

FOSSIL ENERGY TODAY

A Newsletter
About Innovative
Technologies
for Fossil Energy



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ENERGY DEPARTMENT ANNOUNCES NEW MAPPING INITIATIVE TO ADVANCE NORTH AMERICAN CARBON STORAGE EFFORTS

New Atlas Shows Potential for 500 Years of Carbon Dioxide Storage

The U.S. Department of Energy joined with partners from Canada and Mexico to release the first-ever atlas mapping the potential carbon dioxide storage capacity in North America.

According to the newly released North American Carbon Storage Atlas (NACSA), there is at least 500 years of geologic storage for carbon dioxide emissions in North America. These areas could be used for storing carbon from industrial sources or power plants.

In addition to estimating the storage capacity for North American oil and gas fields, coal fields and saline reservoirs, NACSA also notes the location of a total of approximately 2,250 large stationary carbon dioxide sources.

Continued on page 3...



The newly released Atlas was a collaborative effort between the United States, Canada and Mexico.

NETL-DEVELOPED CARBON CAPTURE TECHNOLOGY WINS R&D 100 AWARD

A novel carbon capture technology developed at the National Energy Technology Laboratory has been recognized by R&D Magazine as among the 100 most technologically significant products introduced into commercial marketplace within the past year.

This year's award recognizes NETL's Basic Immobilized Amine Sorbent (BIAS) process, encompassing a portfolio of patented and patent-pending technologies for the capture of carbon dioxide (CO₂) from flue gas streams.

CO₂ is one of the major greenhouse gases impacting climate change, and nearly one-third of man-made CO₂ emissions result from the combustion of fossil fuels for electricity generation. NETL, the Office of Fossil Energy's research laboratory, is investigating carbon capture, utilization and storage technologies (including BIAS) as a means for helping control CO₂ emissions from power plants.

The process encompasses a portfolio of techniques for the production of

Continued on page 4...

HIGHLIGHTS INSIDE

- 2 Science-Based Strategy**
A Column from the Director of the National Energy Technology Laboratory
- 3 DOE Supports Energy Education**
Helps Crow Tribe Promote Energy Independence
- 5 Educational Research Projects Selected**
13 Projects on Coal Research Selected at Universities Across the Nation
- 6 SPR Well Under Construction**
The U.S. Oil Reserves Develops First New Well in 27 Years
- 8 Safe Drilling Demonstrated**
DOE-Supported Project Produces Innovative Technology to Improve Oil Recovery

SCIENCE-BASED STRATEGY

By Anthony Cugini

As America considers her energy stance in light of shifts in national priorities, turbulence in global energy markets, and newly-available unconventional domestic resources, it is critical that our Nation's decision- and policy makers be informed by the most relevant, reliable and cutting-edge scientific research available.

The National Energy Technology Laboratory (NETL), which I am privileged to direct, has not only played an important role in informing national energy strategists, but also has a record of discovery in advanced technologies that can and have changed the momentum of energy trends in the interest of a more secure Nation and a more stable American economy.

Throughout our 100 year history, NETL has applied sound scientific methodologies to real world problems, beginning with reducing fatalities in the coal mining industry, conserving resources, increasing oil and gas production, and improving air quality. The same approach is evident today, in our efforts to develop and promote safe practices for capturing carbon dioxide from fossil fuel-fired power plants, pioneering research into carbon utilization such as for enhanced oil recovery, extracting shale gas, and unlocking the potential of a vast new energy resource, methane hydrates.

NETL's research supports the Department of Energy's all-of-the-above approach to energy independence, which includes America's most reliable source of energy, fossil fuels, by moving fossil energy towards ultra-efficiency and ultra-cleanliness.

In addition to fundamental and applied in-house research in areas such as chemical and molecular science, computational science, geoscience, materials science, information science, decision science and risk analysis, the laboratory's research portfolio includes more than 1,800 external projects conducted in partnership with industry and academia. The NETL-Regional University Alliance, for example, is an applied research collaboration among scientists at NETL and five area universities that leverages facilities, specialty equipment, and professional staff to accelerate development and deployment of innovative energy and environmental technology.

