

October 2008

OIL AND GAS LEASING

Interior Could Do More to Encourage Diligent Development





Highlights of [GAO-09-74](#), a report to congressional requesters

Why GAO Did This Study

In 2007, the Department of the Interior (Interior) collected about \$10.5 billion in revenues from companies that hold federal oil and gas leases. Interior's Minerals Management Service manages offshore leases, while its Bureau of Land Management manages onshore leases and leases in the National Petroleum Reserve in Alaska. Acquiring a federal lease gives the lessee the rights to explore for and develop the oil and gas resources under the lease. Development entails many tasks, including drilling wells and building pipelines that may lead to oil and gas production.

GAO agreed to (1) describe Interior's efforts to encourage development of federal oil and gas leases and compare them to states' and private landowners' efforts, (2) examine trends in leasing and factors that may affect development, and (3) describe development on a sample of leases. GAO reviewed data on about 55,000 leases and spoke to officials at Interior and in eight states with leasing experience, among others.

What GAO Recommends

GAO recommends that the Secretary of the Interior develop a strategy to evaluate options to encourage faster development of its oil and gas leases. Interior generally agreed with the recommendation, but questioned whether some actions could have potentially adverse impacts. GAO maintains that Interior should study these options and report on the results to Congress.

To view the full product, including the scope and methodology, click on [GAO-09-74](#). For more information, contact Frank Rusco at (202) 512-3841 or ruscof@gao.gov.

OIL AND GAS LEASING

Interior Could Do More to Encourage Diligent Development

What GAO Found

Interior does less to encourage development of federal oil and gas leases than some state and private landowners. Interior officials cited one lease provision that may encourage development—escalating rental rates. For example, the rental rates for 10-year onshore federal leases increase from \$1.50 per acre per year for the first 5 years to \$2 per acre per year for the next 5 years. Compared to Interior, the eight states we reviewed undertook more efforts to encourage development on their oil and gas leases, using increasing rental rates as well as shorter lease terms and escalating royalty rates. Some states also do more than Interior to structure leases to reflect the likelihood of oil and gas production, which may encourage faster development. Specifically, while Interior uses varying lengths for offshore leases, with deeper waters receiving longer lease terms, this provision is not explicitly related to the expected productivity of the lease. On the other hand, five of the states that GAO reviewed—Alaska, Louisiana, Montana, New Mexico, and Texas—vary lease lengths or royalty rates to reflect the likelihood that the lease will produce. GAO also found that private landowners have used various leasing methods to encourage faster development, including lease terms as short as 6 months.

Over the past 20 years, the total number of oil and gas leases Interior issued has varied each year but generally increased in recent years, as has the amount of development activity, and industry officials told GAO that a range of factors influence their decisions to acquire and develop leases. The number of offshore leases issued annually from 1987 through 2006 had two large peaks—in 1988 and 1997—and has generally been increasing since 1999. Onshore leases peaked in 1988 and then declined until about 1992, remaining at these lower levels until about 2003 when they increased, coinciding with rising oil and historically higher natural gas prices. Drilling and production activity on federal leases has been higher over the last 10 years than from 1987 through 1996, but the increase has been more dramatic for onshore leases. Industry officials told GAO that several factors influence their decisions to acquire and develop federal oil and gas leases, including oil and gas prices; the availability and cost of equipment; the geology of the land underlying the lease; and regulatory issues, such as limitations on when drilling can occur.

GAO's review of data on about 55,000 offshore and onshore federal leases issued from 1987 through 1996—those that have exceeded their primary 10-year lease terms—identified three key findings regarding development. First, development occurred on about 26 percent of offshore and 6 percent of onshore leases issued during the sample period. Production was less frequent, with about 12 percent of offshore leases and 5 percent of onshore leases ultimately achieving production. Second, shorter leases were generally developed more quickly than longer leases, but not as frequently during the term of the lease. Finally, for those leases that eventually produced oil or gas a substantial amount of the initial drilling activity—about 25 percent onshore—took place after the scheduled expiration of the lease, following a lease extension.

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Abbreviations

AFMSS	Automated Fluid Mineral Support System
APD	application for permit to drill
BLM	Bureau of Land Management
DWRRA	Deep Water Royalty Relief Act
LR 2000	Legacy Rehost 2000 (database)
MMS	Minerals Management Service
NPR-A	National Petroleum Reserve in Alaska
PDS	Premier Data Services
TIMS	Technical Information Management System

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United States Government Accountability Office
Washington, DC 20548

October 3, 2008

The Honorable Jeff Bingaman
Chairman
Committee on Energy and Natural Resources
United States Senate

The Honorable Nick J. Rahall, II
Chairman
Committee on Natural Resources
House of Representatives

The Honorable Steve Pearce
Ranking Member
Subcommittee on Energy and Mineral Resources
Committee on Natural Resources
House of Representatives

The Honorable Mary L. Landrieu
United States Senate

Oil and natural gas production from federal lands and waters is critical to meeting our nation's energy needs. This production provided about 31 percent of all oil and 29 percent of all natural gas produced in the United States in fiscal year 2007 and was valued at over \$72 billion. The Department of the Interior (Interior) manages oil and gas resources on federal lands and waters and offers leases to oil and gas companies that may develop these resources. In 2007, Interior collected on behalf of the federal government about \$10.5 billion in bonuses, rents, and other revenues from companies leasing federal lands and waters for oil and gas exploration, development, and production. Interior's Minerals Management Service (MMS) manages offshore leases, while Interior's Bureau of Land Management (BLM) manages onshore leases in the lower 48 states and the National Petroleum Reserve in Alaska (NPR-A), a 23-million acre onshore area on Alaska's North Slope that was set aside in 1923 as an emergency oil supply.

Interior's processes for issuing federal leases vary depending on whether they are offshore, onshore, or in the NPR-A. Leases are issued in some cases using a competitive process, where companies bid on leases and in other cases can be issued noncompetitively to interested parties. Leases

are issued for a fixed period generally ranging from 5 to 10 years, which is referred to as the primary term of the lease. Once leases are issued, lessees begin paying rent, depending on whether the lease is offshore, onshore, or in the NPR-A, and may take actions to explore for oil and gas and develop the lease. Exploratory activities include analyzing available geologic information and seismic and other testing to identify if economically viable oil and gas reservoirs exist underground.¹ If companies believe that economically viable reservoirs exist, they may begin efforts to prepare for development, such as completing the environmental studies required to apply for permits to begin development activities. Once the permits are approved, the company may begin development activities, including building roads to the well site, drilling wells, and constructing platforms and any additional pipeline transportation necessary to transport the oil and gas to market.² Both MMS and BLM require “reasonable diligence” in developing and producing oil and gas on federal leases, but neither agency has precisely defined the activities or time frames that constitute reasonable diligence. In the event that a federal lease begins producing, the lessee pays royalties on the oil and gas it produces in lieu of paying rent.

Nonproducing leases expire at the end of their primary terms, but can be extended in certain cases. One such case is where actual drilling operations are being conducted at the end of the lease’s primary term or the leases become part of a unit—an administratively combined set of contiguous leases that draw upon the same oil or gas reservoir. An area developed under a unitization agreement may provide for more efficient development of the reservoir, resulting in fewer wells being drilled and reducing disruption on the surface and impact on the surrounding environment for access roads and pipelines.

Like the federal government, state governments and private landowners also lease land to companies for the development of oil and gas resources. Several states, including Alaska, Colorado, Louisiana, Montana, New Mexico, Texas, Utah, and Wyoming, have significant experience offering such leases. Similar to federal leasing processes, states offer various lease terms, accept bonus bids, and charge rent and royalties—some of which

¹In some cases, particularly for offshore leases, where other activities may be less effective, exploratory activities may include drilling wells.

²For purposes of this report, we considered drilling to be primarily a developmental activity.

are set by law and some that state officials negotiate. However, state and private leases may be subject to fewer restrictions on development than federal leases. For example, federal laws, such as the National Environmental Policy Act—which requires analysis of the potential environmental impact of federal actions—do not apply to state or private leases. Private leases may be subject to even fewer restrictions on how leases may be structured; while both the federal and state governments have certain statutory and regulatory requirements that affect leases they issue, private landowners are free to individually negotiate the size and length of leases, bonus bids, rents, and royalty rates.

In recent years, oil and gas activities on federal lands have drawn increased attention. Some have advocated increased leasing of federal lands that are currently unavailable for leasing, particularly in the Alaskan National Wildlife Refuge and off the coasts of Florida and the eastern and western United States. Others are concerned about the environmental implications of opening more areas to oil and gas exploration, and believe that lessees could more quickly develop the millions of acres of federal land that are already available and leased to bring oil and gas to market, thereby increasing the nation's energy supply. In this context, we agreed to (1) describe Interior's efforts to encourage development of federal oil and gas leases and compare them to states' and private landowners' efforts; (2) examine trends in the number of leases and amount of acreage leased on federal lands and waters, the amount of development activity on active federal leases, and factors that may affect the development of these leases; and (3) describe how development occurred on a sample of leases that have expired or been extended beyond their primary terms.

To describe Interior's efforts to encourage development on federal oil and gas leases, we reviewed federal laws and regulations and interviewed knowledgeable officials with BLM, MMS, states, and industry groups. To compare states' and private landowners' efforts to encourage development on lands they lease, we collected selected information about state leasing of land for oil and gas in eight states with significant oil and gas resources and oil and gas leasing experience—Alaska, Colorado, Louisiana, Montana, New Mexico, Texas, Utah, and Wyoming—and a private landowners' association. We did not conduct detailed examinations of states' laws and related regulations. To examine trends in leasing and development, we collected leasing statistics from Interior's Public Land Statistics and obtained leasing, and production, information from MMS's Technical Information Management System. To identify factors that affect development, we interviewed knowledgeable officials with BLM and MMS, representatives from the eight states with significant oil and gas leasing

experience that we examined, representatives from industry with experience developing federal oil and gas leases, and officials from an association of private landowners involved with leasing land for oil and gas development. To describe how development occurred on a sample of leases, we selected a sample comprising nearly all federal oil and gas leases issued during a period spanning 1987 through 1996—leases that had expired or been extended beyond their primary terms. We used BLM and MMS information systems that contain data on leases and wells to track their development through 2007. For onshore leases, we included federal leases issued in six states—Colorado, Montana, New Mexico, Nevada, Utah, and Wyoming—which together accounted for 82 percent of federal onshore leases issued during this time frame. We examined if and when drilling or production occurred on each lease issued during the sample period and whether the lease expired or was extended. We did not analyze trends for the NPR-A because only 411 leases have been issued and 30 wells have been drilled there since BLM began issuing leases there in 1999—too few to establish any clear trends.

