PRODUCTIVELY USING INDUSTRIAL CO_2 EMISSIONS FOR INCREASING DOMESTIC OIL PRODUCTION

Testimony before the U.S. House of Representatives,
Committee on Natural Resources, Subcommittee on Energy and Mineral Resources and
Subcommittee on National Parks, Forests and Public Lands
Oversight Hearing on "Carbon Sequestration Opportunities on Public Lands"
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Oral Testimony

Good Afternoon. I am Vello Kuuskraa, President of Advanced Resources International, a geology and engineering services company and a member of the Board of Directors of Southwestern Energy, a mid-size oil and gas company. I am pleased to address the House Subcommittees on Energy and Mineral Resources and on National Parks, Forests and Public Lands. My topic is - - how to productively use 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 domestic energy security.

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However, we still have nearly 400 billion barrels of oil left behind. This is because our existing oil recovery methods recover only about one-third of the original oil in-place from domestic oil fields. Accelerated application of CO_2-enhanced oil recovery, particularly "next generation" technology, would enable industry to recover a much larger portion of this "left behind" domestic oil.

Figure 2

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

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

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- First, it would enable industry to recover over 40 billion barrels of additional domestic oil, enough for two to three million barrels per day of new oil production. This is equal to all of the oil we currently import from the Middle East. With "next generation" technology, these oil volumes would be appreciably higher.

- Second, it would provide a secure geological setting for storing 8 to 12 billion tons of industrial and power plant CO_2. This is enough storage capacity for all of the CO_2 emissions from 80 to 120 large (500 MW) coal-fired power plants. "Next generation" technology would also increase the capacity of our domestic oil reservoirs to store CO_2.

Slide 4

The above information on domestic oil recovery and productive use of CO_2 is available in a series of ten "basin studies" and other reports prepared by our company and the Department of Energy in response to previous Congressional Budget language.

In summary, three Congressional actions would be of great benefit:

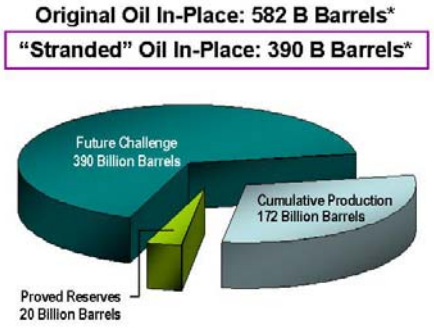
1. ***First, provide incentives for capturing and productively using industrial and power plant CO_2 emissions for enhanced oil recovery, such as a tax-credit of $15 per metric ton.*** This would encourage power plant operators to engage the oil industry as a "value-added" customer for their CO_2 emissions.

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 sector, as well as further increase domestic oil production.

3. ***Third, support a large number, 30 or so, of commercial-size demonstrations of CO_2 capture and storage.*** This would help drive down the costs of CO_2 capture and build confidence in CO_2 storage. Expansion of efforts, such as those in Senate Bill 962, would be an important step in this direction.

Thank you.

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



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

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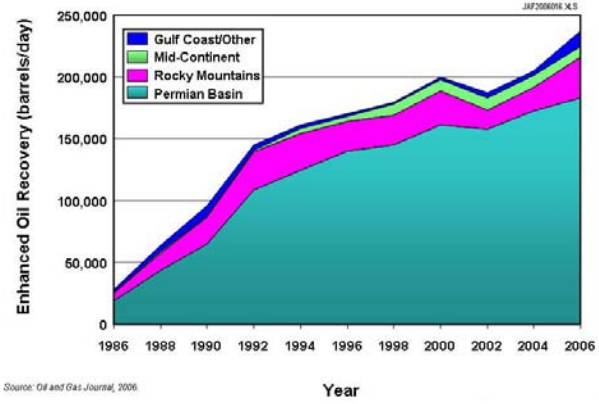
Figure 2. Growth Of CO_2-EOR Production In The U.S.



Source: Oil and Gas Journal, 2006.

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Figure 3. Projected Domestic Oil Production from Accelerated Development of CO_2-EOR Technology and Integration with CO_2 Sequestration

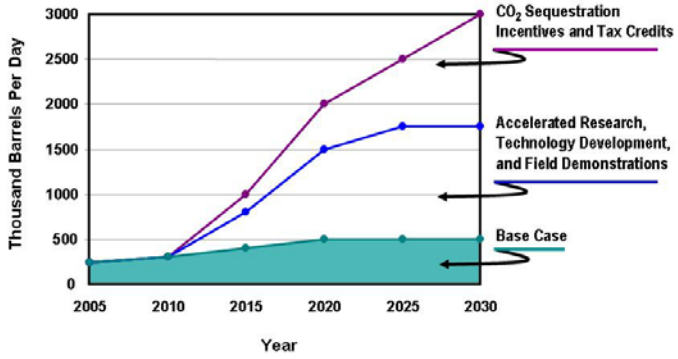

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Figure 4. DOE/Advanced Resources Basin Studies of CO_2-EOR

Ten "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.

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

"Next Generation" CO_2-EOR study indicates:

- Oil recovery would be nearly doubled.
- CO_2 storage capacity could increase three fold.

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

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