IEEFA op-ed: Glenrock’s CO2 capture facility hopes are based on wishful thinking

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Dennis Wamsted and David Schlissel

Glenrock Energy wants to invest in a carbon dioxide (CO2) capture facility at PacifiCorp’s Dave Johnston Unit 4 coal plant in Converse County. The facility would inject CO2 captured from the coal plant into the ground to force more crude oil out, a process known as enhanced oil recovery (EOR). However, Glenrock’s proposal is based on questionable assumptions and unrealistic projections about the viability of retrofitting the unit, which the utility is planning to close in 2028.

For starters, the company, led by CEO Terrence Manning, claims that the cost to retrofit will be just $480 million, a figure that has no relationship to reality given that it is 71 percent lower than the cost of the only other power plant carbon capture and storage unit in the U.S., the recently mothballed Petra Nova facility near Houston, TX.

In recent testimony before the Wyoming Public Service Commission, Manning asserted that the facility would capture 100% of the CO2 produced at the site. This, too, bears no relationship to reality, as the Petra Nova plant has only been able to capture roughly 80% of its CO2 emissions. Even that 80% figure overstates Petra Nova’s net effectiveness in capturing CO2, since it does not include the emissions from the separate gas plant built to power the CO2 capture equipment. Factoring in those emissions pushes the Texas plant’s capture efficiency down to about 70%.

Beyond the issues of cost and running efficiency, there are serious doubts about whether there is money to be made from using captured CO2 for enhanced oil recovery activities in Glenrock’s oil fields. Recent events call into question this business model.

NRG Energy, the operator of the Petra Nova carbon capture plant, in late July acknowledged that they had put the facility into “mothball” status this spring because low oil prices meant that the economics of using captured CO2 to produce additional oil no longer held. The mothballing of Petra Nova occurred after NRG wrote off almost its entire $300 million investment between 2016 and 2019 due to low oil prices.

captured at Petra Nova.

NRG had said repeatedly that the Petra Nova project would boost oil production at its West Ranch oil field to roughly 15,000 barrels per day (b/d) from less than 1,000 b/d before the EOR activities. Instead, production at the field for the first three years averaged a little under 4,000 b/d. Glenrock's optimistic estimates, which see production at the Big Muddy Field climbing to almost 11,000 b/d from less that 400 b/d in 2019, could well turn out to be similarly overstated, significantly undercutting the project's economic calculus.

The demise of Petra Nova should raise red flags over Glenrock's proposal for two reasons. First, there is no guarantee that future oil prices will be high enough for Glenrock to make a profit, even with federal tax credit subsidies. Second, there is no certainty that the EOR activities touted by Glenrock will boost production as much as the company claims.

Beyond this, there are deeper questions about the viability of the EOR market in general, particularly given the late July bankruptcy filing of Denbury Resources, one of the nation's largest EOR-focused oil producers. In a buoyant investor presentation in the spring, Denbury said it was following a sustainable CO2 EOR business model that was "highly economic" at $50 a barrel oil. Clearly, with oil prices averaging around $38/b this year, that model no longer makes sense.

Given the spectacular rise in fracked oil production over the past 10 years, it is highly questionable whether EOR can ever really compete except around the margins. It is worth noting that total U.S. oil production in 2019 averaged more than 12 million b/d, while EOR production only accounted for about 300,000 b/d.

The economic viability of Glenrock's proposal is highly uncertain, and could leave investors, and potentially even Wyoming ratepayers, on the hook for millions of dollars in project-related expenses. It should be firmly rejected.

This commentary originally ran in the Aug. 23, 2020, edition of the Casper Star Tribune. It can be found here.

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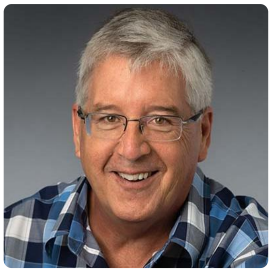

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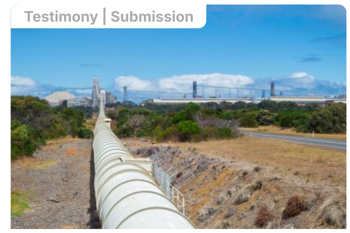

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April 15, 2025
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