To evaluate the reliability of the data used in this review, we performed electronic and logic testing, traced a sample of lease records to the source documents, and interviewed knowledgeable officials about the data elements and systems. Based on this work, we determined that the data were sufficiently reliable for our reporting purposes. We conducted this performance audit from January 2008 to August 2008 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. Appendix I contains additional information on our scope and methodology.

Results in Brief

Interior does less to encourage development of federal leases than some state and private landowners. According to Interior officials, federal oil and gas leases contain one provision—escalating rental rates—which may encourage development. For example, the rental rates for onshore federal leases increase from \$1.50 per acre per year for the first 5 years to \$2 per acre per year, or 33 percent, for years 6 through 10. Compared to Interior, states undertake more efforts to encourage faster development of land leased for oil and gas production. Specifically, state officials in the eight states that we reviewed told us that in addition to using escalating rental rates, states undertake additional efforts, including shorter primary lease

terms and escalating royalty rates. For example, to provide a greater financial incentive, the state of Texas allows lessees to pay a 20 percent royalty rate for the life of the lease if production occurs in the first 2 years of the lease, as compared to 25 percent if production occurs after the fourth year. In addition, some states do more than Interior to structure leases to reflect the likelihood of oil and gas production, which state officials told us may also encourage faster development. For example, while Interior uses varying primary terms for offshore leases, depending on water depth, with leases in deeper waters receiving longer primary lease terms, this is not explicitly related to the expected productivity of these leases. Five of the states that we reviewed—Alaska, Louisiana, Montana, New Mexico, and Texas—vary lease lengths or royalty rates to explicitly reflect the state’s view of the likelihood of discovery of economic oil and gas resources. For example, officials in New Mexico can issue shorter leases and can require lessees to pay higher royalties for properties that are in or near known producing areas, and allow longer leases and lower royalty rates in areas believed to be more speculative. We also found that private landowners can do more than Interior to encourage development on oil and gas leases. According to an official from an association of private landowners involved in leasing land for development of oil and gas resources, private landowners have also used various leasing methods to encourage faster development, including using lease terms as short as 6 months.

Over the past 20 years, the total number of oil and gas leases Interior issued competitively and noncompetitively each year has varied but generally increased in recent years, as has the amount of development activity, and industry officials told us that a range of factors influence their decisions to acquire and develop leases. The annual number of offshore leases issued from 1987 through 2006 had two large peaks—in 1988 and 1997—and has generally been increasing since 1999. During this same time frame, the number of onshore leases issued annually peaked in 1988, then declined until about 1992 and remained at these lower levels until about 2003. From 2003 through 2007, the annual number of onshore oil and gas leases increased, coinciding with rising oil and historically higher natural gas prices. Drilling and production activity on an annual basis on federal leases has been higher over the last 10 years than from 1987 through 1996, but the increase has been more dramatic for onshore leases. Industry officials told us that several key factors influence their decisions to acquire and develop federal oil and gas leases, including business considerations, such as prices of oil and gas; the availability and cost of equipment; the geology of the land underlying the lease, including the location and access to known oil and gas resources; and relevant

regulatory issues, such as limitations on when drilling can occur. These sources also noted that improvements in technologies in recent years have improved their ability to develop resources that are harder to access.

Our review of detailed data on about 55,000 offshore and onshore federal leases issued from 1987 through 1996—those that have exceeded their primary terms—identified three key findings regarding development. First, we found that development occurred on about 26 percent of offshore and 6 percent of onshore leases issued during the sample period, either during their primary terms or during periods in which they had been extended. A smaller proportion of leases, about 12 percent of offshore leases and 5 percent of onshore leases, ultimately achieved production. Some of these leases may have no wells located on them but were considered to be producing because they were part of a unit that was producing. Second, leases with shorter primary terms were generally developed more quickly than longer leases, but not as frequently, during the primary term of the lease. Specifically, we found that competitively issued leases with 5-year primary lease terms were associated with faster development than competitively issued leases with 10-year primary terms, but shorter leases were also associated with different overall development rates for offshore and onshore leases. In particular, for offshore leases, we found that shorter leases—issued for shallow waters, which are considered to be easier to explore—were developed faster and more frequently. In contrast, competitively issued onshore leases with 5-year terms—which were issued from 1987 through 1992—were generally developed faster but less often than competitively issued leases with 10-year terms—which were offered from 1992 through 1996. Noncompetitively issued leases, all of which have 10-year primary terms and were issued over the entire period of our sample, 1987 through 1996, were the least likely to be developed in either period. Third, for those leases that eventually produced oil or gas, a substantial amount of the initial drilling activity—about 7 percent for offshore and about 25 percent for onshore—took place after the scheduled expiration of the lease, following a lease extension or suspension.

We recognize that federal leases may have important restrictions on development activity that do not apply to the same extent for state or private leases. Nonetheless, the general lack of variation from the 10-year statutory primary lease term for federal onshore leases, regardless of the perceived likelihood of significant oil and gas deposits, as well as the lack of other efforts to encourage faster development of federal leases raise the question of whether some of the measures used by states or private landowners could effectively be used to encourage faster development of some federal leases. Therefore, we are recommending that the Secretary

of the Interior develop a strategy to evaluate options to encourage faster development of oil and gas leases on federal lands, including determining whether methods to differentiate between leases according to the likelihood of finding economic quantities of oil or gas and whether some of the other methods states use could effectively be employed, either across all federal leases or in a targeted fashion. In so doing, Interior should identify any statutory or other obstacles to using such methods and report the findings to Congress. Interior generally agreed with the recommendation, but questioned whether some actions could have potentially adverse impacts. GAO maintains that Interior should study these options and report on the results to Congress.

Background

Interior, created by Congress in 1849, oversees and manages the nation's publicly owned natural resources, including parks, wildlife habitat, and crude oil and natural gas resources on millions of acres offshore in the waters of the Outer Continental Shelf and onshore. The Outer Continental Shelf Lands Act and the Deep Water Royalty Relief Act (DWRRA),³ as amended, give Interior responsibility for leasing approximately 1.76 billion acres offshore and collecting royalties associated with both onshore and offshore oil and gas production. The Mineral Leasing Act of 1920 charges Interior with the responsibility for oil and gas leasing on federal and private lands where the federal government has retained mineral rights. Interior's BLM is responsible for managing approximately 700 million mineral onshore acres, which include the acreage leased for oil and gas development.⁴ BLM is also responsible for managing the approximately 23 million acres of land in the NPR-A in the North Slope of Alaska. The Naval Petroleum Reserve Protection Act of 1976 governs federal oil and gas leasing in the NPR-A. Together these statutes are the basis for the current leasing framework for oil and gas leasing.

Interior's processes for issuing federal leases vary depending on whether they are offshore, onshore, or in the NPR-A. Specifically:

³Royalty relief waived or reduced the amount of royalties that companies would otherwise be obligated to pay on the initial volumes of production from certain deepwater leases (deeper than 200 meters), which are referred to as royalty suspension volumes. DWRRA also authorized the Secretary of the Interior to provide royalty relief to promote oil and gas development or to increase production from leases in the Gulf of Mexico.

⁴Federal mineral acres include federal surface and split estate mineral acres, which are acres where private landowners own the surface and the federal government owns the subsurface.

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- For offshore leases, every 5 years, Interior selects the areas it will offer for leasing and establishes a schedule for individual lease offerings. These leases are offered for competitive bidding, and all eligible companies are invited to submit written sealed bids, referred to as bonus bids, for the rights to explore, develop, and produce oil and gas resources on these leases, including drilling test wells. These rights last for a set period of time, referred to as the primary term of the lease, which may be 5, 8, or 10 years, depending on the water depth. After the bids are received, MMS estimates the fair market value of each lease, and this estimate becomes the minimally acceptable bid. The bidder that submits the highest bonus bid that meets or exceeds MMS's estimate of the fair market value of a lease is awarded the lease. In the event that no bid is received or no bids equal or exceed the fair market value estimate, MMS may choose to withdraw the lease—possibly offering it again at a future date.
 - For onshore leases, BLM offers parcels of land nominated by industry and the public as well as some it identifies. Like MMS, BLM offers leases through a competitive bidding process; however, bonus bids are received in an oral auction rather than in a sealed written form, and BLM does not separately estimate a minimally acceptable bid for each lease. Instead, by law, it requires a uniform national minimum acceptable bid of \$2 per acre.⁵ If BLM receives any bids on an offered lease, the lease is awarded to the highest qualified bidder. Onshore leases that do not receive any bids in the initial offer are offered noncompetitively the day after and remain available for leasing for a period of 2 years after the competitive lease sale. Any of these available leases may be acquired noncompetitively on a first-come, first-served basis. Prior to 1992 BLM offered primary terms of 5 years for competitively sold leases and 10 years for leases issued noncompetitively. Since 1992, BLM has been required by law to only offer leases with 10-year primary terms whether leases are sold competitively or issued noncompetitively.⁶
 - For leases in the NPR-A, BLM oversees this process and offers leases competitively, with bonus bids submitted in a written, sealed bid form. Like offshore leases, they are subject to an economic evaluation of fair

⁵The Secretary of the Interior has the authority to raise the uniform national minimum acceptable bid for all leases, but has not done so.

