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Potential Budgetary Effects of Immediately Opening Most Federal Lands to Oil and Gas Leasing

The federal government offers private businesses the opportunity to bid on leases for the development of on- and offshore oil and natural gas resources on federal lands—although not all federally controlled lands are open to leasing now. The Congressional Budget Office (CBO) estimates that, under current laws and policies, the government's gross proceeds from all federal oil and gas leases on public lands will total about $150 billion over the next decade. CBO has analyzed a proposal to immediately open most federal lands to oil and gas leasing, which would affect the amounts the federal government collects in various fees and royalties both in the near term and over a longer period.

Implementing such a proposal would open two categories of property now closed to development:

- Lands where leasing is now *statutorily prohibited*, notably, the Arctic National Wildlife Refuge (ANWR) and
- Onshore and offshore areas that are unavailable for leasing under *current administrative policies*, including sections of the Outer Continental Shelf (OCS)—generally, the submerged lands between 3 miles and 200 miles from the Atlantic, Pacific, and Florida coastlines—and certain onshore areas in which oil and gas leasing is either restricted or temporarily prohibited.

CBO expects that opening ANWR to development would yield about $5 billion in additional receipts over the next 10 years, primarily in the form of bonus payments made by private firms for the opportunity to explore for and develop resources in particular areas. Most legislative proposals related to ANWR have specified that a significant portion of those receipts would be conveyed to the state of Alaska. Because extraction is currently prohibited, the receipts from leasing in ANWR could not be realized under current law, and any federal receipts that were projected to result from the change would be added to CBO's baseline estimates of collections from oil and gas development. The federal government also would collect royalties if oil and natural gas eventually were produced from those lands, but most royalty payments would not be collected until much later because of the long lag between the initial leasing agreement and the time when production begins.

According to estimates of potential resources by the Department of Energy's Energy Information Administration (EIA) and taking into account a range of probable oil prices, gross royalties from leasing in ANWR would probably total between $25 billion and $50 billion (in 2010 dollars) during the 2023–2035 period, or roughly $2 billion to $4 billion a year. (By comparison, CBO estimates that under current law, gross receipts from all federal oil and gas leasing activities in 2022 will be about $12 billion, in 2010 dollars.) The projected royalties from leasing in ANWR are very uncertain, however, as they depend both on the amount of oil that might be produced and on future oil prices. Any royalties collected from development in ANWR would be divided between Alaska and the federal government according to a formula that would be set by the authorizing legislation.

CBO anticipates that new legislation directing the Department of the Interior (DOI) to immediately offer most other federal lands for oil and gas leasing without

Note: Unless otherwise noted, all years are federal fiscal years, which run from October 1 to September 30. Numbers in the text and table may not add up to totals because of rounding.

any restrictions also would lead to an increase in federal receipts over the next decade. Specifically, with expanded leasing, CBO estimates that additional gross proceeds from federal oil and gas leases on public lands—principally in certain sections of the OCS off the Atlantic and Pacific coasts and in the eastern Gulf of Mexico and in onshore areas where leasing is now restricted—would total about $2 billion over the 2013–2022 period. (Most of that revenue is expected to come from the OCS leases; a portion of the proceeds would be shared with state governments.)

The long-term budgetary consequences of opening other federal lands to leasing are less clear, however. Much of the near-term development enabled by the proposal (beyond that in ANWR) would occur under current law, albeit at a later time. CBO does not have enough information to predict with specificity what would occur after 2022 either under current law or under the proposal. Under the proposal, income from royalties might be greater over the 2023–2035 period and smaller in subsequent years than under current law. But the proposal also might reduce the amount of bonus payments received between 2023 and 2035 because some of them would be collected sooner. Such long-term predictions are clouded by the inherent uncertainty surrounding market prices for oil and natural gas, state and local policies regarding resource development, and the potential impact of changes in technology.

Oil and Natural Gas Resources on Federal Lands

The budgetary effects of increasing the oil and gas industry's access to federal lands would depend on the quantity, characteristics, and market value of the untapped resources in the designated areas. CBO has relied on DOI's most recent geologic estimates of the quantity and quality of resources in forming its projections of revenue that would result from the proposed change in leasing.[1] However, estimates of oil and gas resources are by their nature inexact, particularly for areas that have not been explored or recently studied. As a result, DOI routinely revises its estimates of resources (sometimes upward and sometimes downward) as new data become available.

