PRODUCTIVELY USING INDUSTRIAL CO_2 EMISSIONS FOR INCREASING DOMESTIC OIL PRODUCTION

Testimony before the U.S. House of Representatives, Subcommittee on Energy and Mineral Resources on "The Future of Fossil Fuels: Geological and Terrestrial Sequestration of Carbon Dioxide."

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Good Afternoon. I am pleased to address the House Subcommittee on Energy and Resources on the topic of productivity using industrial and power plant CO_2 emissions for increasing domestic oil production.

Our nation's oil basins are mature and in decline. In the past 20 years, domestic oil production has dropped by 3 million barrels per day while demand for oil has continued to grow. As a result, imports now provide over 60% of the oil we use, with serious implications for energy security.

However, we still have nearly 400 billion barrels of oil left behind or "stranded", Figure 1. This is because our existing primary and secondary oil recovery methods recover only about one-third of the original oil in-place from domestic oil fields, Figure 1. Accelerated application of CO_2-enhanced oil recovery (CO_2-EOR) technology, particularly "next generation" CO_2-EOR technology, would enable industry to recover a large portion of this left behind (stranded) domestic oil.

CO_2-enhanced oil recovery is underway (to a limited extent) in the Permian Basin of West Texas and New Mexico, along the Gulf Coast in Louisiana and Mississippi and in the Rockies in Colorado, Utah and Wyoming, Figure 2. However many barriers stand in the way. One of the most significant of these barriers is the lack of sufficient, affordable "EOR-ready" supplies of CO_2.

At the same time, the nation emits to the atmosphere significant volumes of CO_2 from its industrial and electric power plants. Capturing and productively using a portion of these large CO_2 emissions in domestic oil fields would have two important benefits:

- It would enable industry to recover 40 billion barrels of additional domestic oil, enough to support two to three million barrels per day of domestic oil production, equal to all of the oil we currently import from the Middle East. With "next generation" CO_2-EOR technology, these oil volumes would be appreciably higher.

- It would provide a safe, secure geological setting for storing 8 to12 billion tons of industrial and power plant CO_2. This would provide productive use and eventual storage of all of the CO_2 emissions from 80 to 120 large (500 MW) coal-fired power plants for the next 35 years.

The information on the potential for domestic oil recovery and productive use of CO_2 is based on a series of ten "basin studies" prepared by our company and the Department of Energy in response to previous Congressional Budget language, Figure 3. Three Congressional actions would greatly help realize these important and complementary objectives:

1. ***First, provide incentives for capturing and using industrial and power plant emissions for CO_2-EOR, such as a tax-credit of $15 per metric ton.*** This would encourage industrial and power plant operators to engage the oil industry as a "value-added" market for CO_2.

2. ***Second, establish a new research and technology institute for building "next generation" CO_2-EOR technology.*** This would greatly expand the size of the market for CO_2 emissions for the power and other coal-using sectors.

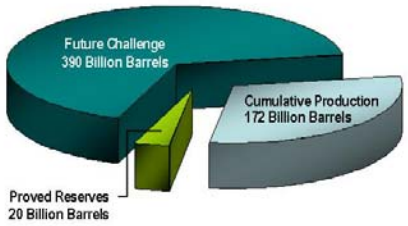
3. ***Third, support a large number of commercial-size demonstrations of CO_2 capture and storage.*** This would enable the costs of CO_2 capture to be reduced significantly, further expanding the market for productive use of CO_2 and would help build confidence in CO_2 storage.

I urge you to support this three-part initiative, a “win-win” situation for U.S. industry and consumers, Figure 4.

Figure 1. Large Volumes Of Domestic Oil Remain "Stranded" After Primary/Secondary Oil Recovery

Original Oil In-Place: 582 B Barrels*

"Stranded" Oil In-Place: 390 B Barrels*



*All domestic basins except the Appalachian and Deep Water GOM.
Source: Advanced Resources Int'l. (2005)

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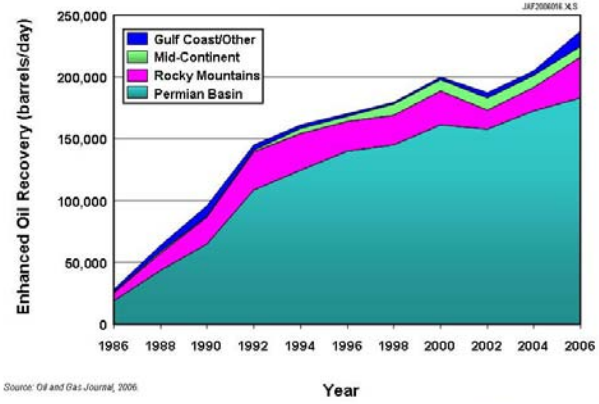
Figure 2. Growth Of CO_2-EOR Production In The U.S.



Source: Oil and Gas Journal, 2006.

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Figure 3. DOE/Advanced Resources Basin Studies of CO_2-EOR

Recently completed "basin studies" of applying "state-of-the-art" CO_2-EOR in the U.S. indicate:

- Nearly 89 billion barrels of technically recoverable resource,
- Up to 47 billion barrels of economically recoverable resource.

Results are based on applying streamline reservoir simulation to 1,581 large oil reservoirs (two thirds of U.S. oil production).

Available on the U.S. DOE web site.
http://www.fe.doe.gov/programs/oilgas/eor/Ten_Basin-Oriented_CO2-EOR_Assessments.html

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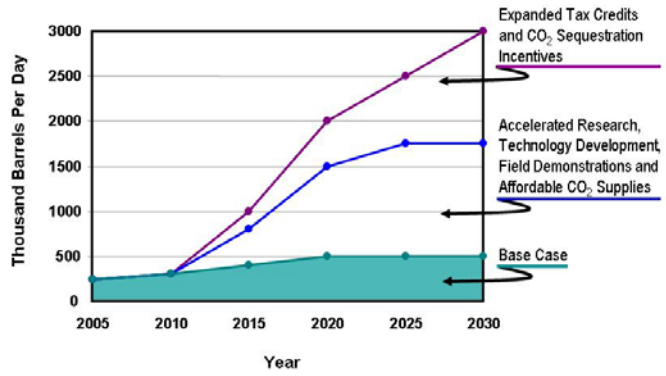
Figure 4. Projected Domestic Oil Production from Accelerated Development of CO_2-EOR Technology and Integration with CO_2 Sequestration



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