

GAIL (INDIA) LIMITED



EXPRESSION OF INTEREST (EOI)

FOR

OFFTAKE OF LIQUEFIED CO₂

FROM

GAIL PATA (U.P) AND VIJAIPUR (M.P) PLANT

EOI DOCUMENT NO: GAIL/NOIDA/PD/Liquefied CO₂/EoI/2024

DATE: 17.10.2024

TABLE OF CONTENTS

SECTION	DESCRIPTION	PAGE NO.
I	INVITATION FOR EXPRESSION OF INTEREST (EOI)	1-4

LIST OF ATTACHMENT

DESCRIPTION	NO. OF PAGES
ANNEXURE-I	1
ANNEXURE-II	1
ANNEXURE-III	2

**EXPRESSION OF INTEREST (EOI)
OFFTAKE OF LIQUEFIED CO2 FROM GAIL PLANT EX-WORKS
EOIDOCUMENTNO: GAIL/NOIDA/PD/Liquefied CO2/EoI/2024**

SECTION-I

**INVITATION FOR
EXPRESSION OF INTEREST (EOI)**

EXPRESSION OF INTEREST (EOI)
OFFTAKE OF LIQUEFIED CO2 FROM GAIL PLANT EX-WORKS
EOI DOCUMENT NO: GAIL/NOIDA/PD/Liquefied CO2/EoI/2024

1. INTRODUCTION:

- 1.1 GAIL (India) Ltd. was incorporated in August 1984 as a Central Public Sector Undertaking (CPSU) under the Ministry of Petroleum & Natural Gas (MoPNG) as a Natural Gas & marketing Company. GAIL is a leading natural gas company with diversified interests having presence in the entire Gas value chain comprising of Exploration and Production, LNG Imports, Gas Transmission and Marketing, Gas Processing, Petrochemicals, LPG Transmission, City Gas Distribution and Renewable etc.
- 1.2 In line with the GoI net zero initiative, GAIL has embarked on its net-zero journey and developed a decarbonization roadmap by setting a target to achieve net-zero (i.e. 100% reduction in Scope 1 and Scope 2) status by 2035 while reducing Scope 3 emissions by 35% by 2040. In view of the same, GAIL is exploring various opportunities in CO2 utilization.
- 1.3 GAIL has five Gas Processing units (GPUs), C2/C3 recovery unit (Vijaipur) and a Petrochemical complex at Pata for production of polymer and other associated liquid Products. The natural gas feedstock from HVJ pipeline is processed in GPU unit of Vijaipur and Pata plant, in which CO2 is removed from the feed gas for further processing.

2. BRIEF SCOPE OF WORK:

- 2.1 In view of working in the direction of net zero journey, GAIL intends to utilize this CO2 for direct sale in Liquefied form to various CO2 users in India. GAIL is looking for suitable customers who are interested to procure Liquefied CO2 on long term basis.
- 2.2 GAIL invites “Expression of Interest” (EOI) for off-take of Liquefied CO2 from GAIL Pata (U.P) and Vijaipur (M.P) plant ex-works.
- 2.3 Interested bidders can specify the desired quantity of CO2, tentative price and preferable location (Vijaipur or Pata or both) for offtake of CO2. Further, the bidders may also specify the grade (Food/industrial) and end use of CO2. (Desired information to be provided in **Annexure-II** enclosed).
- 2.4 Based on the above information, DFR study shall be carried out and GAIL will take a decision to set up CO2 Purification and Liquefaction unit of suitable capacity at preferable location.

3. OTHER INFORMATION:

- Duration for long term agreement: >5 years.
- Food grade CO2-99.9% (as per ISBT/EIGA standard)
- Industrial grade CO2-99.7% (as per ISO 14175-C1 standard)
- Quantity of CO2 Available at Pata/Vijaipur~ 500 TPD/1200 TPD
- Location of Pata/Vijaipur Plant- 26.6439° N, 79.4894° E/ 24.4578° N, 77.1557° E

4. ACTION PLAN TO BE CARRIED OUT AFTER FLOATING OF EOI:

After receiving the desired information with respect to quantity of CO₂, tentative price and preferable location, grade and end use of CO₂ from the interested bidders in EoI, GAIL will decide the capacity of the CO₂ Purification and Liquefaction plant. Based on this information, a priority list of Bidders shall be finalized in the order of highest to lowest revenue from CO₂ offtake. Further, Detailed Feasibility Study shall be carried out for decided capacity of Plant at Vijaipur or Pata or both locations in order to determine the price at which Liquefied CO₂ will be supplied. After this the plant shall be set up which may take approximately (1) one year and CO₂ delivery shall start after ~1.5 years from now.

5. PROJECT TIMELINE:

- Time line for detailed feasibility study: ~3 months
- Time schedule setting up the plant: ~1 year.
- Total time for delivery of CO₂: ~ 1.5 Years from the signing of Agreement.

6. REVENUE CALCUALATION:

After receiving inputs (i.e. Quantity and Price) from interested bidders, revenue shall be calculated by using formula **Qty of Liquefied CO₂ X price of CO₂ per unit**. Based on the revenue calculated against each party, a priority list shall be made in the order of highest revenue to lowest revenue. On the basis of this list prepared, customers shall be invited.

