

# **Estimate of the Potential Economic Benefits From the Leasing and Development of Oil and Gas Resources in OCS Moratoria Areas**

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**Prepared by:**

**Advanced Resources International, Inc**

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## Estimate of the Potential Economic Benefits from the Leasing and Development of Oil and Gas Resources in OCS Moratoria Areas

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### Summary of Results

This white paper provides an updated assessment<sup>1</sup> of the potential economic benefits that could result if areas in the U.S. Outer Continental Shelf (OCS) currently under leasing moratoria or otherwise withdrawn or excluded from oil and gas exploration, drilling, and production become available for leasing and development.

Potential benefits were estimated assuming the January 2006 oil and gas price forecasts of the Congressional Budget Office (CBO), based on two scenarios reflecting the uncertainty associated with the potential the size of the OCS resource base currently under moratoria. Specifically, these benefits were estimated based on both the mean and high (5% probability)<sup>2</sup> resource estimates recently published by the Minerals Management Service (MMS).

Using the MMS estimates for mean undiscovered oil and gas resources in the areas in question, the potential benefits are as follows:

- By 2025, U.S. crude oil production could increase by over 1.0 million barrels per day, and U.S. natural gas production could increase by nearly 1.4 trillion cubic feet (Tcf) per year.
- Cumulatively, nearly 2.8 billion barrels of crude oil and 12 Tcf of natural gas would be produced between now and 2025 – production that would not be realized if the existing moratoria were continued.
- The oil and gas industry would spend \$98 billion dollars in the U.S. by 2025 to develop these resources.
- Between now and 2025, the U.S. trade imbalance would be reduced by \$145 billion if this domestically produced crude oil serves to offset imports on a one-to-one basis.
- The U.S. would collect an additional \$41 billion in royalties by 2025 from OCS production.<sup>3</sup>
- An additional \$28 billion in federal income taxes would be collected from OCS production between now and 2025.
- The economic activity generated by this development would result in the addition of as many as 130,000 direct domestic, high-paying jobs.

These results for the mean resource case are summarized in Table 1.

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<sup>1</sup> This updates a previous memorandum to the U.S. Department of Energy/Office of Fossil Energy, from Advanced Resources International, Inc., dated September 27, 2005.

<sup>2</sup> The represents the estimated volume of resource for which there is a 5% probability (1 in 20 chance) that there is that amount or more hydrocarbon resources remaining to be discovered.

<sup>3</sup> No assumption is made about how federal royalty revenues may be shared or allocated with coastal states.

**Table 1. Estimated Energy Supply and Economic Benefits from OCS Moratoria Areas**  
 Assuming MMS Mean Resource Estimates and the January 2006 CBO Price Forecast  
 (All Estimates in 2006 Dollars)

Moratoria Area	Incremental Production by 2025		Cumulative Production through 2025		Cumulative Investment to 2025	Value of Avoided Oil Imports to 2025	Cum. Federal Royalties to 2025	Cum. Federal Inc. Taxes to 2025	Maximum Direct Jobs	Maximum Total Jobs
	Crude Oil	Natural Gas	Crude Oil	Natural Gas						
	(MMB/day)	(Bcf/year)	Million Bbl	(Bcf)	(Million \$)	(Million \$)	(Million \$)	(Million \$)		
Alaska - N. Aleutian Basin	0.02	45	89	601	\$2,681	\$4,671	\$1,642	\$1,132	2,221	8,576
Atlantic Offshore	0.17	392	400	2,717	\$19,238	\$21,095	\$7,423	\$5,115	25,447	57,860
Eastern Gulf of Mexico	0.20	370	488	2,564	\$21,099	\$25,736	\$7,977	\$5,490	40,820	76,039
Central Gulf of Mexico	0.15	286	650	3,785	\$18,432	\$34,273	\$11,149	\$7,684	19,020	79,440
<u>Pacific Offshore</u>	<u>0.47</u>	<u>300</u>	<u>1,132</u>	<u>2,078</u>	<u>\$36,714</u>	<u>\$59,697</u>	<u>\$12,937</u>	<u>\$8,865</u>	<u>54,561</u>	<u>212,306</u>
<b>All Moratoria Areas</b>	<b>1.01</b>	<b>1,394</b>	<b>2,758</b>	<b>11,746</b>	<b>\$98,163</b>	<b>\$145,472</b>	<b>\$41,128</b>	<b>\$28,285</b>	<b>130,634</b>	<b>328,984</b>

