

## Oil and Natural Gas Production

Worldwide production of oil (crude oil and natural gas liquids) by the Financial Reporting System (FRS) companies declined in 2007, while worldwide production of natural gas increased (**Table 7**). The decrease in oil production was widespread and led by Europe, with only the Former Soviet Union and the Middle East regions<sup>21</sup> experiencing gains (in the latter case, a very small one). Natural gas production declined in three FRS regions—the U.S. Offshore (largely the Gulf of Mexico), Europe, and Canada—while increasing in all the others. The region with the largest absolute gain in natural gas production, the U.S. Onshore, accounted for 46 percent of worldwide natural gas production by FRS companies. It produced almost 4 times the amount of the second-largest-producing region.

**Table 7. Oil and Natural Gas Production by FRS Companies by Region, 2006-2007**

Region	Crude Oil and Natural Gas Liquids (million barrels)			Natural Gas (billion cubic feet)		
	2006	2007	Percent Change	2006	2007	Percent Change
United States						
Onshore	717	709	-1.0	6,409	7,092	10.7
Offshore	360	331	-8.1	1,517	1,264	-16.7
<b>Total United States</b>	1,077	1,040	-3.4	7,926	8,356	5.4
Foreign						
Canada	164	151	-7.8	1,455	1,251	-14.0
Europe	441	406	-7.8	1,886	1,632	-13.5
Former Soviet Union	86	122	41.4	68	79	15.5
Africa	595	564	-5.2	389	473	21.6
Middle East	147	148	0.3	191	309	61.9
Other Eastern Hemisphere	259	243	-6.2	1,839	1,925	4.7
Other Western Hemisphere	84	66	-21.6	1,193	1,274	6.7
<b>Total Foreign</b>	1,776	1,699	-4.3	7,021	6,942	-1.1
<b>Total Worldwide</b>	2,852	2,740	-4.0	14,946	15,298	2.4

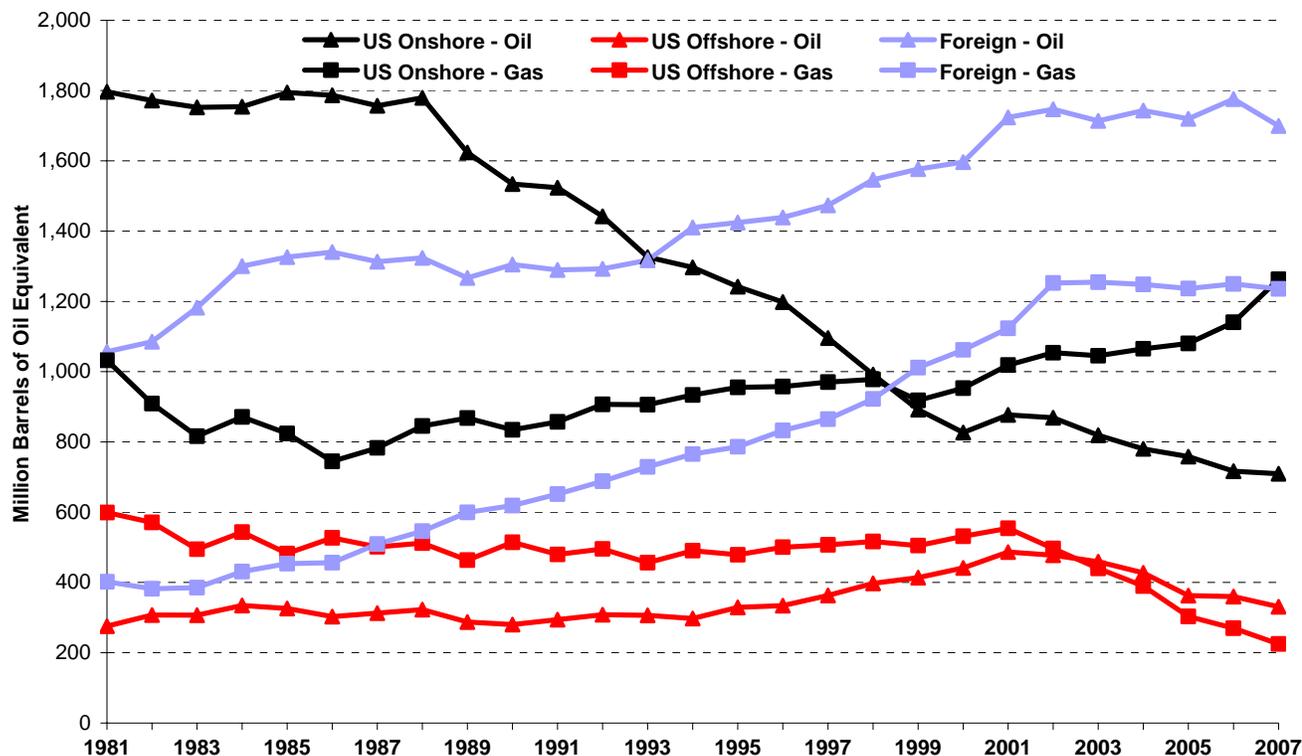
Note: Sum of components may not add to total due to independent rounding.

Source: Energy Information Administration, Form EIA-28, (Financial Reporting System).

During the past 25 years, worldwide production of oil by the FRS companies generally has been declining (even as global production has been increasing), while that of natural gas generally has been increasing. Long-term trends in domestic and foreign production of oil and natural gas clearly indicate the shifting emphasis of the FRS companies to overseas operations, with foreign production of both generally increasing, although both have reached a plateau since the turn of the century (**Figure 12**). In contrast, domestic production of oil generally has declined, while domestic production of natural gas has been slowly increasing. U.S. Offshore production of both oil and natural gas, while growing slightly during the 1990s, has been declining since 2001. This decline is particularly notable, considering current discussion that emphasizes the Gulf of Mexico as an area of increased activity.

<sup>21</sup> It is important to remember that data for the Middle East do not include data from any activities of the National Oil Companies, such as Saudi Aramco, because these companies are not included in the FRS.

Figure 12. Oil and Natural Gas Production by FRS Companies, 1981-2007



Note: Natural gas is converted to barrels of oil equivalent at 0.178 barrels per 1000 cubic feet.  
 Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

## Oil and Natural Gas Reserves Replacement

The reserves replacement rate is the rate at which additional proved reserves found by drilling replace reserves removed by production.<sup>22</sup> Worldwide, the FRS companies added more natural gas reserves, but not more oil reserves, than they produced in 2007, although reserves replacement rates for oil and natural gas both improved (Table 8). Oil replacement rates for the FRS companies exceeded 100 percent in the Middle East, the Other Western Hemisphere, Canada, and the U.S. Onshore. Total oil reserves in the United States increased<sup>23</sup> as the surplus replacement of the U.S. Onshore more than offset the deficit replacement of the U.S. Offshore. In contrast, less than two-thirds of foreign oil production was replaced, overwhelming the small gain in reserves for the United States.

