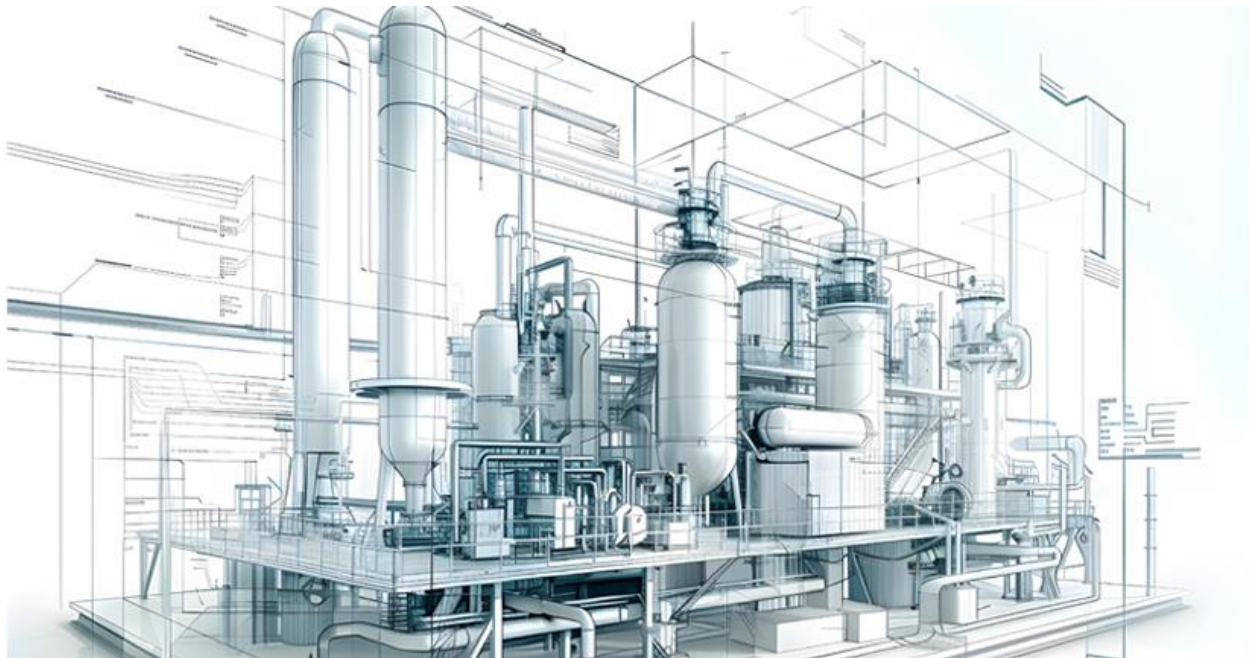




Case Study: Enhancing CO₂ System Engineering through Scalable Offshore Support



Overview

A prominent provider of engineered carbon dioxide (CO₂) storage and distribution systems—serving sectors such as industrial gas processing, water treatment, and food & beverage—sought to enhance the efficiency and scalability of its engineering operations. With safety, compliance, and precision at the core of its product offerings, the company required robust support to meet growing technical demands and multi-disciplinary documentation needs.

Business Challenge

The organization faced a series of complex challenges that impacted both operational workflows and engineering output:

- **Fragmented Transmittal Processes:** Managing sequential engineering workflows—ranging from P&IDs to submittals to final O&M documentation—was labor-intensive and prone to delays.

- **Documentation Accuracy:** Ensuring alignment and accuracy across mechanical and electrical engineering documentation proved difficult, particularly across multiple disciplines and teams.
- **Regulatory Compliance:** Designing pressure systems required strict adherence to regulatory safety protocols and industry standards.
- **Global Collaboration Needs:** As engineering efforts expanded, collaboration across geographically distributed teams lacked consistency and scalability.

iLenSys Solution

A dedicated Offshore Development Center (ODC) was established to deliver full-spectrum engineering support. The ODC model enabled the client to scale operations efficiently while maintaining a high standard of domain expertise and design integrity. Key areas of engagement included:

1. P&ID Development and Specification Alignment

- Developed detailed P&ID diagrams tailored to customer specifications.
- Incorporated process flow requirements and verified approved equipment and signal lists in line with project milestones.

2. Mechanical and Electrical Design Engineering

- Delivered 3D mechanical models and 2D fabrication-ready drawings for critical system components.
- Supported the design and construction of pressure vessels, refrigeration systems, vaporizers, vapor heaters, piping assemblies, and structural frameworks.
- Integrated bills of materials (BOMs) to streamline procurement and manufacturing coordination.

3. Technical Publication and Documentation

- Consolidated mechanical and electrical drawings, technical datasheets, pre-installation guidelines, warranty documentation, and reference materials.
- Compiled comprehensive submittal and O&M packages for client delivery, ensuring completeness and regulatory compliance.

Key Deliverables

- End-to-end P&ID packages with traceable approval workflows.
- Accurate 3D models and fabrication drawings for CO₂ feed systems and storage infrastructure.

- Fully integrated submittal documentation, including
 1. Operation & Maintenance manuals
 2. Technical publications
 3. Safety datasheets and cut sheets

Impact

The structured offshore engineering support enabled the client to improve speed, quality, and compliance in the delivery of CO₂ systems. The ODC model not only increased project throughput but also ensured consistency in documentation, enhanced cross-functional collaboration, and reduced time-to-market for critical engineered solution.