

nVent RAYCHEM Heat Management Solutions Protect Critical Operational Reliability of Alabama Refinery Conversion to Steam Methane Reforming (SMR) Hydrogen Plant

Mission Critical Solutions in Hydrogen



PROJECT DETAILS



**Location:**  
Saraland, Alabama



**Applications:**  
Pipe Freeze Protection, Process Temperature Maintenance, Instrument Winterization



**Contract scope:**  
Engineering, Product Supply, and Instrument Winterization



**Technology:**  
nVent RAYCHEM Self-Regulating (XTVR, HTV), Mineral Insulated (XMI), Advanced Control and Monitoring



**Completion date:**  
2026

## KEY CHALLENGES

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As part of their commitment to the energy transition a Houston-based oil and gas company has recently purchased a 90,000-bpd refinery in the Mobile, AL area with plans to convert this refinery to renewable diesel. This conversion requires supplemental hydrogen which will be supplied by a global hydrogen manufacturer using a new technology very similar to steam methane reforming. What is different are the feedstocks this new hydrogen plant can use to minimize the carbon contribution per ton of hydrogen produced. nVent RAYCHEM, working closely with the project EPC firm, has been awarded the engineering and product supply for this new hydrogen plant. The customer's mission critical objectives for the heat management solution include finding the optimal system design that would keep critical process maintain and freeze protection applications running, prevent condensation in large bore piping that transports process gases, protect instruments, and provide an energy efficient control and monitoring solution. In summary, the customer needs assurance that the plant's heat management system operates reliably.

## SOLUTION

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nVent was chosen to support this key project because of our reputation for comprehensive expertise of complete heat management systems, and our established HMS relationship with the project EPC firm in the Gulf Coast area. nVent RAYCHEM engineers created an optimized heat management solution design using our proprietary nVent RAYCHEM TracerLynx 3D HMS software. nVent RAYCHEM engineers analyzed all heating technologies and determined that nVent RAYCHEM high temperature self-regulating heating cables with high power retention (HPR) proved ideal for both the process temperature maintenance and freeze protection applications. In addition, the nVent RAYCHEM engineers designed and supplied heat traced tubing bundles to support the large instrument winterization base on the project. We installed our advanced nVent RAYCHEM NGC-40 control & monitoring solutions to deliver energy savings, minimize operational risk, maximize productivity, and communicate with the operation staff.

## PROJECT FACTS

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To meet the mission critical needs of this new (HyCO) hydrogen facility, our nVent RAYCHEM heat management solution was provided on schedule and included:

- Engineering design experts providing optimized design and support using TracerLynx 3D HMS Software
- nVent RAYCHEM XTVR and HTV high power retention self-regulating heating cables
- nVent RAYCHEM XMI mineral insulated heating cable
- Traced tubing bundle for instrument winterization
- nVent RAYCHEM NGC-40 control and monitoring skids including power distribution

## BENEFITS

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Designing and supplying the complete heat management system for this new hydrogen plant requires an experienced team focused on power distribution, heating cable technology, thermal insulation, control and monitoring and instrument winterization. From detailed engineering design and procurement to onsite installation and construction support, our experts provide the best freeze protection, process maintain and winterization solutions and expertise available today. Additionally, smart control and monitoring provide plant reliability and an opportunity for heat management to be connected and communicate with site-based control systems. The nVent RAYCHEM team plans to pursue the construction of the heat management system at this hydrogen project and to provide feedstock heating designs to the local refinery, further demonstrating our commitment to the energy transition and turnkey heat management.

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