

U.S. Policies Toward Offshore Oil and Gas:  
Access and Government Take

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## 1.0 Introduction

Domestic energy security and independence are key topics in the national energy debate due to the changing international political climate, increased competition for resources, energy supply instability, and price volatility. The U.S. continues to face gap between domestic production and consumption of oil and increased concern over the growing amount of U.S. dollars sent overseas. Because oil and natural gas will remain crucial to meeting national energy needs, the Nation relies heavily on Federal submerged lands to supply the needed resources. Natural gas from the Outer Continental Shelf<sup>1</sup> (OCS) supplies about 14 percent of our domestic gas production; OCS oil accounts for about 27 percent of our domestic oil production.

The Minerals Management Service (MMS), a bureau within the U.S. Department of the Interior, manages OCS energy resources. This includes oil and natural gas, as well as any forthcoming “alternative energy” projects designed to take advantage of renewable resources such as wind, wave, and ocean current energy. While MMS will not have final regulations in place for offshore alternative energy until December 2008 or later, the basic procedures for leasing rights to explore and develop oil and gas resources on the Outer Continental Shelf (OCS) have been in place for decades.

This paper provides a synthesis of the Federal OCS leasing process and is largely descriptive in nature. The first section describes the U.S. system for determining access and granting rights to offshore oil and gas resources, including what could happen to expand access to restricted areas, what must occur before production begins, and the potential results. The second part of the paper focuses on Government determination of “fair market value” and OCS lease fiscal terms. Fair market value components include the competitive bidding system, fiscal lease terms and bid adequacy procedures to determine the fair market value for the rights to explore and develop OCS tracts. Fiscal lease terms include bonus bids, rental payments, and royalty on production.

## 2.0 Access to the Outer Continental Shelf for Oil and Gas Leasing

Access to the U.S. Outer Continental Shelf for oil and gas leasing is governed by the OCSLA. Section 18 of the OCSLA amendments of 1978 added detailed requirements for the planning and scheduling of OCS lease sales (auctions) through the development of a 5-year oil and gas program, which is in essence a schedule of proposed lease sales covering a specific 5-year period.<sup>2</sup> The 5-year program process enables the Federal Government, affected States, the oil and gas industry, and other interested parties to provide input regarding size, timing, and location of possible lease sales and to plan for those sales that are placed on the schedule. The required process includes an iterative cycle of public comment, analysis, and decision leading to approval of a final 5-year OCS program.

The 5-Year program provides a defined process and predictability of OCS lease sales for industry and the coastal States. The process for dropping a proposed lease sale from an approved 5-year schedule requires little effort, and numerous sales have been cancelled. However, no lease sale can be held without going through the full 5-year program development process, which takes about 24-30 months—unless Congress

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<sup>1</sup> The Outer Continental Shelf begins three nautical miles seaward of State submerged lands, which in turn extend three nautical miles seaward of the coastline, except along Texas and Florida’s Gulf coast, where State waters extend to three marine leagues (about nine miles) from the coastline.

<sup>2</sup> The oil and gas program is subject to numerous other laws, including the National Environmental Policy Act, the Clean Water Act, the Clean Air Act, the Coastal Zone Management Act, the Endangered Species Act, the Marine Mammal Protection Act, the Fishery Conservation and Management Act, the National Historic Preservation Act, the Oil Pollution Act, and others.

specifically waives the requirements of OCSLA section 18, as it did when Eastern Gulf of Mexico Sale 224 was mandated under the Gulf of Mexico Energy Security Act of 2006 (GOMESA).

In July 2008, only a year after the 5-Year Program for 2007-2012 went into effect, MMS started the process for developing a new 5-Year Program (which would cover mid-2010 through mid-2015). The highly unusual decision to start this process so soon was prompted by the removal of laws and policies that prevented leasing consideration of the entire Atlantic OCS and Pacific OCS, as well as the concurrent increase in oil prices to more than 200 percent of price levels prevailing at the completion of the previous 5-year analyses. The purpose of starting a new program was to give the incoming administration flexibility to timely add lease sales in previously restricted areas. With the first step of the lengthy program development process completed prior to Inauguration Day, and subsequent analyses likely underway prior to the new Secretary assuming his or her post, the new administration could either stop the effort or initiate a new program in much less than the usual time.

## **2.1 Requirements of the OCS 5-Year Oil and Gas Program**

The statutory objective of the OCS 5-year oil and gas program is to schedule oil and gas lease sales to “best meet national energy needs for the five-year period following its approval or reapproval.” The leasing program that is adopted must be based on the criteria established in Section 18 of the OCSLA. These criteria include consideration of:

1. existing information concerning the geographical, geological, and ecological characteristics of such regions;
2. an equitable sharing of developmental benefits and environmental risks among the various regions;
3. the location of such regions with respect to and the relative needs of regional and national energy markets;
4. the location of such regions with respect to other uses of the sea and seabed, including fisheries, navigation, existing or proposed sea lanes, potential sites of deepwater ports, and other anticipated uses of the resources and space of the OCS
5. the interest of potential oil and natural gas producers in the development of these resources and indicated by exploration or nomination;
6. laws, goals, and policies of the affected States that have been specifically identified by the Governors of such States as relevant matters for the Secretary’s consideration
7. the relative environmental sensitivity and marine productivity of different areas of the OCS; and
8. the relevant environmental and predictive information for the different areas of the OCS.

