



Advanced Resources
International, Inc.

March 2013

Advanced Resources International QUARTERLY UPDATE

Unconventional Resources • Enhanced Recovery • Carbon Sequestration

Advanced Resources International is a professional services firm that provides geological, reservoir engineering, business and policy analysis and advice on a global basis related to unconventional gas resources, enhanced oil recovery and geologic carbon sequestration. Our quarterly update highlights current industry trends, ongoing and completed projects, recent publications, upcoming workshops and events, and company news. We encourage you to visit our website at www.adv-res.com to learn more about our company history, research and technology activities, industry news and much more. You may also contact our offices listed at the bottom of this page for additional information.

**Advanced Resources'
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“WITH CO2 EOR, WE’VE GOT THE POTENTIAL TO DO 3 OR 4 MILLION BARRELS A DAY FOR A LONG TIME”

Vello Kuuskraa was recently quoted extensively in articles by Bloomberg.com and Washingtonpost.com with regard to enhanced oil recovery. The article says, “Shale oil could produce 3 million barrels a day for the U.S.,” he says. “With CO2 EOR, we’ve got the potential to do 3 or 4 million barrels a day for a long time.” That much CO2 EOR crude would have increased last year’s output by 50 percent.

To read the full article, please go to:

<http://www.bloomberg.com/news/2013-04-02/republican-born-roosevelt-digs-deep-for-texas-oil-found-with-CO2.html>

http://www.washingtonpost.com/business/the-future-of-energy-more-carbon-dioxide-an-fdr-grandson-and-oilman-is-betting-yes/2013/04/04/1f95696e-9bb2-11e2-a941-a19bce7af755_story_1.html



SECARB 8TH ANNUAL STAKEHOLDERS' BRIEFING

Vello A. Kuuskraa, president of Advanced Resources International made a presentation entitled, “CO2 Utilization and Storage from CO2 Enhanced Oil Recovery for the U.S. DOE/NETL Carbon Sequestration Atlas” at the SECARB 8th Annual Stakeholders’ Briefing held March 12-13, 2013 in Atlanta, GA. In conclusion the work by the MGSC, particularly by Mr. Scott Frailey, has established an improved approach for calculating CO2 storage and oil recovery and Trimeric has provided capital and operating costs for CO2-EOR. Advanced Resources, drawing on this valuable work, is in the process of integrating the MGSC developed performance (“type”) curves with the economic model. In Phase II, we will work with each of the Regional Partnerships to test and incorporate this methodology for strengthening this information on CO2 utilization and storage in each Partnership Region.

For more details:

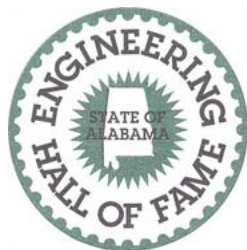
[pdf/8th Annual Stakeholders Briefing_Kuuskraa.ppt.pdf](#)

Steven M. Carpenter, a Vice-President of Advanced Resources International also made a presentation entitled, “SECARB Citronelle CO2 Storage & MVA Status”, which highlighted current efforts to store and monitor anthropogenic CO2 captured from Alabama Power’s Plant Barry Electric Generating Facility. The USDOE-NETL funded storage project (SECARB) currently has stored more than 50,000 tonnes of anthropogenic CO2.

For more details:

[pdf/SECARB_Citronelle_CO2_Storage_MVA_Carpenter.pdf](#)

www.secarbon.org/?page_id=16



SOUTHEAST REGIONAL CARBON SEQUESTRATION PROJECT INDUCTED INTO HALL OF FAME

On February 23, 2013, the 25 Megawatt Carbon Capture and Storage Demonstration was inducted into the Alabama Engineering Hall of Fame. Situated in Birmingham, Alabama, the Hall of Fame seeks to recognize the outstanding accomplishments and contributions of projects that bring recognition to the State. This carbon capture and storage demonstration project is a linkage of a privately funded (by Southern Company and Mitsubishi Heavy Industries) carbon dioxide capture facility at Alabama Power's Plant Barry electric generating facility and a US Department of Energy – National Energy Technology Laboratory funded carbon storage project. Advanced Resources International is pleased to be the lead engineering and geoscience firm for the subsurface storage aspects of the project.

For more details:

<http://aehof.eng.ua.edu/members/25-megawatt-carbon-capture-and-storage-demonstration/>



TECHNOLOGY ROUNDTABLE: BRINGING DOWN THE COST OF CO2 CAPTURE, ROI IN EOR APPLICATIONS, AND SIZE OF RECOVERABLE RESOURCE

In February 2013, Vello Kuuskraa, president of Advanced Resources International, was a panelist at the Second Annual CCS/CCUS Opportunities and Strategic Directions Forum, in the session: Technology Roundtable: Bringing Down the Cost of CO2 Capture, ROI in EOR Applications, and Size of Recoverable Resource. This meeting was sponsored by the Global CCS Institute and held at the Canadian Embassy in Washington, D.C. Mr. Kuuskraa's presentation was entitled "CO2 Utilization with Enhanced Oil Recovery: What is the Size of the Prize?"

