



INTERNATIONAL
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ADMINISTRATION

Coal News and Trends

Upcoming Coal and Mining Web-Based Seminars:

For additional information on the 2008 Coal and Mining Webinar Series and registration procedures, please contact Shannon Fraser (Shannon.Fraser@mail.doc.gov, 202-482-3609) or Steve Murray (Steve.Murray@mail.doc.gov, 412-644-2819). Please note that these sessions will be recorded and disseminated to registrants after each event.

- **'Opportunities for U.S. Companies in the Coal/Mining Sectors of Poland and Turkey'**
May 28, 9:30 am Eastern Time
Led by Ania Janczewska (Commercial Service-Warsaw) and Serdar Cetinkaya (Commercial Service-Ankara)

The May 28 Poland and Turkey Coal/Mining webinar is an excellent opportunity for U.S. companies to develop a better understanding of mining prospects in both countries. Registration details for this event are available at:
<http://www.buyusa.gov/pittsburgh/coalandminingwebinars.html>

- **'Opportunities for U.S. Companies in the Coal/Mining Sectors of South Africa'**
June 5, 11:00 am Eastern Time
Led by Johan van Rensburg (Commercial Service-Johannesburg)

The June 5 South Africa Coal/Mining webinar will provide U.S. companies with an overview of the South African coal and mining market as well as highlights on commercial opportunities for U.S. companies. Registration details for this event are available at:
<http://www.buyusa.gov/pittsburgh/coalandminingwebinars.html>

Upcoming Events:

- **Clearwater Coal Conference, June 1-5, Clearwater, FL**
The Clearwater Coal Conference highlights innovative and evolving clean energy technologies to encourage the exchange of information on power generation and policy issues. The conference consists of technical papers, tutorials, panels, and plenary sessions on cutting-edge clean coal technology developments. Nearly 300 professionals representing the coal sector and electric utility industry take part in this annual event. For additional information, please refer to <http://www.coaltechnologies.com/conferences.html> or contact Barbara Sakkestad at Barbarasak@aol.com
- **Bluefield Coal Symposium, August 26-27, Bluefield, WV**
The Bluefield Coal Symposium will provide an overview of 1) industrial coal mine safety programs, 2) regional mining legislation, and 3) recent mining technology developments. For additional information on the program agenda, please refer to <http://www.bluefieldchamber.com/csinformation.htm>

- **MINExpo International, September 22-24, Las Vegas, NV**
Occurring every four years, the MINExpo event will take place from September 22-24 in Las Vegas and will include educational seminars, mining equipment displays, and optional site visits. The Department of Commerce will coordinate foreign buyer delegations to attend the conference and will arrange for one-on-one meetings between Foreign Service coal and mining trade specialists and U.S. company representatives to discuss the expansion of business opportunities in a targeted overseas market. For additional information, please refer to <http://www.minexpo.com/tours.shtml?id=2> or contact Shannon Fraser at Shannon.Fraser@mail.doc.gov, 202-482-3609.
- **International Pittsburgh Coal Conference, September 29-October 2, Pittsburgh, PA**
The Twenty-Fifth Annual International Pittsburgh Coal Conference will focus on environmental emissions issues and technologies surrounding the continued use of coal and the development of future coal-based energy plants to achieve near-zero emissions of pollutants. For additional information on this year's program, please refer to <http://www.engr.pitt.edu/pcc/2008%20Conference.htm>

Policy Analysis:

DOE Takes Next Steps with Restructured FutureGen Approach

Announces Draft Solicitation for Multiple Commercial-Scale Clean Coal Plants with Sequestration

http://fossil.energy.gov/news/techlines/2008/08013-DOE_Takes_Next_Steps_With_Restruct.html
May 7, 2008

Washington, D.C. – On May 7, 2008 the U.S. Department of Energy (DOE) released a draft Funding Opportunity Announcement (FOA) to solicit public input on the demonstration of multiple commercial-scale Integrated Gasification Combined Cycle (IGCC) or other clean coal power plants with cutting-edge carbon capture and storage (CCS) technology under the Department's restructured FutureGen approach. The draft solicitation outlines the planned scope of the project, evaluation criteria, terms and conditions, and cost sharing requirements for public-private cooperation under FutureGen.

DOE announced a restructured approach to its FutureGen project on January 30, 2008, to build on technological research and development advancements in CCS technology achieved over the past five years, changing market conditions for clean coal technology, as well as efforts to limit taxpayer exposure and maximize the federal government's investment in this cutting-edge technology. The restructured approach aims to accelerate the near-term deployment of advanced clean coal technology by equipping new IGCC or other clean coal commercial power plants that generate at least 300 megawatts of power with CCS technology and, with multiple projects funded, is expected to at least double the amount of carbon dioxide (CO₂) sequestered compared to the initial concept announced in 2003.

