



Coal News and Trends

August 2009

Upcoming Web-Based Seminar:

- **Partnership Opportunities for U.S. Coal Companies and Coal India, Ltd.; August 12, 10:00am Eastern**

The International Trade Administration's Commercial Service office in Kolkata, India and Coal India Ltd. (CIL) are holding a free webinar on August 12, 2009 at 10:00am Eastern Standard Time. The session will provide an overview of the bidding and application process for U.S. coal industry companies aiming to establish strategic partnerships with CIL.

CIL, a large government-owned conglomerate, mines approximately 85% of India's coal reserves and is the world's largest coal-mining company. CIL is looking for one or more strategic business partner(s) for the acquisition of coal resources in the United States. CIL intends to enter into a joint venture partnership with selected companies through equity stakes in operating mines, which would gradually be expanded to partnerships for the development of greenfield mining projects. The objective is to establish long-term coking coal supply contracts from the United States. This category of coal is needed in large quantities to overcome India's power production deficit.

U.S. companies interested in registering for the event should 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.

Upcoming Industry Events:

- **Coal-Gen Conference, Charlotte, NC, August 19-21, 2009**

Coal-Gen 2009 provides coal and power sector attendees an opportunity to learn about the current state of the coal industry, including: challenges and opportunities ahead; topics affecting coal-fired power plants; and the latest products, services and technologies. The International Trade Administration will provide an overview of 'Federal Climate Change Legislation and Implications for the U.S. Coal Industry' as part of the technical sessions. For additional information, please contact Shannon.Fraser@mail.doc.gov, 202-482-3609, or refer to <http://www.coal-gen.com/index.html>.

- **Bluefield Coal Show, Bluefield, WV, September 16-18, 2009**

The Bluefield Coal Show is considered as one of the major regional coal shows in the United States. The event features approximately 230 exhibitors displaying the latest, innovative equipment and technologies being developed by the coal industry. For additional information on the event, please refer to: <http://www.bluefieldchamber.com/csinformation2009.html>.

- **International Pittsburgh Coal Conference, Pittsburgh, PA, September 20-23, 2009**

The International Pittsburgh Coal Conference is hosted by the University of Pittsburgh, Swanson School of Engineering. As an outgrowth of a series of conferences spanning more than three decades, this annual event highlights coal utilization both in the United States and internationally. The conference is dedicated to providing a unique opportunity for in-depth and focused exchange of technical information and policy issues among international representatives from industry, government, and academia. For additional information or to register for the event, please refer to: <http://www.engr.pitt.edu/pcc/2009conf.html>, or contact Shannon.Fraser@mail.doc.gov, 202-482-3609.

Policy Analysis:

Department of Energy Takes Another Step Forward on FutureGen Project ***Record of Decision Issued for First U.S. Commercial Scale Carbon Capture and Storage Project*** http://fossil.energy.gov/news/techlines/2009/09045-DOE_Signs_FutureGen_ROD.html

Washington, D.C. – The Department of Energy recently issued a National Environmental Policy Act (NEPA) Record of Decision to move forward toward the first commercial scale, fully integrated, carbon capture and sequestration project in the country. The Department's decision is based on careful consideration of the proposed project's potential environmental impacts, as well as the program goals and objectives.

"The carbon capture and sequestration technologies planned for this flagship facility are vitally important to America and the world," said Energy Secretary Steven Chu. "This step forward demonstrates the Administration's commitment to developing clean energy technologies, creating jobs, and reducing emissions of greenhouse gases."

The Record of Decision and a cooperative agreement signed by DOE and the FutureGen Alliance allow the Alliance to proceed with site-specific activities for the project. Over the next eight to ten months, the Alliance will complete a preliminary design, refine its cost estimate, develop a funding plan, expand the sponsorship group, and, if needed, conduct additional subsurface characterization.

Following these activities, which will be completed in early 2010, the Department and the Alliance will decide whether to continue the project through construction and operation. Both DOE and the FutureGen Alliance agree that a decision to move forward is the preferred outcome and anticipate reaching a new cooperative agreement for the full project. Funding will be phased and conditioned based on completion of necessary NEPA reviews.

The Department of Energy's total anticipated financial contribution for the project is \$1.073 billion, \$1 billion of which would come from Recovery Act funds for carbon capture and sequestration research. The FutureGen Alliance's total anticipated financial contribution is \$400 million to \$600 million. The total cost estimate of the project is \$2.4 billion, consequently, the Alliance, with support from DOE, will pursue options to raise additional non-federal funds needed to build and operate the facility, including options for capturing the value of the facility that will remain after conclusion of the research project, potentially through an auction of the residual interests in the late fall.

When fully operational, the facility will use integrated gasification combined cycle technology with carbon capture and sequestration into a deep saline geologic formation. It will be designed to capture 90% of the carbon emissions by the third year of operations but may be operated at 60% capture in the early years to validate plant integration and sequestration capability. This technology should sequester one million tons of CO₂ annually when it reaches full commercial operations.

