manually in sealed envelope super scribed with Tender no. and Bid Closing date addressed to **The Managing Director** and sent to **Chief Manager (M), Compressor Department, Assam Gas Company Limited, Duliajan- 786602, Assam** within 12 (twelve) days of bid closing date.

If the last date of receipt of tender happens to be a non-working day, the last date will be the next working day at the aforesaid time. The company will not bear any responsibility for late receipt or non-receipt of tender by Post/Courier Service.

- c) Bids submitted under the name of AGENT/ CONSULTANT/ REPRESENTATIVE /RETAINER/ ASSOCIATE etc. on behalf of a bidder/affiliate shall not be accepted.

21. **DEADLINE FOR SUBMISSION OF BIDS**

- a) In case of e-bidding, the bids must be submitted through e-tender mode not later than the date and time specified in the tender documents.
- b) AGCL may, in exceptional circumstances and at its discretion, extend the deadline for submission of Bids in which case all rights and obligations of AGCL and the Bidders, previously subject to the original deadline will thereafter be subject to the deadline as extended. Notice for extension of due date of submission of bid will be uploaded on AGCL's website/ communicated to the bidders.

22. **LATE BIDS**

- a) Any bids received after the notified date and time of closing of tenders will be treated as late bids.
- b) In e-tendering, e-tendering system shall close immediately after the due date for submission of bid and no bids can be submitted thereafter. In case of e-tendering, where the bid bond/physical documents has been received but the bid is not submitted by the bidder in the e-tendering portal, such bid bond/ physical documents shall be returned immediately.
- c) Unsolicited Bids or Bids received to address other than one specifically stipulated in the tender document will not be considered for evaluation/opening/award if not received to the specified destination within stipulated date & time.

23. **MODIFICATION AND WITHDRAWAL OF BIDS**

The bidder may withdraw or modify its bid after bid submission but before the due date and time for submission as per tender document.

24. **EMPLOYER'S RIGHT TO ACCEPT ANY BID AND TO REJECT ANY OR ALL BIDS**

AGCL reserves the right to accept or reject any Bid, and to annul the Bidding process and reject all Bids, at any time prior to award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligations to inform the affected Bidder or Bidders of the ground for AGCL's action.

[E] – BID OPENING AND EVALUATION

25. **BID OPENING**

a) **Un-price Bid Opening:**

AGCL will open bids ONLINE as per the bid opening date & time stipulated in the IFB.

b) **Price Bid Opening:**

AGCL will open the price bids ONLINE of those bidders who meet the qualification requirement and whose bid is determined to be technically and commercially responsive. Bidders selected for opening of their price bids shall be informed about the date of price bid opening through the e tender portal. The price bids of those Bidders who were not found to be techno-commercially responsive shall not be opened in e-tendering.

26. **CONFIDENTIALITY**

Information relating to the examination, clarification, evaluation and comparison of Bids, and recommendations for the award of a Contract, shall not be disclosed to Bidder(s) or any other persons not officially concerned with such process.

27. **CONTACTING THE EMPLOYER**

- a) From the time of Bid opening to the time of award of Contract, if any Bidder wishes to contact the Employer on any matter related to the Bid, it should do so in writing. Information relating to the examination, clarification, evaluation & recommendation for award shall not be disclosed.
- b) Any effort by the Bidder to influence the Employer in the Employer's 'Bid Evaluation', 'Bid Comparison', or 'Contract Award' decisions may result in the rejection of the Bidder's Bid and action shall be initiated as per procedure in this regard.

28. **EXAMINATION OF BIDS AND DETERMINATION OF RESPONSIVENESS**

- a) The owner's determination of a bid's responsiveness is based on the content of the bid only. Prior to the detailed evaluation of Bids, the Employer will determine whether each Bid:-
 - i) Meets the "Bid Evaluation Criteria" of the Bidding Documents;
 - ii) Has been properly signed;

- iii) Is accompanied by the required 'Earnest Money / Bid Security';
 - iv) Is substantially responsive to the requirements of the Bidding Documents; and
 - v) Provides any clarification and/or substantiation that the Employer may require to determine responsiveness.
- b) A substantially responsive Bid is one which conforms to all the terms, conditions and specifications of the Bidding Documents without material deviations or reservations or omissions for this purpose employer defines the foregoing terms below:-
- i) "Deviation" is departure from the requirement specified in the tender documents.
 - ii) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirement in the tender documents.
 - iii) "Omission" is the failure to submit part or all of the information or documentation required in the tender document.
- c) A material deviation, reservation or omission is one that,
- i. If accepted would,
 - i) Affect in any substantial way the scope, quality, or performance of the job as specified in tender documents.
 - ii) Limit, in any substantial way, inconsistent with the Tender Document, the Employer's rights or the tenderer's obligations under the proposed Contract.
 - ii. If rectified, would unfairly affect the competitive position of other bidders presenting substantially responsive bids.
- d) The employer shall examine all aspects of the bid to confirm that all requirements have been met without any material deviation, reservation or omission.
- e) If a Bid is not substantially responsive, it may be rejected by the Employer and may not subsequently be made responsive by correction or withdrawal of the material deviation, reservation or omission.

29. **CORRECTION OF ERRORS**

- a) Bids determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer as follows:
- (i) When there is a difference between the rates in figures and words, the rate which corresponds to the amount worked out by the Bidder (by multiplying the quantity and rate) shall be taken as correct.

(ii) When the rate quoted by the Bidder in figures and words tallies but the amount is incorrect, the rate quoted by the bidder shall be taken as correct and not the amount and the amount shall be re-calculated/ corrected accordingly.

(iii) When it is not possible to ascertain the correct rate, in the manner prescribed above, the rate as quoted in words shall be adopted and the amount worked out, for comparison purposes

- b) The amount stated in the bid will be adjusted by the Employer in accordance with the above procedure for the correction of errors. If the bidder does not accept the corrected amount of bid, its bid will be rejected, and the bid security shall be forfeited.

30. **EVALUATION AND COMPARISON OF BIDS**

Bid shall be evaluated as per evaluation criteria mentioned in Section-II of bidding documents.

In case of a tie at the lowest bid (L1) position between two or more startup/non-startup bidders, the order/LOA will be placed on the bidder who has higher/ highest turnover in last audited financial year.

[F] – AWARD OF CONTRACT

31. **AWARD**

Subject to "ITB:Clause-28", AGCL will award the Contract to the successful Bidder whose Bid has been determined to be substantially responsive and has been determined as the lowest provided that bidder, is determined to be qualified to satisfactorily perform the Contract.

32. **NOTIFICATION OF AWARD / FAX OF ACCEPTANCE**

- a) Prior to the expiry of 'Period of Bid Validity', Notification of Award for acceptance of the Bid will be intimated to the successful Bidder by AGCL either by email /letter. The Contract shall enter into force on the date of intimation and the same shall be binding on AGCL and successful Bidder (i.e. Contractor/Service Provider). The Notification of Award will constitute the formation of a Contract. The detailed Letter of Acceptance shall be issued thereafter incorporating terms & conditions of Tender Document, Corrigendum, Clarification(s), Bid and agreed

variation(s)/acceptable deviation(s), if any. AGCL may choose to issue Notification of Award in form of detailed Letter of Acceptance in such case the Contract shall enter into force on the date of detailed Letter of Acceptance only.

- b) Contract period shall commence from the date of "Notification of Award" or as mentioned in the Notification of Award. The "Notification of Award" will constitute the formation of a Contract, until the Contract has been affected pursuant to signing of Contract as per "ITB: Clause-33". Upon the successful Bidder's / Contractor's furnishing of 'Contract Performance Security / Security Deposit', AGCL will promptly discharge his 'Earnest Money / Bid Security', pursuant to "ITB: Clause-15"

33. **CONTRACT PERFORMANCE SECURITY / SECURITY DEPOSIT**

- a) Within 30 days of the receipt of the notification of award from AGCL, the successful bidder shall furnish the Performance Security (PS) in accordance with of General Conditions of the Contract. The PS shall be in the form of Bank Guarantee and shall be in the currency of the Contract i.e. in INR.
- b) The contract performance security shall be for an amount equal to 10% (Ten percent) of the work order value towards faithful performance of the contractual obligations and performance of equipment. For the purpose of CPS, Contract/order value shall be exclusive of **GST (CGST & SGST or IGST)** to be reimbursed by the Owner. Bank Guarantee towards CPS shall be from any Indian scheduled bank and registered with Reserve bank of India.
- c) Failure of the successful bidder to comply with the requirements of this article shall constitute sufficient grounds for the annulment of the award and forfeiture of the EMD.

34. **INCOME TAX & CORPORATE TAX**

- a) Income tax deduction shall be made from all payments made to the contractor as per the rules and regulations in force and in accordance with the Income Tax Act prevailing from time to time.
- b) Corporate Tax liability, if any, shall be to the contractor's account.
- c) TDS, wherever applicable, shall be deducted as per applicable act/law/rule.
- d) **MENTIONING OF PAN NO. IN INVOICE/BILL**

As per CBDT Notification No. 95/2015 dated 30.12.2015, mentioning of PAN and GST no. is mandatory for procurement of goods / services/works/consultancy services exceeding Rs. 2 (Two) lakhs per transaction.

Accordingly, supplier/ contractor/ service provider/ consultant should mention their PAN no. in their invoice/ bill for any transaction exceeding Rs. 2 lakhs. As provided in the notification, in case supplier/ contractor/ service provider/ consultant do not have PAN no., they have to submit declaration in Form 60 along with invoice/ bill for each transaction.

Payment of supplier/ contractor / service provider/ consultant shall be processed only after fulfillment of above requirement.

SECTION-IV

SCOPE OF WORK

1. INTRODUCTION

ASSAM GAS COMPANY LIMITED invites tender for Turnkey implementation of Design, Manufacture, Fabrication, Package, Test, Supply, Erection and Commissioning and Operation & Maintenance for 3 years of 1(one) number of Gas Engine driven Reciprocating variable Gas Compressor Package to be installed at ASSAM GAS COMPANY LIMITED, in Upper Assam region of India.

2. CAPACITY

The Compressor Package should have maximum designed capacity of 0.55 MMSCMD and it will be able to safely run at minimum 25% load of maximum full load capacity i.e. capacity turndown will be between 25% to 100%. The compressor package shall be designed taking the extreme operating conditions. Bidders are required to furnish Capacity availability and other details like HP requirement of the packages at different combinations.

3.0 SCOPE OF WORK

3.1. GENERAL

3.1.1. Engineering, procurement, , manufacturing, shop inspection cum testing, painting, packing and forwarding, assembly, testing, transportation to project site, storage, erection and commissioning, performance testing, Operation & Maintenance for one year of 1 (one) no. of Gas Engine driven Reciprocating Natural Gas Compressor Package including performance and mechanical guarantees against entire workmanship in all respects.

Natural Gas will be available at AGCL compressor station at 10.0 Kg/Cm² g and need to compress up to 20.0 Kg/Cm² g. However, unit will be designed to operate at a minimum suction pressure of 7.0 Kg/Cm²g depending upon the supply pressure from M/S Oil India Ltd. Suction pressure may vary above/below standard suction pressure value based on field condition. Accordingly, package is to be designed in a way that it maintains desired flow in such fluctuating operating conditions also. Compressor will have minimum designed capacity of 0.55 MMSCMD at 10.0 Kg/Cm² g and should be operational at variable load of 25%, 50%, 75% and 100% at minimum suction pressure.

The above duty conditions (capacities) are at normal operating speed i.e. 900 to 1200 rpm of the engine (i.e. 75% of the maximum rated speed recommended by manufacture) and after considering other conditions/factors such as altitude, maximum gas temperature, ambient temperature etc. The gas pressures (both

suction and discharge) for the units are likely to fluctuate by 30% of the figures given above and the compressor package shall be designed taking the extreme operating conditions. Bidders are required to furnish capacity availability and other details like HP requirement of the packages at different combinations. The requirement against each duty of compressor may be increased/ decreased at the time of order placement.

Carry out detailed field study of the existing setup/infrastructure of AGCL compressor station, study of the existing process layout/facility, identify the package hookup options (existing suction: 12" 300#, discharge:10" 300#) with the existing process, survey of the proposed site/space, existing infrastructure for the installation of new package, AGCL, identify various issues & matters related with subsequent process, pre-bid discussion required if any with AGCL officials for clarification on various queries.

3.1.2 Perform a hydraulic study for the compressor upstream and downstream pipeline for estimation of increased throughput with addition of this new package if desired by AGCL for operational requirement if any in near future.

3.1.3 Carryout HAZOP Study by engaging an approved third party.

3.1.4 SIL study is to be performed by engaging an approved third party.

3.1.5 3D modeling of the complete package should be done using industry preferred modeling software like PDMS/Autoplant/Solidplant/Naviswork etc. AGCL will seek review at various completion stages.

3.1.6 Finalization & submission of Project Execution Plan/Schedule considering all the aspects within the stipulated project completion time frame mentioned in tender document.

3.1.7 Design, fabrication ,supply, assembly of all skid piping for Gas, Water, Lube Oil, Coolant, Vent, Drain etc., pressure vessels, all electrical & instrumentation devices within skid limit to complete the package in all respect.

3.1.8 Design, supply & fabrication of all interconnection/hookup piping, hardware fittings & accessories of suitable pressure & temperature rating beyond skid limit upto the battery limit i.e. up to existing process gas header system interconnection points on suction, discharge, start gas, fuel gas, vent header. BoM with detailed technical specifications is to be submitted for AGCL review and approval.

3.1.9 Preparation of P&IDs, PFDs of new package within skid limit, proposed new hook-up drawings beyond skid limit up to battery limit, civil & structural drawing including package & air exchanger foundation, electrical,

instrumentation related drawing & submission of the same for AGCL's review & approval.

3.1.10 Preparation & submission of detailed BOM (without cost) required for package hookup with existing process in a different ANNEXURE in the Techno-Commercial Bid for review and approval of AGCL.

3.1.11 Submission of any other relevant engineering drawing, technical specification of all equipments for AGCL's review which need to comply with statutory requirements with special reference to OISD & PNGRB norms whichever applicable.

3.1.12 Fuel gas conditioning skid suitable for the compressor package.

3.1.13 Foundation for the compressor package and floor for the shed area.

3.1.14 Supply, fabrication and installation of suction (12") and discharge (10") pipings of approx 12 mtrs each including suction valve, discharge valve and NRV.

3.1.15 Design, fabrication supply and assembly of all skid pipings for Gas, water, lube oil, coolant, vent, drain etc pressure vessels, all electrical and instrumentation devices to complete the package in entire aspect.

3.2. PROCUREMENT MANAGEMENT

3.2.1. Submission of vendor list, purchase specifications of all items/materials (Civil, Structural, Electrical, Process, Piping, Instrumentation), necessary test certification, statutory approvals as well as international certification/benchmark wherever applicable for AGCL review & approval.

3.2.2. Procurement of Prime Mover, Compressor, Air Exchanger & all other critical equipments, accessories to complete the package in all respect & assembly at packager's works.

3.2.3. Submission of Inspection & Testing Reports wherever applicable for AGCL review.

3.2.4. Ensure prompt & timely delivery of all materials to meet project schedule.

3.2.5. Material transportation to AGCL project site, loading unloading, storage and shifting to installation site.

3.3. CONSTRUCTION MANAGEMENT

3.3.1. Supervision of all types of critical execution through deployment of competent professional in respective fields.

3.3.2. All civil, structural job as per OEM drawing, recommendation including foundation preparation for package, air-exchanger, supply of civil materials, engagement of civil contractors, labors, supervision of execution wherever required will be under packager's scope of work.

3.3.3. Fabrication of piping, hook-up, erection and other related mechanical works involving welding, cutting, grinding etc. through certified technician wherever applicable.

3.3.4. Submission of following documents for AGCL review & approval.

- (a) Welder qualification certificate.
- (b) Welding procedure details.
- (c) Welding inspection report.
- (d) Hydro testing report.
- (e) Radiography and other NDT report of welding joints.

3.4. PROJECT MANAGEMEMENT & CONTROL

3.4.1. Appoint/depute a well experienced OEM certified Project Manager with all infrastructures to control & co-ordinate all aspects of engineering, supply of equipment, materials, construction, erection etc. activities. The Project Manager qualification and experience certificates are to be submitted during execution of the site work.

3.4.2. Arrange scheduled project review meetings between Owner & LSTK contractor for review, discussion and clarification of project related issues, Project DPR generation & submission.