Many of these projects and collaborative efforts have been highlighted in this newsletter and will be showcased at the 2012 International Pittsburgh Coal Conference and at the 2012 Annual Meeting of the American Institute of Chemical Engineers, both in Pittsburgh, Pa., this October. NETL's technological contributions have earned a DOE Secretary Achievement Award, a 2012 R&D 100 Award, a 2012 National Federal Laboratory Consortium for Excellence in Technology Transfer Award, and the American Institute of Chemical Engineers Management Division Award.

NETL also funds nearly 500 university research projects that help train the next generation of energy scientists, and sponsors a robust education outreach program designed to encourage young minds to pursue careers in science, technology, engineering, and mathematics. As the Director of one of our Nation's top laboratories, when I couple the past achievements of our researchers with the promise I see in these youthful and talented minds, I am confident that our Nation's energy policy makers will continue to receive the science-based input they need to lead America into a sustainable energy future.



Anthony Cugini is Director of the National Energy Technology Laboratory.

The National Energy Technology Laboratory is the lead research and development office for the U.S. Department of Energy's Office of Fossil Energy. One of 17 national laboratories in the Energy Department's complex, NETL serves a unique role compared to its counterparts: it functions as both an on-site science and technology research center and as the administrator of nearly 1,800 contracts with external organizations.

Learn more at <http://fossil.energy.gov/facilities/netl/index.html>.

“Atlas” continued from page 1...

Documenting the location of large stationary carbon dioxide emission sources and the locations and storage potential of various geological storage sites helps quantify the benefits and opportunities for potential carbon capture, utilization and storage (CCUS) projects. CCUS technologies help to capture, purify and compress carbon dioxide, which is injected into geological formations for permanent storage. Those technologies can also be used for enhanced oil recovery (EOR) to produce hard-to-access oil, while safely and permanently storing the carbon dioxide and preventing emission to the atmosphere. The process is an important option for reducing carbon pollution while further developing North America’s fossil energy resources and meeting growing energy demand.

Created through the North American Carbon Atlas Partnership, a joint cross-border mapping initiative by the United States, Canada and Mexico, NACSA includes both low and high estimates for potential carbon dioxide storage capacity in North America. The low case estimates potential capacity of 136 billion metric tons for oil and gas fields; 65 billion metric tons for coal fields; and 1,738 billion metric tons for saline reservoirs, collectively representing over 500 years of storage.

The new North American Atlas shows an increase in potential storage capacity relative to previous estimates, primarily due to better geologic resolution and the identification of additional locations that could be used for EOR. By matching up EOR storage locations with specific sources of CO₂, the atlas provides a more comprehensive view of the outlook and potential for carbon storage through EOR.

The atlas was developed by the Department of Energy, Natural Resources Canada and the Mexican Ministry of Energy. It also included work from the Department of Energy’s Regional Carbon Sequestration Partnerships, whose 400 organizations have worked over the last decade to characterize geologic storage opportunities in the U.S. and Canada and provide inputs to the National Energy Technology Laboratory’s National Carbon Sequestration Database and Geographic Information System.

View the Atlas at http://www.netl.doe.gov/technologies/carbon_seq/refshelf/NACSA2012.pdf.

DOE-SUPPORTED EDUCATION AND TRAINING PROGRAMS HELP CROW TRIBE PROMOTE ENERGY INDEPENDENCE AND EDUCATION

Two Department of Energy-supported programs are helping the Crow Tribe in Montana produce energy with minimal environmental impact, educate future generations and prepare its community for future jobs in energy fields.

At the heart of the Work Readiness Program and the Cultivation and Characterization of Oil Producing Algae Internship are 6-week intensive courses of study that teach real-world skills and provide opportunities for academic and industrial advancement in science, math and energy.