Regional Partner Announces Plans for Carbon Storage Project Using CO2 Captured from Coal-Fired Power Plant

http://www.fossil.energy.gov/news/techlines/2009/09047-SECARB_Announces_CCS_Plans.html

Washington, D.C. – Southern Company and the Southeast Regional Carbon Sequestration Partnership (SECARB), one of seven members of the U.S. Department of Energy (DOE) Regional Carbon Sequestration Partnerships program, have announced plans to store carbon dioxide (CO₂) captured from an existing coal-fired power plant. The project represents a major step toward demonstrating the viability of integrating carbon capture and storage to mitigate climate change.

This storage project, located in the Citronelle Oil Field north of Mobile, Alabama, will inject CO₂ captured from Alabama Power's Plant Barry into a deep saline reservoir 9,000 feet beneath the surface. Beginning in 2011 and continuing for at least 4 years, up to 150,000 tons of CO₂ per year—the equivalent of emissions from 25 megawatts of Plant Barry's generating capacity—will be captured at the plant, transported via pipeline, and injected into the saline formation, which has oil-bearing formations above and below. A thorough monitoring process will be used to track the movement of the injected CO₂ and ensure that it is safely and permanently stored.

SECARB, led by Southern States Energy Board, and the Electric Power Research Institute (EPRI), which is coordinating this CO₂ storage effort, selected the test site because it is representative of similar saline formations that are believed to have great potential for carbon storage. A conservative estimate by the Massachusetts Institute of Technology has estimated the storage capacity for the formations—which underlie an area of approximately 46,000 square miles in southern Alabama and Mississippi, the Florida Panhandle, and Louisiana—at 10 billion metric tons of CO₂.

The Regional Carbon Sequestration Partnership program was initiated by the Office of Fossil Energy in 2003 as a response to geographic differences in fossil fuel use and storage potential across the United States. The seven regional partnerships form the centerpiece of national efforts to develop the infrastructure and knowledge base needed to accelerate these technologies on the path to commercialization. The program is managed by the National Energy Technology Laboratory (NETL).

The partnerships span 43 states, three Indian nations, and four Canadian provinces and include more than 350 organizations. Collectively, the partnerships represent regions that encompass 97 percent of U.S. coal-fired CO₂ emissions, 97 percent of U.S. industrial CO₂ emissions, 96 percent of the United States' total land mass, and essentially all the geologic sequestration sites in the United States potentially available for carbon storage.

SECARB covers 13 southeastern states (Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas, Virginia, and West Virginia) and includes than 100 partners and stakeholders. CO₂ injection at the Citronelle Oil Field is the second component of SECARB's two-part, large-scale injection study which is exploring the potential for carbon storage in geological formations of the Southeast.

Each of the seven partnerships is conducting at least one large-volume CO₂ storage field test as part of the development phase of the partnerships program. These large-volume tests will promote understanding of injectivity, capacity, and storability of CO₂ in the various geologic formations identified by the partnerships. Results and assessments from these efforts will promote commercialization efforts for future carbon capture and storage projects in North America.

Bees, Balloons, Pollen Used as Novel CO2 Monitoring Approach

Information from Ohio Project Will Aid Future Sequestration Efforts

http://fossil.energy.gov/news/techlines/2009/09031-CCS_Test_Yields_Valuable_Informati.html

Washington, D.C. – Researchers at the Office of Fossil Energy's National Energy Technology Laboratory (NETL) have discovered an innovative way to use bees, pollen, and helium-filled balloons to verify that no carbon dioxide (CO₂) leaks from carbon sequestration sites. These new methods are an excellent way to determine environmental impact without disrupting habitats surrounding sequestration sites and can ensure the effectiveness of carbon storage options used to prevent CO₂, a greenhouse gas, from escaping into the atmosphere.

In a technique developed by NETL, chemical tracers were co-injected at low levels to fingerprint the CO₂ during storage, differentiating it from natural carbon dioxide. Researchers will also determine if pollen collected by bees contains measurable quantities of tracer, or if bees bring back tracer from direct contact with foliage.

NETL researchers, in cooperation with bee experts at Montana State University (MSU) in Bozeman, placed hives about 150 meters upwind and downwind from a controlled CO₂ release source marked with tracers. A third control hive was located some distance from the test plot.

Along with the samples of the bees' pollen taken from the hive, sorbent packets were placed near the hive entrances to monitor hive ventilation gas for tracer. A third monitor was placed about 25 meters from each hive in order to account for any background levels of tracer near the hive. Monitoring consists of exposing sorbent in a small packet of sorbent tubes to the atmosphere. The tubes are heated while helium gas is flowing through them. This desorbs the tracer which is then analyzed.

Atmospheric tracer levels were also monitored throughout the test field using an extensive grid of monitors, and a light detection and ranging system was employed by MSU researchers to correlate field tracer levels with bee foraging locations.

NETL researchers contracted Apogee Scientific to use a large helium-filled balloon to elevate a carousel containing sealed sorbent tubes above the field for sequential exposures of sorbent tubes at known times and known elevations to determine if atmospheric plume monitoring of tracer will be a feasible approach. Results from this study will be applied to more extensive experiments in atmospheric plume monitoring.

NETL conducted the studies at the Center for Zero Emissions Research and Technology research site on an agricultural field at MSU. Researchers are now conducting laboratory analysis of the tracer levels in the samples.