Substantial economic benefits would accrue to states that permit oil and gas leasing off their coastlines. These benefits could be even larger if the resources underlying these moratoria areas turn out to be larger than current MMS mean estimates. In areas that have undergone leasing and development, resource estimates have tended to grow over time. To represent this tendency, regional economic benefits were also determined assuming higher estimated resources, consistent with the high MMS resource estimates.

The estimated potential economic benefits, by region, for the mean and high resources cases, are summarized below:

- Alaska OCS: Leasing and development in the North Aleutian Basin, under MMS mean resource estimates, by 2025, could result in the investment of \$2.7 billion, and could generate \$1.6 billion in federal royalties and \$1.1 billion in federal income taxes. As many as 2,200 direct industry jobs could be created. If the resources under this region turned out to be at the high end of current estimates, investments could total \$11 billion, royalty collections could reach \$3.6 billion, federal income taxes could exceed \$2.4 billion, and 4,800 new industry jobs could be created.
- Atlantic OCS: Leasing and development in the Atlantic OCS, under MMS mean resource estimates, could result in the investment of \$19 billion by 2025, and generate \$7.4 billion in federal royalties and \$5.1 billion in federal income taxes. As many as 25,000 direct industry jobs could be created. If the MMS high resource estimate turns out to be what is developed and produced, investments could total over \$36 billion, federal royalties and income taxes collected could reach \$14 billion and \$10 billion, respectively, and employment could increase by 48,000 direct jobs.
- Eastern and Central Gulf of Mexico OCS: Leasing and development in the Eastern and Central Gulf of Mexico areas that have traditionally been withheld from leasing, under the MMS mean resource estimates, could result in the investment of nearly \$40 billion by 2025, and generate \$19 billion in revenues from federal royalties, and \$13 billion in federal income taxes. As many as 60,000 jobs could be created. Under the MMS high resource estimates, investments could total \$66 billion, royalties could reach \$30 billion, and federal income taxes collected could exceed \$20 billion, and employment could increase by 110,000 jobs.
- Pacific OCS: If leasing and development in the Pacific OCS begins to take place by 2012, under MMS mean resource estimates, then incremental investments of \$37 billion could take place off the Pacific coast states (primarily California) by 2025. An estimated \$12 billion

in revenues from federal royalties and \$9 billion from income taxes could be generated, and nearly 55,000 industry jobs could be created. If the MMS high resource estimate turns out to be more accurate, investments could total \$49 billion, federal royalty and income tax collections could increase by \$17 billion and \$12 billion, respectively, and employment could increase by 73,000 new jobs in the region.

The region specific results for the high resource case are summarized in Table 2.

**Table 2. Estimated Energy Supply and Economic Benefits from OCS Moratoria Areas**  
Assuming MMS High Resource Estimates and the January 2006 CBO Price Forecast  
(All Estimates in 2006 Dollars)

