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Before the
Subcommittee on Energy and Environment
House Science and Technology Committee

Regarding FY 2008 Research
and Development Budget Proposal

March 7, 2007

Mr. Chairman, Members of the Committee, it's a pleasure for me to appear before you today to present the Office of Fossil Energy's (FE) proposed Budget for Fiscal Year 2008

Fossil Energy's $863 million budget request for Fiscal Year 2008, one of the largest FE requests made by this Administration, will allow the Office to achieve two fundamental objectives: first, to support the President's top priorities for energy security, clean air, climate change and coal research; and second, to support the Department of Energy's strategic goal of protecting our national and economic security by promoting a diverse supply and delivery of reliable, affordable, and environmentally-sound energy.

More specifically, the proposed budget emphasizes early initiation of an expansion of the Strategic Petroleum Reserve; rapid development of technologies to manage and dramatically reduce atmospheric emissions of the greenhouse gas carbon dioxide from fossil fuel use in power generation and other industrial activity; and design and other preparatory work on the FutureGen project to combine in one plant the production of electric power and hydrogen fuel from coal with near-zero atmospheric emissions.

THE PRESIDENT'S COAL RESEARCH INITIATIVE

I will begin the detailed presentation of our proposed budget with coal, our most abundant and lowest cost domestic fossil fuel. Coal today accounts for nearly one-quarter of all the energy -- and about half the electricity – consumed in the United States. Because coal is so important to our energy future, our proposed budget of $448 million for the President's Coal Research Initiative, related fuel cell R&D and R&D by federal employees within program direction accounts for more than half our total budget.

I should mention here that our FY 2008 Budget focuses our research and development on activities that support the President's Advanced Energy Initiative and key provisions of the Energy Policy Act of 2005. These activities will be conducted largely through cost sharing and industry collaboration. As a result of the evaluations under the Research and Development Investment Criteria, and the Program Assessment Rating Tool, activities throughout the program emphasize research and development for technologies that will be used in the FutureGen project.

The goal of the overall coal program, which includes the President's Coal Research Initiative, is to conduct research and development that will improve the competitiveness of domestic coal in future energy markets. The Administration strongly supports coal as an important component of our energy portfolio. This year's budget request completes the President's commitment to invest $2 billion on clean coal research over 10 years, three years ahead of schedule. Our coal budget request is broken down into the following components.

CLEAN COAL POWER INITIATIVE

We are requesting $73 million in Fiscal Year 2008 for the Clean Coal Power Initiative (CCPI), a cooperative, cost-shared program between the Government and industry to demonstrate emerging technologies in coal-based power generation so as to help accelerate commercialization. CCPI allows the Nation's power generators, equipment manufacturers and coal producers to help identify the most critical barriers to coal use in the power sector. Technologies to eliminate the barriers are then selected with the goal of accelerating development and deployment of applications that will economically meet environmental standards while increasing plant efficiency and reliability. Work on promising technologies selected in two prior solicitations will continue in Fiscal Year 2008, and we plan to announce a third solicitation during the year, which will focus on advanced technology systems that capture carbon dioxide for sequestration and beneficial reuse.

Some activities of the Clean Coal Power Initiative will help drive down the costs of Integrated Gasification Combined Cycle (IGCC) systems and other technologies for near-zero atmospheric emission plants that are essential to the FutureGen concept.

FUTUREGEN

FutureGen is a high-priority project that will establish the capability and feasibility of co-producing electricity and hydrogen from coal with near-zero atmospheric emissions including carbon dioxide. FutureGen is a public/private partnership designed to integrate technologies that ultimately will lead to new classes of plants that feature fuel flexibility, multi-product output, electrical efficiencies of over 60 percent, and near-zero atmospheric emissions. FutureGen's goals include electricity at costs no more than 10 percent above power from comparable plants

that are incapable of carbon sequestration. The capture and permanent storage of atmospheric carbon emissions is a key feature of the FutureGen concept, as is the capability to use coal, biomass, or petroleum coke. The project should help retain the strategic value of coal – the Nation's most abundant and lowest cost domestic energy resource. FutureGen's proposed budget of $108 million for Fiscal Year 2008 will be used to support detailed plant design and procurement, as well as ongoing permitting, preliminary design and site characterization work.

To help fund both the CCPI and FutureGen projects in Fiscal Year 2008, our proposed Budget redirects $58 million in unexpended sums and $257 million in deferred appropriations from the original Clean Coal Technology program. Specifically, the Budget proposes to transfer $108 million of the $257 million deferral to the FutureGen project, and cancel the remaining $149 million from the deferral. Of the unobligated balances carried forward at the start of FY 2008, $58 million is transferred to the Clean Coal Power Initiative (CCPI)..

