

Focus turns to pure carbon dioxide emissions

Matthew L. Wald, New York Times, 11-1-09

WASHINGTON -- As Congress debates legislation to slow global warming by limiting emissions, engineers are tinkering with ways to capture and store carbon dioxide, the leading heat-trapping gas.

But coal-fired power plants, commonly identified as the nation's biggest emissions villain, may not be the best focus.

Rather, engineers and policymakers say, it may be easier and less costly to capture the carbon dioxide at oil refineries, chemical plants, cement factories and ethanol plants, which emit a far purer stream of it than a coal smokestack does.

Carbon dioxide typically makes up only 10 to 12 percent of a coal plant's emissions, they note, and the gas is so mixed with pollutants that it is difficult to separate.

Cheaper strategies for sequestering carbon dioxide could prove especially important if Congress passes a law setting up a cap-and-trade system. That would set a national ceiling for overall emissions and allot pollution allowances to utilities, manufacturers and other emitters, which could then trade them among themselves.

Companies that exceed their carbon dioxide emission allowances could buy credits from those that pollute less. Under such a system, a coal plant that had exceeded its allotment might pay a chemical plant that could separate a ton of carbon dioxide more cheaply.

A Texas company, Denbury Resources, is building a 320-mile pipeline for carbon dioxide that will run from Louisiana to Houston.

Initially the pipeline will take natural underground deposits of carbon dioxide in Mississippi to the aging oil fields of east Texas, where it can be used to force more oil to the surface.

But as the pipeline threads its way through more and more refineries and plants - the chemical heartland of the United States - artificial carbon dioxide captured at those sites could also be added and stored.

Sequestering a ton of carbon dioxide from a chemical plant would have the same effect on the Earth's atmosphere as storing a ton from a coal plant, scientists and industry executives emphasize.

"Sequestration is not a coal technology - it is a greenhouse gas abatement strategy," said Julio Friedmann, leader of the carbon management program at Lawrence Livermore National Laboratory.

In the oil industry, drillers have for years tapped underground reservoirs of carbon dioxide, brought it to the surface and moved it by pipeline to oil fields. Then they inject it into the fields to help force oil to the surface in a process called "enhanced oil recovery."

If the oil industry left the natural carbon dioxide where it was, and drew on carbon dioxide from industrial plants instead, far less artificial carbon dioxide would enter the atmosphere, experts say.

Other likely sources of pure streams of carbon dioxide are plants that refine natural gas. The natural gas usually comes out of the ground mixed with carbon dioxide, which natural gas sellers routinely remove so the natural gas can be considered "pipeline quality." That carbon dioxide is sometimes reinjected into the ground, but sometimes vented.