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Mr. Chairman and Members of the Committee, my name is Thomas Readinger, Associate Director, Offshore Minerals Management. I appreciate the opportunity to appear here today to highlight for you the significant and vital role of Federal offshore lands for meeting our Nation's energy needs.

In response to your request, I will address the benefits the nation obtains from the federal Outer Continental Shelf (OCS) program. The major program benefits can be divided into three general categories: (1) energy benefits, (2) economic benefits, and (3) environmental benefits. I will also touch upon the secondary information benefits derived from the conduct of the program which help inform the public policy debate.

Federal Offshore Energy Program – General Context

As this committee well knows, energy use sustains our economy and our quality of life. This is why high energy prices and increasing dependence on foreign energy supplies raise important national policy issues.

The President's 2001 National Energy Policy (NEP) report laid out a comprehensive, long-term energy strategy for securing America's energy future. This strategy derived from the conclusion that the issue was complex, long in the making, and without a short-term solution. The recommendations recognize that, to reduce our rising dependence on foreign energy supplies, we must increase domestic production, while also pursuing energy conservation and the use of alternative and renewable energy sources. Achieving the goal of secure, affordable and environmentally sound energy supply would require diligent, concerted efforts on many fronts for both the supply and demand sides of the energy equation.

Good stewardship of resources dictates that we use energy efficiently and conserve resources. Fossil fuel development is only a part of the solution to our Nation's energy challenge.

The recently enacted Energy Policy Act of 2005 recognizes the need for diversifying our energy sources and directs specific government actions intended to move our nation toward a more secure future. Important provisions of the new law will define the future for our OCS energy contribution.

The Outer Continental Shelf Lands Act directs the Secretary of the Interior to make resources available to meet the nation's energy needs. The accompanying Congressional Declaration of Policy states, "The OCS is a vital national resource reserve held by the Federal Government for the public, which should be made available for expeditious and orderly development." The Administration has directed the Minerals Management Service (MMS) to meet this charge through specific policy initiatives provided in the President's National Energy Policy plan. This direction is all the more critical in the face of increasing strains on worldwide energy supply. Congress and the President have now enacted energy legislation that will not only make conventional energy sources more available and economically attractive, but also allow for the orderly development of non-conventional and renewable resources on the Outer Continental Shelf.

As the Department of the Interior's offshore resource management agency, the MMS has a focused and well established ocean mandate – to balance the benefits derived from exploration and development of oil, gas and marine minerals resources with environmental protection and safety impacts.

Current Energy Picture

Oil is vital to the American economy. Currently, oil supplies more than 40 percent of our total energy demand and more than 99 percent of the fuel we use in our cars and trucks. With crude oil prices currently around $60 per barrel, consumers are

bearing the cost. Gasoline prices in 2005 are projected to remain high, at an expected average of $2.28 per gallon for the April to September summer season, 38 cents above last summer. High world oil demand will likely continue to support crude oil prices and increase competition for gasoline imports. In spite of these high prices, U.S. petroleum demand is projected to average 20.9 million barrels per day in 2005, up 1.7 percent from 2004.

According to the Energy Information Administration, over the next 20 years, Americans' demand for energy is expected to grow at an annual rate of 1.4 percent. This growth projection incorporates continued gains in energy efficiency and movement away from energy-intensive manufacturing to service industries. Despite a continuing emphasis on expanding renewable sources of energy, petroleum products and natural gas are projected to account for almost 65 percent of domestic energy consumption in 2025, a slightly larger share than today.

U.S. natural gas consumption is expected to grow from 22 trillion cubic feet (tcf) in 2003 to almost 31 tcf in 2025. Domestic production, however, is expected to grow only from 19.1 tcf to 21.8 tcf, meeting only about 30 percent of demand growth. In the past, any difference between the growth in demand and the growth in domestic production was predominantly met by imports of gas from Canada. However, Canada's National Energy Board has concluded that their future production will not support increased U.S. imports. Most additional supplies will need to come from Alaskan natural gas and from imports of liquefied natural gas (LNG).