The Secretary’s decision also must reflect a proper balance among the potential for the discovery and development of hydrocarbon resources, the potential for environmental damage, and the potential for adverse effects on the adjacent coastal zone. Section 18 requires the Secretary of Interior to consider a wide range of factors and does not impose a strict formula for decision-making even though the 5-year program process is quite structured. The Secretary must balance the factors, not necessarily treat all factors equally<sup>3</sup>. He balances the results of the section 18 analyses, with the objective of the OCSLA to insure “the expeditious development of OCS resources.” The 5-year program planning process includes three separate public comment periods, two separate draft proposals, development of an environmental impact statement, and the final program proposal, which can be made final 60 days after it has been sent to Congress. Additionally, the program must provide for the receipt of fair market value for the submerged lands leased and rights conveyed (covered in part 3 of this paper).

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<sup>3</sup> California I v. Watt, 668 F.2d at 1317

The process culminates in a decision by the Secretary of the Interior on a new 5-year program. No decisions made during this long process take effect until the new 5-year program is enacted. After enactment, there is an annual review of the program until development work begins on the next program.

## **2.2 Development Steps for the 5-Year Program**

The development of the 5-Year Oil and Gas OCS Leasing Program is a formal and iterative process. Each phase is heavily dependent on the previous steps. The publishing of a 5-Year Program is the final product following a 24-36 month process involving multiple stakeholders including the public, state and federal agencies and industry.

### **2.2.1 Request for Information**

The first step in the 5-year program process is the Request for Information (RFI), which opens a 60-day comment period. The RFI serves several purposes, including informing the public of the Secretary's intent to begin the program, soliciting input from all interested parties, and inviting the public's input regarding possible advantages and disadvantages of potential oil and gas leasing. It is designed to encourage discussions about those OCS areas with the greatest hydrocarbon potential and of greatest interest to the oil and gas industry. Through the RFI, MMS seeks input and comments from the public, industry, coastal State Governors, and other stakeholders on all 26 OCS planning areas, from the North Atlantic to the Beaufort Sea, north of Alaska.

This and all other stages of the process prior to the Proposed Final Program decision may include discussions with interested parties, especially with Governors of affected States and State agencies.

### **2.2.2 Draft Proposed Program**

Development of the Draft Proposed (5-Year OCS Oil and Gas) Program (DPP) is the second stage of the public process, and the DPP decision is the first of three published for public and/or Congressional consideration. The MMS reviews comments submitted in response to the RFI and analyzes each of the 26 OCS Planning areas according to the section 18 criteria, including environmental sensitivity, geological potential, energy needs, industry interest in leasing, other uses of the seabed, and goals and policies identified by the Governors of affected States. The DPP analyses, including the cost-benefit analysis and other such information compiled for the Secretary's consideration, are to inform the initial program decision. As such, they provide for comparisons of full planning areas across the entire OCS. They rank planning areas by resource value, sensitivity, productivity, and other factors, without any estimates of the results of various possible program decisions. As comments are reviewed and analyses are begun, MMS develops a set of decision options for each planning area. These options allow the Secretary to consider the completed planning area analyses and make an initial decision specifying size, timing, and location of proposed lease sales for the next program. As the analyses are completed, the staff selects the options to recommend. Public comments, especially those from Governors of affected States, are seriously considered in both the development of program options and the identification of recommended options.

The Secretary must select at least one option for each planning area (which could be "No Sale" or "Other," followed by a description). The selections comprise the DPP decision, which provides a draft proposed lease sale schedule and which serves as the basis for the section 18 and environmental impact analyses in the next step of the process. If a planning area is not proposed for leasing in the DPP decision and therefore is not included in the section 18 and environmental analyses for the Proposed Program, it cannot be considered for subsequent decisions.

When the DPP analyses and decision are published, MMS requests comments and also publishes a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) in accordance with the National Environmental Policy Act (NEPA). The NOI also announces the public scoping process. Throughout the scoping process, Federal, State, and local government agencies and other interested parties will have the opportunity to aid MMS in determining the significant issues and alternatives for analysis in the EIS. All interested parties have 60 days to comment on the DPP decision and supporting analyses.