The total reserves replacement rate for natural gas worldwide was 126 percent, as more than adequate reserves replacement in the United States (especially so for the U.S. Onshore, but especially not so for the U.S. Offshore) more than offset the shortfall in foreign regions. The FRS companies replaced slightly more than one-half of their foreign natural gas production, with all foreign FRS regions except the Middle East failing to replace production.

The FRS companies replaced through drilling 108 percent of the oil and 99 percent of the natural gas that they produced from 1981 through 2007; however, this average performance has not been maintained for oil in recent years. The oil replacement rate for the period from 2003 through 2007 was only 65 percent, although the rate for natural gas was 117 percent. In addition, there is considerable variability in replacement rates among the FRS regions. In almost half of the FRS region/resource combinations (the nine FRS regions for oil and nine for natural

<sup>22</sup> Purchases and sales of oil and natural gas reserves by the FRS companies are not included in the replacement rate calculation because they do not add to total reserves available worldwide.

<sup>23</sup> See also Energy Information Administration, *Advance Summary U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves 2007 Annual Report*, DOE/EIA-0216(2007) (Washington, DC, October 2008), Table 1, [http://www.eia.doe.gov/pub/oil\\_gas/natural\\_gas/data\\_publications/advanced\\_summary/current/adsum.pdf](http://www.eia.doe.gov/pub/oil_gas/natural_gas/data_publications/advanced_summary/current/adsum.pdf).

**Table 8. Oil and Natural Gas Reserves Replacement Rates by FRS Companies, 2006-2007**

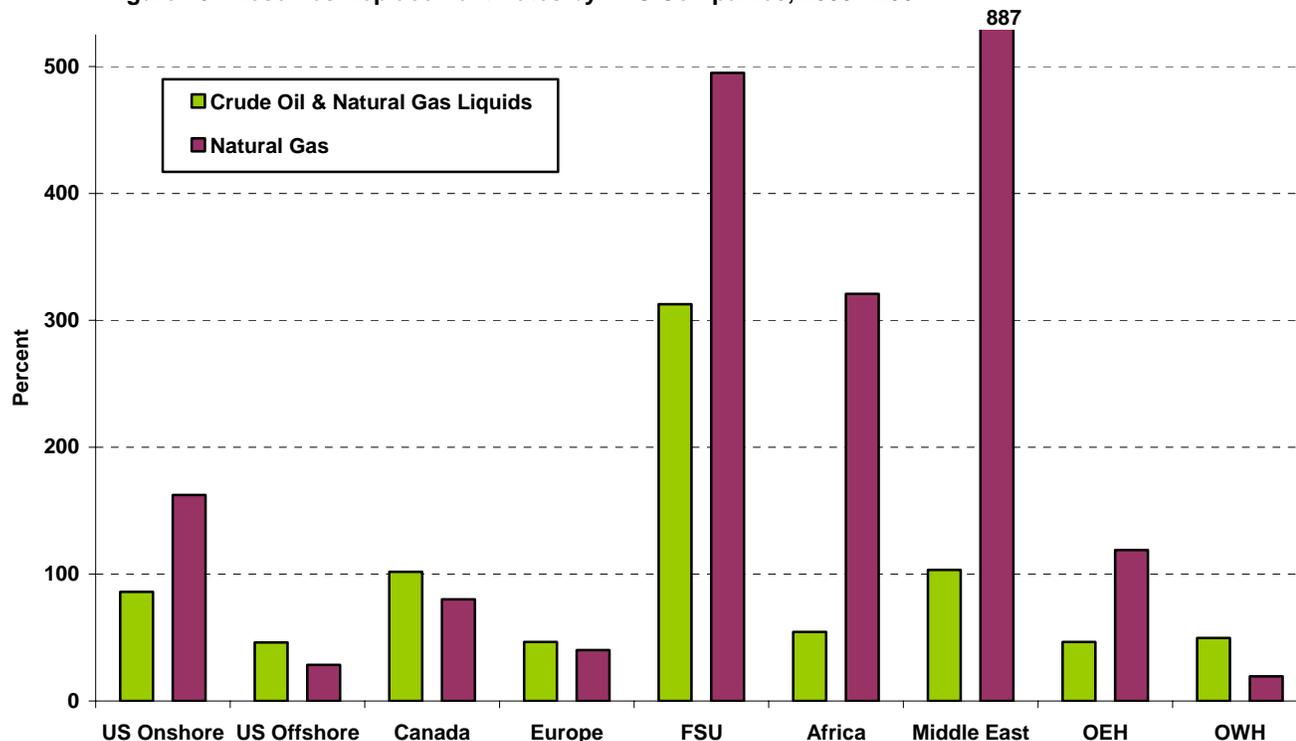
Region	Additions to Reserves Through Drilling		Production		Reserves Replacement Rate (percent)	
	2006	2007	2006	2007	2006	2007
<b>Crude Oil and Natural Gas Liquids</b> (million barrels)						
United States						
Onshore	186	826	717	709	26	117
Offshore	230	262	360	331	64	79
<b>Total United States</b>	416	1,089	1,077	1,040	39	105
Foreign						
Canada	425	181	164	151	259	119
Europe	84	209	441	406	19	51
Former Soviet Union	86	-66	86	122	99	-54
Africa	248	160	595	564	42	28
Middle East	147	354	147	148	100	240
Other Eastern Hemisphere	215	115	259	243	83	48
Other Western Hemisphere	69	82	84	66	82	124
<b>Total Foreign</b>	1,274	1,035	1,776	1,699	72	61
<b>Total Worldwide</b>	1,690	2,124	2,852	2,740	59	78
<b>Natural Gas</b> (billion cubic feet)						
United States						
Onshore	7,839	14,938	6,409	7,092	122	211
Offshore	159	486	1,517	1,264	10	38
<b>Total United States</b>	7,998	15,424	7,926	8,356	101	185
Foreign						
Canada	1,130	682	1,455	1,251	78	54
Europe	-732	820	1,886	1,632	-39	50
Former Soviet Union	122	-101	68	79	179	-128
Africa	512	113	389	473	132	24
Middle East	2,598	470	191	309	1,363	152
Other Eastern Hemisphere	1,399	1,708	1,839	1,925	76	89
Other Western Hemisphere	165	85	1,193	1,274	14	7
<b>Total Foreign</b>	5,195	3,779	7,021	6,942	74	54
<b>Total Worldwide</b>	13,192	19,203	14,946	15,298	88	126

Note: Sum of components may not equal totals due to independent rounding. Additions to reserves can be negative due to downward revisions.

Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

gas, e.g., U.S. Onshore/natural gas), reserves additions more than replaced oil or natural gas production for the 5 years ending in 2007 (**Figure 13**). Particularly notable for future oil and natural gas production by the FRS companies is that the highest producing region/resource combinations generally are not replacing production, while the lowest producing region/resource combinations generally are more than replacing production. In particular, six of the seven highest-producing region/resource combinations did not replace production, while six of the seven lowest-producing region/resource combinations more than replaced production. The U.S. Offshore, which often is considered a growing area, has replaced through drilling less than one-half of both its oil and natural gas production during the 2003–2007 period.