"After reviewing dozens of constructive comments on our restructured approach to FutureGen, we are pleased today to issue a draft solicitation as we take steps to demonstrate the commercial potential of cutting-edge carbon sequestration technology," Under Secretary of Energy Bud Albright said. "Each of these plants will sequester at least one million metric tons of carbon dioxide annually and will help meet our nation's rapidly growing demand for energy using our most abundant energy resource in an environmentally responsible way."

The draft FOA is intended to provide an opportunity for public review and comment beginning today and extending through Wednesday, May 21, 2008. Input from interested parties will be considered in the development of the final solicitation, which DOE expects to release in mid-summer 2008, with selection of projects targeted for December 2008.

The draft FOA outlines DOE's estimated investment, which would be set out in cooperative agreements or technology investment agreement(s) awarded to commercial partners, and would range from \$100 million to \$600 million per project. Subject to compliance with the National Environmental Policy Act, the draft FOA envisions commercial operation of IGCC or other clean coal power plants equipped with CCS technology to begin as soon as the plants are commissioned by December 31, 2015. DOE anticipates \$290 million (through FY 09) will be available for initial project selection(s) under this FOA and anticipates an additional \$1.01 billion in subsequent years.

DOE's draft FOA also requires that at least 50 percent of the energy output of the project's energy conversion system must be used to produce electricity; the project must produce at least 300 megawatts (MW) gross electricity output; and the project must be located in the United States. In addition, the projects must be designed to achieve a goal of approximately 90 percent capture of carbon content in the syngas or flue gas and must achieve a minimum capture rate of 81 percent. Under the draft FOA, projects must also remove at least 90 percent of the mercury emissions based on mercury content of the coal, at least 99 percent of the sulfur emissions based on sulfur content of the coal, and reduce nitrogen oxide and particulate emissions to very low levels.

To ensure safe and permanent sequestration, DOE requires a number of monitoring and verification performance requirements for FutureGen project(s), including quantifying and assessing CO₂ capture, transport, and storage aspects for the duration of a 3-5 year demonstration of a least one million metric tons of CO₂ injected per year in a saline formation; monitoring the plume(s) of injected CO₂ for a minimum of two years after cessation of the injection demonstration, with the results of the monitoring reported to DOE; and developing information necessary to estimate costs of future CO₂ management systems.

The restructured FutureGen approach will focus on the challenges associated with avoidance and reduction of carbon emissions and criteria pollutants through sequestration. Technical, economic, and operational results from multiple projects will inform and guide the promulgation of regulations related to wide-scale carbon sequestration activities and at the same time will help establish technologies and protocols for CO₂ monitoring, mitigation and verification.

The restructured FutureGen program is a cost-shared collaboration between the government and industry to accelerate commercial deployment of IGCC or other advanced clean coal-based power generation technology with CCS. Widespread replication of this technology by the private sector and global community would help to meet energy and environmental needs by expanding the use of an abundant energy resource in environmentally responsible ways, facilitating economic growth, and increasing living standards in a way that maximizes federal investment and limits taxpayer risk.

Clean coal technology is a vital component of the Bush Administration's vision for a cleaner, more secure energy future and the restructured approach to FutureGen will demonstrate the integration of IGCC or other clean coal technology with CCS to enable wider use and commercialization more rapidly. President Bush's FY 2009 budget request of \$648 million for clean coal research, development and deployment represents the largest amount requested for DOE's coal program in more than 25 years and builds on over \$2.5 billion invested to advance clean coal technology since 2001.

DOE Awards \$126.6 Million for Two More Large-Scale Carbon Sequestration Projects

Projects in California and Ohio Join Four Others in Effort to Drastically Reduce Greenhouse Gas Emissions

http://fossil.energy.gov/news/techlines/2008/08012-DOE_Funds_Large-Scale_Projects.html
May 6, 2008

Washington, D.C. – On May 6, 2008 the U.S. Department of Energy (DOE) announced awards of more than \$126.6 million to the West Coast Regional Carbon Sequestration Partnership (WESTCARB) and the Midwest Regional Carbon Sequestration Partnership (MRCSP) for the Department's fifth and sixth large-scale carbon sequestration projects. These industry partnerships, which are part of DOE's Regional Carbon Sequestration Partnership, will conduct large volume tests in California and Ohio to demonstrate the ability of a geologic formation to safely, permanently, and economically store more than one million tons of carbon dioxide (CO₂). Subject to annual appropriations from Congress, the two projects (including the partnership's cost share) are estimated to cost over \$183 million. Advancing carbon sequestration is a key component of the Bush Administration's comprehensive efforts to commercially advance clean coal technology to meet current and future energy needs and meet President Bush's goal to stop greenhouse gas emissions growth by 2025.

