Chapter 6
Federal Leasing Policies

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OVERVIEW

The Federal Government is the largest single owner of energy resource lands in the United States. It controls approximately 730 million acres onshore—mostly in western States—and nearly 1.9 billion acres in the offshore U.S. Exclusive Economic Zone (EEZ). Industry access to the vast government landholdings for oil and gas development is essential to meeting the country's future energy needs. However, energy development on Federal lands must be balanced with other land uses and with protection of the environment.

Federal leasing of offshore areas for oil and gas development is conducted under the Outer Continental Shelf (OCS) Lands Act of 1953, as amended in 1978. The 1978 amendments to the Act require that offshore leasing balance expeditious energy development with the interests of the coastal States and environmental concerns. The first Federal offshore lease sale was held in the Central Gulf of Mexico in October 1954. Leasing in the more hostile environments of the Arctic began in 1979 and in the deepwater areas of the lower 48 States in 1981.

At the same time that leasing in offshore frontier areas was growing, the rate of leasing was greatly accelerated. In the 1980s, the Department of the Interior implemented a system of 'area-wide leasing, expanding the offshore acreage considered for each lease sale. Interior also increased the number of lease sales held each year, Opposition to the accelerated leasing schedule from coastal States, environmental groups, and others resulted in several delays to the lease schedule and some modification of the area-wide leasing approach.

Delays in the leasing schedule also resulted from the continuing dispute between the coastal States and the Federal Government over the appropriate division of power and revenues in offshore leasing. Although the controversies have primarily concerned issues in nearshore leasing—means of mitigating adverse effects on coastal areas and methods of dividing revenues from oil and gas basins crossing State/Federal boundaries—they have created uncertainty in frontier-area leasing as well. The extent of leasing in offshore frontier areas has also been constrained by deferrals of offshore acreage for military uses and controversies regarding international boundaries.

Some changes have been made in Federal leasing policy in recognition of the increased costs and risks of oil and gas development in offshore frontier areas. The primary lease term has been extended from **5** to 10 years and royalties have been lowered for most frontier areas. However, additional changes may be needed in bidding systems, the size of the lease tracts, and other leasing terms and conditions to provide the incentive for comprehensive exploration and development of the energy resources of Arctic and deepwater frontiers.

RATE AND EXTENT OF OFFSHORE LEASING

Background

Federal leasing of offshore areas for oil and gas development began soon after the passage of the OCS Lands Act of 1953,[1] but the petroleum industry had been developing oil and gas resources offshore for many years prior to that under State leases and permits. Offshore oil was first produced from piers off Summerland, California in 1896. The States of Louisiana, California, and Texas began leasing in the 1920s. The first Federal offshore lease sale was held in the Central Gulf of Mexico in October 1954.

[1] Pub. Law 83-212, 67 Stat. 462 (1953), 43 USC 1331-1356,

The OCS Lands Act of 1953 provided the basic policy for the development of offshore oil and gas resources under Federal jurisdiction. It authorized the Department of the Interior to lease these areas to private persons for development, and it established general guidelines for managing the leasing process and post-lease activities. In 1969, an oil well blowout in the Santa Barbara Channel off California increased public awareness of the environmental risks of offshore leasing. This concern was coupled with greater uncertainty about future U.S. energy supplies after the Arab oil embargo of 1973. In 1974, Congress began to amend the 1953 Act to address these concerns, which culminated in the enactment of the OCS Lands Act Amendments of 1978.[2]

The 1978 Amendments made fundamental and somewhat controversial changes in offshore leasing policy. The Amendments opened up the decisionmaking process for offshore leasing to give affected parties—primarily the coastal States—the opportunity for greater involvement. Stricter criteria and standards were included in consideration of environmental factors and competing land uses. New emphasis was placed on the public revenue from OCS development and the receipt of fair market value for oil and gas resources. From 1978 on, Federal offshore leasing for oil and gas development had to balance energy policy goals with State, environmental, and revenue considerations.

In addition, the OCS Lands Act Amendments introduced the requirement for a 5-year schedule of proposed lease sales.[3] The June 1979 leasing schedule, which was revised in June 1980, was the first prepared in accordance with the requirement. This schedule increased the number of sales to be held in frontier areas; approximately one-half of the sales were scheduled for Alaskan and deepwater regions. In October 1981, however, the U.S. Court of Appeals ruled that the leasing program did not meet the requirements of Section 18 of the OCS Lands Act Amendments and remanded the program to the Secretary of the Interior for revision.

A 5-year leasing program drafted by the new Secretary of the Interior, James Watt, in mid-1981 did subsequently withstand the legal challenge for adequacy.[4] This program, which covered the period August 1982 through June 1987, proposed dramatic increases in the acreage to be offered and leased in an effort to increase domestic energy production. Approximately one billion acres of Federal offshore lands were to be offered for lease in the 5-year period. This was far more than the 50 million acres offered for lease in the entire period from October 1954 through June 1982. Under the new concept of ‘area-wide leasing, the acreage offered was increased from a previous average of 1 to 2 million acres per sale to 20 to 50 million acres per sale. In addition, the leasing schedule itself was accelerated to an average of eight sales per year, compared to an average of five sales per year in the previous 5-year period.

Most of the land to be leased under the 1982-87 schedule was in the frontier areas. Out of a total of 41 lease sales, there would be 16 offerings off Alaska, 12 in the Gulf of Mexico, 8 off the Atlantic Coast, 4 off California, and one reoffering sale. Several new Alaskan offshore areas would be opened to leasing for the first time. In total, over 56 percent of the acreage to be offered was off the Alaskan coast and another 20 percent was in the deepwater areas of the Gulf of Mexico, the Atlantic, and the Pacific.

Early opposition to the 1982-87 accelerated leasing program caused a number of delays in its implementation. Of the 21 lease sales scheduled through the end of 1984, only seven were held on the originally scheduled date. Opponents, mostly coastal States and environmental groups, challenged several sales with litigation on the basis of alleged violation of the requirements of the OCS Lands Act Amendments, the Coastal Zone Management Act, and relevant environmental laws. In addition to that opposition, Congress delayed sales by prohibiting the use of appropriated Interior Department funds for leasing and development of specific OCS basins in the Pacific, Atlantic, and Gulf of Mexico. However, of the lease sales scheduled for 1982-84, all but four—the two Georges Bank sales in the North Atlantic and two Alaskan sales—had been held by the end of 1984,

In 1983 and 1984, record amounts of OCS acreage were offered and leased. For the first time, substantial acreage was leased in Alaska-in the Diapir Field, and the Navarin, Norton and St. George Basins—and in the deepwater areas off the lower

[2] Pub. Law 95-372, 92 Stat. 629 (1978), 43 USC 1801-1866.
[3] Section 18, Supra note 1.
[4] California v. Watt, No. 80-1894 (D. C. Cir. 1983).

48 States. In the Gulf of Mexico area-wide lease sales of 1983-84, more than 26 percent of the tracts leased were in water depths beyond 2,000 feet and 18 percent in water depths beyond 3,900 feet. Prior to 1983, leasing in water depths beyond 2,000 feet rarely exceeded 5 percent of the total acreage. Similarly, new deepwater acreage was leased in the Atlantic and Pacific regions.

In January 1984, the new Secretary of the Interior, William Clark, announced his intention to decrease the acreage considered for leasing under the 1982-87 leasing schedule because of State and environmental concerns. However, Secretary Clark continued to support the general concept of area-wide leasing, particularly in the Gulf of Mexico. A revised leasing schedule issued in October 1984 indicated that the six Gulf of Mexico area-wide lease sales to be held between May 1985 and April 1987 would take place as scheduled (see table 6- 1). Several of the remaining Alaskan, California, and Atlantic sales, however, were delayed and some were reduced in acreage. Despite these modifications to the leasing schedule, the magnitude and

Table 6-1 .—Five-Year OCS Leasing Schedule (8/82-6/87)

Region	Sale #	Location	Schedule date Original	Current
Re-offering	RS-2	AT, CA, AK	Aug 1982	As scheduled
Alaska	71	Diapir Field	Sept 1982	Oct 1982
Atlantic	52	Georges Bank	Oct 1982	Postponed
Gulf of Mexico	69-1	Texas, LA	Oct 1982	Nov 1982
	69-2	MS, AL, FL	Oct 1982	Mar 1983
Alaska	57	Norton Basin	Nov 1982	Mar 1983
Alaska	70	St. George Basin	Feb 1983	Apr 1983
Atlantic	76	Mid-Atlantic	Apr 1983	As scheduled
Gulf of Mexico	72	Central Gulf	May 1983	As scheduled
Atlantic	78	South Atlantic	July 1983	As scheduled
Gulf of Mexico	74	Western Gulf	Aug 1983	As scheduled
Pacific	73	Central CA	Sept 1983	Dec 1983
Gulf of Mexico	79	Eastern Gulf	Nov 1983	Jan 1984
Pacific	80	Southern CA	Jan 1984	Oct 1984
Atlantic	82	North Atlantic	Feb 1984	Postponed
Alaska	83	Navarin	Mar 1984	Apr 1984
Gulf of Mexico	81	Central Gulf	Apr 1984	As scheduled
Alaska	87	Diapir Field	June 1984	Aug 1984
Gulf of Mexico	84	Western Gulf	July 1984	As scheduled
Alaska	88	Gulf/Cook Inlet	Oct 1984	Postponed
Alaska	89	St. George Basin	Dec 1984	Sept 1985
Atlantic		South Atlantic	Jan 1985	Postponed
Alaska	85	Barrow Arch	Feb 1985	Postponed
Alaska	92	N. Aleutian Basin	Apr 1985	Dec 1985
Gulf of Mexico	98	Central Gulf	May 1985	As scheduled
Atlantic	111	Mid-Atlantic	June 1985	Oct 1985
Gulf of Mexico	102	Western Gulf	Aug 1985	As scheduled
Pacific	91	Cent/North CA	Sept 1985	Dec 1987
Alaska	100	Norton Basin	Oct 1985	Dec 1985
Gulf of Mexico	94	Eastern Gulf	Nov 1985	As scheduled
Pacific	95	Southern CA	Jan 1986	Apr 1987
Atlantic	96	North Atlantic	Feb 1986	Nov 1987
Alaska	107	Navarin Basin	Mar 1986	Sept 1986
Gulf of Mexico	104	Central Gulf	Apr 1986	As scheduled
Alaska	97	Diapir Field	June 1986	Dec 1966
Gulf of Mexico	105	Western Gulf	July 1986	As scheduled
Alaska	99	Kodiak	Oct 1986	Postponed
Alaska	101	St. George Basin	Dec 1986	July 1988
Atlantic	108	South Atlantic	Jan 1987	July 1989
Alaska	109	Barrow Arch	Feb 1987	May 1987
Gulf of Mexico	110	Central Gulf	Apr 1987	As scheduled
Alaska	86	Shumagin	June 1987	Dec 1987

SOURCE: Minerals Management Service, 1985.

pace of OCS lease sales, still set at seven to eight per year, remain significantly greater than previous schedules.

The Department of the Interior is now soliciting comments from industry, coastal States and other interested parties on a new 5-year OCS Leasing Program for the period mid-1986 through mid-1991. The overlap between the two schedules in 1986/87 is intended to provide a transition period from one program to the next. Eleven sales have been carried over from the previous 5-year leasing schedule (see box).[5]

The new 5-year leasing schedule proposes a total of 43 sales: 33 standard sales, 5 frontier exploration sales, and 5 supplemental sales. The frontier exploration sales are scheduled for areas of Alaska where resource assessment is incomplete and in-

[5]Department of the Interior News Release, "Secretary Hodel Releases Draft Proposed OCS Oil and Gas Program, (Mar. 21, 1985).

Proposed Five-Year OCS Leasing Schedule (7/86-6/91)

Region	sale #	Location	Proposed date
Gulf of Mexico	105	Western Gulf	July 1988
Supplemental 1			Aug. 1986
Alaska	107	Navarin Basin	Sept. 1988
Alaska		Beaufort Sea	Dec. 1988
Pacific	95	Southern California	Apr. 1987
Gulf of Mexico	110	Central Gulf	Apr. 1987
Alaska	109	Chukohl Sea	May 1987
Gulf of Mexico		Western Gulf	Aug. 1987
Supplemental 2			Aug. 1987
Atlantic	96	North Atlantic	Nov. 1987
Alaska	86	Shumagin	Dec. 1987
Pacific	91	Northern California	Dec. 1987
Gulf of Mexico		Central Gulf	Feb. 1988
Alaska*		Gulf of Alaska	Mar. 1988
Gulf of Mexico		Eastern Gulf	May 1988
Alaska	101	St. George Basin	July 1988
Gulf of Mexico		Western Gulf	Aug. 1988
Supplemental 3			Aug. 1888
Atlantic		Mid-Atlantic	Oct. 1988
Alaska		North Aleutian Basin	Dec. 1088
Gulf of Mexico		Central Gulf	Feb. 1989
Alaska		Norton Basin	Mar. 1989
Pacific		Central California	May 1989
Atlantic	108	South Atlantic	July 1989
Gulf of Mexico		Western Gulf	Aug. 1889
Supplemental 4			Aug. 1989
Alaska		Navarin Basin	Sept. 1989
Alaska		Beaufort Sea	Dec. 1989
Gulf of Mexico		Central Gulf	Feb. 1990
Alaska		Chukchi Sea	Mar. 1990
Pacific		Southern California	Apr. 1990
Alaska*			June 1990
Gulf of Mexico		Western Gulf	Aug. 1990
Supplemental 5			Aug. 1990
Alaska*		Shumagin	Sept. 1990
Atlantic		North Atlantic	Oct. 1990
Pacific		Northern California	Dec. 1990
Alaska*		Kodiak	Jan. 1991
Gulf of Mexico		Central Gulf	Feb. 1991
Alaska		St. George Basin	Apr. 1991
Pacific		Washington-Oregon	Apr. 1901
Gulf of Mexico		Eastern Gulf	May 1991
Alaska*		Hope Basin	June 1991

*Frontier exploration sales.
Supplemental sales—Annual sales for selected drainage, development, and/or rejected bid blocks outside the Central and Western Gulf of Mexico.
SOURCE: Department of the Interior News Release, Mar. 21, 19SS.

dustry interest appears to be low. An added presale step, a Request for Interest, will be used prior to these sales to determine if industry interest warrants holding the sales. The supplemental sales will be held in August of each year for selected drainage, development, and/or rejected bid blocks outside the Central and Western Gulf of Mexico.