Figure 13. Reserves Replacement Rates by FRS Companies, 2003 - 2007



Note: Excludes purchases and sales of reserves. FSU = Former Soviet Union, OEH = Other Eastern Hemisphere, OWH = Other Western Hemisphere.

Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

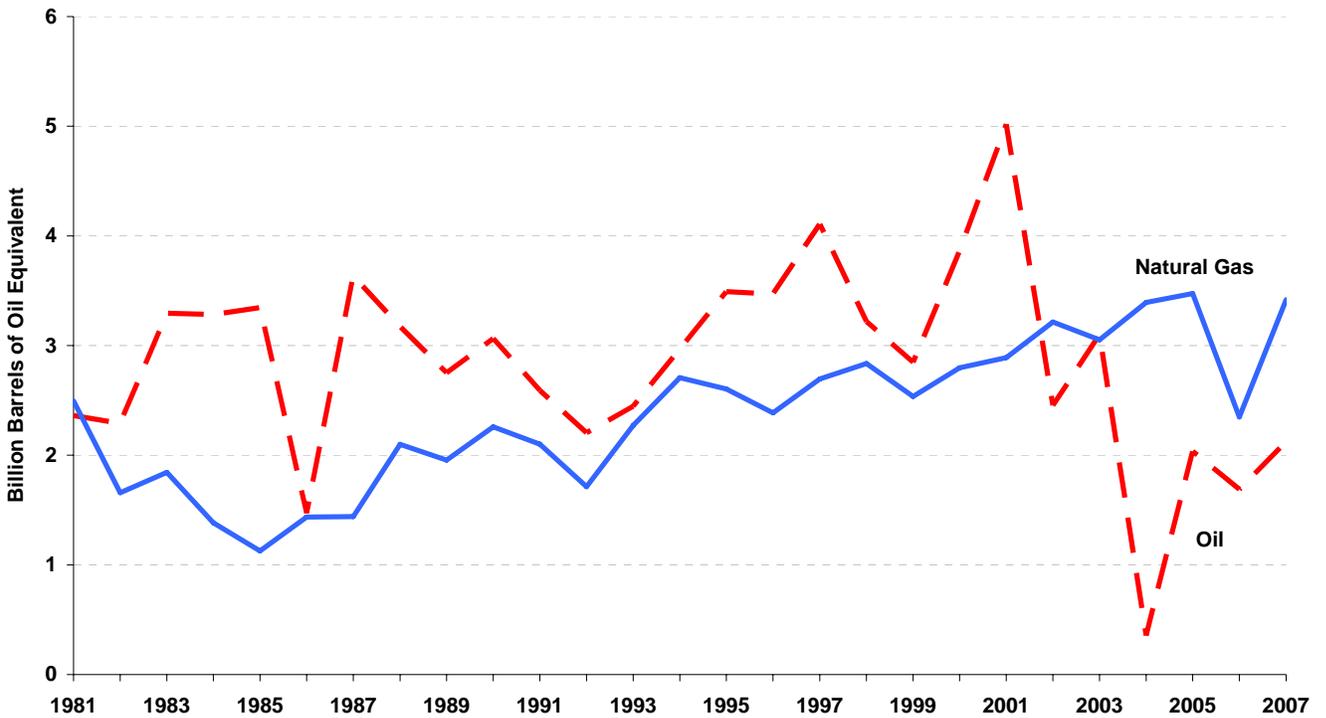
## Oil and Natural Gas Reserves Additions

Reserves additions are the quantities of proved reserves added each year as a result of exploration and development activities, excluding purchases and sales of reserves. Worldwide natural gas reserves additions by FRS companies in 2007 exceeded all previous years in the survey except for 2005 (**Figure 14**). Oil reserves additions, on the other hand, have declined in recent years. Each year from 2004 to 2007, FRS companies' worldwide oil reserves additions were lower than in all prior survey years, except 1986. In 2004, large negative revisions to oil reserves occurred in several foreign regions as a result of low year-end prices. Starting in 2004 and continuing through 2007, extensions and discoveries of oil declined in the U.S. Offshore region along with several foreign regions.

Reserves additions are reported in the categories of extensions and discoveries, improved recovery, and revisions.<sup>24</sup> The primary reason that the U.S. Offshore region replaced less than half of its production in the 2003-2007 period was a significant decline in extensions and discoveries of reserves (**Figure 15**). Extensions and discoveries of oil fell by 289 billion barrels in the U.S. Offshore region in the 2003-2007 period, compared to the 1998-2002 period, which accounted for more than 60 percent of the gross decline in additions to U.S. Offshore proved oil reserves. For proved natural gas reserves, virtually all (97 percent) of the decline was attributable to a fall in extensions and discoveries.

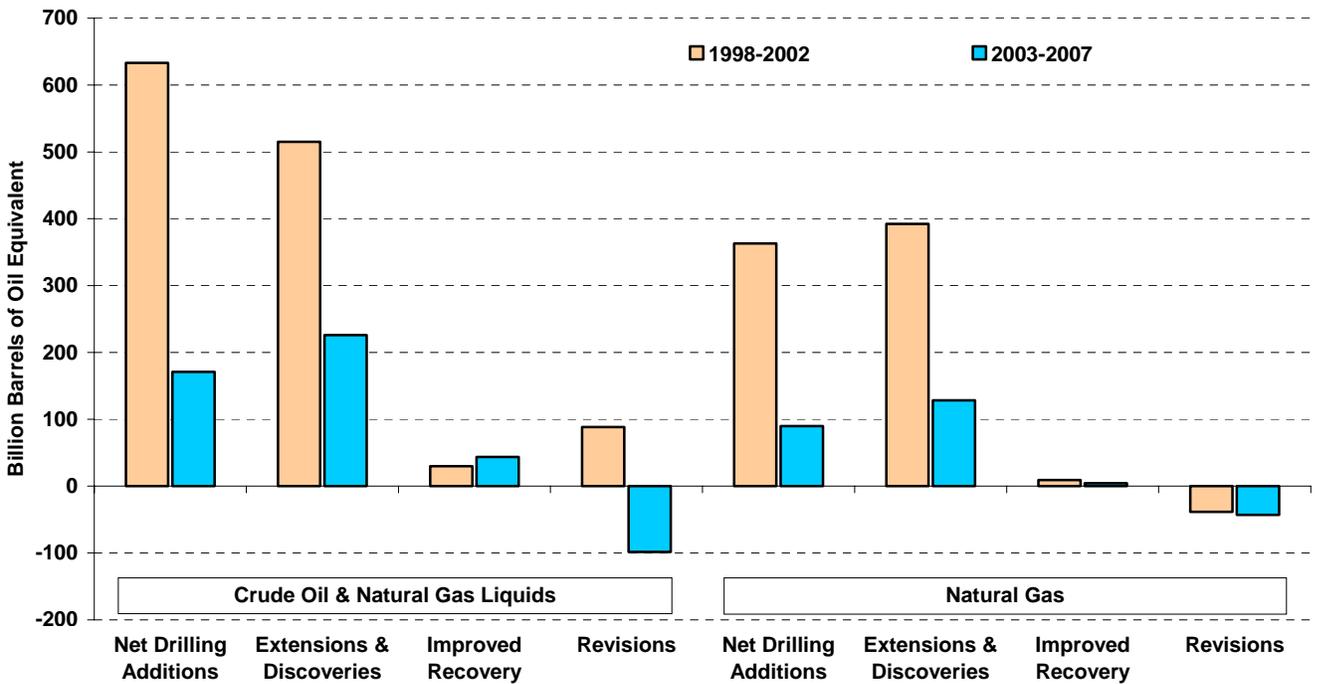
<sup>24</sup> For more detailed definitions, see the Brief Description of Financial Terms or the glossary at <http://www.eia.doe.gov/emeu/perfpro/glossary.html>.