7. SUBMISSION OF DOCUMENTS:

Bidder should submit the following document(s) in support of their response to this EOI:

1. Covering Letter as per **Annexure I**
2. Bidder's Information as per **Annexure II**

8. DATE & TIME FOR SUBMISSION OF EOI:

The due date & time for submission of EOI by bidder is **08.11.2024 at 17:00 Hrs (IST)** (dd.mm.yyyy, hhhhhrs, Indian Standard Time).

9. GENERAL INSTRUCTION TO THE BIDDERS:

- i. EOI offers received after the last date as mentioned above will not be considered. GAIL reserves the right to extend the EOI period and due date for submission, mentioned above.
- ii. EOI can be downloaded from the website <https://gailonline.com> within the above-mentioned period. Any amendment, clarification, corrigendum w.r.t. EOI will be hosted on <https://gailonline.com>. Bidder(s) should regularly visit this website to keep themselves updated. Bidders may contact the following person for any related queries/clarifications:

Sh. Yogesh Pratap
(CM, Project Development)
Mob no: 8954893772
Email ID :yogesh.pratap@gail.co.in

EXPRESSION OF INTEREST (EOI)
OFFTAKE OF LIQUEFIED CO2 FROM GAIL PLANT EX-WORKS
EOI DOCUMENT NO: GAIL/NOIDA/PD/Liquefied CO2/EoI/2024

- iii. The completely filled EOI offer containing **Annexure-I & II** duly self-attested and notarised are to be submitted by bidder(s) via e-mail to the following Email address eoico2@gail.co.in.
- iv. The EOI and all correspondence incidental and related to EOI shall be in English language.
- v. All alterations, erasure(s) and/or over-writing(s), if any, should be duly authenticated by the person signing the offer.
- vi. All Proforma forming part of offer documents must be duly filled-in, signed and stamped by the bidder(s).
- vii. Conditional/subjective offer shall be rejected.
- viii. The EOI offers shall remain valid for a minimum period of 6 months from the last date of submission of EOI. The validity of offers may also require extension of time with the consent of the bidder(s).
- ix. EOI offers shall be opened and evaluated by GAIL and the bidders shall be informed time to time.
- x. This EOI is non-committal and GAIL reserves the right to allow any new interested bidder for CO2 offtake from GAIL plant.
- xi. Received EOI applications are merely offers and do not bind GAIL in any manner whatsoever for further processing. GAIL reserves the right to discontinue the process at any point of time without assigning any reasons.
- xii. Submission of EOIs will not be treated as acceptance/selection of the offer.
- xiii. EOI shall be governed by the laws of India and any/all disputes arising out of or in connection to EOI shall be adjudicated exclusively by the Courts situated at New Delhi/Delhi only.

ANNEXURE-I

FORMAT FOR THE COVERING LETTER

(To be submitted by the Application on its letterhead)

GAIL (India) Limited
GAIL Bhawan
16, Bhikaiji Cama Place, R.K. Puram
New Delhi-110 066
India

Subject: Expression of Interest for EOI DOCUMENT NO.:
dated 17.10.2024.

Dear Sir,

We, _____ *(Name of the applicant)*, having read, examined and understood in detail the Subject EOI, confirm that neither we nor any of our Parent Company/ Affiliate/ Ultimate Parent Company has submitted response other than this response directly or indirectly in response to the aforesaid EOI.

1. We give our unconditional acceptance to the EOI, issued by GAIL, including its amendments and/or clarification, if any, the receipt of which is hereby acknowledged. In token of our acceptance to the EOI, the same have been signed & stamped by us and enclosed to the response.
2. We have submitted our response strictly as per the provisions and formats of the EOI, without any deviations, conditions and without mentioning any assumptions or notes.
3. We hereby expressly waive any and all claims in respect of EOI process. We confirm that there are no litigations or disputes against us, which materially affect our ability to participate or function under the obligations with regard to EOI.
4. The information submitted in our response is complete, strictly as per the requirements stipulated in the EOI and is correct to the best of our knowledge and understanding. We would be solely responsible for any errors or omissions in our response.
5. We confirm that all the terms and conditions of our response are valid for acceptance for a period of six (6) months from the response Deadline.

(SIGNATURE)

(NAME AND DESIGNATION OF AUTHORISED PERSON)

Date:

Place:

(Seal of company)

INFORMATION**ANNEXURE-II****BIDDER IS REQUESTED TO COMPLETE THE FOLLOWING QUESTIONNAIRE**

SR. NO.	DESCRIPTION	BIDDER'S RESPONSE	REMARKS
1	Grade along with composition of CO2 (%)		
2	Quantity of Liquefied CO2 for offtake (TPD)		
3	Price quoted for CO2 offtake (Rs/kg)		
4	Period of agreement (Years)		
5	Preferable Location (Pata/Vijaipur/Both)		
6	End use of CO2		

(SIGNATURE)**(NAME AND DESIGNATION OF AUTHORISED PERSON)**

Date:

Place:

(Seal of Company)

Industrial grade CO₂ specification as per ISO 14175 C1

© ISO

ISO 14175:1997(E)

5 Tolerances of mixtures

For component concentrations up to 5 % (V/V) the permissible deviation shall not exceed $\pm 0,5$ % (V/V) from the specified value. For component concentrations of between 5 % (V/V) and 50 % (V/V) the concentration shall not vary by more than ± 10 % of the specified value.