Annual lease sales will still be held in the two most prospective areas: the Central and Western Gulf of Mexico. Outside of these areas, the pace of leasing will be slowed from one sale every 2 years to one sale every 3 years. In addition, a "flexibility provision" has been added to allow the pace of leasing to be adjusted to economic conditions. Sales in certain areas (Northern, Central, and Southern California; Eastern Gulf of Mexico; Navarin Basin; Beaufort Sea; North Aleutian Basin; and St. George Basin) may be accelerated if changes in oil prices or new geologic data warrant.

Area- Wide Leasing

The area-wide leasing system made fundamental changes in the lease tract offering process. Prior to 1983, under what is called the ' 'tract nomination' sale system, the Department of the Interior offered a limited number of specific tracts for leasing based on the geological prospects for oil and gas as interpreted by the government. Between the first offering of offshore leases under the OCS Lands Act Amendments in February 1979 and the beginning of the area-wide sale system in April 1983, about 23 million acres were offered for leasing.

Under area-wide leasing, the Department of the Interior offers an entire lease sale planning area for leasing. Tracts may be selected from every unleased tract and from tracts where the leases have expired. Recommendations are still made by the States and other Federal agencies for exlusion of tracts from the sale. But under this system, industry is permitted to choose where its investments in exploration will be made without being double-guessed by the Department of the Interior.

About 546 million acres have been considered by the industry in the 11 area-wide lease sales held through the end of 1984. This is actually an overestimate, because it includes blocks previously sold as well as double-counting for 35 million acres offered twice in the Gulf of Mexico. About 63 percent of this or 346 million acres was actually offered for leasing in the area-wide sales. Of this, industry leased 13 million acres. Based on these numbers, area-wide leasing is a misnomer. The system should more accurately be called ' 'area-wide consideration or "area-wide selection.

In theory, area-wide leasing was adopted to provide the industry an opportunity for early selection of tracts which offer the best prospects for discovery of oil and gas. In operation, it also has resulted in an increased rate of leasing. Industry faulted the tract nomination system because the Department of the Interior made its own determinations of resource potential and often failed to include many of the tracts nominated by industry. However, critics of the area-wide system maintain that a return to a nomination system where the Department of the Interior assures that industry nomination will be honored would allow sufficient freedom of tract selection.

Under revised area-wide leasing procedures announced by Secretary of the Interior William Clark in January 1984, firms make specific recommendations on selected tracts at the call for information stage (the initial phase of the leasing process). Secretary Clark requested that the industry target those tracts in which they are seriously interested and reduce "scenery' selections (those intended to mask bidding strategy). In this way, environmental assessment can be focused on specific areas of interest to the industry. Better information can also be provided to State and local governments and environmental groups early in the area identification process so that they may prepare for the later consultation phase.

Secretary of the Interior Don Hodel adopted a modified area-wide leasing system for use during the 1986-91 5-year leasing schedule. Although essentially the same as the Clark system, it is here called the ' 'focused approach' intended to focus lease offerings on promising acreage.

Both the industry and the Department of the Interior defend the concept of area-wide leasing, noting that the United Kingdom and Canada have successfully used this approach for offshore leasing for a number of years. From the standpoint of tech-

nology development, the industry also asserts that expensive offshore technologies will only be developed and financed if the industry has profitable leases.

The shift from tract nomination to area-wide leasing has raised opposition from some coastal States and environmental groups, which allege that area-wide leasing is nothing more than a "fire sale' and giveaway of the Nation's resources and, because of the magnitude of the sales, a threat to the ocean and coastal environments. The industry, however, defends the integrity of the area-wide approach in terms of efficient resource development, fair value received for Federal leases, and environmental protection. The Minerals Management Service (MMS) also denies that the environment is receiving any less attention under the area-wide leasing system than under the tract nomination approach.

The area-wide leasing debate has focused largely on the Gulf of Mexico. About 70 percent of the acreage offered under the area-wide system through January 1985 has been in that region. Less attention has been given to the potential impact and effectiveness of area-wide leasing in deepwater and Arctic frontier regions because of limited experience with leasing in these areas. The Gulf of Mexico, being a mature producing region where the geology and petroleum prospects may be estimated more accurately, is considerably different from frontier regions where little or no production has occurred and where each new well is considered a wildcat. Analysis of the results of area-wide leasing in the frontier areas is difficult because few area-wide sales have been held in these regions.

Those critical of area-wide leasing have emphasized two aspects of public policy: 1) receipt of fair market value for government-owned resources; and 2) environmental implications of an accelerated, broad-based leasing program.

Fair Market Value Concerns

The OCS Lands Act Amendments of 1978 require that the government receive fair market value for offshore leases, although no precise definition of fair market value is given. Controversy has resulted from the fact that the average bonus bid per acre has declined under the area-wide system, and that fair market value may not be received for leases under area-wide offerings. The average bid per acre under the tract nomination system between 1979 and 1983 was $2,388. Since the beginning of area-wide leasing in 1983, bonus bids have averaged about $529 per acre.

The debate over the receipt of fair market value under area-wide leasing has centered on economic analyses done by National Economic Research Associates, Inc. (NERA) for the State of Texas in support of the State's discussions with the Department of the Interior over disposition of escrow money from Federal/State tracts in the Gulf of Mexico.[6] NERA's analysis attributed the reduced bonus bids received in area-wide lease sales in the Gulf of Mexico to several factors:

- Supply ***and*** **Demand:** Based on classical economic theory of supply and demand, the more tracts offered in a lease sale, the lower the bids will be as a result of less competition.
- Fixed Budgets: If firms have fixed budgets for lease acquisition, they will tend to bid lower on a larger number tracts offered in an area-wide sale than they would if fewer tracts were offered in a nomination sale.
- ***Bargain Hunting:*** If firms can acquire leases cheaply, they will be willing to accept higher risks of dry holes.
- ***Time Value of Money:*** If production maybe delayed, firms will reduce their bids to offset the cost of discounting the investment.

The NERA study concluded that area-wide leasing will not accelerate energy production, because development is determined by the profitability of individual leases and not the rate and number of lease purchases.

In conducting its analysis, NERA also found that water depth had little relationship to the lower bids received in the Gulf of Mexico. NERA did not undertake an analysis of data relating bids to tract depths, but rather related bid levels to distance from shore. Distance from shore and water depth are generally, but not consistently, related. By assum-

[6]Letter and attachments from Governor Mark White to Secretary of the Interior William Clark (May 25, 1984) and affidavit and exhibits of Jeffery J. Leitzinger, Senior Consultant, National Economic Research Associates, Inc.

ing a one-to-one relationship between distance offshore and water depth, the NERA study may have masked the true effects of water depth on bid levels. An OTA analysis of bonus bids and water depth in five area-wide leases sales in the Gulf of Mexico suggests that a trend relationship may exist between lower bonus bids and leases in water depths of 600 feet and greater (see figure 6- 1). Bids in deepwater frontier areas may be lower as a result of the increased risks and higher costs associated with exploration and development of oil and gas.

The lower bids in the Gulf of Mexico area-wide lease sales may also be due to a number of other factors. These include pessimism over future oil prices; the failure of the industry to find oil and gas in highly prospective areas of the Atlantic and Pacific; the fact that the leased tracts in the Gulf of Mexico had been ' 'picked over' previously; and the increase in the minimum bid from $25 to $250 per acre by the Department of the Interior.[7] In addition, it has been pointed out that the downward trend in bids in the Gulf of Mexico actually began under the tract nomination system in 1980 and continued under the area-wide system (see figure 6-2).

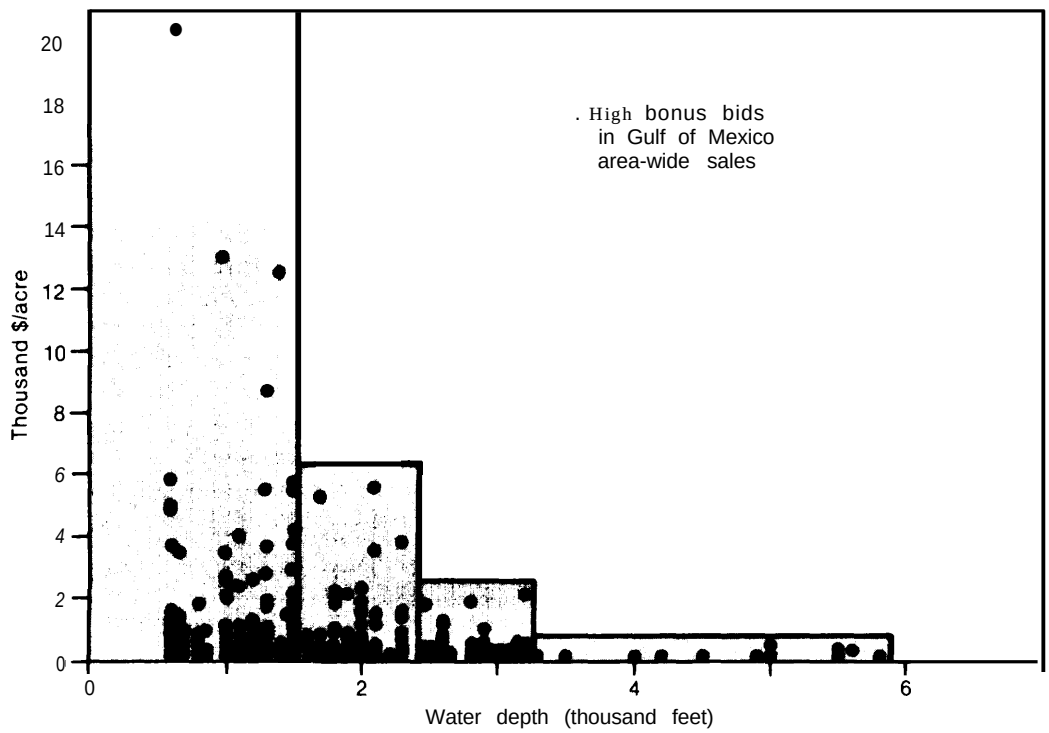
In general, fair market value is a difficult concept to define. The U.S. Court of Appeals upheld the accelerated leasing program of the Department of the Interior, noting that the law does not require the maximization of revenues, only the receipt of a fair return for Federal leases. The Department of the Interior points out that bonus payments represent only about one-fourth of the revenues received from offshore oil and gas leases and thus are not the only consideration in assessing fair market value. Federal payments are also received in the form of taxes, royalties, and rentals.

Environmental Concerns

Environmental concerns related to area-wide leasing focus on the inability of the States and the Federal Government to evaluate potential environmental impacts from offshore development in lease

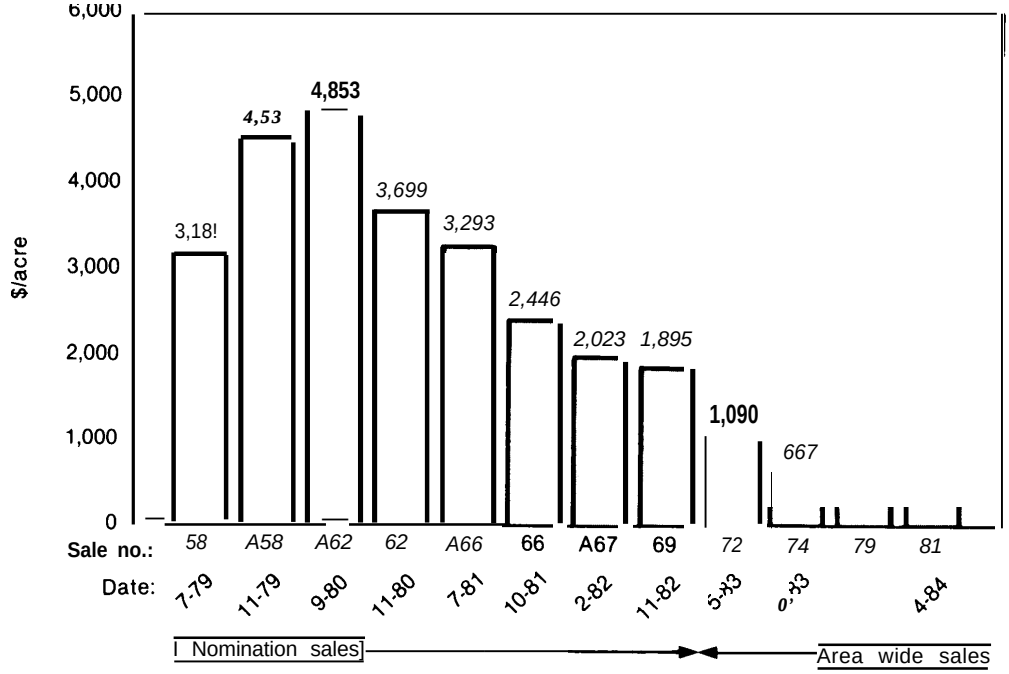
[7] National Ocean Industries, ***Area-Wide Leasing: National Boon or Industry Boondoggle?,*** (Washington, DC: 1984).