CBO's projections are based on DOI's mean estimate of undiscovered, technically recoverable resources—but CBO excluded most of DOI's estimates of natural gas resources in Alaska because gas extraction is not economically viable without a pipeline to transport the product to domestic or foreign markets. Using DOI's resource estimates and making that adjustment, CBO estimates that about 175 billion barrels of oil equivalent (BOE) exists in undiscovered oil and gas reserves on federal lands (excluding most of the natural gas reserves in Alaska)—nearly half of it in the central and western parts of the Gulf of Mexico (see Figure 1).[2] About 70 percent of the undiscovered oil and gas is under federal control on lands that are currently open to leasing; thus, additional receipts would come from opening the other 30 percent to leasing and production.

Leasing Offshore Federal Lands

The geographic scope of leasing on the Outer Continental Shelf has changed often over the past few decades.[3] CBO anticipates that, under current law, DOI will offer leases for most of the acreage in the OCS over the next several decades.

Until the early 1980s, DOI offered leases in all of the OCS, including the areas off the Atlantic, Pacific, and Florida coasts. In 1990, after the Congress imposed a series of temporary restrictions, President George H.W. Bush withdrew large portions of the OCS in the Atlantic and Pacific Oceans and the eastern Gulf of Mexico from

1. Estimates of offshore resources are based on information in Department of the Interior, Bureau of Ocean Energy Management, *Assessment of Undiscovered Technically Recoverable Oil and Gas Resources of the Nation's Outer Continental Shelf, 2011*, BOEM Fact Sheet RED-2011-01a (November 2011), http://go.usa.gov/wbD. Estimates of onshore resources are based on a joint report of the Departments of the Interior, Agriculture, and Energy, *Inventory of Onshore Federal Oil and Natural Gas Resources and Restrictions to Their Development: Phase III Inventory—Onshore United States* (2008), http://go.usa.gov/wQ0. CBO adjusted the 2008 resource assessments to include information in Department of the Interior, U.S. Geological Survey, *2010 Updated Assessment of Undiscovered Oil and Gas Resources of the National Petroleum Reserve in Alaska (NPRA),* Fact Sheet 2010-3102 (October 2010), http://go.usa.gov/GDg.

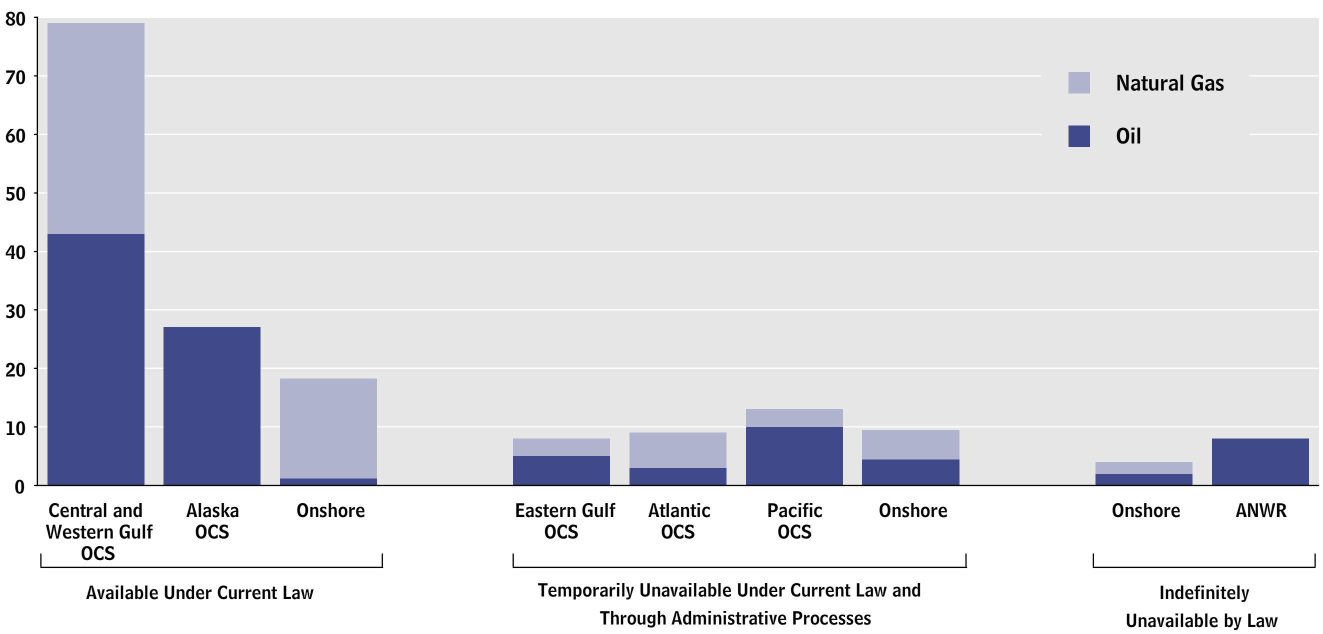
2. The barrel of oil equivalent is a measure of the approximate amount of energy released by burning one barrel (42 U.S. gallons) of crude oil; 1,000 cubic feet of natural gas equals 0.178 BOE.

