Fossil Energy Research Benefits

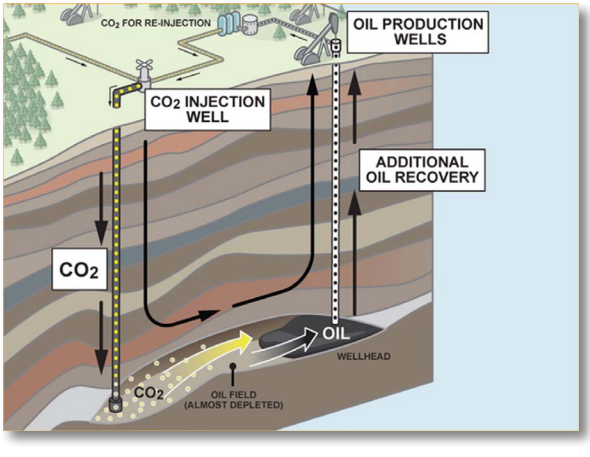
Enhanced Oil Recovery

Enhanced Oil Recovery (EOR) is a way to squeeze out additional, hard-to-recover barrels of oil remaining in older fields following conventional production operations. It can also be used to permanently store carbon dioxide (CO_2) underground.

EOR helps increase domestic oil supplies while also providing a way to safely and permanently store CO_2 underground.

Thanks in part to innovations supported by the **Office of Fossil Energy's National Energy Technology Laboratory (NETL)** over the past 30 years, the United States is a world leader in the number of EOR projects (200) and volume of oil production (over **760,000** barrels daily) from this method. This represents nearly **14 percent** of total U.S. production.

Although there are other methods (such as steam and chemical injection), CO_2 injection is responsible for the largest single portion (40 percent) of U.S. EOR production. EOR is a mature (40+ years) and proven technology for **increasing oil production** and **safely transporting and storing carbon dioxide** permanently in underground reservoirs.



EOR is a way to recover additional domestic oil resources from older fields and permanently store carbon dioxide underground. (Illustration: Clean Air Task Force, available at: http://www.coaltransition.org/pages/carbon_storage/30.php.)

*Launched in 2000, the **Weyburn-Midale CO_2 Project** in Saskatchewan, Canada, is the world's largest full-scale, in-field study of CO_2 injection and storage in depleted oil fields. When completed, the 11-year International Energy Agency project (funded in part by DOE) will permanently store 40 million metric tons of CO_2 while increasing oil production by 18,000 barrels per day.*

Facts About Enhanced Oil Recovery

- ✓ The **U.S. Department of Energy (DOE)** began funding CO_2 EOR research in the late 1970s to improve processes and demonstrate them in the field.
- ✓ CO_2 injection, the largest single recovery method for EOR, daily produces over **308,000 barrels**, or slightly over **5 percent** of total U.S. oil production.
- ✓ About **63 million** metric tons of CO_2 are used yearly for EOR in the United States. Of this total, **84 percent** comes from naturally occurring sources.
- ✓ CO_2 injection has helped recover a total of more than **1.5 billion barrels** of oil from mature U.S. fields.
- ✓ The U.S. Energy Information Administration projects CO_2 EOR will account for **11 percent** of cumulative lower 48 onshore oil production from 2010 to 2035.
- ✓ EOR benefits U.S. energy security by helping **reduce** the need for **oil imports**. It has great potential for environmental benefit as one means for **permanently storing CO_2 emissions** from power plants and industrial sources.

Sources: NETL; Oil & Gas Journal, April 2, 2012, pages 48-69.