3.4.3 Witness & Certification of Factory Acceptance Test (FAT) of critical process equipments.

3.4.4 Provide all pre-commissioning assistance in full compliance with OEM requirement.

3.4.5 Commissioning of package as well as other critical equipments through OEM/Channel Partner & ensure fulfillment of all guarantee/warranty T&C.

3.4.6 Witness & Certification of Site Acceptance Test (SAT)/ Performance Guarantee Test Run of package.

3.4.7 Documentation, management & control involving all the project aspects.

3.4.8 Field Training to AGCL Compressor operators and Engineers.

3.4.9 Completion of all residual works related with the project to owner's satisfaction/requirement.

3.4.10 Any other work which may not be covered under this scope of work but required to complete the entire project in all respect.

3.4.11 Ensure full compliance of T4S of PNGRB safety rules & policy in place during project execution.

3.4.12 Appoint one experienced safety officer to look after the entire project execution safety aspects.

3.4.13 Compliance of any type of statutory approval required for the project execution or part thereof.

3.5 TIME SCHEDULE

The completion period (including commissioning) for complete scope of work will be 11(Eleven) months from the date of issue of LOI.

4.0 CODES AND STANDARDS

4.1 General

All specifications and publications shall be the current issue on the date of Tender and it shall be the Vendor's responsibility to comply with the same. The Reciprocating Gas Compressor Package shall be designed and manufactured in conformity with the codes, specification listed below and with the equipment data sheets.

4.2 International Codes and Standards:

- i) ISO 13631, Latest edition Specification for Packaged Reciprocating Compressors for (Formerly API 11P) Oil and Gas Production Services.
- ii) API 618, 5th edition Reciprocating Compressors for Petroleum, Chemical, and Gas Industry Services.
- iii) API 661, 6th edition Air-Cooled Heat Exchangers for General Refinery Services- Adoption of ISO 13706-1:2005.
- iv) API 520 (7th Ed.) Sizing, Selection, and Installation of Pressure – Relieving Devices in Refineries.
- v) API 526 (5th Ed.) Flanged Steel Pressure Relief Valves.
- vi) API 670 (4th Ed.) Vibration, Axial Position, and Bearing-temperature Monitoring System.
- vii) API 671 Special Purpose Coupling for Petroleum, Chemical & Gas Industry.
- viii) API 676 Positive Displacement Pumps – Rotary.
- ix) ISO 15664 Acoustic – Noise Control Design Procedure for Open Plant.
- x) ISO 1217 Displacement Compressor Acceptance Test.
- xi) ISO 10441 Flexible couplings for mechanical power transmission, Special purpose applications.

- xii) ISO 3046 Reciprocating Internal Combustion engines.
- xiii) ISO 10474 Steel and steel products – Inspection documents.
- xiv) ISO 9001:2000 Quality Management System Requirements.
- xv) ISO 15156 Production.
- xvi) ASME Sec. VIII Div. I Pressure Vessels.
- xvii) ASME Sec. II Materials.
- xviii) ASME Sec. V Non Destructive Examination
- xix) ASME Sec. IX Qualification Standard for Welding Procedures
- xx) ASME B31.3 Chemical Plant & Petroleum Refinery Piping
- xxi) ASME B16.5 Steel Pipe Flanges and Flanged Fittings
- xxii) ASTM American Society of Testing Materials
- xxiii) ANSI/AWS D1.1 Structural Welding Code

4.3 Order of Precedence:

In case of any conflict among the various documents of this requisition the following preferential order shall govern:

- i) Government of India Legislation/Regulation
- ii) Purchase Order Data Sheets and Material Requisition
- iii) Purchase Order Specification
- iv) Basic Design Drawings
- v) International Codes & Standards

The intent of this specification is to describe the minimum acceptable parameters for the design, manufacture and packaging of the Reciprocating gas compressors packages. It is not the intent of Company to deviate from good engineering practice. The absence of any specifications shall imply that the best engineering practices shall prevail, utilizing the best quality workmanship and new materials. Where different standards are specified, the most stringent shall apply. However, Company's interpretation shall be final.

4.4 Language and Units of Measurement:

The governing language of the Contract shall be English language. All notices, correspondence, information, literature, data, manuals and other documents required under the Contract shall be in the English language.

Technical units, quantities, etc. shall be expressed, used and abbreviated according to the SI system except for the pipe sizes, which shall be imperial units. Preferred units of measure are as follows:

- Liquid Density: API and kg/m³
- Flow Rate: m³ / hr, MMSCFD (gas), BPD (condensate), BWPD (Water)

- Power, Duty: kW/HP
- Heat Transfer Coefficient: W / m² K
- Thermal Conductivity: W / m.K
- Heat Capacity: kJ
- Viscosity: cP
- Kinematic Viscosity: centistokes (cSt)
- Area: m²
- Length: Meter (m), km, mm
- Pressure: Kg/cm² (g), psi(g), psi(a)
- Temperature: °C/ Deg F
- Volume: m³
- Pipe Diameter: Inch, mm
- Stress: MPa, Kg/cm², Pa
- Weight: Kg / Ton

4.5 Environmental Conditions

The climatic conditions are as stated below:

- Maximum Ambient Temperature: 45°C
- Minimum Ambient Temperature: 10°C
- Relative Humidity
 - At 21 Deg C: 100 %
 - At 32 Deg C: 95%
 - At 41 Deg C: 70%
- Elevation Above Mean Sea Level: 170 metres
- Seismic Zone: V(Five).
- Yearly Average Rainfall: 2528mm.

5. PACKAGE TECHNICAL REQUIREMENTS

5.1 GENERAL

Compressor package comprising of compressor, prime mover, gas engine inlet and exhaust piping, scrubber, auxiliary systems (lube oil system, cooling water system), and instruments, safety devices, control panel and all interconnection piping/fittings shall be mounted on proper skids. Sufficient number of lifting lugs will be provided for safe distortion free lifting of the package during installation. Owing to transportation constraints if whole unit cannot be transported in a single trolley, the skid, engine and compressor shall be transported in separate trollies & later assembled at project site.

Prime mover should be of make Caterpillar or Waukesha and the compressor should be of make Ariel or Dresser Rand or Cameron. AGCL will have the full discretion to select the package comprising of the most suitable driver make/brand considering industrial population of the package in the vicinity, availability of reliable after sales service etc of a particular bid in the subsequent process of technical bid evaluation in the interest of the company.

For technical requirement of the Reciprocating Gas Compressor package reference is made to the **design data sheets** (Annexure A, B & C enclosed) giving the operating conditions and design requirements.

A) General requirements: Reciprocating compressors should be designed and manufactured as per ISO 13631: 2003 edition (Formerly API 11P). The compressors shall be horizontal, balanced single stage compressor suitable to perform the process duties as defined in the attached **design data sheets** (Annexure A, B & C).

i) Driver: Gas Engine Driver utilizing the same process gas as fuel gas.

ii) Coolers: Common unitized aerial cooler of fin fan design shall be provided to cater to cooling requirements of the lube oil, packing oil, compressor cylinder jacket water (if any), gas engine jacket water, process gas (discharge gas cooling). **From previous experience AGCL prefer 'Harsco' make cooler only.**

iii) Coupling: A standard dry shim pack coupling bolted to compressor and driver fitted with a non-sparking coupling guard.

iv) Flywheel: A flywheel between compressor and gas engine.

v) Scrubbers: Gas scrubbers with their supporting structure at suction of compressor, complete with necessary valves and instrumentation.

vi) Pulsation Dampeners: Suction and Discharge dampeners at each cylinder.

vii) Remote ESD Device: Remote ESD device to be provided

viii) Valves and Safety Valves: One each of automatic recycle valve with manual by pass valve, blow down valve, suction shutoff valve, discharge shutoff valve, discharge check valve and one each of safety relief valve on suction & discharge drums and final discharge line. Safety Relief valves shall be designed, manufactured, inspected and tested in accordance with API 520 and API 526.

ix) Suction Strainer: A suction strainer in the process gas inlet of the compressor.

x) Control Panel & Instrumentation: Skid mounted **Altronic DE-4000** Control Panel complete with all safety cut outs and Instrumentation required for safe operation and control of the compressor package. Instrumentation shall complete with junction boxes installed, wired and tested on the compressor skid and on the associated equipment skids. The control panel shall be skid mounted. Supply shall complete with cable trays, instrument installation materials etc. required within the skid. The panel must have provision for remote data acquisition through MODBUS protocol. The panel should have tachometer and running hour meter installed. The sensing elements for this Tachometer/ running hour meter should be from the compressor. Other calibrated measuring instruments shall be arranged by the packager/contractor. **Control panel should be designed for Hazardous Area Zone 2, Gas group IIA/IIB.**

xi) Lubrication System: Forced Feed Lubrication system as detailed under; the major components of the forced feed lube oil system shall be as follows:

- Main oil pump. - Driven from crankshaft. - as per OEM Standard
- Pre-lube Pump - Manual and automatic.
- Lube Oil Cooler - as per OEM Standard.
- Lube Oil Filter As per OEM standard
- Cooler surge Tank
- Piping lube oil system:
- All lube oil piping downstream of filter shall be series 300 Stainless Steel.
- All high-pressure double ferrule fitting and 2/3 way valves shall be from SWAGELOC/ Hy-Loc/ PARKER makes & shall be S.S. material only. Material of tube shall also be SS316 as per ASTM A269 Sandvik make.
- 200micron mesh screen before lube oil pump
- Frame lubrication system for frame bearings, connecting rod bearing, cross head shoes.

xii) Cylinder and Packing Lubrication System: A high pressure lubrication system for cylinder and packing lubrication, using divider block technology along with requisite nos. of gauges and safety systems for troubleshooting. The packing shall provide a dynamic seal between cylinder and piston rod.

xiii) Compressor cooling system: Water for compressor jacket cooling is not envisaged. Hence un-cooled cylinders are preferred.

xiv) Compressor Main Components: Frame, cylinder, distance piece, cross head, crank shaft, piston, bearings, packing, compressor valves, and capacity control devices etc.

xv) Auxiliary Pipe work: All necessary auxiliary / ancillary pipe-work including fittings, valves and pipe supports, terminating at the package skid edge for both compressor, accessories, gas engine and accessories. Interconnected Piping between different components of the package. All on skid termination points shall be flanged as per ASME B 16.5, Weld neck, RF, Smooth finish. The terminal points shall be as shown in the P&ID. The terminal points include suction / discharge flanges, drain valves, vents, etc.

xvi) Electrical: Cable termination kits for termination of LV cables shall be provided by Vendor. Cable glands, boots and lugs for all LV cable connections are in Vendor's scope. All electrical apparatus, instruments items/system shall be suitable for the hazardous area classification as per applicable National/ International std. and statutory regulation. Suitable Online UPS with 4(four) hour battery back up to be provided for powering Control panel of Compressor Package by the bidder. UPS will be placed in nearest safe area.

xvii) Special Tools and Tackles: These shall include all non-standard equipment needed to remove the compressor cover, bearings, valves and piston rod packings or perform maintenance. All special tools shall be supplied in sectionalized purpose built cases with hinged lids.

xviii) Spares: Spare parts for start up and commissioning and recommendation for two years of normal operation (Insurance Spares).

xix) Name Plate: All major components of the compressor package shall be fitted with a stainless steel SS316 identification plate.

xx) Earthing Lugs: Minimum two earthing lugs shall be provided on the skid.

xxi) Vibration: The standard vibration limit shall be included in the bid. Vendor shall specify vibration effect of compressor to piping battery limit.

B. Surface Preparation and Painting: The equipment and skids are to be externally painted for environmental protection after thorough cleaning. As a minimum, this is to include zinc rich primer (1 coat) and epoxy based final covering. Cleaning shall be done through sand blasting as per SSPC # SP6 before painting with spray except compressor and engine block.

C. Inspection and Testing: AGCL reserves the right to inspect, test and if necessary reject any part / parts after delivery at site (including complete manuals, catalogue etc.) in case of any fault on the part of the supplier. AGCL shall be no way be waived by the reason that the unit/ item was previously inspected and passed by AGCL as per inspection clause detailed anywhere in the enquiry.

AGCL reserves the right to inspect Engine and compressor packages separately at OEM sites. 3(Three) representatives from AGCL will attend both the inspection. Bidder to consider lodging & boarding, local conveyance at OEM sites in their scope of supply.

Inspection and Testing including Mechanical Run test (MRT) of the complete assembled package at Vendor's works prior to shipping and shall be witnessed and certified / approved by AGCL's Representative.

D. Vendor Documentation

a) Three hard copies along with soft copy each of

- General lay out drawing
- Torsional analysis,
- Cross head load (rod load) reversal diagrams for each load step of every specified condition,
- Pulsation study, total weight of compressor and prime mover with center of gravity and other relevant information shall have to be provided within two months of placement of order.

b) Three copies of installation, commissioning, operation and maintenance manual with illustrated parts list for each item covering all accessories of each of the packaged units should be furnished before shipment of unit along with soft copy.

c) Three copies of Compressor Part list with dimensions to be provided along with part nos. and Bill of materials with the supply of the items along with softcopy.

E. Site assembly, erection and commissioning

a) The bidder shall provide footprint drawings (three copies) and other design details etc. at least 2 (two) months within the placement of order.

b) The vendor shall provide services of their commissioning team for assembly, erection and commissioning at site. AGCL will assist the vendor for placing the compressor at site and will hook up process and service piping with the compressors at the battery limit. All other arrangement for installation and commissioning the compressor shall be done by the vendor. After installation /commissioning the vendor shall run (continuous run) the compressor for 72 (Seventy Two) hours at maximum rated rpm of engine/compressor on site load condition satisfactorily prior to handing over to AGCL for regular operation. Installation and commissioning price including accommodation, local transport, manpower etc. for the same shall be borne by the vendor and to be quoted separately in commercial bid. The vendor should measure vibration and

noise level of the units at the maximum rated speed, which should not exceed standard limit as per the applicable statutory compliance.

F) Erection and Commissioning:

i) The packaging and shipment of the package should be in such a way that the unit could be placed at site with necessary ancillaries, auxiliaries, piping etc., within a short span of time during erection and commissioning. Proper tagging of the auxiliaries/ ancillaries/ dismantled item should be done according to their unit and bill of materials to make them easily identifiable at site.

ii) Vendor shall supervise the placement of compressor packages at location. After placement of the units, the vendor shall commence erection of the packages within 1(one) week and complete the erection/commissioning jobs within 12 (twelve) weeks of the same.

iii) The package shall be considered fully commissioned only after the supply and acceptance of all related items of the package, documentation including PNGRB/PESO approval for all electronic/ electrical field instruments and control Panel.

Bidder is to quote for installation and commissioning charges separately.

G. Training to Operations staff of Company at site:

Vendor will provide 2 (two) day's classroom training at AGCL, Duliajan office, to the operating staff and officers to enable them to operate the units in safe and efficient manner.

H. Design & Engineering Services:

a) Complete design, engineering of the compressor package including all accessories, gas engine, coolers etc.

b) Conducting acoustical simulation and mechanical response studies as per design approach 3 specified in API 618 and carrying out the pulsation design studies as per Appendix M of API 618 5th Edition.

c) Carrying out the valve dynamic response study.

d) Carrying out full torsional and lateral analysis and rotor response studies including stress calculations of the complete rotating assembly. This analysis shall indicate the vibration levels expected for each case of operation including start-up, shutdown, and upset cases.

e) Carry out a digital study of the system including the suction and discharge piping.

- f) Design of the skid taking into consideration of worst case operating parameters with special significance to vibration.
- g) To Provide stress analysis and recommendation to mitigate vibration.
- h) Providing all documentation for tie-in provisions and as required by the purchase order, the specifications and the standards referred to herein.
- i) Furnishing monthly progress reports and ensuring timely execution of the job.
- j) Process and Mechanical guarantee.

The requirements set out in this document shall not be construed to eliminate consideration of the manufacturer's standard design. The manufacturer's standard design may be accepted, if found to be equivalent or superior to the requirements of these specifications. The Vendor shall provide any material, equipment, instrumentation and any other accessory, over and above that specified herein, which is required to provide a safe and efficient unit. The Vendor is to provide a Process performance and Mechanical guarantee.

