United States General Accounting Office

GAO

Report to Congressional Requesters

May 1989

MINERAL REVENUES

Implementation of the Federal Onshore Oil and Gas Leasing Reform Act of 1987

GAO/RCED-89-108

GAO
United States
General Accounting Office
Washington, D.C. 20548

Resources, Community, and
Economic Development Division

B-228947

May 8, 1989

The Honorable Nick J. Rahall, II
Chairman, Subcommittee on Mining
and Natural Resources
Committee on Interior and
Insular Affairs
House of Representatives

The Honorable Dale Bumpers
United States Senate

This report responds to your requests that we monitor and evaluate the implementation of the Federal Onshore Oil and Gas Reform Act of 1987 and that we consider whether any statutory changes would enhance the onshore oil and gas leasing program, including whether sealed bidding or oral bidding should be used by the federal government to auction leases. The report contains matters for congressional consideration regarding certain legislative changes that may increase the percentage of onshore federal oil and gas leases issued competitively and that may generate increased revenues per acre of land leased. The report also contains recommendations to the Secretary of the Interior to improve the Bureau of Land Management's internal controls over the federal onshore oil and gas leasing system and to amend its leasing regulations.

As agreed with your offices, unless you publicly announce its contents earlier, we plan no further distribution of this report until 30 days from the date of this letter. At that time we will send copies to the Secretary of the Interior and other interested parties and make copies available to others upon request.

This review was performed under the direction of James Duffus III, Director, Natural Resources Management Issues. Major contributors are listed in appendix III.

J. Dexter Peach
Assistant Comptroller General

Executive Summary

Purpose

Federal onshore oil and gas leases generated over $600 million in revenues for federal and state governments in 1987. Historically, over 95 percent of such leases were issued noncompetitively, most through a lottery system. Concerned that this system was not generating revenues comparable to what might be obtained through competitive leasing, the Congress passed the Federal Onshore Oil and Gas Leasing Reform Act of 1987. The act allows the market, rather than administrative determinations, to set the value of leases.

GAO was asked to (1) evaluate the development of implementing regulations by the Department of the Interior's Bureau of Land Management (BLM), (2) monitor how BLM conducted lease test sales and evaluate the results of the test sales, (3) determine the reasons for and the expected effect of BLM's change of the royalty rates for competitively issued oil and gas leases, and (4) suggest statutory and regulatory improvements in the leasing program.

Background

The Reform Act significantly changed the way BLM leases onshore federal lands for oil and gas development. Previously, only lands that BLM had determined to have known oil and gas potential were leased competitively using sealed bidding to determine bonuses to be paid. Most leases were issued noncompetitively, with payment of a filing fee but no bonuses. BLM is now required to offer competitively at oral auction all federal lands available for leasing. Lands not sold at auction are available for noncompetitive leasing.

The act authorized BLM to conduct lease test sales to test leasing procedures while developing regulations. Six BLM state offices conducted eight test sales. In addition, BLM used the implementing regulations to change the royalty rate paid on oil and gas produced for competitively issued leases from a sliding scale of rates, ranging from 12-1/2 percent to 25 percent, to a fixed 12-1/2-percent rate.

Results in Brief

Overall, BLM implemented the Reform Act well. BLM issued, within the legislatively required time frame, final regulations that conform with the Reform Act. The new leasing system meets the statutory requirement of first offering oil and gas leases competitively to the highest bidder before making them available for noncompetitive leasing. The results of BLM's test sales show substantial increases in the percentage of land leased competitively as well as in per-acre revenues. However, the

test sales indicated that BLM should further refine its internal controls to reduce the possibility of future problems.

BLM's regulations changed royalty rates for competitively issued oil and gas leases to simplify lease administration and encourage increased competitive leasing. Potential lessees can be expected to raise their bonus bids in response to lower royalty rates in amounts likely to generally offset, over time, the effects of reduced royalty rates on long-term federal and state revenues. However, the effects cannot be analyzed precisely because several factors, such as bidders' attitudes toward risk, could affect the outcome.

GAO identified a number of factors that make noncompetitive leases more desirable to potential lessees. For example, noncompetitive leases do not require a bonus bid. To further increase competition and revenues, changes to these statutory differences could be tested.

Principal Findings

Implementation of the Reform Act

BLM issued final regulations to implement the Reform Act within 180 days, as required by the act. BLM solicited and addressed public comments on proposed regulations and planned and professionally conducted eight test sales of oil and gas leases.

Test sale results show that the new system increased the percentage of acreage leased competitively from 3 percent in 1987 under the prior system to 46 percent in the test sales. In addition, the new system appears to have increased per-acre leasing revenue. The average revenue for leases sold at test sales that would have been leased noncompetitively under the prior system was $8.67 per acre, while the average revenue for the leases sold noncompetitively through the lottery under the prior system in 1987 for the same states was $3.52 per acre. The effect of differences in the oil and gas market or in the quality of individual leases could not be determined.

Under the Reform Act, states receive a larger share of leasing revenues than they had in the past. Before and after the act, states receive 50 percent of bonuses as well as rents on nonproducing leases (Alaska receives 90 percent) but do not receive a share of the fees BLM charges.

In 1987, under the prior system, fees comprised 72 percent of the noncompetitive leasing revenues at state offices conducting test sales in 1988. However, in the test sales, bonus and rent revenues for leases that under the prior system would have sold noncompetitively comprised 97 percent of the revenues.

The new leasing system could be improved if BLM further refines its internal controls to ensure uniformity and reduce the possibility of future problems. These refinements include registering bidders before auctions to facilitate conducting the auctions efficiently, requiring larger deposits by winning bidders to reduce the likelihood that winning bidders will not make full payment, and enforcing the requirement for full payment within 10 business days after auctions.

Change in Royalty Rate

BLM changed the royalty rates for competitively issued leases to a flat rate to simplify lease administration and encourage competitive leasing and exploration. Potential lessees can be expected to raise their bonus bids in response to lower royalty rates. Some evidence to support this expectation is available. For example, for lease sales in 1988 on federal and Wyoming state leases in the same oil and gas formations, bonus bids were higher on federal leases with a 12-1/2-percent royalty rate than they were on state leases with a 16-2/3-percent royalty rate. Over time, the effects of reduced royalty rates on long-term federal and state revenues are expected to generally be offset by increased bonus bids. However, the effects cannot be analyzed precisely because several factors, such as bidders' attitudes toward risk, could affect the outcome.

Opportunities to Increase Competition and Revenues

Some statutory and regulatory changes may further increase competition and revenues. First, under current law, potential lessees have incentives to wait until after an auction to acquire noncompetitively issued leases, which have a longer term than competitive leases and do not require the payment of a bonus bid. For the eight test sales, 54 percent of the acreage leased was noncompetitive. BLM officials believe that, for some leases, potential lessees are willing to gamble that they can obtain leases with a longer life noncompetitively, without making a bonus bid.

In addition, no empirical evidence exists to prove whether the government is likely to receive greater revenues from sealed or oral bidding. A review of theoretical studies of bidding behavior showed that under certain conditions sealed bid auctions may generate higher revenues, while under other conditions oral auctions may generate higher revenues.

Some Interior officials believe that sealed bidding will generate higher revenues for oil and gas leases.

Matters for Congressional Consideration

GAO believes that certain legislative changes may increase the number of onshore federal oil and gas leases issued competitively and generate increased revenues for the federal and state governments. Therefore, to reduce incentives for potential lessees to not participate in competitive lease auctions, the Congress may wish to consider authorizing Interior to conduct additional oil and gas lease test sales specifically to evaluate the effects of identical lease terms for competitive and noncompetitive leases and identical minimum bonus bids for all leases. In addition, the Congress may wish to consider authorizing Interior to test sealed bidding to auction all leases to determine whether this auction method would increase revenues. (See ch. 4.)

Recommendations to the Secretary of the Interior

BLM should refine its internal controls to ensure uniformity and reduce the possibility that problems will occur in the future in its federal onshore oil and gas leasing system. Therefore, GAO recommends that the Secretary of the Interior direct the Director, BLM, to (1) require that bidders register before auctions; (2) require that winning bidders deposit 20 percent of their bonus bids or $2 per acre, whichever is greater; and (3) formalize other procedures for implementing the system. (See ch. 2 and 4.)

Contents

Tables

Figures

Abbreviations

BLM	Bureau of Land Management
GAO	General Accounting Office

Background

The Department of the Interior is responsible for oil and gas leasing on federal and Indian lands and for revenues from those leases. Interior's Bureau of Land Management (BLM) issues and administers leases on onshore federal lands, even where other federal agencies have primary jurisdiction over the lands. BLM conducts its leasing responsibilities through 12 BLM state offices. Interior's Minerals Management Service collects, audits, and disburses revenues from leases once they have been issued; it is also responsible for all aspects of oil and gas leasing on offshore federal lands.

A federal oil and gas lease gives a lessee exclusive rights to explore, develop, produce, and sell oil and gas on that land. Lessees must pay a bonus bid if the lease is obtained in a competitive sale; a leasing fee, which covers administrative costs; and an annual rent for a fixed term as long as the lease is not producing oil or gas. If the lease begins producing, the term is extended for as long as it is doing so and a royalty on production is paid, calculated as a percentage of the value of oil and gas produced.