Figure 6-1.–Gulf of Mexico Bidding by Water Depth



SOURCE: Office of Technology Assessment.

Figure 6.2.—Trends in Gulf of Mexico Average Bids



SOURCE: National Ocean Industries Association.

sales covering broad, diverse areas. It may be difficult for State and local governments to plan for and assess the impacts of OCS development under area-wide leasing because of the extent of the area considered and the uncertainty of which portions will be offered for sale. In addition, environmental groups assert that general statements of environmental impacts are not useful, and detailed analyses of vast areas that will not be leased is wasteful.[8]

The Department of the Interior stresses that prelease and post-lease environmental regulations and State and local consultation are the same under area-wide leasing as under the tract nomination system. The steps and procedures required by law to identify, assess, and disclose possible environmental impacts which may result from offshore oil and gas development are being followed. The industry believes that environmental assessments under area-wide leasing are better. Consideration of larger areas may lead to a broader knowledge of geohazards, marine biology, physical oceanography, and environmental baselines.

Environmental information, however, is but one factor considered by the Secretary of the Interior in a leasing decision. Environmental interests argue that mere ***pro forma*** adherence to legal requirements is not sufficient. Environmental information should also be adequately considered by the Secretary in the decision process. Environmentalists maintain that the Secretary of the Interior is not assigning appropriate weight to environmental risks in balancing OCS oil and gas development with possibilities of environmental harm.

[8]Department of the Interior, *Final **Supplement** to **the** Final Environmental **Statement,*** Vol. 2, Comments from Industry and Public Interest Groups (Fall 1981).

THE ROLE OF THE COASTAL STATES

Background

Ownership of offshore oil and gas resources has been the source of major disagreements between the Federal Government and the coastal States for nearly 50 years. Realizing the extent of the petroleum wealth that lay below the seabed off their shores, California, Louisiana and Texas began asserting their rights of ownership to the submerged lands as early as 1937. The spat between the States and the Federal Government over offshore petroleum resources became known as the "Tidelands Issue. This issue figured prominently in the politics of that era and influenced Federal-State relationships for nearly two decades. Even today, the struggle continues over the appropriate balance of power, authority, and revenue entitlements that coastal States should exercise over resources in the Federal portion of the Continental Shelf.

Prior to 1945, the seabed resources beyond the internationally recognized 3-mile Territorial Sea were not owned by any nation or individual in accordance with customary international law at that time. On September 28, 1945, President Harry S Truman by Executive Proclamation declared that the United States has exclusive control and jurisdiction over the natural resources of the seabed and subsoil of the Continental Shelf adjacent to the United States. [9] This unilateral claim to the resources of the Continental Shelf was not recognized under international law until it was ratified by the First Law of the Sea Conference held in Geneva in 1958. The Convention on the Continental Shelf recognized that a coastal nation ' 'exercises over the Continental Shelf sovereign rights for the purpose of exploring it and exploiting its natural resouces." [10]

Between President Truman's proclamation in 1945 and international recognition of coastal nations' authority in 1958, intense disputes arose between the coastal States and the Federal Government over who had the authority to regulate development and who would benefit from the rich petroleum resources that lie beneath the seabed.

The judicial answer to the question of ownership and control of the resources of the Continental Shelf came in 1947 when the United States Supreme Court in ***U.S. v. State of California*** decided that the Federal Government and not California had "paramount rights" and power over the 3-mile Territorial Sea (recognized by international law at that time), including full dominion over the resources of the submerged lands. [11] In subsequent suits filed by Louisiana, Texas, and Florida the Court applied the same legal principle and awarded jurisdiction over the submerged lands to the Federal Government. The Court allowed some extended State claims in the Gulf of Mexico because of the special conditions under which Florida and Texas were admitted to the Union .12

Although the coastal States' legal challenge for control of offshore petroleum resources failed, a political assault in the Congress paid off. In 1953, Congress enacted the Submerged Lands Act, which effectively reversed the Supreme Court's decision in ***U.S. v. State of California*** by conveying all rights that the Federal Government claimed in the nearshore submerged lands to the coastal States. [13] It gave the States the title and ownership of the submerged lands and natural resources seaward of their coasts out to 3 nautical miles. With the contentious issue of State claims to the Continental Shelf resolved, the Congress simultaneously enacted the OCS Lands Act of 1953, which established Federal leasing authority in the OCS seaward of the State-controlled zone.

However, the conflict between the coastal States and the Federal Government over oil and gas beneath the seabed did not abate with the enactment of the Submerged Lands Act and the OCS Lands Act. Disagreements continued over drainage of oil from reservoirs beneath adjacent Federal and State properties, and the apportionment of revenues from oil in disputed areas. As the pace of offshore oil and gas development increased under the leasing procedures of the OCS Lands Act, coastal States voiced

[9] Exec. Proclamation No. 2667; 59 Stat. 884 (1945).
[10] 5UST ***471 ;*** TIAS ***5578.***

"332 US 19 (1947)
[12] *U.S. v. Louisiana*, 339 US 699 (1950); *U. S. v.* ***Texas,*** 339 ***U.S.*** 707 (1950).
[13] Public Law 83-31; 67 Stat. ***29 (1953); 43*** USC 1301-1315.

their concerns over the adverse environmental and social impacts that could result from operations off their shores.

In response to concerns that unplanned development of the coastal region could lead to irreparable environmental damage, the Congress enacted the Coastal Zone Management Act (CZMA) in 1972. The CZMA authorized Federal grants to coastal States as incentives to establish coastal zone management plans. Once a State coastal zone management plan is approved by the Secretary of Commerce, all Federal actions within the coastal zone, or which ' 'directly affect' the coastal zone, are required to be conducted in "a manner which is, to the maximum extent practicable, consistent with approved State management programs. In the past, coastal States have asserted that the act of offering offshore leases "directly affects' the coastal zone and that leases should be subject to a determination of consistency with the adjacent State's coastal zone management program. However, in 1984, the United States Supreme Court in Secretary ***of the Interior v. California*** held that OCS oil and gas lease sales ***per se*** are not Federal activities "directly" affecting the coastal zone within the meaning of the CZMA, and therefore do not require State consistency determinations at the time leases are offered.[14]

The CZMA was amended in 1976 to establish a Coastal Energy Impact Program (CEIP).[15] The CEIP was designed to provide States and local governments with financial assistance to meet needs resulting from energy activities in coastal regions, including the development of OCS oil and gas. Enactment of the CEIP was predicated on the belief that coastal States are likely to encounter greater impacts from energy development than inland States because of their geographic location with regard to offshore petroleum, ports for energy imports and exports, and electric power generating stations which require large volumes of cooling water. The CEIP, although scheduled to continue through 1986, has not been funded since 1980.

The OCS Lands Act of 1953, as amended in 1978, declares it national policy that:

> . . . the outer Continental Shelf is a vital national resource reserve held by the Federal Government for the public, which should be made available for expeditious and orderly development, subject to environmental safeguards, in a manner which is consistent with the maintenance of competition and other national needs; .. .16

Although the congressional statement of national policy emphasizes the importance of offshore petroleum reserves and acknowledges that they should "be made available for expeditious and orderly development, the Act concurrently recognizes that:

> . . . exploration, development, and production of the minerals of the outer Continental Shelf will have significant impacts on coastal and noncoastal areas of the coastal States .. .17

The Secretary of the Interior is therefore responsible for balancing what are sometimes conflicting national policies: providing for secure domestic sources of oil and gas from the OCS while at the same time protecting environmental values and respecting the plans, goals and objectives of sovereign coastal States and local governments.

In response to concerns about the potential impact of offshore petroleum development on the coastal States and local communities, Congress set forth as national policy in the 1978 Amendments the principles that: 1) States and local governments may require Federal assistance to protect their coastal zones; 2) States and local governments are entitled to participate in the policy and planning decisions of the Federal Government; 3) States and local governments have rights and responsibilities to protect the environment and the population from adverse impacts of offshore petroleum activities; and 4) the petroleum industry has the responsibility for ensuring the environmental and personal safety of offshore operations.

The OCS Lands Act as amended in 1978 is unique among Federal statutes which authorize leasing, sale or disposal of public resources. Much more State and public involvement in lease planning and Federal licensing and permitting is mandated in the administration of the OCS leasing program than is required for similar leasing of coal, onshore oil and gas, or other minerals on Federal lands. When considered in conjunction with the requirements of the CZMA, the National Environmental Policy Act of 1969, the Federal Water Pol-

[14] Case No. *82.1326,* (Decided Jan. 11,1984).
[15] Public Law 94-370, 90 Stat. 1013 (1976).
[16] Section 3(3), Supra note 1.
[17] Section 3(4), Supra note 1.

lution Control Act as amended, and the Clean Air Act, the OCS Lands Act provides an unprecedented opportunity for coastal State involvement in the offshore oil and gas leasing program.

The 1978 OCS Lands Act Amendments call for State and local government consultation, comments, or coordination at six separate points in the planning, leasing, exploration, and production-development sequence: 1) during the formulation of the 5-year leasing program; 2) at the time of review of environmental impact statements regarding the 5-year leasing program; 3) prior to a proposed lease sale; 4) with regard to oil and gas that may straddle adjoining Federal and State properties; 5) at the issuance of exploration permits; and 6) during the review of production and development plans. In addition, the Secretary of the Interior is directed to provide the necessary information to State and local governments to assist them in responding to Federal actions (see table 6-2).

At no point in a lease sale can a State absolutely veto lease planning or sale preparation. However, States can make recommendations through the consultation and commenting provisions. After leases are awarded, the coastal States have the power of approval of exploration and development plans, which must be consistent with their coastal zone management programs. Pipelines, ports, or storage and transfer facilities for supporting offshore oil and gas operations that are located within the 3-mile Territorial Sea or on the shore must also conform with a State's coastal zone management plans and other local zoning or land use laws within the police powers of the State. As a condition of Federal approval of a State coastal zone management program, provision must be made for giving adequate consideration to energy developments in the national interest of the United States.

Notwithstanding the ample provisions made in the OCS Lands Act and the CZMA for coordina-

Table 6-2.—State Role in Offshore Oil and Gas Leasing

Subject	Action	Authority
Outer Continental Shelf Leasing Program	State and local government comments on proposed 5-year plan and on Secretary's annual review of the plan.	OCSLA Sec. 18
Environmental Impacts	Comments by the State on draft environmental impact statements at time of revisions in the 5-year leasing program and at submission of exploration and development and production plans.	NEPA Sec. 102(D) OCSLA Sec. 25
Proposed Lease Sale	Coordination and consultation with State and local officials concerning size, timing or location of proposed lease sale.	OCSLA Sec. 19
Leasing Within 3 Miles of State's Territorial Sea	Consultation with regard to development of shared oil pools.	OCSLA Sec. 8(g)
Geological and Geophysical Exploration Plans	Certification of consistency with State coastal zone management plans.	OCSLA Sec. 1 l(c) CZMA Sec. 307(c)(3)
Production and Development Plans	Coordination and consultation with State and local officials and certification of consistency of production and development plans with the State coastal zone management program.	OCSLA Sec. 25 CZMA Sec. 307(c)(3)
OCS Oil and Gas Information	Secretary directed to provide information on proposed plans, reports, environmental impact statements, tract nominations, and other information, including privileged information in the custody of the Secretary.	OCSLA Sec. 26

SOURCE: Office of Technology Assessment

tion and cooperation among Federal, State and local governments, a number of disagreements have arisen that add to the uncertainties facing the offshore oil and gas leasing program. These controversies contribute to contentious relationships between some coastal States and the Federal Government regarding offshore resource development. The failure of the Executive Branch to deal with these issues to the mutual satisfaction of the States and the Federal Government has prompted the Congress to seek legislative solutions.

Special State/Federal Problems

Coastal Zone Management Consistency

Coastal States consider the lease sale as a critical point in the OCS oil and gas development process. At this point, contractual obligations are assumed and property rights are conveyed to successful bidders. The States believe that the act of leasing is the beginning of a process that inextricably leads to exploration, and if commercial discoveries are made, to production and development by the lessees. For this reason, the States believe, lease sales themselves should be consistent with State coastal zone management programs.

The Department of the Interior insists that the act of leasing in Federal waters is not an action that "directly affects' the coastal zone. Only when physical activities, such as exploration, begin on a lease are there activities that "directly' affect the coastal States. Haggling over the consistency issue has resulted in several lawsuits that have delayed leasing decisions and introduced uncertainty in the leasing process for a decade.