Moratoria Area	Incremental Production by 2025		Cumulative Production through 2025		Cumulative Investment to 2025	Value of Avoided Oil Imports to 2025	Cum. Federal Royalties to 2025	Cum. Federal Inc. Taxes to 2025	Maximum Direct Jobs	Maximum Total Jobs
	Crude Oil	Natural Gas	Crude Oil	Natural Gas						
	(MMB/day)	(Bcf/year)	Million Bbl	(Bcf)	(Million \$)	(Million \$)	(Million \$)	(Million \$)		
Alaska - N. Aleutian Basin	0.05	89	214	1,171	\$5,914	\$11,272	\$3,560	\$2,453	4,849	18,720
Atlantic Offshore	0.33	705	792	4,882	\$36,535	\$41,804	\$13,987	\$9,634	48,142	109,462
Eastern Gulf of Mexico	0.46	805	1,113	5,573	\$47,269	\$58,733	\$17,803	\$12,249	91,282	170,040
Central Gulf of Mexico	0.13	239	698	4,024	\$18,432	\$36,779	\$11,907	\$8,209	19,020	79,440
Pacific Offshore	0.63	402	1,521	2,781	\$49,316	\$80,249	\$17,374	\$11,905	73,280	285,147

Note: No totals are provided in Table 4, since it is statistically incorrect to sum up the results for the estimates based on the 5<sup>th</sup> percentile resource estimate for each of the individual regions.

These results, further disaggregated by distance from shore<sup>4</sup>, are presented in Table 3 for the mean resource case, and in Table 4 for the high (5<sup>th</sup> percentile) resource case.

<sup>4</sup> The "Offshore State Options Act of 2005," introduced in the Fall of 2005, by Representative Richard Pombo (R-CA), would empower states with the option to lift the current ban on leasing within 125 miles from their shore, under certain conditions, or to extend the ban on new drilling within 125 miles off their coast after the expiration of the moratoria in 2012.

Estimate of the Potential Economic Benefits from the Leasing and Development of Oil and Gas Resources in OCS Moratoria Areas

**Table 3. Estimated Energy Supply and Economic Benefits from OCS Moratoria Areas**  
Assuming MMS Mean Resource Estimates and the January 2006 CBO Price Forecast  
(All Estimates in 2006 Dollars)

Moratoria Area	Incremental Production by 2025		Cumulative Production through 2025		Cumulative Investment to 2025 (Million \$)	Value of Avoided Oil Imports to 2025 (Million \$)	Cum. Federal Royalties to 2025 (Million \$)	Cum. Federal Inc. Taxes to 2025 (Million \$)	Maximum Direct Jobs	Maximum Total Jobs
	Crude Oil (MMB/day)	Natural Gas (Bcf/year)	Crude Oil (Million Bbl)	Natural Gas (Bcf)						
Alaska - N. Aleutian Basin	<u>0.02</u>	<u>45</u>	<u>89</u>	<u>601</u>	<u>\$2,681</u>	<u>\$4,671</u>	<u>\$1,642</u>	<u>\$1,132</u>	<u>2,221</u>	<u>8,576</u>
< 125 miles	0.02	45	89	601	\$2,681	\$4,671	\$1,642	\$1,132	2,221	8,576
> 125 miles	0.00	0	0	0	\$0	\$0	\$0	\$0	0	0
Atlantic Offshore	<u>0.17</u>	<u>392</u>	<u>400</u>	<u>2,717</u>	<u>\$19,238</u>	<u>\$21,095</u>	<u>\$7,423</u>	<u>\$5,115</u>	<u>25,447</u>	<u>57,860</u>
< 125 miles	0.08	173	184	1,196	\$8,849	\$9,704	\$3,415	\$2,353	11,706	26,616
> 125 miles	0.09	220	216	1,522	\$10,388	\$11,391	\$4,008	\$2,762	13,741	31,244
Eastern Gulf of Mexico	<u>0.20</u>	<u>370</u>	<u>488</u>	<u>2,564</u>	<u>\$21,099</u>	<u>\$25,736</u>	<u>\$7,977</u>	<u>\$5,490</u>	<u>40,820</u>	<u>76,039</u>
< 125 miles	0.10	167	244	1,154	\$10,549	\$12,868	\$3,988	\$2,745	20,410	38,020
> 125 miles	0.10	204	244	1,410	\$10,549	\$12,868	\$3,988	\$2,745	20,410	38,020
Central Gulf of Mexico	<u>0.15</u>	<u>286</u>	<u>650</u>	<u>3,785</u>	<u>\$18,432</u>	<u>\$34,273</u>	<u>\$11,149</u>	<u>\$7,684</u>	<u>19,020</u>	<u>79,440</u>
< 125 miles	0.15	286	650	3,785	\$18,432	\$34,273	\$11,149	\$7,684	19,020	79,440
> 125 miles	0.00	0	0	0	\$0	\$0	\$0	\$0	0	0
Pacific Offshore	<u>0.47</u>	<u>300</u>	<u>1,132</u>	<u>2,078</u>	<u>\$36,714</u>	<u>\$59,697</u>	<u>\$12,937</u>	<u>\$8,865</u>	<u>54,561</u>	<u>212,306</u>
< 125 miles	0.47	300	1,132	2,078	\$36,714	\$59,697	\$12,937	\$8,865	54,561	212,306
> 125 miles	0.00	0	0	0	\$0	\$0	\$0	\$0	0	0
All Moratoria Areas	<u>1.01</u>	<u>1,394</u>	<u>2,758</u>	<u>11,746</u>	<u>\$98,163</u>	<u>\$145,472</u>	<u>\$41,128</u>	<u>\$28,285</u>	<u>130,634</u>	<u>328,984</u>
< 125 miles	0.82	971	2,298	8,814	\$77,226	\$121,213	\$33,131	\$22,778		
> 125 miles	0.19	423	460	2,932	\$20,938	\$24,259	\$7,997	\$5,507		

