Allegheny County Sportsmen's League

www.acslpa.org

Conservation Committee Report

Volume 13 Issue 8 August 2011

The Conservation Pledge

I give my pledge as an

American to save and faithfully defend from waste, the natural resources of my country; the soil, the water, the air, the minerals, the plant life and the wildlife.

This is my Pledge!

Inside this issue:

NASA data proves global warming computer models wrong

NASA satellite data from the years 2000 through 2011 show the Earth's atmosphere releasing much more heat than computer models predicted, casting doubt on timetables proposed by global warming alarmists.

A new study reported in the peer-reviewed journal *Remote Sensing* examines satellite data from the National Aeronautics and Space Administration (NASA), which show that, from the years 2000 through 2011, the Earth's atmosphere released much more heat than previously predicted by computer models.

"The study indicates far less future global warming will occur than United Nations computer models have predicted, and supports prior studies indicating increases in atmospheric carbon dioxide trap far less heat than alarmists have claimed," read an article for *Forbes*.

"The satellite observations suggest there is much more energy lost to space during and after warming than the climate models show," said study co-author Dr. Roy Spencer, a principal research scientist at the University of Alabama in Huntsville (UAH), in a UAH press release. "There is a huge discrepancy between the data and the forecasts that is especially big over the oceans."

"At the peak, satellites show energy being lost while climate models show energy still being gained," Spencer said.

(continued on page 2)

Fossil Energy R&D Returns Significant National Benefit in More Than Three Decades of Achievement

Innovative Technologies Help Increase Domestic Energy Supplies and Security, Enhance Environmental Protection

Research and development (R&D) activities at the U.S. Department of Energy's (DOE) Office of Fossil Energy (FE) have helped increase domestic energy supplies and security, lowered costs, improved efficiencies, and enhanced environmental protection over

(continued on page 2)

NASA data proves global warming computer models wrong (continued)

While this does not necessarily disprove all global warming theories, it does display some glaring flaws in the computer models used to support the agendas of climate change extremists.

"Applied to long-term climate change, the research might indicate that the climate is less sensitive to warming due to increased carbon dioxide concentrations in the atmosphere than climate modelers have theorized," the press release read.

Source: by Marcy Bonebright

Personal Liberty Digest

Fossil Energy R&D Returns Significant National Benefit in More Than Three Decades of Achievement (continued)

the past 30 years, according to newly released informational materials.

"This newly released information emphatically underscores the historic benefit and future role of FE research in developing and commercially deploying new technologies that provide sustainable benefits to the environment and industry and for U.S. citizens and people everywhere," said Charles D. McConnell, FE's Chief Operating Officer. "FE's scientists, engineers and all our employees have an ongoing mission to enable a significant return on investment for the nation's public funds that support this R&D. It is a legacy and a future of which we can all be proud."

Included among the innovative technologies developed by FE and its National Energy Technology Laboratory (NETL) since 1977, and resulting significant national benefit, are:

- Pioneering Enhanced Oil Recovery technologies that today are contributing 13 percent of total U.S. oil production as well as a means for injecting and permanently storing carbon dioxide, a major greenhouse gas, in geologic formations.
- Producing some 20 innovative technologies Â– such as low nitrogen oxide burners, flue gas desulfurization (scrubbers) and fluidized bed combustion Â– through the Clean Coal Technology Development Program (1986-93), many of which are now in the marketplace and benefitting energy production and air quality improvements.

(continued on page 3)

Fossil Energy R&D Returns Significant National Benefit in More Than Three Decades of Achievement (continued)

- Advancing drilling, fracturing and environmental technologies that have helped oil and natural gas production from abundant shale resources increase significantly over the past decade.
- Developing methane hydrate (molecules of natural gas trapped in ice crystals) research to the point where U.S resources have been identified, exploration models tested and confirmed, and production concepts refined and ready for initial field testing.
- Amassing extensive expertise and advisory capability in ultra-deepwater resource location, production, safety and environmental protection, helping these energy sources to now account for 32 percent of domestic crude oil production and 13 percent of total dry gas production.
- Achieving advances in numerous other areas critical to U.S. energy production and environmental protection, including coal bed methane; the recycling and reuse of solid waste materials from coal combustion; proving the readiness of activated carbon injection to meet expected air quality regulatory standards for coal-based mercury emissions; and pioneering advanced turbine technologies.