In January 1984, the U.S. Supreme Court decided the question of whether a lease sale ' 'directly affects" the coastal zone, and therefore whether the Secretary of the Interior must certify that the lease sale is consistent with an approved State coastal zone program. The case, ***Secretary of the*** Interior v. California[18] reversed the decision of the 9th Circuit Court of Appeals in ***California v. Watt.***[19] In ***Secretary of the Interior v. California,*** the Supreme Court concluded in a 5-4 opinion that lease sales are not activities "directly affecting the coastal zone' within the meaning of the CZMA. The State's position with regard to the significance of the lease sale in the exploration and development sequence was dismissed by the Court as a policy argument that had previously been resolved by the Congress in enacting the legislation.

Response to the Supreme Court's decision came swiftly in the 98th Congress. Bills were introduced in both Houses of the Congress to overrule the decision, but laws have not been enacted, 20 These proposals would substitute the term "significantly affecting' for the term "directly affecting, " which was judged by the court to exclude the Federal act of leasing OCS oil and gas. By substituting the term ' 'significantly' for "directly, sponsors of the bills hoped to invoke the liberal interpretation of the term "significantly' that has been used by the Courts in interpreting the National Environmental Policy Act.

Revenue Sharing

The immense value of the oil and gas that lay below the seabed offshore the United States has been the crux of a long-term battle between the Federal Government and the coastal States over control of the so-called submerged lands. Although the Congress transferred ownership of the natural resources in coastal waters out to 3 nautical miles to the States in 1953, the States have never taken their eyes off the Federal revenues that have been garnered from leasing OCS oil and gas.

In the **30** years between 1953 and 1983, the Federal Government has received over $68 billion from offshore oil and gas leases. The coastal States claim that they are entitled to share in these proceeds because State and local governments endure fiscal, social and environmental impacts which result from increased oil and gas activity in the OCS. Coastal States support their arguments for revenue sharing by noting that inland western States with Federal lands within their borders share 50 percent of the proceeds received by the Federal Government for minerals development on such lands.[21] Equity, the coastal States claim, requires that the Federal Government similarly share offshore revenues with States adjoining the OCS. The Federal Govern-

[18] 78 L. Ed. 2d. ***496; 52*** USLW 4063 (1984).
[19] 683 F. 2d. 1253 (9th Circuit, 1982).
[20] H. R. 4589 and s. ***2324,*** (98th Congress, 2d. sess., 1984).
[21] Mineral Lands Leasing Act, 30 USC 181 *et. seq.*

ment contends that, on balance, OCS development has a net positive effect on adjoining coastal States.

The coastal States increased their efforts to convince the Congress to enact an OCS revenue sharing bill when funding cutbacks for support of State coastal zone management programs were proposed at the same time that OCS oil and gas development was being accelerated and the National Sea Grant College Program[22] was zeroed by the Reagan Administration in fiscal year 1982. As a result, legislation was introduced in the 97th Congress (H.R. 5543) to establish an "ocean and coastal resources management and development fund' to be transferred to coastal States from OCS revenues. The bill passed the House of Representatives by a 260-134 vote in the 97th Congress, but no action was taken in the Senate.

An identical bill (H. R. 5) was introduced in the 98th Congress. Similar legislation has been introduced in the 99th Congress. The legislative proposals would set aside 10 percent of the OCS revenues in any fiscal year when revenues exceeded the amount received during fiscal year 1982 ($7.8 billion). It provided a cap of $300 million as the maximum amount that could be transferred to the fund in any year. All of the coastal States bordering on the ocean, plus those on the Great Lakes, the U.S. affiliated Caribbean Islands, Pacific Trust Territories, and U.S. protectorates in the Pacific Ocean would share in the fund. Money would be distributed from the fund as block grants.

States receiving these block grants would be required to spend specific proportions of the funds received for coastal zone management, mitigation of impacts from coastal energy development, and enhancement and management of living marine resources and other natural resources. The entitlement for each State would be determined by formulae based on the level of leasing adjacent to the State, volume of oil and gas produced from the adjacent OCS, proposed oil and gas lease sales to take place within the 5-year leasing program, coastal-related energy facilities located within each coastal State, shoreline mileage of the State, and coastal population of each State.

Similar legislation was introduced in the Senate, but the bills were not acted upon. The House of Representatives attached the provisions of H.R. 5 to a fisheries program authorization bill (Title I, S. 2463) and forwarded it to the Senate. The Senate rejected the House amendment which included provisions for ocean and coastal block grants and decided to resolve the disagreement in Conference Committee. The Senate receded from its demands to reject the block grant proposals and agreed to the House amendment with modifications. The House agreed to the conference report on S. 2463, but consideration by the Senate was delayed until the waning days of the 98th Congress. During the last days of the 98th Congress, in the face of concerted opposition by a number of Senators, the conference report was still pending when Congress adjourned.

The Administration opposed the revenue sharing proposals introduced in the 97th and 98th Congresses because of their impact on the Federal budget; the inclusion of territories, islands and States that would have no OCS development off their shores; and the earmarking of the use of the block grants for coastal zone management activities. In general, the offshore oil and gas industry supported the concept of revenue sharing with the hope that States which have a stake in the revenues from the OCS would be more receptive to offshore development.

OCS Escrow Funds

Drilling in Federal waters within 3 miles of the seaward limits of State waters contained within the Territorial Sea stands a risk of tapping a common pool of oil that straddles the Federal/State boundary. Section 8(g) of the OCS Lands Act provides for agreements between the Secretary of the Interior and the Governors of affected States to apportion the proceeds of oil and gas removed from the Federal side of the border area. If agreement is not reached between the State and the Secretary within 90 days after an announced sale, the Department of the Interior may proceed with the lease sale providing all revenues received from the sale are placed in escrow pending agreement between the parties on apportioning the monies. In the absence of mutual agreement, Federal Courts may be called on to decide the equitable division of the money.

Nearly $5.4 billion has accrued in the escrow account to date. The States of Texas, Alaska,

22 National Sea Grant program (1966), 33 USC 1121-1124.

Mississippi, Florida, California, Louisiana, and Alabama are scheduled to share the escrow money with the Federal Government. Negotiations over the apportionment of the escrow funds have proceeded intermittantly between the States and the Department of the Interior.

As a result of the sharp disagreement over the States' share of the escrow fund, opposition to area-wide leasing in the Gulf of Mexico is building in States that have up to now enthusiasticall y supported offshore oil and gas development. Both Louisiana and Texas filed lawsuits in early 1984, and Alaska joined them in December 1984. In August 1984, Secretary of the Interior William Clark offered non-litigating States an arrangement which included 16 2/3 share of bonus and rental receipts. The States are seeking a larger share of the escrow funds plus an acceptable share of future income (e. g., royalties) from these tracts.

Congressional Leasing Moratoria

The Department of the Interior has been prohibited by Congress from offering certain areas in portions of the North Atlantic, Central and Northern California, Southern California, and Eastern Gulf of Mexico planning areas during fiscal years 1982-85. Congress placed restrictions in the annual Interior appropriations acts on spending funds for the purpose of pre-lease preparation or holding certain lease sales.

In fiscal year 1982, 736,000 acres were placed under a moratorium in Sale 53 in the Central and Northern California lease area. In fiscal year 1983, the moratorium was expanded to include 35 million acres off California and New Jersey. In fiscal year 1984, 53 million acres were placed under a moratorium. This included 8.7 million acres in Georges Bank in the North Atlantic, 35 million acres in Central and Northern California, 1.6 million acres in Southern California, and 7.7 million acres in the Eastern Gulf of Mexico .23 In fiscal year 1985, moratoria were continued on the same sales with the exception of the Eastern Gulf of Mexico. Secretary of the Interior William Clark assured Congress that the Eastern Gulf of Mexico would not be leased until problems with the Department of Defense and the State of Florida are resolved. About 45 million acres of the OCS are currently under congressional moratoria.

The moratoria appear to have resulted from a combination of several factors: 1) they were partly a political response to the intractable approach of former Secretary of the Interior James Watt toward placing one billion acres of OCS up for sale; 2) Members of Congress shared the frustration of the coastal States with the reduction in funds for coastal zone management and Sea Grant College programs; 3) coastal States and environmental groups continued to disagree with the MMS over tract deletions and cancellation of pending OCS sales; 4) the Administration continued to oppose sharing offshore revenues with coastal States; 5) the Department of the Interior and the States failed to reach agreement on division of escrow revenues from drainage tracts; and 6) Department of Defense pressure to force agreement with the MMS on deferrals or deletions of lease tracts for military and national defense uses may have prompted some Members to support the moratoria.

Several authorization bills were introduced in the 98th Congress which also would have imposed legislative moratoria on OCS leasing and exploration and development of offshore California and New England .24 None of these bills were enacted. However, action within the House Committee on Appropriations Subcommittee on the Department of the Interior and Related Agencies achieved the same objective through the less-visible appropriations process.

The Department of the Interior has objected to the imposition of congressional moratoria, but to little avail. Factions within State and local governments and environmental groups have supported the leasing moratoria. The offshore industry actively opposes any moratoria. The industry cites its outstanding environmental safety record and the national need for secure domestic energy resources as reasons why current leasing moratoria should be lifted.

[23] Public Law *98-146.*

[24] S. 760, H. R. *2059,* S. 1103, H. R. 2581. (98th Congress, 1 St. and 2nd. sessions 1983-1984).

MILITARY OPERATIONS

Military strength and dependable energy supplies are considered to be the foundations of U.S. national security. Recognizing this fact, the Department of Defense has indicated its support for expediting exploration and development of the energy resources in the OCS. However, as offshore oil and gas development expanded since 1953, there was greater interaction between military use of sea space and the offshore petroleum activities. As OCS development pushed further seaward into deeper waters and expanded into frontier regions, the incidents of encounters, interference, and incompatibility between the two uses of the ocean became more numerous.[25]

Conflicts between offshore oil and gas uses and military uses will probably increase in the future. The Department of the Interior accelerated the rate and extent of leasing in the OCS as a means to hasten the exploration and development of offshore oil and gas beneath the seabed. At the same time military exercises and activities offshore have increased in response to greater emphasis on military preparedness, With the advent of sophisticated electronic equipment for both military and industrial use, there may be potential for electromagnetic interference which could present yet another hazard in addition to physical interference.

Agreements between the Department of Defense and MMS over deferrals and exclusions of lease tracts for military reasons historically have been negotiated quietly with little fanfare. Disagreements between the agencies were well hidden. However, what was once handled on a routine case-by-case basis seems now to be turning into a problem too broad and complex to be dealt with ad ***hoc.*** The most recent indication of this is the provision in the Department of Defense Authorization Act of 1984 that directs the Secretary of the Navy to inform the Congress of the potential effects of offshore oil and gas operations on naval operations and to define offshore zones where oil and gas drilling could cause appreciable impacts on naval operations.[26]

The Navy transmitted the information required in the 1984 Defense Authorization Act to the Congress on May 29, 1984.[27] In the memorandum, the Navy identified six operational areas with potential for conflicts between military operations and offshore oil and gas development. Air Force and NASA operations were also included in the Navy's response. The identified activities include: 1) submarine transit lanes in the North Atlantic area; 2) fleet operations, missile flights, and high-performance aircraft testing, as well as classified uses in the Mid-Atlantic lease area; 3) submarine transit lanes, ballistic missile testing ranges, and sonar testing as well as the NASA Cape Canaveral launch range in the South Atlantic area; 4) aircraft carrier flight operations, flight training, air-to-surface missile testing, and equipment testing in the Eastern and part of the Western Gulf of Mexico areas; 5) fleet operations, missile testing, testing of submarine electronic systems, submarine transit lanes, and gunnery training in the Central, Northern, and Southern California areas; and 6) classified uses of an unspecified nature in part of one Alaskan planning area. In addition, underwater listening posts which probably require protection from industrial interference are located on the Continental Shelf offshore both the Atlantic and Pacific Coasts and adjacent to Alaska.

MMS and the Department of Defense have taken steps to minimize offshore conflicts in the military and NASA operating areas. Since 1979, between 40 and 55 million acres have been set aside or deferred from OCS leasing, and perhaps as much as 75 million additional acres maybe leased only with operating restrictions included to protect military interests[28] (see figure 6-3). Estimates of acreage affected by military operations should probably be

[25]For a history of conflicts between the military and the oil industry in the offshore areas see, Norman Breckner et. al., ***The Navy and the Common*** Sea, (Washington, DC: Office of Naval Research, 1972).

[26]Public Law 98-94, Section 1260 (Sept. 24, 1984).

[27]Letter of transmittal from Under Secretary of the Navy James F. Goodrich to the President of the Senate George Bush, with enclosures (May 29, 1984).

[28]The exact acreage which are subject to military operating restrictions is not available from MMS. About 42 million acres in the Eastern Gulf of Mexico lease planning area is subject to density controls and military clearance. Approximate acreage subject to control in other lease sale planning areas is estimated as: North Atlantic area—12 million acres; Mid-Atlantic area—10 million acres; Western Gulf of Mexico area—7 million acres; Northern and Central California-678 thousand acres, Southern California-7 million acres.