### **2.2.3 Proposed Program**

The section 18 analyses of the DPP decision, the development of new program options, and the resulting Secretarial Proposed Program decision, published concurrently with the Draft EIS, make up the third stage of the 5-year program development process. At this stage, there is a fundamental shift from analyses of planning areas to analyses of the anticipated results of decision options. The Proposed Program analyses consider all comments received on the DPP, and all comments in response to the NOI are considered in the development of the Draft EIS. The section 18 factors remain the guiding principles in this and all stages of the 5-year program development.

A typical DPP decision includes portions of 6-12 planning areas for lease sale consideration. These areas, whether comprising complete planning areas (as is usually the case for the Central and Western Gulf of Mexico) or small portions thereof, are called “program areas.” At the Proposed Program stage, the section 18 analyses and the environmental impact analyses focus on these program areas, along with the timing of any proposed lease sales for these areas. Full planning areas or OCS regions are analyzed when it is logically more appropriate to consider larger area, as may be the case when considering “other uses of the OCS” and potential environmental effects.

The Draft EIS includes analysis of the potential impacts of offshore oil and gas leasing on both the marine and human environments. For the Draft EIS, similar decision options (which may be refined after the DPP decision) are grouped into several EIS “alternatives” for analysis, including the “No Action” alternative (which would result in the absence of a new program and thus an extended period of no lease sales). The use of EIS alternatives, rather than 20-40 individual decision options, allows for a much more understandable presentation, and these groupings are used for many of the section 18 analyses as well.

The Proposed Program analyses, options, and decision, along with the Draft EIS, are published with a 90-day comment period. During the comment period, MMS holds public hearings on the Draft EIS in coastal locations near the program areas considered for leasing in the Proposed Program decision. Comments received on the DEIS are addressed in the Final EIS. (Subsequent NEPA documents for individual sales may be prepared with additional comment periods.)

### **2.2.4 Proposed Final Program**

The fourth and last cycle of comment consideration, analysis, and decision is the Proposed Final Program (PFP) stage. The PFP analyses and the Final EIS are based on the Proposed Program decision and the comments received on that decision and on the Draft EIS. After the options have been identified and the analyses completed, the Secretary makes the PFP decision. The PFP and accompanying analyses are published and submitted to the President and Congress with a 60 day notification period. There is no public comment period. After 60 days, if Congress does not object, the Secretary may approve the new program. There are no additional analyses, and the PFP becomes the Final Program.

After enactment of the Final Program (traditionally—but not necessarily—on July 1, as the previous program expires), MMS begins a similar, but more area-specific, process to prepare for each individual

lease sale. If the area has not been offered recently, a call for information is issued. For each lease sale, there is a Proposed Notice of Sale which includes the fiscal terms and other stipulations of the offered blocks. After a comment period and further analysis, that is followed by a Final Notice of Sale at least 30 days before the sale.

### **2.3 Congressional Moratoria and Executive Withdrawal**

In the past, Congress has prohibited MMS from planning oil and gas lease sales on vast stretches of the OCS. These prohibitions were in the form of Appropriations language limiting MMS's latitude in spending appropriated funds for pre-lease and leasing activities. These Congressional moratoria prohibited future oil and gas leasing, but they did not prevent MMS from considering these areas in 5-year programs, which are considered general planning. Congressional moratoria were enacted annually as part of the Department of the Interior's appropriations legislation for 26 years but were not included in the fiscal year (FY) 2009 continuing resolution, so the last one expired on September 30, 2008. As of November 2008, no OCS areas are affected by annual appropriations moratoria. In the current applicable appropriations legislation for FY 2009, there is now the possibility of offshore oil and gas leasing activity off the Pacific and Atlantic coastlines and small portions of the Eastern Gulf of Mexico (GOM) Planning Area, assuming no new restrictions and the inclusion of these areas in approved 5-year schedules.

The 5-year OCS oil and gas leasing program for 2007-2012 includes only one sale in an area that had been under restriction, that being the program area in the Mid-Atlantic Planning Area off the coast of Virginia. The Virginia lease sale is scheduled for 2011. This initial planning step for this sale, the publication of a Call for Information and Interest/Nominations and Notice of Intent to Prepare an EIS on November 13, is not a commitment to hold a lease sale but a continuation of the information-gathering and evaluation process.

While annual appropriations moratoria are no longer in effect for Interior, the vast majority of the Eastern GOM Planning Area and a portion of the Central GOM Planning Area within 100 miles of Florida remain unavailable for leasing consideration until 2022 as a result of the Gulf of Mexico Energy Security Act (GOMESA) signed on December 20, 2006. The GOMESA moratorium on the Eastern GOM is a statute and is not required to be renewed annually. Unless repealed by Congress, lease sales cannot be held in these portions of the Eastern and Central GOM until after June 30, 2022.

In addition to Congressional moratoria, there are two previous Presidents who used Executive or Presidential Withdrawal authority under Section 12 of the OCS Lands Act to remove portions of the OCS from leasing consideration. Thus, both Congressional Moratoria and Presidential Withdrawal must be absent for lease sales to be held in OCS areas included in a 5-Year Program. While rescinding the Withdrawal for most of the OCS, the President has maintained the Withdrawal of all marine sanctuaries from consideration for oil and gas lease sales.

