

## Raychem Heat Management Solutions Provide Critical Operational Reliability for Multi-State Project Aimed to Capture 18 Million Metric Tons of CO2 Per Year



### PROJECT DETAILS



#### Applications:

- Pipe Freeze Protection
- Process Temperature Maintenance



#### Location:

Iowa, Minnesota, Nebraska, North Dakota, South Dakota



#### Contract Scope:

- Engineering and product supply



#### Technology:

- Raychem Self-Regulating w/ High Power Retention (XTRV) Advanced Control & Monitoring
- Supervisor Software



#### Date:

Ongoing

## KEY CHALLENGES

---

Ethanol plants in the Midwest USA produce significant CO<sub>2</sub> as a result of fermentation. The CO<sub>2</sub> from this fermentation is about 99% pure. With an overall goal of protecting the long-term viability of the ethanol and agricultural industry, a Midwest customer is partnering with over 30 ethanol plants across five states on a project to reduce the carbon emissions at each location through a carbon capture and storage (CCS) process. At each ethanol facility, CO<sub>2</sub> will be captured, dehydrated, and compressed, and then CO<sub>2</sub> will be gathered and transported through pipelines to the deep geological formation injection point in North Dakota.

The customer's mission critical objectives for the heat management solution include ensuring operational reliability for managing northern climate freeze protection and process temperature maintenance, and optimizing energy efficiency across all the plants. Implementation of this project will happen in stages as each location must first meet legislative requirements. So far, seven plants are implementing. This CCS project is currently the largest in the world and upon completion will safely capture 18 million metric tons of CO<sub>2</sub> per year.

## SOLUTION

---

Raychem engineers designed a comprehensive heat management solution that includes high temperature self-regulating heating cables that offer longer circuit lengths and reduced power distribution requirements, and the advanced Raychem NGC-30 controller. Using the controller's Proportional Ambient Sensing Control (PASC) feature for freeze protection applications will optimize energy efficiency, and RAYCHEM Supervisor Software will minimize operational risk and maximize productivity, by providing communication requirements to manage the heat tracing system.

## PROJECT FACTS

---

To meet the mission critical needs of this vast multi-state Carbon Capture project, our Raychem heat management solution included::

- Engineering design experts providing optimized design and support using TracerLynx 3D HMS Software
- Raychem XTVR self-regulating heating cable
- Raychem NGC-30 Smart control and monitoring and RAYCHEM Supervisor Software.

## BENEFITS

---

We are meeting the customers' mission critical objective for critical operational reliability with our optimized designs and proven complete heat trace systems. Raychem XTVR heating cables with High Power Retention (HPR) technology is designed for use in higher temperature freeze protection and process temperature maintenance applications, and have a minimum of 95% power retention after 10 years and a design life of 30 years or more. They are available in more power variants, which allows for more efficient designs that closely match heat loss, and can provide cost savings on energy consumption. The Raychem NGC-30 control and monitoring product manages the heat tracing requirements and energy efficiency using the PASC control mode for the large amount of freeze protection circuits associated with this project.

The ethanol industry has always been a leader in the clean fuels market. Now, by capturing the CO<sub>2</sub> from fermentation, this industry continues to demonstrate its commitment to global carbon reduction. As the project scales up and over 30 partners move forward with carbon capture, Chemelex is ready to support the engineering and product requirements.

### North America

Tel +1.800.545.6258  
info@chemelex.com

### Europe, Middle East, Africa

Tel +32.16.213.511  
Fax +32.16.213.604  
info@chemelex.com

### Asia Pacific

Tel +86.21.2412.1688  
infoAPAC@chemelex.com

### Latin America

Tel +1.713.868.4800  
info@chemelex.com



**Raychem Tracer Pyrotenax Nuheat**