FE's R&D contributions over the years have been recognized by a wide range of external experts, stakeholders and organizations. For example, in a 2001 study, the National Academy of Sciences' National Research Council said DOE's fossil energy program "made a significant contribution....to the well-being of the United States....;" in 2010, the President's Council of Advisors on Science and Technology noted DOE's reservoir characterization R&D contributed to activities that helped raise coal bed methane production from "essentially nothing to 2 trillion cubic feet of gas" annually, "a very large return on a relatively small RD&D investment;" and in 2000, the U.S. General Accounting Office said FE's clean coal program served as "an example to other cost-share programs in demonstrating how the government and the private sector can work effectively together to develop and demonstrate new technologies." A 2009 study by Management Information Systems Inc. estimates the clean coal R&D program will return a 13-to-1 cumulative benefit for DOE's investment by 2020, measured in 2008 billion dollars.

These and many other highlights are included in the web-based information, featuring a three-panel brochure, "*Fossil Energy Research: A Legacy of Benefit*"; a series of 10 fact cards summarizing individual technological achievements and their importance; and a timeline from 1977 to the present, which outlines the accomplishments and benefits emanating from FE and NETL.

Continuing a tradition of adapting to meet changing national priorities, the materials note FE's R&D focus in the 21st century has shifted to meet the challenge of long-term impact from fossil resources on potential climate change while balancing the nation's growing need for additional energy. As a result, FE is in the forefront of global efforts to develop and demonstrate

(continued on page 4)

Fossil Energy R&D Returns Significant National Benefit in More Than Three Decades of Achievement (continued)

innovative processes through its Carbon Capture and Storage and Power Systems programs.

Source: U.S. Department of Energy

DOE Selects Projects Totaling $12.4 Million

DOE Selects Projects Totaling $12.4 Million Aimed at Increasing Domestic Energy Production While Enhancing Environmental Protection

Focus is on Shale Gas, Enhanced Oil Recovery

A total of 11 research projects that will help find ways to extract more energy from unconventional oil and gas resources while reducing environmental risks have been selected totaling $12.4 million by the U.S. Department of Energy's (DOE) Office of Fossil Energy (FE).

The selections include $10.3 million for eight projects that will reduce the environmental risks of shale gas development while accelerating the application of new exploration and production technologies; and $2.1 million for three projects investigating innovative processes for extracting additional oil from mature domestic oil fields including Enhanced Oil Recovery (EOR). All of the research contracts will be administered by the Research Partnership to Secure Energy for America (RPSEA), under the management of FE's National Energy Technology Laboratory.

Shale gas – natural gas trapped inside formations of shale – is contributing to a rejuvenation of domestic natural gas supply in the United States, with production having increased fourteen-fold over the past decade with a tripling of reserves, according to the U.S. Energy Information Administration. FE research has greatly impacted this increase by helping refine cost-effective horizontal

(continued on page 5)

DOE Selects Projects Totaling $12.4 Million (continued)

drilling and hydraulic fracturing technologies as well as protective environmental practices and data development.

EOR, which involves using carbon dioxide (CO2), other gas, steam or chemical injection to release "stranded" or hard-to-recover oil, is currently providing about 13 percent of total U.S. production. EIA projects its wider use could result in EOR providing 33 percent of total domestic onshore production by 2035, while helping store millions of tons of CO2 emissions from power plants and industrial sources.

The total value of the shale-related projects is more than $17.0 million over 3 years with approximately $6.7 million of cost-share provided by the recipients in addition to the $10.3 million in federal funds. These projects include:

- **GE Global Research (Niskayuna, NY)** - *NORM Mitigation and Clean Water Recovery from Marcellus Frac Water*. This project focuses on development of a hydraulic fracturing wastewater pretreatment process that will remove naturally occurring radioactive material (NORM) from a wastewater stream and prepare it for treatment in a cost-effective membrane distillation system. A prototype system will be developed and then evaluated via field testing. If successful, the field tests will show that the process results in much smaller volumes of NORM in a relatively concentrated form that can be more easily disposed of using established practices. The process will also yield clean water than can be recycled for beneficial use, and marketable salt byproducts. *DOE share: $1,600,000; Recipient share: $400,000; Duration: 2 years*
- **Colorado School of Mines (Golden, CO) -** *Novel Engineered Osmosis Technology: A Comprehensive Approach to the Treatment and Reuse of Produced Water and Drilling Wastewater.* This project will develop an improved membrane-based water treatment system as an alternative to more costly and/or energy intensive and less effective chemical and membrane systems. The research team will build on existing membrane technology and pretreatment processes, controls, and modeling to construct a novel treatment approach based on a combination of forward osmosis and ultra-filtration concepts. Final verification of the successful system will include field testing. Assuming successful field trials, the technology could be adopted by industry as soon as suitable field processing units were constructed. *DOE share: $1,324,000; Recipient share: $382,000; Duration: 2 years*
- **CSI Technologies (Houston, TX) -** *Lowering Drilling Cost, Improving Operational Safety, and Reducing Environmental Impact through Zonal Isolation Improvements for*

