DEENDAYAL PORT AUTHORITY

(Erstwhile 'Kandla Port Trust')

Chief Mechanical Engineer
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Date - 23.05.2025

To,

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Subject: **Supply of CO_2 Production System from Anaerobic Digestion of Biomass with Carbon Capture (20 tons/day CO_2)- reg.**

Sir,

Deendayal Port Authority intends to develop a Green e-Methanol production facility in Gandhidham, Gujarat, India. In this connection, Expressions of Interest from experienced and reputable manufacturers and technology providers is invited for a system that produces carbon dioxide (CO_2) from the anaerobic digestion (AD) of biomass, with a capture capacity of 20 tons per day. The captured CO_2 will be used as a feedstock in e-methanol production process.

We invite qualified vendors to submit their Expression of Interest, including preliminary technical specifications and company credentials, demonstrating their capability to supply a system meeting the requirements outlined below:

Project Description:
This project involves the design, construction, and operation of a system that processes biomass through anaerobic digestion. The CO2 generated during the AD process will be captured for use as a feedstock in e-methanol synthesis.

Technical Specifications:
The proposed system should meet the following minimum specifications:

1. **Biomass Feedstock:**
   - **Type: [Specify types of acceptable biomass, e.g., agricultural residues, energy crops, organic waste].**
   - **Processing Capacity: [Specify, e.g., X tons/day of biomass].**
   - **Pre-treatment: Specify any required pre-treatment processes (e.g., shredding, hydrolysis).**
2. **Anaerobic Digestion:**
   - **Technology: Specify the type of AD technology (e.g., mesophilic, thermophilic, continuous stirred-tank reactor (CSTR), etc.).**
   - **Capacity: [Specify the capacity of the AD system]**
   - **Biogas Production Rate: [Specify expected biogas yield, e.g., m3/ton of biomass].**
   - **Methane Content: Specify the expected methane (CH_4) content in the biogas.**
   - **Retention Time: Specify the hydraulic retention time (HRT) of the digester.**
3. **CO_2 Capture:**
   - **Capture Technology: Specify the proposed CO_2 capture technology (e.g., amine scrubbing, pressure swing adsorption (PSA),**
   - **membrane separation).**

- **CO_2 Production Rate: The system must be capable of capturing a minimum of 20 tons/day of CO_2.**
- **CO_2 Purity: Output CO_2 purity ≥ 99%.**
- **CO2 Delivery Conditions: Specify the required delivery pressure and temperature of the captured CO_2.**
- **Recovery Rate: Specify the percentage of CO_2 in the biogas that the system is expected to capture.**

4. **Biogas Utilization (Post-CO_2 Capture): Specify how the residual biogas (after CO_2 capture) is to be utilized (e.g., for on-site power generation, injection into natural gas grid). If it is for power generation, specify the type of generator. If the residual biogas needs further treatment, specify the requirements.**
5. **Emissions and Waste:**
   - **Specify the expected emissions from the system (e.g., CH4 slip).**
   - **Describe any waste products and their handling/disposal methods (e.g., digestate).**
6. **Control and Automation:**
   - **Describe the proposed control system and its integration capabilities.**
   - **Specify any remote monitoring or diagnostic features.**
7. **Safety:**
   - **Detail the integrated safety systems and compliance with relevant industrial standards.**
8. **Footprint:**
   - **Provide an estimated footprint of the system.**
9. **Delivery Timeline:**
   - **Indicate the typical timeline for design, manufacturing, installation, and commissioning.**

Information to be submitted by interested vendors:
Interested vendors are requested to submit the following information:

- **Company profile, including relevant experience in supplying systems for biomass processing, AD, and CO2 capture.**
- **Preliminary technical specifications of their proposed system, addressing the points mentioned above.**
- **Process flow diagrams (PFDs) of the proposed system.**
- **Indicative timeline for design, manufacturing, and delivery.**
- **Relevant certifications and standards compliance.**
- **References for similar projects.**
- **Component wise Cost & Payment schedule.**

Please submit your Expression of Interest and supporting documents electronically to cme@deendayalport.gov.in by 06.06.2025.

This Expression of Interest does not constitute a commitment to purchase, and DPA reserves the right to accept or reject any EOI without assigning any reason whatsoever.

Thanking you,

Yours faithfully,

-sd-
Chief Mechanical Engineer
Deendayal Port Authority