

**Statement by
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Before the

**House Science, Space, and Technology Committee
Subcommittee on Energy and Environment**

Offshore Drilling Safety and Response Technologies Hearing

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Chairman Harris, Ranking Member Miller, and members of the Subcommittee, thank you for the opportunity to appear before you today to discuss the Department of Energy's (DOE) perspective on research and development (R&D) to improve oil and gas drilling in ever-deeper waters with greater margins of safety, reduced risk of spills, and better mitigation approaches should there be a spill.

As you know, the Office of Fossil Energy (FE) leads DOE's efforts to ensure that we use our hydrocarbon resources – coal, oil, and natural gas – for clean, affordable, and reliable energy. A key part of fulfilling this mission is a commitment to cutting-edge R&D across fossil energy technologies. In discharging this responsibility, we have conducted significant R&D over the years to advance technology development related to oil and natural gas supply and production, unconventional fossil energy, and deepwater resources.

In terms of going forward in the deepwater area, we must do everything possible to ensure that we never again face an environmental disaster of the magnitude as last year's Gulf of Mexico oil well spill, which not only tragically claimed 11 lives, but also caused extensive economic and ecological damage.

We at the Department of Energy (DOE) recognize that improving deepwater oil and gas technology is a challenge; but one that also provides a major opportunity. The Federal Government's responsibility is to rigorously regulate the oil and gas industry's deepwater activities, appropriately quantify risks in offshore development, and maximize the capability and resources to prevent and mitigate damages of future offshore events should they occur. As this committee knows, the Department of the Interior is the agency with regulatory authority over the oil and gas industry's offshore drilling activities.

Today, I will offer some DOE perspectives on the continuing importance of deepwater resources, the challenges that lie ahead, the role of DOE and our Federal and industry partners in moving forward, and current R&D activities.

Moving Toward a Sustainable Future

The Obama Administration has made a strong commitment to move our Nation toward a clean energy future, which includes reducing reliance on oil and other fossil fuels, while developing new sources and technologies related to renewable energy. As we make this transition, however, oil and natural gas will continue to play a key role in our economy for many years, particularly in the transportation sector. Currently, oil and natural gas provide more than 60 percent of our Nation's energy needs, and over 95 percent of the fuel that Americans use for transportation.

According to the U.S. Energy Information Administration (EIA), the United States uses slightly more than 19 million barrels of liquid fuels every day, about 22 percent of the world's total; this total is projected to increase to nearly 22 million barrels by 2035 (*Annual Energy Outlook 2011 Early Release*). In 2010, U.S. domestic crude production rose by 150,000 barrels per day to 5.51 million barrels per day (MB/D) (STEO, March 8, 2011), the highest level since 2003. Looking longer range, EIA projects that U.S. domestic crude oil production will continue to increase to 5.7 million barrels by 2035. Production increases are anticipated to come from onshore enhanced oil recovery projects, shale oil plays, and deepwater drilling in the Gulf of Mexico. They also project that U.S. dependence on imported liquid fuels to continue declining over the projection period. This trend is in keeping with President Obama's comments at a March 11, 2011, news conference that, "First, we need to continue to boost domestic production of oil and gas." However, as the President has said, we cannot drill our way out of this problem, which is why the Administration has outlined a blueprint that includes measures to reduce our consumption.

Globally, EIA projects the world's use of oil and other liquid fuels to grow from 86.3 million barrels per day in 2007 to 110.8 million barrels per day in 2035. Global natural gas consumption is forecasted to increase from 108 trillion cubic feet per year to 156 trillion cubic feet per year over the same period.

In this environment of increasing demand, the world's producers are continuously endeavoring to identify and produce new sources of oil and natural gas to replace the volumes which are being consumed by the world's economies. While significant reserves remain, many of these are in geologic formations that are increasingly difficult to locate and produce, including deepwater locations.

Increasing Role of Deepwater Production

In recent years, the oil and gas industry has been discovering and producing in increasingly deeper water. In the Gulf of Mexico there have been 13 major discoveries in deepwater areas over the past five years alone. Offshore oil now accounts for about one-third of our domestic field production, and some 80 percent of this comes from Gulf of Mexico deepwater locations.¹

Internationally, 60 percent of the largest non-U.S. discoveries have been offshore, and 73 percent of offshore discoveries have been in deepwater (400 meters or deeper). Since 2007, over 70 percent by

¹ Source: Energy Information Administration:
http://www.eia.doe.gov/oil_gas/natural_gas/data_publications/crude_oil_natural_gas_reserves/cr.html.

volume of major discoveries have occurred in deepwater, with the outliers being onshore discoveries in Iran and Iraq.²

The deepwater contribution to domestic oil and natural gas supplies is expected to increase in the years ahead. A key underlying assumption, however, is that ongoing technology solutions to production safety and environmental challenges will be developed and deployed.

