

**STATEMENT BY THE INDEPENDENT PETROLEUM ASSOCIATION OF AMERICA
BEFORE THE SENATE ENERGY AND NATURAL RESOURCES COMMITTEE
REGARDING THE DEPARTMENT OF ENERGY'S BUDGET REQUEST FOR FISCAL
YEAR 2007**

February 9, 2006

The Independent Petroleum Association of America (IPAA), represents over 5,000 producers of domestic oil and natural gas. Independents drill 90 percent of the nation's oil wells and produce 85 of the nation's natural gas and 60 percent of domestically produced oil. IPAA is concerned that the Administration's budget request for the Department of Energy's oil and natural gas technologies programs for Fiscal Year 2007 (FY2007) will result in the loss of key technology developments to improve domestic oil and natural gas production.

This is the second year that the Administration has proposed to terminate funding for these vitally important programs, eighty-five percent of which historically has focused on exploration and production activities associated with independent producers. In most instances, these companies do not have access to the in-house technology development capabilities of the larger, integrated, multi-national oil companies. Therefore, federally funded research and development (R&D) is instrumental in maintaining a viable, robust domestic producing sector.

In addition to "zeroing out" these R&D programs, the Administration has requested zero funding for R&D programs related to methane hydrates development and technology development associated with the non-conventional onshore/ultra-deepwater/small producer program authorized in the Energy Policy Act of 2005.

Full, consistent funding for development of these programs at DOE is essential to meet the President's objectives to reduce on dependence foreign sources of energy. In the past, these programs have provided a variety of functions, primarily focusing on domestic exploration and production research and development activities, resulting in sustaining and in most instances, increasing domestic oil and gas production. Such research and development activities, conducted by universities, Department of Energy laboratories and the private sector have culminated in the development of exploration and production (E&P) technologies, which have resulted in an increase in production of product, with a much smaller environmental footprint, yet in a more environmentally sensitive manner. These benefits were well articulated by the Department of Energy in its October 17, 2005 statement when it funded several key projects:

DOE Selects Projects for Gas/Oil Research

Goal is to Boost Recovery of Unconventional Resources and Minimize Environmental Impacts

WASHINGTON, D.C. -- Secretary of Energy Samuel W. Bodman today announced that the Department of Energy (DOE) will provide \$10.7 million to fund 13 research and development projects that focus on recovering large, unconventional gas and oil resources and improving the environmental aspects of drilling for gas and oil. The projects have a total value of \$16.3 million, including \$5.6 million in co-funding from industry and academic partners.

"This Administration continues to seek out and develop new energy options to support our growing economy," Secretary Bodman said. "The projects we are funding today are an investment in our Nation's energy security and economic security, and will help us obtain the maximum benefit of our domestic energy resources in an environmentally sensitive way."

Most of the research projects focus on boosting recovery of unconventional natural gas, which can be found in coal seams, low-permeability or "tight" sandstones, and ultra-deep natural gas resources found more than 15,000 feet underground. Combined, those sources of unconventional natural gas are estimated to be approximately 700 trillion cubic feet (Tcf), compared to an industry estimate of 190 Tcf in conventional natural gas reserves.

Presently, unconventional natural gas accounts for nearly one quarter of total domestic supply, a share that will rise with future technological advancements such as those being investigated by the funded projects. Six of the projects will improve the efficiency of drilling, appraising, and production of low-permeability formations by collecting, analyzing, and publicizing a variety of critical data. This will enable operators to generate less waste and extract more gas from fewer wells.

The Energy Department is also researching the difficult environments encountered while drilling ultra-deep gas wells -- another untapped resource for additional natural gas. Three projects will focus on "smart" drilling systems that will withstand the extreme temperatures, pressures, and corrosive conditions of deep reservoirs. Two other projects will perfect drilling techniques to lessen environmental impact and lower costs.

The 11 cost-shared projects targeting natural gas supply are described below:

- **University of Kansas Center for Research Inc. (Lawrence, Kan.)** Researchers will evaluate and publish data concerning reservoir and rock formation properties. The data will assist operators in making efficient drilling decisions regarding tight gas sandstones (TGS). This study will analyze five Rocky Mountain basins that represent the biggest part of the total Rocky Mountain TGS resource, which in turn is 70 percent of the Nation's TGS resource base. (DOE share: \$411,030; project duration: 24 months)
- **New Mexico Institute of Mining and Technology (Socorro, N.M.)** Researchers will collect, integrate, and analyze a variety of well and reservoir-rock physics data related to two tight gas reservoirs, the Mesa Verde and Dakota formations in the San Juan Basin. (DOE share: \$516,000; 36 months)
- **West Virginia University Research Corp. (Morgantown, W. Va.)** Researchers will simplify, accelerate, and digitize the data collection process for independent producers interested in developing tight gas reservoirs in the Appalachian Basin. Data will cover five significant areas in the basin (DOE share: \$566,729; 36 months)
- **Texas A&M University (College Station, Texas)** Researchers will develop new methods for creating extensive, conductive hydraulic fractures in unconventional tight gas reservoirs. After assessing a wide range fracture treatments conducted in the field, researchers will develop design models for implementing optimal fracture treatments. (DOE share: \$1.2 million; 36 months)