As of December 31, 1987, there were almost 90,000 federal onshore oil and gas leases on about 70 million acres of land. About 82 percent of these leases were in six states (see table 1.1). Of these leases, almost 25,000 were either producing or capable of producing. Federal onshore oil and gas leases generated over $600 million in revenues from royalties, rents, bonuses, and fees in fiscal year 1987, the most recent year for which data are available. Fifty percent of the revenues from public lands, except fees, were paid to the 41 states in which the leases were located, as required by law.[1]

Table 1.1: Federal Onshore Oil and Gas Leases as of December 31, 1987

State	Number of leases	Percent
Wyoming	29,414	33.6
New Mexico	11,852	13.5
Colorado	8,360	9.5
Montana	7,553	8.6
Alaska	7,455	8.5
Utah	6,962	8.0
Others	15,972	18.2
Total	**87,568**	

[1]Alaska receives 90 percent.

The Federal Onshore Oil and Gas Leasing Reform Act of 1987

Concerned that BLM's onshore oil and gas leasing system was not generating revenues comparable to what might be obtained through competitive leasing, the Congress passed the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (P.L. 100-203, sec. 5101-5113), which amended the Mineral Leasing Act of 1920 (30 U.S.C. 226 et seq.). This act significantly changed the way BLM issues leases. Since passage of the act on December 22, 1987, BLM has been required to offer federal lands available for oil and gas leasing competitively to the highest bidder at oral auction. Available lands not leased at auction are offered for noncompetitive leasing. The act allows the market, rather than administrative determinations, to set the value of leases by making all leases available for competitive leasing.

BLM's Previous Onshore Oil and Gas Leasing System

Prior to the Reform Act, the Mineral Leasing Act of 1920, as amended, required BLM to evaluate federal lands for oil and gas potential. When lands with known potential were determined by BLM to be within known geologic structures, the Mineral Leasing Act required BLM to auction such lands competitively to the highest bidder.[2] BLM established a minimum acceptable bid for each lease after estimating the expected amount of oil and gas, future oil and gas prices, costs of exploration and development, and other economic variables. The highest sealed bid for each lease was compared with BLM's minimum acceptable bid. If the high bid equaled or exceeded BLM's minimum acceptable bid, the lease was issued; if not, BLM could reject the bid and reoffer the lease in a subsequent competitive lease sale.

Federal lands not leased competitively were offered for leasing noncompetitively. Most noncompetitive leases were issued through simultaneous leasing, commonly known as the SIMO or lottery system. Under this system, applicants submitted a nonrefundable $75 fee for a lease, and the winner of the lease was randomly selected from the applicants for each lease. Before the Reform Act was passed, over 95 percent of the onshore leases had been issued noncompetitively. Any lands that BLM was unable to lease through competitive bidding or the lottery were available for noncompetitive leasing "over the counter" to the first applicant.[3]

[2]The Department of the Interior defines a known geologic structure as an accumulation of oil or gas discovered by drilling and determined to be productive; its boundaries include all land that overlies the productive area.

[3]A lessee was required to pay the first year's rent for a lease in advance, whether the lease was issued competitively or noncompetitively through the lottery or over the counter.

The lottery system was repeatedly criticized in congressional reports for not generating revenues comparable to what might be obtained through competitive leasing. In addition, under the prior leasing system, BLM sometimes erroneously made lands available for noncompetitive leasing in the lottery even though they had oil and gas potential. In such cases, the revenues that the government received were sometimes significantly lower than what might have been realized through competitive auction.

For example, in 1979 BLM leased noncompetitively 33,000 acres within the Fort Chaffee Military Reservation in Arkansas. BLM did not determine whether these lands had known oil and gas potential and should be leased competitively, even though areas surrounding Fort Chaffee were highly productive. As a result, the government received only nominal revenues from the $75 lease application fee. Acting on a lawsuit by a company interested in leasing the lands, the U.S. District Court for the Western District of Arkansas ruled that BLM had not properly determined known geologic structure boundaries, and invalidated the leases.[4] In 1980, adjoining lands were competitively leased and generated an average bonus bid of $1,705 per acre.

In another example, BLM issued 14 leases noncompetitively in 1983 that were located near producing lands in the Amos Draw area in northeast Wyoming. BLM did not determine that these lands had known oil and gas potential even though geologic data were available to define known geologic structure boundaries. As a result, the leases were sold noncompetitively, and the government collected $1.2 million in fee revenues instead of the bonus revenues it could have obtained had the leases been offered competitively. According to reports, lease winners immediately resold the leases for an estimated $50 million to $100 million.

BLM's New Leasing System

The new leasing system differs from the previous system in many ways. The Reform Act requires that all leases be offered competitively at oral auctions without any BLM evaluation of lease value. BLM must accept the highest bonus bid equal to or greater than a minimum acceptable bid, currently $2 per acre. BLM requires the winning bidder to pay the bonus bid and a $75 administrative fee.[5]

[4]Arkla Exploration Co. v. Watt, 562 F. Supp. 1214 (WD. Ark. 1983), aff'd sub nom. Arkla Exploration Co. v. Texas Oil and Gas Corp., 734 F.2d 347 (8th Cir. 1984), cert. denied, 469 U.S. 1158 (1985).

[5]As was the case under the prior system, all lessees are also required to pay the first year's rent in advance.

Objectives, Scope, and Methodology

In response to requests from the Chairman, Subcommittee on Mining and Natural Resources, House Committee on Interior and Insular Affairs, and Senator Dale Bumpers, the objectives of this review were to monitor and evaluate implementation of the Federal Onshore Oil and Gas Leasing Reform Act of 1987. Specifically, we (1) evaluated BLM's development of regulations, (2) monitored how BLM conducted lease test sales, and evaluated the results of the test sales, (3) determined the reasons for and the expected effect of BLM's change of the royalty rates for competitively issued oil and gas leases, and (4) developed suggestions for statutory and regulatory improvements in the leasing program. To accomplish the objectives, we interviewed officials and reviewed documents at BLM headquarters and the six BLM state offices that conducted test sales, interviewed industry representatives, reviewed economic literature relating to bidding on oil and gas leases, and analyzed available data. We did not assess the reliability of 1987 leasing data obtained from BLM. We conducted our review from February 1988 to January 1989 in accordance with generally accepted government auditing standards. (App. I describes our scope and methodology in greater detail.)

Because the Forest Service just issued its proposed regulations in January 1989, we could not include an analysis of its implementation of the Reform Act in this report. We plan to address the Forest Service regulations in a separate review.

We discussed the facts presented in this report with officials in BLM headquarters and incorporated their comments where appropriate. However, as requested, we did not obtain formal agency comments on a draft of this report.

BLM's Implementation of the Federal Onshore Oil and Gas Leasing Reform Act of 1987

BLM issued regulations to implement the Federal Onshore Oil and Gas Leasing Reform Act of 1987 in a timely manner and efficiently conducted eight test sales. The results of the test sales show that the new leasing system meets the congressional goal of substantially increasing the percentage of land leased competitively. As a result, both federal and state per-acre revenues have increased. In addition, states will receive a larger share of lease sale revenues than they had in the past because revenue has shifted from fees to bonuses. However, the test sales also indicated a need for further refinements in BLM's internal controls for administering the leasing system to ensure uniformity and to reduce the possibility that problems will occur in the future.

BLM's Development of Regulations

BLM implemented regulations within the first 180 days after the Reform Act became effective, as required by the act. Immediately after passage of the act, the BLM Director notified BLM state directors to suspend all lease sales. BLM promptly issued news releases that summarized major changes to the leasing system, developed a rulemaking schedule that would meet the 180-day mandate, and selected six BLM state offices to conduct test sales: Colorado, Eastern States, Montana, New Mexico, Utah, and Wyoming.[1]

In February 1988, BLM headquarters distributed draft proposed regulations to BLM state offices for review and comment. BLM published these proposed regulations in the March 21, 1988, Federal Register and invited public comments for 30 days. During this period BLM received comments from 94 sources: 62 from the oil and gas industry, 13 from federal agencies, 11 from associations representing either the oil and gas industry or environmental interests, 4 from attorneys, 3 from state governments, and 1 from a Member of Congress. (We also briefed BLM officials in May 1988 on our views on the proposed regulations.) BLM considered the public comments, as evidenced in the preamble to the final regulations, which refers to all relevant comments and provides BLM's rationale for how they were handled. Final regulations were published in June 1988.

The Reform Act requires BLM to prepare an annual report to the Congress on the new leasing system for 5 years. BLM expects to issue its first annual report in April 1989.

[1] As of December 31, 1987, these BLM state offices administered about 80 percent of all existing leases.

BLM's Conduct of Test Sales

Between March 24, 1988, and June 1, 1988, BLM conducted eight test sales by six BLM state offices. BLM used the test sales to try alternative procedures for implementing the Reform Act. Lands offered for leasing at these sales were the same lands that would have otherwise been available under the previous leasing system, including previously issued leases that had expired or been terminated and lands that had previously been offered but not leased.

Each BLM state office used existing mailing lists, as well as other public notices, to notify industry where and when the auctions would be conducted, which lands would be offered, and which procedural requirements would be followed. The eight test sales drew widespread public and industry interest. Table 2.1 shows the test sales and our estimates of the attendance and number of bidders.

Table 2.1: Attendance and Bidders at Test Sales

Sale date	Location	Estimated attendance	Estimated number of bidders[a]
3/24/88	Billings, MT	140	75
3/29-30/88	Cheyenne, WY	450	320
3/31/88	Denver, CO	160	95
4/13/88	Salt Lake City, UT	175	55
4/18/88	Little Rock, AR	100	35
4/20/88	Santa Fe, NM	250	120
5/26/88	Billings, MT	60	30
6/01/88	Cheyenne, WY	235	165

[a]These numbers are approximate because we could not determine with certainty exactly how many different bidders were bidding.

