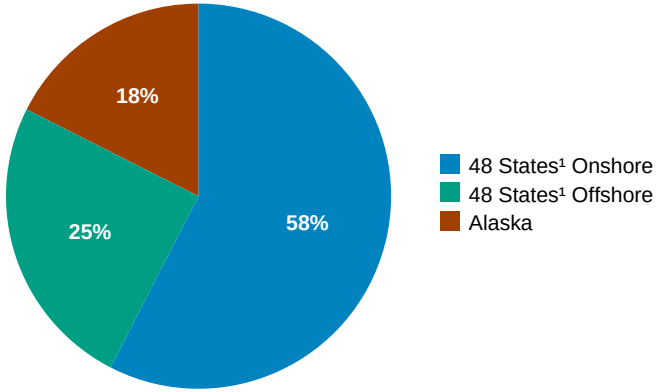
4. Energy Resources

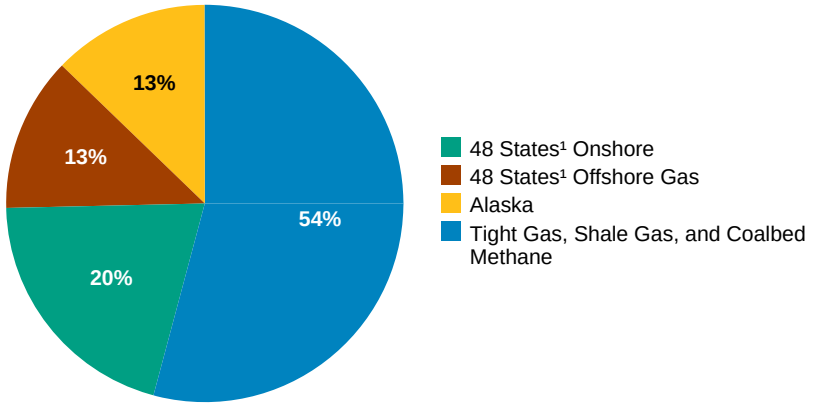
Figure 4.1 Technically Recoverable Crude Oil and Natural Gas Resource Estimates, 2009

