



Advanced Resources
International, Inc.

September 2011

Advanced Resources International QUARTERLY UPDATE

Unconventional Resources • Enhanced Recovery • Carbon Sequestration

*Advanced Resources'
Senior Staff:*

Stephen Bumgardner

Steven M. Carpenter

Michael L. Godec

Jason A. Hummel

Jonathan R. Kelafant

George J. Koperna Jr.

Vello A. Kuuskraa

Robin Petrusak

David E. Riestenberg

Scott H. Stevens

Advanced Resources International (ARI) 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.



ENHANCED GAS RECOVERY AND CO₂ STORAGE IN COAL BED METHANE RESERVOIRS: OPTIMIZED INJECTED GAS COMPOSITION FOR MATURE BASINS OF VARIOUS COAL RANK – PART 2

On September 27th, 2011, Ms. Karine Schepers, Senior Reservoir Engineer of Advanced Resources International, Inc., gave a presentation at the American Association of Petroleum Geologists (AAPG), held in Arlington, VA entitled, "Enhanced Gas Recovery and CO₂ Storage in Coal Bed Methane Reservoirs: Optimized Injected Gas Composition for Mature Basins of Various Coal Rank – Part 2". This work describes how to optimize injected gas composition in Coal Bed Methane reservoirs, in order to improve CO₂ sequestration while preserving injectivity. Key parameters driving enhanced coal-bed methane recovery and CO₂ sequestration were identified for common mature coal basins in the US and reservoir simulation tools were used to optimize their development. This innovative methodology could help turn non-economic coal bed and gas shale into profitable plays.

www.adv-res.com/pdf/2011AAPG_Schepers_KCS_SP092511.pdf

THE CASE FOR CCS AS A CLEAN DEVELOPMENT MECHANISM (CDM) AND A PRELIMINARY EVALUATION OF OFFSHORE TRANSPORT AND STORAGE OF CO₂

On September 27th, 2011, Mr. Steven Carpenter, Vice President of Advanced Resources International, Inc., gave a presentation at the American Association of Petroleum Geologists (AAPG), held in Arlington, VA entitled, "The Case for CCS as a Clean Development Mechanism (CDM)". This presentation describes the process and procedure for a CDM, and why it is important for CCS to be considered a CDM. Discussion of the bi-national American-Canadian CCS standard developed for ISO may assist in CCS's acceptance as a CDM. Mr. Carpenter also presented a second presentation entitled, "Preliminary Evaluation of Offshore Transport and Storage of CO₂". This presentation funded by DOE-NETL evaluates the potential for geological storage of CO₂ utilizing existing offshore oil and natural gas fields in the Gulf of Mexico nearing the end of productive life, and in areas that have not been subject to oil and natural gas production (other than GOM). These offshore geologic settings, along with wells and infrastructure (where it exists), may be suitable for CO₂ sequestration with the adaptation of technical, regulatory, and business modifications.

[www.adv-res.com/pdf/CARPENTER_OCS_CCS_Transport_\(FINAL\).pdf](http://www.adv-res.com/pdf/CARPENTER_OCS_CCS_Transport_(FINAL).pdf)

[www.adv-res.com/pdf/CARPENTER_SECARB-Ed_-_Why_CCS_\(FINAL\).pdf](http://www.adv-res.com/pdf/CARPENTER_SECARB-Ed_-_Why_CCS_(FINAL).pdf)



THE SECARB ANTHROPOGENIC TEST: THE FIRST U.S. INTEGRATED CO2 CAPTURE, TRANSPORTATION AND STORAGE TEST

At the 28th Annual International Pittsburgh Coal Conference, held on September 15th, 2011 in Pittsburgh, Pennsylvania, George Koperna, Jr., Vice President of Advanced Resources International, Inc., gave a presentation entitled, "The SECARB Anthropogenic Test: The First U.S. Integrated CO2 Capture, Transportation and Storage Test". This presentation was an update of the SECARB USDOE-NETL Regional Carbon Sequestration Partnership Project, which aims to transport and store more than 100,000 tonnes of captured CO2 from Southern Company's Plant Barry in Mobile, Alabama to the Citronelle Dome.

www.adv-res.com/pdf/Pitt_Coal_Conference_Presentation_Pittsburgh_SP091211.pdf

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

EPA MANDATORY REPORTING RULE AND PSD BACT: EFFECTS ON COAL, ECBM AND LESSONS LEARNED FROM THE FIRST YEAR OF IMPLEMENTATION, THE CASE FOR CARBON CAPTURE & STORAGE (CCS) AS A CLEAN DEVELOPMENT MECHANISM (CDM), AND WHY CARBON SEQUESTRATION?

At the 28th Annual International Pittsburgh Coal Conference, held on September 15th, 2011 in Pittsburgh, Pennsylvania, Mr. Steven Carpenter, Vice President of Advanced Resources International, Inc., gave three presentations. The first presentation was entitled, "EPA Mandatory Reporting Rule and PSD BACT: Effects on Coal, ECBM and Lessons Learned from the First Year of Implementation". This presentation describes EPA guidance for permitting authorities to consider all "available" GHG control options that have the potential for practical application to the source under consideration. This includes CCS and how the Air Permitting requirement under PSD and BACT determinations require the consideration of CCS.

Mr. Carpenter's second presentation entitled, "The Case for Carbon Capture & Storage (CCS) as a Clean Development Mechanism (CDM)" and describes the process and procedure for a CDM, and why it is important for CCS to be considered a CDM. Discussion of the bi-national American-Canadian CCS standard developed for ISO may assist in CCS's acceptance as a CDM.