Figure 6-3.—Deferrals of Offshore Acreage for Military Uses

NOTE: DOD areas not to scale,

SOURCE: US. Department of the Interior, Minerals Management Service.

considered conservative because some classified offshore uses have not been identified for security reasons. TheOCS acreage deferred from oil and gas exploration and development, plus the OCS acreage which requires approval by the Department of Defense and therefore is constrained by operating stipulations (1 15 million acres), is about 30 percent greater than the total onshore area withdrawn for wilderness use on public lands in Alaska and the lower 48 States (88.6 million acres). Operating constraints include review and military approval of timing, placement, and location of rigs and platforms; provisions for suspension of operations at the request of the military; restrictions on electromagnetic radiation; and release of the military from liability for harm resulting to oil and gas operations from military operations .29

On July 25, 1983, the process of minimizing conflicts was addressed in a Memorandum of Agreement between the then Secretary of the Interior James Watt and Secretary of Defense Casper Weinberger. In the memorandum, the Department of Defense acknowledged that ' 'The OCS (Outer Continental Shelf) leasing program of the Department of Interior is an integral part of the nation energy security program . . . and thus important to national defense. '[30] The two departments agreed to work together to assure that offshore development does not conflict with military training and other activities essential to the readiness of U.S. armed forces. Therefore, as a result of this Memorandum of Agreement, instead of relying entirely on leasing deferrals, the Department of Defense has expressed its willingness to promote compatible military and offshore oil and gas operations, whenever

[29]Lease Sale 79, *Federal Register* (Dec. 6, 1983), p. 54796; Lease Sale *82, Federal Register* (Aug. 27, 1984), p. 33987; Lease Sale 80, *Federal Register,* (Sept. 17, 1984), p. 36481.

[30]Memorandum of *Agreement* between the Department of Defense and the Department of the Interior on Mutual Concerns on the Outer Continental Shelf (July 21, 1983).

possible, through the use of time-sharing agreements. The Navy and Air Force have, in some cases, offered to modify their activities to accommodate OCS exploration operations.

This policy, though workable, is not entirely satisfactory to industry. For example, to regulate the density of oil and gas operations in a portion of the Eastern Gulf of Mexico planning area, the Air Force adopted a policy that allows drilling operations within a 30-by-36 mile area, This system of density control over oil and gas operations has been termed the "postage stamp' approach. Eventually, the intent of MMS and the Air Force appears to be to periodically relocate the ' 'postage stamp' so other areas in the Eastern Gulf of Mexico can be explored. There is also the possibility that more than one exploration area may be allowed at the same time. Several companies are now planning to drill in the first ' 'postage stamp. However, outside of this ' 'postage stamp, Shell Oil Co. was tentatively denied approval in November 1984 for an exploration permit to explore a previously leased block in the DeSoto Canyon of the Apalachicola Embayment of the Eastern Gulf of Mexico lease sale planning area off Eglin Air Force Base. This was the first time the Department of Defense had attempted to deny a qualified owner of an OCS lease access to that lease for exploration. As a result, the policies and procedures for regulating the density of oil and gas operations in military control areas are under review by the Department of Defense and MMS.

The Department of the Interior is currently considering the establishment of ' 'military reservations " in offshore areas.[31] Authority for the withdrawal of OCS acreage from leasing is found in two statutes: 1) Section 12 of the OCS Lands Act (Public Law 82-21 2); and 2) Withdrawal of Lands for Defense Purposes Act (Public Law 85-337). The OCS Lands Act vests authority in the Secretary of Defense, with the approval of the President, to designate OCS areas off-limits for oil and gas development for ' 'national defense' purposes. In addition, the Secretary of Defense may suspend operations on a previously existing lease with provisions for buyback from the lessee. The Withdrawal of Lands for Defense Purposes Act (Section 2) reserves the authority for withdrawing OCS areas from leasing for military purposes to Congress. Under the Act, applications for withdrawal must be acted upon by Congress before military reservations in the OCS are created. The two laws seem to be in conflict.

Whether the Executive Branch or Congress has authority to effect withdrawal of OCS lands for military purposes remains a question. The Withdrawal of Lands for Defense Purposes Act, having been approved in 1958, is the most recent expression of congressional intent. Legal interpretation often gives the latest statute preference over the one prior in time in the absence of an expressed repeal. If this interpretation is accepted to resolve the conflicts between the two laws, only Congress has the authority to establish offshore military reservations. This would probably require the introduction of legislation and appropriate hearings in conjunction with action by both Houses of Congress. On the other hand, another line of legal reasoning is that when Congress amended the OCS Lands Act in 1978, it did not change the law and thus implicitly reaffirmed the authority of the Secretary of Defense. MMS, in responding to the current concerns of the Department of Defense, has referred to military exclusions in OCS sales as "deferrals. This has avoided facing the issue of whether Congress or the executive branch has final authority to withdraw acreage from consideration for OCS oil and gas leasing. If the OCS Lands Act governs, the Secretary of Defense, with the approval of the President, can unilaterally withdraw OCS acreage for military use without the direct involvement of the Department of the Interior in the decision.

The withdrawal of OCS lands from oil and gas development for military reservations could, for practical purposes, remove a significant amount of potentially productive OCS acreage from future oil and gas development. In addition, operating restrictions on oil and gas activities in other portions of the OCS that may be considered suitable for shared uses could result in additional costs to the lessees and could delay the exploration-development sequence. Congressional concerns over conflicts between military use and oil and gas development may have contributed to the moratoria imposed in the appropriations process on OCS lease sales in

[31] Testimony of William Bettenberg, Director, Minerals Management Service, before the House Committee on Interior and Related Agencies Appropriations (May 10, 1984), p. 605.

the North Atlantic, Central and Northern California, Southern California, and the Eastern Gulf of Mexico during fiscal years 1982-85. If the current deferrals of OCS acreage now honored by MMS result in withdrawal of areas as "military reservations, the oil and gas industry could be permanently denied access to an even larger area than has been temporarily affected by the congressionally imposed moratoria (about 45 million acres in fiscal year 1985).

DISPUTED INTERNATIONAL BOUNDARIES

National jurisdiction over most of the known or potential resources on or under the U.S. Continental Shelf is largely uncontested. On March 10, 1983, when President Reagan established an EEZ for the United States, resource jurisdiction over the Continental Shelf within 200 miles of the U.S. coastline became even more firmly established. However, in some potentially important resource-producing areas in proximity to Canada, Mexico, Cuba, and the Soviet Union, international boundaries have been (or could be) contested. Settlement of these disputes may become of more concern as the United States—and these adjacent or opposite countries—improve capabilities to search for resources in more hostile environments and in deeper waters.

The primary responsibility for negotiating treaties to resolve these types of disputes lies with the U.S. Department of State. Typically, the Department of State consults with the Department of the Interior regarding subsea features and the resource potential of areas in dispute. Treaties must be ratified by Congress.

Areas of Potential Dispute

Gulf of Maine and Georges Bank

Jurisdiction over the Gulf of Maine and Georges Bank east of Cape Cod has been disputed between Canada and the United States. The region is a productive fishery and, although preliminary exploratory efforts on Georges Bank have been disappointing, it is considered to have potential for oil and gas. Maritime jurisdiction was disputed over an area between 13,000 and 18,000 square nautical miles in size. The dispute was submitted to the International Court of Justice (ICJ) for arbitration, pursuant to a boundary settlement treaty between the United States and Canada. The Court announced its decision on October 12, 1984.

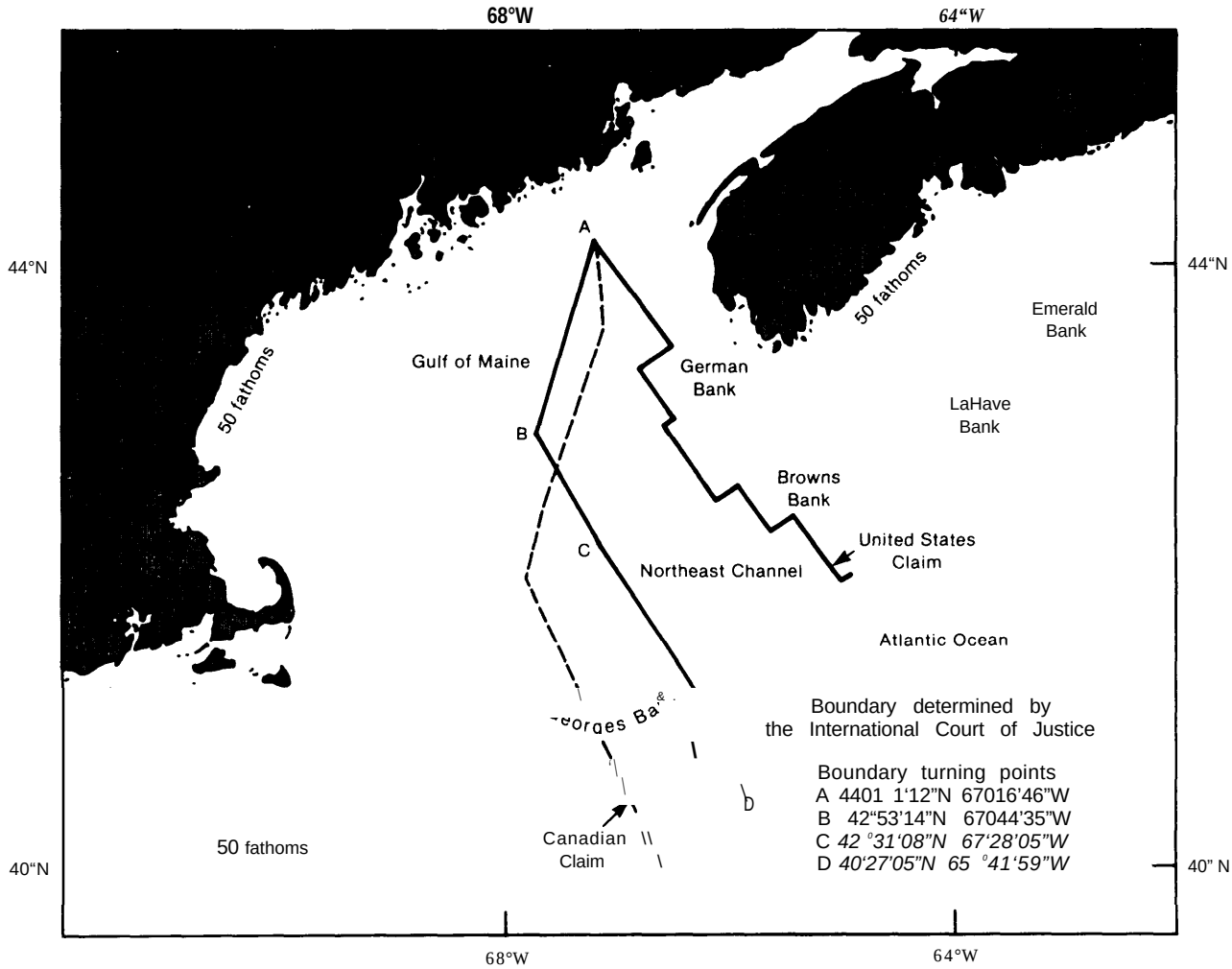
Both the United States and Canada presented arguments to support their claims based on the ecology of the region, socioeconomic factors, and historic practices. The Court rejected these arguments, noting that "the respective scale of activities connected with fishing-or navigation, defense, or, for that matter petroleum exploration and exploitation—cannot be taken into account as a relevant circumstance or, if the term is preferred, as an equitable criterion to be applied in determining the delimitation line. "[32] In determining an equitable line, the Court relied most heavily on geographical arguments. Thus, of primary importance was the notion that the delimitation should aim at an equal division of 'areas where the maritime projections of the coasts of the States between which delimitation is to be effected converge and overlap. As a second criterion, the Court considered the length of coastline of each country in the Gulf of Maine. Accordingly, the middle of the three segments of the boundary line was adjusted in recognition of the greater length of the U.S. coastline in the region.

The Court gave Canada jurisdiction of the living and non-living resources of the northeast portion of Georges Bank (see figure 6-4). The United States had originally claimed the entire Bank while Canada had claimed about one-half of it. Thus, in this area, the line was established essentially midway between the claims of the two states. Canada, however, gained control over important fishing areas, most notably, scallop grounds.

As a result of this decision, Canada now may issue oil and gas leases on its portion of Georges Bank, The same, of course, is true for the United States in areas now under its jurisdiction. Thus,

[32] International Court of Justice. *Case Concerning Delimitation of the Maritime Boundary in the Gulf of Maine Area: (Canada/United States of America),* (Oct. 12, 1984), p. 102.