The programs are supported in part by the National Energy Technology Laboratory as well as the Many Stars Project,



Students from the Work Readiness Program stand proudly by one of their biggest projects for the course: a flatbed trailer they built from scratch with the help of their instructor, Crow Tribe member Robert Stewart.

Accelergy Inc., the University of North Dakota’s Energy & Environmental Research Center, Little Big Horn College and Montana State University. Ultimately, the two programs are helping the Crow Tribe take steps toward preserving local resources and jobs, and ultimately improving their reservation.

The Work Readiness Program teaches students classroom basics as well as specific job skills and how to apply these skills in a professional work setting. Students learn the basics of carpentry, welding, electrical

work, rigging, reading blueprints, equipment operations and

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“Crow Tribe” continued from page 3...

safety standards. Students graduating from the program are well-positioned to help improve the quality of life within the reservation. For example, Fernando Long Soldier, a Crow Tribe member and program alumnus, is applying electrical skills learned in the program to infrastructure projects on the reservation, where he currently holds a supervisory position.

Members of the sponsoring organizations serve as teachers and mentors for the Work Readiness Program, but qualified Crow Tribe members are also encouraged to become instructors and contribute to the learning process. Robert Stewart, a Crow Tribe member and core education instructor for the program, helped design practical hands-on experiences, including an assigned task of building a 16-foot flatbed trailer. “When the class was finished building the trailer, they were so proud of themselves that they had actually built it and it worked,” said Stewart. “They were telling each other they are going to start building and selling their own trailers. That’s what I wanted to hear!”

The Cultivation and Characterization of Oil Producing Algae Internship places students in a laboratory alongside established researchers to study local algae samples and evaluate their possible use in energy applications. The project focuses on Accelergy’s integrated coal-to-liquid (ICTL) technology, which reforms local Montana bituminous coal and indigenous biomass feeds, like algae, into a liquid that is economical to transport and use as fuel. The student interns are involved in every aspect of the research. During last summer’s program, students collected algae at two different pond sites outside of the reservation, built bioreactors to grow the algae, harvested the algae, and then freeze-dried their samples to check the algae for oil quantities that could be useful to the ICTL technology.

Crow Tribe member Amanda Not Afraid, who completed the algae internship, said her experiences taught her “to see all the opportunities that lie outside of the reservation and what skills it would take to succeed there.” Since graduating from the program, Amanda has enrolled as a freshman at Little Big Horn College and is pursuing a degree in pre-medicine.

Acceptance into the two programs is competitive. Similar to applying for college, students are required to submit a packet of personal information, essays, and letters of recommendation which are reviewed by a board of four members. Of the 70 applicants in 2011, 45 were chosen and 38 graduated. The students who successfully completed the internship program are now in the workforce or attending one of the sponsoring institutions.

Because of the programs’ success, DOE has awarded additional funding to the algae internship, and outside funding was granted to Work Readiness Program, ensuring that both will be available to a new wave of students in summer 2012.

“R&D Award” continued from page 1...

regenerable immobilized amine-based sorbents and provides a methodology for the capture of CO₂ from flue gas streams. Low-cost, regenerable amine-based sorbents

offer many advantages over existing technologies including increased CO₂ capture capacity, reduced corrosion, lower energy requirements and costs, and minimized water usage. Additionally, amine-based sorbents are scalable for use in industrial applications, including coal combustion and gasification-based power generating systems.

Application of this technology is expected to reduce cost and energy use associated with more conventional scrubbing processes. The process can be used as a retrofit to

“Congratulations to this year’s R&D 100 award winners,” said Energy Secretary Steven Chu. “The research and development at the Department of Energy’s laboratories continues to help the nation meet our energy challenges, strengthen our national security and improve our economic competitiveness.”

older power plants that currently burn coal or applied to new, more efficient pulverized coal-fired power plants.