6 Purities and dew points

The minimum purities and maximum dewpoints of gases as delivered in cylinders or insulated tanks, are specified in table 4 according to their classifications in table 2. Purities and dewpoints for special gas mixtures shall correspond to the base gases or gas mixtures used, as specified in table 4.

For some materials, e.g. titanium and tantalum, gases of higher purities may be required and specifications can be agreed between the user and the supplier. The users gas supply system should be designed and maintained such that the purity as delivered is maintained up to the point of use.

Table 4 — Purities and dewpoints of gases and gas mixtures

Group ¹⁾	Minimum purity % (V/V)	Dewpoint at 1,013 Bar °C max.	Maximum humidity ppm
R	99,95	- 50	40
I	99,99	- 50	40
M1	99,70	- 50	40
M2	99,70	- 44	80
M3	99,70	- 40	120
C	99,70	- 35	200
F	99,50	- 50	40
Oxygen	99,50	- 35	200
Hydrogen	99,50	- 50	40

1) Data for oxygen and hydrogen have been included in this table.

Food grade CO2 specification as per ISBT & EIGA standard

Parameter		Rationale ¹
Purity	99.9% v/v min.	Process
Moisture	20 ppm v/v max.	Process
Acidity	To pass test	Regulatory
Oxygen	30 ppm v/v max.	Sensory
Nitrogen compounds		
Ammonia	2.5 ppm v/v max.	Process
Nitric oxide/nitrogen dioxide	2.5 ppm v/v max. each	Regulatory
Non-volatile residue	10 ppm w/w max.	Sensory
Non-volatile organic residue	5 ppm w/w max.	Sensory
Phosphine	To pass test (0.3 ppm v/v max)	Regulatory
Total volatile	50 ppm v/v max. of which 20 ppm v/v	Sensory
Hydrocarbons (as methane)	max. of non-methane hydrocarbons	
Acetaldehyde	0.2 ppm v/v max.	Sensory
Aromatic hydrocarbon	0.020 ppm v/v max.	Regulatory
Carbon monoxide	10 ppm v/v max.	Process
Total sulfur (as S)	0.1 ppm v/v max.	Sensory
Carbonyl sulfide	0.1 ppm v/v max.	Sensory
Hydrogen sulfide	0.1 ppm v/v max.	Sensory
Sulfur dioxide	1 ppm v/v max.	Sensory
Appearance in water	No color or turbidity	Sensory
Odor	Odorless	Sensory
Taste and odor	No foreign taste or odor in water	Sensory

Table 1. ISBT Carbon Dioxide Guidelines.

¹Rationale definitions:

Sensory: Any attribute that negatively impacts the taste, appearance, or odor of beverage.

Process: Any attribute that defines a key parameter in a controlled process and an important consideration in the beverage industry.

Regulatory: Any attribute whose limit is set by governing regulatory agencies.

EIGA LIMITING CHARACTERISTICS

FOR CARBON DIOXIDE TO BE USED IN BEVERAGES FOR SOURCE SPECIFICATION³

Component	Concentration
Assay	99.9% v/v min.
Moisture	20 ppm v/v max.
Ammonia	2.5 ppm v/v max.
Oxygen	30 ppm v/v max.
Oxides of nitrogen (NO/NO ₂)	2.5 ppm v/v max. each
Non-volatile residue(particulates)	10 ppm w/w max.
Non-volatile organic residue (oil and grease)	5 ppm w/w max.
Phosphine ***	0.3 ppm v/v max.
Total volatile hydrocarbons (calculated as methane)	50 ppm v/v max. of which 20 ppm v/v max non-methane hydrocarbons.
Acetaldehyde	0.2 ppm v/v max.
Aromatic hydrocarbon	0.02 ppm v/v max.
Carbon monoxide	10 ppm v/v max.
Methanol	10 ppm v/v max.
Hydrogen cyanide*	0.5 ppm v/v max.
Total sulfur (as S) **	0.1 ppm v/v max.
Taste and odour in water	No foreign taste or odour
Appearance in water	No colour or turbidity
Odour and appearance of solid CO ₂ (snow)	No foreign odour or appearance

* Analysis necessary only for carbon dioxide from coal gasification sources

** If the total sulphur content exceeds 0.1 ppm v/v as sulphur then the species must be determined separately and the following limits apply:

 Carbonyl Sulphide 0.1 ppm v/v max.

 Hydrogen Sulphide 0.1 ppm v/v max.

 Sulphur Dioxide 1.0 ppm v/v max.

*** Analysis necessary only for carbon dioxide from phosphate rock sources