⁶The Energy Policy Act of 1992 required BLM to offer all competitive and noncompetitive leases with 10-year primary terms.

market value, which is also completed by MMS personnel who have experience developing such analyses for offshore leases. Leases that do not receive acceptable minimum bids may be offered in future competitive sales but cannot be acquired noncompetitively as can other onshore leases. NPR-A leases have 10-year primary terms.

For all competitively issued leases, the winning bidder becomes the lessee and must pay Interior the amount of the bonus bid. The lessee then pays a fixed amount of rent each year until the lease begins producing or the lease expires. For leases issued noncompetitively, lessees do not pay a bonus bid but do pay rent. Once issued, lessees may take actions to explore for oil and gas and develop the lease. Exploratory activities include analyzing available geologic information and seismic and other testing to identify if economically viable oil and gas reservoirs exist underground.⁷ If companies believe that economically viable reservoirs exist, they may begin efforts to prepare for development, such as completing the environmental studies required to apply for permits to begin development activities. Once the permits are approved, companies may begin development activities, including building roads to the well site, drilling wells, and constructing platforms and any additional pipeline transportation necessary to transport the oil and gas to market.⁸

Both MMS and BLM require “reasonable diligence” in developing and producing oil and gas on federal leases, but neither agency has precisely defined the activities or time frames that constitute reasonable diligence. If lessees want to develop leases, some requirements apply. For example, for offshore leases MMS requires lessees to submit exploration and development plans for approval. As such, federal oil and gas leaseholders, in general, are not required to take actions to develop a lease during the primary term. The only specific development requirement that Interior officials identified is that Interior requires lessees of 8-year leases in the Gulf of Mexico—those in water depths from 400 to 800 meters—to drill before the end of the fifth year; otherwise, the lease terminates.

In the event that a federal lease begins producing, the lessee pays royalties on the oil and gas it produces in lieu of paying rent. Royalty rates for

⁷In some cases, particularly for offshore leases, where other activities may be less effective, exploratory activities may include drilling wells.

⁸For purposes of this report, we considered drilling to be primarily a developmental activity.

leases issued in 2007 were 16.67 percent for offshore, 12.5 percent for onshore, and 12.5 percent or 16.67 percent for NPR-A.⁹ A productive lease remains in effect and the lessee can continue to produce oil and gas until the lease is no longer capable of producing in paying quantities, regardless of the length of the primary term.

Federal leases generally expire after the primary term unless the lessee is currently drilling a well or is producing oil and gas in commercial quantities. After companies establish production, the lessee can continue to produce oil and gas from the lease beyond the primary term until the lease is no longer productive. If production ceases after the end of the primary term, the lease generally terminates; however, under certain conditions, nonproducing leases may be temporarily extended while lessees perform actions such as drilling additional wells, treating the underground geologic formation to improve flow of oil or gas, and performing repairs needed to resume production. By regulation, offshore leases are held automatically for 180 days after last production or any other lease-holding operation ceases.¹⁰ For onshore leases, regulations state that if actual drilling operations began prior to the end of the primary term and are being diligently pursued, the lease may be extended for up to 2 years. Under certain conditions, nonproducing leases may be extended past their primary terms.

- Nonproducing leases that are part of a unit that is actively being drilled or producing can be extended. Lessees can request that BLM or MMS administratively combine contiguous leases in a single grouping called a unit for the purposes of jointly exploring and developing an underlying oil or gas reservoir. Unitization can help companies more efficiently explore and develop oil and gas as they then share access roads and pipelines and may drill fewer wells. This also reduces the disruption on the surface and the impact on the surrounding environment. BLM and MMS require geological justification for combining these leases. According to officials, BLM may also require holders of contiguous leases to unitize to reduce environmental impact.

⁹The royalty rate for all new leases in the Gulf of Mexico was increased to 18.75 percent for newly issued leases starting with the first 2008 lease sale. Once a lease is producing, lessees pay the higher of either the royalty percentage or a minimum royalty payment equal to the applicable rental rate.

¹⁰If operations cease during the last 180 days of the primary term, the leases will automatically expire unless lease-holding operations are resumed or an approved extension is obtained before the end of the 180th day after operations ceased.

In 2007, BLM reported more than 1,393 active units onshore and MMS reported 215 active units offshore. For leases that were extended because they were unitized, Interior generally establishes drilling requirements. For offshore leases, lessees must receive MMS approval of a drilling schedule. For onshore leases, BLM generally requires that a well be drilled somewhere on the unit every 6 months until the extent of the producing reservoir is fully known or the unit is terminated. If drilling does not occur on this schedule, Interior terminates the unit agreement and leases that were in the unit are extended for up to 2 years past their primary term.

- Nonproducing leases can be extended if the lease is being actively drilled prior to the expiration date. For offshore leases, regulations require that lessees must be conducting operations on the lease at the end of the primary term to receive an extension. If the lease is extended past the end of its primary term for this reason and drilling operations cease without achieving production, Interior can immediately terminate the lease. For onshore leases, regulations require that if actual drilling operations were commenced prior to the end of the primary term and are being diligently pursued, the lease may be extended for up to 2 years.
- Nonproducing leases can be suspended if the company needs to temporarily cease operations under circumstances beyond its control, for example, during hurricanes that force operators to stop drilling operations for safety reasons. However, while a suspension does not extend the lease but rather stops the clock on the primary term, it does extend the period during which the company has exclusive access to the lease area. To obtain a suspension, operators must provide sufficient proof of need to Interior.
- Nonproducing leases in the NPR-A can be renewed or extended. NPR-A leases may be renewed for 10 years with a onetime \$100 per acre fee and if Interior determines that the lessee has diligently pursued exploration that warrants further exploration or future development success, or all or a part of the lease remains as part of a unit agreement covering a lease that qualifies for renewal. NPR-A leases can be extended further if BLM determines that the lease is capable of producing or if the operator is conducting BLM-approved drilling or reworking operations. Nevertheless, NPR-A leases may only be held for a maximum of 30 years without production unless BLM suspends the lease because the operator failed to produce oil or gas because of circumstances beyond its control, such as severe weather or drilling equipment being unavailable.

Interior Does Less to Encourage Development of Federal Leases Than Some States and Private Landowners

Interior does less to encourage development of federal leases than some states and private landowners. Federal leases contain one provision—increasing rental rates over time for offshore 5-year leases and onshore leases—to encourage development. State governments also use escalating rental rates, but undertake additional efforts to encourage lessees to develop oil and gas leases more quickly, including shorter lease terms and graduated royalty rates. In addition, compared to limited federal efforts, some states do more to structure leases to reflect the likelihood of oil and gas production, which may also encourage faster development. Based on the limited information available on private leases, private landowners also use similar tools to encourage development.

Interior Uses Escalating Rental Rates to Encourage Development on Some Leases

According to Interior officials, federal leases allow for holders to determine which, if any, leases to develop, and whether to develop them during the primary term. However, these officials also noted that leases issued by Interior contain one key provision—escalating rental rates—that may encourage development. For example, for some offshore leases in shallow waters—those less than 400 meters in depth and issued with 5-year primary terms—the rental rates can escalate and, in some cases, eventually double.¹¹ For some of these shallow water leases—those in water depths up to 200 meters—rental rates rise per acre per year from \$6.25 in the first five years to \$12.50 in the sixth year of the lease, \$18.75 in the seventh year, and \$25 in the eighth year. For other shallow water leases—those in water depths from 200 meters to less than 400 meters—rental rates per acre per year rise from \$9.50 for the first five years of the lease to \$19 for the sixth year, \$28.50 in the seventh year, and \$38 in the eighth year. Interior also uses this same approach for onshore leases, though it is applied differently. Onshore federal leases increase from \$1.50 per acre per year for the first 5 years to \$2 per acre per year, or 33 percent, for years 6 through 10. Therefore, lessees that do not reach production during the first 5 years must pay the federal government more in annual rent to retain the lease beyond the initial 5 years of the 10-year primary term.

¹¹This provision only applies to leases starting with Sale 204 in 2007, which occurred in August, and only to leases that were extended past their original 5-year primary term. Lessees can avoid these increases, in some cases, by drilling additional wells.

States Undertake More Efforts to Encourage Faster Development of Leases of State Land Than Interior and Structure Leases to Reflect the Likelihood of Finding Oil and Gas

Like Interior, four of the eight states we reviewed also use escalating rental rates, to encourage faster development of land leased for oil and gas production. However, unlike Interior, states undertake additional efforts, including using shorter lease lengths and graduated royalty rates to encourage faster development of land leased for oil and gas production.

Escalating rental rates. State officials in four of the eight states we reviewed—Alaska, Montana, New Mexico, and Texas—said that they increase rental rates to encourage exploration and development. We found that all eight states’ rental rates varied widely, generally ranging from \$1 to \$25 per acre per year, as did their methods for setting rental rates. State officials in the four states with graduated rental rates told us that they increase the rental rates—in some cases dramatically—at certain intervals. Officials in these four states said that they usually initially charge from \$1 to \$5 per acre per year and increase the rates generally after the third or fifth year of the lease. In two of these states, New Mexico and Texas, the amount of the increase in the rental rates significantly exceeds the increases imposed on federal onshore leases. New Mexico doubles the rental fee for the second 5 years of leases issued under 10-year primary terms if the leases have not begun producing within the first 5 years. Texas increases the rental rate for onshore leases from \$5 per acre per year to \$25 per acre per year if the lease is not developed by the end of the third year—a 500 percent increase compared to Interior’s 33 percent increase. Of the eight states we reviewed, five stop charging rental fees on leases after production is achieved; however, Colorado, New Mexico, and Wyoming charge a rental fee throughout the life of the lease.

Shorter lease terms. Officials from all states we reviewed told us that these states use primary lease terms that are similar to, or shorter than, federal leases. State officials told us that they believed that shorter lease terms encourage lessees to develop oil and gas resources more quickly. All of the states we examined allow shorter leases than the federal government does for onshore leases. For example, Louisiana and Texas issue 3-year onshore leases versus the federal government’s 10-year onshore lease term.