FUELS AND POWER SYSTEMS

Technology development supporting FutureGen is embodied in the core research and development activity of the Fuels and Power Systems program. The Fuels and Power Systems program's proposed budget for Fiscal Year 2008 is $245.6 million. Of this total amount, $183.6 million will fund research and development for carbon capture and sequestration, membrane technologies for oxygen and hydrogen separation, advanced combustion turbines, coal-to-hydrogen conversion, and gasifier-related technologies. The remaining balance of $62 million will support Fuel Cells.

The program breaks down as follows:

ADVANCED INTEGRATED GASIFICATION COMBINED CYCLE

With proposed funding of $50 million for Fiscal Year 2008, the Advanced Integrated Gasification Combined Cycle program will continue to concentrate efforts on gas stream purification to meet quality requirements for use with fuel cells and conversion processes, on impurity tolerant hydrogen separation, on elevating process efficiency, and on reducing the costs and energy requirements for oxygen production through development of advanced technologies such as air separation membranes.

ADVANCED TURBINES

A funding request of $22 million will allow the Advanced Turbines program to continue its concentration on the creation of a turbine-technology base that will permit the design of near-zero atmospheric emission IGCC plants and a class of FutureGen-descended plants with carbon capture and sequestration. This research emphasizes technology for high-efficiency hydrogen and syngas turbines and builds on prior successes in the Natural Gas-based Advanced Turbine Systems Program.

ADVANCED RESEARCH

The Advanced Research program bridges basic and applied research to help reduce the costs of advanced coal and power systems while improving efficiency and environmental performance. The proposed $22.5 million budget for Advanced Research will fund projects aimed at a greater understanding of the physical, chemical, biological and thermo-dynamic barriers that currently limit the use of coal and other fossil fuels.

CARBON SEQUESTRATION

The Carbon Sequestration program, with a proposed budget for Fiscal Year 2008 of $79 million, is developing a portfolio of technologies with great potential to reduce greenhouse gas emissions. This high-priority program's primary concentration is on dramatically lowering the

cost and energy requirements of pre- and post-combustion carbon dioxide capture. The goal is to have a technology portfolio by 2012 for safe, cost-effective and long-term carbon mitigation, management and storage, which will lead to substantial market penetration after 2012. In the long term, the program is expected to contribute significantly to the President's goal of developing technologies to substantially reduce greenhouse gas emissions.

The Carbon Sequestration program's activities in Fiscal Year 2008 will concentrate on research and development projects for carbon dioxide (CO_2) capture and storage, as well as measurement, monitoring and verification technologies and processes.

In coordination with the current partnerships, the program will determine the "highest potential" opportunities for the initial expedited round of large scale sequestration tests in saline, coal, and/or oil and gas bearing formations. This work will begin with a physical characterization of the surface and subsurface, reservoir modeling, and NEPA review.

The Partnerships will also move on to the next phase of the Weyburn project, where CO_2 is being injected into a producing oilfield. Weyburn's success would deliver both decreased carbon emissions and increased domestic oil production.

Finally, DOE formed the international Carbon Sequestration Leadership Forum (CSLF) in 2003 to work with foreign partners on joint carbon sequestration projects, and to collect and share information. That work will in continue in FY 2008.

Several members of the CSLF have also signed on to the FutureGen project, and others have signaled strong interest in joining.

FUELS

Research and development carried out by the Coal-to-Hydrogen Fuels program, funded at a proposed $10 million, will make the future transition to a hydrogen-based economy possible

by reducing the costs and increasing the efficiency of hydrogen production from coal. This program is an important component of both the President's Hydrogen Fuel Initiative and the FutureGen project.

FUEL CELLS

Within Fuel Cells, we have requested $62 million for Fiscal Year 2008 to continue the important work of the Solid State Energy Conversion Alliance, the goal of which is to develop the technology for low-cost, scalable and fuel flexible fuel cell systems that can operate in central, coal-based power systems as well as in other electric utility (both central and distributed), industrial, and commercial/residential applications.

RESEARCH BY FEDERAL STAFF

In addition to the funding levels reflected for Fuels and Power Systems, there is $20 million provided within the Program Direction account that directly supports the President's Coal Research Initiative, plus $1 million for fuel cells. This funding supports federal staff directly associated with conducting the research activities of specific Fuels and Power Systems subprograms.

PETROLUEM AND NATURAL GAS TECHNOLOGIES

Consistent with the FY 2006 and FY 2007 Budget Requests, the Petroleum – Oil Technology and Natural Gas Technologies research and development programs will be terminated in FY 2008.

The Oil and Gas group will manage the Ultra-Deepwater and Unconventional Resources Research Program mandated by the Energy Policy Act of 2005. However, I should point out that the 2008 Budget proposes to repeal this legislation, consistent with the FY 2007 Budget Request.

In addition, FE will continue to authorize natural gas imports and exports, collect and report data on natural gas trade, and operate the Rocky Mountain Oilfield Testing Center.