Figure 14. Worldwide Reserves Additions for FRS Companies, 1981-2007



Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

Figure 15. U.S. Offshore Average Annual Reserves Additions by FRS Companies, 1998-2007



Note: Natural gas is converted to barrels of oil equivalent at 0.178 barrels per 1000 cubic feet.

Source: Energy Information Administration Form, EIA-28 (Financial Reporting System).

Of the three categories only revisions may be negative, and worldwide revisions for oil and natural gas combined were negative in 2004 and 2006.<sup>25</sup> In the U.S. Offshore region, revisions to natural gas reserves were negative in both of the 5-year periods of 1998–2002 and 2003–2007, while oil revisions were negative in the latter period. The decline in oil reserves revisions between the two periods amounted to 187 billion barrels, which was almost 40 percent of the gross fall in additions to oil reserves through drilling in the U.S. Offshore.

## Upstream Income

In 2007, the financial performance of the upstream operations (oil and natural gas exploration, development, and production) of the FRS companies, particularly their foreign operations, deteriorated, but only from its record-setting level the previous year, as cost increases exceeded revenue increases in both domestic and foreign operations (**Table 9**). Domestic operating expenses rose 17 percent from 2006,<sup>26</sup> while foreign expenses rose 20 percent, far outstripping the 1 percent and 2 percent (respectively) increases in total revenues. Notwithstanding a large increase in foreign other costs, the leading contributors to increased expenses in both domestic and foreign operations were production spending and depreciation, depletion, and amortization.<sup>27</sup> Domestic and foreign income tax expenses also fell in 2007, largely resulting from the fall in operating income. However, because foreign income fell even faster than income tax expenses, the foreign effective income tax rate increased slightly, while the domestic effective income tax rate fell slightly.

## Lifting Costs

Lifting costs (also called production costs) are the out-of-pocket costs to operate and maintain existing production wells and related equipment and facilities per barrel of oil equivalent (boe) of oil and natural gas produced by those facilities after the hydrocarbons have been found, acquired, and developed for production.<sup>28</sup> Total lifting costs are the sum of production taxes and direct lifting costs.

In 2007, worldwide total lifting costs for the FRS companies increased \$1.41 to \$9.98 per boe of production (**Table 10**). The major contributor to this increase was a 19-percent rise in the amount of spending on direct production and a 9 percent increase in production taxes; the volume of oil and natural gas produced had little effect, as it fell by only 1 percent. The U.S. Onshore region contributed the most to the worldwide total lifting costs increase (based on dollars spent). Although exact figures are not available, it can be determined<sup>29</sup> that the U.S. Onshore, which is the dominant FRS production region, was also the largest contributor to increases in both direct lifting costs and production taxes, with Europe second for direct costs, and Africa second for taxes.

Direct lifting costs increased worldwide and in most FRS regions in 2007. Canada continued to exhibit the highest direct lifting costs, followed by Europe and the United States (**Table 10**). Although production taxes declined in

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<sup>25</sup> Energy Information Administration, *Performance Profiles of Major Energy Producers 2006*, DOE/EIA-0206(06) (Washington, D.C., December 2007), Figure 11, p. 16.

<sup>26</sup> Unless otherwise indicated, all dollar values and percentage changes in this report are reported in or derived from constant 2007 dollars, adjusted using the Gross Domestic Product implicit price deflator.

<sup>27</sup> Because other costs (revenues) are calculated as a residual, the most important cause of the increase is not determinable.

<sup>28</sup> Because oil and natural gas often are produced together, it is not usually feasible to separate their costs, requiring that lifting cost calculations be based on oil and natural gas production combined.

<sup>29</sup> Because total production spending is available for the U.S. Onshore and Offshore, and direct production spending and production taxes are available for the total United States, minimum and maximum values for both production spending and production taxes can be determined for the two U.S. regions.

**Table 9. Income Components and Financial Ratios in Oil and Natural Gas Production for FRS Companies, 2006-2007**  
(Billion 2007 Dollars)

Income Components and Financial Ratios	Worldwide		United States		Foreign	
	2006	2007	2006	2007	2006	2007
Oil and Natural Gas Revenues						
Oil	NA	NA	62.2	65.8	NA	NA
Natural Gas	NA	NA	51.0	48.7	NA	NA
Total Revenues	267.5	272.1	113.2	114.5	154.3	157.6
Expenses						
Depreciation, Depletion, and Amortization	41.3	47.3	21.1	24.8	20.2	22.5
Production Costs	47.2	54.5	23.3	28.4	23.9	26.1
Exploration Expenses	9.8	7.6	4.9	4.7	5.0	2.9
General and Administrative Expenses	3.5	4.0	2.2	2.6	1.2	1.4
Other Costs (Revenues) <sup>a</sup>	14.7	24.8	1.0	1.1	13.6	23.6
Total Operating Expenses	116.0	137.4	52.0	60.9	64.0	76.5
Operating Income	151.5	134.7	61.2	53.6	90.3	81.1
Other Income (Expense) <sup>b</sup>	19.1	21.4	6.1	7.9	13.0	13.5
Income Tax Expense	75.0	69.0	24.4	21.4	50.5	47.6
Net Income	95.7	87.1	42.9	40.1	52.8	47.0
Less Unusual Items	2.1	5.2	0.8	2.8	1.3	2.4
Net Income, Excluding Unusual Items	93.6	81.9	42.1	37.3	51.5	44.6
Unit Values (Dollars per boe of Production) <sup>c</sup>						
Direct Lifting Costs (Excluding Taxes)	6.14	7.34	7.05	8.36	5.40	6.47
Production Taxes	2.42	2.63	2.32	2.90	2.50	2.41
Percentages						
Return on Investment <sup>d</sup>	20.9	17.0	18.2	15.2	20.9	23.7
Effective Income Tax Rate <sup>e</sup>	43.9	44.2	36.3	34.8	48.9	50.3

<sup>a</sup>Other Costs (Revenues) include Raw Material Purchases.