### **2.4 Lease Sales**

Following issuance of a final 5-year oil and gas leasing program, lease sales are held to offer unleased OCS blocks. As mentioned above, a lease sale cannot be held if it is not part of an approved 5-year program. As required by the OCSLA, lease sales are held under sealed bid, single-variable auctions for the right to explore 3-mile-by-3-mile OCS blocks and to develop and produce any discovered resources. Final lease terms, such as the royalty rate and any stipulations on the offered blocks, are announced at least 30 days prior to the sale. Bidders in recent OCS auctions after 1983 compete exclusively through the "bonus bid" to win the right to explore and develop the lease if the bid exceeds MMS' assessed value.

At the lease sale, sealed bids are publicly opened and announced. The highest bid is subject to a bid adequacy review covered in the next section of this paper. If the bid is not accepted, the block is reoffered at a future lease sale. A lease awarded to the winning bidder is subject to many laws and regulations to ensure diligent, safe, and environmentally sound development. These requirements are covered in greater detail in section 4 of this paper.

### **3.0 Fair Market Value and Sale Design Options**

This section discusses OCS auction bidding systems used to induce bidders to offer fair market value of OCS leases and provides an overview of the OCS bid adequacy process. There are many considerations and inputs when designing OCS oil and gas auctions. The nature of the auction, market conditions, and lease fiscal terms contribute to a fair return to the taxpayer and the country's energy security. The OCSLA requires receipt of fair market value for OCS oil and gas leases and the rights they convey. MMS sets minimum bid levels and rental and royalty rates by individual lease sale, based on its assessment of market and resource conditions. Following receipt of bids, MMS uses a two-phase, post-sale bid evaluation process that has been in effect since 1983 to meet the fair market value requirement.

#### **3.1 Bidding Systems**

The OCSLA grants the Secretary of Interior authority to issue leases on the OCS. The OCSLA states "Leasing activities shall be conducted to assure receipt of *fair market value* for the lands leased and the rights conveyed by the Federal Government." Lessees pay monies collected as bonuses, rentals, and royalties, reflecting the value of the property rights to explore and potentially develop and produce OCS oil and gas resources.

The competitive bidding systems available in OCSLA and in the 30 CFR § 260.110 regulations provide for variations of the cash bonus/royalty rate approaches. MMS has chosen to use the cash bonus bidding system, subject to a fixed royalty rate, exclusively since 1983. Through the OCSLA Amendments of 1978, Congress instructed Interior to experiment with alternative bidding systems for leasing offshore oil tracts. The goal was to encourage participation by small companies by reducing up-front costs associated with the traditional 'bonus bid' system. Interior used four alternative bidding systems from 1978 through 1982 and found the alternatives unsatisfactory because, among other things, they appeared to reduce participation by small companies and were judged to be significantly more complex to administer.

Also beginning in 1983, MMS modified its general approach to leasing by replacing the tract selection process with an area-wide leasing approach. In both the early years of the new program, as well as in recent years, concerns have been raised about several aspects of the area-wide leasing program, including that the format might reduce Government take from OCS oil and gas leases.

#### **3.2 Area-wide Leasing**

Under area-wide leasing, MMS offers for sale all unleased program area blocks not under dispute or withdrawn from leasing due to environmental, navigation, or other restrictions. The State of Louisiana has questioned the regional benefits of area-wide leasing in the Gulf of Mexico and suggested that MMS use alternative leasing schemes in several letters sent in 2006, 2007, and 2008. MMS commenced an extramural study in late 2007 to evaluate a variety of alternative and modified leasing approaches to determine whether they may better achieve goals of the OCS Lands Act. Alternatives to area-wide leasing might include: limiting the number of tracts to be offered (with the actual tracts being determined by a combination of industry nominations and MMS tract selection); reducing the acreage offered in each

sale; breaking up planning areas; altering the frequency of sales; raising royalty rates or applying royalty rates that are dependent on resource price and/or quantity produced; and, changing the auction bidding variable.

While considering alternative leasing approaches and fiscal systems that may enhance government take and better ensure receipt of fair market value, MMS must be cognizant of the effects any such policy changes might have on the achievement of other statutory goals of the Federal OCS Program. Among these goals are expeditious and orderly development of resources and maintaining a diverse and competitive industry. In these regards, history has shown that area-wide leasing accelerates drilling and allows smaller independent companies to acquire and rapidly produce low-resource, low-risk fields, while providing larger companies with an incentive to pursue technological development in deep water. Area-wide leasing is also judged to encourage active and innovative seismic exploration and to strengthen the geophysical contracting and processing industries. MMS expects the forthcoming analysis of alternatives to area-wide leasing to address these issues.