Graduated royalty rates. One state we reviewed, Texas, uses graduated royalty rates to encourage quicker development of leases it issues. Specifically, Texas charges a 20 percent royalty rate for the life of the lease if production is achieved within the first 2 years of the lease. If development occurs in the third or fourth years of the lease, rates increase to 22.5 percent. If development occurs after the fourth year, royalties rise

to 25 percent. This lease provision allows a lessee to “earn” a lower fixed royalty rate for the life of lease by more rapidly developing it.

Some States Do More to Structure Lease Lengths and Royalty Rates Based on the Likelihood of Oil and Gas Production Than Interior

Compared to limited federal efforts, some states do more to structure lease lengths and royalty rates based on the likelihood of oil and gas production, which may also encourage faster development. Interior’s efforts to structure federal leases to reflect the perceived likelihood of discovering oil and gas are limited to three key provisions. First, Interior’s estimate of the fair market value of a lease and the minimum acceptable bid reflects Interior’s knowledge of the oil and gas resources underlying the lease and costs of producing them. Second, offshore lease terms vary by water depth, although this is not explicitly related to the expected productivity of these leases. Specifically, offshore leases are issued for 5 years for areas less than 400 meters in depth, 8 years for areas 400 to 800 meters, and 10 years for areas greater than 800 meters, whereas all onshore leases are issued for 10 years. According to Interior officials, shallower waters are more mature and have already been thoroughly explored, and as a result, more is known about the likelihood of discovering oil and gas. Officials also noted that many shallow water areas may be easier to drill and may be near existing pipeline infrastructure and therefore can reach production more quickly. However, by law Interior cannot vary lease lengths to reflect the perceived likelihood of finding oil or gas. Third, in the NPR-A, Interior uses higher rental rates and higher royalty rates in areas where Interior has determined that there is a high likelihood of finding oil and gas. Specifically, rental rates in areas considered highly likely to contain oil or gas are \$5 per acre per year, compared to \$3 per acre per year for other NPR-A leases. In addition, royalty rates in these areas that are more likely to produce are 16.67 percent compared to the standard rate of 12.5 percent.

Some states do more to structure lease lengths and royalty rates based on the likelihood of oil and gas production, which may also encourage faster development. Five of the eight states we reviewed—Alaska, Louisiana, Montana, New Mexico, and Texas—structure leases to explicitly reflect the state’s view of the likelihood of discovery of economic oil and gas resources. For example, New Mexico links its view of the likelihood of discovering oil and gas on the lease to variations in primary lease term and the royalty rate. Specifically, New Mexico’s current oil and gas leasing program identifies oil and gas lands as restricted—known to have oil and gas resources located on them, or unrestricted—not known to have oil and gas resources. Oil and gas leases are further divided into categories

ranging from the most speculative to the most likely to have economic production, specifically:

1. Exploratory leases: Ten-year leases issued for exploration outside of the restricted area, and 5-year exploratory leases issued for exploration within the restricted area, with both leases having a 12.5 percent royalty rate.
2. Discovery leases: Five-year leases issued for drilling within the restricted area with a 16.67 percent royalty rate.
3. Development leases: Five-year leases issued for development drilling inside the restricted area along established, productive trends, with either an 18 percent or 20 percent royalty rate.

Utah also structures lease terms depending on its view of the potential of discovering oil and gas. One Utah state official told us that while the state has 12.50 percent as the statutory minimum royalty rate, they typically incorporate a minimum 16.67 percent royalty rate into leases of land within 1 mile of known oil or gas production. In addition, the state has the option to lease land outside its normal competitive leasing process—which could result in even higher returns for the state—if a lessee proposes to pay a higher royalty rate or a higher bonus.

Officials in several states told us that they vary the lease lengths to reflect the perceived likelihood of discovery of oil or gas. For example, Louisiana and Texas allow 3-year and even shorter leases; all eight states allow 5-year leases; Alaska allows 7-year leases; and Alaska, Montana, and New Mexico also use 10-year leases—based on their perception of the likelihood of discovery of oil or gas. Louisiana uses a unique approach, allowing companies to propose the lease terms, which the state either accepts or rejects based on what state officials believe is most advantageous to the state. A Louisiana official stated that they sometimes receive and accept proposals for lease terms that are shorter than 1 year. Meanwhile, Texas typically uses 3- to 5-year leases for onshore leases, including leases of land under rivers, at 3 years, and 5 years for offshore leases. However, the lease lengths can be as short as 3 months. Officials told us that areas they consider most likely to contain oil and gas are generally leased for shorter periods.

State officials noted that state leases may be easier to develop more quickly than federal leases because the land may not be subject to as many requirements. For example, state leases may have fewer restrictions on

development activity, simpler permitting requirements for development, and fewer restrictions on when companies can operate on a lease related to wildlife preservation or environmental considerations.

Limited Information Available Indicates That Private Landowners Use Several Approaches to Encourage Development of Leases on Private Land

Information about leases on private lands is proprietary and therefore generally not publicly available, but officials from one private landowners' association told us that they too are using shorter lease terms, ranging from as little as 6 months to 3 years, to ensure that lessees are diligent in developing any potential oil and gas resources on their land.¹² These officials told us that nationally, landowners' leases average 3 years but may range from 6 months to 5 years, generally 3 years in more active areas and 5 years with the option of a 5-year extension in less active areas or new areas of exploration. Some owners are also including an option in the leases to break them if they feel that the lessees are not diligent about drilling. In addition, one official stated that landowners in western Colorado have begun dividing leases into smaller sections and leasing them on an incremental basis to ensure that lessees can or will drill.

Private landowners may be subject to some federal or state regulatory requirements that put constraints on how and when companies can develop these private lands. For example, the Endangered Species Act applies to all U.S. lands, and private landowners are generally required to take appropriate steps to avoid significant habitat modification of an endangered species.

¹²According to knowledgeable officials from an owners' association, oil and gas lease information on privately owned land is proprietary and not consistently captured.

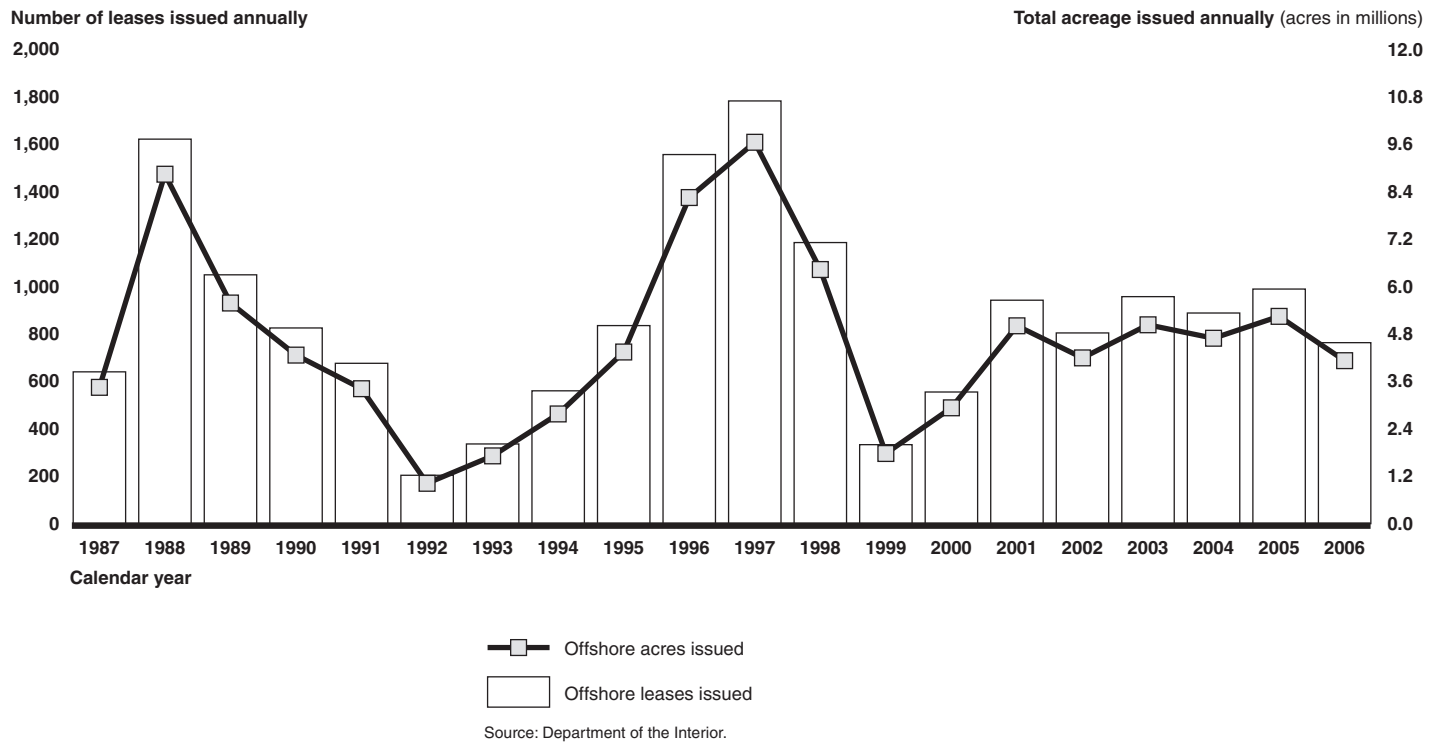
Annual Federal Oil and Gas Leases Issued and Pace of Development Have Generally Increased in Recent Years; Industry Cites Several Factors That Influence Development

Over the past 20 years, the annual number of leases issued on federal lands and waters for oil and gas and development has varied but generally increased in recent years. Furthermore, development of federal leases has generally increased. Oil and gas industry officials indicate that several factors influence their decisions regarding development of federal leases, including business considerations, geologic properties of the land, and regulatory requirements.

