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## NORTH DAKOTA CLIMATE INITIATIVE – SECTOR STORY 10

### **Red Trail Energy's Carbon Capture: A Win for Science and Innovation**

North Dakota's economy depends on its energy sector to sustain and improve livelihoods while meeting both domestic and global demands for North Dakota's abundant natural resources. The state is leaning into innovation to thrive in a world increasingly focused on reducing greenhouse gas (GHG) emissions. Red Trail Energy, a producer of corn-based ethanol and distilled grains near Richardton, is a prime example of North Dakota leadership advancing economic development and new technology.

As a top fuel ethanol-producing state, North Dakota's five ethanol plants have a production capacity of 532 million gallons a year or 3% of the nation's ethanol output capacity. A primary use of ethanol is as a fuel for transportation. According to the Renewable Fuels Association, ethanol gasoline in 2023 reduced GHG emissions by 56.5 million metric tons, the equivalent of removing 12 million cars from the road for a year! At Red Trail Energy, North Dakotans are also successfully utilizing carbon capture technology to produce ethanol even more sustainably.

On June 16, 2022, Red Trail Energy became the first establishment in North Dakota to commercially operate a carbon capture and storage (CCS) facility. Originally constructed as one of the first coal-fired ethanol plants in the nation, it converted to natural gas in 2016. Its mission is to create economic benefit for its investors, local communities, and the state of North Dakota by converting natural resources and regional corn production into ethanol and beneficial coproducts.

According to Red Trail, implementing CCS at its facility brings both environmental and economic benefits, stating in its 2024 year in-review, "By significantly reducing CO2 emissions, the project helps mitigate climate change impacts."

From the investigation stage through operation, the project has been championed by the Plains CO<sub>2</sub> Reduction (PCOR) Partnership, which includes more than 200 partner organizations working to accelerate the commercial deployment of carbon capture by developing and demonstrating technologies for geologic CO<sub>2</sub> storage. The University of North Dakota's Energy & Environmental Research Center (EERC), a lead member of the PCOR, initially identified the Red Trail Energy location as being ideal for CCS. Now that the site is operational, EERC is working closely with Red Trail Energy to conduct

ongoing monitoring and reporting using state-of-the-art technology as the CCS system continues to be optimized to meet or exceed standards.

Successfully balancing the needs of landowners, the environment, industry and regulating or governing bodies is often the differentiating factor for a project's success. The Red Trail Energy CCS Project effectively integrated the insights and needs of multiple partners from early conception to operation. North Dakota has been maximizing this form of collaboration to support other innovative projects.

In 2023, North Dakota embarked on developing its first-ever environmental sustainability plan. The North Dakota Climate Initiative sustainability plan is designed to align with the state's commitment to prudent stewardship of natural resources while reflecting our core values, fostering innovation, and envisioning a prosperous future. The Initiative is aimed at identifying and fueling practical opportunities to reduce greenhouse gas emissions, efforts such as that of Red Trail Energy.

To learn more about North Dakota's climate initiatives and environmental sustainability planning, please visit the Department of Environmental Quality's Sustainability page: [www.deq.nd.gov/sustainability](http://www.deq.nd.gov/sustainability).