

# Carbon Capture and Storage and Enhanced Oil Recovery Fact Sheet

## What is Carbon Capture and Storage?

Carbon Capture and Storage (CCS) is a process by which carbon dioxide (CO<sub>2</sub>)—one of the most prevalent of the harmful greenhouse gases—is collected and then injected deep underground instead of being released into the atmosphere. Just as oil and gas have been trapped underground for millions of years, certain underground areas (unmineable coal beds, saline formation, and depleted oil and gas reserves) can store significant volumes of injected CO<sub>2</sub>.

The U.S. Department of Energy estimates that there are 91 billion tons of CO<sub>2</sub> storage potential in oil and gas formations; 173-203 billion tons of storage potential in unmineable coal seams; and 1.01-3.72 trillion tons of CO<sub>2</sub> storage potential in deep saline aquifers.

## What is CO<sub>2</sub> Enhanced Oil Recovery?

CO<sub>2</sub> Enhanced Oil Recovery (CO<sub>2</sub>-EOR) is a method that increases the amount of oil that is recovered from an underground oil reservoir. By pumping CO<sub>2</sub> into an oil reservoir, previously unrecoverable oil is pushed up to where the oil can be reached. The U.S. DOE cites that this can produce an additional 30 to 60 percent of the original amount of recoverable oil. Once all of the recoverable oil has been reached, the depleted reservoir can act as a storage site for the CO<sub>2</sub>.

## CCS Importance for Midwest

Compared to a national average of 49 percent, the 12-state MGA region generates 71 percent of its electricity from coal-fired power plants. Even with an increase in production of other alternative energy sources, due to coal's abundant supply and widespread use, it will inevitably remain a large supplier of energy for the Midwest in the years ahead. As the need to reduce our CO<sub>2</sub> emissions has become apparent, CCS has emerged as a viable option.

According to the Intergovernmental Panel on Climate Change, CCS provides the largest potential for reductions of CO<sub>2</sub> emissions this century. The Global Energy Technology Strategy Program found that 60 percent of all CO<sub>2</sub> emissions from human activities come from stationary CO<sub>2</sub> sources that could adopt CCS.

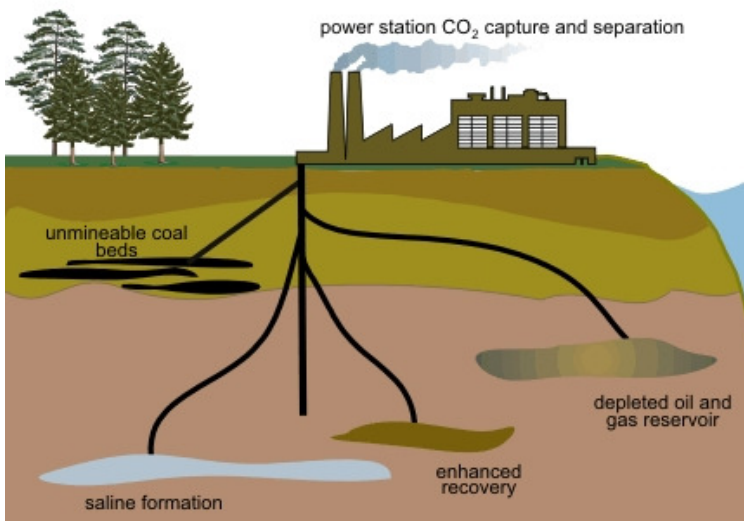
## CO<sub>2</sub>-EOR Importance for Midwest

The U.S. DOE estimates that at least 20 years' worth of U.S. power plant emissions of CO<sub>2</sub> can be stored in oil and gas formations; extending oil production from depleted domestic oil reserves. Seven MGA states—ND, SD, NE, KS, IL, MI, and IN—have reservoirs with significant oil recovery potential.

CO<sub>2</sub> can be transported from its source through a pipeline to a place that can store the CO<sub>2</sub>. Building this pipeline will create thousands of high-paying jobs for the region.

## Happenings in Midwest

- Nearly 3 million tons of CO<sub>2</sub> are captured annually from Dakota Gasification-EnCana and piped from North Dakota to Saskatchewan for EOR. The Petroleum Technology Research Centre cited that the amount of CO<sub>2</sub> stored underground instead of being released into the atmosphere has been, to date, the equivalent of taking 8 million cars off the road for a year.
- Core Energy, LLC, a Michigan-based EOR company, has produced over 1 million barrels of oil via CO<sub>2</sub>-EOR. The state of Michigan has potential to recover up to 500 million barrels.



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