Predictably, markets are responding to this outlook with higher energy prices, and an increased demand for OCS resources. This is apparent from recent interest in lease sales and an increasing pace of exploration and development. The mandates of OCSLA, the NEP, and the Energy Policy Act direct MMS to make available energy resources to contribute to the nation's economic well-being and energy security.

Energy Benefits

The Federal OCS is a major supplier of oil and natural gas for the domestic market, contributing more oil and natural gas for U. S. consumption than any single state or country in the world. As steward of the mineral resources on the 1.76 billion acres of the Nation's OCS, MMS has to date managed OCS production that cumulatively totals 15 billion barrels of oil and more than 155 trillion cubic feet of natural gas for U.S. consumption.

Today, MMS administers more than 8,400 leases and oversees over 4,000 facilities on the OCS, which account for about 30 percent of the Nation's domestic oil production and 21 percent of our domestic natural gas production.Within the next 5 years, offshore production will likely account for more than 40 percent of oil and 26 percent of U.S. natural gas production, owing primarily to deep water Gulf of Mexico discoveries.

As the federal OCS mineral resource management agency, MMS has worked diligently for over 20 years to create an efficient framework for OCS mineral resource development. Guiding principles include: conservation of resources; assurance of a fair and equitable return to the public for rights conveyed; protection of the human, marine, and coastal environments; involvement of interested and affected parties in planning and decision-making; and minimization of conflicts between mineral activities and other uses of the OCS. MMS also has over two decades of experience working with coastal states regarding coastal zone management issues. The U.S. Commission on Ocean Policy in its report, "An Ocean Blueprint for the 21st Century," stated , "the scope and comprehensiveness of the OCS oil and gas program can be a model for the management of a wide variety of offshore activities." We must now meet the challenge of new responsibility provided in the Energy Policy Act, to manage the development of non-conventional and renewable energy resources on the Outer Continental Shelf. We intend to apply, and adapt, these same guiding principles, along with Secretary Norton's directives for consultation with affected parties, to manage these resources in the public's interest.

MMS has implemented a number of *National Energy Policy* directives to increase domestic energy supplies and enhance national energy security by ensuring continued access to offshore Federal lands for domestic energy development, and by expediting permits and other federal actions necessary for energy-related project approvals.

Energy Benefits from Gulf of Mexico Deep Water and Deep Gas Horizons

The U.S. is now in its tenth year of sustained expansion of domestic oil and gas development in the deep water area of the Gulf of Mexico (Gulf). Deep water oil production has risen 386 percent and deep water gas production is up 407 percent since 1996. Deep water means that from water surface to where a drill bit first touches mud is about 1,000 feet.

In 2004, operators initiated production on 14 new deep water projects and announced another 12 new deep water discoveries. Anticipated production from fields with names such as *Thunder Horse, Atlantis,* and *Mad Dog,* and will dramatically increase OCS production in 2005 and 2006. We expect that it will be several years before deep water areas of

the Gulf reach their full potential. The deep water activity in the Gulf has been a major U.S. economic and energy success story.

There are now about 140 deep water discoveries of which more than 90 are producing. This has helped to increase total offshore production from 980,000 barrels per day in 1995 to 1.7 million barrels per day in 2003. Additional deep water rigs are being built or moved to the Gulf from other parts of the world. The number of deep water exploration wells drilled in 2004 increased 27 percent compared to 2003.

The same industry ingenuity witnessed in deep water is also evidenced in shallow water shelf drilling operations where operators are targeting deep horizon natural gas reservoirs that require drilling 15,000, 20,000 and in some instances 35,000 feet deep through extremely high temperature and pressure conditions. Currently, operators are drilling the Blackbeard project to more than 35,000 feet – 6 miles. This well will take almost a year to drill and there is no guarantee of success.