6.0. AGCL Scope of Utility Services

AGCL shall provide the following:

- a) Electrical Power Supply: For Control Panel: Rated voltage: 240 V-AC ($\pm 10\%$), single (1) phase, Rated frequency: 50 Hz ($\pm 3\%$). Work site illumination and any other utility power requirement shall be provided.
- b) Fuel Gas: The composition of the fuel gas is stated in the Annexure-C.
- c) Sun shelter with overhead standard lifting facilities above the compressor skid. Vendor is to furnish the required lifting capacity of the package.
- d) Connecting pipe-work from Package skid end connections of the scrubber and other drains to the station drain system.
- f) Connecting pipe-work from the Package skid edge connections of the relief valve discharge pipe to the station flare / Vent system.
- g) Piping connection to the engine fuel valve and starting motor.

7.0 DESIGN REQUIREMENTS

7.1 General

The reciprocating gas compressor package shall be designed, constructed, inspected and tested in accordance with API 11P/ISO13631 Latest Edition, equipment data sheets and this specification. The most stringent requirement shall apply. The equipment (including auxiliaries) shall be designed for a minimum service life of Twenty Five (25) years & 5-6 years of uninterrupted continuous operation except for the routine scheduled maintenance outages. The Reciprocating gas compressor package shall be complete with all accessories such as interconnecting piping, instruments, etc.

7.1.1 Package Layout

The vendor shall provide 3D layout diagram showing all accessories, piping etc. Isometric views with hard copies shall be provided for the Compressor package. A Soft copy of the drawing shall be provided in Auto-cad format.

The equipment layout shall be such that it enables safe and easy access to each item for operation and maintenance. Location of platforms /walkways and ladders for operation and maintenance activities shall be shown. In particular, ease of maintenance shall be borne in mind during the design stage of the ancillary equipment such as coolers, lube oil system etc. Optimization of package battery limit interfaces with other facilities shall be considered.

7.1.2 Reliability and Availability

The overall availability required for the compressor package shall be > 98% and the reliability shall be > 99%. Vendor shall confirm the reliability and availability figures in the bid along with the spares holding philosophy.

7.2.2 Required Turndown

The compressor train shall be capable of operating from 25% to 100% of the design throughput at the design operating suction and discharge pressures. This turndown shall be achieved as far as possible by speed variation / unloaders / automatic bypass control of the compressor train.

7.3 Mechanical:

7.3.1 Reciprocating Compressor Package Design The compressor and auxiliaries shall be designed, manufactured, tested and supplied strictly in accordance with the requirements of API 11P/ISO13631 latest edition.

The compressor shall be reciprocating, singlestage, double acting, horizontally balanced opposed design. The operating parameters are provided in the data sheets. All operating conditions mentioned in the data sheets are at the battery limit.

Piston rods shall be forged and coated with tungsten carbide coating/ion nitriding coating. The Vendor shall carry out lateral and torsional analysis. Torsional analysis shall be carried out for the complete compressor/driver system and shall cover all the possible resonance conditions that may occur during run-up, run-down, and within the complete operating speed range.

The suction and discharge pulsation dampeners shall be designed and manufactured as per ASME section VIII Div 1 with code stamping.

During the detailed design stage, acoustical simulation shall be carried out as per design approach 3 specified in API 618 in order to verify its satisfactory performance in all respects but especially mechanical/fluid stability over the entire relevant operational flow rates, temperatures and gas compositions. The conduct of this study and the implementation of necessary recommendations emanating from it are included in the scope of supply of the Vendor.

In addition to this, the Vendor shall carry out valve dynamic response study. Noise levels of compressor assembly together with drive unit shall not exceed per the applicable statutory compliance at 1 meter distance from the equipment at full load condition.

Compressor vibration and bearing temperature monitoring shall be carried out in accordance with API 670.

The package shall be designed for, continuous unattended operation in a fail-safe manner.

The compressor package shall be suitable for starting & stopping as part of an automatic control sequence to be executed from the compressor PLC system.

Compressor Suction and discharge flange rating is as per data sheet. Allowable forces and moments on the compressor suction and discharge nozzles shall be as per API 618 fifth edition.

7.3.2 Lubrication: The lubrication of the compressor cylinders and packing lubrication System shall be as per API 618 with divider block technology. Vendor is to provide detail lube oil requirement calculations.

7.3.3 Cooling Water System (for Prime Mover / Engine/ Compressor (if required)) Closed loop engine jacket water cooling shall be provided along with coolant expansion tank. The expansion tank shall be designed as per Engine manufacture's recommendation of coolant expansion factor with necessary pressure cap, level glass etc. taking into consideration the total volume of coolant in the system including the aerial cooler sections.

7.3.4 Compressor Flexibility to operate the compressor at variable throughput a suction pressure controlled (pressure controller) by-pass control valve from

delivery to suction side shall be provided for compressors only. The sizing of the control valve shall be done by considering 100% bypass of compressor throughput. The control valve shall be provided with a by-pass valve and isolation valves (2 Nos.). By-pass and isolation valves shall be gate valves as per API Spec, 6D.

7.3.5 Coolers Common unitized cooler of fin fan design shall be provided to cater to cooling requirements of the lube oil, packing oil, gas engine jacket water, process discharge gas after coolers.

The cooler shall be forced draft, air-cooled heat exchangers designed, manufactured, tested and supplied in accordance with ISO 13706 / API 661. The cooling fans shall be forced draught type with airflow outward.

The cooling fan shall be capable of cooling up to 125 % of the duty requirements.

The tube bundle shall be provided with 1" flanged valves for vent and drain connections. Central, accessible greasing facilities shall be provided for fan bearings, if not greased for life.

Vendor shall submit fan performance curves along with the bid.

The air-cooled heat exchangers shall comply with the following requirements:

- In normal operating conditions the discharge gas temperature at the outlet of the air-cooler should not exceed 55°C.
- Finned type tubes shall be provided and the tube tubes shall be tested hydrostatically at 1.5 times of the maximum operating pressure.
- A corrosion allowance of 3 mm shall be provided on all wetted carbon steel surfaces except for tubes.
- The tube sizes shall be at least 1" NB size.
- Thermal rating of the air cooled heat exchangers shall be based on a maximum flow at 125% of rated mass throughput for the worst design case (highest flow rate).
- Discharge cooler shall be sized for full flow recycle operation at maximum power.
- For cooling of engine coolant, the cooler shall be designed for 125% of the engine heat rejection of the engine service power at site conditions with the absolute maximum ambient temperature.
- Fans shall be driven by V belt and pulleys. Belt design with four V's shall be considered.
- Fan tip speed shall not exceed 60 m/sec. However, it may be further reduced, if noise levels exceed the specified levels of 95 dbA at 1 m distance from the unit.

- It shall be possible to manually adjust the pitch of the blades to increase the fan capacity.
- Tube bundles shall have finned tubes, with full accessibility for inspection, cleaning and replacing. Maximum unsupported length of tubes shall be 1.8 m.
- Each tube bundle shall be provided with 1-1/2" drain valve and vent connections.
- Vibration probes shall be provided for each cooler fan for high vibration alarm / trip.
- All elevated working locations shall be equipped with at least two escape routes in separate directions. Two ladders with railing shall be provided for the same. Location of the ladder shall be marked on the detailed drawing. A 50 mm square mesh arrangement (for hail guard) above the tube bundle shall be provided for all air coolers.
- Provision for fan hub bearing lubrication from outside the cooler.
- Loadings for pipe supports shall be considered in the structural design load.

7.3.6 Scrubbers / K.O. Drums

The compressor package shall be complete with compressor suction and inter stage scrubbers. The scrubbers are to be designed to remove any condensed hydrocarbons, water and any entrained lube oil in the gas stream.

- Scrubbers shall be vertical type with demister mat on the gas outlet. The scrubber vessel and the scrubber internals shall be designed as per design data sheet provided. The vessel internals shall be complete with Vortex breaker and Mist Eliminator (Demister) among others.
- The mechanical design, fabrication and testing of the scrubbers shall be carried out in accordance with ASME Sec VIII Div I with code stamping.
- A corrosion allowance of 3.0 mm shall be provided.
- Desired Nos. of Nozzles of proper size as per design requirement shall be provided.
- One No. Inspection / Access hole of not less than 6 inch size shall be provided.
- Vessel internals shall be firmly attached and it must be possible to clean the internals, through the manholes.
- All scrubber nozzles shall have valve or blind flanged connections to enable flushing with water or purging with nitrogen.
- The scrubber shall have suitable supporting structures to prevent vibration.

- All vessel connections shall be flanged as per ASME B 16.5. The flanges shall be weld neck, raise face type with smooth finish of 125 – 250 micron.
- Each scrubber shall be fitted with the accessories as under;

i) One no. Safety Relief valve designed for overpressure

ii) One No. Manual drain valve

iii) One No. Level gauge to check liquid level inside the vessel

iv) 1(one) diaphragm operated liquid dump valve to be operated by high liquid level controller mounted on the nozzles made for the purpose on the vessel.

- The following minimum instrumentation to be fitted in the vessel:

i) High level Switches

ii) Automatic high liquid level controller to operate liquid dump valve.

7.3.7 Vibration Acceptance Levels

The Vendor shall be responsible for achieving vibration acceptance levels at site for all items of equipment in his supply. Site acceptance levels shall not exceed the agreed factory acceptance limits as per API 618 5th edition. Structural vibration of base plate shall also be considered and checked in the field.

7.3.8 Dry Flexible Couplings

Dry Flexible Couplings shall be designed, manufactured and supplied as per ISO 10441. Flexible element spacer couplings, coupling membranes shall be stainless steel. An assembly balance shall be performed. All coupling guards shall be totally enclosed, spark proof. The guard shall be rigidly supported and manufactured from non-sparking material.

The coupling shall be designed to minimize coupling temperature & windage effects. It shall be designed to meet the torque transmission and misalignment criteria in accordance with API 618.

7.3.9 Gas Engine

H.P. Requirement: The Natural Gas engine's power must satisfy the following requirements;

BHP (Continuous rating under site condition) = 120% of both the total BHP required to drive the compressor at full load and the total BHP required to drive the auxiliaries.

The Gas engine shall be turbocharged intercool type. The composition of the fuel gas is stated in the compressor data sheets. Engine shall be suitably rated for the fuel gas composition and as per the local environmental conditions (altitude and temperature).

Among others the gas engine shall be complete with the following;

- Intake air filter: The air filter shall be dry type. It shall remove 98% of all particles greater than 10 μm . Air filters shall be sheltered from rain ingress. The filter shall be fitted with a differential pressure indicator to show when the filter requires attention. The filter housing shall be in Stainless steel SS 316.
- Air engine starter
- Lube oil system
- Engine cooling system: Closed circuit coolant water system to be used for engine cooling. The engine coolant water shall be cooled in the air cooler as stated in Aerial Cooler section.
- Exhaust System Silencer with spark arrester: The exhaust silencer shall be hospital type with integral spark arrester capable of sound attenuation in the range of 35 to 40 dB (A). An expansion bellow with flue gas duct is to be provided at the engine exhaust termination. All external connections from the engine shall terminate in flanges to ASME B16.5. Suitable supports are to be provided to avoid vibration.
- Engine Management system with troubleshooting tools with necessary software/hardware/cables/license and other special tools for maintenance and troubleshooting purposes.
- Engine Ignition System shall be Shielded ignition system.
- Fuel Filtration.
- Auxiliary water pump.

7.4 Piping

Piping and appurtenances shall be designed, fabricated, installed, inspected and tested in accordance with ASME B31.3 & ASME B16.5.

Among others, the following piping shall be included in the supply:

- All piping within the compressor skid and auxiliaries such as scrubbers etc.
- Process gas piping between scrubbers (suction / discharge) and main compressor skid.
- Interconnected process gas piping between coolers skid and main compressor skid.

- Interconnected piping between lube oil skid and the main compressor skid.
- Thermal insulation required for all surface greater than 60°C.
- Piping vibration analysis and recommendations for piping outside compressor skid shall be provided by Vendor.
- Care shall be exercised in pipe sizing to minimize acoustical pulsations and mechanical vibrations.
- All piping wetted by the process gas shall be manufactured from carbon steel SA 106 Gr. B seamless with corrosion allowance.
- The flanges shall be of SA 106.
- All piping shall be butt welded and designed with flanged joints to allow complete removal.
- Socket welded, seal welded or screwed fittings shall not be used. All termination points shall be WNRF flanged and conform to ASME B16.5. All flanges up to ANSI 300 class shall have weld neck, raised face, smooth finish. The flanges above ANSI 300 class shall be weld neck, RTJ jointed. Both types of joints shall be complete with either jointing sheet or RTJ ring.
- Compressor casing drains and vents shall have valves and routed to edge of the base plate and shall allow for complete drainage of compressor assembly. Each casing drain shall have individually valve.
- The end connection shall be flanged as per ASME B16.5.
- All relief valves and depressurizing valves shall be positioned above the relief header and the equipment being protected. The piping should be routed to eliminate liquid pockets both upstream and downstream of these valves.
- All isolation valves provided on the compressor skid drain shall have ball valves.
- The compressor vent, blow-down valve shall be installed and routed to edge of base plate. The end connection shall be flanged as per ASME B 16.5.
- Suitable piping supports for all piping shall be provided. A detailed stress analysis for the package piping shall be done. The analysis reports shall be attached with the final documentation. Vendor shall provide the requirement of acoustical insulation (if any) for the piping in his scope as well as for suction and discharge piping.
- For positive isolation of equipment / items for maintenance purposes double block and bleed valves shall be mandatory and provided by compressor Vendor.
- All isolation valves shall be as per the valve specification. All check valves shall be of non-slam type.

- The package shall be complete from the suction skid edge connection to the discharge connection. Suction and discharge lines shall be sized for a maximum actual velocity of 9 m/sec to 12.8 m/sec. The Vendor shall carry out the analog study of suction and discharge piping complying with the scrubber nozzle forces and moments.
- The guideline for suction and discharge piping design and preparation for an acoustical simulation analysis shall be as per API 618. The Vendor shall provide the details of special supports (if any).
- To minimize pipe vibrations Vendor shall design pipe runs so that the acoustic length of the pipe run shall not create standing wave that amplifies the pressure pulsation system.
- Typical pipe run with respect to acoustic length to be considered are:
 - Pipe length from suction pipe line to suction scrubber.
 - Pipe length from scrubber to suction dampeners.
 - Pipe length from discharge scrubber to pipeline.
 - Pipe length from discharge pulsation dampeners to cooler.
 - Pipe length from cooler to scrubber.

7.5 Instrumentation and Controls

The control philosophy is to initiate machine trip in case of all mechanical upsets (e.g. temperature rise, vibrations, low coolant flow, low suction pressure etc), which might result in a major mechanical breakdown. A Process Shutdown (PSD) or an Emergency Shutdown (ESD) shall stop the gas compressor.

The Vendor shall supply a local control panel (PLC based) mounted on-skid and designed for operation, control and safeguarding of the compressor system. All operating parameters for the compressor shall be available from the control panel.

The PLC control logic shall be done in the local control panel. Vendor will size and select all instrumentation located within the scope of the skid package, as per the P&ID. Sizing calculations shall be provided for approval and verification.

Datasheets in ISA / PTS formats shall be provided by the Vendor for review and approval. Instrumentation and control panel shall be supplied from the recommended instrumentation Vendors approved by PNGRB/PESO.

All equipment, instrumentation, valves etc. shall be tagged in accordance with the approved P&ID. Instruments shall be labeled and cross-referenced in an instrument lists which will also indicate the manufacturer, size, model number, calibration range, span limit and set point. Vendor shall also provide other engineering documents such as wiring diagrams, layout drawings, etc., for review and approval. Operating and control philosophy shall be submitted as a part of the offer.

All Instruments shall be intrinsically safe/flame proof as per hazardous area Zone II classification which is required to be approved by PNGRB/PESO.

7.5.2 Speed Control Speed control of the compressor unit will be carried out in compressor local control panel.

7.5.3 Vibration: Vibration switch shall be provided for Engine, compressor frame-heads, Air-Exchanger, etc.

7.6.1 General

The package shall be set on a single structural steel skid / base frame suitable for installing on packed pad. Vendor is to provide details about design and structural diagram.

7.6.2 Structural Steel Skid: The structural design of the skid(s) shall include the following minimum general requirements:

- Steel design shall be in accordance with BS 5950 or AISC.
- Bi-directional moment resistant frames shall be avoided.
- The minimum thickness of any structural steel plate shall be 8 mm.
- The thickness of gusset and stiffener plates shall be 10 mm minimum.
- The skid shall be designed to minimize field assembly and installation. All shop connections to be designed as fully welded. Field welds shall be avoided, and field connections shall be designed as bolted connections.
- The lifting lugs shall be located on the outside of the longitudinal perimeter beams in order to minimize deflections. A transverse beam must be provided at lifting lug locations.
- The skid shall be designed for a 4 point lift only. Exception for this requirement must be authorized by AGCL.
- Tie down lugs or brackets shall be welded to structural members of the skid(s) to allow tie down during transportation.
- Spreader bar, if required for lifting / handling of skid / Unit shall be supplied by Vendor.