Mr. Carpenter's third presentation entitled, "Why Carbon Sequestration?". This presentation was the lead presentation in a daylong seminar/workshop funded by DOE and the SECARB-Ed team focusing on public outreach of CCS.

[www.adv-res.com/pdf/CARPENTER_MRR_\(FINAL\).pdf](http://www.adv-res.com/pdf/CARPENTER_MRR_(FINAL).pdf)

[PDF copy of CARPENTER CDM \(FINAL\)](#)

[www.adv-res.com/pdf/CARPENTER_SECARB-Ed_-_Why_CCS_\(FINAL\).pdf](http://www.adv-res.com/pdf/CARPENTER_SECARB-Ed_-_Why_CCS_(FINAL).pdf)



CO2 STORAGE AND POTENTIAL BARRIERS OFFERED BY CO2 ENHANCED OIL RECOVERY

On September 14th, 2011, George Koperna, Jr., Vice President of Advanced Resources International, Inc., gave a presentation prepared for Electric Power Research Institute's, Generations Sector Program Advisory Meeting, held in Boston, Massachusetts entitled, "CO2 Storage and

Potential Barriers Offered by CO2 Enhanced Oil Recovery". Mr. Koperna discussed the potential oil recovery and carbon dioxide (CO2) demand that Next Generation CO2 enhanced oil recovery (EOR) technologies could attain. These results were then laid out by North American Electric Reliability Corporation (NERC) Regions to show oil recovery potential and CO2 demand. Finally, he touched on topics within EPA's Class VI rule that present potential barriers to converting EOR projects into storage projects.

www.adv-res.com/pdf/EPRI_Boston_GK_SP091411_FINAL.pdf



EMISSIONS: SENATORS, THINK TANK FORM NEW CARBON CAPTURE ALLIANCE (07/13/2011)

"The potential carbon reductions from enhanced oil recovery could store permanently at least a billion metric tons of carbon dioxide, or about a sixth of the U.S. annual total output, within two decades", said Mr. Vello Kuuskraa, president of Advanced Resources International Inc. The process involves capturing CO2 from natural sources or industrial facilities and pumping the gas underground to boost oil production that would not otherwise be recoverable.

While there is some disagreement on the numbers, the federal government has said that it expects the CO2 flow for enhanced oil recovery projects to quadruple by 2030.

For more information:

www.adv-res.com/pdf/EMISSIONS_July_13_2011.pdf

www.adv-res.com/unconventional-resources-news-events.asp



ALTERNATIVES FOR PRODUCTIVE CO2 USE AND STORAGE

In early September, Mr. Vello Kuuskraa, president of Advanced Resources International, Inc. participated in the (Southeast Regional Carbon Sequestration Partnership) and SECARB-Ed. Mr. Kuuskraa's presentation was entitled, "Alternatives for Productive CO2 Use and Storage". The one-day session was held at the World Bank in Washington, D.C.



INTERNATIONAL PERFORMANCE ASSESSMENT CENTRE FOR GEOLOGIC STORAGE OF CO2

The IPAC-CO2 Geological Storage Standard Committed has completed its initial draft and is preparing that draft for public comment. As part of the International Standard Organization (ISO) requirements, public comment and participation is required. Should you desire to participate in the public comment process, please contact Steve Carpenter at scarpenter@adv-res.com or 513-460-0360 to gain details on the timing and process for participation.

For more information:

www.ipac-co2.com



HOUSTON OFFICE IS MOVING !

We will be at our new location on:
Monday, December 5, 2011

Our New Address will be:
11931 Wickchester Ln, Suite 200
Houston, TX
77043-4544

Our phone numbers will remain the same:
Phone: 281-558-9200
Fax: 281-558-9202



UPCOMING EVENTS

ATCE 2011 – SPE Annual Technical Conference & Exhibition
Colorado Convention Center
Denver, Colorado
October 20th – November 2nd, 2011
www.spe.org/atce/2011

Carbon Storage Program Infrastructure Annual Review Meeting
(featuring DOE's Regional Carbon Sequestration Partnerships)
Sheraton Station Square Hotel
Pittsburgh, PA
November 15-17, 2011
www.netl.doe.gov/events/11conferences/Carbon_storage_program/

2011 CO2 Conference Week:
The 9th Annual EOR Carbon Management Workshop
Houston, Texas
December 5-6, 2011
The 17th Annual CO2 Flooding Conference
Midland, Texas
Field Trip and Theme Sessions
December 7-9, 2011
co2conferencenet-eorgf.eventbrite.com

Carbon Management Technology Conference
Caribe Royale Hotel & Convention Center
Orlando, Florida
February 7-9, 2012
www.carbonmgmt.org/pages/general/registration.php

For a complete list of industry news, recent white papers and case studies please visit our website www.adv-res.com or contact one of our offices:

Washington, DC
4501 Fairfax Drive, Suite 910
Arlington, VA 22203-1659
Phone: 703.528.8420
Fax: 703.528.0439

Houston, TX
11931 Wickchester Ln, Suite 200
Houston, TX 77043-4544
Phone: 281.558.9200
Fax: 281.558.9202

Knoxville, TN
603 W. Main Street, Suite 906
Knoxville, TN 37902-2613
Phone: 865.541.4690
Fax: 865.541.4688

Cincinnati, OH
1282 Secretariat Court
Batavia, OH 45103
Phone: 513.460.0360