The R&D 100 Awards are regarded by many

within industry, government laboratories, and academia as instrumental in identifying state-of-the art technologies and helping to move innovative science into the public marketplace. The annual awards, known as the “Oscars of Invention,” are selected by an independent panel of judges and the editors of R&D Magazine.

Learn about the R&D Awards at <http://www.rdmag.com/Awards/RD-100-Awards/R-D-100-Awards/>.

PROJECTS SELECTED UNDER EDUCATIONAL RESEARCH PROGRAMS

The Department of Energy through two long-standing programs has supported the research and development of fossil energy technologies at colleges and universities across the United States. Again this year, the DOE has selected a total of 13 projects that will continue the tradition of involving professors and students in research that will promote the influx of fresh ideas and ensure a future supply of trained scientists and engineers.

Four projects selected under the Historically Black Colleges and Universities and Other Minority Institutions (HBCU/OMIs) program will address high-performance materials for long-term fossil energy applications, such as advanced ultrasupercritical combustion (AUSC), oxygen-fired combustion, gasification, and hydrogen turbines. The HBCU/OMIs program focuses on three core research areas: sensors and controls, computational energy sciences, and advanced materials. Using computational or experimental methods, or a combination of both, this year's projects will study surface modification of alloys for AUSC coal-fired boilers and steam and gas turbines, structural materials, and materials processing.

The nine projects chosen under the University Coal Research (UCR) program will investigate advanced materials and processes that are vital to the development of environmentally safe and energy-efficient advanced coal-fired power systems. Since its beginning, the UCR program has supported projects to improve the fundamental understanding of the chemical and physical processes that govern coal conversion and utilization, by-product utilization, and technological development. This year's research will focus on developing high-temperature, corrosion-resistant alloys and protective coatings that will withstand the extreme temperatures and pressures found in AUSC coal-fired power plants and advanced gas turbines. Additionally, the research will contribute new ideas and computational design methods to significantly improve performance and reduce costs of existing fossil energy power generation systems and enable the development of new systems and capabilities.

In existence for 28 years, the HBCU/OMIs program is dedicated to strengthening and promoting U.S. energy security, scientific discovery and economic competitiveness while producing a next-generation of scientists and engineers of diverse backgrounds. For the past 33 years the UCR program has afforded students the opportunity to acquire invaluable experience in understanding the science and technology of coal. Thanks to UCR research grants, industry is now using this generation of new technology and knowledge. Success stories include hydrogen separation membranes and computational fluid dynamics models. Both programs are managed by the National Energy Technology Laboratory under the Office of Fossil Energy.

Learn more about these programs, as well as the 2012 recipients, at <http://www.fossil.energy.gov/programs/powersystems/advresearch/advresearch-university.html>.

PARTNERSHIP ON UNCONVENTIONAL NATURAL GAS AND OIL RESEARCH

Recently, three federal agencies announced a formal partnership to coordinate and align all research associated with development of our nation's abundant unconventional natural gas and oil resources. The partnership exemplifies the cross-government coordination required under President Obama's Executive Order released earlier, which created a new Inter-agency Working Group to Support Safe and Responsible Development of Unconventional Domestic Natural Gas Resources.

This new partnership will help coordinate current and future research and scientific studies undertaken by the U.S. Department of Energy, the U.S. Environmental Protection Agency and the U.S. Department of the Interior – better positioning the Obama administration to ensure that continued expansion of natural gas and oil production happens safely and responsibly as part of an all-of-the-above approach to American energy in which science plays a guiding and critical role.

For more information about the partnership and to view the Memorandum of Agreement outlining this coordination, visit <http://unconventional.energy.gov>.

SPR DRILLS NEW WELL ON BAYOU CHOCTAW

First New Well in 27 Years

Due to geotechnical issues, one of the caverns at the Strategic Petroleum Reserve's (SPR) Bayou Choctaw (BC) site needed to be phased out. The SPR purchased Cavern 102 which is an existing cavern owned by a private entity and will replace Cavern 20. It is expected that Cavern 102 will increase the site's storage capacity to about 79 million barrels. The location of Cavern 102 is within the confines of the BC facility and was originally developed by DOE in the late 1970's.