According to industry and government officials present at the auctions, as well as our observations, all test sale auctions were conducted efficiently. BLM used professional auctioneers at each auction. The auctions offered between 360 and 867 leases, yet each was completed within 1 day, except for the first Wyoming sale, which was intentionally scheduled for 2 days for test purposes. BLM had adequate staff during the auctions to record bids and winning bidders, to deliver required documents to winning bidders, and to collect and process receipts. Errors and disruptions were rare, and winning bidders experienced virtually no delay in completing their paperwork and payments. BLM audiotaped the auctions to assist in resolving any disputes.

Post-auction activities generally went smoothly. However, some notable exceptions occurred. One was that the BLM Colorado office did not issue

most of its leases within 60 days, as required by the act. The state office had not properly specified all environmental stipulations that applied to each lease.[2] After post-auction review of the leases revealed the problem, BLM postponed issuing 228 of 241 leases (95 percent) until it specified all relevant stipulations. As a result, at least 197 of these leases were issued after the 60 days required by the act.[3] Similarly, the BLM Eastern States Office issued only 22 of 228 leases (10 percent) within 60 days. The state office's Branch Chief, Minerals Adjudication, attributed this delay to post-sale staffing constraints.

Another exception was that the BLM Eastern States office did not collect the $75 fee, required by BLM's regulations, for a number of noncompetitive lease applications and some competitive lease nominations (see ch. 4 for an explanation of nominations). While the total amount of required fees that BLM failed to collect is unknown because of inadequate records, 18 leases were issued without the lessees paying BLM the $75 fee. An Eastern States office official told us that this happened because BLM considered its failure to collect the fee an oversight and did not rule those applications and nominations to be ineligible on that basis. However, the office subsequently elected not to attempt to collect the amounts owed.

Test Sale Results

The new leasing system allows the market to set the value of all leases. The results of BLM's eight 1988 test sales, compared with 1987 leasing, show that the percentage of land leased competitively increased substantially and that revenues per acre of land leased were greater. The effect of differences in the oil and gas market or in the quality of individual leases could not be determined, however.

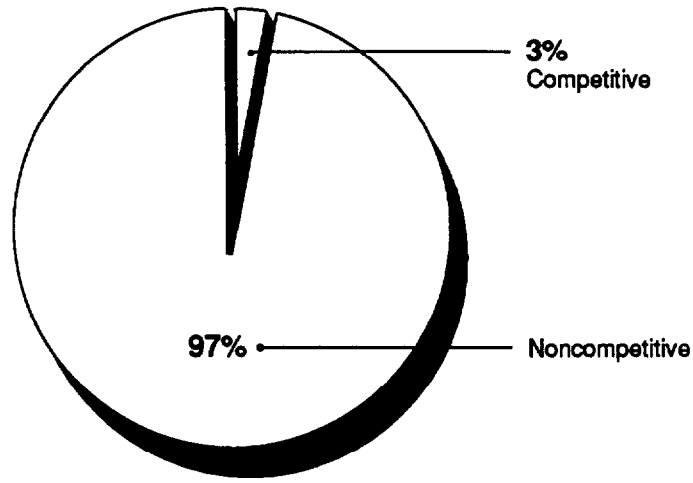
Percentage of Land Leased

In the eight test sales, the new leasing system substantially increased the percentage of land leased competitively. Of 2.5 million acres of land leased through the test sales, 46 percent were leased competitively at oral auctions. In contrast, of the 7.4 million acres that were leased in fiscal year 1987 under the prior system, only about 3 percent were leased competitively. (See fig. 2.1 and table 2.2.)

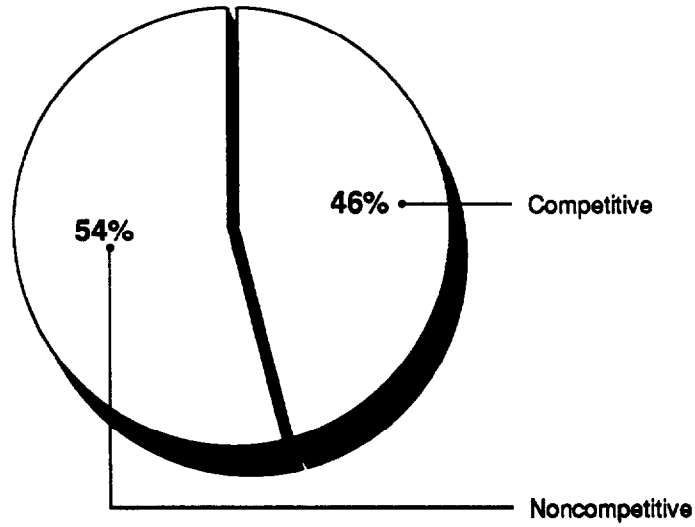
[2]Stipulations are requirements associated with each lease, often related to environmental protection. For example, lease development activities, such as drilling, may be restricted to certain months of the year so as to reduce damage to the land or disturbance of wildlife.

[3]Of the remainder, some were not issued for other routine administrative reasons that are not related to implementation of the Reform Act.

Figure 2.1 Percentages of Acreage Leased Competitively and Noncompetitively Under the Old and New Leasing Systems



Leased Acreage in 1987 Under Old System



Leased Acreage in 1988 Test Sales Under New System

Table 2.2: Acreage Leased Competitively and Noncompetitively at the Test Sales

	Acreage leased (percent)	
BLM state office	**Competitively**	**Noncompetitively**
Colorado	42.1	57.9
Eastern States	44.0	56.0
Montana	43.3	56.7
New Mexico	52.2	47.8
Utah	31.5	68.5
Wyoming	49.4	50.6

Revenues Received

In addition to increasing the percentage of land leased competitively, the new system generated increased revenues per acre in the eight test sales, compared with revenues generated by the old system. Using competitive oral auctions followed by noncompetitive leasing, the eight test sales generated $27.7 million. About $25.2 million was for leases issued competitively at the oral auctions, and about $2.5 million was for leases issued noncompetitively. (Revenues for each test sale are shown in table 2.3.)

Table 2.3: Revenues Generated at Test Sales

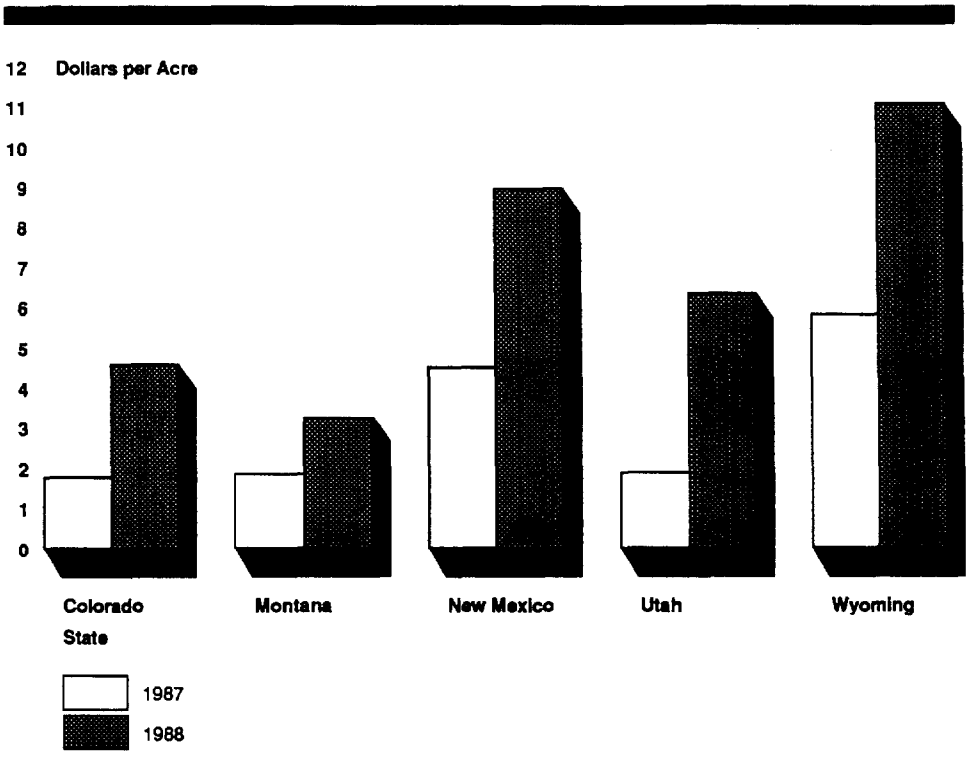
BLM state office	Bonuses	Fees	Rents	Total revenue
Colorado	$1,177,908	$75,075	$410,814	$1,663,797
Eastern States	702,872	42,825	543,060	1,288,757
Montana[a]	382,420	49,800	310,110	742,330
New Mexico	3,189,626	26,625	245,673	3,461,924
Utah	2,755,403	41,325	403,620	3,200,348
Wyoming[a]	15,156,724	313,875	1,846,746	17,317,345
Total	**$23,364,953**	**$549,525**	**$3,760,023**	**$27,674,501**

[a]Montana and Wyoming each conducted two test sales, and figures in this table are cumulative for those sales.