(continued on page 6)

DOE Selects Projects Totaling $12.4 Million (continued)

Horizontal Wells Drilled in the Marcellus and Haynesville Shales. One concern regarding the massive hydraulic fracturing treatments necessary for shale gas development is the possibility of impacting Underground Sources of Drinking (USDW) located above the producing zones. In this project, the cementing practices currently in use by one of the major operators in the Marcellus and Haynesville shale plays will be evaluated in order to identify vulnerabilities. Laboratory studies will be performed to identify improved approaches to ensuring reliable zonal isolation and field trials will be executed to test the performance of the new practices. All of the information developed through the course of the evaluation, lab studies and field trials will be documented in reports that the industry can use to improve design casing and cementing programs, and that regulatory agencies can use as regulations are promulgated to ensure wellbore integrity requirements have a sound scientific basis. *DOE share: $3,006,000; Recipient share: $2,500,000; Duration: 2 years*

- **Texas A&M University (College Station, TX) -** *A Geomechanical Study of Hydraulic Fracturing and Its Containment.* This project will improve current geomechanical models based on detailed studies of cores and hydraulic fracturing data from the Eagle Ford, Haynesville, and Marcellus gas shale plays. The research will include laboratory measurements, numerical simulations, and engineering analyses to rigorously evaluate the rock mechanics controls on fracturing and fracture containment. Findings from these studies will be implemented in 3D numerical fracture simulation models that will allow operators and service companies to design fractures that are better contained within the desired zone while maximizing productivity. *DOE share: $651,000; Recipient share: $217,000; Duration: 2 years*
- **Texas A&M University (College Station, TX) -** *Diagnosis of Multiple Fracture Stimulation in Horizontal Wells by Downhole Temperature Measurement for Unconventional Oil and Gas Wells.* A key element in optimizing fracture treatments with respect to both effectiveness and containment is the ability to accurately characterize the results of frac jobs after they are completed. Current methods such as microseismic monitoring are valuable, but they can be expensive and are not applicable in some environments. This research project will develop a new methodology for hydraulic fracture characterization using downhole temperature and pressure data. The ultimate goal is to develop a user-friendly interpretation tool that can be used in the field for real-time fracture stimulation diagnostics in horizontal wells. *DOE share: $763,000; Recipient share: $254,000; Duration: 3 years*

(continued on page 7)

DOE Selects Projects Totaling $12.4 Million (continued)

- **Colorado School of Mines (Golden, CO) -** *Development of Non-Contaminating Cryogenic Fracturing Technology for Shale and Tight Gas Reservoirs.* One alternative to the use of water as a fracturing fluid is the use of cryogenic nitrogen or CO2. The use of these alternative fluids is not a new concept, but they have not proven economical in past attempts to apply them to large scale shale gas development. If either of these gases could be used successfully as a hydraulic fracturing working fluid, not only would water management issues be simplified, but the potential for fracture fluid contamination of near-surface water sources would be reduced. In this project, laboratory studies followed by field demonstrations will be performed in an effort to better understand the processes and conditions of cryogenic fracture generation in shales, and to determine the feasibility and associated operational procedures in the field. *DOE share: $1,991,000; Recipient share: $2,600,000; Duration: 3 years*

- **Colorado School of Mines (Golden, CO)**- *Predicting Higher-Than-Average Permeability Zones In Tight-Gas Sands, Piceance Basin: An Integrated Structural And Stratigraphic Analysis*. This research effort will develop a model-based methodology for the prediction of higher permeability zones ("sweet spots") in the subsurface from the integration of surface geology, regional historical well and seismic data. The primary deliverable will be a publicly available geologic model documented in reports and publications, available for use by many smaller operators that produce a significant amount of Piceance Basin gas. Targeting the high pay zones in wells improves environmental performance as the maximum volume of natural gas can be produced for a given level of infrastructure. *DOE share: $512000; Recipient share: $200,000; Duration: 2 years*

- **Houston Advanced Research Center (The Woodlands, TX)** – *Technology Integration Program*. This research project will identify and assess technologies that if deployed in an integrated fashion, will improve the environmental performance and increase recovery when developing unconventional formations. It is expected that applicable plays will be identified, expected gains estimated, and preliminary costs for conducting field trials developed within the overall project context. *DOE share: $500,000; Recipient share: $125,000; Duration: 1 year*

As a whole, information gained from the shale projects will further DOE's effort to quantify the risks of environmental impacts from unconventional natural gas

(continued on page 8)

DOE Selects Projects Totaling $12.4 Million (continued)

development, and to develop technologies to reduce those risks and mitigate any unforeseen impacts. The results of this research will be accessible to the industry looking to apply new technologies, to the public looking to understand the true costs and benefits of domestic energy development, and to regulators looking to craft and implement scientifically grounded regulations.