Bayou Choctaw is located in Plaquemine, La., about 12 miles southwest of Baton Rouge. BC has a total of six crude oil storage caverns; four sour crude oil and two sweet crude oil. Cavern 20 is one of the two sweet crude caverns. BC Cavern 20 will be filled with brine once replaced.

The cavern replacement will slightly increase the BC site sweet crude oil storage capacity and will maintain the 300,000 barrels per day sweet drawdown rate by connecting Cavern 102 to the BC site infrastructure systems. The SPR commenced drilling a second cavern well into Cavern 102 on May 1. This is the only well to be drilled. It is planned to be 2,640 feet deep (half a mile). The expected capacity of Cavern 102 is 9.6 million barrels.

The drilling operation is projected to complete by July 2012. The facilities construction, including the connection



to the associated BC 102 piping, and the mechanical, electrical, security, and firewater components to the existing BC site infrastructure systems, is scheduled to complete by the end of October 2012. BC 102 is projected to be commissioned for service in January 2013, pending authorization from the Deputy Assistant Secretary for the Petroleum Reserves.

Sabine Storage and Operations is the prime contractor for the drilling operation. Precision Drilling is providing the rig, equipment, and personnel to perform the drilling activities. Tiger Safety was contracted by Sabine to perform the safety oversight of all activities associated with the well development.

The last well completed at the SPR was at the Big Hill storage site in Texas on August 4, 1985. The Cavern Replacement Project at Bayou Choctaw will incorporate Integrated Safety Management and Integrated Safeguards and Security Management. These systems include safety management, environmental management, quality management, safeguards and security management, emergency management and cyber security. The Cavern Replacement at Bayou Choctaw total schedule from initiation of design to completion of Cavern Integration is 2 years and has, to date, been completed accident free.

DRILLING PROJECTS DEMONSTRATE SIGNIFICANT CO₂ STORAGE

Characterization Wells Important in Moving CCUS Technologies Forward

Evaluation-related test drilling at geologic sites in three states that could store a combined 64 million metric tons of carbon dioxide (CO₂) emissions – an important component of carbon capture, utilization and storage (CCUS) technology development – has been completed in projects supported by the U.S. Department of Energy.

If the potential of the sites is eventually fulfilled, they could safely and permanently store combined CO₂ emissions equivalent to that produced by more than 11 million passenger vehicles annually or from the electricity use of more than 7 million homes for one year, according to Environmental Protection Agency conversion data.

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“Drilling” continued from previous page...

Managed by the National Energy Technology Laboratory, the site characterization well drilling projects occurred in the resource rich Black Warrior Basin in northwest Alabama; the Newark Basin, underlying a heavily industrialized region in parts of New York, New Jersey and Pennsylvania; and the Rock Springs Uplift in southwestern Wyoming, in proximity to some of the state’s largest sources of CO₂ emissions. The projects, in brief:

- **Black Warrior Basin:** A strategic partnership of the University of Alabama, the Geological Survey of Alabama, Rice University, Schlumberger Carbon Services and Alabama Power is studying an area with multiple promising CO₂ storage reservoirs and seals. Initial estimates indicate 28 billion metric tons of regional CO₂ storage could be available for the Basin’s Birmingham-Tuscaloosa corridor, in addition to at least one injection zone that might provide enhanced oil recovery opportunities.
- **Newark Basin:** A project team – comprised of Sandia Technologies LLC; Conrad Geoscience Corp.; Schlumberger Carbon Services; Columbia University; Rutgers University; the New York State Museum; and the Lawrence Berkeley National Laboratory – is focused on characterizing the subsurface in the northern tier of the basin. The team had earlier estimated a storage resource of up to 10 billion metric tons of CO₂ storage for the basin; if confirmed, this would equal about 40 years worth of carbon dioxide emissions from industrial sources located nearby. Researchers will integrate the data collected from the characterization well with results from earlier studies to provide a better understanding of the basin’s storage potential.
- **Rock Springs Uplift:** Led by the University of Wyoming’s Carbon Management Institute, the project team – including industry partners Baker Hughes, Geokinectics Inc.; EMTEK; and ExxonMobil – is collecting data from a 12,810-foot-deep stratigraphic test well. Preliminary estimates suggest the targeted formations could store 23 billion metric tons – or 470 years worth of the state’s CO₂ emissions. Researchers have also completed a 5-mile-by-5-mile, three-dimensional seismic survey and electromagnetic survey. The integration of data collected from the characterization well and other geophysical surveys will allow numerical simulations to yield much more accurate predictions of CO₂ storage resources and potential plume migration.