### **3.3 Fiscal Lease Term Considerations**

When designing fiscal terms for OCS leases, MMS considers the hypothesized economics of generating OCS hydrocarbon resources, as well as the actual exploratory results and lessee development decisions. The Government will generally receive the most revenues if the fiscal terms it imposes do not induce significant reductions in production from the lease. This entails creating fiscal terms that are consistent with profitable conditions for lessees and identifying administrative conditions which ensure that development is consistent with sound conservation practices. The primary factors affecting lessee returns are the amount of recoverable OCS hydrocarbon resources in place, market price of oil and gas, costs of investment, operation and transportation, and, the applicable lease terms.

#### **3.3.1 OCS Lease Fiscal Terms**

The “Government take” represents the share of economic rent (i.e., revenues less capital and operating costs) which is captured by the government in the form of the winning bonus bids, rentals (paid on a lease per acre basis prior to royalty bearing production), and royalties (a portion of gross value at the wellhead). Additionally, the government receives a share of the accounting profits through Federal taxes, especially Federal corporate income tax revenues.

The U.S Federal OCS fiscal lease terms are subject to sale-by-sale reconsideration and have been revised more frequently than usual over the last few years in response to changing market conditions. The royalty rate has been raised twice for GOM leases in recent years as oil and gas prices have risen substantially above the range that prevailed historically. In addition, a stepped and escalating rental has been implemented in recent GOM and Alaska sales. MMS evaluates various the fiscal term options in relation to their projected effects on leasing, drilling, production, and government receipts, as well as on interest in, and competition for, the blocks offered for sale. Based on the results of recent GOM and Alaska sales, the revised fiscal terms do not appear to have adversely affected leasing or the magnitude of cash bonus bids offered for the leases.

#### **3.3.2 Oil and Gas Prices**

The experiences of the last few decades have shown that unanticipated world events or economic changes can cause oil and gas prices to deviate considerably from even the most respected forecasts. During the 18 months preceding the writing of this paper, oil prices rose and fell by approximately \$80 per barrel. Volatile hydrocarbon prices indicate the benefit of designing fiscal lease terms that are responsive to a wide range of price possibilities. The fixed royalty rates currently applied to OCS leases have significant

administrative advantages over more complex systems, and do generate higher receipts to the government in proportion to the rise in prices (or production). However, these fixed terms capture a decreasing share of projects' economic profits when hydrocarbon prices increase and an increasing share of the economic profits when hydrocarbon prices fall. So, while fixed royalty rate terms have provided administrative advantages during periods of historically stable prices, in the presence of unstable prices such as we've experienced recently, these benefits are offset by having the fixed terms result in government receipts that could be viewed as too high or too low in aggregate depending on hydrocarbon prices.

### **3.3.3 Upstream Costs**

The increased price of oil and gas over the 2004-2008 timeframe increased the demand for goods and services supplying the oil and gas industry. There have been frequent references in the oil and gas media about increases in oil and gas service costs that far exceed the average PPI inflation rate. MMS has studied the variations in upstream costs across a wide range of oil prices when considering the impact of different fiscal lease terms. Internal analysis which studied the relationship between oil and gas prices and offshore upstream costs found that a statistically significant relationship exists between crude oil price and an index of upstream OCS costs. This analysis was confirmed based on indices developed by HIS, Inc./Cambridge Energy Resource Associates.<sup>4</sup>

While the longer term relationship between offshore upstream costs and hydrocarbon prices will certainly vary over time and adjust to longer term market forces, it has been instructive to analyze the effects on the offshore oil and gas industry's costs during the rapid price increases of recent years. To evaluate alternative fiscal terms for OCS leases, the relationship of offshore upstream costs to price changes must be an important consideration.

Another important factor when considering the economics of OCS oil and gas development is the existence of OCS oil and gas infrastructure, i.e., production facilities and transportation capabilities. The GOM and near-shore Southern California has an existing network of pipelines, hubs, and shore bases. The Alaska Arctic has little infrastructure west of Prudhoe Bay and no gas pipelines. The Atlantic OCS, while close to the East Coast markets, does not have an existing oil and gas infrastructure base. Thus, fiscal lease terms for OCS oil and gas lease sales must consider the full range of industry costs required to explore and develop OCS hydrocarbon resources, given the state of the region's existing infrastructure.

### **3.3.4 OCS Oil and Gas Resources**

When evaluating the appropriate fiscal terms for new OCS leases, the available unleased, undiscovered resources are a key consideration. The larger the hydrocarbon fields available for development, the greater the potential economic profit available for both the lessee and the Government. However, accurate resource estimates only become known following exploration and delineation, while fiscal terms for OCS leases must be set and announced years before information is revealed from drilling that helps significantly in forecasting the lease's potential economic value.

