Could green methanol technology provide an alternative to carbon pipelines?

Green methanol could provide a cleaner, more profitable way to reduce carbon emissions and create new opportunities for the ethanol industry—without the need for expensive, controversial pipelines.

By Kennedy Tesch
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SIOUX FALLS — As carbon pipeline projects face growing opposition, some are exploring green methanol as a cleaner, more profitable alternative for the region's ethanol industry. The renewable fuel, made from captured CO2, could reduce emissions and create new economic opportunities without the environmental and legal hurdles of pipeline development.

Results of the Nov. 5 election showed that South Dakota voters opposed by a margin of 60% to 40% Referred Law 21, a measure that attempted to eliminate local control over carbon dioxide pipeline zoning laws and provide protections for landowners. The South Dakota Supreme Court also ruled Aug. 22 that Summit Carbon Solutions is not a common carrier, and that CO2 is not a commodity, unlike what many proponents of the pipeline have long argued.

Despite setbacks in the state, Summit Carbon Solutions plans to reapply for a permit from the South Dakota Public Utilities Commission on Nov. 19, and continue on with their proposed carbon pipeline project that would capture CO2 from 57 ethanol plants in Iowa, Minnesota, Nebraska, North Dakota and South Dakota and carry it to North Dakota, where it would be stored underground.

Doyle Turner, a retired farmer, feeder, and banker from Moville, Iowa, said carbon pipelines are an outdated idea, and he is suggesting alternative technology for the corn and ethanol industries — green methanol.

He says green methanol is a climate-friendly alternative to the conventional process for producing methanol, which uses fossil fuels like coal or natural gas. Methanol is used in many industries, including chemicals, construction and plastics.

While ethanol plants do not directly produce methanol as a primary product during the standard ethanol fermentation process, some technologies offer to capture carbon dioxide emitted from ethanol plants and convert it to green methanol.

“There is a bigger opportunity. We have the opportunity to produce a whole other industry, and the government is willing to subsidize producing that industry,” Turner said. “Why would we not take that money and build an industry rather than just creating a landfill? Because sequestration is just a landfill, and to believe that you're going to build economic viability and stability off a landfill is about as third-world a notion as you're ever going to get.”

Turner has been advocating for companies such as CarbonLink and CapCO2 Solutions, who have the technology to build out ethanol to green methanol technology right next to partner ethanol companies.

“If they build a methanol plant next to the ethanol plant, it would give our ethanol plants the ability to sell multiple products,” Turner said. “They can sell methanol, if that makes the most sense, or they can add value to both the methanol and the ethanol to sell aviation fuel for both.”

According to CapCO2 Solutions, green methanol can deliver $60 billion in annual revenues to the region and an annual reduction of 50 million metric tons of CO2. It aims to reduce the carbon intensity scores of ethanol plants by 25 points, although that result may vary between each plant.

Jeff Bonar, chief executive officer of CapCO2 Solutions, believes that ethanol plants are “sitting on a gold mine.”

“They have no idea of the opportunity that they haven't yet embraced,” Bonar said. “Green methanol is a green fuel. So no new carbon is released into the atmosphere when you burn it, and it's a great alternate fuel to petroleum. The shipping industry, in particular, has standardized on green methanol as their next generation fuel.”

Bonar said that while conventional methanol technology can take up many acres of land, CapCO2 offers solutions for ethanol plants to build out the technology right next to them.

“Our technology is compact. It fits into shipping containers, and you can easily put them at an ethanol plant,” Bonar said. “We're kind of right-sized for the kind of land that's available in an ethanol plant. Now they have an attractive way to reduce their carbon footprint by capturing and upgrading the CO2 as well as adding a new revenue stream.”

While carbon pipelines have generated the most discussion when it comes to helping ethanol plants reduce their carbon emissions, Bonar said his company is different in almost every dimension.

“We're not planning to throw the CO2 away. We're not taking anyone's farmland. We don't cost $8 billion to build, and we're not based on government subsidies,” Bonar said. “Our business is based on selling green methanol to a world that's very anxious to buy it.”

Although CapCO2 does not have an operating plant yet, they plan to announce the finalists for their first plant within the next month.

Sioux Falls-based POET, a leading biofuels producer, currently does not have any on-site ethanol-to-methanol projects. However, the company continues to monitor the evolving market for new biofuel products and is always evaluating emerging technologies.

POET, a partner in the Summit Carbon Solutions pipeline proposal, believes the project will help expand the biofuels industry while supporting agricultural growth.

“At a time when farm income is dropping and production costs are rising, we need new and emerging grain markets; some of these new markets are only accessible with carbon capture technology," said Josh Shields, POET Senior Vice President of Corporate Affairs. "We’re partnering on the Summit project because of the opportunity it creates for new agriculture markets. We’re working to ensure the project moves forward in a way that respects the rights of landowners, exceeds the highest safety standards, and creates value for farmers and rural communities.”