Energy Benefits – Hydrates

The Nation's energy potential may not rest entirely on conventional hydrocarbon resources. Industry and government scientists are now studying the possibility that a unique and puzzling frozen "ice" crystal may hold the key to future energy resources. Methane hydrates are naturally occurring ice-like solids in which compressed gas molecules are trapped. Hydrates are found in locations with high pressure and low temperature. Over 98 percent of natural gas hydrate resources are estimated to occur in offshore ocean sediments. Discovering a method to locate, produce and transport the gas from formations to the market is the key to unlocking their potential energy benefits. Researchers drilled two wells in the Gulf earlier this year in hopes of advancing our understanding of this potential energy resource.

Energy Benefits – Estimates of Remaining OCS Resources

There has been a steady upward trend in the portion of domestic energy production from public lands. Overall, Interior-managed resources today account for about 32 percent of the nation's total energy production, up from 13 percent in 1970. OCS contribution is projected to grow significantly over the next few years as the OCS is believed to hold about 60 percent and 41 percent of the Nation's remaining undiscovered oil and gas resources, respectively. It also may hold a potential future supply of methane hydrates that could, if it proves safe to develop, supply another important source of natural gas for domestic consumption.

MMS conducts a comprehensive national assessment of the undiscovered oil and gas resources on the OCS every 5 years. The main objective of these assessments is to forecast the oil and natural gas endowment of the U.S. OCS for planning purposes, but there is much uncertainty in the estimates due to a lack of data in many areas, especially in those OCS areas which have been off limits to exploration and development for many years.

The Energy Policy Act requires us to conduct analyses and inventory the oil and gas resources from all OCS areas within 6 months and every 5 years thereafter. The MMS has begun developing this inventory by reanalyzing existing seismic data with new analysis techniques and in light of new drilling information from Canada and Mexico.

Energy Benefits – Alternative Uses of the OCS

The oceans may also hold the key to realizing significant potential new energy sources to support America's growing energy needs—for example: wind, wave, and solar energy. New authority in the Energy Policy Act now gives us the ability to manage alternative energy resources with the same balanced view toward meeting our nation's needs for energy; safe working conditions; and a clean, healthy environment. Placing the management of these various ocean energy resources in one agency provides MMS an opportunity to balance the multiple interests in development of our nation's resources.

This new Energy Policy Act provision provides a structure for managing certain offshore activities that were never contemplated when previous statutes were enacted. It provides the basic tools for comprehensive management of energy-related activities on the OCS. These tools include the authority to grant rights to the seabed for energy-related projects, through competitive or non-competitive means; charge appropriate compensation for use of the seabed; ensure safety and environmental protection through regulation, inspection, and enforcement; and require financial surety to ensure any facilities are removed and the seabed restored at the end of project life. As it does for its other offshore activities, the Department will provide a focal point for a coordinated review and approval process involving all affected parties.

In addition, the Energy Policy Act now specifies that we can authorize energy or marine related uses of existing OCS facilities. Platforms built for oil and gas activities can now be used for other approved activities. There are proposals to convert platforms to a variety of uses, including aquaculture, scientific research, and LNG terminals. The oil and gas industry is also contemplating ancillary projects, such as staging areas and emergency medical facilities, to support ongoing activities

in the deep water Gulf of Mexico.

Economic Benefits

The economic benefits associated with federal OCS energy development are substantial by any measure. MMS has documented economic contributions to (1) federal revenues, (2) producer and consumer benefits to the private sector, and (3) related direct and indirect employment.

OCS lease sales and production have generated more than $156 billion in federal revenue from bonus bids, rentals, and royalty payments. Annual revenues range from $4 to $10 billion and are likely to increase with the higher energy prices and increased production from deep water discoveries in the Gulf. Tax revenues associated with federal production also provide significant contributions to federal revenues.

In addition, MMS has documented substantial private sector economic benefits as required under the OCSLA section 18 analysis for each 5-Year Program. Though difficult to measure, our economic models have generated estimates that reveal that private sector and consumer benefits can range from 2 to 5 times higher than the federal revenue benefits. In economic terms, these benefits include both supply-side producer surplus (the difference between product price and production costs) and demand-side consumer surplus (the difference between consumer willingness to pay and the product price).