FE will also oversee the loan guarantee program for the Alaska Natural Gas Pipeline.

STRATEGIC PETROLEUM RESERVE

The Strategic Petroleum Reserve (SPR) exists to ensure America's readiness to respond to severe energy supply disruptions. The Reserve reached its highest inventory level – 700 million barrels of oil -- in 2005 The Energy Policy Act of 2005 directs DOE to fill the SPR to its authorized 1 billion barrel capacity, as expeditiously as practicable. Additionally, in the 2008 Budget, the President proposed expanding the Reserve's capacity to 1.5 billion barrels.

Our budget request of $332 million for Fiscal Year 2008 – almost double last year's request – will fund the Reserve's continued readiness through a comprehensive program of systems maintenance, exercises, and tests, as well as beginning expansion to one billion barrels at existing and new sites and NEPA work to expand to 1.5 billion barrels. DOE will begin immediately to fill the reserve to its current capacity of 727 million barrels through purchases of oil with available balances as well as through placement of the Department of the Interior's royalty in-kind oil into the SPR.

NORTHEAST HOME HEATING OIL RESERVE

The Northeast Home Heating Oil Reserve was established in July 2000 when the President directed the Department of Energy to establish a reserve capable of assuring home heating oil supplies for the Northeast states during times of very low inventories and significant threats to immediate supply. The Reserve contains 2 million barrels of heating oil stored at commercial terminals in the Northeast and is in good condition. The current 5-year storage contracts expire in September 2007. A request for bids was issued in February 2007. The proposed FY 2008 budget requests $5.3 million for continued operations.

NAVAL PETROLEUM AND OIL SHALE RESERVE

The Fiscal Year 2008 budget request of $17.3 million for the Naval Petroleum and Oil Shale Reserve (NPOSR) will allow it to continue environmental remediation activities and determine the equity finalization of Naval Petroleum Reserve 1 (NPR-1); operate NPR-3 until its economic limit is reached, and while operating NPR 3, maintain the Rocky Mountain Oilfield Test Center..

Because the NPOSR no longer served the national defense purpose envisioned in the early 1900s, the National Defense Authorization Act for FY 1996 required the sale of the Government's interest in Naval Petroleum Reserve 1 (NPR-1). To comply with this requirement, the Elk Hills field in California was sold to Occidental Petroleum Corporation in 1998. Subsequently, the Department transferred two of the Naval Oil Shale Reserves (NOSR-1 and NOSR-3), both in Colorado, to the Department of the Interior's (DOI) Bureau of Land Management. In January 2000, the Department returned the NOSR-2 site to the Northern Ute Indian Tribe. The Energy Policy Act of 2005 transferred administrative jurisdiction and environmental remediation of Naval Petroleum Reserve 2 (NPR-2) in California to the Department of the Interior. DOE retains the Naval Petroleum Reserve 3 (NPR-3) in Wyoming (Teapot Dome field).

ELK HILLS SCHOOL LANDS FUND

The National Defense Authorization Act for FY 1996 authorized the settlement of longstanding "school lands" claims to certain lands by the State of California known as the Elk Hills Reserve. The settlement agreement between DOE and California, dated October 11, 1996, provides for payment, subject to appropriation, of 9 percent of the net sales proceeds generated from the divestment of the Government's interest in the Elk Hills Reserve. Under the terms of

the Act, a contingency fund containing 9 percent of the net proceeds of the sale was established in the U.S. Treasury and was reserved for payment to California.

To date, DOE has paid $300 million to the State of California. The first installment payment of the settlement agreement was appropriated in FY 1999. While no appropriation was provided in FY 2000, the Act provided an advance appropriation of $36 million that became available in FY 2001 (second installment). The next four installments of $36 million were paid at the beginning of FY 2002, FY 2003, FY 2004, and FY 2005 respectively. A seventh payment of $84 million was made in FY 2006.

The Fiscal Year 2008 budget proposes no funding for the Elk Hills School Lands Fund. The timing and levels of any future budget requests are dependent on the schedule and results of the equity finalization process.

FOSSIL ENERGY'S BUDGET MEETS THE NATION'S CRITICAL ENERGY NEEDS

In conclusion, I'd like to emphasize that the Office of Fossil Energy's programs are designed to promote the cost-effective development of energy systems and practices that will provide current and future generations with energy that is clean, efficient, reasonably priced, and reliable. Our focus is on supporting the President's top priorities for energy security, clean air, climate change, and coal research. By reevaluating, refining and refocusing our programs and funding the most cost-effective and beneficial projects, the Fiscal Year 2008 budget submission meets the Nation's critical needs for energy, environmental and national security.

Mr. Chairman, and members of the Committee, this completes my prepared statement. I would be happy to answer any questions you may have at this time.

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