Ohio Environmental Council

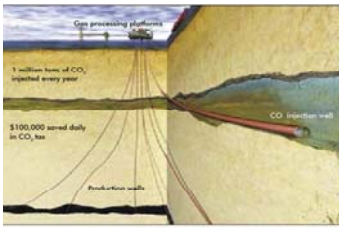
[ UNLEASHING THE POWER OF GREEN ]

# Fact Sheet

## Carbon Capture & Storage

### Burying Our CO2 Emissions

**Background**




The Sleipner CCS project in Norway has been injecting CO2 underground since 1996, and sequesters about one million metric tons of CO2 each year.

Carbon Capture and Storage (CCS) refers to the capture and storage in underground geologic formations of carbon dioxide (CO2) that would otherwise be emitted to the atmosphere. Carbon is gathered utilizing sophisticated techniques from large CO2 producing point sources. This demonstrated technology that can readily be applied to power plants, this country's largest emitters of the greenhouse gas CO2.

CCS can be utilized in oil and gas reservoirs and can also be brought to bear in unmineable coal seams where carbon is absorbed by the coal. Additionally, CO2 can be stored in vast saline formations, which are deep and secure.

CCS technology offers an opportunity to mitigate the harmful emissions of fossil fuels. But the facts on CCS are not as readily known as they should be.

**Myth:** CCS is 15 years or more away from implementation

**Fact:** CCS is not only working on a large scale right now, the technology has been implemented for more than 10 years.

The Sleipner CCS project in Norway has been injecting CO2 underground since 1996 and the Allison Unit project in New Mexico has been doing so since 1995.

**Myth:** If it is working, CCS is in test stages only

**Fact:** CCS has largely moved beyond the test stage and into a commercial phase. There are commercial CCS units in the U.S. and abroad: Sleipner (Norway), Weyburn (North Dakota and Saskatchewan), In Salah (Algeria), K12-B (The Netherlands), and Snohvit (Norway). Several more will soon come online: Gorgon (Australia) and Miller Field (Scotland) in 2009, and Carson (CA) in 2011.

**Myth:** Whatever CCS projects do exist are small in scale

**Fact:** Many of the current projects are massive sequestration efforts. Millions of tons of carbon are sequestered every year through these projects.

**Myth:** Ohio isn't a good place for CCS

**Fact:** Ohio has geologic formations ideally suited to CCS. One project in Shadyside is underway to take advantage of Ohio's CCS potential and another project is planned for the East Canton oil field.

**Myth:** Even if CCS is able to store carbon today, it is bound to leak out of the geologic formations that hold it

**Fact:** Several reports, including by the Intergovernmental Panel on Climate Change, have stated that proper CCS can sequester carbon without appreciable leakage for 1,000 years or more.

## CSS Projects

The Sleipner CCS project in Norway has been injecting $CO_2$ underground since 1996. This project sequesters about one million metric tons of $CO_2$ each year.

Of the current projects, Weyburn, In Salah, and Sleipner all sequester one million tons of carbon every year that otherwise would have gone into the atmosphere. Of the upcoming projects, the one in Carson will sequester 40 million tons over its operation; Gorgon will sequester more than 36 million tons in its project lifetime; and Miller Field will sequester 18 million tons.

The National Energy Technology Laboratory and Battelle's Carbon Sequestration Atlas of the United States and Canada notes that the U.S.'s midwest region, particularly Ohio, has many opportunities for $CO_2$ sequestration in oil and gas reservoirs. Specifically, it is estimated that Ohio can potentially store 728 million tons of $CO_2$ in oil and gas reservoirs alone.

Additionally, in the southeastern portion of the state, there are vast unminable coal bed sequestration opportunities. In the Rose Run Sandstone Deep Saline Formation, which is largely in Ohio, there is an estimated 19,700 million ton capacity for $CO_2$. Finally, Ohio has some of the thickest deep organic-rich shales in the country. Collectively, the shale in Ohio's immediate region can potentially sequester 49,600 million tons of $CO_2$. Altogether, a rough estimate of Ohio's regional CCS potential is over 70 billion tons of $CO_2$.

Ohio produces 152 million tons of $CO_2$ per year from large $CO_2$ point sources. Ohio's sequestration potential could allow our state to sequester all of the carbon produced from these large sources for 460 years.

## Why CSS?

Ohio has some of the thickest deep organic-rich shales in the country. Collectively, the shale in Ohio's immediate region can potentially sequester 49,600 million tons of $CO_2$.

CCS shows tremendous potential and should be pursued and encouraged wherever possible. Renewable plus alternative energy is far better than fossil fuel energy, even with CCS. However, whenever fossil fuel is used, it must have CCS. If energy will continue to be produced from fossil fuels, we must mitigate the carbon produced any way we can.

CCS is only a partial solution. Sustainable environmental improvement in the energy sector will come with more renewable and alternative sources.

Fossil fuels, coal chief among them, produce negative external environmental and social impacts. CCS should be promoted but harmful mining techniques like mountaintop mining must stay out of Ohio.

CCS is only one part of an overall energy and environment transition. Policy makers and citizens must consider all environmental impacts of particular technologies and possible solutions before implementing or promoting a policy agenda.

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