- Vendor shall supply all chocks / packing pieces, shims and the anchor bolts.
- For the purpose of leveling, jacking bolts with locknuts shall be supplied by the Vendor.
- The base frame shall incorporate fixtures, rails, space, etc., as required to expedite maintenance. The base frame shall incorporate a sloping drip pan (for oil collection) collecting area covering whole skid, compressor, engine, coupling, piping etc. including a drain point and valve at the lowest point.

7.6.3 Platforms

Vendor shall provide suitable platforms for the following items to the extent indicated below unless the equipment or the facilities described are accessible from grade or from any other permanent platforms.

- Compressor and main driver
- Coolers to attend the inlet/return headers with vent and drain valves, driver and fan assemblies

8.0 Noise

Noise level will not exceed the limit as per the statutory norms at 1 meter distance from the edge of the skid. Residential type silencer shall be provided (i.e. silencer shall provide a minimum of 25 dBA noise reduction). Unless specified otherwise in central or State Pollution Control Board requirements, noise from individual equipment or combined noise from all equipment shall not exceed following limits:- At one meter from equipment – As specified in equipment specification. Noise level outside compressor station fenced area should be within a) 65 dBA during day time b) 55 dBA during night time.

9.0 INSPECTION AND TESTING

9.1 Quality Assurance

Vendor and his major Sub-Vendor's shall demonstrate that they operate a quality system in accordance with an internationally recognized standard such as ISO 9001:2000 or agreed equivalent standard, commensurate with the goods and services provided. The effectiveness of the quality system and the Vendor's compliance with it shall be subject to monitoring by the Company and in addition, may be audited by an agreed period of notice.

The format and outline content of the quality plan shall be agreed between Vendor and Purchaser, prior to order placement. The Vendor shall submit with his tender an Inspection and Test plan specific to this scope of supply. Detailed quality plan, the scope of testing and the “hold points” shall be mutually agreed between the Purchaser and the Vendor during the technical bid submission.

The Vendor shall submit a quality control program for Company’s review at the time of proposal. The Vendor shall provide facilities for and cooperate with the Company and its designated authorized inspectors during manufacturing, assembly and testing. The Vendor shall inform the Company at least four (4) weeks in advance for pre-production meeting.

9.2 Pre-Inspection Meeting

The Company will initiate this meeting as required. The specification, inspection, testing and packaging will be reviewed with Vendor’s manufacturing and quality control personnel.

The Vendor shall provide a Quality Plan/ Inspection and Testing Plan for manufacturing. The plan shall cover all quality related aspects of each piece of equipment in the specification and shall indicate inspection points, review points and milestones where the inspector will examine the equipment. At no time will inspection by Company relieve the Vendor of his quality control responsibilities.

9.3 Inspection and Testing

Inspection & testing of all the components of this package shall be performed by vendor / AGCL’s representative. Vendor shall provide a complete Inspection & testing plan for review by Company. Inspection, testing and material certification shall be in accordance with the requirements of ISO13631 codes and standards and also the requirements of the certification/ Approval Authority.

In order to enable a proper scheduling of the inspection visits, Vendor is requested to notify Company at least two (2) weeks prior to the date of inspection. When components or services are obtained from Sub-Vendor’s the Company’s inspector and/or his agent reserves the right to inspect these items at the point of manufacture. It is the Vendor’s responsibility to include Company’s inspection and notification requirements in all sub-orders.

Vendor shall provide free access to his works and that of Sub-Vendor's for the authorized representative of Company. All certification on the materials, shop test data, etc., shall be made available to verify that the requirements of the purchase order are being met.

The Vendor shall provide test certificates for all tests carried out on component equipment, as detailed in the Vendor Data Requisition Form.

Test certificates shall be approved by Company's Inspector prior to dispatch and official certificates shall be forwarded within one week of test completion. A witnessed full functional test, simulating site operating conditions and including a noise test, shall be carried out on complete package.

For Major components supplied loose, where applicable and for skid mounted, fabricated packages, as minimum, the AGCL's Inspector reserves the right to:

- Review Vendor's schedule
- Review Vendor's quality control procedures.
- Review welding procedures and welder's qualifications before fabrication commences.
- Check code material specifications, mill certificates (when applicable), and thickness and pressure ratings.
- Check welding procedures are being followed.
- Witness air receiver / piping hydro test.
- Check equipment layout and that interconnecting piping, wiring and tubing matches layout drawings, material lists, and P&ID's; and is suitable for operation and maintenance.
- Check surface preparation for painting and coating.
- Check painting and coating for number of layers and thickness.
- Function testing of the control and shutdown logic.
- Confirm that all loose components are shipped.
- Other test as stated on the data sheets.

Vendor may use any method of inspection necessary to establish quality control and ensure adherence to specifications. Any weld which does not meet the specifications or the applicable code requirements or is unacceptable for the service for which it is intended shall be cut out or repaired at no expense.

9.4 Material Testing and Certification Requirement

The final non-destructive examination of welds for acceptance purposes shall be carried out as per standards. Radiography, ultrasonic examination shall be performed for acceptance purposes. All weld joints of shell, heads, nozzles and attachments shall be 100% MPI tested and 100% ultrasonic tested.

Full traceability of all welds is required. The Vendor shall provide a weld map with full traceability to individual weld numbers. The traceable data shall include NDT reports, welding procedure and welder number.

Certification requirements shall be as follows:

- Pressure containing parts in accordance with ISO 10474 3.1
 - Non pressure containing parts in accordance with ISO 10474 2.2
- Certificate shall be provided in accordance with material requisition

Vendor Document Requirement List (VDRL) covering each item. All certificates should be fully traceable to the item covered and shall be marked with the purchaser order number, item number and tag/part number. They shall be clearly legible, in the English language.

9.5 Gas Engine Performance Test:

Performance testing of the engine shall have to be carried out in accordance with ISO 3046 or equivalent test procedure at manufacturer site. All relevant certificates are to be submitted to AGCL for scrutiny and record.

9.6 Factory Acceptance Test (FAT)

The Company reserves the right to visit the Vendor's premises to witness an acceptance test of the equipments and shall be given tentative date for readiness of the testing at least before 2(two) months in case of Foreign Country and 1(one) month if in India. The equipment will be thoroughly tested by the Vendor prior to the acceptance test. Prior to the start of the Vendor's testing, a detailed schedule of the tests shall be supplied to the Company. The acceptance test will check compliance with the specification and the vendor is to make available all necessary equipments and services for this test. Notwithstanding the above notice periods the Vendor shall, following receipt of the Company's order submit a schedule identifying details of timing of design, construction and testing activities.

Factory Acceptance Test procedures shall be submitted by Vendor for Company's review and approval. The compressor package shall be tested at Vendor's work site.

The Vendor shall submit test procedures for the FAT of the entire compressor machinery train including gas engine, Dry flexible coupling, auxiliary skids such as scrubbers, air cooled heat exchangers etc. No negative tolerance is permitted on capacity and discharge pressure at any point within the operating envelope subject to condensation and/or water droplets.

Testing shall include as a minimum for the following:

- a) Material inspection as per OEM standard
- b) Hydrostatic test certificate
- c) A witnessed No load mechanical run shop test for at least 1 hours
- d) All pressure vessels and equipment subjected to pressure shall be tested in accordance with ASME section VIII Division I. This includes scrubbers, gas coolers etc.
- e) Cooler fans shall be subjected to mechanical run test, vibration and noise test system at the sub Vendor's works.
- f) Testing of auxiliaries such as lube oil system, coolers etc. shall be carried out as specified in respective codes at the respective sub Vendor's shops.

9.6.1 String test: Vendor has to specify the infrastructure available to carry out the string test of the compressor package. The location of the site where the string test will be carried is to be mentioned in the bid.

A witnessed running string test of the complete unit comprising compressor, seal system, dry flexible coupling, base plate, gas engine, lube oil system, auxiliary skids, instrumentation and all ancillaries.

- a) A witnessed compressor Mechanical Run test with all auxiliaries and process equipment interconnected and assembled.
- b) A witnessed sound level test.
- c) Vibration measurements of all elements including base plate vibrations and natural frequencies.

9.7 Site Acceptance Test / Final Acceptance Criteria

After installation and commissioning at AGCL's site, the SAT shall be executed in accordance with ISO 1217 for at least 72 hours without any interruptions. Every interruption during the SAT will result in restarting the SAT by resetting the elapsed time of the test to zero (0) hours.

After satisfactory completion of the SAT the Vendor or authorized representative shall sign the 'System Acceptance Note' that shall mean acceptance of the system for operation and the subsequent sustained performance test.

Vendor's representative must be available at site during the SAT period to carryout the test. The final acceptance criteria for the package shall be in accordance with scope of supply and data sheets, applicable codes, standards and regulations together with additional requirements noted on the functional Operation and Maintenance Philosophy. The package shall be considered fully commissioned only after the supply and acceptance of all related items of the package, documentation including PNGRB/PESO approval for all electronic/ electrical field instruments and control Panels.

9.8 Technical Integrity

The Vendor shall be responsible for the technical integrity of the Compressor package, including: mechanical design, supply of material, manufacture, quality assurance, assembly, testing, performance and specified engineering services. All of these activities shall be in accordance with the scope of supply, this functional specification and data/interface information supplied by the Purchaser. The Vendor shall have single point responsibility for all aspects of the works, inclusive of all components subcontracted or purchased from other parties.

9.9 General Requirement

All costs related to AGCL's representatives to & fro journey, accommodation, food for the purpose of inspection, technical meeting will be borne by AGCL. However all costs related to carrying out the inspection, run test etc shall be borne by the vendor. The vendor shall provide COMPANY with reasonable access to his and his sub vendor's plant facilities in order to verify that equipment is manufactured and tested as specified.

The vendor shall provide calibration certificates of testing instrumentation for review by the inspector prior to each test. The vendor shall provide weekly reports during procurement and fabrication phases indicating progress status.

10.0 PREPARATION FOR SHIPMENT AND PACKING

All items shall be suitably protected against damage during shipment and storage. On completion of inspection and tests, equipment shall be thoroughly cleaned and dried internally and externally and prepared for shipment. The package shall be adequately protected against corrosion and mechanical damage during shipment to plant site and outdoor storage for period up to one year. Contractor shall consider transit route to site and pack accordingly.

If dispatched in pieces, Vendor shall submit the procedure of assembling for Purchaser's information. Vendor shall provide recommended procedures and checklists for commissioning, start-up.

All special tools and calibration tools required for assembly and commissioning shall be in Vendor's scope of supply.

All flanges shall be covered with metal covers, soft rubber gaskets and held by at least four (4) bolts. Other openings shall be taped closed. Threaded connections shall be capped or plugged for thread protection. Any external components, which may be subject to damage during transit and are not easily protected, shall be removed and packaged separately, to the equipment, for shipment with all openings plugged. Extent of loose supplied items to be marked on equipment drawings.

All internal parts of carbon steel shall be sand blasted and then brushed to remove particles. The equipment shall be sealed closed and contain bags of desiccant to prevent rust. Silica gel or other drying agents must, where installed, be clearly labeled and separately listed on a removal checklist. This list is to be attached to the equipment. All insurance spares shall be packaged suitable storage without opening for condition monitoring.

Exposed shafts and shaft couplings shall be coated with a preservative and wrapped with waterproof moldable cloth, then sealed entirely with waterproofed, cloth-backed duct tape.

Oil lubricated pump bearing housings, equipment cases, stuffing boxes and gearboxes shall be fogged and filled 10 to 50 percent of the internal volume with VSI circulating Oil and then all openings shall be tightly sealed.

Internals of equipment that can be made airtight by use of flanges or plugs shall have openings sealed.

Equipment shall be tagged to indicate the type of internal preservative used. Tags shall be waterproof and tear-resistant and shall be attached with stainless steel wire.

Auxiliary piping connections shall be tagged or marked for identification in the field. Each package shall contain lists of contents; one list inside and one list outside of the package. The package shall have external identification corresponding to the order number. All loose items shipped with the equipment shall be tagged with the order number and item identification. Start up / Commissioning spare parts shall be identified separately. The equipment shall be delivered with one copy of the Installation, operation and maintenance manuals.

11.0 ERECTION AND COMMISSIONING REQUIREMENTS

The Vendor shall include the services of competent and experienced field engineer(s) /Supervisor(s) for the erection, installation / modifications, testing and commissioning of the equipment covered by this specification. This shall cover competent engineer(s)/ Supervisor(s) of sub-vendors also.

The package shall be considered fully commissioned only after the supply and acceptance of all related items of the package, documentation including PNGRB/PESO approval for all electronic/ electrical field instruments and control Panel.

11.1 Engineer's / Operator Training

The supplier shall have to provide training to AGCL personnel as below during Commissioning Test Run and after successful commissioning:

Vendor shall provide training at site i.e. Duliajan during the period of commissioning run. The vendor shall provide 2 (two) days classroom training at Duliajan and 2 (two) days hands on training at site to the engineers & operators.

Training shall cover basic theory equipment, operating procedures, maintenance procedures and control system training as a minimum.

Training Room plus related ancillaries like LCD Projector etc will be provided by AGCL at Duliajan. However to & fro charges, accommodation, local conveyance, food etc. for the trainers will be at the vendor's account.

12.0 GUARANTEE

Vendor shall be fully responsible for all equipment supplied by him including bought out items. All the equipment shall be fully guaranteed for a period of 12(twelve) months after commissioning and satisfactory site acceptance test by AGCL. Vendor shall guarantee all materials against defect, damage or non-conformity / workmanship. If any defect or non-performance occurs during the guarantee period, Vendor shall make all necessary alteration, repair and replacement at no cost to AGCL. Vendor shall also provide a performance guarantee for the Compressor packages.

The Vendor shall provide all Certification for the equipment and shall ensure that, dimensional compatibility, shaft system critical speeds, vibration, noise levels and acceptability of pipe loads are within the relevant specification limits.

Vendor shall have the final and total responsibility for the design and performance of all equipment's supplied under this specification.

13.0 DOCUMENTATION

13.1 Documents Required With Bid

Vendor shall provide the following along with the bid:

- A preliminary production schedule of the complete package including design, engineering, fabrication, factory testing, installation, commissioning, start up and site activities with bar chart showing major milestones and hold points.
- Comments / Deviations / Exceptions taken by the Vendor with respect to Codes, Standards and Regulations shall be explained with technical justification for evaluation.
- Functional description.
- Reliability / Availability information and figures.
- Detailed scope of supply.
- Completed ISO 13631 datasheet.
- A machinery train general arrangement drawing for the complete package including weights, space required for maintenance.
- Completed data sheets for the compressor,
- Completed auxiliary equipment data sheets (Gas engine, heat exchangers etc.
- Completed table of compliance (Exception / Deviation)
- Vendor's P&ID for the complete package including all auxiliaries.

- Functional description of the compressor package including start up, IPF and emergency shutdown procedures, capacity control, normal operation, etc.
- Performance curves at different speeds for the proposed compressor with the guaranteed parameters clearly marked.
- Schedule of material of construction.
- Full details of the proposed bearings and the lubrication oil system.
- Panhandle diagram (Capacity versus suction pressure characteristics).
- Full details of all the electrical items, electrical block diagrams showing all interfacing and interconnections.
- Electrical load list including all 24V DC loads.
- Full description and specification of all piping and instrumentation incorporated with the package.
- Spares (commissioning, insurance) list.
- Project specific Quality plan.
- Typical Inspection and test plan.
- Reference list of compressors of similar capacity and design.
- Anticipated ARM - Availability, Reliability and Maintainability characteristics.
- Recommended 2 years operating spares / Insurance spares.
- Recommended start-up and Commissioning spare list.
- List of references.
- List of proposed major Subcontractor/Vendors.
- Utility requirement and Consumption (if any).
- Infrastructure available for carrying out factory acceptance test and String test.
- Vendor assistance, support facilities in India.
- Filled out Checklists.