**Table 4. Estimated Energy Supply and Economic Benefits from OCS Moratoria Areas**  
Assuming MMS High Resource Estimates and the January 2006 CBO Price Forecast  
(All Estimates in 2006 Dollars)

Moratoria Area	Incremental Production by 2025		Cumulative Production through 2025		Cumulative Investment to 2025 (Million \$)	Value of Avoided Oil Imports to 2025 (Million \$)	Cum. Federal Royalties to 2025 (Million \$)	Cum. Federal Inc. Taxes to 2025 (Million \$)	Maximum Direct Jobs	Maximum Total Jobs
	Crude Oil (MMB/day)	Natural Gas (Bcf/year)	Crude Oil (Million Bbl)	Natural Gas (Bcf)						
Alaska - N. Aleutian Basin	<u>0.05</u>	<u>89</u>	<u>214</u>	<u>1,171</u>	<u>\$5,914</u>	<u>\$11,272</u>	<u>\$3,560</u>	<u>\$2,453</u>	<u>4,849</u>	<u>18,720</u>
< 125 miles	0.05	89	214	1,171	\$5,914	\$11,272	\$3,560	\$2,453	4,849	18,720
> 125 miles	0.00	0	0	0	\$0	\$0	\$0	\$0	0	0
Atlantic Offshore	<u>0.33</u>	<u>705</u>	<u>792</u>	<u>4,882</u>	<u>\$36,535</u>	<u>\$41,804</u>	<u>\$13,987</u>	<u>\$9,634</u>	<u>48,142</u>	<u>109,462</u>
< 125 miles	0.15	310	365	2,148	\$16,806	\$19,230	\$6,434	\$4,431	22,145	50,353
> 125 miles	0.18	395	428	2,734	\$19,729	\$22,574	\$7,553	\$5,202	25,996	59,110
Eastern Gulf of Mexico	<u>0.46</u>	<u>805</u>	<u>1,113</u>	<u>5,573</u>	<u>\$47,269</u>	<u>\$58,733</u>	<u>\$17,803</u>	<u>\$12,249</u>	<u>91,282</u>	<u>170,040</u>
< 125 miles	0.23	362	557	2,508	\$23,634	\$29,366	\$8,901	\$6,125	45,641	85,020
> 125 miles	0.23	443	557	3,065	\$23,634	\$29,366	\$8,901	\$6,125	45,641	85,020
Central Gulf of Mexico	<u>0.13</u>	<u>239</u>	<u>698</u>	<u>4,024</u>	<u>\$18,432</u>	<u>\$36,779</u>	<u>\$11,907</u>	<u>\$8,209</u>	<u>19,020</u>	<u>79,440</u>
< 125 miles	0.13	239	698	4,024	\$18,432	\$36,779	\$11,907	\$8,209	19,020	79,440
> 125 miles	0.00	0	0	0	\$0	\$0	\$0	\$0	0	0
Pacific Offshore	<u>0.63</u>	<u>402</u>	<u>1,521</u>	<u>2,781</u>	<u>\$49,316</u>	<u>\$80,249</u>	<u>\$17,374</u>	<u>\$11,905</u>	<u>73,280</u>	<u>285,147</u>
< 125 miles	0.63	402	1,521	2,781	\$49,316	\$80,249	\$17,374	\$11,905	73,280	285,147
> 125 miles	0.00	0	0	0	\$0	\$0	\$0	\$0	0	0