Figure 6-4.—U.S.-Canada Boundary in Georges Bank

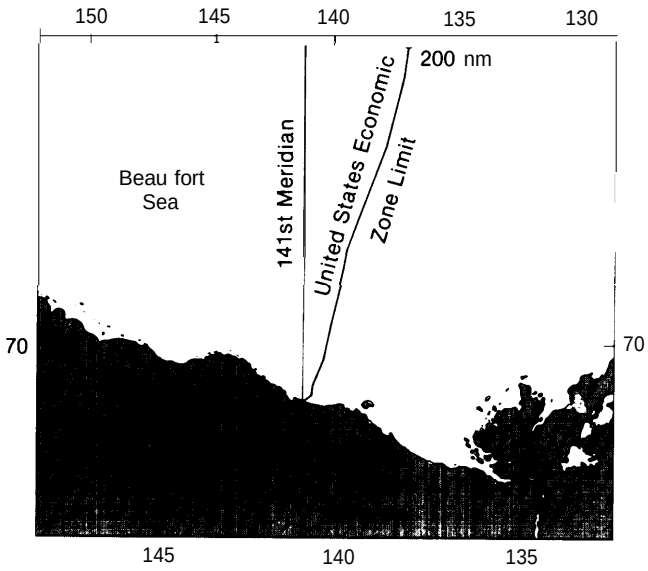


oil and gas activities which occur on one side of the line could affect the other side. For instance, a gyre located over Georges Bank virtually assures that oil spilled on either side of the line will drift to the other side, Although U.S. and Canadian Coast Guards have developed a joint marine pollution contingency plan for the area, neither the United States nor Canada currently has a formal process in its OCS leasing operations for dealing with the environmental and socioeconomic concerns of the other country. Transboundary coordination and cooperation regarding OCS development activities adjacent to common boundaries could avoid many potential environmental problems.

Beaufort Sea

The offshore boundary between the United States and Canada in the Beaufort Sea also is in dispute. The area in question is small relative to the total continental shelf areas of both countries (6, 180 square nautical miles), but favorable geologic conditions suggest it is potentially rich in hydrocarbon resources. Canada contends that the 141st meridian of longitude dividing Alaska and the Yukon delimits the offshore boundary. The United States claims that the boundary should be established using the equidistance principle, thus placing the boundary further east (see figure 6-5). The

Figure 6-5.—U.S.-Canada Boundary in Beaufort Sea



legal basis for the Canadian claim is not altogether clear, but appears to rely on ambiguous language in the 1825 boundary agreement between the United Kingdom and Russia which specifies that the line of demarcation shall extend along the 141st degree of west longitude "in its prolongation as far as the Frozen Ocean. '[33] Moreover, Canada has used the line as a national offshore fence for several purposes (e. g., oil and gas exploration permits have been issued up to the 141st meridian).

The United States does not agree that the United Kingdom-Russia Treaty of 1825 extended the land boundary into offshore areas, nor does the United States agree that any special circumstances exist that would justify such an extension. In the absence of "special circumstances, the 1958 Continental Shelf Convention calls for an equidistance line to be drawn. At this time, the crux of the matter appears to be what constitutes special circumstances, since the phrase is only vaguely defined in the 1958 Convention, and the 1982 United Nations Convention on the Law of the Sea does not provide any more detailed guidance.

The Beaufort Sea dispute has been quiet since 1975, and both countries have imposed an informal moratorium on offshore exploration and licensing in the disputed area. Although the Georges Bank ICJ decision supports the principle of equidistance modified by the amount of coastline held by each country—a finding which appears to favor the United States position in the Beaufort Sea—U.S. officials urge caution concerning the applicability of the Georges Bank decision to the Beaufort Sea. It is held by both countries that the circumstances of the Beaufort Sea dispute are unique and, therefore, the Georges Bank decision does not necessarily set a precedent for the resolution of the issue.

If an agreement locating the line cannot be reached, the United States and Canada may wish to consider other types of solutions to the problem. Joint exploration and development by Canada and the United States may be possible even though there are no specific provisions in the OCS Lands Act for joint activity. An executive agreement, which many scholars agree can overrule existing law, might be utilized to allow joint exploration and/or development to take place. In the absence of such an agreement, there still appears to be no legal reason why the United States, in concert with Canada, cannot hire a single firm or consortium to explore the area for both countries. Section 11 of the OCS Lands Act does not prohibit exploration without leasing. If exploitable resources are discovered, both countries might consider offering the disputed area for lease to one lessee while agreeing to decide at a later date how revenues are to be divided.

Bering Sea

The location of the line which separates Soviet and American resource jurisdiction in the Bering Sea also has been disputed. The line was established when Alaska was ceded to the United States by Russia in 1867. However, the Soviet Union and the United States have not been able to agree upon the method to be used in locating the line. The Soviets advocate use of the "rhumb line" method, a technique in use at the time the treaty was negotiated. The United States contends that the more modern "great circle' method of calculation best reflects the intentions of the negotiators of the 1867 Convention and should be used .34 The rhumb line

[33] David VanderZwaag and Cynthia Lamson, "ocean Development and Management in the Arctic: Issues in American and Canadian Relations, unpublished paper for the United State-Canada Arctic Policy Forum (Banff, Alberta, Oct. 20-22, 1984).

[34] Harry R. Marshall, "International Boundaries and the 5-Year Outer Continental Shelf Oil and Gas Leasing Program. " Paper presented at the meeting of the Outer Continental Shelf Policy Committee, New Orleans, Louisiana, (Oct. 26, 1984), p. 11.

method places the line further east than the great circle method, and hence reduces the area assigned to the United States.

The 1867 line passes through the potentially oil-rich Navarin Basin; thus, there are important economic reasons for resolving the dispute. Upcoming sales in the Norton Basin and Chukchi Sea may also border on the 1867 line. The issue is even more important because the United States leased Navarin Basin tracts in 1984. Bids were received on 17 tracts within the disputed zone created by the two lines (see figure 6-6). However, these bids will not be finally accepted until the dispute is resolved. If it is later determined that it is not in the interest of the United States to accept these bids, deposits, which are being held in escrow, will be refunded with interest. However, if the dispute is resolved and the bids are accepted, bidders will be required to pay the remaining four-fifths bonus and the first year's rental and execute the lease .35 Although four rounds of discussions concerning this sensitive issue have taken place since 1981, there is no indication as to when an agreement will be reached. Notwithstanding agreement on the location of the boundary, petroleum deposits may straddle the line. The methods used for apportioning common deposits in the North Sea between the United Kingdom and Norway may also be useful in the U. S.-Soviet boundary area.

If the United States and the Soviet Union cannot agree to a division of the area, several other options might be considered. A buffer zone could be created within which no oil and gas exploration will be allowed. An interim regime could be established that would permit exploration and provide the framework for future development and sharing of petroleum resources.[36] However, the possibility of joint U.S.-Soviet development of Navarin Basin resources in the foreseeable future is considered remote. Among other problems would be that of technology transfer, but that possibility, if successfully pursued, could have a positive effect on the two countries' relations .37

[35] Final Notice of Sate: Navarin Basin. ***Federal Register,*** (Mar 16, 1984), 49(53): 10065.

[36] Robert B. Krueger, ' 'Bering Sea Petroleum: A New Meeting Ground for the Soviet Union and the United States, unpublished paper (January, 1983),

[37] William E, Westermeyer, "Aspects of Arctic Energy Development, ***Geopolitics of Energy*** (March 1984), 6(1):7.

Continental Shelf

Delimitation of the outer boundary of the extensive U.S. Continental Shelf is another type of boundary issue. Given the vast amount of Continental Shelf acreage over which the U.S. may be entitled to assert resource jurisdiction, Continental Shelf delimitation is probably a more significant issue than delimitation of either opposite or adjacent state boundaries. In principle, the United States could assert resource jurisdiction under the "exploitability clause' of the 1958 Geneva Convention on the Continental Shelf, which defines the outer edge of the shelf as the point at which ' 'the superjacent waters admit of the exploitation of the natural resources. The limits of exploitability are continuously being pushed into deeper and deeper water. However, precise rules have been promulgated in the 1982 Law of the Sea Treaty (Article 76) which, in some cases, would enable coastal States to extend Continental Shelf jurisdiction beyond the 200-mile EEZ. Even though the United States has not signed the Law of the Sea Treaty, it has stated that its only objections to the Treaty are the Part XI provisions pertaining to exploitation of the deep seabed beyond the limits of national jurisdiction.[38] The United States intends to abide by all other provisions, and, in particular, may use the Article 76 criteria for delimiting its Continental Shelf. Legislation introduced in the 98th Congress defined the Continental Shelf in terms consistent with Article 76.

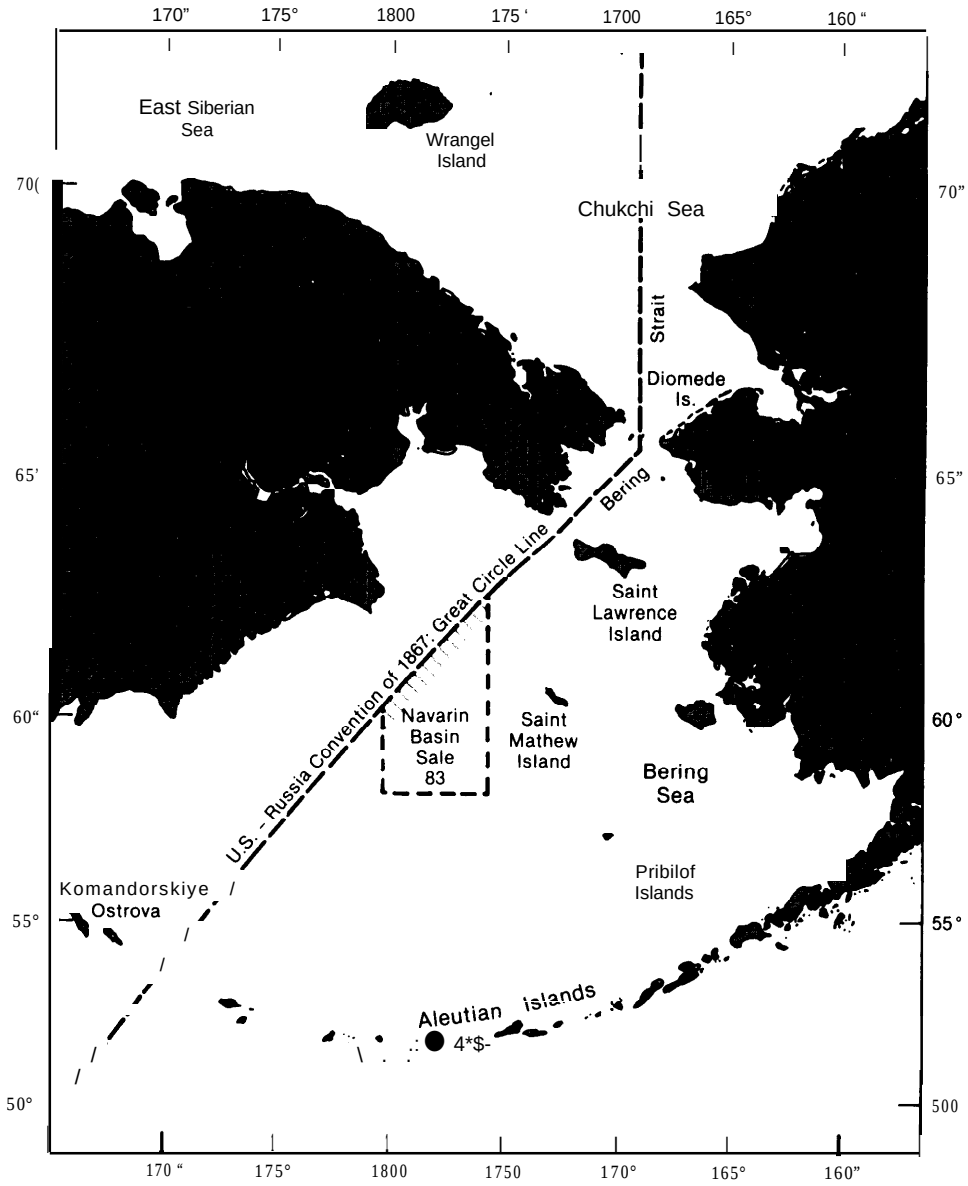
The Law of the Sea Treaty is not yet in force. However, eventually it is expected to be operative for those countries that have signed and ratified it. Moreover, the Treaty will be a major factor in the development of state practice even for those countries that have not signed it. Many of its provisions may now be considered to be customary international law. Others will eventually be accepted as customary law, and thus generally become applicable even for non-signatories.

Gulf of Mexico

Delimitation of the Continental Shelf of the United States may involve conflicts with opposite or adjacent countries. One such instance may be

[38] Statement by the President The White House, Office of the Press Secretary, (Mar. 10, 1983). '

Figure 6-6.—U.S.-U.S.S.R. Boundary in Bering Sea



Approximate area in Navarin Basin sale area between U.S. Great Circle Line (U.S. claim) and U.S.S.R. rhumb line (U.S.S.R. claim). Area is about 30 miles wide.

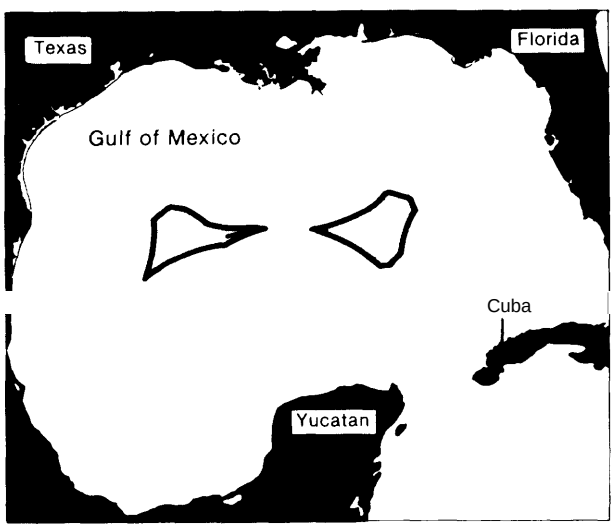
SOURCE: Minerals Management Service

in the Gulf of Mexico. The United States, Mexico and Cuba border the Gulf, and their Continental Shelf claims could overlap in several areas (see figure 6-7). The United States has negotiated treaties with Mexico and Cuba delimiting boundaries in those areas where exclusive economic zones overlap. Neither treaty, however, has been ratified by the United States Senate. Some questions have been raised concerning Mexico's use of certain uninhabited islands off the coast of the Yucatan Peninsula as baseline points for the purpose of determining its EEZ boundary .39 If these islands are not used to fix the Mexican EEZ boundary, the United States may be able to extend resource jurisdiction in some areas. However, the U.S. Department of State and many scholars regard the Mexican claim as legitimate.[40] Moreover, the United States uses islands as baseline points off its own coast.