Leasing of Federal Land for Oil and Gas Development Has Varied Both Offshore and Onshore, but Both Have Modestly Increased in Recent Years

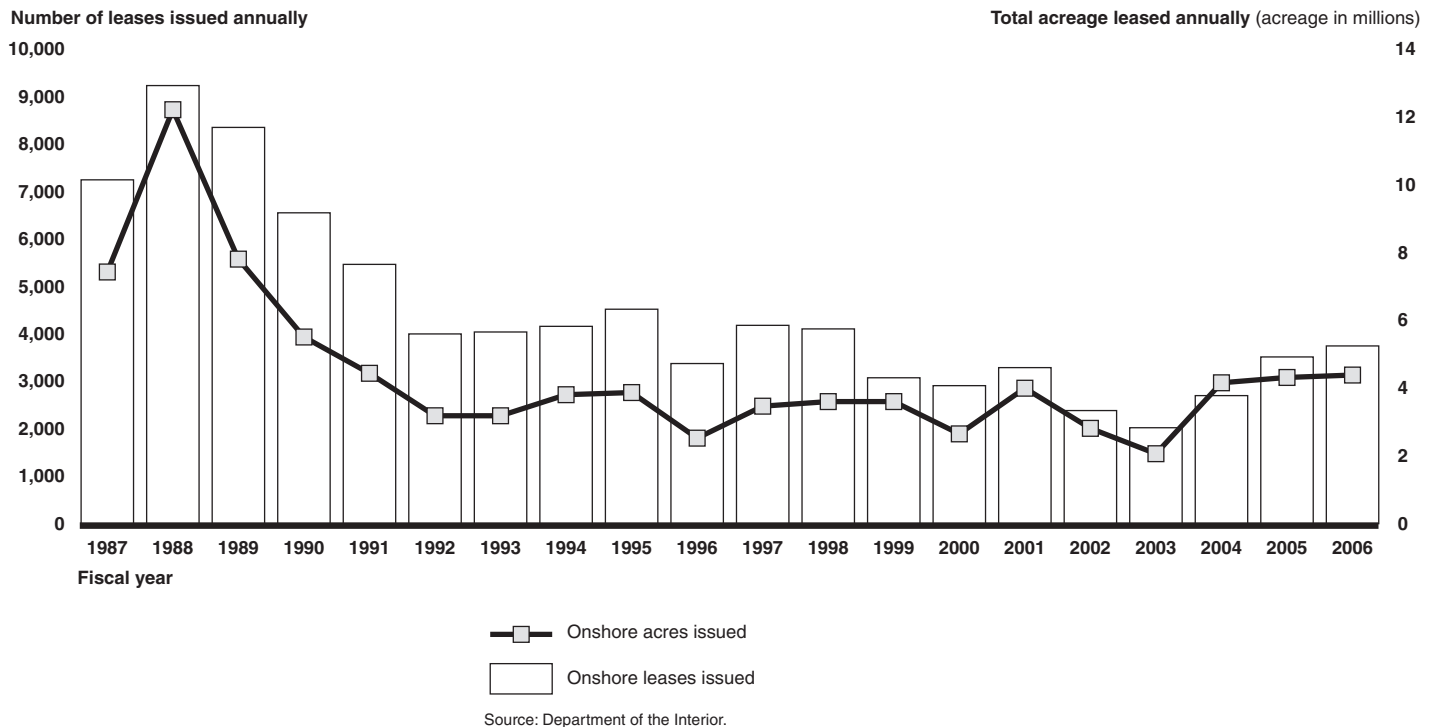
The number of federal oil and gas leases issued has generally increased in recent years, but offshore and onshore leasing have followed different historical patterns. Specifically, offshore leases issued, as shown in figure 1, peaked in 1988 and 1997 and have generally been rising since 1999.

Figure 1: Offshore Oil and Gas Leasing Activity in Federal Waters, 1987 through 2006



The annual number of onshore leases issued, as shown in figure 2, peaked in 1988, then rapidly declined until about 1992, and remained at these lower levels until about 2003, when it began to increase modestly.

Figure 2: Onshore Oil and Gas Leasing Activity on Federal Lands, 1987 through 2006



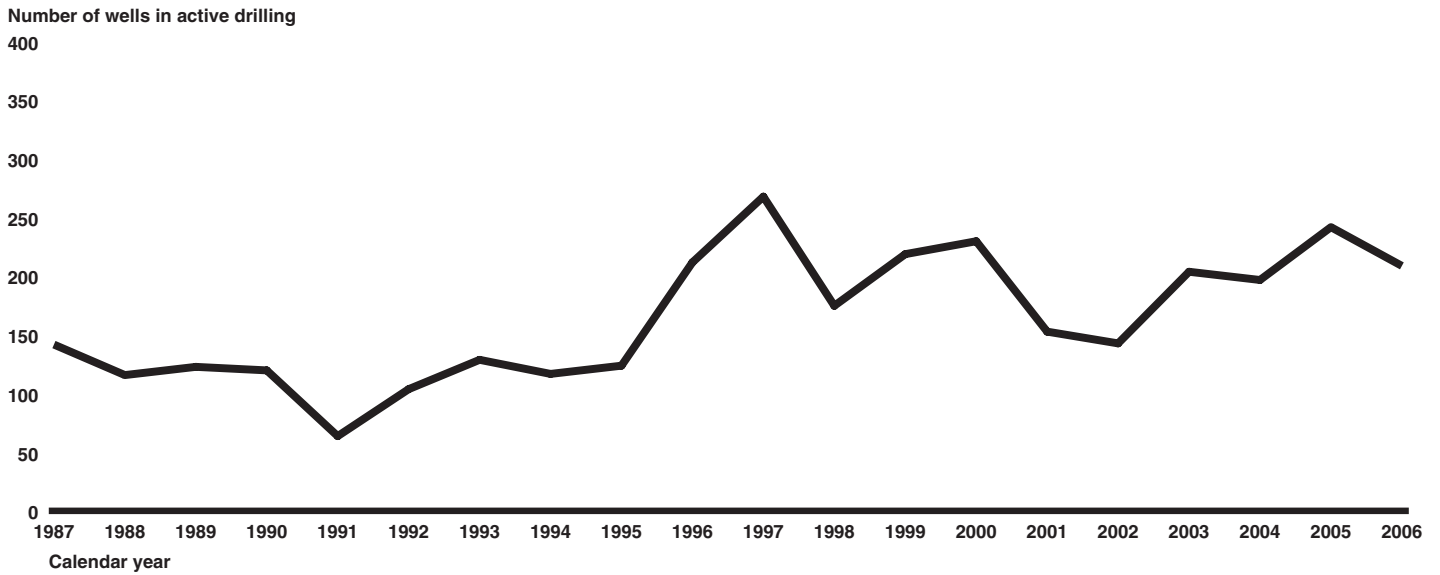
According to MMS officials, these trends, in part, reflect changes in oil and gas prices. Specifically, the officials told us that at the beginning of our time frame, 1987 through 1988, onshore and offshore leasing typically reflected both oil and gas prices. However, offshore trends have since come to more closely reflect oil prices, while onshore trends have come to more closely reflect natural gas prices.

Development of Federal Leases Has Generally Increased

Annual drilling and production activity has been generally higher over the last 10 years than from 1987 through 1996 for both offshore and onshore leases. As shown in figure 3, annual drilling activity in offshore leases has been highly variable but has generally increased since 2002, a period during which oil prices rose significantly. Offshore drilling activity increased significantly from 1991 through 1997, had fallen significantly through 2002, and then began to increase again. The initial increase in wells with an active drilling status in 1996 coincides with increased oil and gas drilling in deep waters of the Gulf of Mexico. The increase in wells

completed after 2002 occurred during a period of generally increasing oil and gas prices.

Figure 3: Offshore Oil and Gas Drilling in Federal Waters, 1987 through 2006

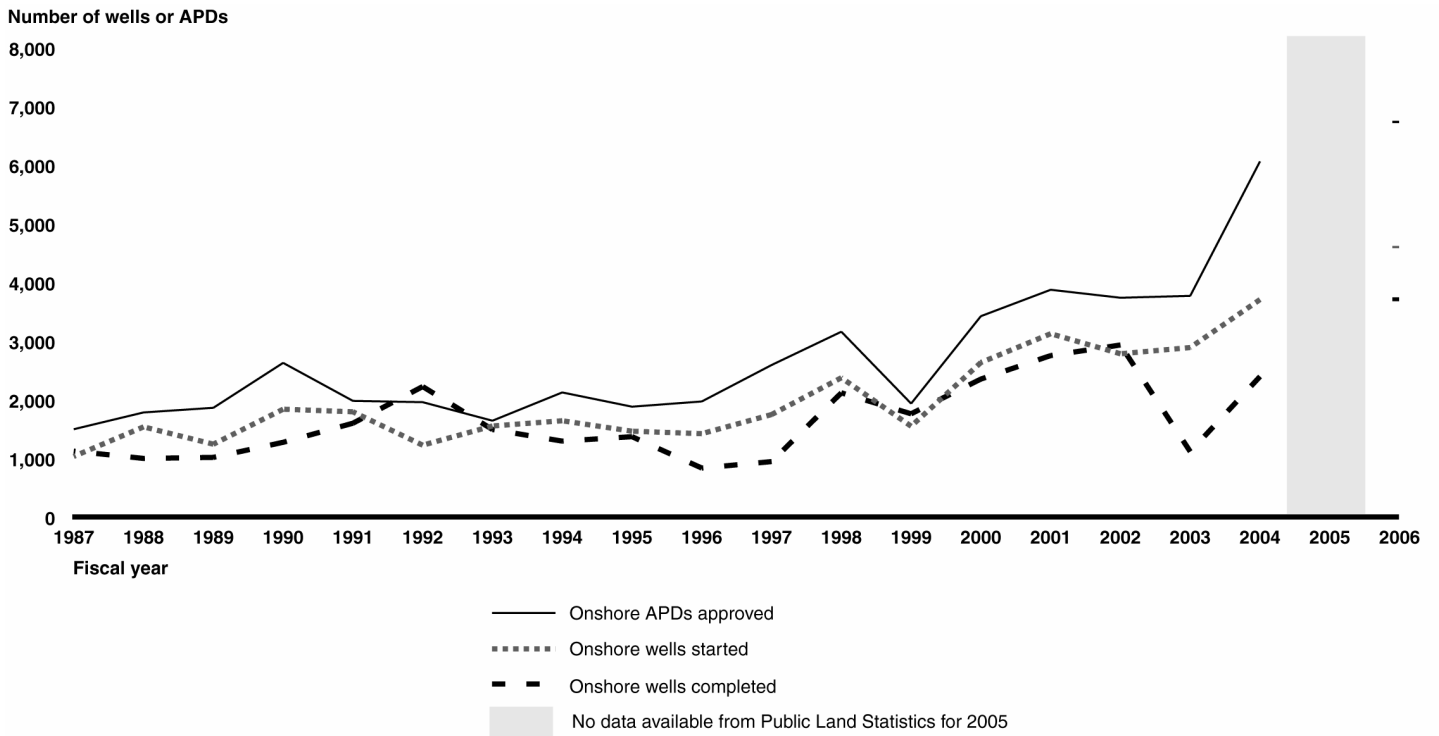


Source: Department of the Interior.