3. See Adam Vann, *Offshore Oil and Gas Development: Legal Framework*, CRS Report for Congress RL33404 (Congressional Research Service, May 2, 2011); and Curry L. Hagerty, *Outer Continental Shelf Moratoria on Oil and Gas Development*, CRS Report for Congress R41132 (Congressional Research Service, March 23, 2011).

Figure 1.

Undiscovered Oil and Gas Resources on Federal Lands, by Location

(Billions of BOE)



Source: Congressional Budget Office using data from the Department of Agriculture, U.S. Forest Service; the Department of Energy, Energy Information Administration; and the Department of the Interior, U.S. Geological Survey, Bureau of Land Management.

Notes: BOE (barrel of oil equivalent) is a measure of the approximate amount of energy released by burning one barrel (42 U.S. gallons) of crude oil; 1,000 cubic feet of natural gas = 0.178 BOE.

The areas of the Outer Continental Shelf (OCS) referenced here are the submerged lands generally between 3 miles and 200 miles from the Atlantic and Pacific coasts of the continental United States, the coast of Alaska, and the coast of the Gulf of Mexico. ANWR is the Arctic National Wildlife Refuge in Alaska.

the leasing program. Those restricted areas were subsequently expanded by President Clinton. Then, in 2008, President George W. Bush narrowed the restrictions to include only areas that had been designated as National Marine Sanctuaries. In 2010, President Obama removed Alaska's Bristol Bay area from the leasing program until the end of June 2017.

Since 2008, policies on leasing in the Atlantic and Pacific OCS have varied, reflecting differences between the two most recent Administrations. In January 2009, DOI issued a proposed five-year plan that included lease sales in the Atlantic and Pacific OCS for the 2010–2015 period. The program proposed in June 2012 does not include an option for sales in those areas between 2012 and 2017. Neither plan involved the areas in the Gulf of Mexico adjacent to the Florida coast in which leasing is now prohibited until the end of June 2022.[4]

Other than the temporary ban on leasing in the eastern Gulf of Mexico, there currently are no *statutory* restrictions on OCS leasing. Decisions about leasing are made administratively—in consultation with industry and the states—for five-year periods. Leases cannot be offered for areas that are not included in a five-year plan, but the available regions may change whenever a new plan is adopted. The next plan is expected to go into effect in August 2012 and will extend for five years unless a future Administration chooses to restart the process before that plan expires.

Historical experience suggests that only a fraction of the leases awarded in the OCS will eventually be brought into production. Almost 60 percent of the OCS leases

4. That prohibition was enacted in title I, division C of the Gulf of Mexico Energy Security Act of 2006; Public Law 109-432; 120 Stat. 3000, 3003.

issued in the Gulf of Mexico through 2007 either expired or were relinquished without producing any oil or natural gas.[5] CBO estimates that almost 90 percent of the 2011 OCS production was from leases issued before 2001, reflecting the long lead times associated with exploring and developing oil and gas fields.[6]

Leasing Onshore Federal Lands

On the basis of information in the 2008 interdepartmental inventory of onshore resources and in DOI's 2010 updated estimates of undiscovered oil and gas resources in Alaska, CBO estimates that roughly 60 billion BOE of oil and natural gas resources are located under federal lands (excluding ANWR, which is discussed separately below).[7] CBO estimates that about 80 percent of those resources are located under federal lands that are leased, currently available for leasing under standard terms, or available for leasing subject to minor stipulations (including temporary withdrawals of various tracts for land-use planning, seasonal restrictions on drilling that are in effect for less than six months in a year, and certain requirements for surface uses). Those terms and constraints probably will have a minimal effect on the commercial value of the leases over time.[8]

About 15 percent of onshore resources are covered by administrative prohibitions on leasing or are subject to major stipulations (including prohibitions on drilling on the surface directly above the leased tract and seasonal restrictions on drilling for more than six months in a year) that could significantly affect the lease values. The other 5 percent of the onshore area, which includes national parks and wilderness areas, is by statute closed to leasing.

5. Department of the Interior, Bureau of Ocean Energy Management, *Estimated Oil and Gas Reserves, Gulf of Mexico OCS Region, December 31, 2007,* OCS Report BOEMRE 2011-045 (September 2011), p. 13, http://go.usa.gov/wPX.