<sup>b</sup>Earnings of unconsolidated affiliates, gain (loss) on disposition of assets, discontinued operations, extraordinary items, and cumulative effect of accounting change.

<sup>c</sup>boe = Barrels of oil equivalent. Natural gas is converted to equivalent barrels of oil at 0.178 barrels per thousand cubic feet.

<sup>d</sup>Net Income divided by net investment in place (Net investment in place = net property, plant, and equipment plus investments and advances to unconsolidated affiliates).

<sup>e</sup>Income tax expense divided by pretax income.

NA = Not available.

Note: Sum of components may not equal total due to independent rounding.

Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

four FRS regions, they increased 25 percent in the United States, which resulted in an increase in worldwide production taxes. Total production costs increased in all but two FRS regions, the Middle East and the Former Soviet Union. Comparing across regions, direct lifting costs tended to be higher and accounted for a greater share of total production costs in the United States, Canada, and Europe, while production taxes made up a larger share of the total in Africa, the Middle East (where taxes exceeded direct costs), and the Other Eastern and Western Hemispheres in 2007 (**Figure 16**).

Worldwide direct lifting costs have been trending upward since 2001, with domestic lifting costs exceeding foreign costs since 2004 (**Figure 17**). While domestic direct lifting spending has been increasing somewhat faster than foreign spending since 2001, domestic oil and natural gas production has been falling, and foreign production has been relatively stable. Both domestic and foreign direct lifting costs neared their previous high levels in 2007, with domestic costs \$0.01 below their 1985 peak, and foreign costs \$0.07 below their 1991 peak.

**Table 10. Lifting Costs for FRS Companies by Region, 2006-2007**  
(2007 Dollars per Barrel of Oil Equivalent)

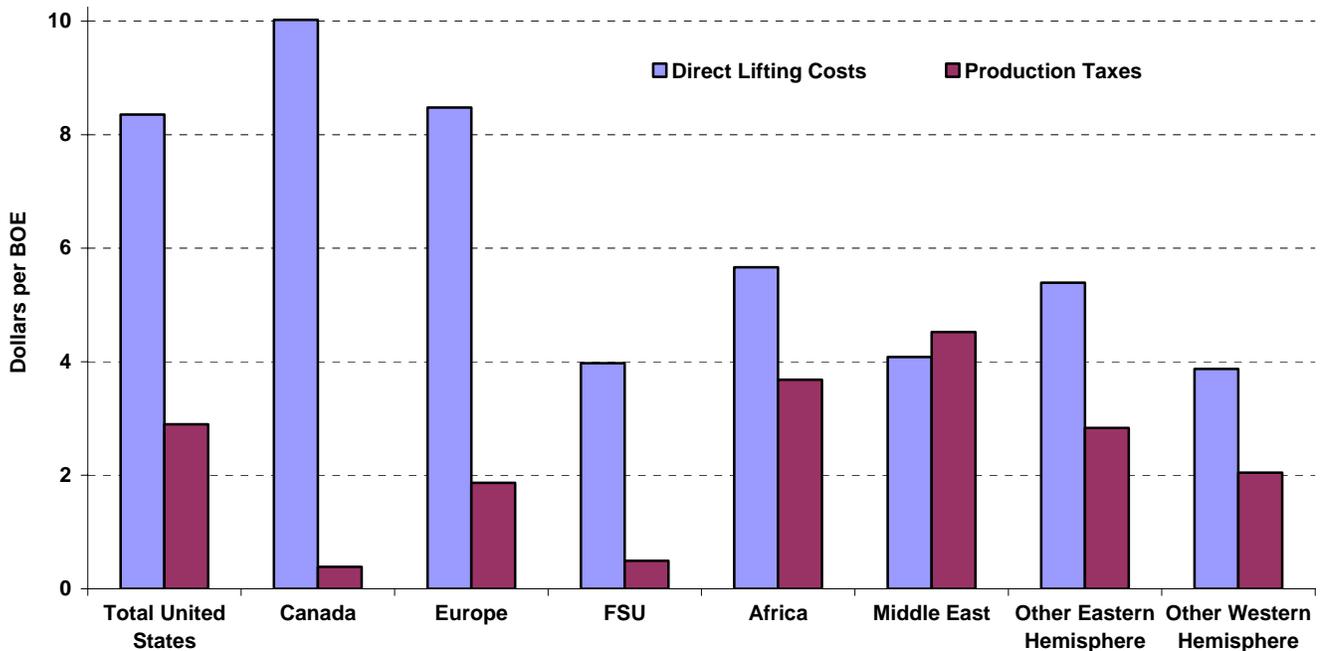
Region	Direct Lifting Costs			Production Taxes			Total		
	2006	2007	Percent Change	2006	2007	Percent Change	2006	2007	Percent Change
United States									
Onshore	NA	NA	NA	NA	NA	NA	10.00	11.91	19.1
Offshore	NA	NA	NA	NA	NA	NA	7.52	8.92	18.7
Total United States	7.05	8.35	18.5	2.32	2.90	24.8	9.37	11.25	20.1
Foreign									
Canada	8.55	10.02	17.2	0.35	0.39	10.2	8.90	10.41	16.9
Europe	6.52	8.48	30.1	2.05	1.87	-9.1	8.57	10.35	20.7
Former Soviet Union	4.20	3.98	-5.3	0.78	0.49	-37.0	4.98	4.47	-10.3
Africa	4.23	5.66	33.7	2.83	3.68	30.3	7.06	9.35	32.4
Middle East	4.72	4.08	-13.4	10.21	4.52	-55.7	14.92	8.61	-42.3
Other Eastern Hemisphere	4.44	5.39	21.5	2.21	2.83	28.3	6.64	8.22	23.8
Other Western Hemisphere	3.30	3.87	17.5	2.44	2.05	-16.0	5.73	5.92	3.3
Total Foreign	5.40	6.47	19.8	2.50	2.41	-3.6	7.90	8.88	12.4
Worldwide Total	6.14	7.34	19.5	2.42	2.63	8.9	8.56	9.98	16.5

NA = Data not available.

Notes: Natural gas is converted to equivalent barrels of oil at 0.178 barrels per thousand cubic feet. Sum of components may not add to total due to independent rounding.

Source: Energy Information Administration, Form EIA-28, (Financial Reporting System).