DOE ANNOUNCES NEW RESEARCH TO ADVANCE SAFE AND RESPONSIBLE DEEPWATER DRILLING TECHNOLOGIES

Projects Selected Nationally to Support Safe, Environmentally Sustainable U.S. Offshore Oil and Gas Production

Thirteen projects aimed at reducing the risks while enhancing the environmental performance of drilling for natural gas and oil in ultra-deepwater settings have been selected by the Department of Energy for further development.

Negotiations for the new projects will lead to awards totaling \$35.4 million, adding to the research portfolio of the Office of Fossil Energy’s Ultra-Deepwater and Unconventional Natural Gas and Other Petroleum Resources Program.

Research needs addressed by the projects include (1) new and better ways to monitor displacement during casing cementing using intelligent casing and smart materials, and (2) assessing corrosion, stress cracking, and scale at extreme temperature and pressure. All of

the projects aim to develop and validate new technologies to enhance safety and environmental sustainability.

The total value of the projects is more than \$56 million over 4 years with approximately \$21.2 million of cost-share provided by the research partners in addition to the \$35.4 million in federal funds. The research contracts will be administered by the Research Partnership to Secure Energy for America, with oversight provided by the National Energy Technology Laboratory.

Read about the projects selected at http://www.fossil.energy.gov/news/techlines/2012/12021-Ultra_Deepwater_Projects_Selected.html.



INNOVATIVE TECHNOLOGY DEMONSTRATES POTENTIAL FOR INCREASES IN SAFE & RESPONSIBLE PRODUCTION FROM DEPLETED U.S. OIL FIELDS

Successful Pilot Project Improves Recovery by more than 300 Percent in Mature Illinois Oilfield

The U.S. Department of Energy recently announced that an innovative technology has successfully improved oil recovery at a 106-year old Illinois field by more than 300 percent. This method of extraction could help pull as many as 130 million additional barrels of oil from the depleted field, which is past peak production using traditional drilling.

A project supported by the Energy Department, and operated by Rex Energy Corp., at the Lawrence oil field in Lawrence County, Illinois, has been able to increase production from 16 barrels to 65 – 75 barrels of oil per day using an innovative alkaline surfactant polymer (ASP) flooding technique.

ASP flooding increased the overall oil cut in the 15-acre project area from 1 percent to 12 percent. Based on this potential, Rex Energy is expanding testing to a 58 acre portion of the field. In 2013, Rex Energy will continue the project, investing in ASP flooding technology at a 351-acre parcel immediately south of the current operations. Continued success and private investment in these ASP pilots may renew the life of the entire Lawrence field.

Read more at http://www.fossil.energy.gov/news/techlines/2012/12014-Technology_to_Boost_Oil_Recovery.html.

DOE PARTICIPATES IN U.S.-BRAZIL TECHNICAL WORKSHOP ON UNCONVENTIONAL OIL AND GAS DEVELOPMENT

The Office of Fossil Energy and Brazil's Ministry of Mines and Energy (MME) held a technical workshop focused on unconventional oil and gas development in Houston earlier this year on the margins of the Offshore Technology Conference. Topics discussed included the U.S. experience in shale gas development, current technology, and environmental management and regulation.