6. For production estimates, see Bureau of Safety and Environmental Enforcement, *Federal OCS Oil and Gas Production* (June 2012), http://go.usa.gov/wUg; and Bureau of Ocean Energy Management, "Production Data Online Query" (accessed August 9, 2012), http://go.usa.gov/GvM.

7. That resource estimate includes undiscovered, technically recoverable resources; estimated growth in reserves; and proved reserves.

8. Timothy Fitzgerald, "Evaluating Split Estates in Oil and Gas Leasing," *Land Economics,* vol. 86, no. 2 (May 2010), pp. 294–312.

Information from DOI indicates that most administrative restrictions and lease stipulations governing federal onshore oil and gas resources are aimed primarily at protecting plants and wildlife. Federal agencies can impose or lift those restrictions at any time, so their long-term effects on leasing, production, and federal receipts are not quantifiable. However, CBO expects that, under current law, over the next several decades most onshore oil and gas resources will be offered under lease terms that would not significantly influence the likelihood of companies' bidding for leases or change the leases' economic value.

CBO's Baseline Projections of Receipts from Oil and Gas Leasing

CBO estimates that, under current laws and policies, gross proceeds from all federal oil and natural gas leases on public lands will total about $150 billion over the 2012–2022 period (see Table 1); some of those receipts will be shared with the states. Royalties, which are assessed on the value of oil and gas produced, are projected to account for about 80 percent of the total. (That projection is based on CBO's forecast of oil and gas prices and on information from DOI, EIA, and various industry sources that project future production.)

Under current policies, lessees pay a royalty rate of 18.75 percent for new OCS leases or 12.5 percent for new onshore leases.[9] In 2011, roughly 20 percent of OCS production was exempt from royalties under the OCS Deep Water Royalty Relief Act.[10] Lessees also make annual rental payments before a lease goes into production. CBO's projections of rental income are based on estimates of the volume of nonproducing acreage multiplied by the per-acre fee specified for each lease sale.

9. Royalties usually are set as a percentage of the value of production. At those rates and a wellhead price of $100 per barrel for oil, the government's gross royalty would be $18.75 or $12.50 per barrel of oil produced from a new offshore or onshore lease, respectively. If the wellhead price of natural gas was $3 per thousand cubic feet, the gross federal royalty would be 56 cents or 38 cents per thousand cubic feet for natural gas produced from a new offshore or onshore lease, respectively, or about $3 or $2, respectively, per BOE in natural gas. How much the federal government receives from royalties depends on how much is shared with state governments and on how much of the oil and gas produced is eligible for royalty relief.

10. 43 U.S.C. § 1337 (2006 & Supp.).

Table 1.

CBO's March 2012 Baseline Projections of Gross Proceeds from Federal Oil and Gas Leasing, by Fiscal Year

(Billions of dollars)

	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	Total, 2012–2022
						Offshore Leases[a]						
Bonus Payments	1.7	1.8	1.3	1.4	1.6	1.4	1.4	5.6	2.3	2.0	1.3	21.8
Royalties and Rents	5.7	6.1	6.7	7.2	7.9	7.9	9.3	9.5	10.1	11.0	11.7	93.3
Subtotal	7.4	7.9	8.0	8.6	9.5	9.3	10.7	15.1	12.4	13.0	13.0	115.1
						Onshore Leases						
Bonus Payments	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2.2
Royalties and Rents	2.4	2.5	2.6	2.7	2.8	2.9	3.0	3.1	3.1	3.2	3.3	31.6
Subtotal	2.6	2.7	2.8	2.9	3.0	3.1	3.2	3.3	3.3	3.4	3.5	33.8
Total	**10.0**	**10.6**	**10.8**	**11.5**	**12.5**	**12.4**	**13.9**	**18.4**	**15.7**	**16.4**	**16.5**	**148.9**
Memorandum:												
CBO's March 2012 Economic Assumptions												
Oil price[b]	101.1	98.4	94.2	92.8	95.2	97.9	100.8	103.8	106.9	110.1	113.5	n.a.
Natural gas price[c]	3.6	4.2	4.6	5.0	5.2	5.3	5.4	5.5	5.7	5.8	5.9	n.a.

Source: Congressional Budget Office.

Notes: Gross receipts are the amounts paid by lessees, including the portion the federal government will share with states.

n.a. = not applicable.

a. Offshore leases consist of those in areas of the Outer Continental Shelf generally between 3 miles and 200 miles from the Atlantic and Pacific coasts of the continental United States and in the eastern Gulf of Mexico.

b. Average refiner acquisition cost in dollars per barrel (42 U.S. gallons).

c. Price at the Henry hub in dollars per thousand cubic feet.