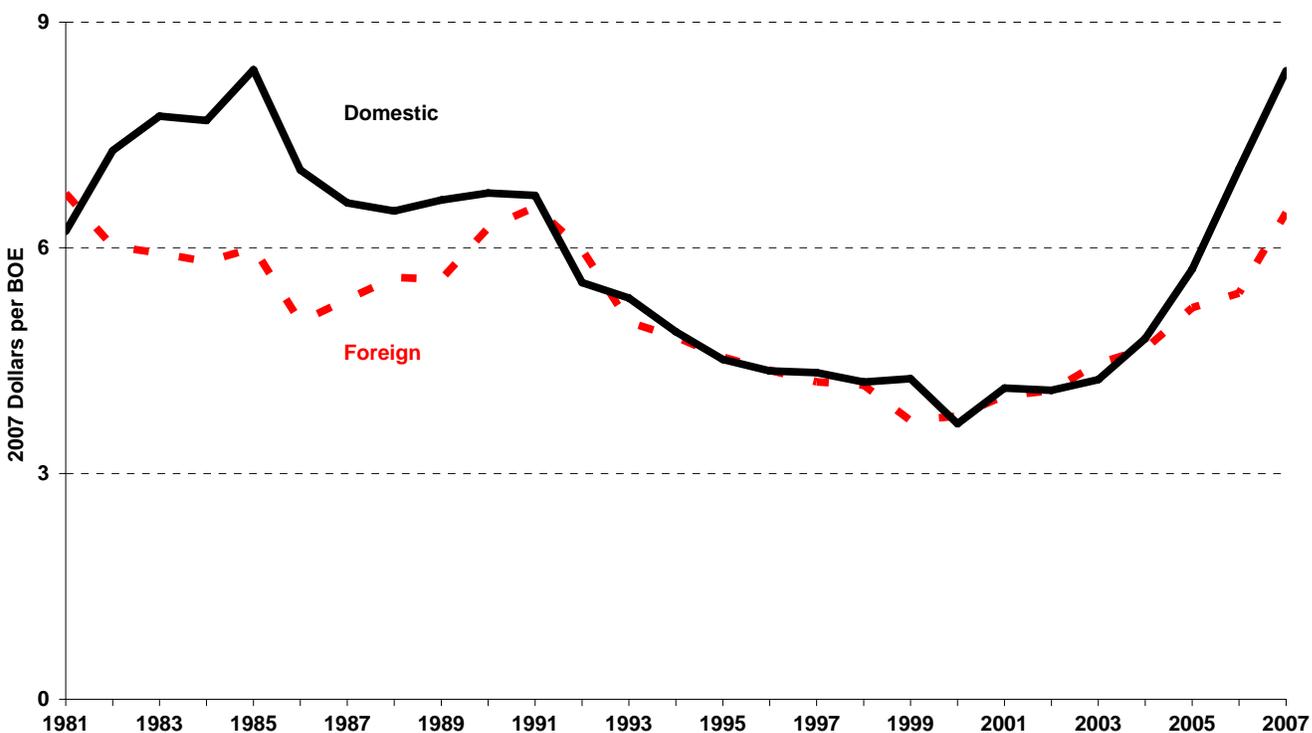
**Figure 16. Oil and Natural Gas Direct Lifting Costs and Production Taxes for FRS Companies, 2007**



Note: Direct lifting costs are the costs of extracting oil and gas, excluding production taxes. BOE = Barrels of oil equivalent.

Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

Figure 17. Direct Oil and Natural Gas Lifting Costs for FRS Companies, 1981-2007



Note: Direct lifting costs are the costs of extracting oil and gas, excluding production taxes. BOE = Barrels of oil equivalent.  
 Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

## Finding Costs

Finding costs are the average costs of adding proved reserves of oil and natural gas through exploration and development activities and the purchase of properties that might contain reserves.<sup>30</sup> These costs are measured for oil and natural gas on a combined basis in units of dollars per boe. Ideally, finding costs would include all costs incurred (no matter when a company incurred them or recognized them on its books) for any particular proved reserves added (not including the purchases of already discovered reserves). In practice, however, finding costs are calculated as the ratio of exploration and development expenditures (including expenditures on unproved acreage, but excluding expenditures on proved acreage) to proved reserves additions (excluding net purchases of proved reserves) during a specified period of time.<sup>31</sup> Finding costs generally are calculated in *Performance Profiles* as a weighted average over a period of 3 years.

Average worldwide finding costs for the FRS companies increased \$0.77 per boe of proved reserves added in the 2005–2007 period (**Table 11**), with one-half of the FRS regions experiencing increased finding costs, and one-

<sup>30</sup> Alternatively, finding costs are the costs of replacing reserves removed through production.

<sup>31</sup> One inherent limitation of measuring finding costs this way is that the expenditures and the reserves additions recognized in a particular interval do not usually correspond exactly with each other. Expenditures usually are recognized in the period in which the payment actually occurred. Proved reserves usually are recognized when there is reasonable certainty that they can be produced economically. There is no reason that these must occur in the same time period (oil and natural gas wells often are operated for a long time), so that some expenditures may not be recognized in the same time period in which their corresponding reserves are recognized. One way to moderate this limitation is to increase the amount of time during which finding costs are measured, allowing reserves additions and exploration and development expenditures to match more closely. However, the longer the time period over which finding costs are measured, the more out of date they become, because they include increasingly older expenditures and reserves, and costs and technology are constantly changing. The only way to solve the correspondence problem would be to calculate an average finding cost for all oil and natural gas produced by a well after it is permanently shut in. However, by then, many costs included would be long out of date.

**Table 11. Finding Costs by Region for FRS Companies, 2004-2006 and 2005-2007**  
(2007 Dollars per Barrel of Oil Equivalent)

Region	2004-2006	2005-2007	Percent Change
<b>United States</b>			
Onshore	11.55	13.39	15.9
Offshore	65.48	49.54	-24.3
Total United States	15.95	17.01	6.6
<b>Foreign</b>			
Canada	19.88	12.20	-38.6
Europe	23.42	31.58	34.9
Former Soviet Union	NM	NM	NM
Africa	26.35	38.23	45.1
Middle East	5.41	4.77	-11.8
Other Eastern Hemisphere	13.04	20.57	57.8
Other Western Hemisphere	43.86	30.29	-30.9
Total Foreign	20.06	20.70	3.2
<b>Worldwide</b>	15.84	16.61	4.8

Notes: NM = Not meaningful. The above figures are 3-year weighted averages of exploration and development expenditures, excluding expenditures for proven acreage, divided by reserve additions, excluding net purchases of reserves. Natural gas is converted to equivalent barrels of oil at 0.178 barrels per thousand cubic feet. Sum of components may not add to total due to independent rounding.

Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

half decreased finding costs from 2004–2006.<sup>32</sup> Most regions spent more to find reserves; therefore, whether their finding costs per boe increased or decreased depended on whether their relative increase in reserves found was more or less than their increase in expenditures. The most notable finding-cost declines were in the U.S. Offshore, the Other Western Hemisphere, and Canada. Two of these three regions, the U.S. Offshore and the Other Western Hemisphere, were the most expensive regions in 2004–2006. Even with its large decrease in costs, the U.S. Offshore retained its position as the highest-cost FRS region. The largest increases in finding costs were in Africa, Europe, and the Other Eastern Hemisphere. The large increase in Africa raised it to the second most expensive finding-cost region.