The Brazilian government is strongly interested in developing Brazil's shale resources. Estimates project the Parnaíba, Parecis, and Recôncavo Basins could hold as much as 208 trillion cubic feet of gas. The government is now working on

bidding and contract requirements for shale development in these areas, and reviewing safety and environmental regulations.

During the workshop, Baker Hughes hosted the participants on a tour of its Pressure Pumping Technology Center in Tomball, Texas. The tour included a demonstration of the preparation of hydraulic fracturing fluid and a visit to its geophysical lab and manufacturing facility for pressure pumping equipment. A group of Brazilians from MME, ANP, and Petrobras then traveled to San Antonio, Texas, and visited production site in the Eagle Ford Shale being developed by Hunt Oil. Halliburton, which arranged the visit, was completing the 18th stage of a 20-stage hydraulic fracturing operation at the site.

This workshop was the latest in a series of collaborations on oil and gas technology between the U.S. and Brazil under the U.S.-Brazil Strategic Energy Dialogue (SED). The SED, a Presidential initiative, is a platform for bilateral discussions between the US and Brazil on promoting economic growth, energy security, and the transition to a clean energy economy. It covers oil and gas, biofuels, clean energy, energy efficiency, and nuclear energy. US goals for the oil and gas component are to promote US companies in Brazil's oil and gas sector, and share best safety and environmental practices in oil and gas development.



COAL CONFERENCE TO FEATURE FINANCIAL & TECHNOLOGY DEMONSTRATION SESSIONS FOR COAL-BASED POWER SYSTEMS

The National Energy Technology Laboratory has organized a unique series of business and technical information sessions to be led by internationally recognized experts in applied energy technology deployment, energy policy, investment and financing, and risk management and insurance. These sessions will provide a unique opportunity for interaction among experts in energy project financing, risk management, energy policy, and applied energy technology deployment. The series, titled Clean Coal Demonstration and Commercial Projects, will be presented at the 29th Annual International Pittsburgh Coal Conference (PCC), October 15-18, 2012.

Internationally recognized plenary speakers will address opportunities and challenges in today's coal and power markets, and include:

- Charles McConnell, Assistant Secretary for Fossil Energy, U.S. Department of Energy
- The Honorable Sherwood Boehlert, U.S. House of Representative (1983–2007)
- John Hofmeister, Founder and Chief Executive Officer, Citizens for Affordable Energy; former President of Shell Oil Company
- Ke Liu, Vice President & Chief Technology Officer, National Institute of Clean & Low-Carbon Energy (NICE), China
- William Rosenberg, President, E-3 Gasification
- Chris Hobson, Chief Environmental Officer, Southern Company
- Thomas Grahame, Senior Policy Analyst, U.S. Department of Energy

Sessions will address two sides of large-scale clean coal technology (CCT) projects. In six technical sessions, speakers will review the status of current U.S. and international demonstration and commercial projects for coal-based power, fuels, and chemicals production, including carbon capture, utilization, and storage (CCUS), advanced gasification and combustion systems, syngas clean-up and utilization, and regulatory impacts on demonstration and commercial projects. In three business sessions, presenters will address the financing of CCUS and other CCT projects, as well as investment and risk management strategies for advanced coal technologies demonstration and commercialization projects.

New this year is the addition of two half-day workshops focused on capital investment analysis and decision making and risk management as applied to implementation of clean coal technology. Workshops will be led by experts in investment analysis and risk management from Global Association of Risk Professionals and Excidian, LLC. Workshops will be held prior to the start of the PCC on October 15, 2012.

PCC will be held at the David L. Lawrence Convention Center in Pittsburgh, PA and is co-hosted by the University of Pittsburgh's Swanson School of Engineering and NETL.

For more information about the Clean Coal Demonstration and Commercial Projects and the workshops, contact session co-chairs Gary Stiegel (gary.stiegel@netl.doe.gov) or Tom Sarkus (thomas.sarkus@netl.doe.gov). For registration and additional information about PCC, visit the conference website at http://www.engineering.pitt.edu/Coal_Conference/2012_Conference.aspx.