By far the most abundant U.S. OCS hydrocarbon province is the Gulf of Mexico, which has experienced active leasing for more than 50 years. Accordingly, it can be assumed that the most prospective acreage in shallow waters has already been leased. In fact, the shallower shelf is now in decline, and deepwater tracts (deeper than 1000 feet subsea) now provide 72% of oil and 38% of gas produced<sup>5</sup>. Not surprisingly, most new GOM development and discoveries are occurring in deep and ultra-deep waters.

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<sup>4</sup> IHS/CERA (Cambridge Energy Research Associates) Upstream Capital Cost Index (UCCI)

<sup>5</sup> Deepwater Gulf of Mexico 2008: America's Offshore Energy Future (MMS 2008-013)

The GOM experienced prolific expansion into deepwater following the passage of the Deep Water Royalty Relief Act of 1995 (DWRRA). Subsequently, the GOM lease sales of 1996-1998 were among the largest in OCS history. By the end of 2006, large numbers of deepwater leases issued during the late 1990's with 10-year lease terms were terminated or relinquished without being drilled or produced and became available for reoffering. The resulting 2007-2008 GOM sales of tracts formerly issued under the DWRRA also set OCS leasing records.

The OCS planning areas outside of the GOM have experienced much less exploration and development, and each has its own characteristics affecting the economics of development. The Atlantic is gas prone, with most of the resources estimated to extend beyond 25 miles from shore. The Pacific OCS is mostly heavy oil, with most of the resources judged to reside within 10 or 15 miles of shore. The Alaska's Chukchi Sea is gas prone but faces challenging exploration and development scenarios, not to mention the lack of proximate infrastructure. Thus, the design of fiscal terms for lease sales in OCS planning areas must consider the unique economics of the geologic basins that are being offered.

### **3.4 Risk and Reward**

Different fiscal systems yield varied risk profiles for the lessor and lessee. As with any financial investment plan, actions that might raise the Government take entail higher risk. The risk profile is a measure of the extent to which, and the way in which, the resource owner holds an ownership share in the resources being developed. The United States uses a concessionary system where the title for any hydrocarbons produced is transferred to the lessee in return for the winning bonus bid, rental payments and royalties on the value of production.

Since 1983, OCS leases have been exclusively awarded through a competitive bidding process in which companies pay bonus bids subject to a fixed royalty rate in return for the rights to explore and develop leases. Bonuses capture a share of the anticipated economic rent at the time the rights are conveyed; royalties capture a share of the actual economic profits when production occurs.

There are advantages in using the cash bonus as the bid variable. In contrast to other potential bid variables, such as the royalty rate or a work commitment, the cash bonus is transparent, most likely to result in an award to the company with most technical expertise and resources to explore and develop the lease. It also avoids encouragement of spurious bids or subsequent inefficient operations, including gold-plating and/or early cessation of production.<sup>6</sup>

Since industry bears the majority of the risk in the development of OCS oil and gas leases, it is important that the fiscal terms do not unduly affect the underlying lease profitability or encourage lessees to make investment decisions that reduce contingency payments at the potential expense of overall project profitability. In this regard, having the cash bonus as the bid variable allows MMS to ensure receipt of fair market value upfront, thereby reducing the distortion in production decisions associated with having large royalty payments downstream. However, having an up-front payment like a cash bonus increases the risk to investors because bonuses are paid whether or not the lease is viable and economic quantities of hydrocarbons are found. In fact, a large proportion of OCS leases are relinquished during or at the end

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<sup>6</sup> After aggressive royalty-rate bidding, there is a great likelihood that the lessee will find production uneconomic at the royalty rate bid or will leave a significant proportion of the resources in the ground at that rate. The latter situation may place the Government in the position of having to grant lower royalty rate, for a significant portion of future production, than was offered in the original auction even by the second high bidder, rather than foregoing the production entirely. This phenomenon did occur on a few occasions as part of the 1978-1982 alternative leasing experiments.

of their initial term because either exploratory drilling is not undertaken or economic fields are not found. In these cases, a company decides to relinquish the lease and loses the bonus bid, rental payments, and other seismic and exploration costs. Tax deductions allow companies to recover part of these acquisition costs.

If the Government retained an equity share in the lease, it would alter the risk/reward profile for both investors and the government. In some fiscal systems, governments share risk with companies by more strongly linking government take to company returns. In such oil and gas systems, fiscal terms are designed so that government take typically is low in early years of a lease, when exploration and early development are being undertaken, but increases once production begins. The OCSLA does not permit OCS leases to be issued with the Government retaining a formal equity share in a lease, although the Government sharing solely in profits is authorized. Some leases were issued in the GOM under profit sharing systems during the experimental period 1978 through 1982. However, among other things, administration of those systems has proven to be very complex, contentious, and time consuming.

