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R SHEET ON

CARBON CAPTURE AND SEQUESTRATION

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BACKGROUND

As political leaders struggle to find solutions to the problem of climate change, there has been growing support for innovation that can store greenhouse gases underground. This gives hope for a technological solution to the problem of excess greenhouse gases in the world's atmosphere.

In 2018, Congress revised and extended "45Q" legislation (named after Section 45Q of the Internal Revenue Code) that roughly doubles the tax credit for storing carbon dioxide (CO2) deep underground.

This tax break provides up to $50 per ton for carbon permanently trapped underground or $35 per ton for CO2 stored through enhanced oil recovery (EOR) technology, if the owner starts construction by 2024.

There are currently 18 carbon capture and sequestration (CCS) commercial operations across the globe. These sequester 40 million metric tons of CO2, or about 0.1 percent of the carbon emitted globally each year.

Of these 18 plants, six operate in the United States. Five of these projects center around EOR technology, which strips the CO2 from oil and natural gas and then reinjects it to enhance future production. The remaining project is an ethanol carbon capture plant in Illinois that injects 1 million tons of C02 per year into saline water basins 6,000 feet below the surface.

Once the IRS completes its final tax regulations concerning 45Q, large oil companies and electrical utilities have expressed strong interest in taking advantage of the tax credit. Unfortunately, other areas of federal regulation could slow the testing and use of CCS technology.

CURRENT DEBATE

CCS involves three steps: First, the carbon is separated from other gases and captured, it is then transported to a geologic storage site. Once at the site, it is typically injected more than 1,000 meters (3,000 feet) underground into rock formations that permanently trap the gas.

SUMMARY

- Experts believe carbon capture and sequestration (CCS) will become an important technology for combatting climate change.
- In order to meet the requirements of the Paris Accords, CCS may need to curtail up to 7 percent of global emissions by 2050.
- Current oversight under the Safe Drinking Water Act (SDWA) slows innovation and incorrectly extends the precautionary principle.
- In order for the technology to advance, exemptions for CCS test wells need to be written into law.

While the 45Q program has increased interest from private investors, regulatory disincentives exist. Chief among these is the dual oversight by federal and state environmental authorities that can stifle innovation through the use of precautionary regulation.

Finding economical ways to permanently store carbon is seen by many as the most viable way to rebalance carbon emissions with economic growth. Thus far, carbon capture and sequestration is the most plausibly economical way to burn fossil fuels for industrial purposes but investment dollars have been slow to materialize.

ACTION ITEMS

As defined within the Safe Drinking Water Act, the Underground Injection Control (UIC) program delineates six separate well types that can inject fluid underground.

The most recent major change to the UIC regulations came in 2010 when the EPA created a special well class,

Class VI, solely for the purpose of long-term geologic storage of CO2.

This new category was designed to ease the burden of drilling wells to store carbon but since 2010, only two wells have been drilled.

The absence of market signals like a carbon price is one reason for the lack of interest but regulatory barriers to entry are likely a greater culprit.

In one example, the Illinois Carbon Project was given permission by the EPA to drill a test well to move CO2 from an ethanol plant into a saline reservoir. The injection was halted mid-project by EPA requests for a remodeling of information gathered during the test. These requests froze the project for more than a year, incurring costs and discouraging future endeavors.

However, the exemption of hydraulic fracturing of hydrocarbons or "fracking" from federal oversight in the 2005 Energy Act may be a useful analog to show how nascent, breakthrough energy technology can be freed from precautionary regulation.

The blanket exemption of fracking from federal law was created after the drilling industry failed to convince the EPA to differentiate between wells drilled to extract coal-bed methane and fracked wells that extract oil and natural gas.

Coal-bed methane production occurs in and around aquifers within 200-300 feet of the surface, while fracking takes place in deep-rock formations thousands of feet below—well out of range of any drinking water sources. Because of the nature of deep-rock formations, the CO2 storage locations would be equally distant from aquifers as fracking wells, which after extensive study by the EPA, have been deemed unharmful to drinking water sources. A similar exemption from the SWDA for CCS may kick-start investment in geologic sequestration by easing regulatory burdens that often undermine venture capital interest in breakthrough energy technology.

Additionally, 18 states have a regulatory structure that allows for some kind of sequestration. States like Texas, Wyoming, Illinois, Kansas, Iowa, North Dakota and Pennsylvania have robust sequestration regulation and tax incentives for CCS projects, as well as mature hydrocarbon industries.

A simple exemption from EPA oversight could make the United States the global leader in CCS technology, ultimately helping the world to reverse global emissions growth.

CONTACT US

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