

Gas Recovery System Development for a Petrochemical Major

Enventure developed Hydrogen Recovery Systems of varying capacities and configuration for a Petrochemical Equipment Manufacturer



About the Client

The Client manufactures membranes for the Hydrocarbon and Petroleum industry, for effective gas separation.

They provide a wide range of gas separation equipment and solutions for petrochemical plants, refineries, and gas processing facilities. The systems developed are state-of-the-art membrane technology and they also have systems custom-engineered to fit the application of a specific industry.



Business Need

In the last decade there has been a significant surge in discussions and declarations about the impact of Sulphur and its compounds on the environment, severely affecting the health of human beings. Global awareness and huge pressure from environmentalists to bring down the emission levels of Sulphur and related compounds forced Governments to introduce stringent norms for refining fuels. Oil and Gas refineries were required to comply with the new norms for Low Sulphur content that required high volumes of Hydrogen to meet this requirement. Recovery and purification of Hydrogen in a refinery is one of the most important processes for minimizing operational costs to produce clean fuels.

Hydrogen Recovery System (HRS) of various capacities were required to be designed and implemented for recovering and recycling of purified hydrogen. The Client was making crucial subsystems for such equipment and had dependency on fabricators for system development. The fabricator was producing standard designs (one-size-fits-all model), due to limited capabilities and experience in equipment design. Lack of value engineering and customized models was causing dissatisfaction to the end customer, thereby potentially threatening the brand's reputation and business.

Why Enventure?

The Client was impressed with Enventure for :

- Ingenuity of the delivery team in generating initial creative solutions and their depth of understanding the customer requirements
- Experience of the delivery team in executing similar projects for Clients from Oil & Gas and Petrochemicals industry
- Responsiveness of the management team and zeal to make things happen
- Rapid turnaround times that got in sync with the speed of the Client
- Ability to mobilize the right resources from relevant industries in a short duration and scale up capacity



The Solution

The Enventure team used their industry experience to build a dedicated engineering team with multidisciplinary capabilities. Enventure primarily focused on the ambient conditions where the design for piping, equipment and skids would be used, thereby ensuring better fitment for the customer's requirements and successful project implementation. The team also successfully resolved various challenges like visibility of essential maintenance components during the night, space constraints, and deserted locations by designing appropriate systems. Another crucial aspect of the engagement was to manage the fabricator's deliverable in lines with the client's expectations. For this the team followed a structured and analytical approach to build a series of technical data from design calculations, analysis software's, codes & standards and expert reviews that would provide clarity to the design and control any ambiguities at the fabrication stage. Additionally support for vendor identification, general procurement package preparation, Technical Bid Evaluation, expediting the production process, Quality Control and logistics support was provided by Enventure. With a systematic approach, several managerial and business complexities also stood resolved at various stages.

Domain	Scope of Work
Piping	Development of P&ID and Equipment Layout, 3D Piping Layout, Heat traced Piping, Piping Stress Analysis, Piping Spool, Piping line & Equipment list, Pipe Support Design & Detailing and Piping support GA
Mechanical	Preparation of 3D GA, General Procurement Specification and Equipment Data sheet along with Technical Bid Analysis and support for Procurement Team, Pressure vessel sizing, design review
Structural	Complete Structural Analysis considering wind, seismic & equipment loads as well as feasibility & conceptual studies. The Connection design, Lifting arrangement, anchor bolt & base plate design
Electrical	Preparation of Single line diagram, junction box sizing, lighting layout, lux level calculation, heat tracing system design
Instrumentation	Development of Instrument Data sheets, Sizing of flow element and control valve, Hook Up drawing, Junction box and Instrument location drawing

Benefits

Enventure supported the Client comprehensively for their end-to-end engineering requirement right from Initial concept to the final equipment installation and maintenance phase. The custom engineering approach provided by Enventure resulted in the following benefits:

- Better quality equipment and skids that enhanced the Client's market repute
- Increased revenue from existing customers and strengthening engagements
- Reduced time to market despite a varying set of challenges
- Efficient cost allocation with value enriched deliverables



Conclusion

Enventure lived up to the trust and confidence bestowed upon by the Client. Domain expertise, adaptive intelligence and industry best practices followed by the team made it possible to implement a solution that was of true value for the Client. This relationship has begun at the best footing and Enventure aspires to build the most sustainable business solutions for the Client in the future.



Enventure Engineering LLP

India

Regd. Office:
124, HAL Airport Road,
Bangalore - 560017
Tel: +91.80.4116.1000

USA

Pease International Tradeport
One, New Hampshire Avenue, Suite 125,
Portsmouth, NH 03801
Tel: +1.603.766.4960

E-mail: info@enventure.com

Website: www.enventure.com

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