During the period 1983 to 2006, in the presence of relatively stable hydrocarbon prices, issuing leases under competitive cash bonus bidding subject to a fixed royalty rate on the value of production was a consistent and effective approach for the Federal offshore oil and gas program. With the likelihood of continuation of volatile hydrocarbon market conditions, MMS has a responsibility to carefully evaluate whether alternative fiscal lease terms authorized by the OCS Lands Act may be suitable. Any future adjustments made to the fiscal terms or bidding system in upcoming OCS planning area lease sales would likely be designed to more evenly share the risks and rewards between the Government and lessee. Should rapid increases in oil prices be expected to resume once the current economic crisis passes, one such option for OCS leases that merits consideration is a sliding royalty based on the market price of oil or gas. Although administrative complexities remain a concern, the possible gain in government take that could occur without adverse production effects yields evaluation of such systems worthwhile.

### **3.5 Competition and Bid Adequacy**

All bids for OCS blocks in oil and gas lease sales must satisfy fair market value requirements. This part discusses in greater detail MMS's post-sale measures taken to assure the receipt of fair market value for OCS leases. Competitive lease sales with the bonus bid as the deciding variable provide greater assurance that the high bid is the "right price" for an OCS lease. In the absence of multiple bidders, the bid must still exceed the Government's assessed value. MMS evaluates bonus bids for OCS tracts through a bid adequacy process as it relates to fair market value for OCS oil and gas leases. This bid adequacy process relies on both evidence of market competition and in-house estimates of tract value.

The current bid evaluation system is a two-phase post-sale evaluation process for determining fair market value. The bid adequacy process<sup>7</sup> as it exists today was largely instituted in 1983, with the implementation of the area-wide leasing policy, and it has undergone several refinements to address fair market value concerns. This process established a new criterion for awarding leases based on the number of bids received and the tract's geological potential in the first phase of the bid evaluation process, and a new tract-specific assessment procedure in conjunction with an adjustment in the reservation price based on the magnitude of bids offered for the tract. Bid evaluation is a dynamic process, so as conditions change, MMS looks for opportunities to improve the process. Thus, there may be future revisions to the OCS bid adequacy procedures to incorporate knowledge gained or to accommodate structural changes in the leasing process or the auction format.

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<sup>7</sup> The most recent revision was published in the Federal Register on July 12, 1999 (64 FR 37560).

The bid adequacy process evaluates high bids in two phases. The first phase of the bid evaluation process assesses value under a number-of-bids rule and a tract viability rule. If not accepted during the first phase, the high bid is evaluated using tract-specific assessment procedures that involve consideration of economics, finance, statistics, geology and engineering. The minimum assessed value, i.e., the MMS reservation price, must be no lower than the minimum bid requirement that is specified prior to the sale for all tracts residing in a comparable range of water depths. If the high bid does not exceed the MMS reservation price, the lease is not awarded, and the tract is reoffered at the next lease sale for that planning area. Thus, MMS reviews all high bids received and evaluates in-depth selected tracts in phase two of the process to help ensure that fair market value is received for each OCS lease issued.

If the high bid is determined not to satisfy the fair market value conditions for the block, a lease is not awarded. For an average GOM sale, 1-3 percent of high bids are rejected. One objective of having bid rejection is to encourage bidders to exceed the Government's reservation price and thus avoid bid rejection. Another objective is to promote higher bids for rejected blocks in the next lease sale. MMS bid adequacy procedures have consistently resulted in higher returns in subsequent sales for tracts that have had bids rejected in previous sales. Since 1984, MMS has rejected total high bids of \$578.7 million in the Gulf of Mexico. Subsequently, but typically within one year, the same blocks were re-offered and drew high bids of \$1.503 billion, for a total net gain of \$924.3 million.

MMS value is equated to the minimum bid when the block is deemed to be nonviable. When the tract is assessed as viable and not accepted by the number of bids rule in phase one, it is evaluated in phase two, and the geologic and economic models for each tract help determine the fair market value minimum acceptable bid. Gulf of Mexico look-back studies have shown that the overwhelming numbers of blocks deemed nonviable by MMS are in fact returned to MMS when the primary lease term expires compared to tracts MMS judges will be viable. In a recent MMS look-back study, tracts identified by MMS as viable during the sale evaluation process were found to have yielded 97 percent of the discovered resources. In contrast, tracts identified as nonviable yielded only 3 percent of the discovered resources.

Prior to area-wide leasing, MMS employed a tract evaluation process prior to a sale. However, this process is less feasible when offering a large number of tracts and absent information about which tracts will receive bids. Thus, the current post-sale tract evaluation process has important efficiencies and fair market value properties because it allows MMS to focus its evaluation efforts only on tracts that receive bids. It also permits more detailed mapping and analysis of the most recently obtained and analyzed geological data needed to make an informed bid acceptance or rejection decision, thus further helping to assure receipt of fair market value.