Crude Oil and Lease Condensate, Total Technically Recoverable Resources



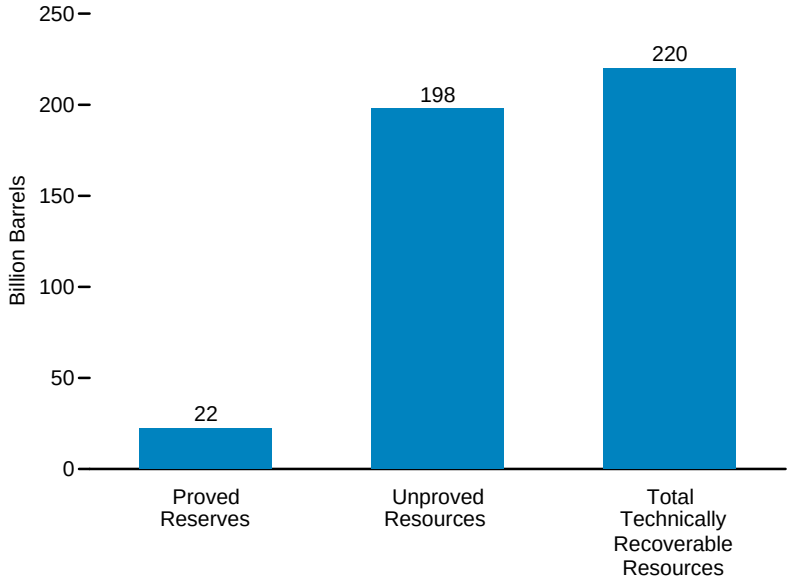
Total
220 billion barrels

Dry Natural Gas, Total Technically Recoverable Resources

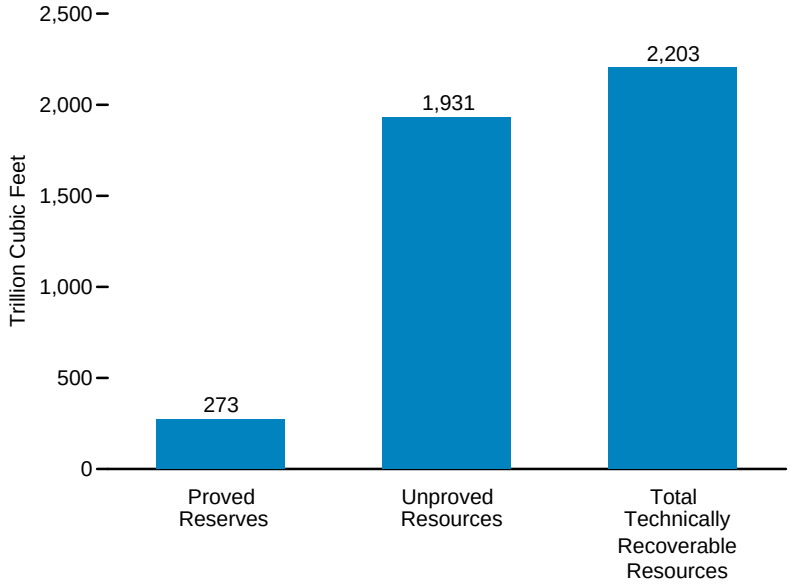


Total
2,203 trillion cubic feet

Crude Oil and Lease Condensate by Type



Dry Natural Gas by Type



[1] "48 States" is the United States excluding Alaska and Hawaii.
Note: Sum of components may not equal 100 percent due to independent rounding.

Source: Table 4.1.

Table 4.1 Technically Recoverable Crude Oil and Natural Gas Resource Estimates, 2009

Region	Proved Reserves [1]	Unproved Resources	Total Technically Recoverable Resources [2]
	Crude Oil and Lease Condensate (billion barrels)		
48 States [3] Onshore	14.2	112.6	126.7
48 States [3] Offshore	4.6	50.3	54.8
Alaska	3.6	35.0	38.6
Total U.S.	**22.3**	**197.9**	**220.2**
	Dry Natural Gas [4] (trillion cubic feet)		
Conventionally Reservoired Fields [5]	**105.5**	**904.0**	**1,009.5**
48 States [3] Onshore Gas [6]	81.4	369.7	451.1
48 States [3] Offshore Gas [7]	15.0	262.6	277.6
Alaska	9.1	271.7	280.8
Tight Gas, [8] **Shale Gas,** [9] **and Coalbed Methane** [10]	**167.1**	**1,026.7**	**1,193.8**
Total U.S.	**272.5**	**1,930.7**	**2,203.3**

[1] See "Proved Reserves, Crude Oil," "Proved Reserves, Lease Condensate," and "Proved Reserves, Natural Gas" in Glossary.

[2] "Technically recoverable" resources are those that are producible using current technology without reference to the economic viability thereof.

[3] "48 States" is the United States excluding Alaska and Hawaii.

[4] Excludes natural gas plant liquids. See "Natural Gas, Dry" in Glossary.

[5] Conventionally reservoired deposits are discrete subsurface accumulations of crude oil or natural gas usually defined, controlled, or limited by hydrocarbon/water contacts.

[6] Includes associated-dissolved (AD) natural gas that occurs in crude oil reservoirs either as free gas (associated) or as gas in solution with crude oil (dissolved gas).

[7] Includes Federal offshore and State offshore waters (near-shore, shallow-water areas under State jurisdiction).

[8] Natural gas produced from a non-shale formation with extremely low permeability.