13.2 Special Notes:

a) Documentary evidence like Invoice / performance report / Bill of lading from their customers for satisfactory performance of the units should be furnished along with their bid to demonstrate the experience of the vendor regarding design, packaging, supply, erection and commissioning of gas compressor package.

b) Necessary MOU with skid sub-vendor who have the experience of successfully designing and supplying at least 2(two) reciprocating compressor in last 7(seven) years of above 1000 horsepower rating. Documentary evidence like Invoice / performance report / Bill of lading from their customers for satisfactory performance of the units should be furnished along with bid.

c) Necessary agreement between the parent and the subsidiary company or vice-versa and Parent/Subsidiary Guarantee from the parent/ subsidiary company to AGCL for fulfilling the obligation under the Agreement, along with the bid.

13.3 Drawings and Documents

The Vendor drawings shall be reviewed and approved by COMPANY, against the Purchase Order. The approval by COMPANY does not signify compliance with the purchase order. It should be noted that review by the COMPANY is for quality assurance purpose only, assuming that Vendor is technically responsible for all technical aspects of design checking. The Vendor is responsible for checking of compliance with the relevant documents like this specification, applicable codes and COMPANY standards.

Drawing detailing package envelope including installation and maintenance requirement and interface connections shall be supplied by Vendor.

14 .0 TIME SCHEDULE:

The successful bidder must complete the entire job within 12 (Twelve) months from receipt of formal order should be complete in all respect (including 72 hrs). Activity wise break up of milestone chart showing start of activities & completion of activities from zero date (i.e. date of LOA) & commissioning schedule shall be submitted along with the offer.

15. Cost of recommended Spare parts for two years operation shall not be considered for bid evaluation. However, the bidder has to furnish detail list of the spare parts and their price for stock provision.

16. Supplier to stand guarantee for the availability of all spares at least for 15 years after commissioning of the equipments supplied.

17. Electrical/electronic equipment shall be CIMFR (or equivalent PNGRB approved testing lab) certified and PNGRB approved. The CIMFR certificate No. and PNGRB approval No. shall be affixed or embossed on each piece of equipment.

18. Payment:

- i) 10% of total contract value will be paid as Mobilisation advance.
- ii) 10% of the contract value shall be paid after submission & approval of P&ID, GA, Foundation Drawings (Load details), and Placement of order for Compressor & Air Exchanger against submission of equivalent amount of Bank Guarantee valid till delivery period at site.
- iii) 50% of the contract value shall be paid after receipt of supply and acceptance of the total package at AGCL operational site.
- iv) 20% of the contract value shall be released after successful completion of commissioning and handover of the package to the Purchaser.
- v) Final 10% of the payment shall be released after submission of Bank Guarantee as a Performance Guarantee for the warranty period after commissioning.

19. Operational & maintenance Spares

1(One) year normal maintenance (approx. 3500 hrs.) spares prices should be included in the Price Bid. However, if bidder feels necessary of any more spares or increase in quantity or items, they should include the same for successful commissioning of the units.

20. O&M SERVICE/CONTRACT FOR NEW PACKAGES AT PACKAGER'S COST

Post successful commissioning of package, the packager initially will have to undertake 3 (three) years O & M contract with the owner to operate & maintain the package jointly with the company O&M team at packager's cost. Spares and all consumables are excluded from bidders scope. Following minimum conditions will have to be fulfilled in the contract-

- (i) The bidder /packager will initially formulate a site manpower deployment strategy in line with existing system in place and submit to Owner for review & approval.
- (ii) The team will consist of manpower having sufficient experience of running & maintaining similar type of PLC operated package. There must be competent instrument technician(s)/engineer in the team who have good knowledge as well as hands on experience of working upon Altronic Control Panel system, control valve operation & maintenance, calibration aspects of various instrument devices like transmitters, I/P & P/I converters etc. for any type of troubleshooting required from time to time during package operation.

Section-V

General Conditions of Contract (GCC)

1.0 **DEFINITIONS:**

1.1 In the contract, the following terms shall be interpreted as indicated:

- (a) "The Contract" means agreement entered into between Company and Contractor, as recorded in the contract Form signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein;
- (b) "The Contract Price" means the price payable to Contractor under the contract for the full and proper performance of its contractual obligations;
- (c) "The Work" means each and every activity required for the successful performance of the services described in Section IV, the Terms of Reference.
- (d) "Company" or "AGCL" means Assam Gas Company Limited;
- (e) "Contractor" means the Contractor performing the work under this Contract.
- (f) "Contractor's Personnel" mean the personnel to be provided by the Contractor to provide services as per the contract.
- (g) "Company's Personnel" mean the personnel to be provided by AGCL or AGCL's Contractor (other than the Contractor executing the Contract). The Company representatives of AGCL are also included in the Company's personnel.
- (h) "Specification" means the description of the Services and/or Equipment set out in Section-IV.
- (i) "Gross Negligence" means any act or failure to act (whether sole, joint or concurrent) by a person or entity which was intended to cause, or which was in reckless disregard of or wanton indifference to, avoidable and harmful consequences such person or entity knew, or should have known, would result from such act or failure to act. Notwithstanding the foregoing, Gross negligence shall not include any action taken in good faith for the safeguard of life or property.
- (j) "Wilful Misconduct" means intentional disregard of good and prudent standards of performance or proper conduct under the Contract with knowledge that it is likely to result in any injury to any person or persons or loss or damage of property.

2.0 **CONFIDENTIALITY, USE OF CONTRACT DOCUMENTS AND INFORMATION:**

- 2.1 Contractor shall not, without Company's prior written consent, disclose the contract, or any provision thereof, or any specification, plan, drawing pattern, sample or information furnished by or on behalf of Company in connection therewith, to any person other than a person employed by Contractor in the performance of the contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far, as may be necessary for purposes of such performance with prior permission from Company. However, nothing hereinabove contained shall deprive the Contractor of the right to use or disclose any information:
- (a) which is possessed by the Contractor, as evidenced by the Contractor's written records, before receipt thereof from the Company which however the Contractor shall immediately inform to Company or
 - (b) which is required to be disclosed by the Contractor pursuant to an order of a court of competent jurisdiction or other governmental agency having the power to order such disclosure, provided the Contractor uses its best efforts to provide timely notice to Company of such order to permit Company an opportunity to contest such order subject to prior permission from Company.
- 2.2 Contractor shall not, without Company's prior written consent, make use of any document or information except for purposes of performing the contract.
- 2.3 Any document supplied to the Contractor in relation to the contract other than the Contract itself remain the property of Company and shall be returned (in all copies) to Company on completion of Contractor's performance under the Contract if so required by Company. However, the above obligation shall not extend to information which:
- i) is, at the time of disclosure, known to the public which Contractor shall immediately inform Company ;
 - ii) is lawfully becomes at a later date known to the public through no fault of Contractor subject to Contractor's undertaking that no information has been divulged by them to the public;
 - iii) is lawfully possessed by Contractor before receipt thereof from Company which should be immediately informed to Company;
 - iv) is developed by Contractor independently of the information disclosed by Company which should be shared with the Company;
 - v) Contractor is required to produce before competent authorities or by court order subject to prior permission from Company;

3.0 TAXES:

- 3.1 Tax levied on Contractor as per the provisions of Indian Income Tax Act and any other enactment/rules on income derived/payments received

under the contract will be on Contractor's account.

- 3.2 Contractor shall be responsible for payment of personal taxes, if any, for all the personnel deployed in India by Contractor.
- 3.3 The Contractor shall furnish to the Company, if and when called upon to do so, relevant statement of accounts or any other information pertaining to work done under the contract for submitting the same to the Tax authorities, on specific request from them in accordance with provisions under the law. Contractor shall be responsible for preparing and filing the return of income etc. within the prescribed time limit to the appropriate authority.
- 3.4 Corporate income tax will be deducted at source from the invoice at the specified rate of income tax as per the provisions of Indian Income Tax Act as may be in force from time to time and Company will issue TDS Certificate to the Contractor as per the provisions of Income Tax Act.
- 3.5 Corporate and personnel taxes on Contractor shall be the liability of the Contractor and the Company shall not assume any responsibility on this account.
- 3.6 All local taxes, levies and duties, sales tax, octroi, etc. on purchases and sales made by Contractor shall be borne by the Contractor.
- 3.7 Goods and Service Tax (GST): The GST amount on the taxable part of the services provided by the Contractor shall be paid by the Company as per provisions of the GST Act.

4.0 **INSURANCE**:

The Contractor shall arrange insurance to cover all risks in respect of their personnel, materials and equipment belonging to the Contractor or its subcontractor (if applicable) during the tenure of the contract including the third party items/consumables. For materials/equipment belong to the Contractor or its sub-contractor, Contractor may self-insure the same.

General Public Liability Insurance or Comprehensive General Liability insurance covering liabilities including contractual liability for bodily injury, including death of persons, and liabilities for damage of property. This insurance must cover all operations of Contractor required to fulfill the provisions under this contract.

Contractor's equipment used for execution of the work hereunder shall have an insurance cover with a suitable limit (as per international standards)

Automobile Public Liability Insurance covering owned, non-owned and hired automobiles used in the performance of the work hereunder, with bodily injury limits and property damage limits as governed by Indian Insurance regulations.

Public Liability Insurance as required under Public Liability Insurance Act 1991, if applicable.

Transit insurance – In respect of all items to be transported by the Contractor to site of work, the cost of transit insurance should be borne by the Contractor and the prices indicated in the price schedule shall be inclusive of this cost.

Third party liability insurance- The Contractor shall take the third party liability insurance with suitable coverage so as to indemnify Company against all types of risks for the work being carried out by other agencies at the site.

Fire and other insurance- The Contractor shall at its own cost insured the work and keep them insured until the virtual completion of the contract against loss or damage by fire, riots and civil commotion.

5.0 **FORCE MAJEURE:**

- 5.1 In the event of either party being rendered unable by 'Force Majeure' to perform any obligation required to be performed by them under the contract, the relative obligation of the party affected by such 'Force Majeure' will stand suspended for the period during which such cause lasts. The word 'Force Majeure' as employed herein shall mean Acts of God, flood, earthquake, lightening, unexpected reservoir behavior, war, fire, revolt, agitation, riot, blockade, Act of terrorism, embargo of goods/ or embargo on people, sabotage, civil commotion, road barricade (but not due to interference of employment problem of the Contractor), acts of government of the two parties, which makes performance impossible or impracticable and any other cause, strike or lockout either parties operation in that region. Direct or indirect consequences of war (declared/undeclared), sabotage, National Emergency or any Law or Promulgation, Regulation or Ordinance whether Central or State or Municipal, Breakage, Bursting or Freezing of Pipeline, whether of kind herein enumerated or otherwise which are not within the control of the party to the contract and which renders performance of the contract by the said party impossible.
- 5.2 Upon occurrence of such cause and upon its termination, the party alleging that it has been rendered unable as aforesaid thereby, shall notify the other party in writing within Seventy Two (72) hours of the alleged beginning and ending thereof, giving full particulars and satisfactory evidence in support of its claim.
- 5.3 Provided that in case such force majeure lasts for more than two (2) months the either party hereto shall be free to terminate the contract by a written notice of Fifteen (15) Days to the other party.
- 5.4 During the period for which Force majeure condition lasts, no payment

shall become due to the contractor.

- 6.0 **TERMINATION**: The contract shall be terminated in the following events.
- 6.1 **TERMINATION ON EXPIRY OF THE TERMS (DURATION)**: The contract shall be deemed to have been automatically terminated on the expiry of duration of the Contract or the extension period, if exercised by Company under the provision of the Contract.
- 6.2 **TERMINATION ON ACCOUNT OF FORCE MAJEURE**: Either party shall have the right to terminate this Contract on account of Force Majeure as set forth in clause 5.3 above.
- 6.3 **TERMINATION ON ACCOUNT OF INSOLVENCY**: In the event that the Contractor or its collaborator at any time during the term of the Contract, becomes insolvent or makes a voluntary assignment of its assets for the benefit of creditors or is adjudged bankrupt, then the Company shall, by a notice in writing have the right to terminate the Contract and all the Contractor's rights and privileges hereunder, shall stand terminated forthwith.
- 6.4 **TERMINATION FOR UNSATISFACTORY PERFORMANCE**: If the Company considers that, the performance of the Contractor is unsatisfactory, or not up to the expected standard, the Company shall notify the Contractor in writing and specify in details the cause of the dissatisfaction. The Company shall have the option to terminate the Contract by giving 15 days notice in writing to the Contractor, if Contractor fails to comply with the requisitions contained in the said written notice issued by the Company.
- 6.5 **TERMINATION DUE TO CHANGE OF OWNERSHIP & ASSIGNMENT**: In case the Contractor's rights and /or obligations under this Contract and/or the Contractor's rights, title and interest to the equipment/material, are transferred or assigned without the Company's consent, the Company may at its absolute discretion, terminate this Contract.
- 6.6 If at any time during the term of this Contract, breakdown of Contractor's equipment results in Contractors being unable to perform their obligations hereunder for a cumulative period as per clause no **7.0**, Company at its option, may terminate this Contract in its entirety without any further right or obligation on the part of the Company, except for the payment of money then due. No notice shall be served by the Company under the condition stated above.
- 6.7 Notwithstanding any provisions herein to the contrary, the Contract may be terminated at any time by the Company on giving 30 (thirty) days written notice to the Contractor due to any other reason not covered under the above clause from 6.1 to 6.6 and in the event of such termination the Company shall not be liable to pay any cost or damage to the Contractor except for payment for services as per the Contract upto

the date of termination including the De-mob cost, if any.

- 6.8 **CONSEQUENCES OF TERMINATION:** In all cases of termination herein set forth, the relative obligations of the parties to the Contract shall be limited to the period up to the date of termination. Notwithstanding the termination of this Contract, the parties shall continue to be bound by the provisions of this Contract that reasonably require some action or forbearance after such termination.
- 6.9 Upon termination of this Contract, Contractor shall return to Company all of Company's items, which are at the time in Contractor's possession.
- 6.10 In the event of termination of contract, Company will issue Notice of termination of contract with date or event after which the contract will be terminated. The contract shall then stand terminated and the contractor shall demobilize their personnel & materials within 30 days.

7.0 **SETTLEMENT OF DISPUTES AND ARBITRATION:**

In the event of any dispute or difference between the parties hereto, such dispute or difference shall be resolved amicably by mutual consultation or through the good office or empowered agencies of the Government of Assam. If such resolution is not possible, then, unresolved dispute or difference shall be referred to arbitration in accordance with the Arbitration and Conciliation Act, 1996. The venue of arbitration shall be Dibrugarh/Guwahati, Assam. The making of the awards by the arbitrator as provided herein shall be condition precedent to any right or cause of action in respect of any of the matters agreed herein to be referred to such arbitration.

- 7.1 **Applicable law and Jurisdiction-** The Contract, including all matters connected with this contract shall be governed by the Indian Laws both substantive and procedural, for the time being in force and shall subject to the exclusive jurisdiction in Indian Courts at Dibrugarh/Guwahati, Assam.

8.0 **NOTICES:**

- 8.1 Any notice given by one party to other, pursuant to this Contract shall be sent in writing or by telex or Fax and confirmed in writing to the applicable address specified below:

Company

- | | |
|--|--|
| a) <u>For contractual matters</u> | b) <u>For technical matters</u> |
| Managing Director | Chief Manager (M) |
| Assam Gas Company Ltd | Assam Gas Company Ltd |
| PO DULIAJAN - 786602 | PO Duliajan - 786602, |
| ASSAM, INDIA | Assam, India |
| Fax No. 91-374-2800557 | Email: paramananda.das@agclgas.com |

c) **Contractor**

Fax No. :

Tel No. :

E-mail :

9.0 **LIQUIDATED DAMAGES**

9.1 In the event of the Contractor's default in timely on site delivery including commissioning of compressor package (32+12= 44weeks after received of LOI), for commencement of operations within the stipulated period, the Contractor shall be liable to pay liquidated damages @ 0.5% of basic contract value& applicable taxes per week or part thereof subject to maximum of 5% of total contract value.

9.2 **PERFORMANCE SECURITY**: The Contractor has furnished to Company a Bank Guarantee No. _____ dated _____ issued by _____ for _____ (being 10 % of the 1 year Contract Value) valid till _____ towards performance security. The performance security shall be payable to Company as compensation for any loss resulting from Contractor's failure to fulfill their obligations under the Contract. In the event of extension of the Contract period, the validity of the bank guarantee shall be suitably extended by the Contractor. The bank guarantee will be discharged by Company not later than 30 days following its expiry.

10.0 **ASSOCIATION OF COMPANY'S PERSONNEL**: Company's engineer will be associated with the work throughout the operations.