Firms also pay a bonus when they acquire a lease that allows the winning bidder an opportunity to develop oil and gas resources within a specified period. CBO's estimates of the bonus payments are based on historical trends in lease sales in areas that are likely to be available for leasing over the next 10 years. Proceeds from bonus payments vary from year to year, depending on bidders' assessments of the potential profitability of the acreage being offered in each auction. Bonus bids for OCS leases spiked in fiscal year 2008, for example, when DOI held a special lease sale for areas in the Chukchi Sea in Alaska and three sales for areas in the Gulf of Mexico, which included previously awarded deep-water leases that had expired when they were not brought into production within a 10-year term. CBO anticipates that bonus payments will increase again in 2019 when DOI auctions expiring leases from the 2008 sales. CBO's baseline projections also reflect the possibility that DOI will offer leases in the Atlantic and Pacific OCS after 2017.

CBO updates its baseline projections annually to incorporate new information on potential production and commodity prices, including changes that result from new technology. Advances in the methods for extracting natural gas from shale formations have dramatically increased the domestic supply of gas, in turn lowering wellhead prices and thus reducing federal royalties for natural gas produced in the OCS. Most of the nation's known shale gas resources are on nonfederal lands, and it is unclear whether the reduction in royalties attributable to lower prices will be offset over the next 10 years by an increase in gas production on federal lands.

Other advances are expected to boost receipts: Most of the growth in production from the Gulf of Mexico is projected to come from discoveries in deep water that were not technically or economically viable in the past. Similarly, CBO's baseline projections take account of the possibility that it will be feasible to develop oil shale reserves by 2022, thus boosting receipts from onshore leasing.

It is important to note, however, that any projection that involves geologic resources is inherently uncertain. In the 1970s and 1980s, bidders paid more than $2.8 billion ($7.7 billion in 2010 dollars) for leases in the Atlantic OCS that turned out to be geologically unproductive or too expensive to produce. In other instances, firms have discovered large quantities of oil and gas on leases they acquired relatively inexpensively.[11] The wide variation in such results underscores the riskiness of oil and gas investments and the difficulty of predicting whether or when production will be possible in any given area.

Projections of Oil Production and Federal Receipts from ANWR Leases

If the statutory ban on leasing in ANWR—which is estimated to contain roughly 8 percent of the nation's undiscovered oil (see Figure 1 on page 3)—was lifted, significant new opportunities for oil production would become available. ANWR is believed to contain a particularly large volume of oil (about 8 billion barrels) in a relatively small area (roughly 1.5 million acres), and those resources could be simpler and less expensive to develop than is the case for some other areas.[12] In contrast to ANWR, other onshore federal lands are believed to hold about 8 billion barrels of undiscovered oil, dispersed over some 280 million acres.[13]

CBO estimates that bonus payments from leasing in ANWR would increase gross federal receipts by $5 billion over the 2013–2022 period.[14] Under current law, 90 percent of that money would be paid to the state of Alaska and 10 percent would be deposited in the U.S. Treasury. Most legislative proposals related to ANWR that have been introduced over the past two decades have called for 50 percent of bonus payments and royalties to go to the federal government and 50 percent to the state.

If legislation was enacted in 2013 to open ANWR to leasing, no production would be likely to occur for 10 years and production probably would not peak before 2032. The federal government would receive no royalties from those leases until production began.

Forecasts of energy prices over 20 years are not very reliable, and they usually encompass a wide range. Assuming that oil prices over the 2023–2035 period might range from under $100 per barrel to over $150 per barrel (in 2010 dollars), and using data published by EIA about the amount of oil that could be produced from ANWR, CBO estimates that the government's gross receipts from royalties might total between $25 billion and $50 billion (in 2010 dollars) over that period.[15] The federal portion of the royalties could be as high as $25 billion (if 50 percent went to Alaska) or as low as $2.5 billion (if 90 percent went to Alaska).

Projections of Oil and Gas Production and Federal Receipts from Leasing Outside ANWR

Where and when the government offers leases for areas other than ANWR over the next 10 years will depend on administrative and legislative actions. If policymakers initiated extensive leasing in new areas, additional gross proceeds from federal oil and gas leases on public lands—including the OCS regions of the Atlantic and Pacific Oceans and the eastern Gulf of Mexico and onshore areas where leasing is now restricted—would total about $2 billion over the 2013–2022 period, CBO estimates.[16] Most of that revenue would come from OCS leases. CBO

11. For example, according to DOI, $11 million (or about $18 million in 2010 dollars) was paid for leases for the Mars–Ursa fields in the Gulf of Mexico, which are now estimated to contain more than 1.5 billion BOE.