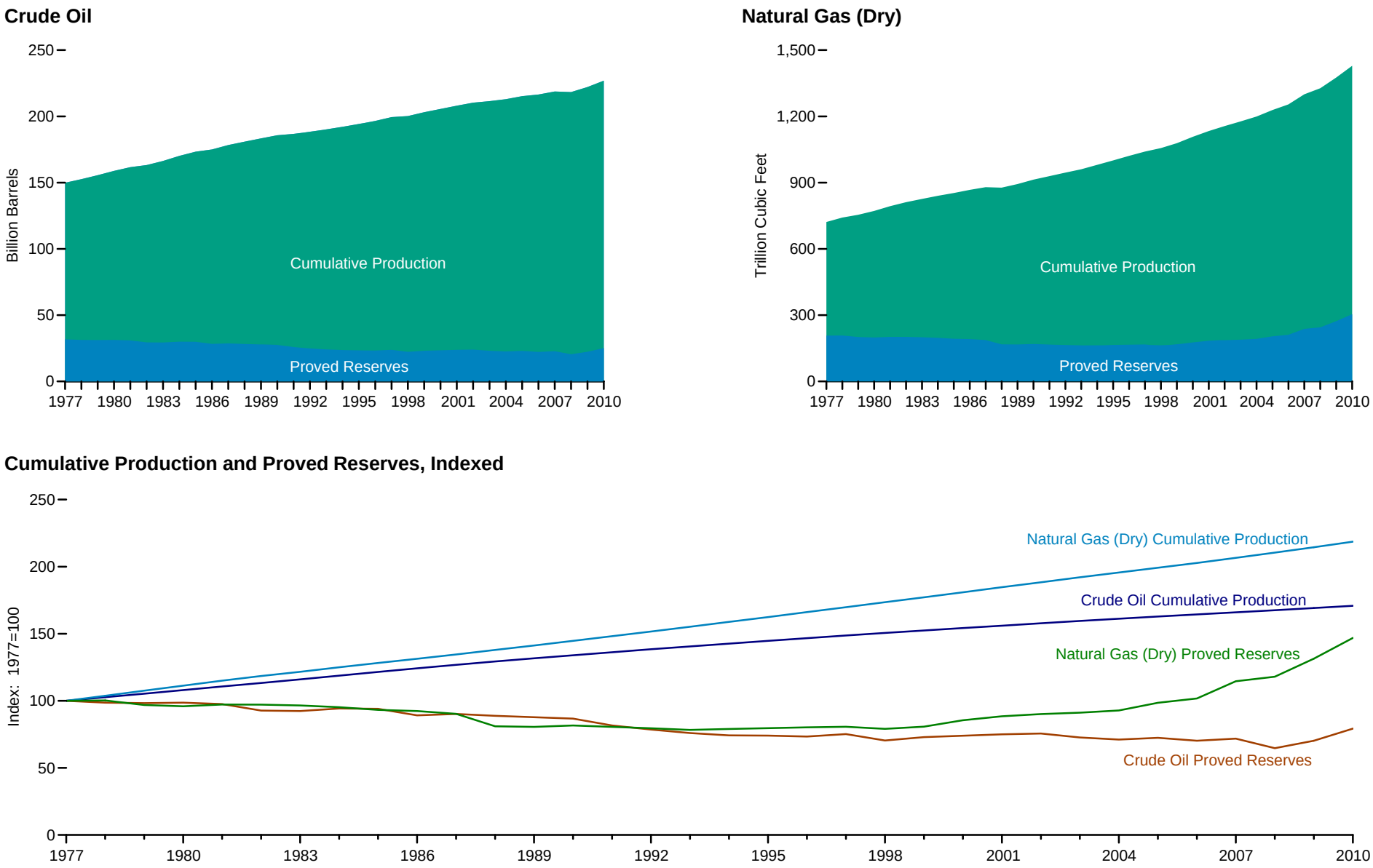
[9] See "Shale Gas" in Glossary.

[10] See "Coalbed Methane" in Glossary.

Notes: • See Tables 4.2 and 4.3 for more recent proved reserves data. • Data are at end of year. • Resources in areas where drilling is officially prohibited are not included. Estimates of the resources in the Northern Atlantic, Northern and Central Pacific, and within a 50-mile buffer off the Mid and Southern Atlantic Outer Continental Shelf (OCS) are also excluded from the technically recoverable volumes. • Totals may not equal sum of components due to independent rounding.

Sources: **Proved Reserves:** U.S. Energy Information Administration (EIA), *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Proved Reserves, 2010* (August 2012). **Unproved Resources:** U.S. Geological Survey National Oil and Gas Resource Assessment Team, with adjustments made to the shale gas data by EIA, Office of Energy Analysis. **Total Technically Recoverable Resources:** Calculated as the sum of proved reserves and unproved resources.

Figure 4.2 Crude Oil and Natural Gas Cumulative Production and Proved Reserves, 1977-2010



Notes: • Data are at end of year. • Crude oil includes lease condensate.

Source: Table 4.2.