11.0 **LABOUR**: The recruitment of the labour shall be met from the areas of operation and wages will be according to the rates prevalent at the time which can be obtained from the District Authorities of the area. The facilities to be given to the labourers should conform to the provisions of labour laws as per contract Labour (Regulation and Abolition) Act, 1970 and any amendments / modifications thereafter.

12.0 **PAYMENTS, MANNER OF PAYMENT, RATES OF PAYMENT, SET- OFF:**

12.1 Company shall pay to the Contractor during the term of the Contract the amount due from time to time calculated according to the rates of payment set and in accordance with other provisions hereof. No. other payments shall be due from company unless specifically provided for in the Contract. The payment to the contractor shall be made as per the fixed rates and variable rates for the actual gas compressed. The rates shall apply as per the slabs and other conditions of the price schedule.

- 12.2 Payment of any invoices shall not prejudice the right of company to question the validity of any charges therein. In the event of COMPANY noticing at any time that any amount has been disbursed wrongly to the CONTRACTOR or any other amount is due from the Contractor to the COMPANY, COMPANY may without prejudice to its right recover such amount by other means, deduct such amount from any payment falling due to Contractor. The Contractor shall have the right to receive the payment under subsequent invoice for any amount that has been omitted in previous invoice by mistake on the part of COMPANY or the Contractor.
- 12.3 Contractor will submit three sets of all invoices duly super scribed 'Original' and 'copy' as applicable to the company for processing payment.
- 12.4 Company shall within 30 days of receipt of the invoice notify the contractor of any item under dispute, specifying the reasons thereof, in which event, and payment of the disputed amount may be withheld until settlement of the dispute, but payment shall be made of any undisputed portion on or before the due date. This will not prejudice the company's right to question the validity of the payment at a later date as envisaged.
- 12.5 The COMPANY shall not be responsible or obliged for making any payment or any other related obligations under this contract to the contractor's sub contractor/personnel or vendors. The Contractor shall be fully liable and responsible for meeting all such obligations and all payment to be made to it's sub contractor/personnel/vendors and any other third party engaged by the Contractor in any way connect with discharge of contractor's obligation under the contractor and in any manner whether ever.
- 12.6 **SET-OFF:** Any sum of money due and payable to the Contractor(including Performance Security refundable to them) under this or any other Contract may be appropriated by AGCL and set-off against any claim of AGCL (or such other person or persons contracting through AGCL) for payment of a sum of money arising out of this contract or under any other contract made by the Contractor with AGCL(or such other person or persons contracting through AGCL).
- 13.0 **PAYMENT AUTHORITY:** The payment due to the Contractor shall be made by the COMPANY.
- 14.0 **WITHHOLDING:** Company may withhold or nullify the whole or any part of the amount due to Contractor, after informing the Contractor of the reasons in writing, on account of subsequently discovered evidence in order to protect Company from loss on account of :-
- a) For non-completion of jobs assigned as per Section-IV.
 - b) Contractor's indebtedness arising out of execution of this Contract.

- c) Defective work not remedied by Contractor.
- d) Claims by sub-Contractor of Contractor or others filed or on the basis of reasonable evidence indicating probable filing of such claims against Contractor.
- e) Failure of Contractor to pay or provide for the payment of salaries/ wages, contributions, unemployment compensation, taxes or enforced savings with-held from wages etc.
- f) Failure of Contractor to pay the cost of removal of unnecessary debris, materials, tools, or machinery.
- g) Damage to another Contractor of Company.
- h) All claims against Contractor for damages and injuries, and/or for non-payment of bills etc.
- i) Any failure by Contractor to fully reimburse Company under any of the indemnification provisions of this Contract. If, during the progress of the work Contractor shall allow any indebtedness to accrue for which Company, under any circumstances in the opinion of Company may be primarily or contingently liable or ultimately responsible and Contractor shall, within five days after demand is made by Company, fail to pay and discharge such indebtedness, then Company may during the period for which such indebtedness shall remain unpaid, with-hold from the amounts due to Contractor, a sum equal to the amount of such unpaid indebtedness.

Withholding will also be effected on account of the following:-

- i) Order issued by a Court of Law in India.
- ii) Income-tax deductible at source according to law prevalent from time to time in the country.

Instrument & Control Philosophy

1.0The instrumentation & control of the unit shall be designed to provide automatic safety shutdown devices with fuel cut-off, vent and grounding of ignition for safe starting and shutdown of the engine and compressor.

2.0 Control Panel

The control panel shall be designed based on state of the art technology Microprocessor based **Altronic Control Panel (Model: DE-4000)** suitable for hazardous area Zone 2, Gas group IIA/IIB.. The fault functions shall be both visually and audibly indicated on the unit's control panel and shall remain 'ON' until manually reset. It will have sequence starting system to ensure that all functions associated with starting operation are performed in correct sequence. The initiation shall be by means of a switch of push type, on the unit control panel. Provision shall also be incorporated for emergency shutdown system (ESD) of the compressor unit. All the process parameters shall be indicated on the HMI by using dedicated transmitters/transducers. In addition to the indication on the panel, analog indicators for critical parameters (list given in point no. 3.2) are to be provided at one place in the form of a gauge panel. The gauge panel shall be designed to be located adjacent to the control panel.

The specification given below is the minimum requirement but not restricted to the following: Model: Latest model of Programmable Logic Controller Hardware & Software:

a) Processor: Processor should be capable of handling all the parameters and all control loops, indications, annunciators etc. It should have sufficient memory capacity with minimum of 20% extra memory as spare. Also its memory should have the facility for future up-gradation.

b) Rack: As per MFR's standard.

c) I/O Card: Should have following Input-Output cards

i. Analog Input

ii. Analog Output

iii. Digital Input

iv. Digital Output

v. Power supply card

d) Incoming Power supply at site: 230 V AC +/- 10%, 50 Hz, single phase

e) Software: Latest Windows based application software for developing logic diagram etc & Graphics building on operating system Windows.

f) Communication Port: RS-232/RS485/Ethernet (Provision for Ethernet/MODBUS communication for remote monitoring in future at Operator room)

g) Programmable Controller Inputs/Outputs (Tentative)

Inputs – Digital	Inputs – Analogue
<ol style="list-style-type: none"> 1. Start 2. Stop 3. Accept 4. Reset 5. Emergency Stop 6. Suction Scrubber High Level 7. Suction Scrubber Low Level 8. Fuel Gas manifold Pressure Very High 9. Jacket C. W outlet Pressure Very Low 10. Suction Separator Liquid level High 11. Discharge Separator Liquid level High 12. Low Oil level Compressor 13. Low oil Level engine 14. Remote Shutdown(via relay/switch) 15. Cooler Vibration 16. Compressor Vibration 17. Engine Vibration 18. Cylinder Lubricator Pressure 	<ol style="list-style-type: none"> 1. Compressor Oil Pressure 2. Engine Oil Pressure 3. Suction Pressure 4. Discharge Pressure 5. Engine RPM 6. Comp. Air Pressure very Low 7. Engine flow meter for fuel gas 8. Engine Jacket water temperature 9. Engine Oil temperature 10. Suction Temperature 11. Discharge Temperature 12. Engine Manifold Temperature 13. Compressor Frame Oil Temp 14. Engine C.W. Outlet Header Temp. 15. Engine Exhaust Temperature 16. Individual Engine Cylinder Temp
Outputs – Digital	Outputs – Analogue: 4-20 mA
<ol style="list-style-type: none"> 1. Engine Crank Solenoid 2. Fuel Gas Valve Solenoid 3. Start-up Bypass Valve Solenoid 4. Air Start valve for Engine L.O.P 5. Air Start valve for Compressor L.O.P 6. Ignition grounding 	<ol style="list-style-type: none"> 1. Engine speed Control I/P Converter 2. Auto Bypass valve Control I/P converter

Note: The successful bidder should supply a well proven control system for Natural Gas Compressor and Engine Control. The bidder shall provide evidence that this particular control system technology are in use worldwide for Natural Gas Compressor Control at least for the last 5(five) years from bid closing date.

3.0 Shutdown & Indicating devices

3.1 The following minimum shutdown devices should be offered for Compressor, Engine & Cooler:

3.1.1 Compressor Shutdown devices:

- a) High liquid level in suction scrubbers.
- b) High Liquid level in inter stage scrubbers.
- c) Low lube oil pressure d) Force-feed lubricator failure.
- e) Low lube oil level.
- f) High discharge gas pressure for each stage.
- g) High discharge gas temperature for each stage.
- h) Low suction gas pressure.
- i) High cylinder jacket water temperature.
- j) High vibration (Crankcase & Cylinders separately).

3.1.2 Engine Shutdown devices:

- a) Low lube oil pressure.
- b) High coolant temperature (outlet from engine.
- c) Low lube oil level.
- d) Cooling system low flow.
- e) Engine over speed.
- f) Engine overload.
- g) Excessive exhaust temperature.
- h) Engine high vibration.
- i) Low coolant tank level.
- j) Fuel gas pressure.

Note: The gas compressor packager shall ensure that there is no conflict of engine shutdown system with compressor control system. The packager will be responsible for ensuring proper safe operation of the package. The engine control and shutdown system should be packaged in control panel. Vendor's/manufacture's works are to ensure proper operation, maintenance and safety of the package and to avoid duplicity of instrumentation devices.

3.1.3 Cooler – Shutdown Devices:

a) High vibration (near drive end and near cooling fans)

3.2 Analog gauge panel is to be provided to monitor process parameters of compressor and Engine as given below:

- a) Gas suction and discharge pressure for each stage.
- b) Gas suction and discharge temperature for each stage.
- c) Compressor lube oil header pressure.
- d) Engine oil header pressure.
- e) Engine exhausts temperature.

3.3 The analog gauge board to be placed on the side of the skid nearer to the transmitter panel.

4.0 Programmable Controller

4.1 Each unit (Engine and Compressor) shall have a sequence starting system to ensure that all functions associated with the starting operation are performed in the correct sequence. Initiation shall be by means of a switch on the unit control panel.

4.2 The control panel shall include a programmable controller with the following features to cater the operational need of the compressor.

- a) The processor shall be dual redundant and configured in hot standby mode
- b) Indication of status of digital inputs and outputs for easy debugging
- c) Expandable digital & analog inputs/outputs
- d) Program memory held in EPROM
- e) Communication port for connection to PC or laptop computer
- f) Provision for Ethernet/MODBUS communication for remote monitoring in future at Operator room.
- g) Battery operated program loader/Laptop computer (1 no.)
- h) Designed to work in engine and compressor environment
- i) Arrangement for retaining memory in case of power failure
- j) The controller should have capability to calculate flow as per latest AGA standard.
- k) The controller should be capable of controlling PID Loops.
- l) The Programmable Controller should have RS-232/RS485/Ethernet communication port.
- m) DC Power supply for the control panel shall be dual redundant.

4.3 A HMI (Human Machine Interface) terminal of with keypad and display is to be provided in the Control panel for monitoring of all parameters connected to Controller as input/output.

4.4 The control panel shall have an entry for easy access and shall be suitable for use in hazardous area. The panel shall employ the sequence start system and alarm/monitoring functions together with the start switch and shutdown button. Provision shall also be incorporated for remote emergency shutdown system (ESD) of the compressor unit.

4.5 An UPS (Uninterrupted Power Supply) of minimum one hour battery back-up is to be provided for the compressor-engine control panel. The above UPS with battery should be of portable type & should be placed in the control panel. The UPS should handle unwanted extra high voltage surge for about few seconds & have protection facility to cut-off power to the panel.

4.6 The control panel to be placed on ground with a base level of compressor-engine skid. The supplier shall provide drawing /sketch showing position of the control panel for AGCL's approval. Mounting of the control panel shall be designed using anti-vibration pads so that no vibration is transferred to the panel.

4.7 The Control Panel including all field instruments, all power supply points should be duly approved by PNGRB/PESO for use in Zone-1 & Zone-2 and Gas groups IIA & IIB hazardous areas.

4.8 STATUTORY APPROVAL REQUIREMENT

a) Bidders must categorically confirm in their bids that they would submit the following approvals along with the goods, failing which the offer will be summarily rejected.

b) Certification from CIMFR of India or equivalent country of origin for Control Panel and all electrical / electronic field instruments used in hazardous area i.e. transmitters, switches, solenoid valves, I/P & P/I converters, power supply point etc.

c) Valid PNGRB/PESO approval for Control Panel and all electrical / electronic field instruments used in hazardous area i.e. transmitters, switches, solenoid valves, I/P & P/I converters, power supply point etc.

d) In case of non availability of PNGRB approval for some or all of the above, the bidder must confirm categorically that the control panel/electrical/electronic field instruments shall be supplied with CIMFR/ERTL (India) laboratory test certificates along with Field Trial Permission from PNGRB, India. Flameproof enclosure, electrical/electronic instruments which are manufactured outside India & certified by accredited international authorities shall also have valid approval of PNGRB India or Field Trial Permission from PNGRB India for that particular instruments/enclosure. Supply of Control panel, electrical/electronic instruments without PNGRB approval shall be complete only when PNGRB field trial permission certificate is submitted and the payment will be released as per the applicable payment terms specified in the relevant payment clause of this tender document.

5.0 Additional Points

5.1 All sensors for the various parameters should be designed to be compatible with the I/O card of the programmable controller to have their exact value of the parameters in the control system. For analog inputs transducers with 4-20 mA output is preferable.

5.2 Engine RPM shall be preferably measured using a proximity sensor. Engine speed indicator with Frequency to current Converter (F/I) for Programmable Controller input and auto-manual selection switch with both auto-manual speed control in the panel to be provided. Engine RPM/speed display should be available in the Control panel.

5.3 Pre-Alarm System: The panel will have an additional feature to indicate an audible alarm in the panel in the event of certain parameters deviating from its operating value. The setting of such pre alarm will be slightly below or above the setting value of shutdown alarm such that initiation of these pre alarms will not bring about the shutdown of the unit. Audible alarm shall be loud enough (Min. 80 dB) to draw attention of the shift operator.

5.4 The control system shall be designed in such a way that failure of any portion of the system shall bring the machine to a fail-safe shutdown state.

5.5 Capacity control of the compressor shall be incorporated in the Programmable controller. The control loop shall be complete with pneumatic control valve with positioner and I/P converter.

5.6 Gas Flow Measurements to be incorporated in the control system:

a) The engine shall be provided with on-line flow meter for fuel gas volume. This flow measurement should be conforming to latest AGA standard. Online Flow Meter to be hooked up with the Programmable Controller and Totalizer indication should be available in the Control Panel Display.

5.7 The complete job of impulse tube fitting and cable lying, cable trenching and cable termination in the junction boxes, control panel shall be in the scope of the supplier. All the fittings shall be SS and double compression fittings and the tubing shall be fully annealed seamless type.

5.8 The complete installation & Commissioning of the control system shall be in the scope of supplier.

5.9 Physical tagging of field instruments as per P&ID shall be in the scope of the supplier.

6.0 Documentation & Approvals

6.1 During detailed engineering & design stage, the approvals of the following are to be obtained from AGCL Minimum 3 (three) sets of hard copy and soft copy for each of the following documents are required.

a) P& I Diagram

b) General Layout diagram

c) All drawings and instrument datasheets

d) Panel Details & Panel wiring diagram

e) Loop Diagram & Loop details

f) Programmable Controller Hardware & Software

g) Programming Terminal (Laptop) specification

h) Logic details of start-up, sequence, interlock, safety shutdown, alarm, control & monitoring.

i) Programs development for start-up, sequence, interlock, safety shutdown, alarm, control & monitoring.

j) Emergency & Shutdown logic.

k) All field & Panel Instruments.

l) Tag data base for the entire unit Note: The supplier must submit drawing/data sheets etc within 02(Two) months from the date of placement of order on them, for AGCL's scrutiny and approval.

6.2 Three sets of all electrical drawings are to be supplied in A3 size, laminated. Three sets of operation and maintenance manuals of field instruments are to be supplied for every compressor along with goods.

6.3 A permanent block/flow diagram of the operating process and list of start-up and shutdown procedure is to be riveted in a suitable place on the control panel.

6.4 Detailed technical specifications, approved vendors list and check List for Control and Instrumentation system as per Annexure-D, E & F respectively.