Note: Annual data on applications to drill and well completions are not available for offshore leases.

However, as shown in figure 4, the increase has been more dramatic for onshore leases. Since 1999, a rapid increase is evident in applications for permits to drill (APD) wells, in wells started, and in wells completed.

Figure 4: Onshore Oil and Gas Drilling on Federal Lands, 1987 through 2006



Source: Department of the Interior.

Companies Consider Various Factors before Acquiring and Developing Federal Oil and Gas Leases

Industry officials we spoke with said that business, geological, and regulatory factors influence companies’ decisions to lease and develop oil and gas leases, and that they cannot always achieve production during the primary terms and therefore seek extensions. Specifically:

- Business factors.* Industry officials told us that companies purchase leases knowing that it will not be economically feasible to drill every lease; however, they maintain an inventory of leases in various stages of development so that they may plan their business to develop leases when it is most profitable to do so. Industry officials emphasized that the oil and gas business is inherently speculative; therefore commodity prices and other market conditions determine whether it is economical to drill. For example, some wells may not be economical to drill while oil and gas prices are lower, but companies may keep inventories of leases that could become profitable to develop at higher oil and gas prices. In addition, industry officials told us that if their producing leases are not part of a unit agreement, their companies need to

maintain undeveloped leases surrounding their producing leases so that other lessees do not tap into the same reservoir. They also told us that the development of oil and gas leases requires time-consuming and costly research to determine which leases to develop, including exploratory, geological, and seismic studies. Lease terms and stipulations can also influence companies' decisions. For example, industry officials told us that if a company is reasonably confident that a lease will produce relatively quickly, a 3- or 5-year lease term may be sufficient, but that it may need a longer lease in areas that are considered less certain and, hence, more speculative. In addition, they told us that companies consider the location and the availability of equipment, such as drilling rigs, as well as the infrastructure to deliver the oil and gas to market centers. Officials also noted that building additional connecting pipelines requires a critical mass of leases, which may take time to acquire.

- *Geological factors.* Industry officials told us that oil and gas resources are becoming more difficult to find and develop, and said that identifying the exact location or extent of subsurface oil or gas deposits may require them to collect and analyze seismic data and drill multiple wells, which is time-consuming and costly.
- *Regulatory factors.* Industry officials cited increasing federal regulations and the withdrawal of lands for wildlife and environmental protection as having the greatest negative impact on their ability to develop oil and gas at a faster pace since the 1990s. For example, in parts of Wyoming, drilling cannot occur during the spring to protect the sage grouse and is limited during the winter because elk live and forage for food in the area. They also told us that the development of oil and gas leases requires federally mandated studies to protect the environment, wildlife, and cultural and historic resources and development plans that Interior must approve before the leaseholder can begin development activities, which can take about 2 years. Because of the various studies that are required and the workload at the agencies, permits to drill can require long lead times. They also noted that historically, the time to receive an approved application to drill varied widely across different Interior regional offices and, as a result, led to uncertainty and unexpected delays.

New advances in technology have helped oil companies address some of these factors. For example, advanced techniques for identifying oil and gas underground can help companies more readily find new reservoirs. Similarly, advances in drilling techniques and materials have allowed companies to drill multiple wells from a single portion of a lease to access

distant resources that were previously too costly to access. However, for both of these, advanced equipment is expensive, and training staff to use it adds to personnel costs.

Development Activity in a Sample of Leases Issued from 1987 through 1996 Varied Considerably

Our review of detailed data on about 55,000 offshore and onshore leases issued from 1987 through 1996 identified three key findings. First, a majority of leases expired without being drilled or reaching production. Second, shorter leases were generally developed more quickly than longer leases but not necessarily at comparable rates. Third, a substantial percentage of leases were drilled after the initial primary term following a lease extension or suspension.

Many Leases Expired without Having Been Drilled

As shown in table 1, of the leases issued from 1987 through 1996, offshore leases were substantially more likely than onshore leases to have been developed up through 2007. Specifically, about 1,891 leases, or about 26 percent of the 7,285 offshore leases were drilled, and about 888 leases, or about 12 percent of the offshore leases achieved production. By comparison, about 2,904 leases, or 6 percent of the nearly 47,925 onshore leases issued, were drilled during the sample period, and about 2,386 leases, or 5 percent of the total leases, produced oil and gas by 2007.

Table 1: Percentage of Offshore and Onshore Leases Issued (1987 through 1996), Drilled and Produced through 2007

Location	Number of leases issued	Number of leases drilled	Percentage of leases drilled	Number of producing leases ^a	Percentage of producing leases
Offshore	7,285	1,891	25.96	888	12.19
Onshore	47,925	2,904	6.06	2,386	4.98

Source: GAO analysis of data provided by the Department of the Interior and Premier Data Services.

^aThese totals reflect production occurring on the lease and production occurring within a unit that may be allocated to the lease.

In our sample of onshore leases, about 5,300 leases participated in at least one unit agreement, and 18 percent of these leases were drilled during the time frame of our review—a percentage much higher than the percentage for onshore leases that never participated in a unit agreement. In addition to the production occurring on leases, some leases were considered by Interior to be producing because they were part of a unit that was producing—meaning that drilling and production occurred elsewhere

within the unit. Specifically, for offshore leases we identified 15 leases of the 888 leases identified as producing that had not been drilled but that were considered to be producing because they were part of a producing unit. Drilling and production occurring in units was even more frequent for onshore leases. Specifically, we identified 569 onshore leases of the 2,386 leases that had not been drilled but that were considered to be producing because they were part of a unit that was producing. Both offshore and onshore leases are deemed to be producing because they are part of a unit, are receiving a share of production from the unit, and pay royalties on that share to the federal government even though no drilling has occurred on the lease itself.

Shorter Leases Were Generally Developed More Quickly Than Longer Leases

We found that for offshore leases, all of which were issued competitively, shorter leases—issued for shallower waters that are generally easier to explore and develop—were generally more likely to be developed and were generally developed more quickly. Specifically, we found that shallow water leases, those for waters less than 400 meters deep, which were issued under 5-year primary lease terms, were the most likely to have been drilled and to have produced oil or gas during the sample period and were developed most quickly. Moreover, about one-third of shallow water leases were drilled and about one-sixth achieved production during the primary term. These leases were drilled in about 2.4 years and achieved production in about 4.3 years. The industry has more experience exploring and drilling in shallower waters and development is generally easier. In particular, it is generally less costly to explore and drill leases in shallower waters and easier and less costly to connect a well to the pipeline infrastructure used to transport the oil or gas to onshore markets. In contrast, deepwater leases, issued for waters deeper than 800 meters and under 10-year primary lease terms, were the least likely to have been drilled and to have produced. Specifically, we found that about 10 percent of leases were drilled and about 2.9 percent of leases achieved production during the sample period. These leases also took more time, on average, to be developed. Specifically, it took about 7.6 years for these leases to be drilled and nearly 13 years for these leases to achieve production. It is important to note, however, that deepwater leases had only begun to be developed in the later years of the sample period as technology has evolved to allow such development. Development of deepwater leases can also involve very specialized equipment and staff for exploration and drilling, which can be difficult to obtain. As a result, development of deepwater leases, including developing the pipeline infrastructure needed to deliver oil and gas from these leases to onshore markets, can be more costly and take more time. To encourage deepwater development, royalty relief

was granted for these leases issued from 1996 through 2000.¹³ The data on leasing and development of 5-, 8-, and 10-year leases are shown in table 2.

Table 2: Offshore Leases Issued (1987 through 1996), Drilled and Produced through 2007

	Number of leases issued	Number of leases drilled	Percentage of leases drilled	Average number of years to first drilling	Number of leases that produced	Percentage of leases that produced	Average number of years to first production
Shallow water 5-year leases	4,794	1,605	33.48	2.42	782	16.31	4.31
Mid-depth 8-year leases	634	95	14.98	3.62	38	5.99	7.62
Deepwater 10-year leases	1,857	191	10.29	7.62	53	2.85	12.94
Total	7,285	1,891	25.96		873	11.98	

Source: GAO analysis of data provided by the Department of the Interior.

Development of onshore leases was slightly different—shorter lease terms were developed more quickly, but were also less likely to be developed. In particular, those competitive leases with 5-year primary lease terms—leases issued from 1987 through October 1992—were more likely to expire without having been drilled, but the drilling that did occur took place faster than for the competitive leases having 10-year primary lease terms—those in the sample from October 1992 through 1996. For example, while 5-year competitively issued leases were generally only developed about half as frequently as 10-year competitively issued leases, they were generally drilled about 3 years earlier.¹⁴ Noncompetitive leases—all of which had 10-year primary terms—were the least likely of onshore leases to be developed during the entire sample period. The data on leasing and

¹³In 1995, the federal government enacted the DWRRA, which provided royalty relief on new production from certain deepwater leases. See GAO, *Oil and Gas Royalties: Litigation over Royalty Relief Could Cost the Federal Government Billions of Dollars*, [GAO-08-792R](#) Washington, D.C.: June 5, 2008.