[39] Senate Committee on Foreign Relations, "Three Treaties Establishing Maritime Boundaries Between the United States and Mexico, Venezuela, and Cuba, Executive Report No. 96-49 (Aug. 5, 1980), p. 7.

[40] Harry R. Marshall, " International Boundaries and the Five-Year Outer Continental Shelf Oil and Gas Leasing Program, paper presented at the meeting of the Outer Continental Shelf Policy Committee (New Orleans, Oct. 26, 1984), p. 14.

Figure 6-7.—Gulf of Mexico Boundaries



Shaded areas — areas beyond the EEZs of bordering states.

Two areas exist in very deep water (10,000 to 12,000 feet) in the central Gulf of Mexico beyond the 200-mile exclusive economic zones of the bordering countries. The ' 'western hole' is bordered by the EEZs of the United States and Mexico and the ' 'eastern hole' is bordered by the EEZs of the United States, Mexico, and Cuba. Although there currently is little interest and no experience in exploiting resources in these deepwater areas beyond the EEZ, sediments do occur in both areas, and hence there is at least a possibility that hydrocarbons may be found.

The United States has not yet addressed the question of jurisdiction within the two holes. Interest in doing so at this time is low. Prospects for oil and gas development in these areas are considered to be remote, given the extreme depths and high costs of exploration and development. Nevertheless, all of the area within the holes can potentially be claimed by the littoral states according to the criteria of either Article 76 of the Law of the Sea Treaty or the 1958 Continental Shelf Convention .41 Since several methods exist for determining the extent of the Continental Shelf, claims to these areas could overlap. Thus, bilateral or trilateral negotiations eventually may be needed to settle any disputes created by overlapping claims.

Dispute Settlement Mechanisms

Several mechanisms are available for resolution of boundary disputes. Third parties may or may not be involved in the process. A negotiated settlement without third-party intervention is usually preferable. Arbitration or mediation may also be considered. The Georges Bank dispute was settled by arbitration. This is a voluntary process, but the parties to an arbitration commit themselves to abide by the decision of the arbitrator. Mediation is also a type of arbitration, but the mediator of a dispute has no authority to impose a settlement. The mediator simply brings the parties together to help facilitate a solution to their problem. Numerous variations of these basic strategies are possible.

Determination of the proper location of the 1867 Convention Line in the Bering Sea will likely be

[41] Robert Smith, Office of the Geographer, U.S. Department of State, personal communication, (Oct. 30, 1984).

made through bilateral negotiations between the United States and the Soviet Union. Four meetings already have taken place, the most recent of which occurred in July 1984. It is unlikely that either the United States or the Soviet Union would submit any dispute to a third party for arbitration or mediation if negotiations break down.

The United States and Canada will probably wish to give more thought to the advisability of using binding arbitration to settle the Beaufort Sea dispute if they perceive that, as in the Georges Bank dispute, the arbitrator will simply split the difference between claims without considering special circumstances. If bilateral negotiations are not successful in determining a mutually acceptable boundary line, mediation or some other conciliatory procedure may be needed. For example, the two countries could establish a joint U.S.-Canadian working group to devise an equitable solution and submit it to both governments for consideration.

The Law of the Sea Treaty also provides for the settlement of disputes through, for example, the International Tribunal for the Law of the Sea. When and if the Treaty comes into force, Mexico and Cuba could conceivably request that Continental Shelf delimitation in the Gulf of Mexico be determined by Treaty arbitration or conciliation procedures. Such mechanisms would be unavailable to the United States as a non-party. Presumably, if the issue becomes important to settle but cannot be settled through negotiation, an international tribunal not established by the Treaty, such as the ICJ, could be utilized.

LEASING POLICIES FOR OFFSHORE FRONTIER AREAS

Bidding Systems

The OCS Lands Act of 1953 authorized two bidding systems for use in offshore leasing: 1) cash bonus bid with a fixed royalty; and 2) royalty rate bid with a fixed cash bonus. The United States has traditionally allocated offshore tracts on the basis of the highest cash bonus bid with a fixed royalty payment based on the value of production. This bidding system is easy to administer, has appeared to promote efficient exploration and development of offshore tracts, and has been generally accepted by both government and industry.

However, in the 1978 OCS Lands Act Amendments, Congress required the Department of the Interior to test alternative bidding systems on not less than 20 percent and not more than 60 percent of the offshore acreage offered for lease each year for a 5-year period ending in September 1983. The five alternative bidding systems specified for testing were: 1) cash bonus bid with sliding scale royalty; 2) cash bonus bid with freed net profit share; 3) cash bonus bid with fixed royalty and fixed net profit share; 4) profit share bid with fixed cash bonus; and 5) work commitment bid with fixed cash bonus and fixed royalty. Congress wanted to determine the effect of these bidding systems on competition for offshore leases, government revenues, and oil and gas exploration and development.

At the end of the testing period, the Department of the Interior still prefers the traditional bidding system for offshore leasing. After evaluating the alternative bidding systems in theory and/or in practice, the Department of the Interior concluded that their disadvantages outweighed their advantages in offshore leasing, as outlined in table 6-3. In testing the alternative bidding systems, it was found that they had little effect on the level of competition for OCS tracts, which is more directly related to an area's resource potential than to the method of leasing. No firm conclusions were reached regarding the development efficiency and revenue effects of alternative bidding systems, however, because most tracts leased under the alternative systems had not yet begun production .[42]

[42] Minerals Management Service, "Report to Congress on Fiscal Year 1982 Outer Continental Shelf Lease Sales and Evaluation of Alternative Bidding Systems, " (April 1983), p. 57.

Table 6-3.—Advantages and Disadvantages of Alternative Bidding Systems (authorized by OCS Lands Act Amendments of 1978)

Bidding system				
Bid variable	Fixed payment	Description	Advantages	Disadvantages
Cash bonus	Fixed royalty	Leases awarded on the basis of highest cash bonus payment plus percent of revenues, not less than 12½%. Usually 16 2/3%.	Generally accepted bidding system in United States. Easy to administer.	upfront cash bonuses may limit competition. Fixed royalties may overtax small fields and constrain development.
Cash bonus	Sliding scale royalty	Leases awarded on the basis of highest cash bonus plus percent of revenues, which increases with production.	May lower bonus bids and increase competition. Lease payments vary with field productivity.	Royalties may still be too high for small fields. May try to avoid higher royalty on productive tracts by slowing production.
Cash bonus	Fixed net profit share	Leases awarded on the basis of highest cash bonus plus percent of profits after capital recovery. Profit share not less than 30°/0.	May lower bonus bids and increase competition. Lease payments vary with field profitability.	Difficult to design and administer. May cause "gold-plating."
Cash bonus	Fixed royalty and fixed net profit share	Leases awarded on the basis of highest cash bonus plus percent of revenues and percent of profits.	May lower bonus bids and increase competition.	Regulations never written as too complex.
Royalty rate	Fixed cash bonus	Leases awarded on the basis of highest percent of revenues offered, plus fixed cash bonus.	Lower upfront payments may increase competition.	High royalty rate bids may constrain development.
Net profit share	Fixed cash bonus	Leases awarded on the basis of highest percent of profits offered, plus fixed cash bonus.	Lower upfront payments may increase competition.	High net profit share bids may constrain development.
Work commitment	Fixed cash bonus	Leases awarded on the basis of dollars to be spent on exploration, plus fixed cash bonus.	Provides for rapid exploration.	Government must forego high bonuses. Exploration program may be inefficient.

SOURCE: Office of Technology Assessment.

Both theory and experience indicate that the ***royalty bidding system*** and ***the profit-share bidding system*** may lead to the abandonment of small or marginal fields and prevent efficient development of resources. These systems tend to promote unrealistically high royalty rate bids or profit-share bids in competitive lease auctions. The high lease payments add to the costs of production and make development of some fields unprofitable. Royalty bidding in two offshore lease sales was found to lead to excessive royalty rate bids, which may discourage later investments.[43] Profit-share bidding was never tested.

The cash bonus bidding systems with either a ***fixed net*** *profit share* or ***sliding scale royalties*** have been more favorably evaluated in regard to development efficiency. Under both of these systems, lease payments vary with either field productivity or other factors. However, after it was tested in a total of 13 lease sales, the fixed net profit share system was not proposed for further use because of its complex accounting and administrative requirements.[44] While sliding scale royalty systems have proved easier to administer, they may discourage generally higher levels of production in order to avoid higher royalty rates. Despite this drawback, the Department of the Interior preferred the cash bonus bid with sliding scale royalty system to other alternative bidding systems .45

43 Department of the Interior, Office of OCS program Coordination, ' 'An Analysis of the Royalty Bidding Experiment in OCS Sale No. 36, " (1975) and Bureau of Land Management, "Preliminary Analysis of Royalty Bidding vs Bonus Bidding at the Cook Inlet Sate, " (Nov. 13, 1977),

~+ Resource Consulting Group, "Issues Associated with the Use of the Net Profit Share System for Leasing Outer Continental Shelf Oil and Gas Acreage, report to the Minerals Management Service (Sept. 27, 1982).

45 Bureau of Land Management, " Bidding System Design for OCS Sale 71 ," (May 4, 1982).

Neither the ***work commitment bidding system*** or the combined ***fixed royalty and profit share system*** were tested in offshore lease sales. It is believed that work commitment bidding reduces government cash bonus revenues and may promote inefficient exploration efforts if not carefully designed.[46] Regulations were never written for the cash bonus bid with fixed royalty and fixed profit-share system, which is seen as administratively burdensome and complex.

The Department of the Interior has generally used the cash bonus bid with a lower royalty of 12½ percent (1/8) for leasing offshore tracts in frontier areas. This is the minimum royalty rate allowed by law and is used in recognition of the increased costs of developing oil and gas resources in hostile environments. The lower royalty rate is offered on blocks where analyses indicate that small discoveries may not be developed under the standard 16 2/3 percent royalty. Starting in August 1981 through the end of 1984, the bonus bidding system with a 1/8 royalty has been used for leasing a total of 1,041 tracts in 19 lease sales. In general, the lower royalty rate has been offered on tracts in difficult ocean environments off Alaska and in deepwater areas of the other OCS planning regions.

The traditional cash bonus bid with fixed royalty bidding system has appeared to work well in conventional leasing areas such as the Gulf of Mexico in terms of assuring adequate competition for OCS tracts, fair returns to the government, and efficient exploration and development .47 In frontier areas, the use of this system with a lower royalty rate has increased the economic incentive to explore in high-cost regions. In general, the cash bonus bid with fixed royalty bidding system has distinct advantages in its administrative simplicity, incentives for rapid exploration, and immediate returns to the government in the form of cash bonuses.

However, there may be disadvantages to allocating offshore frontier tracts by this bidding system. The requirement for upfront cash bonus payments may be a deterrent to comprehensive exploration of frontier areas. Alternative arrangements and even government incentives may be needed at some point to encourage continuing exploration in high-risk deepwater and Arctic regions. In addition, the low profit margins in frontier areas may cause fixed royalties (which are levied on gross income) to overtax small or marginal fields and lead to non-development of resources (see economic analysis in chapter 5). Even the lower 1/8 royalty rate may be too burdensome on some Arctic and deepwater fields.

Other countries, including the United Kingdom, Norway, and Canada, have generally used work commitment systems rather than cash bonus bidding for offshore leasing in frontier areas. This system is discussed in the appendix to this study. Under this system, firms agree to carry out a preplanned exploration program, drill a specified number of wells, or make a minimum expenditure in exploring a lease area. Firms which fail to carry out the terms of the work program can lose lease rights or any collateral paid to the government. In countries which use work commitment systems, lease tracts are far larger than those in the United States. In addition, the contract generally contains relinquishment provisions for returning portions of acreage to the government at a specified time. The work program, large size of the lease area, and turnback requirements jointly provide incentives for rapid exploration of vast offshore areas. Work programs also can be used to encourage firms to assess nonprospective offshore regions or to reassess relinquished acreage.

Other types of bidding systems which do not require initial cash payments for exploration rights may also provide more incentives to high-risk ventures in offshore frontier areas. Deferred bonus payments or cash bonuses payable only on commercial discoveries of oil would increase government/industry risk-sharing. These systems would retain the cash bonus bid variable and the financial competition which have been the basis of our leasing system.

Bidding systems with other types of downstream payments, such as sliding scale royalties, net profit shares, or even zero royalties, may be more effective in providing economic incentives for developing marginal oil and gas discoveries in offshore fron-

[46] Resource Planning Associates, Inc. and Resource Consulting Group, Inc., "Alternative Procedures for Managing the Leasing of Nonprospective OCS Acreage, report to the Department of Energy (Jan. 29, 1981).