12. Department of the Interior, U.S. Geological Survey, *Arctic National Wildlife Refuge, 1002 Area, Petroleum Assessment, 1998, Including Economic Analysis* USGS Fact Sheet FS-028-01 (April 2001), http://go.usa.gov/wPN.

13. Departments of the Interior, Agriculture, and Energy, *Inventory of Onshore Federal Oil and Natural Gas Resources and Restrictions to Their Development: Phase III Inventory—Onshore United States* (2008), http://go.usa.gov/wQ0; the largest field in ANWR is estimated to be about one-tenth the size of Alaska's Prudhoe Bay field, the largest oil field in North America.

14. See Congressional Budget Office, cost estimate for H.R. 3407, the Alaskan Energy for American Jobs Act, (February 7, 2012).

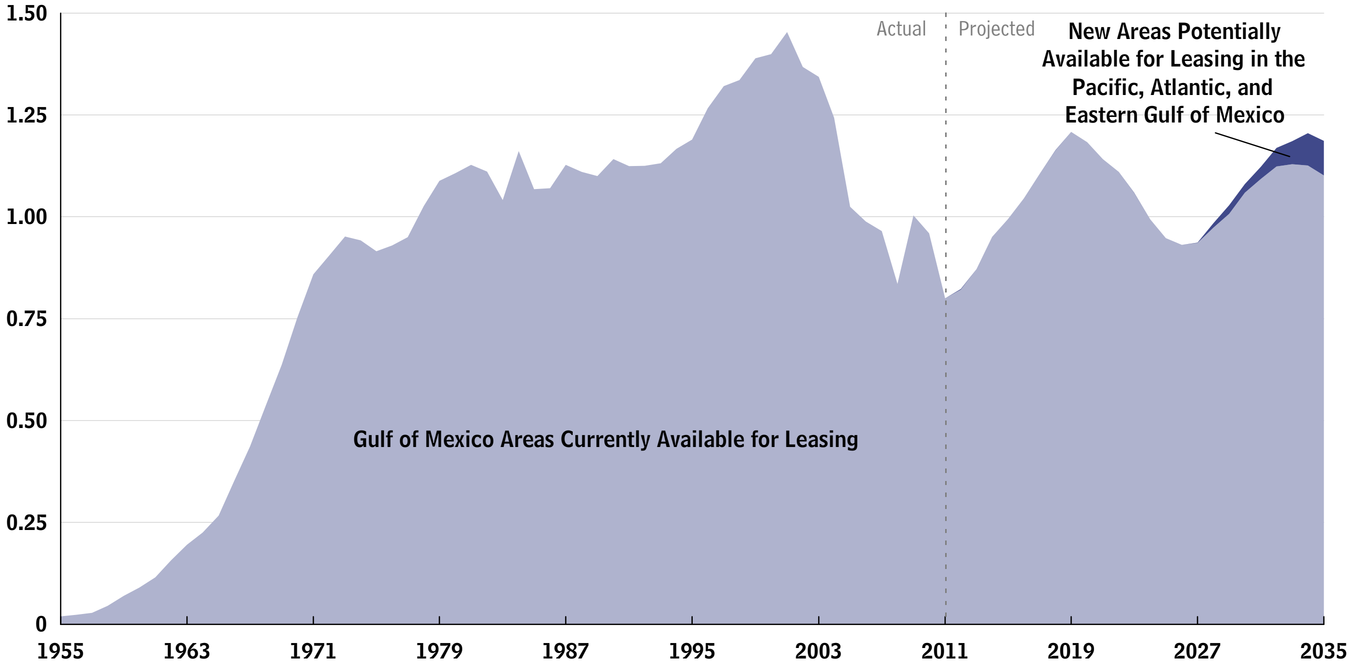
15. Department of Energy, Energy Information Administration, *Annual Energy Outlook 2012: With Projections to 2035*, DOE/EIA-0383(2012) (June 2012), http://go.usa.gov/GjA, and *Analysis of Crude Oil Production in the Arctic National Wildlife Refuge*, SR/OIAF/2008-03 (May 2008), http://go.usa.gov/GW9.

16. See Congressional Budget Office, cost estimate for H.R. 3410, the Energy Security and Transportation Jobs Act (February 7, 2012).

Figure 2.

History and EIA Projections of Oil and Gas Production from Existing and Proposed Offshore Leasing Areas

(Billions of BOE)



Source: Congressional Budget Office using data from the Department of Energy, Energy Information Administration (EIA); and the Department of the Interior, Bureau of Ocean Energy Management.