- **University of Texas (Austin, Texas)** Researchers will enhance 3-D hydraulic fracture models to help operators design and optimize energized fracture treatments in a systematic way. They will test the enhanced model by designing and executing energized hydraulic fracture treatments in tight gas sands. (DOE share: \$985,796; 36 months)
- **BC Technologies Ltd. (Laramie, Wyo.)** Researchers intend to economically remove impurities from coalbed natural gas (CBNG) produced water to make it suitable for crop irrigation and livestock and wildlife watering. The projects intend to treat CBNG produced water in Wyoming's Greater Green River Basin at the wellhead with an injectable purifier. (DOE share: \$585,444; 24 months)
- **TerraTek Inc. (Salt Lake City, Utah)** Researchers intend to slash the cost of deep drilling, defined as drilling from 15,000 to 30,000 feet, and improve drilling penetration rates by developing an ultra-deep drilling simulator to test drilling cutters and muds at 30,000 psi and 250 °C. The simulator will allow new environmentally benign fluids to be designed and tested. (DOE share: \$1.4 million; 18 months)
- **Oklahoma State University (Stillwater, Okla.)** Researchers will design and build a downhole microcomputer system with peripherals that can operate at 275 °C. This will allow operators to take critical downhole measurements and steer the drill bit, reducing the risk of dry holes and well blowouts. (DOE share: \$578,391; 18 months).
- **Dexter Magnetic Technologies Inc. (Rockwall, Texas)** - Researchers will develop, test, and commercialize a downhole power source capable of operating at temperatures greater than 215 °C., and will also develop an advanced turbine generator that uses hydraulic power from the drilling fluid as energy to turn a generator. (DOE share: \$490,646; 36 months)
- **Noble Wellbore Technologies Inc. (Sugar Land, Texas)** - Researchers will develop a rotary steerable system that costs less than half of current models. Steerable systems, while more expensive than conventional drilling systems, enable the operator to guide the drillbit to preprogrammed targets automatically. This allows higher penetration rates, greater lengths for horizontal-well sections, and easier well completions. (DOE share: \$849,670; 24 months)
- **Texas A&M University (College Station, Texas)** - Researchers will incorporate current and emerging technologies into a clean, environmentally-friendly drilling system that can be used to find and produce natural gas in the lower 48 states. The project also includes establishing a joint venture of industry, academic, and government partners to support development of such a zero-impact drilling system. (DOE share: \$1.4 million; 36 months)

Two additional projects will significantly improve CO₂ enhanced oil recovery technology in novel ways:

- **Mississippi State University (Starkville, Miss.)** - Researchers intend to improve oil recovery by up to 100 percent by using environmentally friendly nutrients to stimulate the growth of microorganisms so that water and CO₂ are diverted to previously unswept reservoir zones. (DOE share: \$900,000; 36 months)

- **Texas A&M University (College Station, Texas)** - Researchers plan to develop efficient tools and a systematic work flow for improved oil reservoir characterization and modeling. The technology will be demonstrated in a CO2 flood in the Permian Basin of West Texas. (DOE share: \$785,846; 36 months).

Similarly, potential development of methane hydrates and non-conventional onshore/ultra-deepwater represents huge potential for supplying America's growing natural gas needs. In the case of methane hydrates, the U.S. Geological Survey (USGS) estimates the U.S. to have about 200,000 trillion cubic feet of methane hydrate, while the ultra-deep area alone will tap 1900 trillion cubic feet of technically recoverable reserves - enough to meet 60 years of demand at current rates of consumption.

Also of huge importance is the role that DOE's programs play in the training and development of qualified people for the oil and gas sector, the lack of which continues to grow at an alarmingly rapid rate. The DOE oil and natural gas programs provide vital support to petroleum engineering departments across the country. According to a letter dated April 4, 2005 from the University of Texas' Department of Petroleum and Geosystems Engineering to the Subcommittee on Energy and Water Development Appropriations, "...our ability to retain the best faculty who are needed to train Petroleum Engineers for the coming decades depends entirely on our being able to provide research funding to the faculty." The letter goes on to say, "Lacking this opportunity, there will not be many viable petroleum engineering programs left in the U.S." Ironically, this statement is reflective of goals that are outlined in the recently introduced Protecting America's Competitive Edge Act (PACE), and the President's American Competitiveness Initiative.

IPAA commends the President's laudable goal expressed in his recent "State of the Union" address, in which he laid out a "game plan" of appreciably reducing our dependency on foreign sources of oil by 2025. However, our nation's economy is currently fossil fuel "dependent" - 65 percent of domestic energy supply coming from oil and natural gas - and will continue to be for the foreseeable future. Therefore, the nation is at a time when concern over increasing dependence on foreign oil is at an all time high, escalating fuel prices are running roughshod over the American consumer in the form of home heating bills and gasoline prices and businesses are relocating and taking valuable jobs overseas with them in the pursuit of affordable fuel costs. The Administration's failure to recognize the importance of investing in oil and natural gas R&D to develop critically needed recovery technologies is all the more perplexing. Domestic oil and natural gas reserves should be "front and center" in any balanced national energy policy, along with renewables, coal and nuclear. Yet, the Administration would essentially eliminate oil and natural gas from DOE's energy portfolio.

IPAA urges the Committee to support full funding for these vitally important programs.