Written Testimony Submitted by
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American Association of Petroleum Geologists
to the U.S. Senate
Subcommittee on Energy and Water Appropriations
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To the Chair and Members of the Subcommittee:

Thank you for this opportunity for the American Association of Petroleum Geologists (AAPG) to provide its perspective on fiscal year 2006 appropriations for oil and gas research and development (R&D) programs within the Subcommittee's jurisdiction. The Administration's budget contains significant reductions for the Department of Energy (DOE) including the elimination of the oil and gas technology programs in the Office of Fossil Energy. AAPG requests restoration of these DOE Fossil Energy oil and gas technology programs to FY 2003 funding levels.

AAPG, an international geological organization, is the world's largest professional geological society representing over 30,000 members. The purpose of AAPG is to advance the science of geology, foster scientific research, promote technology and advance the well-being of its members. With members in 116 countries, AAPG serves as a voice for the shared interests of petroleum geologists and geophysicists in our profession worldwide. Included among its members are numerous CEOs, managers, directors, independent/consulting geoscientists, educators, researchers and students. AAPG strives to increase public awareness of the crucial role that geosciences, and particularly petroleum geology play in energy security and our society.

DOE Fossil Energy Research and Development

AAPG strongly feels the Department of Energy's (DOE) Fossil Energy research and development (R&D) budget funding for Oil Technology R&D and Gas Technology R&D

portion of the FY 2006 Energy and Water Appropriations bill is vital for a viable domestic industry in the near-mid- and long-term.

Historically, members of Congress have continually emphasized the need for a comprehensive energy policy containing a strong R&D component. AAPG recognizes the importance of maintaining a strong domestic petroleum industry. Our members support and emphasize the need for continuing efforts in R&D in order to sustain the standard of living U.S. citizens have earned and expect. While the price of crude oil is established by a global market, the costs of exploration, development, and production are influenced strongly by the application of discoveries in geosciences and new developments in technology. Thus, focused R&D can make a significant contribution to sustaining our domestic petroleum industry and to national energy security.

While our dependence on crude oil and natural gas has changed little since the "energy crisis" of 1973, public and private funding of R&D for these commodities have declined significantly. Many of the major companies and some companies in the related service industry, that once maintained strong programs in R&D, have disappeared through mergers and acquisitions. Others have replaced or retooled some of those R&D activities with technical-service functions, primarily in support of their international activities. In addition, federal funding for R&D programs has declined significantly. While some states, private foundations, smaller companies, and independents are continuing to support R&D in oil and gas, the amount is woefully inadequate to meet the needs of the domestic industry. Thus, absent adequate public support for these endeavors, the continuing flow of new discoveries in the geosciences and new technological breakthroughs that will be needed to continue to support a viable domestic industry in the 21st century will not occur.

Our nation is the world's largest consumer and net importer of energy. According to the Energy Information Administration, during the first ten months of 2004, the U.S. consumed 20.4 million barrels of oil per day, producing only 26 percent of this consumption. Our national energy and economic security depends on a vibrant domestic oil and gas industry. Independent producers drill 90 percent of domestic oil and natural gas wells, produce approximately 85 percent of domestic natural gas and produce about 65 percent of domestic oil. Domestic production creates

jobs, produces tax revenue, provides royalty income to hundreds of thousands of mineral owners, and contributes to economic development in producing areas (mostly rural) of the nation.

Federal funding of R&D increases the domestic oil and gas supply, and it is not a subsidy. Almost 85 percent of the jointly-funded R&D and technology transfer programs carried out by universities, state agencies and independent companies are focused on the development of new reserves by domestic independent producers. R&D programs, such as those designed for development of unconventional tight sandstone and shale reservoirs, develop and demonstrate new and innovative technologies. These technologies are used to extend the life of existing oil and gas reservoirs as well as to explore and develop reserves such as the U.S. supply of unconventional gas, which was largely driven by focused federal spending and tax incentive programs. As technology evolves, today's unconventional oil and gas reserves are tomorrow's conventional reserves. It is more important now than ever that the U.S. leverage its investment to find new sources of oil and gas-the unconventional reserves of tomorrow.

Today, revolutionary oil and gas technology is seldom available in the market at any price. Irrespective of the price of oil and gas, procurement of new technologies will be a continuing challenge for domestic U.S. oil and gas producers. Private sector R&D is typically conducted by major international companies with a strong focus on international projects in super giant offshore fields with limited application to domestic onshore production. Most programs jointly funded by DOE result in the transfer of technologies to a much wider range of problems and thus are more cost effective and useful for increasing the supply right here in the U.S.

The DOE Office of Fossil Energy oil and gas R&D programs play a vital role in domestic oil and gas development. These programs include not only R&D but also incorporate technology transfer through programs like the Petroleum Technology Transfer Council (PTTC), an organization that provides the conduit to move upstream research into the hands of domestic oil and gas producers. Through PTTC, R&D from the DOE Fossil Energy program expands throughout the nation. PTTC conducts workshops and seminars throughout the U.S. disseminating research results and case study applications of new technology available to domestic producers. Since its inception in 1994, PTTC has conducted over 1,000 technology

transfer workshops and seminars. PTTC recently estimated economic impact in eleven areas identified by industry where independent producers are broadly applying technologies. Of 1,266 million barrels of oil equivalent reserves that were realized, 88 million barrels could clearly be attributed to technology transfer under the direction of DOE funded PTTC activity. The research dollars spent by these DOE programs go primarily to universities, state geological surveys and research consortia to address critical issues like unconventional sources of natural gas and enhanced oil recovery.

Further, federal R&D funds form a crucial element of university programs that foster undergraduate and graduate research initiatives which replenish the corps of future petroleum geologists, engineers and geophysicists. Enrollment in the geosciences departments across the U.S. has decreased by 70 percent in the past 20 years, while international oilfield education has increased significantly. Accordingly, our universities will graduate even fewer technical professionals to maintain an already strained national energy sector.

DOE's past R&D programs have helped develop broad advances in many oilfield technologies, such as 3-D and 4-D multi-component seismology. New completion and production techniques provide the opportunity to enhance environmental compliance, thus minimizing industry impact to our environment. Many of these technologies were funded under DOE's Reservoir Class Program in the 1990's and are now significantly paying dividends. DOE's oil and gas R&D programs have enabled producers to reduce costs, improve operating efficiency and enhance environmental compliance, while increasing ultimate recovery and adding new reserves.

The full recognition of the vital importance of R&D programs like those sponsored by DOE's Office of Fossil Energy is of paramount importance to the future of our country and our society. No task before our nation is more critical than energy security and this concept is not new-it is a traditional ideal of democracy. But it is time that we moved toward the fulfillment of this ideal with more vigor and less delay. For energy security is both a foundation and unifying force of our democratic way of life-it is the mainspring of our economic progress. In short, R&D programs are at the same time the most profitable investment society can make and the richest return that it can confer. Today, more than at any other time in our history, we need to develop

our oil and gas resources to the fullest. Without federal support for R&D programs, this achievement becomes more difficult.

Thank you for the opportunity to present this testimony to the Subcommittee.
If you would like any additional information for the record, please contact me at 1-888-945-2274, ext. 639, voice, 1-918-560-2626, fax, pjfginc@aol.com, or P.O. Box 979, Tulsa, Oklahoma 74101-0979 (AAPG offices at 1444 South Boulder Avenue, Tulsa, OK 74119).