Table 4.2 Crude Oil and Natural Gas Cumulative Production and Proved Reserves, 1977-2010

Year	Crude Oil and Lease Condensate [1]		Natural Gas (Dry)	
	Cumulative Production	Proved Reserves [2]	Cumulative Production	Proved Reserves [3]
	Billion Barrels		Trillion Cubic Feet	
1977	118.1	31.8	514.4	207.4
1978	121.3	31.4	533.6	208.0
1979	124.4	31.2	553.2	201.0
1980	127.5	31.3	572.6	199.0
1981	130.7	31.0	591.8	201.7
1982	133.8	29.5	609.6	201.5
1983	137.0	29.3	625.7	200.2
1984	140.2	30.0	643.2	197.5
1985	143.5	29.9	659.6	193.4
1986	146.7	28.3	675.7	191.6
1987	149.7	28.7	692.3	187.2
1988	152.7	28.2	709.4	168.0
1989	155.5	27.9	726.7	167.1
1990	158.2	27.6	744.5	169.3
1991	160.9	25.9	762.2	167.1
1992	163.5	25.0	780.1	165.0
1993	166.0	24.1	798.2	162.4
1994	168.4	23.6	817.0	163.8
1995	170.8	23.5	835.6	165.1
1996	173.2	23.3	854.5	166.5
1997	175.6	23.9	873.4	167.2
1998	177.8	22.4	892.4	164.0
1999	180.0	23.2	911.2	167.4
2000	182.1	23.5	930.4	177.4
2001	184.2	23.8	950.0	183.5
2002	186.3	24.0	968.9	186.9
2003	188.4	23.1	988.0	189.0
2004	190.4	22.6	1,006.6	192.5
2005	192.3	23.0	1,024.7	204.4
2006	194.1	22.3	1,043.2	211.1
2007	196.0	22.8	1,062.4	237.7
2008	197.8	20.6	1,082.6	244.7
2009	199.8	22.3	1,103.2	272.5
2010	201.8	25.2	1,124.6	304.6

[1] Lease condensate is the portion of natural gas liquids that is separated from the wellhead gas stream at a lease or field separation facility.

[2] See "Proved Reserves, Crude Oil" and "Proved Reserves, Lease Condensate" in Glossary.

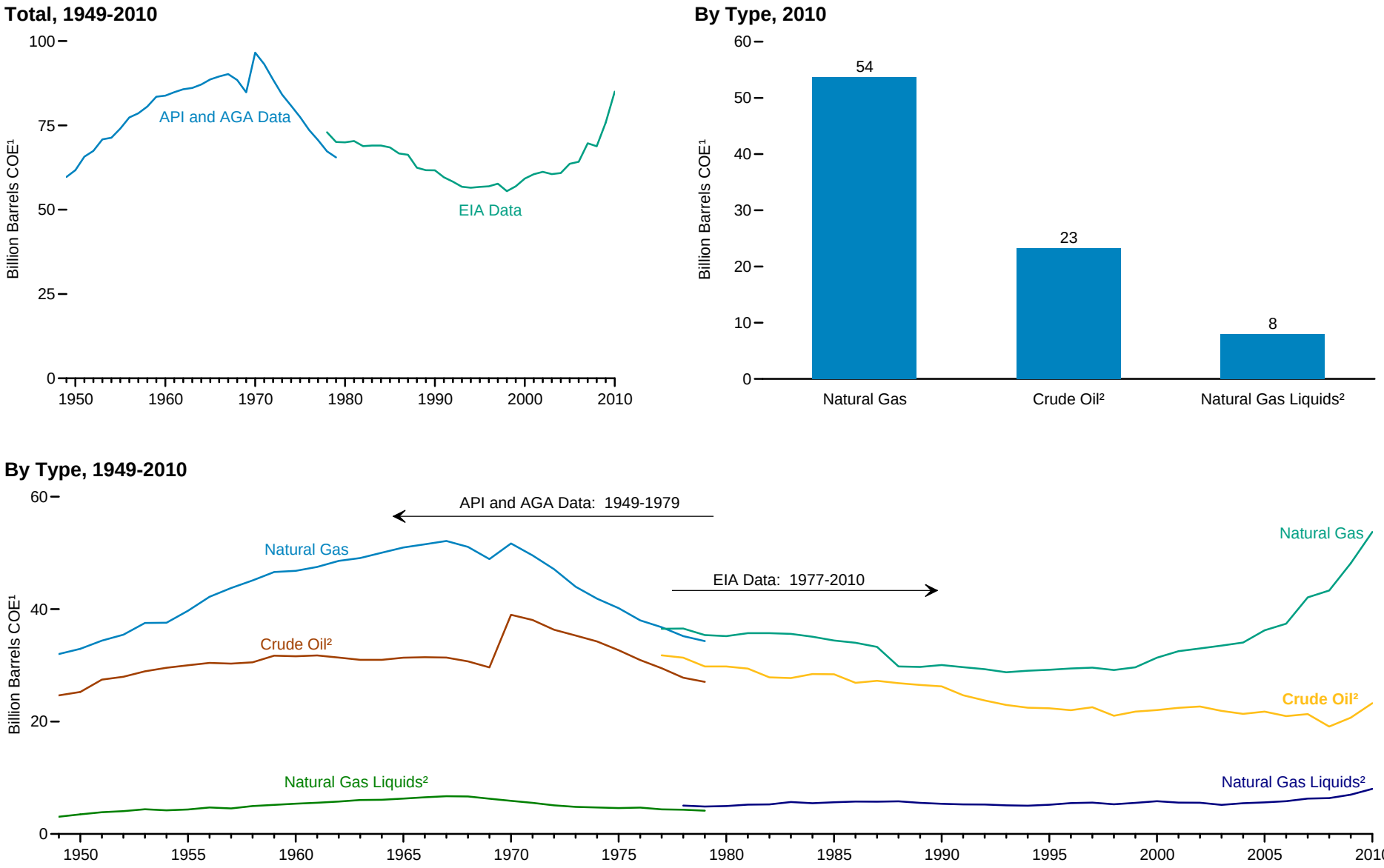
[3] See "Proved Reserves, Natural Gas" in Glossary.

