

## National Enhanced Oil Recovery Initiative

**The National Enhanced Oil Recovery Initiative brings together diverse public and private leaders to increase U.S. domestic oil production, energy security, and reduce emissions by capturing carbon dioxide (CO<sub>2</sub>) from power plants and industrial facilities<sup>1</sup> and safely storing it in oil fields.**

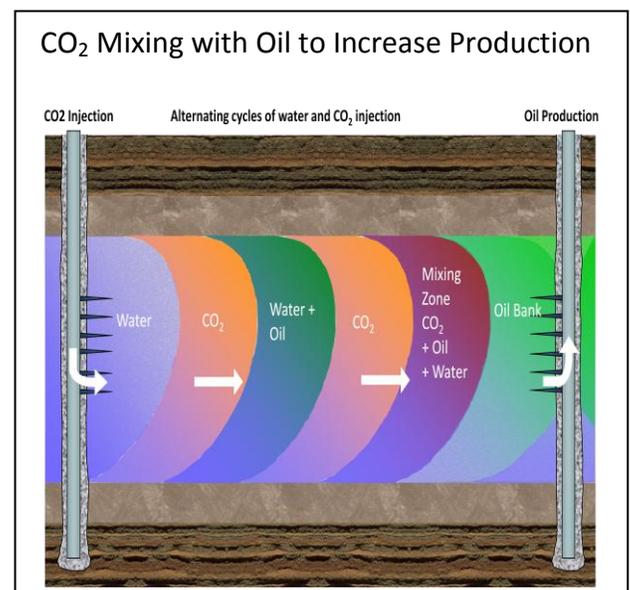
Launched in July 2011, the National Enhanced Oil Recovery Initiative's purpose is to develop policy recommendations to increase U.S. domestic oil production from existing oil fields through enhanced oil recovery (EOR) and to store CO<sub>2</sub> captured from power plants and industrial facilities. The private sector, government and NGO leaders participating in this initiative aim to enhance U.S. energy security, promote job and economic growth, and reduce CO<sub>2</sub> emissions.

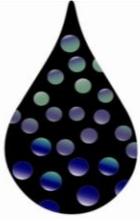
**How does CO<sub>2</sub>-EOR work?** CO<sub>2</sub>-EOR works most commonly by injecting CO<sub>2</sub> into already developed oil fields where it mixes with and "releases" additional oil from the formation, thereby freeing it to move to production wells. CO<sub>2</sub> is separated from the produced oil in above-ground equipment and re-injected in a closed-loop system many times over the life of an EOR operation.

## CO<sub>2</sub>-EOR Safety

**Where does the CO<sub>2</sub> come from and where does it go?** Today, most of the CO<sub>2</sub> used in EOR operations is from natural underground 'domes' of CO<sub>2</sub>. With the natural supply of CO<sub>2</sub> limited, manmade CO<sub>2</sub> from the captured CO<sub>2</sub> emissions of power plants and industrial facilities can be used to boost oil production through EOR.

Once CO<sub>2</sub> is captured, it is compressed and transported by pipeline to oil fields. During EOR operations, CO<sub>2</sub> is injected into the oil formation where it mixes with the oil and helps move the oil through the formation and to the production wells. CO<sub>2</sub> that emerges with the oil is separated and re-injected into the formation. CO<sub>2</sub>-EOR projects resemble a closed-loop system where the CO<sub>2</sub> is injected, produces oil, is stored in the formation, or is recycled back into the injection well.



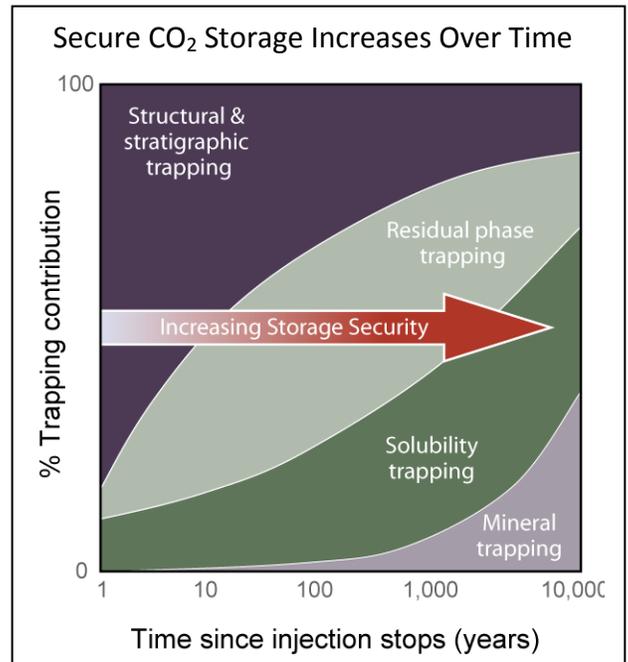


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**Is CO<sub>2</sub>-EOR safe?** CO<sub>2</sub> is non-flammable and non-explosive. It is not defined as a hazardous substance, but a Class L, highly volatile, nonflammable/nontoxic material (CFRg, CFRe, Appendix B, Table 4).<sup>2</sup>

Operating for 40 years, CO<sub>2</sub> pipelines have an excellent safety record with no serious injuries or fatalities ever reported. Today there are over 3,900 miles of pipeline transporting CO<sub>2</sub> for EOR use at wells producing 281,000<sup>3</sup> barrels of oil per day. The industry has operated for decades under existing policy and regulatory oversight at the local, state and federal level.

Geologic storage of CO<sub>2</sub> is also regulated under existing policies and regulations. CO<sub>2</sub> is contained by a series of physical and chemical trapping mechanisms over time. Most formations that hold oil for thousands of years also have the ability to contain CO<sub>2</sub>. As an example, research by the University of Texas Bureau of Economic Geology's Gulf Coast Carbon Center on the SACROC oil field, where CO<sub>2</sub> has been injected for EOR since 1972, has found no evidence of CO<sub>2</sub> leakage.<sup>4</sup> Experience from this decades-old CO<sub>2</sub>-EOR project and current commercial-scale CO<sub>2</sub>-EOR projects today shows that CO<sub>2</sub>-EOR can be performed in a manner that is safe for both human health and the environment.



Sally Benson, "Carbon Dioxide Capture and Sequestration: Hype or Hope?" Google Energy Seminar, October 23, 2008.

**The National EOR Initiative** is committed to building a pathway to a secure and low-carbon energy future through expansion of CO<sub>2</sub>-EOR. At its launch, the Initiative received bipartisan support from several members of Congress who are monitoring the Initiative's progress and will receive final recommendations for legislative consideration.

<sup>1</sup> Examples of industrial facilities include fertilizer production, ethanol production, cement and steel plants.

<sup>2</sup> World Resources Institute, "Guidelines for Carbon Dioxide Capture, Transport, and Storage," 2008.

<sup>3</sup> MIT Energy Initiative, "Role of Enhanced Oil Recovery in Accelerating the Deployment of Carbon Capture and Sequestration, 2011.

<sup>4</sup> See the SACROC Research Project website for a complete list of studies. [www.beg.utexas.edu/gccc/sacroc.php](http://www.beg.utexas.edu/gccc/sacroc.php)