¹⁴It is important to note that while our sample included leases with both 5- and 10-year primary terms, these leases were not concurrently available and were issued in different years. As a result, several key factors, such as oil and gas prices and drilling technologies, which could have influenced development, differed when these leases were issued and developed. In addition, because the data reflect all leases issued over this period it is possible that some land was leased more than once. As such, it is possible that some of the 5-year leases could have expired, been reissued, and actually produced during the sample period as 10-year leases.

development of 5-year competitive, 10-year competitive, and 10-year noncompetitive leases are shown in table 3.

Table 3: Percentage of 5-Year and 10-Year Onshore Leases Issued (1987 through 1996), Drilled and Produced through 2007

	Number of leases issued	Number of leases drilled	Percentage of leases drilled	Average number of years to first drilling	Number of leases that produced	Percentage of leases that produced	Average number of years to first production
Competitive 5-year leases (1987-1992)	13,424	864	6.44	4.39	528	3.93	4.92
Competitive 10-year leases (1992-1996)	10,804	1,395	12.91	7.09	978	9.05	7.74
Noncompetitive 10-year leases (1987-1996)	23,697	645	2.72	7.70	311	1.31	9.55
Total	47,925	2,904	6.06		1,817	3.79	

Source: GAO analysis of data provided by the Department of the Interior and Premier Data Services.

In addition, for onshore federal leases, the proportion of sample leases that were drilled varied a great deal across the states. This variation could be the result of many factors, including the amount and accessibility of oil and gas resources in these different states, as well as potential differences in factors that affect the relative cost or ease of development. Table 4 lists information on federal leases issued in the six states having the highest numbers of federal leases issued during the sample period.

Table 4: Onshore Leases Issued (1987 through 1996), Drilled and Produced by State through 2007

State	Number of leases issued	Number of leases drilled	Number of leases that produced	Percentage of leases drilled	Percentage of leases that produced
Colorado	5,122	281	147	5.49	2.87
Montana	2,921	111	69	3.80	2.36
New Mexico	5,470	564	425	10.31	7.77
Nevada	4,067	69	2	1.70	0.05
Utah	5,127	323	225	6.30	4.39
Wyoming	25,218	1,556	949	6.17	3.76
Total	47,925	2,904	1,817	6.06	3.79

Source: GAO analysis of data provided by the Department of the Interior and Premier Data Services.

Many Leases Were Not Developed until after the End of the Initial Primary Term Following Lease Extensions or Suspensions

A substantial percentage of leases that were drilled were not first drilled until after the end of the initial primary term following lease extensions for drilling, unitization, or suspension.¹⁵ This varied between offshore and onshore leases. Specifically, of the total 1,891 leases that were drilled offshore, 139 leases, or about 7 percent of offshore leases, were first drilled after the primary term. In addition, about 751 leases, or 26 percent of the total 2,904 onshore leases that were drilled, were first drilled after the primary term. An even larger percentage of producing leases started producing after the end of the primary term. Specifically, 395 leases, or 45 percent of the total 873 producing offshore leases, and 741 leases, or 41 percent of the total 1,817 producing onshore leases, realized first production after the primary term of the lease. See table 5 for offshore and onshore drilling and production after the primary term of the lease.

Table 5: Development and Production during and after the Primary Term

	Number of leases drilled	Number of leases drilled after primary term	Percentage of leases drilled after primary term	Number of producing leases	Number of leases that first produced after primary term	Percentage of producing leases that first produced after primary term
Offshore	1,891	139	7.35	873	395	45.25
Onshore	2,904	751	25.86	1,817	741	40.78

Source: GAO analysis of data provided by the Department of the Interior and Premier Data Services.

Conclusions

The national debate about whether, when, and how to develop additional federal oil and gas resources is complex and ongoing. A key element of the debate centers on the extent to which existing federal leases are being developed. Given the relative absence of incentives in federal leases to encourage faster development and to reflect the likelihood of finding oil and gas, we are concerned that Interior may not have considered the full range of options. For example, Interior could benefit from some of the efforts states and private landowners use to encourage development and to differentiate leases based on the likelihood of finding oil and gas. While there may be valid reasons that federal leases differ from state leases, it

¹⁵We could not identify all the reasons that drilling occurred after the initial primary term of the lease based on Interior data because the information systems do not contain enough information to make this distinction. For example, we found that the information systems did not consistently record the beginning and ending of approved suspensions for onshore leases. In addition, the systems did not allow for the easy identification of wells drilled under offshore and onshore unit agreements.

appears to us that some of the efforts states use could be used more widely and consistently in federal leases to the benefit of the country and the federal government. To the extent that the efforts states use to encourage development could also be effective for Interior leases, the country could benefit from increased oil and gas production sooner, and the federal government could realize higher revenues through royalties and rent. We recognize that the applicable federal laws and regulations are complex and that determining which of the efforts used by states, if any, are appropriate for Interior to apply or whether additional efforts would be helpful will require careful consideration and study.

Recommendation for Executive Action

To better ensure that federal land leased for oil and gas exploration and development provides financial and energy benefits as soon as possible, we recommend that the Secretary of the Interior develop a strategy to evaluate options to encourage faster development of oil and gas leases on federal lands, including determining whether methods to differentiate between leases according to the likelihood of finding economic quantities of oil or gas and whether some of the other methods states use could effectively be employed, either across all federal leases or in a targeted fashion. In so doing, Interior should identify any statutory or other obstacles to using such methods and report the findings to Congress.

Agency Comments and Our Evaluation

We provided a draft of this report to Interior for comment. Interior provided us with a formal written comment letter.

In its comment letter, Interior generally agreed with our recommendation, but stated that specific suggestions in our report could have potentially adverse consequences that we did not discuss in our report. Interior also stated that it is pursuing expedited development of oil and gas leases and is already assessing many aspects of leasing to determine if there are adjustments that could be beneficial. While we applaud Interior for being receptive to our recommendation, we disagree with the characterization of our report discussed below and continue to believe that Interior's efforts to promote diligent development are in need of a broader reexamination than the agency currently has under way.

With regard to Interior's comment that some of our specific suggestions could have adverse consequences, we believe that this statement mischaracterizes our report. To be clear, we recommended that Interior evaluate methods to differentiate between leases according to the likelihood of finding economic quantities of oil or gas, to encourage faster

development of oil and gas leases on federal lands, and to determine whether some of the methods states use could effectively be employed on federal leases, but made no specific suggestions for which if any of these practices Interior should adopt. Further, Interior provided no specific examples or evidence of how our recommendation could result in adverse consequences. Our recommendation stated that Interior should identify any statutory or other obstacles to using methods to encourage faster development of oil and gas leases and report the findings to Congress. If any adverse consequences of adopting more stringent methods for encouraging development of federal oil and gas leases are found by Interior as it studies this issue, we believe it would be appropriate for Interior to make that case clearly and with supporting evidence.

We do not agree that Interior is pursuing expedited development of oil and gas leases. We found that Interior has not clearly defined diligence, nor is it using all the tools that other resource owners use to encourage more rapid development. While two of Interior's practices—escalating rental rates and the requirement for 8 year offshore leases that drilling occur within the first 5 years of the lease—have the effect of encouraging faster development, we do not believe this is sufficient to rule out using other or more stringent means to encourage faster development of some federal leases. Neither we, nor Interior, can know which, if any, of these other means should be adopted without first evaluating the options in a comprehensive way.

Finally, we applaud Interior for taking the initiative to evaluate leasing practices, but do not believe that these efforts are sufficient. The assessment Interior refers to is a contracted study of policies affecting the pace of areawide leasing and revenues in the central and western Gulf of Mexico. This study may well result in findings that are applicable elsewhere in the Gulf of Mexico, other offshore regions, or onshore. However, as Interior states in its comments, oil and gas properties differ significantly across and within regions. This is precisely why we have recommended that Interior study what other resource owners do to see if they are applicable to federal oil and gas leases. To the extent that some of these practices are applicable to federal leases, we believe it unlikely that they would apply equally to all federal leases. We modified the language of our recommendation to make it clearer that a specific practice that may be applicable and beneficial for one set of oil and gas leases may not necessarily apply equally to all leases.

Interior's full letter commenting on the draft report is reprinted in appendix II, and our detailed response to several points not covered above

follows. In addition, Interior made technical comments, which we have addressed as appropriate.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 30 days from the report date. At that time, we will send copies of this report to interested congressional committees, the Secretary of the Interior, and other interested parties. We will also make copies available to others upon request. In addition, the report will be available at no charge on the GAO Web Site at <http://www.gao.gov>.

If you or your staffs have any questions about this report, please contact me at (202) 512- 3841 or ruscof@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix III.



Acting Director, Natural Resources and
Environment

Appendix I: Scope and Methodology

We agreed to (1) describe Interior's efforts to encourage development of federal oil and gas leases and compare them to states' and private landowners' efforts; (2) examine trends in the number of leases and amount of acreage leased on federal lands and waters, the amount of development activity on active federal leases, and factors that may affect the development of these leases; and (3) describe how development occurred on a sample of leases that have expired or been extended beyond their primary terms.

To describe Interior's efforts to encourage development of federal oil and gas leases and compare them to states' and private landowners' efforts, we reviewed federal laws and regulations and interviewed knowledgeable officials with Interior's Bureau of Land Management (BLM) and Minerals Management Service (MMS), selected states, industry groups, and a landowners' association. To compare Interior's efforts to the efforts of selected states to encourage development of state and private land oil and gas leases, we collected selected information about state leasing of land for oil and gas from knowledgeable officials from eight states with experience in oil and gas leasing: Alaska, Colorado, Montana, New Mexico, Louisiana, Texas, Utah, and Wyoming. We also conducted a literature search for any studies states might have conducted and found only a study by the state of Montana on royalty rates. To compare Interior's efforts to the efforts of private landowners, we collected selected information from an association of private landowners involved in leasing land for oil and gas development; however, much of this information is proprietary and was limited and not consistently available to us.