In the test sales in five of these BLM state offices the average revenue per acre for the 1.7 million acres of land sold (which would have been leased noncompetitively in 1987 because BLM had not determined that this land had oil and gas potential) was $8.67.[4] However, the average revenue per acre for the 6.6 million acres sold through the lottery in 1987 in the same five states was $3.52. (Fig. 2.2 shows the revenue per acre in 1988 and 1987 for the five BLM state offices.)

[4]BLM's Eastern States Office was excluded from this analysis because it covers many states in which it leased lands in 1987, but it leased lands in only one state in its test sale.

Figure 2.2: Test Sale Revenue for Land That Would Have Been Leased Noncompetitively Under the Previous Leasing System



The difference of over $5 per acre between leases sold under the two systems appears to have resulted almost entirely from competition for the leases created by the Reform Act. Only $0.50 of the difference in average revenue per acre is attributable to the rental rate increase for those leases that would have been issued noncompetitively in the past. There was no difference in the royalty rate, and although oil and gas price expectations could have changed, there was little difference in actual oil and gas prices between 1987 and 1988. Also, while a difference in the perceived quality of the leases offered could also account for part of the difference, it is unlikely because BLM generally offered the same lands that it would have leased noncompetitively had there not been a new leasing system. A large amount of acreage was offered in each state, and the percentage of acreage offered that was actually leased was similar in 1987 (47 percent) and 1988 (46 percent).

States Will Receive a Larger Share of Leasing Revenues

Under the Reform Act, states will receive a larger share of lease sale revenues than they had in the past because revenue has shifted from fees to bonuses. Before and after the act, state governments receive 50 percent of bonuses and rents from leases on public lands.[5] However, they do not receive a share of fees. Noncompetitive leasing generates no bonus revenues, only fee and rent revenues. Because the new leasing system has significantly increased the percentage of land leased competitively, the portion of leasing revenues that consists of bonuses and rents has increased significantly. Bonus and rent revenues for the eight test sales accounted for about 98 percent of the $26.4 million in leasing revenues generated for leases that would have been leased noncompetitively under the old system. In 1987, under the prior system, fee revenues accounted for 72 percent of the noncompetitive leasing revenues generated at five BLM state offices conducting test sales.[6]

Further Refinements Are Needed in BLM's Internal Controls

The new leasing system could be improved if BLM further refines its internal controls so that its state offices can ensure uniformity and reduce the possibility that problems will occur in the future. Refinements include registering bidders before auctions, requiring larger deposits by winning bidders, and enforcing the requirement for full payment within 10 days after an auction.

Bidder Registration

BLM regulations do not require that bidders at oral auctions be registered. According to officials at BLM's Eastern States Office, bidder registration was accomplished with minimum effort and facilitated the processing of lease documents. Bidder registration should reduce the likelihood that winning bidders do not pay the deposits on their leases. In addition, we observed that processing the documents at the auctions was more orderly when bidders were registered because BLM personnel were able to retain the documents at a central location for winning bidders, rather than having to deliver the documents to each winning bidder on the auction floor. Even so, BLM decided not to require bidder registration in its final regulations, preferring to give each state office flexibility to set its own procedure.

[5]Alaska, however, gets 90 percent.

[6]BLM's Eastern States Office was excluded from this analysis because it includes many states in which it leased lands in 1987, but it leased lands in only one state in its test sale.

Deposits by Winning Bidders

BLM does not require winning bidders to submit a sufficient deposit at the oral auctions to ensure that the bidders will make final payment. BLM now requires winning bidders to deposit $2 per acre (representing the minimum bonus bid), $1.50 per acre for rent, and a $75 fee. The balance of the bonus bid is due within 10 business days of the auction. Failure to submit the balance within this time requires forfeiture of the lease and the deposit.

Under the prior leasing system, BLM required 20 percent of a bonus bid to be paid with the sealed bid to better ensure that winning bidders accepted their leases. BLM's proposed regulations for the new system included the same 20-percent requirement. Furthermore, Interior's offshore leasing program also requires that bidders submit 20 percent of their bonus bids with each sealed bid. Nevertheless, because of industry comments that opposed the requirement, BLM did not test the 20-percent requirement at the test sales.

For the test sales, nine leases and $3,070 were forfeited because winning bidders did not submit full payment within the required 10 business days, and the remaining bonus bid balances totaling $27,110 were not collected. Although these leases will be offered for competitive leasing at a future auction, the government has lost the use of the funds that should have been paid. In addition, until the lands are resold, they are not being explored and developed.

BLM did not require a larger deposit because of industry comments on the proposed regulations stating that the process would be simpler if the deposit required on each lease was known in advance, rather than left to be computed until after an auction. Regardless, we believe that requiring a larger deposit at the auctions from winning bidders could protect the government's interests by reducing the number of forfeitures.

Enforcement of Time Limit for Payment of Balance

The BLM Wyoming, Montana, and Eastern States offices accepted payment of the balances owed on a total of 13 leases sold at the test sales after the 10 business days had elapsed. While the interest cost to the government of this specific occurrence was negligible, accepting late payments violated the regulations and set a bad precedent that could cost the government considerably more in the future. Acceptance of late payments without interest constitutes an interest cost for the use of the money. We believe that BLM should always adhere to its regulations and require that winning bidders forfeit their leases and their deposits made

at the auctions if the balances due the government are not remitted within the required 10 days after auctions.

Other Refinements

For the test sales, the six BLM state offices were given flexibility in establishing procedures. Among the procedures that varied were (1) when to accept noncompetitive lease applications after auctions, (2) when to refund advance rents paid by nonwinning noncompetitive lease applicants, (3) whether to reoffer unsold leases at the end of the auctions, and (4) what format to use in listing available leases. This flexibility expectedly resulted in inconsistencies among BLM state offices for the test sales. Although these expected inconsistencies are acceptable for test sales, we believe that they should be eliminated for lease sales under the new system. Without uniform procedures, bidders must learn each state office's requirements, which bidders believe is unnecessarily burdensome. However, BLM plans to retain flexibility for its state offices to set many of their own procedures.

For example, some BLM state offices allow applications for noncompetitive leases to be left with BLM immediately after an auction, while other offices require applicants to appear in the office on the first business day after an auction. BLM's regulations require that applications for noncompetitive leases be accepted beginning on the first business day after an auction, since all applications received on that day are treated as if they were received simultaneously and have an equal chance of being selected. However, many bidders at an auction consider it a burden to remain in town an extra day solely to drop off their noncompetitive lease applications. We believe that BLM regulations should be clear as to when applications will be officially accepted so that all offices adopt the same procedure.

Conclusions

The new leasing system established by the Federal Onshore Oil and Gas Leasing Reform Act of 1987 meets the congressional goal of substantially increasing the percentage of land leased competitively. As a result, both federal and state per-acre revenues have increased. Overall, BLM implemented the Reform Act well. However, on the basis of lessons learned during the test sales, BLM should further refine its internal controls to ensure uniformity and reduce the possibility that problems will occur in the future.

Recommendations to the Secretary of the Interior

To improve BLM's internal controls over the federal onshore oil and gas leasing system, we recommend that the Secretary of the Interior direct the Director, BLM, to

- require that bidders register before auctions;
- require that winning bidders deposit 20 percent of their bonus bids or $2 per acre, whichever is greater, at the auctions;
- enforce the regulatory requirement for full payment on competitive leases within 10 days of the auctions; and
- formalize procedures for implementing the leasing system, such as when to accept noncompetitive lease applications after auctions.

Effect of Changing the Royalty Rate for Leases on Total Federal and State Revenues

BLM's regulations implementing the Federal Onshore Oil and Gas Leasing Reform Act of 1987 changed royalty rates for competitively issued federal oil and gas leases from a sliding scale, ranging from 12-1/2 percent to 25 percent, depending on the amount of oil or gas produced, to a flat 12-1/2-percent royalty rate, regardless of production, for all leases. Potential lessees can be expected to raise their bonus bids in response to lower royalty rates in amounts likely to generally offset, over time, the effects of reduced royalty rates on long-term federal and state revenues. However, the effects cannot be analyzed precisely because several factors could affect the outcome.

Why BLM Changed the Royalty Rates

BLM changed the royalty rates for competitive leases to the same fixed rate used for noncompetitive leases to simplify lease administration and to encourage increased competitive leasing. In addition, the royalty rate change should encourage exploration and production, according to BLM and oil and gas industry officials.

The previous sliding scale royalty rates for competitive oil and gas leases varied on the basis of average daily production. (See table 3.1.)

Table 3.1: Previous Sliding Scale Royalty Rates on Competitive Oil and Gas Leases

	Royalty rate (percent)
Average daily oil production (in barrels per day per well)	
0 to 50	12–1/2
51 to 60	13
61 to 70	14
71 to 80	15
81 to 90	16
91 to 110	17
111 to 130	18
131 to 150	19
151 to 200	20
201 to 250	21
251 to 300	22
301 to 350	23
351 to 400	24
Over 400	25
Average daily gas production (in thousands of cubic feet per day per well)	
Up to 5,000	12–1/2
Over 5,000	16–2/3

The sliding scale applied to relatively few leases under the previous leasing system because it was used only for competitively issued leases. Less than 5 percent of the acreage leased in 1987 by the six BLM state offices that conducted lease test sales in 1988 was competitively issued. According to the Minerals Management Service, about 600 of the 24,600 producing and producible oil and gas leases (2 percent) paid in excess of 12-1/2 percent in 1987.