The industry, both domestically and globally, is exploring in deeper water, which means we must recognize two key points:

- 1) We can no longer rely on inexpensive supplies of oil that can be produced from shallow water regions and;
- 2) The technology used to extract these deepwater resources must be much safer and more reliable than they have been in the past. This is consistent with the Administration's determination that, prior to drilling activity, deepwater operating practices must be consistent with new heightened safety measures, including development of worst case disaster projections and demonstration of capabilities to respond to an oil spill.

DOE's Role and Perspective

The Department of Energy has long had a role in technology development for the oil and natural gas sectors. Over decades, the Department has amassed a depth of knowledge and expertise in such areas as fluid flow, imaging, fire science, and subsea systems. The focus of DOE's past R&D efforts was on reducing the cost of technologies that increase production – an area of research more appropriately funded by industry. However, a smaller portion of DOE's research addressed improvements to environmental and safety technologies.

While the Department has historically conducted fundamental and applied research to develop and improve deepwater environmental and safety technologies, it has no regulatory role over the industry. With regard to permitting and regulatory issues generally, offshore oil and gas drilling is wholly within the purview of the Department of the Interior (DOI), although activities conducted on the Outer Continental Shelf also require permits from other agencies, such as the National Oceanic and Atmospheric Administration and the United States Coast Guard.

The Administration has taken steps to improve its capabilities to conduct environmental and safety related research to support our regulatory responsibility. Specifically, the DOI led Ocean Energy Safety Advisory Committee (OESAC), which includes representatives from government, industry, and academia, is tasked with identifying, prioritizing and recommending research and development projects in the areas of drilling and workplace safety, containment, and oil spill response; recommending an allocation of available resources to these projects as appropriate; and providing a venue for representatives from industry, government, non-governmental organizations, national laboratories, and the academic community to exchange information and ideas, share best practices, and develop cross-organizational expertise.

The Energy Policy Act of 2005 (EPACT) established a mandatory program, the Ultra-Deepwater and Unconventional Natural Gas and Other Petroleum Research Program, funded with \$50 million each

² Source: Chakhmakchev & Rushworth, IHS, May 2010

year of diverted Federal oil and gas lease revenues that would otherwise be deposited in the Treasury to offset government-wide expenses. In the past, the Department used the deepwater portion allocated under Section 999A of EPACT 2005 for reservoir characterization, drilling and completion, seafloor facilities, and other exploration and production related technologies.

As has been requested since Fiscal Year (FY) 2007, the President's FY 2012 Budget proposes repeal of the Ultra-Deepwater and Unconventional Natural Gas and Other Petroleum Research Fund which was established as part of the Section 999A program. We also are requesting no discretionary funding for R&D to increase hydrocarbon production in the belief that these activities are more appropriately funded by industry. Absent congressional action to repeal this program, DOE is refocusing the work done under Section 999A of EPACT on safety and environmental protection with the funding we continue to receive. While the administration does not support Section 999A funding, it considers OESAC to be an important mechanism to guide research to improve the safety and environmental responsibility of offshore oil and gas operations.

Industry has had success in innovating new technologies to find, develop, and commercialize oil and gas in deepwater locations. And, in the wake of the *Deepwater Horizon* accident and ensuing Gulf of Mexico oil spill, industry developed new technologies for the containment of underwater blowouts. Additional work remains to be done to ensure that this development is conducted with sufficient protections for workers and the environment, and to ensure that the communities that rely on our ocean resources continue to thrive. The Administration believes that it is appropriate for industry to integrate enhanced safety and environmental capabilities into the advances in production technologies for deepwater areas.

Summary

The tragic oil spill in the Gulf of Mexico last year is a stark reminder of the risks associated with operating in the deepwater. Even as we continue the transition to a more sustainable energy future, deepwater oil and natural gas will be used to meet a significant portion of our energy needs in the near future. As technologies for improving the production and economic aspects of this extraction process are developed, so too must be approaches for identifying, quantifying, and solving potential risks, safety issues, and environmental impacts.

Mr. Chairman, and members of the Committee, thank you again for the invitation to testify today. I look forward to answering any questions that you may have.