To examine trends in the number of leases and acreage leased on federal lands and waters, the amount of development activity on active federal leases, and factors that may affect the development of these leases, we collected leasing statistics from Interior's Public Land Statistics and obtained leasing, production, and reserve information from MMS's Technical Information Management System (TIMS). To identify factors that affect development, we interviewed knowledgeable officials with BLM and MMS, representatives from the eight states with significant oil and gas leasing experience that we examined, representatives from industry with experience developing federal oil and gas leases, and officials from an association of private landowners involved with leasing land for oil and gas development.

To describe how development occurred on a sample of leases, we selected a sample comprising all federal oil and gas leases issued during a period spanning 1987 through 1996 and tracked development on those leases

through 2007. We selected this time period because leases would have already passed the 10-year primary term. Our review included the following:

- We obtained data on (1) all onshore leases issued from 1987 through 1996 from BLM's automated case recordation system, the Legacy Rehost 2000 (LR2000); (2) onshore drilling and production activity from BLM's Automated Fluid Mineral Support System (AFMSS); and (3) all offshore leases issued along with drilling and production activity from MMS's TIMS. Given that all onshore leases issued after 1992 were for 10-year terms, the time frame of our sample of leases allowed us to evaluate development and production activity from 10 through 20 years after the leases were issued.
- We focused on onshore federal leases issued in six states (Colorado, Montana, New Mexico, Nevada, Utah, and Wyoming), which account for 82 percent of leases issued during this time frame, because collecting and assessing the reliability of data from each state was extremely resource intensive. We also limited our analysis to include only competitively or noncompetitively issued leases, and to exclude a small number of other leases issued under special legal provisions because the lease terms and provisions vary significantly and are not consistent with the lease terms and provisions applicable to the majority of onshore leases issued. From 1987 through 2006, these types of leases represented less than half of 1 percent of the total leases issued.
- We defined development to include any drilling activity—with or without production in paying quantities. We identified drilling activity by merging all leases in our time frame with 20 years of AFMSS or TIMS drilling and production data. Matched cases indicated that drilling activity had occurred at some point within or after the primary term of the lease. Although our definition of development rested on the presence of drilling, it should be noted that drilling and production data collected by Interior represent only the final decision of oil and gas companies to proceed with development. These drilling decisions do not measure the extent of exploration leading up to the decision to drill, and before any decision is made, there is often substantial exploration that can involve a host of factors, such as management, economic, geologic, regulatory, and technological evaluations. BLM does not, and is not specifically required to, collect data on the exploration activities of lessees.

To determine the timing of drilling and production, we used system documentation—specifically LR2000, AFMSS, and TIMS—to identify action codes that indicated drilling and production. We isolated and confirmed these codes with knowledgeable Interior officials. We created categories of producing leases based on these codes. We then calculated the timing of development, and whether the activity took place within or after the initial primary term of the lease based on lease terms and lease issuance date.

We did not identify the reason(s) that drilling occurred after the initial primary term of the lease based on Interior data because the information systems do not contain enough information to make this distinction. For example, we found that the LR2000 database did not consistently record the beginning and ending of approved suspensions. We also found that AFMSS does not readily show the unit leases that are held by drilling or production on a different lease within the same unit. However, the systems did enable the analysis of all wells drilled and all leases produced regardless of unit participation.

To determine the reliability of the LR2000 data we used, we interviewed officials responsible for the data and data systems, reviewed system documentation, compared data for a sample of 200 leases to source documents, and performed logic and electronic tests on the data. To determine the reliability of the AFMSS data we used, we interviewed BLM officials and others responsible for the data, reviewed system documentation, and performed logic and electronic tests on the data. Additionally, we obtained LR2000 lease data sets and the linking keys to the AFMSS well data through an independent contractor—Premier Data Services (PDS)—that has worked with these data for many years. PDS obtains LR2000 data from BLM on a monthly basis, conducts a variety of system and audit checks to identify data errors, and then reports errors to BLM for correction. Based on our assessment, we concluded that the LR2000 and AFMSS data we used in this report were sufficiently reliable for our purposes. To determine the reliability of TIMS data, we interviewed responsible officials, reviewed system documentation, compared our results to published agency data, and performed electronic and logic tests of the data. Based on our assessment we determined that the TIMS data we used were sufficiently reliable for our purposes.

We did not analyze trends for the National Petroleum Reserve in Alaska, a 23-million acre area on Alaska's North Slope that was set aside in 1923 as an emergency oil supply, because only 411 leases have been issued and 30 wells drilled there since BLM began issuing leases there in 1999—too few

for a trend analysis since none of the leases have exceeded the primary terms.

We conducted this performance audit from January 2008 to August 2008 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Appendix II: Comments from the Department of the Interior

Note: GAO comments supplementing those in the report text appear at the end of this appendix.



United States Department of the Interior

OFFICE OF THE SECRETARY
Washington, DC 20240



SEP 24 2008

Mr. Frank Rusco
Acting Director, Natural Resources and Environment
Government Accountability Office
441 G Street, NW
Washington, D.C. 20548

Dear Mr. Rusco:

See comment 1.

Thank you for the opportunity to review and comment on the Government Accountability Office draft report entitled, "Oil and Gas Leasing: Interior Could Do More to Encourage Diligent Development" (GAO-08-986). Although the Department of the Interior generally concurs with the GAO's recommendation to evaluate lease terms to ensure diligent development, some of the specific suggestions offered by GAO have potentially adverse consequences not discussed in the report. Extensive technical comments have been provided by the Minerals Management Service and the Bureau of Land Management.

See comment 1.

As noted in the draft report, the total number of oil and gas leases the DOI issued in recent years has generally increased. The DOI is pursuing expedited development of oil and gas leases. The leases themselves are designed with diligence in mind. For example, the terms of offshore leases (5, 8, or 10 years) were chosen because they are reasonable lengths of time for a diligent party to explore and develop oil and gas leases at the respective water depths associated with the lease terms.

See comment 1.

The report draws comparisons between leases administered by various State governments as well as private landowners. It is important to understand that the regulatory requirements to drill for oil and gas on Federal land differ from State and private landowners' requirements. The report does not detail these important requirements. More time, effort and investment is needed to drill on Federal land. For example, in many instances an environmental impact statement must be completed **after** a lease has been issued. This alone can take 24 months.

See comment 2.

Also, not all properties are alike; the physical location and geology vary among leases affecting the time and investment needed to develop the lease. As your report states, not all leases result in the discovery of economically recoverable resources. The length of time before exploration, development and production is a function of the risk and investment necessary to bring a lease into production. A prudent operator needs time to evaluate a lease before making the significant investment required to explore and develop a lease. For the Outer Continental Shelf, the difference between State and Federal areas is substantial.

We agree with the GAO regarding the importance of lease management policies that foster diligent development. The DOI has carefully implemented such policies, while also ensuring

that diligent development incentives or requirements do not compromise safety or environmental achievements, do not significantly reduce the ultimate recovery of oil and gas, and do not unduly reduce the revenue derived from oil and gas leasing.

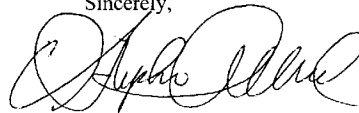
See comment 2.

The DOI evaluates lease terms, including requiring escalating rents in leases, prior to lease sales. For example, both the royalty rates and rental rates have been changed for offshore sales this year and those scheduled for next year. The DOI does differentiate among tracts offered for lease based on indicators, such as nearby or past drilling. However, the substantial expense and effort required to analyze tracts in advance of lease sales in order to create different terms among leases does not appear to be justified, as there is no evidence that such an effort will result in faster exploration and development.

The DOI is currently assessing many aspects of leasing to help determine if there are adjustments that could be beneficial. The completion of this assessment should provide additional tools to evaluate oil and gas leasing in the Outer Continental Shelf and other Federal lands and determine if encouraging more rapid development will benefit the Nation. Well-conceived diligence strategies would need to increase the acreage leased, increase the amount of oil and gas produced, and increase the bonus bids that help to fund important national needs.

Extensive substantive comments have been provided separately. Please contact Andrea Nygren, MMS Audit Liaison Officer, at (202) 208-4343, or LaVanna Stevenson, BLM Audit Liaison Officer, at (202) 785-6580, if you have any questions.

Sincerely,



C. Stephen Allred
Assistant Secretary
Land and Minerals Management

The following are GAO's responses to the Department of the Interior's Letter dated September 24, 2008.

GAO Comments

1. We acknowledged, in our draft report, that development of state lands may be simpler than for federal land leased for oil and gas development, and identified several such differences. We made no change in response to this comment.
2. We note that Interior's comments appear internally inconsistent regarding leased lands and leases. On one hand, Interior acknowledges that some lands are more likely to contain economic quantities of oil or gas. On the other hand, it appears unwilling to reflect these differences in the terms of leases that it issues. We believe, as we have recommended, that Interior should consider whether it is feasible and beneficial to differentiate lease terms to reflect the likelihood of finding oil and gas as some other resource owners appear to do. We modified the recommendation language to better reflect that this is one of several factors Interior should consider as part of its efforts to determine which measures could be useful in encouraging development of federal oil and gas leases.

Appendix III: GAO Contact and Staff Acknowledgments

GAO Contact

Frank Rusco, (202) 512-3841 or ruscof@gao.gov

Acknowledgments

In addition to the individual named above, key contributors to this report included Jon Ludwigson, Assistant Director; Ron Belak; Glenn Fischer; Alison O'Neill; Rebecca Shea; Dawn Shorey; Barbara Timmerman; Maria Vargas; and Jacqueline Wade. Important assistance was also provided by Robert Baney, Casey Brown, Kristen Massey, and Mary Welch.

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