To verify that a lessee is paying the correct rate using the sliding scale, the average daily production and the number of wells that count against production must be determined.[1] Operators report production and the total number of wells on leases. However, the number of wells that count against production can change from month to month as new wells are drilled, old wells are shut in, or existing wells are used or not used for production. With a flat royalty rate, only total production, not well count, information is needed to compute royalty owed. BLM officials consider sliding scale royalty rates difficult and costly to administer because of the difficulty in accurately determining well count.

In addition, sliding scale royalty rates on leases could reach as much as 25 percent during the life of the lease. BLM officials believe that offering such leases at the oral auctions could be a disincentive to bidding because leases not sold at an auction are available the next business day with a fixed 12-1/2-percent royalty rate.

Finally, BLM officials and oil and gas industry representatives believe that the fixed 12-1/2-percent royalty will also lead to increased exploration activity. They believe that lessees, given the choice of drilling on comparable acreage with different royalty rates, will choose the acreage with the lower royalty rate. Anticipating such an effect, the state of Utah recently reduced the royalty rate on its competitive leases from 16-2/3 percent to 12-1/2 percent. Similarly, the state of North Dakota has reduced its royalty rate, at times, to encourage exploratory drilling.

[1] A lease may have wells that are not directly involved in producing oil and gas, such as injection wells. These wells may or may not count against production when the production rate per well for sliding scale leases is determined.

Higher Bonus Bids May Offset Reduced Royalties

Potential lessees can be expected to raise their bonus bids in response to lower royalty rates. This expectation assumes that the oil and gas industry determines its bonus bids on the basis of the present value of estimated revenues less estimated operating expenses, including royalties. Bidders then determine their optimal risk-adjusted bids that still allow for a desired profit.[2] Therefore, higher royalty rates should lower bonus bids, while lower royalty rates should raise bonus bids.

Over time, the effects of reduced royalty rates on long-term federal and state revenues are expected to generally be offset by increased bonus bids. However, the effects cannot be analyzed precisely because several factors could affect the outcome. First, companies could routinely over- or underestimate future oil and gas production, prices, or expenses. Second, a royalty rate change could be so large as to significantly change the amount of oil and gas produced. Third, bidders could significantly adjust their bids in response to different risk levels associated with the different royalty rates. Finally, a royalty rate change could be so large as to significantly affect competition; that is, a reduced royalty rate could be so different that it would cause bonus bids to increase to the point that competition would be limited to a few bidders with large financial resources.

This uncertainty creates risk whether or not a lease is developed. To the extent that the government relies on royalties, it shares the risk with the lessee. When leases are not developed, the government is financially better off if a lower royalty rate has generated larger bonus bids because royalty revenues do not materialize.

Test Sale Results Show That Bonus Bids Increased

In two major oil- and gas-producing areas of Wyoming, bonus bids through the first 9 months of 1988 were higher for federal leases, which had a 12-1/2-percent royalty rate, than for comparable state leases that had a 16-2/3-percent rate. However, the effects on long-term federal and state revenues cannot be analyzed precisely because several factors, such as future oil prices and production, could affect the outcome.

[2]A risk-adjusted bid takes into account the uncertainty associated with estimating future production, prices, and expenses.

Average Bonus Bids Were Higher on Federal Leases

The average bonus bid per acre on federal leases overlying Wyoming's Minnelusa Formation was $142.08, 46 percent higher than the average $97.56 bid on state leases overlying the same geologic formation.[3] The average bid per acre on federal leases overlying the Muddy Formation was $66.96, 76 percent higher than the average $38.15 bid on state leases overlying the same formation. Table 3.2 shows the average bonus bids per acre for the federal and state acreage leased in the two formations.

Table 3.2: Federal and State Bonus Bids for Minnelusa and Muddy Formation Leases

	Minnelusa		Muddy	
	Federal	State	Federal	State
Number of leases	72	78	57	54
Average lease acreage	300	268	564	346
Total acres sold	21,565	20,906	32,176	18,684
Average bonus bid per acre sold	$142.08	$97.56	$66.96	$38.15

Long-Term Effect on Revenues

Whether bonus bid revenues and royalty revenues will offset one another cannot be demonstrated now for the leases sold under the new leasing system because of the many uncertainties, such as future oil and gas prices. Whether the present value of larger royalty revenues at a 16-2/3-percent rate would be more or less than the increased bonus bids that the government realized at the 12-1/2-percent rate can be determined only after sufficient time for actual prices and production to be measured.[4]

However, using the differences in the bonus bids per acre (see table 3.2), we estimate that because the lower royalty rate generated higher bonus bids, the federal government received about $960,000 in bonus revenues, in addition to what would have been received at the higher royalty rate, for leases in the Minnelusa area and about $927,000 for leases in the Muddy area. From this we can estimate the amount of oil and/or gas that would have to be produced from the federal Minnelusa and Muddy leases using a 16-2/3-percent royalty rate for the government to receive additional royalty revenues that would equal the bonus revenues that would have been foregone.

[3]A geologic formation is a generally homogeneous body of rock that can be mapped.

[4]The productive life of a Minnelusa well is about 30 years and of a Muddy well is about 20 years, based on production data maintained by BLM.

Tables 3.3 and 3.4 show the amount of oil and gas that the leases in the Minnelusa and Muddy Formations would need to produce at various prices to generate additional royalty revenues at a 16-2/3-percent royalty rate sufficient to equal the additional bonus bid revenues realized by the government, using a 12-1/2-percent royalty rate during the first three 1988 BLM lease sales in Wyoming.[5] We estimated cash flows over the productive lives of Minnelusa and Muddy wells, assuming constant prices, and discounting royalty revenues to reflect the value of money over time.[6]

Table 3.3: Oil Production Needed at a 16-2/3-Percent Royalty Rate to Generate Additional Royalty Revenues Equal to $960,000 In Increased Bonus Revenues From Minnelusa Leases With a 12-1/2-Percent Royalty Rate

Lease year within which production begins[a]	Oil production needed (in thousands of barrels) at various prices[b]		
	$15	$20	$25
1	3,403	2,552	2,027
2	3,736	2,802	2,242
3	4,102	3,076	2,461
4	4,504	3,378	2,702
5	4,945	3,709	2,967

[a]Assumes that production begins in the first month of the year.
[b]Prices are per barrel of oil.

Table 3.4: Oil and Gas Production Needed at a 16-2/3-Percent Royalty Rate to Generate Additional Royalty Revenues Equal to $927,000 In Increased Bonus Revenues From Muddy Leases With a 12-1/2-Percent Royalty Rate

Lease year within which production begins[a]	Production needed at various prices[b]					
	Oil (in thousands of barrels)			Gas (in billions of cubic feet)		
	$15	$20	$25	$1.50	$2.00	$2.50
1	1,537	1,153	922	3.0	2.3	1.8
2	1,688	1,266	1,013	3.3	2.5	2.0
3	1,854	1,390	1,112	3.7	2.7	2.2
4	2,036	1,527	1,221	4.0	3.0	2.4
5	2,235	1,677	1,340	4.4	3.3	2.7

[a]Assumes that production begins in the first month of the year.
[b]Prices are per barrel of oil and per thousand cubic feet of gas.

If oil and gas production does not reach the levels shown in the tables at the projected prices, the federal government will have benefited, by realizing increased bonus bid revenues, from changing the royalty rate to 12-1/2 percent. On the other hand, if production exceeds the levels

[5]Only oil discoveries were calculated for the Minnelusa area because its gas production is negligible.

[6]Constant discount rates of 9.38 percent for the Minnelusa revenues and 9.4 percent for the Muddy revenues were used. These rates represent average yields on government bonds, notes, and bills sold on the secondary market with maturities of up to 29 years and 18 years, respectively, as published in the Wall Street Journal on March 8, 1989.

shown, the government would benefit if it used a higher royalty rate, by realizing higher royalty revenues despite receiving lower bonus revenues.

The likelihood of discovering the amount of oil mentioned above is unpredictable because of fluctuating oil prices, the effects of price and expectations on drilling activity, and the timing of drilling. Oil and gas prices have fluctuated widely over the past 5 years. The yearly average price of oil for Wyoming federal leases ranged from $27.51 per barrel in 1983 to $14.21 per barrel in 1986, and the yearly average price of gas ranged from $3.62 per thousand cubic feet in 1983 to $1.78 per thousand cubic feet in 1987.[7] Table 3.5 illustrates the relationship between oil prices, drilling activity, and oil reserves discovered from 1984 to 1987 in Wyoming, including about 875,000 acres overlying the Minnelusa Formation.

Table 3.5: Oil Reserves Discovered, Prices, and Drilling Activity in Wyoming

Year	Minnelusa oil reserves discovered (barrels in millions)	Average Wyoming oil price (per barrel)	Wells drilled in Wyoming
1984	33	$27.47	1,818
1985	36	24.18	1,488
1986	25	14.21	825
1987	26	16.30	583

The Minnelusa and Muddy land that BLM leased in its first three 1988 Wyoming sales is similar to other leased lands overlying these formations. However, the newly leased acreage, 21,565 and 32,176 acres, respectively, is too small to allow reliable projections of recoverable oil and gas. For example, if one large discovery is made on the newly leased acreage in the Minnelusa formation, the amount of recoverable oil could surpass the amounts shown in table 3.3. Conversely, all wells drilled in the newly leased acreage could result in dry holes. Both large discoveries and dry holes occurred on Minnelusa acreage during the past 5 years.[8] Available data show that in 3 of 38 townships, no oil was discovered, while about 18 million barrels of oil was discovered in one township, and discoveries in the other 34 townships ranged from about 6,000

[7]Mineral Revenues: the 1987 Report on Receipts from Federal and Indian Leases, U.S. Department of the Interior, Minerals Management Service, Royalty Management Program.