Notes: Historical data on production, which began in 1947, are from the Bureau of Ocean Energy Management, and projections for the 2012–2035 period are based on data from EIA.

BOE (barrel of oil equivalent) is a measure of the approximate amount of energy released by burning one barrel (42 U.S. gallons) of crude oil; 1,000 cubic feet of natural gas = 0.178 BOE.

expects that most of the added production would occur after 2022 because of the time needed to prepare for auctions, explore and develop oil and gas fields, and obtain the necessary state and local permits for processing and marketing oil and gas.

Offshore Leasing

For this analysis, CBO used EIA's estimates of the potential for new areas to produce oil or gas after 2022. EIA expects that any initial production from newly opened areas in the Atlantic, Pacific, and eastern Gulf of Mexico would be far less than is produced by current operations in the Gulf of Mexico (see Figure 2). In its *Annual Energy Outlook 2011*, EIA estimated that if leasing commenced in those OCS regions by 2023, production through 2035 would amount to around 0.35 billion BOE—or about 3 percent of the 13.5 billion BOE that the agency projected would be produced from federal leases in the Gulf of Mexico over that 13-year period.[17] EIA's estimates reflect its assumption that "local infrastructure issues and other potential nonfederal impediments are resolved."[18] In CBO's view, such factors probably would slow or limit production, as they

17. This estimate is based on the analysis in Department of Energy, Energy Information Administration, *Annual Energy Outlook 2011: With Projections to 2035*, DOE/EIA-0383(2011) (April 2011), http://go.usa.gov/wPV. That report discusses the impact on production from "lower-48 offshore" areas that resulted from reinstating limits on leasing in the Atlantic and Pacific OCS and in the eastern Gulf of Mexico. Those effects are measured relative to the amounts projected in EIA's "reference" case. EIA's *Annual Energy Outlook 2012* includes updated estimates for OCS production but does not provide estimates of the impact of reimposing limits on OCS leasing.

18. Statement of Howard Gruenspecht, Acting Administrator, Energy Information Administration, before the Subcommittee on Energy and Mineral Resources, House Committee on Natural Resources (March 5, 2009), p. 8, http://go.usa.gov/w0N.

sometimes have in the past. The federal government has spent about $1.5 billion to compensate firms for leases that were canceled or relinquished because of state or local concerns about oil and gas development off the coasts of California, North Carolina, and Florida and in Bristol Bay in Alaska.[19] According to DOI, 24 localities in California have "enacted ordinances that either bar the construction of onshore support facilities for offshore oil and gas development or subject the approval of such facilities to a vote by local citizens."[20] Any development in the Atlantic OCS would involve siting and building new pipelines and related onshore facilities, which would require approval by state and local authorities.

Other technical complications and economic factors add to the uncertainty surrounding forecasts of production in new areas of the OCS. DOI's resource assessments suggest that much of the undiscovered oil in the eastern Gulf of Mexico is located in ultradeep water—water that is more than 2,400 meters (about 7,900 feet) deep—where few leases can be brought into production in any year because of the cost and complexity of their development.[21] Other factors could slow production in new areas, including the need for exploratory drilling and the expectation that most of the fields will be relatively small.[22] Historically, production facilities have been installed at a slower pace in the California OCS than in the Gulf of Mexico.[23]

Reflecting EIA's projections and the considerations discussed above, CBO anticipates that production from new offshore areas will be determined primarily by how policymakers in California would respond to the possibility of new oil and gas development. Production from the California OCS accounts for nearly 80 percent of the estimated 0.35 billion BOE projected by EIA for production over the 2023–2035 period; most of the remainder would come from new production of oil in the eastern Gulf of Mexico. EIA currently estimates that no oil or gas will be produced in the Atlantic OCS through 2035, in keeping with its assumptions that future oil and gas prices will be similar to those in the agency's forecast and that the region's geologic characteristics are as they were identified by DOI in 2006.

The uncertainty surrounding whether and when new offshore areas will be developed in the future makes it difficult to estimate the budgetary impact of accelerating leasing. If leasing started sooner than currently assumed by EIA—for example, by 2017 instead of 2023 for the California and Florida OCS—the net increase in royalties could range from an average of tens of millions dollars a year to a few hundred million dollars a year over the 2023–2035 period, depending on whether policymakers in California allowed the development of new offshore

19. See *Amber Res. Co. v. United States*, 538 F.3d 1358 (Fed. Cir. 2008); *Mobil Oil Exploration v. United States*, 530 U.S. 604 (2000); Department of the Interior, U.S. Fish and Wildlife Service, "Interior Reaches Agreement to Acquire Mineral Rights in Everglades, Settles Litigation on Offshore Oil and Gas Leases in Destin Dome" (press release, May 29, 2002), http://go.usa.gov/w0R; and Department of the Interior, "Landmark Protections Announced for Fragile Offshore Resources" (press release, July 31, 1995), http://go.usa.gov/w0n.

