



Coal News and Trends

March 2009

Upcoming Web-Based Seminars:

- **Clean Coal Technology Webinars**

The International Trade Administration will host a series of web-based seminars throughout 2009 highlighting opportunities for U.S. clean coal technology, mining, and coal-fired power generation companies in overseas markets. The seminars will provide country-specific market overviews for U.S. companies interested in establishing or expanding exports in the clean energy sector. The series will be led by U.S. Foreign Commercial Service energy/trade specialists in the targeted market. The dates and times for the upcoming webinars are as follows:

- *Opportunities for U.S. Companies in the Coal and Mining Sectors of Australia and Philippines, April 8, 2009*
- *Opportunities for U.S. Companies in the Coal, Mining, and Power Generation Sectors of Vietnam, June 10, 2009*

To register for the events or for additional information please refer to:

<http://www.buyusa.gov/pittsburgh/coalwebinars2009.html>, or contact

Shannon.Fraser@mail.doc.gov, 202-482-3609, or Steve.Murray@mail.doc.gov, 412-644-2819.

Coal Industry Bid Announcements:

- **Coal Preparation Facility in India, Bharat Coking Coal**

The deadline has been extended for the International Competitive Bidding Notice for a 5 million ton per year coal preparation plant to be set up on a build-operate-maintain basis. The details of the announcement, which have been put forward by Bharat Coking Coal, Ltd. (BCC), a subsidiary of Coal India, Ltd. are as follows:

- The consortium leader need not be a coal preparation company. Financial institutions, consultants or other entities can serve as the consortium leader, though collectively the consortium must meet all technical qualification requirements;
- The bidder is responsible for the entire project spectrum, to include planning, design and engineering, equipment selection, installation, commissioning, operation, and maintenance for 10 years. BCCL will provide capital funding and related infrastructure such as land, water, and power;
- Construction is to be completed within 18 months from the contract signing date;
- **Bids must be submitted to the BCCL office by 1:00 pm IST on March 31, 2009.** Bids will be opened at 3:30 pm on this date;
- The link for the bid notice is <http://bccl.cmpdi.co.in/tenderdownload/EDP08-12529.pdf>;
- The bid notice number is WCD/241.
- U.S. companies with requests for additional information on this project are encouraged to contact the Commercial Service Trade Specialist in Kolkata, India: Arup.Mitra@mail.doc.gov

- **Coal Preparation Facility in India, Central Coalfields Limited**

A 10 million ton capacity coal prep plant project has recently been announced by Central Coalfields Ltd. The bid notice and bid documents are available at:

<http://ccl.cmpdi.co.in/tenders/tenderdownload/Ashok-Washery.pdf>

Bids will be received until April 27, 2009. A pre-bid meeting will be held on April 2, 2009.

U.S. companies with requests for additional information on this project are encouraged to contact the Commercial Service Trade Specialist in Kolkata, India: Arup.Mitra@mail.doc.gov

Marketing Opportunities for U.S. Companies at Trade Winds Europe, Warsaw, April 20-22, 2009:

U.S. exports are growing four times faster than the economy as a whole, and Europe presents a market filled with opportunities for U.S. businesses. If your company is already doing business in one, two or several European countries, expansion throughout the continent is the next logical step. Poland constitutes a market of 38 million people located in the heart of central Europe, is a fully integrated member of the EU, and aims to increase the utilization of its vast domestic energy resources. By participating in the Trade Winds Europe Forum, U.S. companies have the chance to make or increase sales in this booming region with a customized itinerary, according to country market demand.

U.S. companies interested in becoming a marketing partner will receive exceptional visibility and services prior to and during the event. Companies registered as marketing partners will receive: 1) company advertisements in Commercial News USA; 2) pre-event promotion and recruitment; 3) recognition as a prominent marketing partner at the Opening Ceremony and all networking events; 4) integration of partner logo and website on all conference promotions and materials; 5) registration for company representative(s) to attend the event; 6) pre-arranged meetings with Senior Commercial Officers from 28 countries in Europe; and 7) partner promotion advertisements on U.S. Commercial Service Business Service Provider Website throughout the Mid-Atlantic Network and Poland.