The OCS oil and gas industry directly employs about 42,000 workers, mostly in the Gulf of Mexico area. Indirect employment by suppliers and other companies that support the industry is estimated to account for another 90,000 or more jobs throughout the country.

The billions of dollars MMS collects annually from energy companies for offshore and onshore oil and gas leasing and production constitute one of the largest sources of non-tax revenue to the Federal Government. OCS leasing and production provides the majority of oil and gas annual revenue collected by MMS—about 66 percent of the $8 billion collected in FY 2004.

Economic incentives adopted as a result of the President's NEP promote discovery of new sources of energy for the Nation and stimulate domestic oil and natural gas production. For 2001-2005 OCS lease sales, we continued the royalty incentive program—first established by the Deep Water Royalty Relief Act of 1995—to promote continued interest in deepwater leases, and expanded the incentive program to promote development of new natural gas from deep horizons in the Gulf's shallow waters. A new regulation in January 2004 extended the deep gas incentive to existing leases, issued before the incentives were first provided in 2001, to promote additional deep drilling for natural gas on the shelf. MMS has also developed policies for extending lease terms to aid in planning wells to be drilled to sub-salt and ultra-deep prospects, accounting for the additional complexity and cost of planning and drilling such wells. MMS has also provided economic incentives for all Alaska OCS lease sales to promote leasing interest and encourage oil and gas exploration development in this area of high cost and little infrastructure. The recently enacted Energy Policy Act formalizes and extends some of these incentives and gives us new opportunities to encourage companies to step into extremely challenging areas like offshore Alaska and in ultra-deep water depths (>2,000 meters). We are working now to develop the regulations to implement these additional incentives.

Economic Benefits – Technological Advances

In the last 30 years, technological advancements in the offshore oil and natural gas industry make production safer, more environmentally sound, and more economically efficient. In the area of exploration, technological advances help companies better identify prospects, allow for more effective well placement, improve the development of resources, reduce the number of dry holes, and cut exploration time.

Once production begins, advanced recovery techniques allow for increased production, recovering 50 percent more oil and 75 percent more gas from a well than was recovered 30 years ago. Improved reservoir management reduces the amount of water produced. Other improvements include better treatment of produced water, better air pollution control, more energy-efficient production, and reduced emissions of greenhouse gases.

Technology applied to reservoir management includes artificial lift, for increased production; downhole oil/water separation; and advanced data management. Advancements in materials engineering have led to the increased use of advanced composite materials for parts of structures and mooring systems. These materials are strong, lightweight, and able to withstand the offshore environment.

Offshore technologies today allow remote control of drilling operations from control rooms that are miles away; dynamic positioning of drill ships using multiple engines that are the size of the meeting room we are sitting in; floating production platforms; anchoring cables to hold facilities in place that are made of a combination of traditional steel and synthetic materials; pipe laying ships that can lay pipelines in thousands of feet of water. In fact, the recent Thunder Horse development required over one hundred technological advancements — things that had not been done before — to bring online the largest oil field discovered in the U.S. in the last 30 years.

Environmental Benefits – Safety and Accident Prevention

MMS environmental analyses and studies provide decision-makers a basis to balance potential environmental impacts or costs associated with OCS development with national energy and economic benefits. These documents reveal that impacts occur, as in all industrial activities. However, the record also is clear that most of the potential impacts can be mitigated and there is evidence that the impacts are decreasing as technology improves.

In general the MMS regulatory requirements and monitoring of operations are specific and stringent. For example, we require:

- specific training for offshore workers in well control and production safety systems;
- regular testing and maintenance of drilling, production, and pipeline safety systems;
- that submissions for approval of exploration and development/production plans include comprehensive environmental reports and oil spill contingency plans; and
- application of the best available and safest technology.

MMS also has a comprehensive accident investigation program to help prevent recurrence of similar incidents; and an effective and vigorous civil and criminal penalties program.