Note: Data are at end of year.

Web Pages: See http://www.eia.gov/petroleum/ and http://www.eia.gov/naturalgas/ for related information.

Sources: **Cumulative Production:** Calculated from U.S. Energy Information Administration (EIA), *Petroleum Supply Annual,* annual reports and *Natural Gas Annual,* annual reports. **Proved Reserves:**
- 1977-2000—EIA, *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves,* annual reports.
- 2001-2010—EIA, *Summary: U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Proved Reserves 2010* (August 2012), Table 7.

Figure 4.3 Crude Oil, Natural Gas, and Natural Gas Liquids Proved Reserves



[1] COE=crude oil equivalent.

[2] To the extent that lease condensate is measured or estimated it is included in "Natural Gas Liquids"; otherwise, lease condensate is included in "Crude Oil."

Notes: • Data are at end of year. • API=American Petroleum Institute. AGA=American Gas Association. EIA=U.S. Energy Information Administration.

Source: Table 4.3.

Table 4.3 Crude Oil, Natural Gas, and Natural Gas Liquids Proved Reserves, Selected Years, 1949-2010

Year	Crude Oil [1]	Natural Gas (Dry)		Natural Gas Liquids [1]		Total
	Billion Barrels	Trillion Cubic Feet [2]	Billion Barrels COE [3]	Billion Barrels	Billion Barrels COE [3]	Billion Barrels COE [3]
American Petroleum Institute and American Gas Association Data						
1949	24.6	179.4	32.0	3.7	3.1	59.7
1950	25.3	184.6	32.9	4.3	3.5	61.7
1955	30.0	222.5	39.7	5.4	4.4	74.1
1960	31.6	262.3	46.8	6.8	5.4	83.8
1965	31.4	286.5	51.0	8.0	6.3	88.6
1970	39.0	290.7	51.7	7.7	5.9	96.6
1971	38.1	278.8	49.6	7.3	5.5	93.2
1972	36.3	266.1	47.1	6.8	5.1	88.5
1973	35.3	250.0	44.0	6.5	4.8	84.1
1974	34.2	237.1	41.9	6.4	4.7	80.8
1975	32.7	228.2	40.2	6.3	4.6	77.5
1976	30.9	216.0	38.0	6.4	4.7	73.6
1977	29.5	208.9	36.8	6.0	4.4	70.6
1978	27.8	200.3	35.2	5.9	4.3	67.3
1979	27.1	194.9	34.3	5.7	4.1	65.5
U.S. Energy Information Administration Data						
1977	31.8	207.4	36.5	NA	NA	NA
1978	31.4	208.0	36.5	6.8	5.0	73.0
1979	29.8	201.0	35.4	6.6	4.9	70.1
1980	29.8	199.0	35.2	6.7	5.0	70.0
1981	29.4	201.7	35.7	7.1	5.2	70.4
1982	27.9	201.5	35.7	7.2	5.3	68.8
1983	27.7	200.2	35.6	7.9	5.7	69.0
1984	28.4	197.5	35.1	7.6	5.5	69.0
1985	28.4	193.4	34.4	7.9	5.6	68.5
1986	26.9	191.6	34.0	8.2	5.8	66.7
1987	27.3	187.2	33.3	8.1	5.8	66.3
1988	26.8	168.0	29.8	8.2	5.8	62.4
1989	26.5	167.1	29.7	7.8	5.5	61.7
1990	26.3	169.3	30.0	7.6	5.4	61.7
1991	24.7	167.1	29.7	7.5	5.3	59.6
1992	23.7	165.0	29.3	7.5	5.2	58.3
1993	23.0	162.4	28.8	7.2	5.1	56.8
1994	22.5	163.8	29.0	7.2	5.0	56.5
1995	22.4	165.1	29.2	7.4	5.2	56.8
1996	22.0	166.5	29.4	7.8	5.5	56.9
1997	22.5	167.2	29.6	8.0	5.6	57.7
1998	21.0	164.0	29.2	7.5	5.3	55.5
1999	21.8	167.4	29.6	7.9	5.5	56.9
2000	22.0	177.4	31.4	8.3	5.8	59.2
2001	22.4	183.5	32.5	8.0	5.6	60.5
2002	22.7	186.9	R33.0	8.0	5.6	R61.2
2003	21.9	189.0	33.5	7.5	5.2	60.6
2004	21.4	192.5	34.1	7.9	5.5	60.9
2005	21.8	204.4	36.2	8.2	5.6	63.6
2006	21.0	211.1	37.4	8.5	5.8	64.2
2007	21.3	237.7	R42.1	9.1	6.3	R69.7
2008	19.1	244.7	43.3	9.3	6.4	68.8
2009	20.7	272.5	48.2	10.2	7.0	75.8
2010	23.3	304.6	53.7	11.7	8.0	85.0

[1] To the extent that lease condensate is measured or estimated it is included in "Natural Gas Liquids"; otherwise, lease condensate is included in "Crude Oil."

[2] The American Gas Association estimates of natural gas proved reserves include volumes of natural gas held in underground storage. In 1979, this volume amounted to 4.9 trillion cubic feet. U.S. Energy Information Administration (EIA) data do not include natural gas in underground storage.

[3] Natural gas is converted to crude oil equivalent (COE) by multiplying by the natural gas dry production approximate heat content (see Table A4) and then dividing by the crude oil production approximate heat content (see Table A2). The lease condensate portion of natural gas liquids is converted to COE by multiplying by the lease condensate production approximate heat content (5.5 million Btu per barrel) and then dividing by the crude oil production approximate heat content. Other natural gas liquids are converted to COE by multiplying by the natural gas plant liquids production approximate heat content (see Table A2) and then dividing by the crude oil production approximate heat content.