For additional information on the Trade Winds Europe Forum, please refer to:

<http://www.buyusa.gov/newhampshire/twe.html>

U.S. companies interested in becoming a Trade Winds Marketing Partner are encouraged to contact Michael Manning at 856-722-0958 or Michael.Manning@mail.doc.gov

British Columbia Mining Opportunity Event, Vancouver May 5-6, 2009:

Canada presents U.S. manufacturers of mining equipment and technology with some of the best export prospects in the world. Canada's mining industry continues to persevere during this changing global environment. U.S. small and medium-sized firms with equipment, services or technology for this sector will not want to miss this opportunity to participate in this event. This high profile event will provide participants with an efficient and cost-effective opportunity to gain valuable market exposure, establish business contacts, promote their products, services and technologies, and advance their business objectives with the full support of the U.S. Commercial Service in Vancouver, Canada.

Participants will benefit from an export seminar on the B.C. mining market and a "Doing Business in Canada" presentation; a schedule of one-on-one appointments with pre-screened potential business partners; a networking reception hosted by the U.S. Consul General with key contacts from the British Columbia business community in attendance; and logistical support, including special U.S. Commercial Service hotel rates in Canada. The participation fee for small companies with less than 500 employees is US\$1,600, and for large companies with more than 500 employees the participation cost is US\$3,650.

Please note that registration is limited to 8 qualified U.S. firms and is available on a first come, first served basis. To view the market research reports, "Canada: Mining Equipment Industry" and "Mining Industry in Canada Snapshot," please refer to: <http://www.buyusa.gov/canada/en/bcminingopportunities2009.html> Please contact Judy Simonite, Commercial Service Trade Specialist in Vancouver, at Judy.Simonite@mail.doc.gov, or 604-642-6678 for additional information on this event.

Policy Analysis:

DOE Seeks Applications for Tracking Carbon Dioxide Storage in Geologic Formations

Funding Opportunity Announcement Solicits Applications for Simulation, Monitoring, Verification, Accounting and Risk Assessment

http://fossil.energy.gov/news/techlines/2009/09009-DOE_Issues_FOA.html

Washington, D.C. – The U.S. Department of Energy (DOE) recently issued a Funding Opportunity Announcement (FOA) to enhance the capability to simulate, track, and evaluate the potential risks of carbon dioxide (CO₂) storage in geologic formations. Geologic storage is considered to be a key technological solution to mitigate CO₂ emissions and combat climate change.

DOE anticipates making multiple project awards under this FOA and, depending on fiscal year 2009 appropriations, may be able to provide up to \$24 million to be distributed among selected recipients. This investment is expected to create nearly 160 full-time jobs per year. These jobs will be supported throughout the life of the projects, which is anticipated to be up to four years.

The projects will be cost-shared, with the award recipient(s) providing at least 20 percent of the total funding required for each project. The solicitation includes cooperative agreements among the government, academia, and industry to develop and successfully apply innovative, advanced technology and protocols to improve understanding of the factors affecting CO₂ storage permanence and capacity in geologic formations.

Coal is the nation's most abundant energy resource, supplying nearly 50 percent of domestic electricity. In order for low-cost electricity to remain available from coal-fired power plants in the future, economical methods for capturing and storing the greenhouse gas emissions (primarily CO₂) from these plants must be developed. It is widely believed that CO₂ storage in deep geologic formations will be one of the most economical ways to achieve this goal.

The specific objectives of projects funded under this FOA include: 1) developing tools and protocols for the monitoring, verification, and accounting of CO₂ stored in geologic formations; 2) improve simulation tools to predict the behavior of geologically stored CO₂; and 3) develop risk assessment models associated with geologic CO₂ storage. The selected projects will be managed by the Office of Fossil Energy's National Energy Technology Laboratory.

Projects selected under this FOA will become part of the research portfolio of the Office of Fossil Energy's Carbon Sequestration Program. The program goal is to develop technologies to safely and permanently store CO₂ and reduce greenhouse gas emissions without adversely affecting energy use or hindering economic growth. The program is comprised of four principal elements: 1) core research and development, 2) deployment, 3) demonstration, and 4) global partnerships and collaborations.