Meanwhile, the total value of the mature domestic oil fields related projects is more than $3.2 million over 3 years with approximately $1.1 million of cost-share provided by the recipients in addition to the $2.1 million in federal funds. Because the fields involved are located in areas with existing oil and gas infrastructure and decades of historical production activity, the impact on the environment of incremental increases in production will be negligible compared to that associated with production from new oil plays. These projects include:

- **Power, Environmental, Energy Research Institute (Covina, CA)** - *Game Changing Technology of Polymeric-Surfactants for Tertiary Oil Recovery in the Illinois Basin*. Oil production in the Illinois Basin has declined over the past 60 years from a peak of over 480,000 barrels per day (bpd) to only 25,000 bpd. However, the Illinois Basin still holds a multi-billion barrel resource of residual oil,that remains "stranded" in reservoirs due to a lack of cost effective enhanced oil recovery (EOR) technology. This project will endeavor to develop a functional polymeric surfactant (FPS) that, when added to conventional waterfloods could provide significant enhancement in oil recovery. The research team will develop EOR project designs and prepare a comprehensive economic evaluation of the potential for applying FPS EOR in the Illinois Basin. All results will be documented in reports that small producers can use as guides for implementing projects. *DOE share: $624,000; Recipient share: $156,000; Duration: 2 years*
- **The University of Texas of the Permian Basin (Odessa, TX) -** *Identifying and Developing Technology for Enabling Small Producers to Pursue the Residual Oil Zone (ROZ) Fairways of the Permian Basin, San Andres.* Residual Oil Zones (ROZs, portions of a reservoir rock formation that have very low oil saturations) are known to be present beneath the highly oil saturated traps of certain oil fields in the Permian Basin of Texas. Similar ROZs may also exist as "fairways" beyond the structural traps of other existing oil fields. If a technology could be found to economically produce oil from these low saturation zones, millions of barrels of oil could potentially be recovered from mature producing areas. This research project will develop a methodology to estimate the potential of

(continued on page 9)

DOE Selects Projects Totaling $12.4 Million (continued)

ROZs in the Permian Basin and then extend the methodology to the Big Horn Basin in Wyoming and the Williston Basin in North Dakota. This information should attract industry investment in the development of this potentially significant resource located in areas of current oil and natural gas production activity, maximizing domestic resource recovery from the existing environmental footprint. *DOE share: $859,000; Recipient share: $384,000; Duration: 3 years*

- **Correlations Company (Socorro, NM) -** *Predicting Porosity and Saturations from Mud Logs and Drilling Information Using Artificial Intelligence with Focus on a Horizontal Well.* In most onshore reservoirs, as much as a third or more of the original oil remains in place when the fields reach their economic limit. Recent advances in horizontal well technology permit additional recovery from these fields by accessing poorly drained portions of the reservoir. However, due to high costs, many horizontal wells are drilled without conventional geophysical wire-line logging suites to guide the completion process. A reliable tool that provides small producers the information required to design completions in horizontal wells but still avoids the high cost of logging would allow more oil to be produced from mature fields. This project will employ an artificial intelligence (AI) technique called pattern recognition to correlate mud log and other drilling data with known wire-line logging data in order to predict wire-line log porosity and saturations along a horizontal wellbore. The resulting methodology to generate decisional data for enhancing horizontal infill well performance in mature fields will be published and available for independent producers to use in optimizing their field operations. *DOE share: $575,000; Recipient share: $575,000; Duration: 1 year*

Source: U.S. Department of Energy

President Obama Announces Historic 54.5 mpg Fuel Efficiency Standard

Consumers will save $1.7 trillion at the pump, $8K per vehicle by 2025

President Obama today announced a historic agreement with thirteen major automakers to pursue the next phase in the Administration's national vehicle program, increasing fuel economy to 54.5 miles per gallon for cars and light-duty trucks by Model Year 2025. The President was joined by Ford, GM, Chrysler, BMW, Honda, Hyundai, Jaguar/Land Rover, Kia, Mazda, Mitsubishi, Nissan, Toyota and Volvo – which together account

(continued on page 10)

President Obama Announces Historic 54.5 mpg Fuel Efficiency Standard (continued)

for over 90% of all vehicles sold in the United States – as well as the United Auto Workers (UAW), and the State of California, who were integral to developing this agreement.