Section-VI

Schedule of Rates

Name of Work: SUPPLY, INSTALLATION, COMMISSIONING OF 01 (ONE) NO. OF NEW COMPLETE RECIPROCATING GAS COMPRESSOR PACKAGE ON LUMP SUM TURNKEY BASIS AT EXISTING COMPRESSOR STATION OF M/s Assam Gas Company Ltd., Dulaijan

Contract No: BID NO: AGCL/O&M/COMP_PKG/ 2021/02/06 Date: 06/07/2021

Name of the Bidder/ Bidding Firm / Company :	
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PRICE SCHEDULE

(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only)

NUMBER #	TEXT #	NUMBER #	TEXT #	TEXT #	NUMBER #	NUMBER	NUMBER	NUMBER #	TEXT #
Sl. No.	Item Description	Quantity	Units	Quoted Currency in INR / Other Currency	BASIC UNIT RATE including all Taxes,Duties, Levies etc. excluding GST (To be entered by the Bidder)	TOTAL Packing, Handling & Forwarding Charges excluding GST (To be entered by the Bidder)	TOTAL Freight, Transit Insurance & Other Incidental Charges if any excluding GST (To be entered by the Bidder)	TOTAL AMOUNT Inclusive of All Expenses excluding GST applicable	TOTAL AMOUNT In Words
1	2	3	4	5	6	7	8	9	10
1	WORK DESCRIPTION								
1.01	Field Survey, Submission & approval of P&ID, Hook-up/Interconnection layout/schematic, GA, Foundation Drawings, Hazop Study Report,SIL Report,Hydraulic Study Report etc.	1.000	Nos	INR				0.00	INR Zero Only
1.02	Supply of package with Air-X-Changer, Gas Engine ,Gas Compressor & Altronic Control Panel fitted/assembled with all package piping, vessels, process measurement,control & monitoring devices/equipments+erection & Maintenance spares for 1 year.	1.000	Nos	INR				0.00	INR Zero Only
1.03	Supply of a suitable Suction Control Valve Assembly of 300 Class pressure rating between skid limit and battery limit fitted with suitable positioners and instrumentation control device along with upstream, downstream and bypass manual valve arrangement.	1.000	Nos	INR				0.00	INR Zero Only
1.04	Supply of misc. Instrumentation,Electrical equipments , Cables, Audio-Visual Hooters etc. and any other equipments those may be required to complete the work in all respect beyond skid limit.	1.000	Nos	INR				0.00	INR Zero Only
2	Price of all other hardwares like flanges, studs & nuts,gaskets, various types of valves, pipings,pipe fittings, tubings etc. to complete the hookup in all respect between skid limit & battery limit in line with BOM submitted in ANNEXURE in Technical Bid.	1.000	Nos	INR				0.00	INR Zero Only
3	All civil & construction related job expenditure including supply of materials, preparation of package foundation and any other relevant job etc. ,deployment of civil contractors, labourers etc.	1.000	Nos	INR				0.00	INR Zero Only
4	Complete O & M charges of the compressor package for 3 (three) years.	1.000	Nos	INR				0.00	INR Zero Only
5	Erection,Testing & Commissioning Charges of the complete package and associated accessories which include all expenses like to & fro travel cost, travel time, boarding and lodging , local conveyance of packager's personnel engaged at project site ,commissioning engineers,technicians ,officials etc. including FAT by AGCL representatives at OEM sites.	1.000	Nos	INR				0.00	INR Zero Only
Total in Figures								0.00	INR Zero Only
Quoted Rate in Words					INR Zero Only				

(Annexure-A)
Design Data Sheet

Item	Unit	Qty	Equipment description	Continuous operating pressure (Kg/cm ² g)					
				Suction pressure			Discharge pressure		
				Min.	Normal	Max.	Min.	Nor.	Max.
1	No	01	Natural Gas Compressor	7.0	10.0	12.0	14.0	17.56	21.0

NOTE: The above duty conditions (capacities) are at normal operating speed of (75% of the maximum rated speed recommended by manufacture) and after considering other conditions/factors such as altitude, maximum gas temperature, ambient temperature etc.

The gas pressures (both suction and discharge) for the units are likely to fluctuate as shown in the table above. Bidders are required to furnish Capacity availability and other details like HP requirement of the packages at different combinations including extreme operation conditions of suction and discharge pressures.

(Annexure-B and Annexure-c)
Composition of Natural Gas & Fuel gas
 (For reference only)

COMPONENTS	RANGE (% by volume)
Methane	93-94
Ethane	4.4-5.5
Propane	0.5-1.0
Iso-Butane	Nil
N-Butane	Nil
Iso-Pentane	Traces
N-Pentane	Traces
Hexane	0.1-0.5
Carbon Di-Oxide	0.5-1.0
Nitrogen	0.5-1.0
Other gases	Traces
Density (Kg/m ³)	0.75
Gas gravity	0.6080
Calorific Value (Net)	8400-8600 Kcal/SCUM

NOTE: The composition of gas to be compressed in each case is shown in the following schedule (typical composition). The gas may be fully saturated with water vapor in the suction, at the suction pressure and temperature condition and hence while computing compressor BHP, it is to be taken in to account. Fuel gas is tapped from compressor suction gas line.

ANNEXURE-D
Technical Check List

Compressor

Sl. No	Description	Vendor's comments
A	Documents attached	
	Documents submitted against Special Notes 13.2 (a)	
	Documents submitted against Special Notes 13.2 (b)	
	Documents submitted against Special Notes 13.2 (c)	
B	Frame/Piston rod/valve etc	
1	Maximum BHP per throw and number of throws	
2	Maximum/minimum allowable speed (rpm)	
3	Maximum gas rod-load at rated discharge pressure and relief valve set pressure	
4	Max. inertia load	
5	Max. (Gas + Inertia) load at rated discharge pressure and relief valve set pressure	
6	Piston speed	
7	Main journal bearing size (dia x length) and quantity	
8	Crank pin journal bearing size (dia x length) any quantity	
9	Con rod bushing (X-head end) size (dia x length) any quantity	
10	Cross-head type	
11	Cross head size(dia)	
12	Cross-head pin size (dia x length) quantity	
13	Cross head pin bushing size (dia x length) and quantity	
14	Cross head shoe size (width x length)	
15	Piston-rod dia	
16	Con rod bolt dia	
17	Type of threads on piston-rod on (Requirement is for rolled-threads) X-head side Piston side	
18	Type of threads on con-rod bolts	
19	Frame lubrication pump capacity	
20	Crank-case oil sump capacity	
21	Difference in reciprocating weights on opposite crank	
22	Valve speed at operating speed and valve ratings (lbs)	

23	Material of construction of the following: 1. Crank-shaft 2. Con-rod 3. Piston rod 4. Con-rod bolts 5. Cross-head 6. Cross-head pin 7. Main bearing 8. Crank-pin bearing 9. Thrust bearing 10. Pistons 11. Piston rings 12. Packing rings 13. Oil Scrapper rings 14. Valves plates/springs 15. Valve stop/seat	
24	General Information (Compressor	
25	Whether the design of LP Booster has taken into consideration the expected fluctuations of suction/discharge pressure.	
26	Whether the cylinders are lined.	
27	Whether the compressors are provided with explosion relief devices	
28	Whether ½” indicator taps are provided at the end, of the cylinders	
29	Whether reinforced conical type suction start-up screens are provided	
30	Make and type of coupling	
31	Whether pre/post lube oil pumps (for gas engine driven units) are driven by pneumatic motors and both the systems are automatic and controlled by Control Panel	
32	The type of suction scrubber provided .Whether the mist extractor provided with the suction/inter stages scrubbers is adequate to remover 99% of all droplets of 10 microns or larger. Is there any arrangement in the suction scrubbers to handle light slugging	
33	Interchangeability of parts of the offered compressors	
34	Grades of lube oil for compressor and its Indian equivalent	
35	Make of the forced-feed lubrication system, Divider Block	
36	Type of rod packing cooling	
37	Power required driving auxiliaries (cooler and compressor auxiliary water pumps).	
38	Whether safety valve is provided after each stage of	

	compression and at first stage suction	
39	Type of compressor valves.	
40	Whether compressor valves are non-metallic	
41	Whether air bleed valve is provided at both stage cylinders. (In case of water cooled compressors)	
42	Whether commissioning spares and other consumable spares provided	

C. PRIME MOVER (ENGINE):

Sl. No	Description	Vendor's comments
1	Whether continuous ratings (HP) of the engine indicated are after appropriate deductions for altitude, temperature and fuel-gas composition mentioned in specifications.	
2	Whether pyrometer is provided to indicate individual cylinder temperature of the engine?	
3	What is the continuous rating (HP) of the engine at operating speed at site condition.	
4	Whether BHP developed by the prime mover at design speed meets the 20% margin required over (total BHP required to drive compressor when fully loaded + total BHP required to drive the auxiliaries).	
5	Whether the prime mover design speed is 80% of the maximum speed of the machine as shown in published literature and operated satisfactorily.	
6	Whether engine crank-case is provided with explosion proof devices.	
7	Whether starting air pressure at 6.0 kg/cm ² metre is sufficient for starting the engine.	
8	Whether the fuel filter is provided with pressure gauges drain block valve and piping to the edge of skid.	
9	Details of the fuel filter provided	
10	Whether engine governor is Wood-ward hydraulic type/Electronic type	
11	Whether the air cleaner is dry-type with pre-filter.	
12	Whether the silencer is hospital type with spark & flame arrestor.	
13	Whether suitable provision has been made to check the performance of individual spark plug by spark detector without opening the spark plug or the cable.	

D. COOLER

Sl. No	Description	Vendor's comments
1	Whether the engine jacket water cooler has been designed for 20% excess reserve cooling capacity over maximum possible BHP of the engine (i.e. HP developed at maximum rated speed of the engine).	
2	Whether the auxiliary cooler section for gas and compressor jacket water has been designed for an excess 15% & 20% capacity respectively over the design requirement.	
3	Whether the heat transfer calculation have been provided with respect to adequacy of the engine jacket water cooler.	
4	Mesh size of the bug-screen and hail Guard.	
5	Inter-stage and after cooler gas temperature.	
6	Whether the cooling water circuits for the engine and compressors are separate with separate cooling sections in the cooler	
7	Whether cooler fin guard (folding type) provided on top of cooler section.	
8	Whether air bleed valve is provided for water section(s) at the topmost position.	
9	Cooling capacity.(input-output) temperature.	
10	Cooler make, Specification.	

E. GENERAL

Sl. No	Description	Vendor's comments
1	Whether the string test will be carried out as per the specifications.	
2	What is the maximum expected noise level in decibels of the packaged unit from a distance of 1m from the unit.	
3	Whether spare parts list for 2 years operations indicating price of the individual item is provided.	
4	It is to be confirmed that spares for the engines, compressors and other accessories shall be available at least for a period of 15 years after the date of commissioning of the units at site as mentioned in AGCL's specifications	
5	Whether the delivery schedule is as per the specifications.	

Annexure E

CHECK LIST FOR INSTRUMENTATION & CONTROL SYSTEM

Sl. No	Description	Remark	
		Yes	No
1	Latest Model of Programmable Controller is provided		
2	Communication for remote monitoring provided		
3	Audio-Visual Alarm facility with safety shutdown devices provided		
4	The suitable position of the panel is provided as per the layout diagram		
5	Suitable engine speed indicator and auto-manual selection with both auto-manual speed control is provided		
6	All panel parameters are displayed through HMI in Control panel		
7	Redundant DC Power supply unit Provided		
8	I.S. Zener Barriers are provided for all inputs		
9	Starting sequence, Interlock, Startup & Safety shutdown is executed using Programmable Controller		
10	Confirm to supply control 3 sets of panel engineering details, technical documents of control panel instrumentation system along with the material		
11	Scrubber level control is achieved using control valve and level control action from Programmable Controller		
12	Compressor capacity control is provided		
13	UPS(Uninterrupted Power Supply) back up is of one hour duration		
14	Provision for interface to AGCL's SCADA system		
15	Gauge panel is placed as per the layout diagram		
16	All field instruments i.e. transmitters, switches, solenoid valves, I/P & P/I converters etc. approved by DGM		
17	All field instruments are compatible to 24 V DC power supply		
18	Technical literature/catalogue for all field instruments provided		

Annexure-F
VENDORS LIST (For reference only)

Sl. No	Item/Equipment	Name of Vendors
1	Gas Engine	Caterpillar/Dresser Waukesha
2	Aerial Cooler	Harsco Air-X-Limited/Chart Industires USA/UK AXH air-coolers, Tulsa, Oklahoma,USA Air Cooled Exchangers, Tulsa,USA
3	Coupling	Rexnord ,CMR type
4	Divider Block Lubrication	CPI,Stafford, Texas, USA CC technology Midland, Texas, USA Lincoln
5	Control Panel	Altronic DE-4000. USA
6	Pressure/Temperature gauges	ODIN, WIKA, Murphy, McDaniel
7	Pressure/Temperature Switches	Switzer, Danfoss,Indfoss
8	Level Switches	Norriseal, Murphy , Fisher Rosemount, Invalco, Magnetrol
9	Level gauges	Levcon, Chemtrols, Norriseal
10	RTD/Thermocouple	Nagman, GIC , ALTOP Waaree
11	Solenoid Valve	ASCO , Rotex
12	Control valve Positioners	Emerson, MIL , Samson
13	JunctionBox & cable Gland	Baliga Chennai, Flexpro
14	I.S. Zener Barrier	MTL India , P&F Electronics
15	Vibration Switches	Murphy(UK), Amot Controls(UK), Metrix
16	Flow Meters	Emerson, Rockwin, Cameron
17	Pressure regulators	Emerson, Shavo, Norgren, ABB Fisher
18	PLC/Microcontroller	Allen Bradley , Siemens , Altronics, Amot Murphy
19	Pressure/DP,Transmitter/Temp.	Emerson, ABB, Honeywell, Yokogawa
20	I/P Converter	Fisher, ABB, Honeywell, Yokogawa
21	SS Tubing	Sandvik, Sweden
22	SS Tubing fittings	Swagelok, Hylok
23	Acoustical simulation and mechanical response studies & Pulsation studies	Beta machinery Analysis, Tech Transfer Inc. SWRI, USA Engineering Dynamics Inc. Houston SVT Engg. Consultants, Perth , Australia

Note: The vendor list is for reference purpose. The supplier/ packager to avail approval of each instrument with detail datasheet, make etc. after placement of order.

Annexure-G
COMMERCIAL CHECK LIST

THE CHECK LIST MUST BE COMPLETED AND SUBMITTED WITH YOUR OFFER. PLEASE ENSURE THAT ALL THESE POINTS ARE COVERED IN YOUR OFFER. THESE WILL ENSURE THAT YOUR OFFER IS PROPERLY EVALUATED. PLEASE SELECT "Yes" OR "No" OR INDICATE TO THE FOLLOWING QUESTIONS, IN THE RIGHT HAND COLUMN.

Sl.No	Requirement	Compliance(Yes / No)
1	Whether bid submitted under Single Stage Two Bid System?	
2	Whether Integrity Pact with digital signature uploaded and all clauses have been accepted as per the format?	
3	Whether ORIGINAL Bid Bond (not copy of Bid Bond) Sent separately? If Yes, provide details	
	(a) Amount	
	(b) Name of issuing Bank	
	(c) Validity of Bid Bond	
4	Whether offered firm prices?	
5	Whether quoted offer validity of 180 days from the date of closing of tender?	
6	Whether quoted a firm delivery period?	
7	Whether agreed to the tender Warranty clause?	
8	Whether confirmed acceptance of tender Payment Terms?	
9	Whether confirmed to submit PBG as asked for in tender?	
10	Whether agreed to submit PBG within 30 days of placement of order?	
11	Whether Prices submitted as per Price format?	
12	Whether confirmed that all spares will be supplied for a minimum period of 15 years after supply?	
13	Whether cost of two years recommended Spares quoted?	
14	Whether quoted as per tender (without any deviations)?	
15	Whether quoted any deviation?	
16	Whether deviation separately highlighted?	
17	Whether indicated the country of origin for	

	the items quoted?	
18	Whether technical literature / catalogue enclosed?	
19	Whether weight & volume of items offered indicated?	
20	Whether indicated the place from where the goods will be dispatched. To specify :	
21	Whether road transportation charges up to Duliajan quoted?	
22	Whether offered Ex-works price including packing/forwarding charges?	
23	Whether indicated import content in the offer?	
24	Whether offered Deemed Export prices?	
25	Whether all applicable Taxes & Duties have been quoted?	
26	Whether all BRC/BEC clauses accepted?	
27	Whether confirmed to offer the equipment for Pre-despatch/shipment Inspection & testing	
28	Whether Pre-despatch/shipment inspection & testing charges applicable?	
29	If Pre-despatch/shipment inspection & testing charges applicable, whether quoted separately on lumpsum basis?	
30	Whether confirmed to carry out Installation & Commissioning of the equipment at Duliajan (Assam) ?	
31	Whether Installation & Commissioning charge applicable?	
32	If Installation/ Commissioning and Training charges applicable, whether separately quoted on lumpsum basis?	
33	Whether to & fro air fares, boarding/lodging of the commissioning personnel at Duliajan, Assam (India) included in the quoted charge ?	
34	Whether confirmed that all Service, Income, Corporate tax etc. applicable under Installation/Commissioning are included in the prices quoted?	