20. Department of the Interior, Minerals Management Service, *Report to Congress: Comprehensive Inventory of U.S. OCS Oil and Natural Gas Resources* (February 2006), p. 100, http://go.usa.gov/wb9.

21. See Department of the Interior, Bureau of Ocean Energy Management, "2006 Assessment Results Data and Spreadsheets: UTTR by Water Depth by Planning Area," *Assessment of Undiscovered Technically Recoverable Oil and Gas Resources of the Nation's Outer Continental Shelf, 2006* (February 2006), http://go.usa.gov/G4c. According to DOI's leasing data, only 2 percent of the active leases in areas where the water is deeper than 5,000 feet are in production, compared with about 10 percent in areas where the water is 1,000–5,000 feet deep and 50 percent in areas where the water is considered shallow.

22. According to DOI, firms drilled more than 47,000 wells in the central and western Gulf of Mexico through 2007. By contrast, 64 exploratory wells have been drilled in the eastern Gulf and about 50 wells are in the Atlantic OCS. See Department of the Interior, Bureau of Ocean Energy Management, *Estimated Oil and Gas Reserves, Gulf of Mexico Region, December 31, 2007*, OCS Report BOEMRE 2011-045 (September 2011), p. 13, http://go.usa.gov/wPX; and Department of the Interior, Minerals Management Service, *Report to Congress: Comprehensive Inventory of U.S. OCS Oil and Natural Gas Resources* (February 2006), pp. 84–85, http://go.usa.gov/wb9. For information on field sizes, see Department of Energy, Energy Information Administration, Analysis and Projections, "Oil and Gas Supply Module (OGSM)," *Annual Energy Outlook—Model Documentation,* p. 3-3 (July 2011), http://go.usa.gov/wPA.

23. DOI issued 470 leases for the Pacific OCS from1963 through 1984; 43 were brought into production. Over that period, 23 production facilities were installed, but no more than 3 were added in any year. By contrast, more than 100 facilities were installed each year in the Gulf of Mexico during the 1960s and 1970s. See Bureau of Ocean Energy Management, "Installations and Removals—Offshore Production Facilities in Federal Waters" (accessed August 9, 2012), http://go.usa.gov/wPo.

leases—which is very uncertain.[24] Such gains would diminish over time and eventually turn negative because the resources in those areas would be depleted sooner. Similarly, collecting bonus payments earlier could reduce the amount received during the 2023–2035 period, which could offset some of the estimated increase in royalties over that period.

Onshore Leasing

CBO cannot project receipts beyond 2022 for leases on federal lands other than ANWR because it lacks data to inform predictions about onshore resources—and by extension, production—on federal lands after that year. The information provided in this report regarding *offshore* oil and gas production after 2022 is based on EIA's projections. But that agency's projections of *onshore* oil and gas production do not include specific projections for federal lands.

Long-Term Budgetary Effects of Expanded Leasing

Whether future Administrations will make areas in the Atlantic, Pacific, or eastern Gulf of Mexico available for oil and gas leasing by 2023 is not known, but CBO expects that such leasing will occur over time without any changes in law. Legislation to require immediate leasing of those areas would accelerate development but probably would not affect the total amount of development in those areas over the next several decades.

24. EIA's estimates reflected the assumption that leasing in the South and Mid-Atlantic regions would begin in 2018. The state of California currently opposes new offshore oil and gas development. See West Coast Governors Alliance on Ocean Health, "Comments on BOEMRE's 5-Year Outer Continental Shelf Oil and Gas Leasing Program: 2010–2015," *Governors' Letters and Replies: Offshore Oil and Gas* (August 29, 2008), www.westcoastoceans.org/index.cfm?content.display&pageID=136#OilGas.

This report was requested by the Chairman of the House Committee on the Budget, who asked CBO to describe its baseline projections and to estimate the budgetary impact in the years following 2022 of legislation authorizing oil and gas leasing in all federal areas where it is currently restricted. In keeping with CBO's mandate to provide objective, impartial analysis, this report makes no recommendations.

Kathleen Gramp and Jeff LaFave of CBO's Budget Analysis Division prepared the document under the guidance of Peter Fontaine, Theresa Gullo, and Kim Cawley. Andrew Stocking and Joseph Kile offered helpful comments. This document and other CBO publications are available on the agency's Web site (www.cbo.gov).

Douglas W. Elmendorf

Douglas W. Elmendorf
Director