"This agreement on fuel standards represents the single most important step we've ever taken as a nation to reduce our dependence on foreign oil," said President Obama. "Most of the companies here today were part of an agreement we reached two years ago to raise the fuel efficiency of their cars over the next five years. We've set an aggressive target and the companies are stepping up to the plate. By 2025, the average fuel economy of their vehicles will nearly double to almost 55 miles per gallon."

Building on the Obama administration's agreement for Model Years 2012-2016 vehicles, which will raise fuel efficiency to 35.5 mpg and begin saving families money at the pump this year, the next round of standards will require performance equivalent to 54.5 mpg or 163 grams/mile of CO2 for cars and light-duty trucks by Model Year 2025. Achieving the goals of this historic agreement will rely on innovative technologies and manufacturing that will spur economic growth and create high-quality domestic jobs in cutting edge industries across America.

These programs, combined with the model year 2011 light truck standard, represent the first meaningful update to fuel efficiency standards in three decades and span Model Years 2011 to 2025. Together, they will save American families $1.7 trillion dollars in fuel costs, and by 2025 result in an average fuel savings of over $8,000 per vehicle. Additionally, these programs will dramatically cut the oil we consume, saving a total of 12 billion barrels of oil, and by 2025 reduce oil consumption by 2.2 million barrels a day – as much as half of the oil we import from OPEC every day.

The standards also curb carbon pollution, cutting more than 6 billion metric tons of greenhouse gas over the life of the program – more than the amount of carbon dioxide emitted by the United States last year. The oil savings, consumer, and environmental benefits of this comprehensive program are detailed in a new report entitled *Driving Efficiency: Cutting Costs for Families at the Pump and Slashing Dependence on Oil*, which the Administration released today.

The Environmental Protection Agency (EPA) and the Department of Transportation (DOT) have worked closely with auto manufacturers, the state of California, environmental groups, and other stakeholders for several months to ensure these standards are achievable, cost-effective and preserve consumer choice. The program would increase the stringency of standards for passenger cars by an average of five percent each year. The stringency of standards for pick-ups and other light-duty trucks would increase an average of 3.5 percent annually for the first five model years and an average of five percent annually for the last four model years of the program, to account for the unique challenges associated with this class of vehicles.

"These standards will help spur economic growth, protect the environment, and strengthen our national security by reducing America's dependence on foreign oil," said U.S. Transportation Secretary Ray LaHood. "Working together, we are setting the stage for a new generation of clean vehicles."

(continued on page 11)

President Obama Announces Historic 54.5 mpg Fuel Efficiency Standard (continued)

"This is another important step toward saving money for drivers, breaking our dependence on imported oil and cleaning up the air we breathe," said EPA Administrator Lisa P. Jackson. "American consumers are calling for cleaner cars that won't pollute their air or break their budgets at the gas pump, and our innovative American automakers are responding with plans for some of the most fuel efficient vehicles in our history."

A national policy on fuel economy standards and greenhouse gas emissions provides regulatory certainty and flexibility that reduces the cost of compliance for auto manufacturers while addressing oil consumption and harmful air pollution. Consumers will continue to have access to a diverse fleet and can purchase the vehicle that best suits their needs.

EPA and NHTSA are developing a joint proposed rulemaking, which will include full details on the proposed program and supporting analyses, including the costs and benefits of the proposal and its effects on the economy, auto manufacturers, and consumers. After the proposed rules are published in the Federal Register, there will be an opportunity for public comment and public hearings. The agencies plan to issue a Notice of Proposed Rulemaking by the end of September 2011. California plans on adopting its proposed rule in the same time frame as the federal proposal.

Given the long time frame at issue in setting standards for MY2022-2025 light-duty vehicles, EPA and NHTSA intend to propose a comprehensive midterm evaluation. Consistent with the agencies' commitment to maintaining a single national framework for vehicle GHG and fuel economy regulation, the agencies will conduct the midterm evaluation in close coordination with California.

In achieving the level of standards described above for the 2017-2025 program, the agencies expect automakers' use of advanced technologies to be an important element of transforming the vehicle fleet. The agencies are considering a number of incentive programs to encourage early adoption and introduction into the marketplace of advanced technologies that represent "game changing" performance improvements, including:

Incentives for electric vehicles, plug-in hybrid electric vehicles, and fuel cells vehicles;
Incentives for advanced technology packages for large pickups, such as hybridization and other performance-based strategies;

Credits for technologies with potential to achieve real-world CO_2 reductions and fuel economy improvements that are not captured by the standards test procedures.

Source: U.S. Environmental Protection Agency