Attachment – I

FORMAT OF AGREEMENT BETWEEN BIDDER AND THEIR PARENT COMPANY / 100% SUBSIDIARY COMPANY (As the case may be)

(TO BE EXECUTED ON STAMP PAPER OF REQUISITE VALUE AND NOTORISED)

This agreement made this ___ day of ___ month ___ year by and between M/s. _____ (Fill in the Bidder's full name, constitution and registered office address) hereinafter referred to as bidder on the first part and M/s. _____ (Fill in full name, constitution and registered office address of Parent Company/Subsidiary Company, as the case may be) hereinafter referred to as "Parent Company/ Subsidiary Company (Delete whichever not applicable)" of the other part:

WHEREAS

M/s. Assam Gas Company Limited (hereinafter referred to as AGCL) has invited offers vide their tender No. _____ for _____ and M/s. _____ (Bidder) intends to bid against the said tender and desires to have technical support of M/s. _____ [Parent Company/ Subsidiary Company-(Delete whichever not applicable)] and whereas Parent Company/ Subsidiary Company (Delete whichever not applicable) represents that they have gone through and understood the requirements of subject tender and are capable and committed to provide the services as required by the bidder for successful execution of the contract, if awarded to the bidder.

Now, it is hereby agreed to by and between the parties as follows:

1. M/s. _____ (Bidder) will submit an offer to AGCL for the full scope of work as envisaged in the tender document as a main bidder and liaise with AGCL directly for any clarifications etc. in this context.
2. M/s. _____ (Parent Company/ Subsidiary Company (Delete whichever not applicable) undertakes to provide technical support and expertise, expert manpower and procurement assistance and project management to support the bidder to discharge its obligations as per the Scope of work of the tender / Contract for which offer has been made by the Parent Company/Subsidiary Company (Delete whichever not applicable) and accepted by the bidder.
3. This agreement will remain valid till validity of bidder's offer to AGCL including extension if any and till satisfactory performance of the contract in the event the contract is awarded by AGCL to the bidder.

4. It is further agreed that for the performance of work during contract period bidder and Parent Company/Subsidiary Company (Delete whichever not applicable) shall be jointly and severely responsible to AGCL for satisfactory execution of the contract.

5. However, the bidder shall have the overall responsibility of satisfactory execution of the contract awarded by AGCL.

In witness whereof the parties hereto have executed this agreement on the date mentioned above.

For and on behalf of for and on behalf of
(Bidder) (Parent Company/Subsidiary Company(Delete whichever not applicable)

M/s. M/s.

Witness: Witness:

- | | |
|----|----|
| 1) | 1) |
| 2) | 2) |
| 3) | 3) |

Attachment – II

PARENT COMPANY/ SUBSIDIARY COMPANY GUARANTEE (Delete whichever not applicable)

(TO BE EXECUTED ON STAMP PAPER OF REQUISITE VALUE AND NOTORISED)

DEED OF GUARANTEE

THIS DEED OF GUARANTEE executed at this day of by M/s (mention complete name) a company duly organized and existing under the laws of (insert jurisdiction/country), having its Registered Office at hereinafter called “the Guarantor” which expression shall, unless excluded by or repugnant to the subject or context thereof, be deemed to include its successors and permitted assigns.

WHEREAS

M/s Assam Gas Company Limited, a company duly registered under the Companies Act 1956, having its Registered Office at Duliajan in the State of Assam, India, hereinafter called “AGCL” which expression shall unless excluded by or repugnant to the context thereof, be deemed to include its successor and assigns, invited tender number for on

M/s (mention complete name), a company duly organized and existing under the laws of (insert jurisdiction/country), having its Registered Office at (give complete address) hereinafter called “the Company” which expression shall, unless excluded by or repugnant to the subject or context thereof, be deemed to include its successor and permitted assigns, have, in response to the above mentioned tender invited by AGCL, submitted their bid number to AGCL with one of the condition that the Company shall arrange a guarantee from its parent company guaranteeing due and satisfactory performance of the work covered under the said tender including any change therein as may be deemed appropriate by AGCL at any stage.

The Guarantor represents that they have gone through and understood the requirement of the above said tender and are capable of and committed to provide technical and such other supports as may be required by the Company for successful execution of the same.

The Company and the Guarantor have entered into an agreement dated as per which the Guarantor shall be providing technical and such other supports as may be necessary for performance of the work relating to the said tender.

Accordingly, at the request of the Company and in consideration of and as a requirement for AGCL to enter into agreement(s) with the Company, the Guarantor hereby agrees to give this guarantee and undertakes as follows:

1. The Guarantor (Parent Company / 100% Subsidiary Company (Delete whichever not applicable) unconditionally agrees that in case of non-performance by the Company of any of its obligations in any respect, the Guarantor shall, immediately on receipt of notice of demand by AGCL, take up the job without any demur or objection, in continuation and without loss of time and without any cost to AGCL and duly perform the obligations of the Company to the satisfaction of AGCL.
2. The Guarantor agrees that the Guarantee herein contained shall remain valid and enforceable till the satisfactory execution and completion of the work (including discharge of the warranty obligations) awarded to the Company.
3. The Guarantor shall be jointly with the Company as also severally responsible for satisfactory performance of the contract entered between the Company and AGCL.
4. The liability of the Guarantor, under the Guarantee, is limited to the 50% of the contract price entered between the Company and AGCL. This will, however, be in addition to the forfeiture of the Performance Guarantee furnished by the Company.
5. The Guarantor represents that this Guarantee has been issued after due observance of the appropriate laws in force in India. The Guarantor hereby undertakes that the Guarantor shall obtain and maintain in full force and effect all the governmental and other approvals and consents that are necessary and do all other acts and things necessary or desirable in connection therewith or for the due performance of the Guarantor's obligations hereunder.
6. The Guarantor also agrees that this Guarantee shall be governed and construed in accordance with the laws in force in India and subject to the exclusive jurisdiction of the courts of, India.

7. The Guarantor hereby declares and represents that this Guarantee has been given without any undue influence or coercion, and that the Guarantor has fully understood the implications of the same.

8. The Guarantor represents and confirms that the Guarantor has the legal capacity, power and authority to issue this Guarantee and that giving of this Guarantee and the performance and observations of the obligations hereunder do not contravene any existing laws.

For & on behalf of (Parent Company/Subsidiary Company (Delete whichever not applicable))

M/s _____

Witness:

1. Signature _____ Signature _____

Full Name _____ Name _____

Address _____ Designation _____

Common seal of the Company _____

Witness:

2. Signature _____

Full Name _____

Address _____

INSTRUCTIONS FOR FURNISHING PARENT/SUBSIDIARY COMPANY GUARANTEE

1. Guarantee should be executed on stamp paper of requisite value and notorised.
2. The official(s) executing the guarantee should affix full signature (s) on each page.
3. Resolution passed by Board of Directors of the guarantor company authorizing the signatory(ies) to execute the guarantee, duly certified by the Company Secretary should be furnished along with the Guarantee.
4. Following certificate issued by Company Secretary of the guarantor company should also be enclosed along with the Guarantee.
“Obligation contained in the deed of guarantee No._____ furnished against tender No. _____ are enforceable against the guarantor company and the same do not, in any way, contravene any law of the country of which the guarantor company is the subject”

Attachment-III

**DECLARATION REGARDING HOLIDAY/BANNING AND
LIQUIDATION, COURT RECEIVERSHIP**

To,
M/s Assam Gas Company LIMITED

SUB:
TENDER NO:

Dear Sir,

We hereby confirm that we are not on 'Holiday' by AGCL or Public Sector Project Management Consultant only due to "poor performance" or "corrupt and fraudulent practices" or banned by Government department/ Public Sector on due date of submission of bid.

Further, we confirm that neither we nor our allied agency/(ies) (as defined in the Procedure for Action in case of Corrupt/ Fraudulent/ Collusive/ Coercive Practices) are on banning list of AGCL or the Ministry of Petroleum and Natural Gas.

We also confirm that we are not under any liquidation, court receivership or similar proceedings or 'bankruptcy'.

In case it comes to the notice of AGCL that the bidder has given wrong declaration in this regard, the same shall be dealt as 'fraudulent practices' and action shall be initiated as per the Procedure for action in case of Corrupt/Fraudulent/Collusive/Coercive Practices.

Further, we also confirm that in case there is any change in status of the declaration prior to award of contract, the same will be promptly informed to AGCL by us.

Place: [Signature of Authorized Signatory of Bidder]

Date: Name:
Designation:
Seal:

Attachment-IV

**PROFORMA OF "BANK GUARANTEES" FOR " PERFORMANCE
SECURITY / SECURITY DEPOSIT"**

(ON NON-JUDICIAL STAMP PAPER OF APPROPRIATE VALUE)

To,
M/s Assam Gas Company LIMITED

Dear Sir(s),

M/s. _____
having registered office at _____ (herein after called the
"contractor/supplier" which expression shall wherever the context so require
include its successors and assignees) have been placed/ awarded the job/work
of _____ vide PO/LOA /FOA No.
_____ dated _____ for Assam Gas Company Limited
having registered office at Duliajan, Dibrugarh, Assam (herein after called the
"AGCL" which expression shall wherever the context so require include its
successors and assignees).

The Contract conditions provide that the SUPPLIER/CONTRACTOR shall pay a
sum of Rs. _____ (Rupees
_____) as full Contract Performance
Guarantee in the form therein mentioned. The form of payment of Contract
Performance Guarantee includes guarantee executed by Nationalized
Bank/Scheduled Commercial Bank, undertaking full responsibility to
indemnify Assam Gas Company LIMITED, in case of default.

The said M/s. _____ has approached
us and at their request and in consideration of the premises we having our
office at _____ have agreed to give such guarantee as
hereinafter mentioned.

1. We _____ hereby
undertake to give the irrevocable & unconditional guarantee to you that
if default shall be made by M/s. _____ in
performing any of the terms and conditions of the tender/order/contract
or in payment of any money payable to ASSAM GAS COMPANY LIMITED
we shall on first demand pay without demur, contest, protest and/ or
without any recourse to the contractor to AGCL in such manner as AGCL
may direct the said amount of Rupees _____ only
or such portion thereof not exceeding the said sum as you may require
from time to time.

2. You will have the full liberty without reference to us and without affecting this guarantee, postpone for any time or from time to time the exercise of any of the powers and rights conferred on you under the order/contract with the said M/s. _____ and to enforce or to forbear from endorsing any powers or rights or by reason of time being given to the said M/s. _____ and such postponement forbearance would not have the effect of releasing the bank from its obligation under this debt.

3. Your right to recover the said sum of Rs. _____ (Rupees _____) from us in manner aforesaid is absolute & unequivocal and will not be affected or suspended by reason of the fact that any dispute or disputes have been raised by the said M/s. _____ and/or that any dispute or disputes are pending before any officer, tribunal or court or arbitrator or any other authority/forum and any demand made by you in the bank shall be conclusive and binding. The bank shall not be released of its obligations under these presents by any exercise by you of its liberty with reference to matter aforesaid or any of their or by reason or any other act of omission or commission on your part or any other indulgence shown by you or by any other matter or changed what so ever which under law would, but for this provision, have the effect of releasing the bank.

4. The guarantee herein contained shall not be determined or affected by the liquidation or winding up dissolution or changes of constitution or insolvency of the said supplier/contractor but shall in all respects and for all purposes be binding and operative until payment of all money due to you in respect of such liabilities is paid.

5. This guarantee shall be irrevocable and shall remain valid upto _____. The bank undertakes not to revoke this guarantee during its currency without your previous consent and further agrees that the guarantee shall continue to be enforceable until it is discharged by AGCL in writing. However, if for any reason, the supplier/contractor is unable to complete the supply/work within the period stipulated in the order/contract and in case of extension of the date of delivery/completion resulting extension of defect liability period/guarantee period of the supplier/contractor fails to perform the supply/work fully, the bank hereby agrees to further extend this guarantee at the instance of the supplier/contractor till such time as may be determined by AGCL. If any further extension of this guarantee is required, the same shall be extended to such required period on receiving instruction _____ from M/s. _____ (contractor) on whose behalf this guarantee is issued.

6. Bank also agrees that AGCL at its option shall be entitled to enforce this Guarantee against the bank (as principal debtor) in the first instant, without proceeding against the supplier/contractor and notwithstanding any security or other guarantee that AGCL may have in relation to the supplier's/contractor's liabilities.
7. The amount under the Bank Guarantee is payable forthwith without any delay by Bank upon the written demand raised by AGCL. Any dispute arising out of or in relation to the said Bank Guarantee shall be subject to the exclusive jurisdiction of courts at Dibrugarh.
8. Therefore, we hereby affirm that we are guarantors and responsible to you on behalf of the Supplier/Contractor up to a total amount of _____(amount of guarantees in words and figures) and we undertake to pay you, upon your first written demand declaring the Supplier/Contractor to be in default under the order/contract and without caveat or argument, any sum or sums within the limits of (amounts of guarantee) as aforesaid, without your needing to prove or show grounds or reasons for your demand or the sum specified therein.
9. We have power to issue this guarantee in your favor under Memorandum and Articles of Association and the undersigned has full power to do under the Power of Attorney, dated _____ granted to him by the Bank.

Yours faithfully,

Bank by its Constituted Attorney

Signature of a person duly authorized to sign on behalf of the bank

Attachment-V

UNDERTAKING ON LETTERHEAD

To,
M/s Assam Gas Company LIMITED

SUB:

TENDER NO:

Dear Sir,

We hereby confirm that “The contents of this Tender Document No.have not been modified or altered by M/s.(Name of the bidder with complete address). In case, it is found that the tender document has been modified / altered by the bidder, the bid submitted by M/s.....(Name of the bidder) shall be liable for rejection”.

Place: [Signature of Authorized Signatory of Bidder]

Date: Name:

Designation:

Seal:

Attachment-VI

FORMAT FOR CHARTERED ACCOUNTANT CERTIFICATE/ CERTIFIED PUBLIC ACCOUNTANT (CPA) FOR FINANCIAL CAPABILITY OF THE BIDDER

We have verified the Audited Financial Statements and other relevant records of M/s..... (Name of the bidder) and certify the following:

A. AUDITED ANNUAL TURNOVER* OF LAST 3 YEARS:

Year	Amount (Currency)(INR)
Year 1 :	
Year 2 :	
Year 3 :	

B. NETWORTH* AS PER LAST AUDITED FINANCIAL STATEMENT:

Description	Year_____
	Amount (Currency)
1. Net Worth	

C. WORKING CAPITAL* AS PER LAST AUDITED FINANCIAL STATEMENT:

Description	Year_____
	Amount (Currency)
1. Current Assets	
2. Current Liabilities	
3. Working Capital (Current Assets-Current liabilities)	

****Refer Instructions***

Note: It is further certified that the above mentioned applicable figures are matching with the returns filed with Registrar of Companies (ROC) [Applicable only in case of Indian Companies]

Name of Audit Firm: [Signature of Authorized Signatory]

Chartered Accountant/CPA Name:

Date: Designation:

Seal:

Membership No.:

Instructions:

- 1) The Separate Pro-forma shall be used for each member in case of JV/ Consortium.
- 2) The financial year would be the same as one normally followed by the bidder for its Annual Report.
- 3) The bidder shall provide the audited annual financial statements as required for this Tender document. Failure to do so would result in the Proposal being considered as non- responsive.
- 4) For the purpose of this Tender document:
 - a) **Annual Turnover** shall be “Sale Value/Operating Income”
 - b) **Working Capital** shall be “Current Assets less Current liabilities” and
 - c) **Net Worth** shall be paid up share capital plus Free Reserves & Surplus less accumulated losses, deferred expenditure and miscellaneous expenditure not written off, if any.
- 5) **Above figures shall be calculated after considering the qualification, if any, made by the statutory auditor on the audited financial statements of the bidder including quantified financial implication.**
- 6) This certificate is to be submitted on the letter head of Chartered Accountant/CPA.