Note: No totals are provided in Table 4, since it is statistically incorrect to sum up the results for the estimates based on the 5<sup>th</sup> percentile resource estimate for each of the individual regions.

## Introduction and Background

A variety of policy options and potential actions are currently being considered in Congress and by the MMS to address the current moratoria on leasing and development in certain areas of the OCS. These actions include consideration by the MMS of potential leasing in several areas previously not included in its five-year OCS leasing plans,<sup>5</sup> and a variety of legislative proposals introduced in Congress intending to open up additional areas of the OCS for leasing and potential development. In the near term, MMS is focusing on the North Aleutian basin off the coast of Alaska, selected areas in the Eastern Gulf of Mexico, and, perhaps, leasing in the Mid-Atlantic off the coast of Virginia. Congress is focusing on generally the same areas, though some proposals are more expansive in scope. A critical element in the acceptance of these initiatives is deciding how revenues from offshore oil and gas production are shared with the coastal states most affected.

This analysis takes a somewhat broader perspective, and examines the potential economic benefits associated with leasing in all of the areas currently under moratoria. It is recognized that not all of the existing moratoria areas may be opened up to leasing – this analysis merely lays out the economic benefits that could result if they were. Specifically, the areas considered include:

- North Aleutian Basin Planning area in Offshore Alaska
- Offshore Atlantic planning areas of North Atlantic, Mid-Atlantic, South Atlantic, and the Straits of Florida
- Certain areas formerly in the Eastern Gulf that may be transferred to the Central Gulf
- Offshore Eastern Gulf of Mexico (including the areas proposed, but not offered, as part of Lease Sale 181), less the areas that may be transferred to the Central Gulf
- Unleased areas of the Offshore Pacific, which includes the OCS off the coasts of California, Oregon and Washington.

## Methodology and Assumptions

The methodology and key assumptions associated with this assessment of the potential economic benefits are described below.

Estimates of Technically Recoverable Resources in OCS Moratoria Areas. Today, an estimated 19 billion barrels of oil and 86 trillion cubic feet (Tcf) of natural gas resource potential underlies federal offshore waters in the U.S. that currently are unavailable to leasing and development, representing 20 percent of the undiscovered, technically recoverable natural gas resource potential in the federal OCS. (These estimates are the result of the inventory mandated by EPLA (Section 357) published in February 2006 by MMS, of the offshore oil and gas resource potential in the U.S., with specific identification of those resources currently affected by moratoria on leasing and development.<sup>6</sup>)

*These estimates do not include potential resources in areas not yet identified in these regions due to relatively sparse drilling, such as in deep formations, and do not include the potential incremental*

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<sup>5</sup> U.S. Department of Interior, Minerals Management Service, *Draft Proposed Outer Continental Shelf Oil and Gas Leasing Program 2007-2012*, February 2006

<sup>6</sup> Minerals Management Service, *Report to Congress: Comprehensive Inventory of U.S. OCS Oil and Natural Gas Resources*, Report prepared for the U.S. Congress under requirements of the Energy Policy Act of 2005 – Section 357, February 2006

recovery that could result from the application of improved technologies, such as enhanced oil recovery (EOR) technologies.