Over the past three decades, MMS has documented a continuous improvement in the OCS environmental and safety record. We have seen the oil-spill rate continue to drop each decade resulting in a 67 percent decrease over this 30 year period. Offshore production today is proving to be one of the safest ways to provide for our nation’s oil and natural gas energy needs.

The MMS and the offshore oil and gas industry share the paramount goal of preventing offshore accidents. MMS has increased its inspection activities more than 60 percent since 1999; and thanks to technological advances and industry’s commitment to safety, the number of Lost Workday Incidents is down 65 percent since1996.

MMS has a permanent workforce inspecting offshore facilities for compliance with safety regulations and has particular expertise in structural engineering and environmental mitigation. The MMS conducts almost 25,000 inspections of offshore facilities each year. MMS recently began an interagency partnership with the U.S. Coast Guard, in which MMS conducts inspections on behalf of that agency. The MMS also partners with Federal, state, and local agencies in standardizing oil spill plan requirements, response standards and in conducting regular drills.

MMS continues to investigate technology, practices, and procedures that might further reduce risks to offshore workers and the environment. In that regard, our offshore program has benefited tremendously from our international research partnerships. For the past 25 years, we have worked with international agencies on offshore safety research projects — one quarter of our 529 safety and pollution prevention projects have involved international partners or contractors. Participating countries include Canada, Norway, the United Kingdom, Sweden, Germany, France, Italy, Mexico, Brazil, Argentina, the Netherlands, Kazakhstan, Japan, Russia, Australia, and South Korea. This cooperation enables us to leverage our research funds and gain access to the world’s leading technical specialists.

Environmental Benefits – Supply Substitution

The discussion concerning environmental risks from oil and gas development is often framed as a false choice between increased energy conservation/efficiency and increased development of this resource. But as the President's National Energy Policy outlines, a balanced approach relies on both greater energy efficiency and wise stewardship and usage of our nation's energy resources. We recognize conservation alone will not make up for our growing demand for oil and gas. MMS analysis reveals that adoption of the "no action" alternative - no development of OCS resources - is more likely to result in increased oil importation than conservation. Environmentally sound use of OCS resources will allow our country to meet this need.

What then does the environmental record show concerning how the OCS compares to other supply alternatives? From an environmental standpoint, OCS natural gas production ranks favorably in comparison, say, to imported oil, which increases tanker traffic into U.S. waters and often comes from countries with less stringent environmental requirements. As

to OCS oil production, the record reveals that the risk of an oil spill has decreased over each of the past three decades and is about 6 or 7 times less than the risk posed by tankered imports. Although the trend is improving for both sources, based upon the data for the period 1985 - 2001, for every billion barrels transported, worldwide tankers spill about 53,000 barrels, whereas OCS production loses about 8,000 barrels for every billion barrels produced. For the most recent decade the OCS rate was down to 6,500 per billion barrels. Of note, according to a recent National Academy report, natural seeps of oil from underground accumulations emit 150 times more oil into the North American ocean environment than U.S. OCS production.

Information Benefits – Science Based Decision-Making

MMS is committed to rigorous scientific research to ensure that decisions are based on the best available information. Environmental and technological issues that have been raised by state and local governments, other federal agencies, environmental groups, and industry, help shape our research agenda. Much of MMS research is accomplished through co-operative funding with universities, inter-agency agreements, and joint funding with industry.

MMS conducts applied research specific to issues associated with OCS mineral leasing and development through its Environmental Studies Program, its Oil Spill Research Program, and its Technology Assessment and Research Program.