Oct. 15th-18th >>> **Save the Date!**
2012 International Pittsburgh Coal Conference

Business Sessions Offered at the 29th Annual International Pittsburgh Coal Conference (PCC)
 PCC's *Clean Coal Demonstration and Commercial Projects* session will feature technical and business discussions about major clean coal technology (CCT) demonstration and commercial projects. Six technical sessions will address current U.S. and international efforts for coal-based power, fuels, and chemicals production, including carbon capture, utilization, and storage (CCUS). Three business sessions will cover—

- Financing CCUS and other CCT projects
- Investing in energy and power
- Insurance and risk management strategies
- Regulatory impacts on CCUS and CCT projects

New this year—Capital investment analysis and risk management workshops

Why address business issues at an energy technology conference?
 Major clean coal projects can fail because developers lack adequate financial support. To improve the chances of success, financiers need to better understand the technologies proposed for deployment and the risks involved in these multimillion-dollar projects. Researchers and developers need to better understand government policy: potential financing options for projects; technical, financial, and insurance risks; and available risk management solutions.

Internationally recognized plenary speakers

Charles McConnell, Assistant Secretary for Fossil Energy, U.S. Department of Energy
John Hofmeister, Founder and Chief Executive Officer, Citizens for Affordable Energy; former President of Shell Oil Company
William G. Rosenberg, President, E-3 Gasification

The Honorable Sherwood Boehlert, U.S. House of Representatives (1983–2007)
Ke Liu, Vice President & Chief Technology Officer, National Institute of Clean & Low-Carbon Energy (NICE), China
Chris Hobson, Chief Environmental Officer, Southern Company
Thomas Grahame, Senior Policy Analyst, U.S. Department of Energy

Who will benefit?
Business professionals interested in interacting with leading scientists to learn about coal and power technology developments and deployment of applied energy research projects.
Energy, power, mining, and chemical industry executives interested in clean coal technologies and project development opportunities.
Energy and power technology developers interested in learning how financial markets evaluate demonstration project opportunities.
Entrepreneurs within the coal and power sector seeking to learn about trends in policy, technology, finance, insurance, and risk management.
Science and technical professionals and developers working in the coal, power, and energy sectors interested in licensing and project funding opportunities.

About the conference
 PCC will be held at Pittsburgh's David L. Lawrence Convention Center and hosted by the University of Pittsburgh's Swanson School of Engineering in collaboration with the National Energy Technology Laboratory (NETL).
 For additional information about *Clean Coal Demonstration and Commercial Projects*, contact Gary Stiegel at gary.stiegel@netl.doe.gov or Tom Sarkus at thomas.sarkus@netl.doe.gov.
 For registration and additional information about PCC, visit the conference website at www.engineering.pitt.edu/pcc.
 For media inquiries, contact Shelley Martin at shelley.martin@netl.doe.gov.

 

Upcoming Events

<http://www.fossil.energy.gov/news/events/index.html>

August 14

[Energy Inc.](#)

Pittsburgh, Pennsylvania

August 15-17

[Coal-Gen 2012](#)

Louisville, Kentucky

September 20-22

[AARP Annual Convention](#)

New Orleans, Louisiana

September 22

South Park Township Community Day

Pittsburgh, Pennsylvania

September 24-26

[MINExpo](#)

Las Vegas, Nevada

October 2-4

[2012 University Turbine Systems Research Workshop](#)

Irvine, California

October 3-5

[2012 SPE Eastern Regional Meeting](#)

Lexington, Kentucky

October 8-10

[2012 SPR Annual Technical Conference & Exhibition](#)

San Antonio, Texas

October 15-18

[2012 International Pittsburgh Coal Conference](#)

Pittsburgh, Pennsylvania



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Comments are welcome and may be submitted to the editor.