[47] W. J. Mead et. al., ' 'Additional Studies of Competition and Performance in OCS Lease Sales, 1954 -1975," report to the U.S. Geological Survey (1980).

tier areas. Under the sliding scale royalty system, the royalty rate increases with the production rate and government and industry shares of income are based partially on the productivity of the tract. Marginal resources and declining fields may be more likely to be produced because of the lower royalty rate attached to this production. At present, the primary disadvantage of the sliding scale royalty bidding system is that the royalty rate does not slide below the legal minimum of 12½ percent and won't greatly improve the profitability of small or marginal fields over the 12½ percent fixed royalty now in use. Sliding scale royalties that slide to zero percent may be needed to encourage the development of resources in frontier areas.

Economic theory and empirical economic models, including the OTA computer simulation, indicate that net profit share payments also may be well--suited to offshore frontier areas.[48] Under this System, firms share the net income from tract development with the government at a specified profit share rate, fixed by law at no less than 30 percent. Of the several types of profit-sharing systems (e. g., investment account, rate-of-return, annuity-capital recovery), the United States has used the fixed-capital recovery system. Firms are allowed to recover their initial investment, plus a return on the investment, before sharing profits from oil and gas development with the government. Because this system takes into account the high costs, long lead-times, and other features characteristic of frontier areas, it provides for greater government risk-sharing. Small and marginal fields may not be as highly taxed and, therefore, are more likely to be developed.

Although work commitments, profit-sharing, and other leasing approaches have generally been accepted abroad, these bidding systems may be difficult to implement in the United States. Offshore leasing in the United States has always been based on competition between companies. Any leasing system used in the United States has to award lease rights on the basis of defined, objective criteria. In other countries, leasing conditions are often negotiated directly between private firms and the government,

In addition, effective design and administration of alternative bidding systems would require extensive testing and increased funding. The design of sliding scale royalty and profit-sharing systems is based on certain types of tract-specific information and calibration that is difficult for the government to achieve.[49] Post-production accounting in these systems often involves complex procedures for verifying costs, profits, and/or flow rates associated with individual leases. Work commitment bidding systems have administrative costs in negotiating terms and conditions and monitoring industry compliance. There has also been concern about potential government intervention into industry accounting and operational practices in the implementation of these bidding systems.

Because of the inconclusive results of the 5-year testing of the alternative bidding systems specifed in the OCS Lands Act Amendments, the General Accounting Office (GAO) has recommended that the requirement to test alternative bidding systems in offshore leasing be extended by Congress .50 Further testing of alternative bidding systems, including some approaches not specified in the OCS Lands Act Amendments, is especially needed in offshore frontier areas. The effect of bidding systems on the level of competition is not particularly germane in the Arctic and deepwater, where competition will automatically be limited by the high-cost and high-risk nature of the tracts. But the effect of bidding systems on the rate of exploration and development in the frontiers is crucial in view of the need to assess and develop the resource potential of these areas.

The OCS Lands Act Amendments now gives the Secretary of the Interior great flexibility in designing bidding systems, which may consist of '' any other system of bid variables, terms, and conditions . . . except that no such bidding system or modification shall have more than one bid vari-

[48] R. J. Kalter, W. E. Tyner, and D. W. Hughes, "Alternative Energy Leasing Strategies and Schedules for the Outer Continental Shelf (Cornell University, Dept. of Agricultural Economics, December 1975).

[49] D.R. Siegel and J. L. Smith, ' 'Does Profit-Sharing Leasing for Outer Continental Shelf Leases Need Finer Tuning?' *Oil and Gas Journal* (May 7, 1974), pp. 144-152,

[50] General Accounting Office, ' 'Congress Should Extend Mandate to Experiment With Alternative Bidding Systems in Leasing Offshore Lands, " (May 27, 1983).

able."[51] As leasing and exploration proceed in offshore frontier areas, new approaches and modifications of lease conditions may be necessary to sustain the search for oil and gas resources. Other countries, such as the United Kingdom, have found it necessary to adjust lease payments and taxes in later stages of offshore activity to extend exploration and to encourage development of marginal resources. Through testing, the Department of the Interior could assess the advantages and disadvantages of alternative bidding systems in promoting exploration and development in frontier areas. It could also refine different bidding approaches and would be prepared to implement them on a more widespread basis if needed as an incentive to a second-round of leasing and development in the offshore frontiers.

Lease Terms

Other lease conditions may also need to be modified to encourage oil and gas activity in offshore frontier areas. For example, longer lease terms and larger tracts coupled with relinquishment provisions may be appropriate to frontier areas in conjunction with or apart from the implementation of new bidding systems.

As leasing in offshore frontier areas has increased, a greater number of OCS tracts have been offered and leased with 10-year rather than 5-year lease terms. The OCS Lands Act, as amended, provides for longer lease terms as an incentive to exploration and development in areas of unusually deepwater or difficult operating conditions. The longer lease terms have been offered for tracts in the Alaskan offshore, where weather and ice conditions may be severe, and for deepwater tracts in the Atlantic, Pacific, and Gulf of Mexico regions.

The first tracts with 10-year lease terms were offered in the 1979 joint Federal/State lease sale in the Beaufort Sea. This was the first Federal lease sale held in Arctic waters, and it resulted in the leasing of 24 Federal tracts which expire in 1990. Since that time, most of the lease sales held in the Alaskan planning areas have included tracts with 10-year leases. In 1984, the Navarin Basin sale (Lease Sale 83) and the Diapir Field sale (Lease Sale 87) featured some of the most remote tracts yet offered in U.S. waters and the most tracts leased with 10-year terms in single lease sales. About 70 percent of the tracts leased with longer lease terms have been in the Alaskan planning areas.

Ten-year lease terms also have been used for deepwater tracts in the lower 48 states, although the deepwater criteria have varied. The first truly deepwater OCS sales were held in 1981 in the Atlantic, where all tracts in water over 400 meters deep were offered with 10-year leases. However, a 900-meter criterion was used for Southern California Lease Sale 68 in June 1982, and 900 meters subsequently became the deepwater marker for tracts leased in the Pacific, Atlantic, and the Gulf of Mexico.

In December 1983, the Department of the Interior proposed increasing the acreage offered with 10-year lease terms by reestablishing 400 meters as the deepwater criterion and making 10-year lease terms automatic for all tracts in 400 meters of water or deeper.[52] The revision of the definition of deepwater from 900 meters to 400 meters is based on the increased amount of time needed to explore and develop energy resources in these water depths as compared to nearshore tracts. Lease terms are now decided on a sale-by-sale basis, but an automatic 10-year term tied to water depth could facilitate industry and government planning.

Critics of the longer lease terms believe they allow companies to delay exploration and development in offshore areas. At present, the 5-year lease term ensures that tracts are explored and developed in a timely manner, as leases are forfeited at the end of 5 years if they have not been drilled or declared prospective. Extensions of lease terms or ' 'suspensions of operations' (SOPS) are available under special conditions. Critics of 10-year lease terms believe that the standard 5-year term and SOPS should be continued to be used in Alaskan and deepwater areas. However, SOPS are subject to changing policy interpretations or regulations and create greater uncertainty for the industry in frontier-area leasing.

Exploration diligence generally has been promoted by the requirement that lessees submit exploration plans and follow them. Holders of 5-year

[51] Section 8(a), Supra note 1.

[52] *Federal Register*, (Dec. 20, 1983), 48 (245): 56279-56281.

leases are required to submit exploration plans or statements of intentions to explore by the end of the fourth year of the lease term. However, holders of 10-year leases have not been required to submit these plans at a specified time, except as outlined in the lease offering. This often has been as late as the eighth or ninth year of the lease term. The Department of the Interior is now considering a requirement that exploration plans be filed within a set time on 10-year leases, although a milestone year has not been proposed. A requirement for earlier submission of exploration plans on 10-year leases could promote diligent exploration efforts while reducing the risks of the shorter lease term for the industry.

Tract Size

In addition to lengthening the lease terms, another proposal to improve the efficiency of exploration and development in offshore frontier areas is to increase the size of offshore lease tracts or blocks. The OCS Lands Act limits lease tracts to an area of nine square miles or 5,760 acres, unless it is determined that a larger area is necessary to comprise a reasonable economic unit. An option in frontier areas is to increase the average size of the tracts and to combine the larger tracts with relinquishment provisions. 53 This is standard practice in countries such as the United Kingdom, Norway, and Canada, where the average size of the tracts ranges from 90 square miles to 700 square miles.

Leasing larger tracts in offshore frontier areas can promote more rapid and efficient exploration strategies. Firms may be more willing to bid on large areas, which increase the probability that oil discovered by the lessee would be contained within its tract rather than *on* an adjoining lease. Firms would have less incentive to delay exploration in hopes that information from nearby drilling efforts reduces uncertainty about the value of a tract. In general, larger tracts increase the likelihood that owners will fully benefit from drilling information and thus may induce increased investment and exploratory activity.

[53]Resource planning Associates, Inc. and Resource Consulting Group, Inc., Report to the Department of Energy, "Alternative Procedures for Managing the Leasing of Nonprospective OCS Acreage, report to the Department of Energy (Jan. 29, 1981), p. 3-16,

In offshore frontier areas, increased tract size can provide for the surveying of vast amounts of acreage and the selection of prospective areas for drilling. The addition of relinquishment or turnback requirements could help assure the early identification of high quality acreage. Under this system, firms would relinquish a percentage of their acreage with exploration information at a specified time to the government, which could then lease the land again in smaller tract sizes. The United Kingdom, Norway, and Canada require that firms relinquish 50 to 65 percent of the lease tract after 3 to 5 years of exploration. The government benefits from the information generated by the broad-scale exploration efforts.

Joint Bidding

The extremely high costs of exploration in frontier areas may prompt a need to allow joint bidding by the major oil companies on offshore leases. In October 1975, the Department of the Interior banned oil companies with worldwide production in excess of 1.6 million barrels per day of oil equivalent from participating in the same joint bidding group for offshore leases. This restriction became law with the enactment of the Energy Policy and Conservation Act of 1975, The OCS Lands Act Amendments modified the ban by allowing the Secretary of the Interior to authorize joint bidding by the majors on lands with extremely high exploration costs or where activity might not occur otherwise. The joint bidding ban so far has not been lifted for any sale,

Joint bidding has played a key role in OCS lease sales since the start of leasing in 1954. In the 35 pre-ban lease sales, about 10 percent of the bids were joint bids among the seven or eight largest oil companies. Recently, the majors not affected by the ban have frequently bid together on the more attractive and expensive tracts. The list of U.S. companies affected by the ban is updated every 6 months by the Department of the Interior and has included such firms as Exxon, Texaco, Mobil, Shell, Standard Oil of California, and Chevron.

A variety of concerns has prompted the continuance of the ban on joint bidding and even initiated political pressures in the early 1980s for extension of the ban to the 16 largest U.S. oil and

gas companies. A major purpose of the ban is to facilitate the participation of smaller firms in offshore lease sales. Joint ventures among the majors might preclude their bidding with smaller firms, who would otherwise not gain entry to OCS activity. Joint bidding by the majors may also be a substitute for individual participation and reduce the number of competitors for OCS tracts and government cash bonus revenues. Greater competition and diversification of tract ownership are believed to provide for increased capital availability and more efficient exploration.

Joint bidding by the majors also prompts fears of collusion in other offshore areas and markets. At joint bidders' conferences, the majors may discern tracts on which other firms are not planning to bid, allowing them to lower their bids on these tracts. Joint ventures by the majors on OCS leases might also foster collusion in refining, processing, or related markets and increase their downstream market power.

A number of statistical analyses of OCS bidding and leasing data have tested the various hypotheses concerning the effects of the joint bidding ban. It is argued that the joint bidding ban itself is anticompetitive because the average number of bids per tract has actually decreased since the imposition of the ban.[54] Similarly, it has been shown that the size of the cash bonuses statistically increases as the concentration of joint bids increases and that the ban results in government revenue losses.[55] However, the percentage of offshore leases won by non-major oil companies and the number of successful bidders in offshore lease sales have increased since the ban was put in place.[56] All of these effects could be due to causes other than the joint bidding ban. In general, it is difficult to draw any strong conclusions based on these studies about the effect of the ban on OCS participation rates, bidding rates, or government revenues.

Removing the ban on joint bidding by the major oil companies would allow them to share the financial burdens and risks of investments in offshore frontier areas and might provide an additional incentive to exploration and development. The competitive effects of the joint bidding ban are less significant in Arctic and deepwater areas, where the number of firms which may participate is limited by the high costs of exploration. The joint bidding ban eventually may have unwanted negative effects in frontier areas in discouraging participation and in lowering bids.

[54] Brian Sullivan and Paul Kobrin. "The Joint Bidding Ban: Pro- and Anti-Competitive Theories of Joint Bidding in OCS Lease Sales, *Journal of Economics and Business* (fall 1980), pp. 1-2.

[55] Alan Rockwood, "The Impact of Joint Ventures on the Market for OCS Oil and Gas Leases, *Journal of Industrial Economics* (June 1983), pp. 453-468.

[56] Leslie Grayson et. al., "Issues of Competition on the Outer Continental Shelf," *Journal of Natural Resources Law,* (spring 1983), p. 97,