"The formations to be tested during the third phase of the partnerships program are the most promising of the major geologic basins in the United States. Collectively, these formations have the potential to store more than 100 hundred years of CO₂ emissions from all major point sources in North America," Acting Deputy Secretary of Energy Jeffrey Kupfer said. "Tests like these will help provide the confidence and build the infrastructure necessary to commercialize these technologies, and will enable the U.S. to continue using its vast resources of coal while protecting the earth for future generations."

The new projects will demonstrate the entire CO₂ injection process - pre-injection characterization, injection process monitoring, and post-injection monitoring - for large scale injections of one million tons or more to test the ability of different geologic settings to permanently store CO₂. DOE plans to invest \$126.6 million in the two projects over the next 10 years, while the industry partners will provide \$56.6 million in cost-shared funds to make these projects a success.

In the first stages of the projects, researchers will characterize the selected sites. Over the first 24 months, researchers and industry partners will complete the modeling, monitoring, and infrastructure improvements needed before CO₂ can be injected. These efforts will establish a baseline for future monitoring after CO₂ injection begins. Each project will then inject one million tons or more of CO₂ into a regionally significant storage formation. After injection, investigators will monitor and model the fate of the CO₂ to determine the effectiveness of the storage reservoir.

The latest projects to be awarded are outlined below:

- Midwest Regional Carbon Sequestration Partnership (MRCSP) - The MRCSP, led by Battelle Memorial Laboratories, will demonstrate CO₂ storage in the Mount Simon Sandstone. This geologic formation stretches from Kentucky through Ohio and has the potential to store more than 100 years of CO₂ emissions from major point sources in the region. The MRCSP will inject approximately one million tons of CO₂ from an ethanol production facility. In this area of Ohio, the Mount Simon formation is approximately 3,000 feet deep. The CO₂ will be injected on the facility site, and MRCSP will be responsible for development of the infrastructure, operations, closure, and monitoring of the injected CO₂. The MRCSP covers Ohio, Indiana, Kentucky, West Virginia, Maryland, Pennsylvania, New York, and Michigan. Total Project Cost: \$92,846,271; DOE Share: \$61,096,271
- West Coast Regional Carbon Sequestration Partnership (WESTCARB) - The WESTCARB Partnership, led by the California Energy Commission, will conduct a geologic CO₂ storage project in the San Joaquin Basin in Central California. The project will inject one million tons of CO₂ over four years into deep (7,000+ feet) geologic formations below a 50-megawatt, zero-emission power plant in Kimberlina, CA. The Clean Energy Systems plant uses natural or synthesis gas in an oxyfuel system and produces a relatively pure stream of CO₂. This CO₂ will be compressed and injected into one of a number of potential storage formations below the surface of the plant. WESTCARB will develop, operate, and close the injection site as well as monitor the fate of the injected CO₂. The WESTCARB Partnership includes California, Arizona, Nevada, Oregon, Washington, Alaska, Hawaii, and British Columbia. Total Project Cost: \$90,594,099; DOE Share: \$65,606,584.

DOE's Regional Carbon Sequestration Partnerships are a ten-year initiative, launched in 2003, which form the centerpiece of national efforts to develop the infrastructure and the knowledge base needed to place carbon sequestration technologies on the path to commercialization. The seven regional partnerships include more than 350 state agencies, universities, and private companies within 41 states, two Indian nations, and four Canadian provinces.

During the first phase of the program, seven partnerships characterized the potential for CO₂ storage in deep oil-, gas-, coal-, and saline-bearing formations. When Phase I ended in 2005, the partnerships had identified more than three trillion metric tons of potential storage capacity in promising sinks. This has the potential to represent more than 1,000 years of storage capacity from point sources in North America. In the program's second phase, the partnerships implemented a portfolio of small-scale geologic and terrestrial sequestration projects. The purpose of these tests was to validate that different geologic formations have the injectivity, containment, and storage effectiveness needed for long-term sequestration. The third phase, large volume tests are designed to validate that the capture, transportation, injection, and long term storage of over one million tons of carbon dioxide can be done safely, permanently, and economically.

Today's awards are the fifth and sixth of seven awards in the third phase of the Regional Carbon Sequestration Partnerships program. In October, DOE announced the first three large volume carbon sequestration projects that total \$318 million for Plains Carbon Dioxide Reduction Partnership, Southeast Regional Carbon Sequestration Partnership, and Southwest Regional Partnership for Carbon Sequestration, and in December, DOE announced its fourth award to the Midwest Geological Sequestration Consortium.