Moreover, since proposed legislation had been introduced that contains provisions that provide different conditions for leasing areas within and beyond 125 miles<sup>7</sup>, estimated resources are also delineated, where appropriate, by the distance from shore.<sup>8</sup>

These are summarized below, with estimates presented for both the mean and high (5% probability of resource being this value or larger) estimates:

**Undiscovered Technically Recoverable Oil and Natural Gas Resources in Moratoria Areas of the U.S. OCS<sup>9</sup>**

<u>Moratoria Area</u>	<u>Crude Oil</u> (Billion Barrels)		<u>Natural Gas</u> (Tcf)	
	<u>Mean</u>	<u>High*</u>	<u>Mean</u>	<u>High*</u>
<b>Alaska</b>				
<b>N. Aleutian Basin</b>	0.75	1.81	8.62	16.79
<b>Atlantic Offshore</b>	3.82	7.57	36.99	66.46
<b>Atlantic Offshore &gt; 125 miles</b>	2.06	4.09	20.71	37.22
<b>Gulf of Mexico</b>				
<b>Eastern Planning Area (adj.)</b>	2.57	5.87	13.57	29.49
<b>Eastern Plan. Area &gt; 125 miles</b>	1.29	2.93	7.46	16.22
<b>New Central Planning Area</b>	1.41	3.22	8.59	18.67
<b>Pacific Offshore</b>	10.37	13.94	18.02	24.12
<b>Pacific Offshore &gt; 125 miles</b>	0.00		0.00	
<b>Total Moratoria</b>	<b>18.92</b>		<b>85.79</b>	
<b>≤ 125 miles</b>	<b>15.57</b>		<b>57.61</b>	
<b>&gt; 125 miles</b>	<b>3.35</b>		<b>28.18</b>	

\* Estimates of resources > 125 miles in high resource case are based on the proportion for the entire region for the mean resource case

<sup>7</sup> The "Offshore State Options Act of 2005," introduced in the Fall of 2005, by Representative Richard Pombo (R-CA), would empower states with the option to lift the current ban on leasing within 125 miles from their shore, under certain conditions, or to extend the ban on new drilling within 125 miles off their coast after the expiration of the moratoria in 2012.

<sup>8</sup> Based on email from Lyn Herdt, Minerals Management Service, to Jack Coleman, House Committee of Resources, dated September 14, 2005

<sup>9</sup> The high resource case refers to the estimated volume of resource for which there is a 5% probability (1 in 20 chance) that there is that amount or more hydrocarbon resources remaining to be discovered.

Estimates of Economically Recoverable Resources in OCS Moratoria Areas. Estimates of economically recoverable resources in OCS moratoria areas were determined based on the most recently published MMS estimates of economically recoverable resources.<sup>10</sup> The portion of technically recoverable resources assumed to be economic in the moratoria areas was the same as that for the overall region and/or planning area. For purposes of this assessment, MMS estimates of economically recoverable resources at an oil price of \$40 per barrel, and a natural gas price of \$6.05 per Mcf, were used. These proportions are summarized, by region, as follows:

### Technically and Economically Recoverable Oil and Natural Gas Resources in the Federal OCS

Region	Oil (Billion Barrels)					Gas (Trillion Cubic Feet)				
	Mean Tech. Rec.	Mean Econ. Rec. @ \$30/Bbl	Mean Econ. Rec. @ \$40/Bbl	% @ \$30/Bbl	% @ \$40/Bbl	Mean Tech. Rec.	Mean Econ. Rec. @ \$4.54/Mcf	Mean Econ. Rec. @ \$6.05/Mcf	% @ 4.54/Mcf	% @ \$6.05/Mcf
Alaska	21.9	1.4	4.4	6%	20%	132.1	3.0	13.6	2%	10%
Atlantic	3.7	1.5	2.0	41%	54%	37.0	7.6	11.7	21%	32%
GOM	41.7	29.2	32.7	70%	78%	232.5	128.3	151.3	55%	65%
Pacific	10.5	5.8	7.1	55%	68%	18.3	9.0	10.9	49%	60%
<b>Total OCS</b>	<b>77.8</b>	<b>37.9</b>	<b>46.2</b>	<b>49%</b>	<b>59%</b>	<b>419.9</b>	<b>147.9</b>	<b>187.5</b>	<b>35%</b>	<b>45%</b>

Source: MMS, *Report to Congress: Comprehensive Inventory of U.S. OCS Oil and Natural Gas Resources, Energy Policy Act of 2005, Section 357, February 2006*

The same proportion of economic to technically recoverable resources was assumed for both the mean and high resource estimates.

Assumed Future Oil and Gas Prices Assumed for Estimating Economic Benefits. An assessment of potential economic benefits resulting from leasing OCS moratoria areas is heavily dependent on assumptions of future oil prices. This assessment was developed based on the oil price forecasts that underlie the Congressional Budget Office's January 2006 baseline, as summarized below:

<sup>10</sup> Minerals Management Service, *Report to Congress: Comprehensive Inventory of U.S. OCS Oil and Natural Gas Resources*, Report prepared for the U.S. Congress under requirements of the Energy Policy Act of 2005 – Section 357, February 2006



<u>Year</u>	<u>Average RACC<sup>11</sup> (nominal \$)</u>	<u>Henry Hub (nominal \$)</u>
2006	\$53.80	\$9.70
2007	\$53.50	\$8.60
2008	\$54.00	\$8.80
2009	\$55.10	\$9.00
2010	\$56.40	\$9.20
2011	\$57.60	\$9.40
2012	\$58.90	\$9.60
2013	\$60.20	\$9.80
2014	\$61.50	\$10.00
2015	\$62.80	\$10.30
2016	\$64.20	\$10.50
> 2016	\$64.20	\$10.50

For purposes of this analysis, these prices were converted to constant 2006 dollars.

Assumed Timing of Oil and Gas Leasing. In this analysis, the timing of leasing varied by region, depending on whether or not leasing was currently taking place in the area, and on the relative likelihood that coastal states in the region would be willing to opt-out under the terms set forth in the proposed legislation, as follows:

- In the North Aleutian Basin, leasing is assumed to begin in 2007, based on the current interest by the state of Alaska to consider potential leasing in this area.
- In the Atlantic OCS, it was assumed that some leasing would begin in 2012. This is despite the fact that a few states may choose to recommend leasing more quickly. (For example, MMS has proposed to study the potential for oil and gas development off the coast of Virginia, in response to discussions in the state's legislature about the potential for development off its coast).
- In the Central Gulf of Mexico, for those areas transferred from the Eastern Gulf of Mexico Planning Area, leasing is assumed to proceed along the normal schedule for the Central Gulf, with leasing of these areas beginning in 2007.
- In the Eastern Gulf of Mexico Planning Area (those areas under moratoria but not transferred to the Central Gulf), for purposes of this analysis, leasing was assumed to begin in 2012.
- In the Pacific OCS, Planning areas, for purposes of this analysis, leasing is assumed to begin in 2012.

It was assumed that it would take three years between the year of first leasing and the year of first production. This assumes an established and reasonably functioning offshore leasing program is established in a region by the time leasing begins (similar to that currently in place in the Gulf of Mexico), and that all litigation regarding leasing has been resolved.

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<sup>11</sup> RACC = Refiners' Acquisition Costs of Crude Oil, or the average cost for crude oil paid by refiners.