Carbon Sequestration Partner Initiates Drilling of CO₂ Injection Well in Illinois Basin

Large-Scale Test to Inject One Million Metric Tons of Carbon Dioxide into Saline Formation

[http://fossil.energy.gov/news/techlines/2009/09008-CO₂_Injection_Well_Drilling_Begins.html](http://fossil.energy.gov/news/techlines/2009/09008-CO2_Injection_Well_Drilling_Begins.html)

Washington, D.C. – The Midwest Geological Sequestration Consortium (MGSC), one of seven regional partnerships created by the U.S. Department of Energy (DOE) to advance carbon sequestration technologies nationwide, has begun drilling the injection well for their large-scale carbon dioxide (CO₂) injection test in Decatur, Illinois. The test is part of the development phase of the Regional Carbon Sequestration Partnerships program, an Office of Fossil Energy initiative launched in 2003 to determine

the best approaches for capturing and permanently storing gases that can contribute to global climate change.

The large-scale project will capture CO₂ from the Archer Daniels Midland (ADM) Ethanol Production Facility in Decatur, Ill., and inject it in a deep saline formation more than a mile underground. Starting in early 2010, up to one million metric tons of CO₂ from the ADM ethanol facility will be compressed to a liquid-like dense phase and injected over a three-year period.

The rock formation targeted for the injection is the Mt. Simon Sandstone, at a depth between 6,000 and 7,000 feet. The Mt. Simon Sandstone is the thickest and most widespread saline reservoir in the Illinois Basin, with an estimated CO₂ storage capacity of 27 to 109 billion metric tonnes. Analysis of data collected during the characterization phase of the project indicated that the lower Mt. Simon formation has the necessary geological characteristics to be a good injection target.

In January 2009, ADM, in collaboration with the Illinois State Geologic Survey at the University of Illinois, which leads the MGSC, was issued an Underground Injection Control permit by the Illinois Environmental Protection Agency for the injection well. Obtaining the permit is significant because it allows the consortium to proceed with drilling, making the MGSC the first DOE Regional Partnership to begin drilling a development phase injection well. The drilling is expected to take about 2 months to complete.

Following injection, a comprehensive monitoring program will be implemented to ensure that the injected CO₂ is safely and permanently stored. The position of the underground CO₂ plume will be tracked, and deep subsurface, groundwater, and surface monitoring around the injection site will be conducted. The monitoring program will be evaluated yearly and modified as needed.

The project under which this effort is being performed will, on average, create nearly 250 full-time jobs per year. These jobs will be supported throughout the project's life of more than ten years, thus resulting in more than 2,500 job-years (calculated as the number of full-time jobs per year times the number of years that the jobs are supported.)

MGSC is one of seven regional partnerships in a nationwide network that is investigating the comparative merits of numerous carbon capture and storage approaches to determine those best suited for different regions of the country. The consortium is investigating options for the 60,000 square mile Illinois Basin, which underlies most of Illinois, southwestern Indiana, and western Kentucky. Emissions in this area exceed 304 million metric tons of CO₂ yearly, mostly attributed to the region's 126 coal-fired power plants.

NETL Inventions Earn 2009 Technology Transfer Awards

Technologies Capture CO₂, Mercury from Coal Power Plant Flue Gases

http://fossil.energy.gov/news/techlines/2009/09007-NETL_Inventions_Earn_Awards.html

Washington, D.C. – Two technologies developed by researchers at the Office of Fossil Energy's National Energy Technology Laboratory (NETL) have earned 2009 Excellence in Technology Transfer Awards from the Federal Laboratory Consortium for Technology Transfer (FLC). Both technologies enable the cleaner use of coal for electricity production and have been licensed to the private sector for commercial development.

The awards will be formally presented at the annual FLC national meeting to be held May 4-7, 2009, in Charlotte, N.C. The national awards are given for outstanding work commercializing new and innovative technologies developed by federal employees. This year's awards, the most recent in a long line of technology transfer awards for NETL, are for a wet scrubbing process for carbon dioxide capture and for the Thief Process for the removal of mercury from flue gas.

NETL's wet scrubbing process for carbon capture uses an ammonia-based solution to remove carbon dioxide, as well as sulfur dioxide and nitric oxides, from the flue gases that form during the combustion of coal. As an added benefit, an ammonium sulfate/nitrate fertilizer, a salable commodity, is produced in the process, while the spent ammonia solution is regenerated and recycled to the scrubbing unit, which minimizes cost. NETL patented the process and later licensed it to Powerspan Corp.