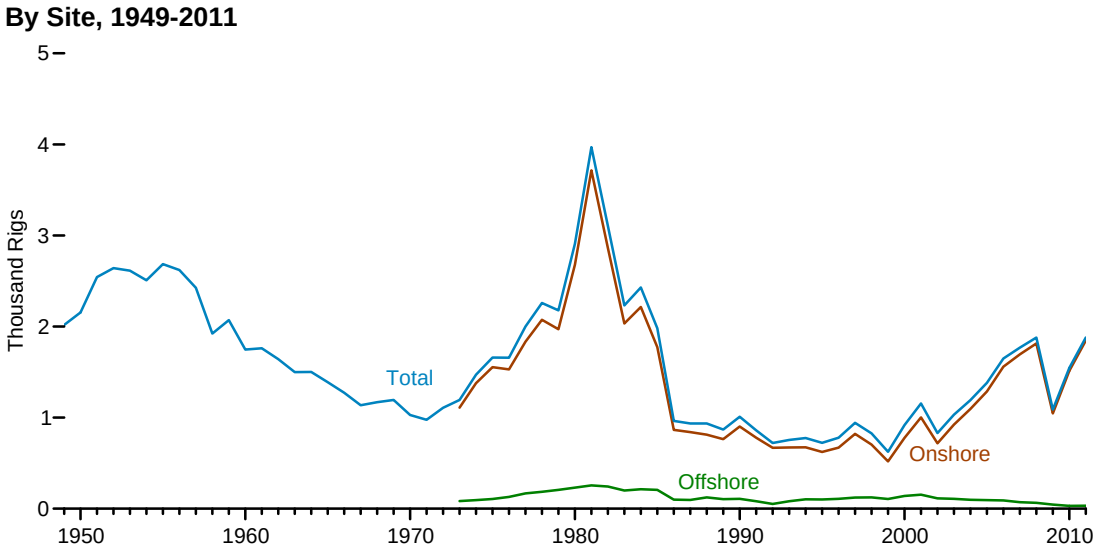
R=Revised. NA=Not available.

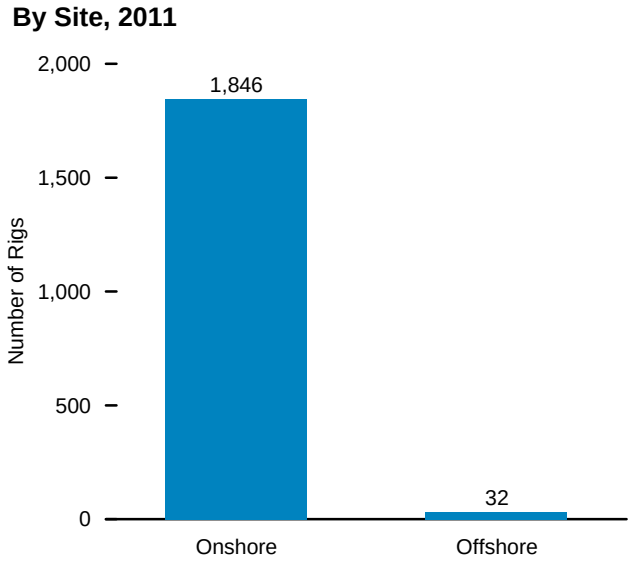
Notes: • Data are at end of year. • See "Proved Reserves, Crude Oil," "Proved Reserves, Natural Gas," and "Proved Reserves, Natural Gas Liquids" in Glossary.

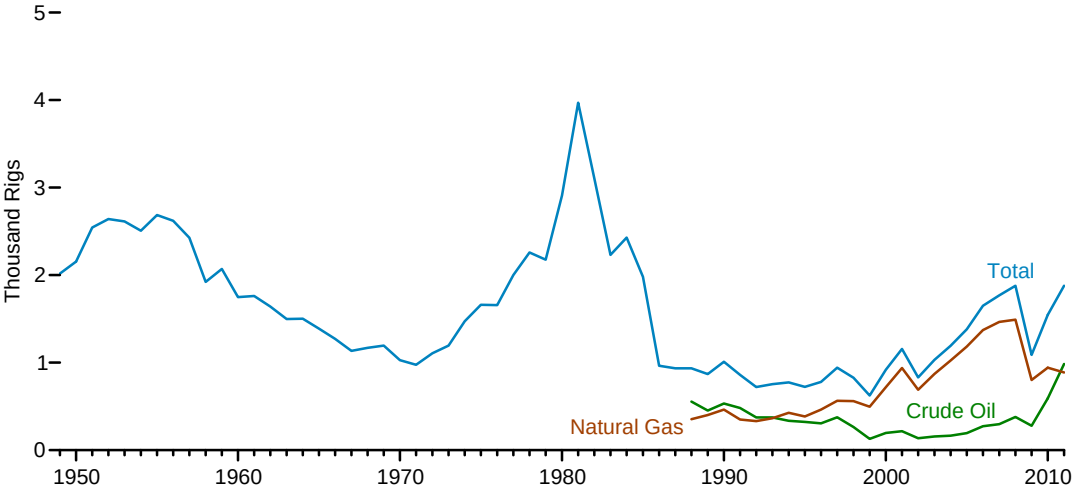
Web Pages: • See http://www.eia.gov/totalenergy/data/annual/#resources for all data beginning in 1949. • For related information, see http://www.eia.gov/petroleum/.