This is a particularly exciting time for ocean science and resource management, and the MMS is in a unique position to participate with other agencies as a developer, implementer, and user of our Nation's ocean and coastal science data. T he U.S. Commission on Ocean Policy recommended the development of an Integrated Ocean Observing System (IOOS). In response to this recommendation, the Administration, in its *U.S. Ocean Action Plan*, stated support for the development of IOOS. Under the *U.S. Ocean Action Plan*, a governance structure has been established to oversee the development of IOOS. The Joint Subcommittee on Ocean Science and Technology has established an Interagency Working Group on Ocean Observations. MMS was identified as a key component of the plan as demonstrated by its November 2004 Notice to Lessees (NTL) establishing an ocean current monitoring and data-sharing program in the Gulf of Mexico; a cooperative effort between MMS, NOAA, and the OCS industry. Due to a need for more site-specific data for forecasting ocean currents that may affect structural design, fatigue criteria, or daily operations—issues which fall squarely under the societal goals of IOOS—MMS and its partners established and implemented an ocean current monitoring and data-sharing program in the Gulf of Mexico. Under this program, deepwater oil and gas platform operators will collect ocean current data from deepwater drilling and production sites. They will then report their information to the NOAA National Data Buoy Center website, making it publicly available to help ensure that OCS activities are conducted in a safe and environmentally sound manner.

MMS manages several other monitoring and study programs in partnership with other Federal or academic agencies focusing on many aspects of ocean science. MMS also supports the goal of advancing international ocean science and policy. The MMS takes an active approach to identify and become involved in international initiatives that promote better integration of safety and environmental concerns into offshore decision-making. To do this, MMS focuses on:

- monitoring, developing, and refining safety and environmental standards;
- technical and information exchanges with our international regulatory counterparts; and
- providing technical advice to the U.S. Department of State.

The MMS Environmental Studies program is responsible for a number of the discoveries, including: sperm whales in the Gulf of Mexico, deep water chemosynthetic communities, the documentation of artificial reef communities which provide habitat for unique marine communities as well as a preferred fishing prospect for charter boats, deep water coral communities, and the documentation of intertidal biological communities. In no small way, the conduct of the OCS program has increased the science base of the nation's ocean resources.

Conclusion

The Department of the Interior's OCS program is a significant contributor to the nation's energy supply. With the increasing activity in the deepwater Gulf of Mexico, the contribution from federal offshore areas will increase substantially in the upcoming years. There are substantial national economic benefits from the program—federal revenues, private sector productivity gains, and employment.

The environmental record of the OCS program is outstanding and improving. A significant platform spill has not occurred in the last 35 years. Over the past 30 years of production offshore California, over 1 billion barrels of oil have been produced with, on average, about 33 barrels of oil spilled per year. In comparison, over this same time period, natural seeps "spilled" about 140,000 barrels of crude oil annually offshore Southern California. The program's excellent spill record has improved dramatically in each of the last 3 decades, according to the recent study by the National Academy.

Regarding the longer term, there are long lead times for accessing frontier areas of the OCS. Lease sales cannot be held unless they are scheduled in a 5-year program. Once a lease sale is held, it could take 5 to 10 years for drilling to commence. Commencement of production could take another 5 years after a discovery. In a very real sense, regarding OCS policy decisions, if we wish the OCS to continue contributing this significant role, the future is now.

The expansion of MMS's ocean responsibilities on the OCS will also expand our oceanographic information needs. As such, MMS, NOAA, USGS, and other partners are already working to ensure that OCS relevant information needs are better integrated into the IOOS through even closer stakeholder input. These efforts also include working with all the Federal partners on the Interagency Working Group on Ocean Observations. The flurry of recent scientific news releases concerning record-breaking wave heights recorded in the Gulf of Mexico during Hurricane Ivan—information from research supported by the MMS and the Office of Naval Research—highlight the importance of ocean observations for proper stewardship of OCS resources.

Natural gas production offshore represents one of the most environmentally sound energy investments this country could make. A decision to not produce OCS resources also carries environmental consequences. Mostly, it will mean more imported oil and LNG to meet our nation's energy needs. Importing these resources poses risks of potential environmental impacts as well as financial and security costs to the nation.

In this time of uncertainty, MMS stands ready to respond – to apply our best science, technical experience, and sound management principles to benefit the nation.

Mr. Chairman, this concludes my statement. Please allow me to express my sincere appreciation for the continued support and interest of this committee for MMS's programs. I would be pleased to answer any questions you or other members of the Subcommittee may have at this time.