The Thief Process, another NETL-developed technology, cost-effectively removes mercury from flue gas. In this process, partially combusted coal from the furnace of a pulverized-coal power plant is extracted and then re-injected into the ductwork downstream of the air preheater to serve as a mercury sorbent. Testing at laboratory-, bench-, and pilot-scales has shown that the Thief sorbents have capacities for mercury capture from flue gas streams that are comparable to those of commercially available activated carbons. Because the Thief sorbents are significantly cheaper, the process holds

great potential for reducing the cost of mercury removal from flue gas. NETL has licensed the Thief Process to Nalco-Mobotec.

Prior to winning national awards for technology transfer from the FLC, both processes earned regional awards from the Mid-Atlantic Federal Laboratory Consortium Region in September 2008.

DOE Regional Partner Initiates CO2 Injection Study in Virginia

Project to Examine Carbon Storage in Unmineable Coal Seams, Enhanced Coalbed Methane Recovery

http://fossil.energy.gov/news/techlines/2009/09006-Coal_Seam_Injection_Begins.html

Washington, D.C. – A U.S. Department of Energy (DOE) team of regional partners has begun injecting carbon dioxide (CO2) into coal seams in the Central Appalachian Basin to determine the feasibility of CO2 storage in unmineable coal seams and the potential for enhanced coalbed methane recovery. The results of the study will be vital in assessing the potential of carbon storage in coal seams as a safe and permanent method to mitigate greenhouse gas emissions while enhancing production of natural gas.

DOE's Southeast Regional Carbon Sequestration Partnership (SECARB) began injecting CO2 at the test site in Russell County, Virginia, in mid January. Earlier, an existing coalbed methane well had been converted for CO2 injection, and two wells had been drilled to monitor reservoir pressure, gas composition, and the CO2 plume. The targeted coal seams are in the Pocahontas and Lee formations and range from 1,400 to 2,200 feet in depth and from 0.7 to 3.0 feet in thickness. One thousand tons of CO2 will be injected over a 45-day period.

The site was selected because it is representative of the Central Appalachian Basin, an area of about 10,000 square miles located in southern West Virginia and southwestern Virginia. This area has been assessed by researchers to have the capacity to store 1.3 billion tons of CO2 in the coal seams while increasing natural gas production up to 2.5 trillion cubic feet.

The Central Appalachian Basin CO2 Storage Project will explore the concept of multiple use of subsurface storage volume. Injecting CO2 into coal seams boosts coalbed methane recovery, which provides an immediate commercial benefit and offsets infrastructure development costs, while providing long-term storage of CO2 in the formation—a win-win situation.

The project is being coordinated by the Virginia Center for Coal and Energy Research. The center's director, Dr. Michael Karmis, has praised the gas operator, CNX Gas, the mineral owner, Buckhorn Coal, and the supply vendors, including Praxair and Denbury Resources, for their "tremendous cooperation and support" of the project. "In addition," he said, "I would like to thank the NETL team that has worked with Virginia Tech and Marshall Miller and Associates researchers to establish baseline measurements and develop a comprehensive monitoring program."

Initiated in 2003, DOE's Regional Carbon Sequestration Partnership Program now includes seven partnering regions that were established to determine the best approaches for capturing and permanently storing CO2, a greenhouse gas that contributes to global climate change. The partnerships are made up of state agencies, universities, private companies, and nonprofit organizations that form the core of a nationwide network helping to establish the most suitable technologies, regulations, and infrastructure needs for large scale carbon capture and storage. The partnerships include more than 350 organizations, spanning 42 states, three Indian nations, and four Canadian provinces. NETL manages the partnership program for DOE's Office of Fossil Energy.

SECARB is led by the Southern States Energy Board and represents more than 100 partners and stakeholders in 13 southeastern states: Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, Virginia, and West Virginia. The Central Appalachian Basin CO2 Storage Project is one of four pilot tests that the partnership is sponsoring for the validation phase of the project. In this phase, multiple sequestration sites and technologies are being validated in preparation for large-scale injection that will occur in the development phase.