#### **4.0 Diligent Development of OCS Leases**

If the high bonus bid is accepted, the working interest is conveyed to the lessee for a limited period called the initial term. It is important to note that the fair market value at the time of lease award is not based on the value of the oil and gas eventually discovered or produced; instead it is related to the value of the right to explore and, if there is a discovery, to develop and produce hydrocarbons. This value is therefore based on the expected, not actual, activities and results that are anticipated to occur after the sale.

##### **4.1 Lease Term**

During the initial term of a lease and before the lease goes into production (in other words, during the time the lessor is not receiving any benefit from its retained royalty interest), the lessee pays annual rentals. In recent sales, MMS has imposed rentals that escalate over time to encourage faster exploration and development of leases. While these higher stepped and escalating rental rates are designed to increase the holding cost to companies so that they will either explore or develop the leases if there are

economic hydrocarbon resources, the higher rental rates have not been in effect long enough to determine if the relinquishment rate has increased or if drilling has been expedited.

The Government also reserves a royalty interest, which is a cost-free share of the production if the lease is determined to hold economically recoverable hydrocarbons and enters production. Royalty rates can have a significant impact on bidder interest and are a key parameter in the calculation of fair market value for a block. All of the obligations (bonus payments, rentals and royalties) reflect the value of the lessor's (i.e., the Federal Government's) property interest in the leased energy minerals and are fiscal components of fair market value.

Following the issuance of a lease, many regulatory approvals are still required. Bonds or other financial assurances must be posted. A company must file an exploration plan before drilling any wells and that plan is subject to a technical and environmental review by MMS. Once a discovery is made the company must file a development plan subject to additional technical and environmental review before production can begin. Permits to drill, air emissions permits, water discharge permits and other approvals must also be obtained as required by law. After an OCS lease is developed and enters production it must continue to meet strict safety and environmental safeguards. MMS has over 60 inspectors that daily fly offshore to conduct safety and environmental inspections. Enforcement mechanisms can range from warnings to civil and criminal penalties and even disbarment from operating on the OCS.

#### **4.2 Decommissioning**

Following the depletion of hydrocarbon resources on a lease (which may take 30 years or more), OCS oil and gas infrastructure on the lease must be decommissioned in an environmentally safe manner and the lease returned to its original condition. All wells drilled on the lease must be permanently plugged and abandoned. Any platforms on the lease must be removed and pipelines decommissioned. The sea bottom is dragged to verify that no equipment remains. Under the Rigs-to-Reefs program, some platforms are removed, towed to new locations, and laid on the ocean floor to create permanent artificial reefs.<sup>8</sup>

After a lease is cleared, the property rights are returned to the MMS for reoffering at future lease sales. While it is not uncommon for a tract to be leased again, there have been relatively few formerly producing leases that have returned to production. As technology improves industry's ability to drill to deeper depths and operate in high-pressure and high-temperature (HPHT) environments, there may be an opportunity for GOM shelf leases to access and produce from deep and ultra-deep depths, far below the fields developed and produced earlier. Additionally, if a mechanism to commercially produce methane hydrates is discovered, the abundance of this energy resource in the GOM and Alaska may provide opportunities for profitable alternative hydrocarbon extraction activities.

#### **5.0 Summary**

The U.S. Minerals Management Service, subject to decisions by the Secretary of the Interior, manages energy resources on the nation's Outer Continental Shelf. Before any OCS oil and gas resources can be discovered and produced, MMS must go through an extensive, iterative process of public comment, consultation, analysis, and decision to propose lease sales in a 5-year program, to auction leases in individual sales, to determine adequacy of the bids, to evaluate lessee exploration plans, and to review lessee development and production plans. The process leading to issuing leases takes at least 2-3 years (for Central and Western GOM sales), but usually takes much longer elsewhere. Congress can waive

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<sup>8</sup> Large colonies of sea life form under platforms during the life of an oil and gas project, so they already are effectively artificial reefs before being moved.

some of these requirements but has done so only once. MMS has a highly developed process of setting terms to assure that the Government receives a significant share of economic rent on behalf of the taxpayer, and of evaluating bids to assure that they are rejected if they do not represent fair market value of lease rights. After production begins, MMS continues to regulate the industry to encourage safe and environmentally sound operations and to assure that all structures are decommissioned at the end-of-life. MMS has begun preparation for a new 5-year program for 2010-2015, which will allow the incoming administration to offer lease sales in formerly restricted areas or to retain the current program (for 2007-2012), as it deems appropriate.

## 6 References

A more detailed description of the existing bid adequacy process—“*Summary of Procedures for Determining Bid Adequacy at Offshore Oil and Gas Lease Sales: Effective July 1999, with Sale 174*”  
<http://www.gomr.mms.gov/homepg/lseale/bidadeq.html>

Outer Continental Shelf Lands Act: Title 43, Chapter 29, Subchapter III, Outer Continental Shelf Lands  
<http://www.mms.gov/aboutmms/pdf/ocsla.pdf>

MMS 5-Year Oil and Gas Leasing Program: <http://www.mms.gov/5-year/>