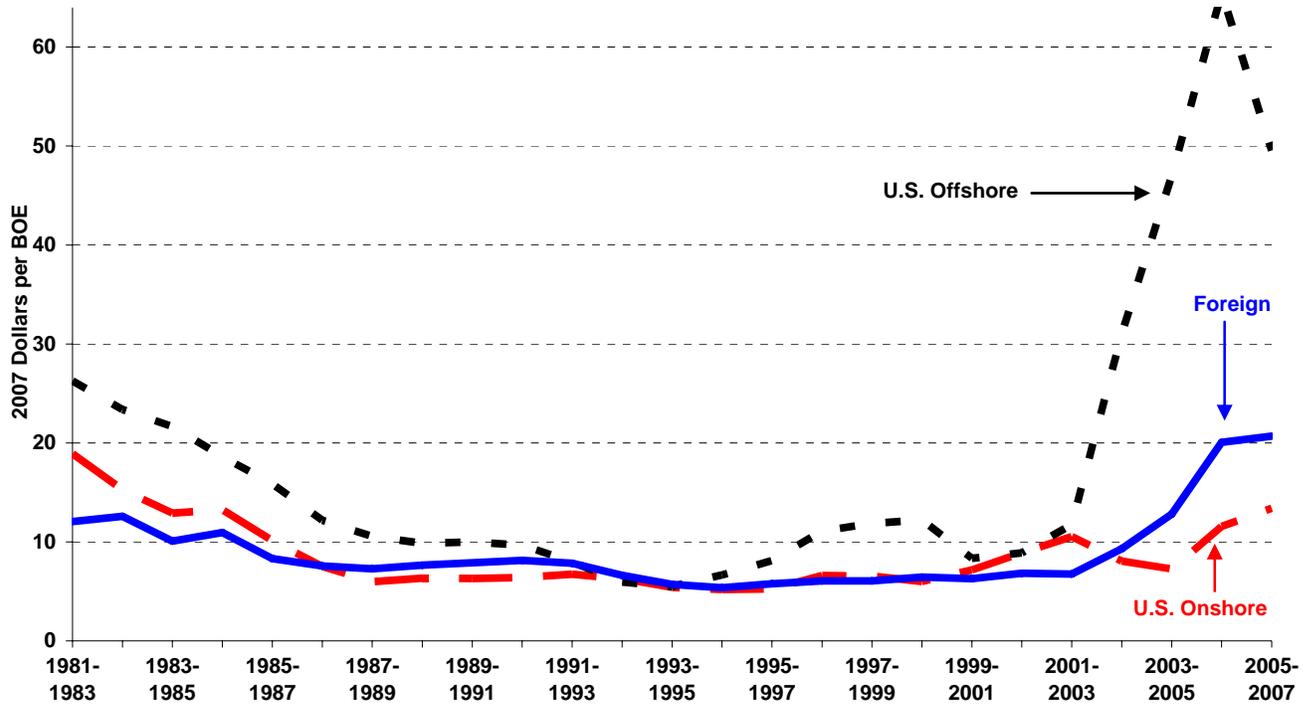
Since the turn of this century, worldwide finding costs, led by dramatic increases in the U.S. Offshore (**Figure 18**), generally have been increasing, although worldwide gains were more moderate in 2005–2007 than 2004–2006. However, unlike most other FRS regions, finding costs in the U.S. Onshore have not exceeded their previous 1981–1983 record high. As with lifting costs, the recent levels of finding costs are partially a result of the high prices of oil and natural gas. Producers are willing to spend more to find oil and natural gas when their prices are higher.

Finding costs for the FRS companies in foreign regions have shown sharp increases over various time periods in recent years (**Figure 19**).<sup>33</sup> In every case, the large increase in finding costs corresponded to a substantial decline in reserves additions for that period in that region.

<sup>32</sup> The Former Soviet Union, largely because negative revisions to oil reserves in 2004, 2005, and 2007 were not offset by other reserves additions, had total reserves additions of less than zero in 2004–2006 and 2005–2007, which make its finding cost calculation for those periods meaningless.

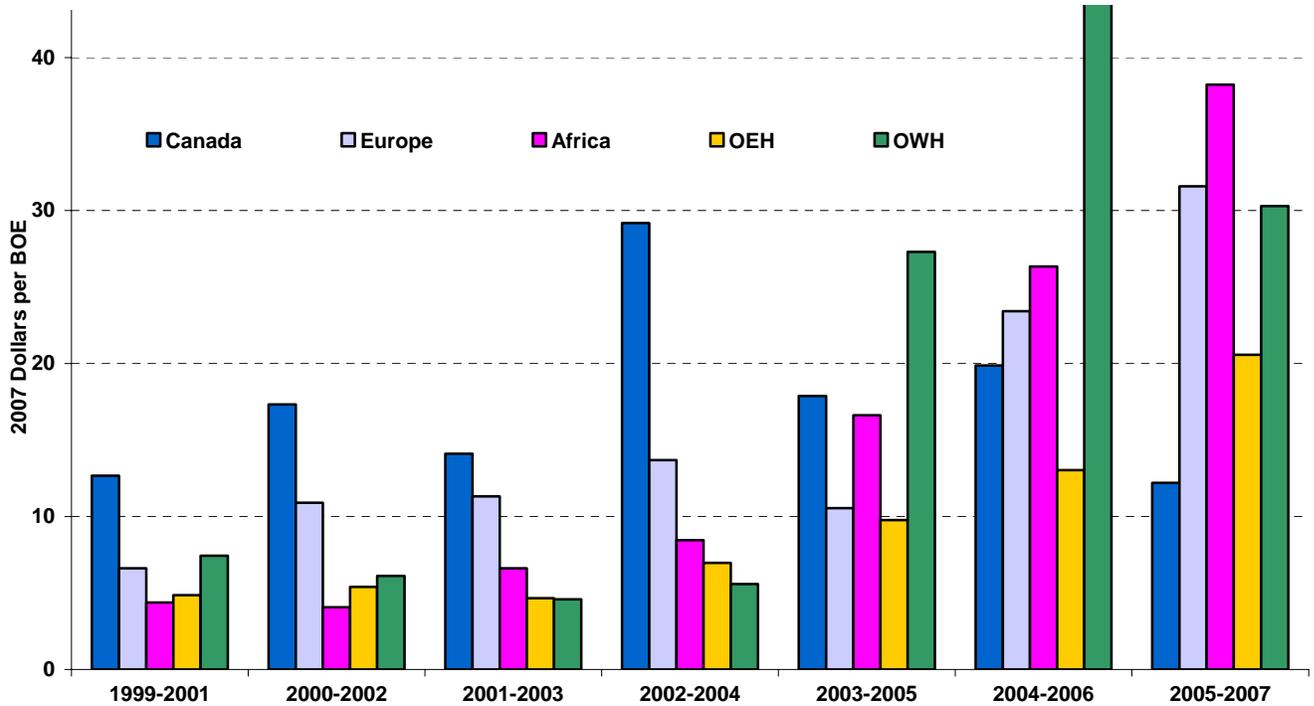
<sup>33</sup> This graph begins with the period 1999–2001, because it is the base period from which worldwide finding costs started their current rise. The Former Soviet Union is not included, because finding costs there have not been meaningful in the last two periods, and the Middle East is not included because finding costs there generally have been declining during the period. Excluding these regions also makes the figure more transparent.