[8]According to statistics provided by the Petroleum Information Corporation of Denver, Colorado.

barrels to about 9.5 million barrels.[9] Overall, discoveries averaged 3.4 million barrels per township from 1983 to 1987.

Conclusions

BLM's reduction in the onshore federal oil and gas royalty rate may have little or no long-term effect on combined bonus and royalty revenues for the federal and state governments. Potential lessees consider various factors, including royalties, in determining their bonus bids. Generally, bidders can be expected to adjust their bonus bids to compensate for changes in the royalty rate.

For federal leases in two major oil and gas areas of Wyoming, it appears that bidders increased their bonus bids in response to the lower federal royalty rate. Whether these bonus bid revenues and the present value of future royalty revenues will offset one another cannot be demonstrated now for these leases because several factors could affect the outcome.

[9]A township is a standard measurement of land area comprising approximately 23,000 acres.

Opportunities to Increase Competition and Revenues

BLM's eight test sales demonstrated that the Reform Act increased the percentage of federal acreage leased competitively as well as average revenues per acre of land leased. Still, less than half of the land leased through the test sales was leased competitively. We believe that some changes to statutory and regulatory provisions may further increase competition and revenues. Consistent lease terms and minimum bids for all leases may increase competition and revenues. Further, the use of sealed bidding instead of oral bidding for lease auctions may affect revenues. Finally, BLM's use of nominations to determine which leases will receive competitive bidding at auctions does not identify all leases for which there is competitive interest, causing the government to forego additional bonus revenue.

Consistent Lease Terms and Minimum Bids May Increase Competition and Revenues

Different lease lengths and minimum bonus bid requirements for competitive and noncompetitive leases, which are required by law, may limit competition and revenues at the auctions. The Reform Act did not change lease terms, which are set at 5 years for competitive leases but 10 years for noncompetitive leases. The additional 5 years provide a lessee greater flexibility in deciding when to initiate exploration and development, depending on fluctuating market conditions. Further, the Reform Act requires a minimum bonus bid of $2 per acre for leases issued competitively but requires no bonus bid for noncompetitive leases. Since some potential lessees may prefer noncompetitive leases because of their longer terms and lack of a bonus bid requirement, they might not competitively bid on leases at the auctions. They appear willing to wait to see whether leases in which they are interested receive no bids and will therefore be available the next day for noncompetitive leasing.

Bonus bids are not paid on leases issued noncompetitively, although an applicant must pay a $75 fee to apply for a lease. For the eight test sales, if the 1.4 million acres leased noncompetitively had been leased competitively for at least the minimum bonus bid of $2 per acre (although there is no assurance that this would have happened), the government would have received at least $2.8 million in bonus revenue. Instead, the noncompetitively leased acreage generated only about $450,000 in fees.

BLM officials believe that the continued high interest in noncompetitive leasing may be due to the longer lease life and the lack of a minimum bonus bid requirement. According to the Chief, Lands and Minerals Operations, at the BLM Colorado office, potential lessees are willing to

gamble that they can obtain leases the day after an auction without making a bonus bid. BLM officials noted that the large volume of noncompetitive applications for leases the day after an auction dictates that they continue a lottery system to deal with multiple applications for the same leases. Table 4.1 shows the large number of noncompetitive applications received the day following the oral auctions.

Table 4.1: Noncompetitive Leasing Activity in Test Sales

BLM state office	Leases with applications	Leases with multiple applications[a]	Acreage leased
Colorado	123	74	158,488
Eastern States	119	90	202,561
Montana	118	63	117,223
New Mexico	64	43	78,285
Utah	112	43	184,369
Wyoming	507	355	622,852
Total	**1,043**	**668**	**1,363,778**

[a]These leases are a part of the leases with applications.

Making lease lengths and minimum bonus bid requirements uniform for competitive and noncompetitive leases may increase competition. If all leases are issued in the same manner and with the same terms, there would not be separate competitive and noncompetitive leasing procedures. For example, Colorado and Wyoming issue all their state leases in the same manner and do not offer leases noncompetitively. BLM officials agree and in February 1989 suggested to the House Subcommittee on Mining and Natural Resources, Committee on Interior and Insular Affairs, that all leases be given a 10-year term.

Auction Method May Affect Revenues

No empirical evidence exists to determine whether the government is likely to receive greater revenues from sealed or oral bidding. Further, BLM's test sales did not test both methods because the Reform Act specifically required BLM to use oral bidding. In addition, as noted earlier, at oral auctions some potential lessees appear willing to wait to see whether leases in which they are interested receive no bids and will therefore be available for noncompetitive leasing.

In the absence of empirical evidence, we conducted a comprehensive review of theoretical studies of auction and bidding behavior to determine whether conditions in the market for onshore oil and gas leases are such that bidding theory alone would allow us to draw conclusions

about the preferability of sealed or oral bidding. This review showed that some market characteristics are likely to cause increased revenues from sealed bid auctions. For example, if bidders are risk averse, the winning bid is likely to be higher in sealed bidding than in oral bidding.[1] However, other characteristics favor oral bid auctions, but we do not know to what extent these characteristics are common to mineral rights auctions. Therefore, we were unable to conclude from our review of bidding theory whether sealed or oral bidding is likely to yield more revenues for onshore oil and gas leases.

Federal Oil and Gas Leasing Officials Believe Sealed Bidding May Generate Higher Revenues

Some BLM officials responsible for onshore federal oil and gas leasing, including the Assistant Director, Energy and Minerals Resources, believe that sealed bidding rather than oral bidding may generate higher revenues for oil and gas leases. In addition, according to the Chief of Economic Studies, Offshore Resource Evaluation Division, Minerals Management Service (which is responsible for offshore federal oil and gas leasing), sealed bidding is better for preventing collusion. Collusion occurs when two or more bidders conspire to hold down bidding by agreeing in advance who will bid, rather than competing against each other. According to this official, oral bidding facilitates collusion because colluders can observe bidding and more easily enact and enforce their agreement. However, in sealed bidding, unless colluders comprise all of the bidders, they cannot be certain that they will not be outbid if they bid low, perhaps even by one of their members, who may break the agreement. This official noted that to the extent that collusion can be minimized, auction revenues are maximized.

According to the same official, sealed bidding may generate higher revenues because of the relatively uncertain values of oil and gas leases and the relatively small number of bidders for those leases. That is, differences in the estimated value of a lease will be reflected in sealed bids, and, in his view, a small number of bidders may not consistently sustain oral bidding to the levels achieved in a sealed-bid auction.

Overbidding and BLM's 1987 Competitive Sealed-Bid Auctions

Sealed bidding often results in a greater difference between the highest and second highest bids than does oral bidding, where the difference is usually just one bidding increment. This difference is called overbidding or "money left on the table."

[1] A risk-averse person cares about the risk of losing and is willing to pay a premium to avoid risk.

When BLM used sealed bidding auctions for competitively issued leases in 1987, overbidding occurred. In five BLM state offices conducting test sales, an average 39-percent overbid occurred in 1987.[2] Table 4.2 shows the average overbids for each BLM state office.

Table 4.2: Overbids in 1987 BLM Competitive Sales

BLM state office	Total (in thousands of dollars) of: High bids	Second high bids	Percent difference
New Mexico	$27,978	$18,638	33
Wyoming	15,022	8,799	41
Utah	2,187	520	76
Montana	555	192	65
Colorado	410	108	74

Leases that receive only one bid in oral auctions emphasize the difference between sealed and oral bidding. For leases that had only one sealed bid in 1987, the bid was an average 74 percent higher than the minimum bid set by BLM. In contrast, at an oral auction when there is only one bidder for a lease, the bidder obtains the lease for the minimum bid. Of the 1,331 leases sold at BLM's 8 test sale auctions, 351 leases (26 percent) sold for the $2 per acre minimum bid.

A 1984 study of sealed bidding for offshore oil and gas leases found that overbids have been quite large.[3] From 1954 through 1982, the average overbid was 45 percent. Although the study does not attempt to prove that oral bidding would have generated less revenues than sealed bidding did for offshore oil and gas leases, the study concludes that it would be unreasonable to believe that the losing bidders would consistently have raised their bids in oral auctions so as to close a 45-percent margin and achieve equal or higher revenues. Therefore, it concludes that winning bids would have been lower if oral bidding had been used.

On the other hand, to avoid "leaving money on the table" in sealed bidding, bidders may have an incentive to bid less than the maximum amount that they believe a lease is worth. In oral bid auctions, bidders

[2]BLM's Eastern States office was excluded from this analysis because it covers many states in which it leased lands in 1987, but it leased lands in only one state in its test sale.

When an overbid is expressed as a percentage, it is computed on the winning bid. For example, if the winning bid is $10 million and the second highest bid is $6.1 million, the difference is $3.9 million, or 39 percent of the winning bid.

[3]R.E. Megill and R.B. Wightman, "The Ubiquitous Overbid," American Association of Petroleum Geologists Bulletin, v. 68, no. 4, 1984.

do not have the same incentive to reduce their bids. Therefore, the winning bid on a lease could be higher in an oral auction than in a sealed bid auction.

Oil and Gas Industry and Some State Governments Prefer Oral Bidding

Because money is "left on the table" in sealed bidding, the oil and gas industry prefers oral bidding, in which the winning bidder obtains a lease for just one bidding increment over the previous bid. In addition, in oral bidding bidders are able to reallocate their bonus bid budgets from lease to lease. That is, in sealed bidding, because bidders are required to submit all their bids for available leases at one time, bidders do not know how many leases they will win and therefore may have to limit the number of leases on which they bid. However, in oral bidding, when bidders do not win a lease, they can reallocate their funds immediately to bid on other leases.