Assumed Pace of Development and Production. The assumed pace of development also varied by region, based on the size of the resource in the region and the leasing history in the region. The pace of development is the assumed pace that the economic resource in the region is converted into proved reserves. These assumptions are summarized below:

	<b>Number of Years to Fully Develop Economic Resources</b>
Aleutian Basin	15 years
Atlantic OCS	25 years
New Central GOM	15 years
Eastern GOM	20 years
Pacific OCS	30 years

For all regions, the timing of production was estimated assuming a reserves-to-production ratio of 8-to-1 for crude oil and 6-to-1 for natural gas. This is based on the average ratios for the Federal offshore Gulf of Mexico for the last ten years.

Estimated Value of Avoided Oil Imports. The estimated value of avoided oil imports was calculated for each year as the product of the incremental oil production from OCS areas in a given year and the assumed price of oil in that year.

Estimated Capital Investments. Estimated investment expenditures to develop OCS oil and gas resources were estimated based on recent offshore finding costs as reported by EIA<sup>12</sup> adjusted for the CBO oil price forecast. For purposes of this analysis, offshore finding costs were assumed to average \$21.88 per BOE. (See Appendix)

Estimated Federal Royalties. Estimated federal royalties were determined by assuming royalties at 1/6 of wellhead revenues, equivalent to current rates in shallow federal offshore waters.<sup>13</sup> No assumption was made about how federal royalty earnings are shared or proportionally allocated to coastal states.

Estimated Federal Income Taxes. Federal income taxes from OCS production were estimated in terms of a representative cost per barrel as a function of the CBO oil and gas price forecasts. For purposes of this assessment, Federal income taxes were assumed to average \$6.00 per BOE. (See Appendix)

Estimated Incremental Jobs Generated. Estimated impacts of OCS leasing and development were calculated using the most recently released RIMS II jobs multipliers for the Oil and Gas Extraction industry category (211000), released by the U.S. Bureau of Economic Analysis (BEA).<sup>14</sup> Specific multipliers for coastal states bordering each of the MMS Planning areas were used. Impacts on employment were based on the estimated capital investments determined for each region, and the multipliers for each region for the jobs created per million dollars of investment in E&P extraction.

<sup>12</sup> <http://www.eia.doe.gov/emeu/perfpro/ch3sec3.html>

<sup>13</sup> <http://www.mms.gov/ld/PDFs/GreenBook-LeasingDocument.pdf>

<sup>14</sup> <http://www.bea.gov/bea/regional/rims/>

## Appendix

### Assumed Costs per Barrel for Various Items for CBO Price Assumptions

	Costs @ Base Price in 2004 <sup>15</sup>	CBO Oil Price <sup>16</sup>	
<b>Average Wellhead Price</b>	\$29.68	\$52.63	
<b><u>Royalties</u></b>	<u>\$4.95</u>	<u>\$8.77</u>	Assumes 1/6 royalty rate
<b>Operating Revenues</b>	\$24.73	\$43.86	
<b>Finding Costs</b>	\$18.95	\$21.88	Based on data from latest EIA FRS reports, adjusted for oil price
<b><u>Lifting Costs (inc Prod. Taxes)</u></b>	<u>\$4.19</u>	<u>\$4.84</u>	Based on data from latest EIA FRS reports, adjusted for oil price
<b>Income Before Taxes</b>	\$1.59	\$17.14	
<b>Fed Income Taxes</b>	<u>\$0.56</u>	<u>\$6.00</u>	Assumes 35% marginal tax rate
<b>Net Income</b>	\$1.04	\$11.14	

<sup>15</sup> Data derived from the Energy Information Administration, *Performance Profiles of Major Energy Producers 2003*, DOE/EIA-0206(05), February 2006

<sup>16</sup> Adjusted from the "Costs @ Base Price in 2004" using the alternative CBO oil price assumptions