For more details:

www.globalccsinstitute.com/institute/news/institute-hosts-second-annual-north-american-forum-ccscus



OPPORTUNITIES FOR USING ANTHROPOGENIC CO2 FOR ENHANCED OIL RECOVERY AND CO2 STORAGE

Michael L. Godec, Vice President, and Vello A. Kuuskraa, President, of Advanced Resources International contributed an article published in Energy Fuels, February 7, 2013. The information set forth in this paper argues that CO2-EOR deserves to be a major part of a worldwide carbon management strategy. Growth in production from CO2-EOR is now limited by the availability of reliable, affordable CO2. There are more prospective CO2-EOR projects than there is CO2 to supply them. If increased volumes of CO2 do not result from CCUS, then these benefits from CO2-EOR will not be realized. Thus, not only does CCUS need CO2-EOR to ensure viability of CCUS, but also CO2-EOR needs CCUS to ensure adequate CO2 to facilitate CO2-EOR production growth. This will become even more apparent as even more new targets for CO2-EOR become recognized. Therefore, the "size of the prize" is large; the oil produced has a lower CO2 emission footprint than most other sources of oil, with the injected CO2 stored securely, and CO2-EOR can provide a market-driven option for accelerating CO2 capture, with widely distributed economic benefits.

For more details:

www.adv-res.com/pdf/final_Energy_Fuels_revised.pdf

<http://pubs.acs.org/toc/enfuem/0/0>

ADVANCED RESOURCES INTERNATIONAL PROMOTIONS:



BUMGARDNER PROMOTED TO DIRECTOR OF FIELD OPERATIONS

Mr. Stephen B. Bumgardner is the new Director of Field Operations with Advanced Resources International, Inc. He has over 25 years of experience in conventional and unconventional oil and gas technical management with domestic and international operations. Mr. Bumgardner has extensive experience in conventional, unconventional and tertiary production, including heavy oil, steam, and CO2 flooding, carbon capture and storage, and CBM and shale gas operations. Mr. Bumgardner holds a B.S. in petroleum engineering from the University of Oklahoma and is active in technical design, project management and client training aspects of CBM and shale gas development and is a member of SPE.

<http://www.adv-res.com/unconventional-resources-staff.asp#Bumgardner>



UDINOT PROMOTED TO PROJECT MANAGER

Advanced Resources International is pleased to announce the promotion of Anne Oudinot to the position of Project Manager. Anne is the firm's senior reservoir engineer, with over ten years of experience leading carbon dioxide and nitrogen enhanced hydrocarbon recovery, unconventional gas production and carbon storage simulation studies. Currently, she is located in Houston, TX and is the manager of the USDOE-NETL funded Coal/Shale-Seq project. She holds a M.Sc. in Petroleum Engineering from the University of Houston and a B.Sc. in Geotechnical Engineering from University Joseph Fourier, France.

<http://www.adv-res.com/unconventional-resources-staff.asp#Oudinot>



UPCOMING EVENTS

13 AIChE Spring Meeting and 9th Global Congress on Process Safety

Grand Hyatt San Antonio & Henry B. Gonzalez Convention Center
San Antonio, TX
April 28 – May 2, 2013

www.aiche.org/conferences/aiche-spring-meeting-and-global-congress-on-process-safety/2013

OTC 2013

Offshore Technology Conference
Houston, TX
May 6 – 9, 2013

www.otcnet.org/2013/

The Annual Carbon Capture Utilization & Sequestration Conference

David L. Lawrence Convention Center
Pittsburgh, PA
May 13 - 16, 2013

<http://www.carbonsq.com/index.htm>

AAPG 2013 Annual Convention & Exhibition

David L. Lawrence Convention Center
Pittsburgh, PA
May 19 – 22, 2013

<https://www.aapg.org/pittsburgh2013/>

2013 SPE Eastern Regional Meeting

David L. Lawrence Convention Center
Pittsburgh, PA
August 20-22, 2013

<http://www.erm-2013.org/>

SPE Annual Technical Conference and Exhibition

Ernest N. Morial Convention Center

New Orleans, Louisiana
September 30 – October 2, 2013
<http://www.spe.org/atce/2013/>

Carbon Management Technology Conference

Hilton Alexandria Old Town
Alexandria, VA
October 21 – 23, 2013
<http://fscarbonmanagement.org/content/cmtc-2013>

For a complete list of industry news, recent white papers and case studies
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