Figure 18. Finding Costs for FRS Companies, 1981-1983 to 2005-2007



Notes: Costs are the quotient of costs and reserve additions for each three-year period. BOE = Barrels of oil equivalent.  
 Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

Figure 19. Finding Costs in Foreign Regions for FRS Companies, 1999-2001 to 2005-2007



Notes: Costs are the quotient of costs and reserve additions for each three-year period. BOE = Barrels of oil equivalent.  
 Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

## Upstream Costs

Upstream costs, the sum of finding costs and lifting costs, increased for the FRS companies in five of eight FRS regions (the Former Soviet Union's costs were not meaningful) during the 2005–2007 period, with worldwide costs rising \$2.11 per boe (**Table 12**).<sup>34</sup> Because finding costs generally have become much greater than lifting costs in recent years, upstream cost patterns are often similar to finding cost patterns for the FRS companies, except for the U.S. Onshore, Canada, and the Middle East. In the Middle East, finding costs are actually almost half as much as lifting costs. For the U.S. Onshore and Canada, finding costs are greater than lifting costs, but much less than for the other regions.

**Table 12. Upstream Costs by Region for FRS Companies, 2004-2006 and 2005-2007**  
(2007 Dollars per Barrel of Oil Equivalent)

Region	2004-2006	2005-2007	Percent Change
<b>United States</b>			
Onshore	19.91	23.45	17.8
Offshore	71.69	57.20	-20.2
Total United States	23.72	26.48	11.7
<b>Foreign</b>			
Canada	27.30	21.11	-22.7
Europe	30.61	40.29	31.6
Former Soviet Union	NM	NM	NM
Africa	33.00	45.96	39.3
Middle East	14.70	14.85	1.0
Other Eastern Hemisphere	19.37	27.53	42.1
Other Western Hemisphere	49.04	36.13	-26.3
Total Foreign	26.91	28.58	6.2
<b>Worldwide</b>	23.11	25.22	9.1

NM = Not meaningful.

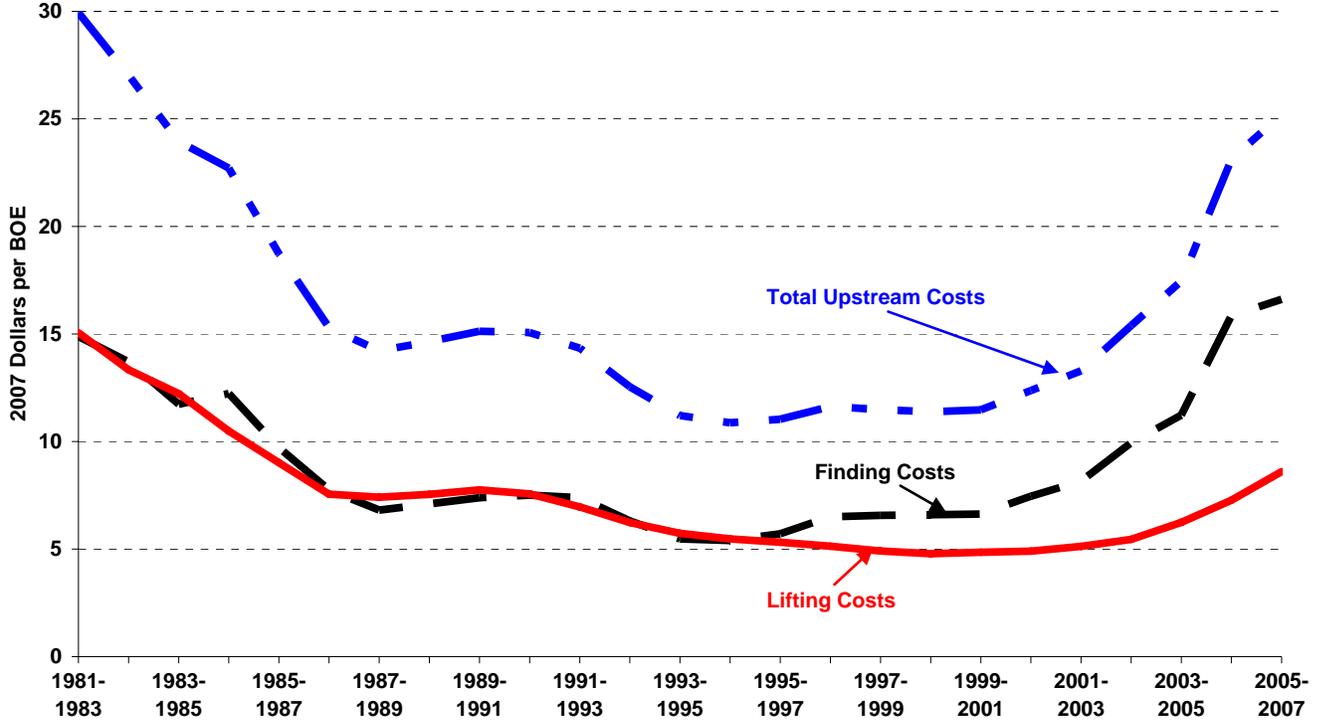
Notes: Upstream costs are finding costs plus lifting costs. Natural gas is converted to equivalent barrels of oil at 0.178 barrels per thousand cubic feet. Sum of components may not add to total due to independent rounding.

Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

Worldwide finding cost levels were similar to lifting cost levels through the middle 1990s, and, because both were then declining, upstream costs also fell (**Figure 20**). In 1995 to 1997, finding costs began to exceed lifting costs. Lifting costs continued a slow decline until the 2003–2005 period and then began to rise, reinforcing the effect of increasing finding costs on upstream costs. By the 2004–2006 period, worldwide finding costs were more than double lifting costs, although they fell back to less than double in the most recent period.

<sup>34</sup> Total upstream costs do not include the costs of purchasing reserves and the amount of reserves purchased. They are not meaningful for the Former Soviet Union (see note 31).

Figure 20. Worldwide Upstream, Finding, and Lifting Costs for FRS Companies, 1981-1983 to 2005-2007



Notes: Upstream costs are finding costs plus lifting costs for each three-year period. BOE = Barrels of oil equivalent.  
 Source: Energy Information Administration, Form EIA-28 (Financial Reporting System).