Industry also contends that by spending less on bonus bids at oral auctions, bidders can allocate more money to developing leases. On the other hand, if bidders have fixed budgets that cover both leasing and development, it would not be prudent for them to spend so much on leasing that they cannot develop their leases, because their leasing money would be spent to no avail once their undeveloped leases expire.

Three of the five states where BLM conducted test sales (Colorado, Montana, and Wyoming) use oral bidding exclusively to sell state leases.[4] These states believe that oral bidding is an administratively efficient way of selling leases and recognize that industry prefers this method. The state of New Mexico uses sealed bidding for leases that it determines may not have many bidders and oral bidding for leases that it determines may have sufficient interest to generate adequate bidding. The state of Utah uses sealed bidding exclusively because it believes that sealed bidding is better for preventing collusion among bidders.

[4]BLM's Eastern States Office was excluded from this analysis because it includes many states in which it leased lands in 1987, but it leased lands in only one state in its test sale.

The Nomination Option Does Not Identify All Leases for Which There Is Competitive Interest

BLM has retained a lease sale procedure in its final regulations that, if used, may reduce competition and revenues. Under this procedure, BLM allows bidders to nominate leases to be presented at the auction from the list of available leases. The nominated leases are to be the only ones bid on at the auctions. Any unnominated leases are considered to have received no competitive bids and may be leased noncompetitively. During BLM's test sales, three state offices used this option. Bidders were required to submit a $2 per acre minimum bonus bid for each lease they nominated for sale at auction. Nominated leases offered at oral auctions are sold to the highest bidder. If a nominated lease does not receive a bid at an auction, the lease is sold to the person who nominated it for the minimum bonus bid. If a lease receives multiple nominations but no bid at an oral auction, the multiple nominations are treated as a tie bid. No provision exists to break tie bids, so the lease will not be issued but can be reoffered competitively. Table 4.3 shows data for the three BLM state offices where the nomination option was used in test sales.

Table 4.3: Test Sale Data on Nominations

BLM state office	Number of leases		Number of nominated leases with no bid
	Offered	Nominated	
Eastern States	399	113	51
New Mexico	431	126	14
Utah	365	70	21

At two of the three test sales where nominations were used, BLM also offered unnominated leases for sale at the auctions to assess the effect of nominations. In New Mexico, 30 unnominated leases were sold at the oral auction and generated bonus bid revenues of about $158,000. At the Eastern States sale in Arkansas, 10 unnominated leases were sold at the oral auction and generated bonus bid revenues of about $12,000. If BLM had not offered those unnominated leases in New Mexico and Arkansas, the leases would have been available for noncompetitive leasing and would not have generated any bonus bid revenue.

BLM intended that nominations should identify all leases for which there is competitive leasing interest. However, unlike New Mexico and Arkansas, the Utah test sale offered only nominated leases at the oral auction and allowed noncompetitive applications on all unnominated leases. In Utah, two unnominated leases each received over 60 applications on the first day that they were available for noncompetitive leasing, which seems to indicate that those leases would have received bids at auction. Furthermore, Utah had the highest percentage of acreage issued

noncompetitively, again indicating that where nominations were used, possible competitive-interest leases were sold noncompetitively. On the basis of the extent of noncompetitive activity in Utah and the experiences in New Mexico and Arkansas, it is likely that some unnominated Utah leases would have been sold competitively.

Despite these test sale results, BLM's final regulations allow the option of using the nomination procedure. BLM officials told us that the nomination option was retained in the regulations to allow flexibility. The Director of BLM has instructed each state office not to use nominations for now. However, should the Director ever rescind that instruction, the nomination option could be used, possibly resulting in less competition and therefore lower revenues for the government.

Conclusions

The Federal Onshore Oil and Gas Leasing Reform Act of 1987 has resulted in a greater percentage of acreage being leased competitively and in increased revenues per acre of land leased. Still, less than half of the land leased through the test sales was leased competitively. We believe that opportunities may exist to increase even further the amount of federal acreage leased competitively, thereby increasing federal and state revenues. Lease terms and minimum bids could be made consistent, and sealed bidding could be used instead of oral bidding to auction leases. Finally, BLM should not use nominations to determine which leases will receive competitive bids at auctions, but rather should place all available leases on the auction floor.

Matters for Congressional Consideration

Certain legislative changes may increase the percentage of onshore federal oil and gas leases issued competitively and generate increased revenues per acre of land leased. Therefore, the Congress may wish to consider authorizing the Secretary of the Interior to conduct additional oil and gas lease test sales specifically to evaluate the effects of

- making competitive and noncompetitive lease terms the same (for example, either 5 years or 10 years),
- making minimum bonus bids the same for all leases, and
- using sealed bidding to auction all leases.

Recommendation to the Secretary of the Interior

BLM's use of the nomination option did not identify all leases for which there was competitive interest and possibly resulted in less competition and therefore lower revenues for the federal government. Therefore, we recommend that the Secretary of the Interior direct the Director, BLM, to delete the nomination option from its regulations governing federal onshore oil and gas leasing and offer all leases at auctions.

Objectives, Scope, and Methodology

In letters dated January 22, May 9, and June 22, 1988, the Chairman, Subcommittee on Mining and Natural Resources, House Committee on Interior and Insular Affairs, and Senator Dale Bumpers asked us to review implementation of the Federal Onshore Oil and Gas Leasing Reform Act of 1987. Specifically, through discussions with their offices, we agreed to (1) evaluate BLM's development of implementing regulations for the act, (2) monitor how BLM conducted lease test sales and evaluate the results of the test sales, (3) determine the reasons for and the expected effect of BLM's change of the royalty rates for competitively issued oil and gas leases, and (4) suggest statutory and regulatory improvements in the leasing program.

To evaluate activities relating to BLM's promulgation of regulations, we interviewed BLM officials at its headquarters in Washington, D.C. We obtained and reviewed documentation of BLM's efforts to inform the public about the new legislation. We interviewed officials of oil and gas associations, oil and gas companies, lease brokers, and state government officials to obtain their views on BLM's implementation of the act. We also obtained and reviewed public comments submitted to BLM on the proposed regulations to ensure that all comments were considered.

To evaluate BLM's preparations for the test sales, we examined how BLM (1) determined which lands to offer for leasing in the test sales, (2) publicized the sales, and (3) selected auction facilities and auctioneers. We interviewed officials and attended meetings at the six BLM state offices (Colorado, Eastern States,[1] Montana, New Mexico, Utah, and Wyoming) that conducted the eight test sales.

To monitor and evaluate the test sales, we attended all eight sales and observed the adequacy of the facilities, estimated the attendance and number of bidders, observed the auctioneers' performances, recorded the time intervals between leases offered, and observed BLM's transactions with winning bidders. After four of the auctions, we participated in BLM meetings to evaluate the efficiency and effectiveness of the auctions.

After the test sales, we verified BLM's documentation of sale results, documented how BLM handled receipts, examined BLM procedures for issuing noncompetitive leases, obtained data on noncompetitive lease applications on the first day after each auction, determined the time taken by

[1]The Eastern States Office is responsible for federal lands in all states bordering on and east of the Mississippi River.

winning bidders to remit full payment to BLM, and examined BLM's processing of refunds and issuance of leases.

To make our observations known in a timely and useful manner regarding the proposed regulations and test sales, we met with BLM headquarters officials and offered suggestions for improvement. In addition, we briefed Subcommittee staff within the public comment period for the proposed regulations. The Subcommittee Chairman used this briefing as a basis for his public comments, which he submitted to BLM (see app. II).

To evaluate the new leasing system's effect on revenues, we identified all leases offered in the test sales that would have been issued noncompetitively under BLM's previous leasing system. This was possible because, in the test sales, BLM offered its existing inventory of available leases. BLM had already determined which of these leases had known oil and gas potential prior to passage of the Reform Act. Then we calculated the average revenue per acre for these leases that were sold at the test sales and compared that average with the average revenue per acre for leases issued noncompetitively in 1987.[2]

Because the amount of land previously identified as having known oil and gas potential that was offered in the test sales differed significantly from the amount of such land offered in 1987, a similar comparison of revenue per acre is not meaningful, and we did not do it. For example, in Utah, 16 of 24 leases with known oil and gas potential (67 percent) offered in its test sale were in the Blanding Basin, whereas only 1 of 75 such leases (less than 1 percent) offered in 1987 was in that basin. In addition, factors such as different royalty rates (variable in 1987 and fixed in 1988) and bidding methods (sealed in 1987 and oral in 1988) make comparison difficult.

To determine BLM's basis for changing the royalty rates for oil and gas, we interviewed BLM headquarters officials. To determine the effect of the changed royalty rates, we reviewed literature on the economic theories related to royalty rates and bonus bids.

In addition, we compared the results of 1988 federal and state lease sales in two of Wyoming's most productive oil and gas areas. We chose Wyoming because it accounted for 47 percent of federal onshore oil royalty revenues in 1987. We also chose Wyoming because the federal and

[2]BLM's Eastern States Office was excluded from this analysis because it covers many states in which it leased lands in 1987, but it leased lands in only one state in its test sale.

state governments have similar leasing programs, offer leases with similar geology and rents and identical lease terms, but offer leases at different royalty rates. The federal leases have a 12-1/2-percent royalty rate, and the state leases have a 16-2/3-percent royalty rate. The two areas are the Minnelusa and Muddy Formations.[3] The Minnelusa Formation contains over 50 percent of the new oil fields discovered in the state in the last 3 years for which data were available, and the Muddy Formation contains about 10 percent of the state's newly discovered oil fields in the same period. These formations accounted for 26 percent of bonus revenues received by BLM from the first three 1988 lease sales in Wyoming, and they accounted for 45 percent of the bonus revenues received by the state from its first five 1988 lease sales.

We determined the amount of oil and gas needed, at various prices, to generate additional royalty revenues, at a 16-2/3-percent rate, sufficient to equal the additional bonus bid revenues that the federal government received on its leases sold in the first 9 months of 1988, which have a 12-1/2-percent rate. As recommended by BLM officials, we projected the timing of future Minnelusa production on the basis of a decline curve of 15 wells in the southern portion of Slattery Field in the Minnelusa Formation. The timing of future Muddy production was projected on the basis of a decline curve of 37 wells in Recluse Field in the Muddy Formation. For the Minnelusa Formation, we ignored gas production because of its negligible volume. However, we recognized both oil and gas production in the Muddy analysis.

For each monthly production period, we calculated cash flow according to the following equation:

$$cf = \% \times R \times P \times .0417,$$

where cf is cash flow, % is percent of recoverable reserves produced in a given month, R is recoverable reserves, P is the price of oil (or gas), and .0417 is the difference between a 16-2/3-percent royalty and a 12-1/2-percent royalty (.1667 - .1250). Oil and gas prices were held constant over the productive lives of the wells. Cash flows, for each of the 348

[3]We defined the Minnelusa as T47-54N, R68-71W and T47-49N, R72-73W. It includes parts of Campbell, Crook, and Weston counties. We defined the Muddy as T50-58N, R72-76W. It includes primarily northwestern Campbell County.

monthly periods for the Minnelusa and for each of the 217 monthly periods for the Muddy, were discounted to present value using a constant discount rate (see ch. 3).[4]

To calculate recoverable oil and gas quantities, we first determined from Wyoming production reports all wells completed in the Minnelusa Formation from January 1983 through December 1987.[5] We then calculated cumulative production and the number of months of production for each well. The cumulative production from each well was divided by the cumulative production, expressed as a percentage, from Slattery Field in the Minnelusa for the same number of months. For example, if a well produced 67,045 barrels of oil in 31 months, that well's estimated recoverable oil is 67,045 divided by .2229 = 300,785 barrels, because Slattery Field produced 22.29 percent of its oil by its 31st month. The quantities of oil for each well were then summed.

To determine possible ways to further competition and increase sale revenues, we evaluated statutory and regulatory provisions regarding lease lengths and bonus requirements, bidding methods, and manner of bringing available lands to auction. We studied economic theories regarding auctions to evaluate oral and sealed bidding and the effect that each has on bonus bid revenues. We compared average revenue per acre for BLM's 1987 competitive sales, which used sealed bidding, with the average revenue per acre for the test sales, which used oral bidding.

In evaluating the effects of changes in royalty rates and auction methods, we focused primarily on federal and state revenues. We did not generally consider their effects on other things, such as overall economic efficiency, industry competition, and domestic oil and gas production.

We performed our review from February 1988 to January 1989. At the time of our review, the most current detailed data regarding BLM leases in each state was from December 31, 1987. Except for not assessing the reliability of data that we obtained from BLM for leasing in 1987, because that would have required an inordinate amount of time, we conducted our review in accordance with generally accepted government auditing standards.

[4]We did not, however, consider the effects of federal and state taxes.

[5]Production reports were provided by the Petroleum Information Corporation of Denver, Colorado.

Letter From the Chairman, House Subcommittee on Mining and Natural Resources, to the Director, Bureau of Land Management

April 21, 1988

Robert F. Burford, Director
Bureau of Land Management
Department of the Interior
1800 C Street NW
Room 5555
Washington, D.C. 20240

Dear Director Burford:

Pursuant to the Federal Register notice dated March 21, 1988, on the proposed rulemaking relating to the Federal Onshore Oil and Gas Leasing Reform Act of 1987, I am submitting the following comments.

On January 22, 1988, I requested the U.S. General Accounting Office (GAO) to, among other items, monitor each of the test sales scheduled by the Bureau of Land Management (BLM) and all other activities relating to the promulgation of regulations pursuant to the Federal Onshore Oil and Gas Leasing Reform Act of 1987 (hereinafter referred to as the "Act"). The GAO's examination of this matter is continuing and I expect that a full report will be transmitted to the Subcommittee on Mining and Natural Resources and made available to the public at the appropriate time. The following comments, however, are based in part upon GAO's initial observations of the test sales.

Because of the wide scope of issues raised by the proposed rulemaking, and the fact that the GAO briefing occurred only yesterday, I am limiting my comments to a single issue which I believe is central to the Act and the proposed rulemaking: the method for conducting competitive sales. This, however, in no way should be construed as meaning that I do not have concerns with other issues raised by the proposed rulemaking.

At the onset, I would like to commend the BLM for its conduct of the test sales. Information I have received indicates they were professionally managed and well attended. I was especially pleased by an Associated Press wire service report dated March 31, 1988, in which the head of BLM's leasing section in Wyoming, Andrew Tarsus, was identified as

saying "that getting rid of the lottery system will benefit the oil industry as a whole because many people with no connection to the business often entered the lottery as an investment, a gamble or a lark." As you are aware, eliminating the simultaneous leasing program was one of the major reasons prompting Congressional action on the Act.

Two types of test sales were conducted between March 24, 1988, and April 20, 1988. The first three (Montana, Wyoming and Colorado) utilized a one-step competitive process, called at times the "single phase system" or "direct-to-sale" process. The second three test sales (Utah, Arkansas and New Mexico) were held primarily using a nomination process, also referred to as the "two-phase system."

However, it is my understanding that the test sales utilizing the nomination process included certain variations of the procedure outlined in the proposed rulemaking. At the Little Rock, Arkansas, test sale tracts which did not receive nominations were nonetheless offered at oral auction. In addition, several tracts which did not receive nominations prior to the Salt Lake City, Utah, test sale were also offered at oral auction. Furthermore, tracts which did not receive nominations were offered on an over-the-counter basis prior to the Utah oral auction while in all other instances the noncompetitive sale was held after the day of the oral auction.

I believe that in promulgating its final regulations pursuant to the Act, the BLM should select a single competitive leasing process. This will ensure the type of consistency necessary to an efficient federal onshore oil and gas leasing program.

Of the two types of test sales conducted as well as the variations tested in the nomination process, I believe the public interest is best served by the direct-to-sale method. The direct-to-sale method more adequately fulfills the intent of Congress that greater reliance be placed on competitive market forces in the leasing program and provides a greater financial return to the public.

The Little Rock, Arkansas, test sale clearly demonstrated the benefits to the public of not relying on the nomination process. At this sale, 10 tracts which did not receive nominations were bid on and sold at the oral auction. These tracts accounted for approximately 9% of the oral auction sales. If these tracts had not been made available at the oral auction because they lacked nominations, they would instead have been made available on an over-the-

counter basis and the public would have been deprived of the bonus bids that were generated.

This test sale also demonstrated that greater competitive forces come to play by not utilizing the nomination process. While the proposed rulemaking states that lands which do not receive a national minimum bid through the nomination process have been subjected to the competitive process, the Arkansas test sale shows that this is, in fact, not the case. The 10 tracts not nominated but nonetheless sold at this test sale indicate that the direct-to-sale method is the purest form of competitive leasing.

Greater competition can also be expected to occur in the direct-to-sale method because the nomination process works against the independent segment of the oil and gas industry. Nominations filed in response to a List of Lands Available for Competitive Nominations require the payment of an amount sufficient to cover the national minimum bid, the first year's rental on a per acre basis and a $75 administrative fee. Obviously, this requirement ties up a greater proportion of money that an independent has available for obtaining new federal acreage than that with which a major oil company has available for the same purpose. As such, while an independent's more limited resources are embroiled in the nomination process (with the chance that the nominee may not even be the successful bidder at the oral auction) competition for other available tracts is reduced.

The BLM should also consider the administrative expenses incurred in the nomination process that are not present in the direct-to-sale method. For example, the minimum bid, first year's rental and administrative fee must be refunded to all nominators who are unsuccessful at the oral auction.

If the BLM finds it necessary to devise some type of guidance to assist it in preparing those parcels that would be posted on a given Notice of Competitive Lease Sale in the direct-to-sale method, I would suggest that consideration be given to accepting confidential expressions of interest from the public. The Act does not prohibit such activity and this was, in fact, the very methodology that was incorporated in the House passed version of the Federal Onshore Oil and Gas Leasing Reform Act of 1987 and which may have been inadvertently left out of the final version of the legislation.

The direct-to-sale method would also entail noncompetitive tracts to be sold following the day of the oral auction. This does not mean that these tracts should

Robert F. Burford
page 4 - April 21, 1988

first become available on the day immediately following the competitive sale. It may be appropriate to first make noncompetitive tracts available within 10 days of the oral auction. I would note that the Act requires those tracts not receiving the minimum bid, or which do not receive a bid, at the competitive sale to be made available noncompetitively within a 30 day period.

With warm regards, I am

Sincerely,

NICK J. RAHALL, II
Chairman, Subcommittee on Mining
and Natural Resources