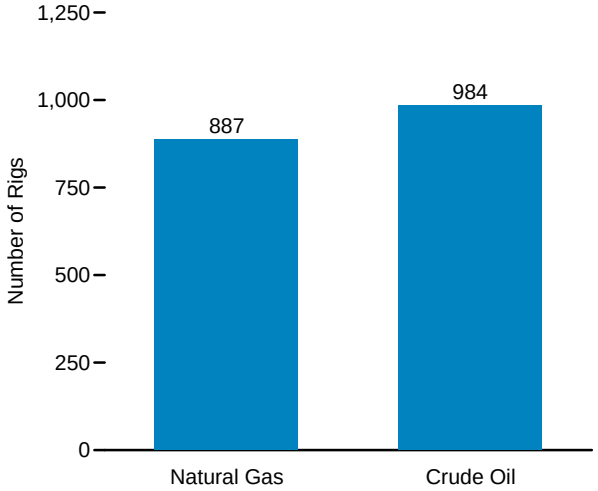
Sources: **American Petroleum Institute and American Gas Association Data:** American Petroleum Institute, American Gas Association, and Canadian Petroleum Association (published jointly), *Reserves of Crude Oil, Natural Gas Liquids and Natural Gas in the United States and Canada as of December 31, 1979,* Volume 34 (June 1980). **U.S. Energy Information Administration Data:** • 1977-2008—EIA, *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves,* annual reports. • 2009 and 2010—EIA, *Summary: U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves 2010* (August 2012), Tables 7 and 17.

Figure 4.4 Crude Oil and Natural Gas Rotary Rigs in Operation









[1] Rigs drilling for miscellaneous purposes, such as service wells, injection wells, and stratigraphic tests, are not shown.

Source: Table 4.4.

Table 4.4 Crude Oil and Natural Gas Rotary Rigs in Operation, Selected Years, 1949-2011

(Number of Rigs)

Year	By Site		By Type		Total [1]
	Onshore	Offshore	Crude Oil	Natural Gas	
1949	NA	NA	NA	NA	2,017
1950	NA	NA	NA	NA	2,154
1955	NA	NA	NA	NA	2,686
1960	NA	NA	NA	NA	1,748
1965	NA	NA	NA	NA	1,388
1970	NA	NA	NA	NA	1,028
1975	1,554	106	NA	NA	1,660
1976	1,529	129	NA	NA	1,658
1977	1,834	167	NA	NA	2,001
1978	2,074	185	NA	NA	2,259
1979	1,970	207	NA	NA	2,177
1980	2,678	231	NA	NA	2,909
1981	3,714	256	NA	NA	3,970
1982	2,862	243	NA	NA	3,105
1983	2,033	199	NA	NA	2,232
1984	2,215	213	NA	NA	2,428
1985	1,774	206	NA	NA	1,980
1986	865	99	NA	NA	964
1987	841	95	NA	NA	936
1988	813	123	554	354	936
1989	764	105	453	401	869
1990	902	108	532	464	1,010
1991	779	81	482	351	860
1992	669	52	373	331	721
1993	672	82	373	364	754
1994	673	102	335	427	775
1995	622	101	323	385	723
1996	671	108	306	464	779
1997	821	122	376	564	943
1998	703	123	264	560	827
1999	519	106	128	496	625
2000	778	140	197	720	918
2001	1,003	153	217	939	1,156
2002	717	113	137	691	830
2003	924	108	157	872	1,032
2004	1,095	97	165	1,025	1,192
2005	1,287	94	194	1,184	1,381
2006	1,559	90	274	1,372	1,649
2007	1,695	72	297	1,466	1,768
2008	1,814	65	379	1,491	1,879
2009	1,046	44	278	801	1,089
2010	1,514	31	591	943	1,546
2011	1,846	32	984	887	1,879

[1] Sum of rigs drilling for crude oil, rigs drilling for natural gas, and other rigs (not shown) drilling for miscellaneous purposes, such as service wells, injection wells, and stratigraphic tests.

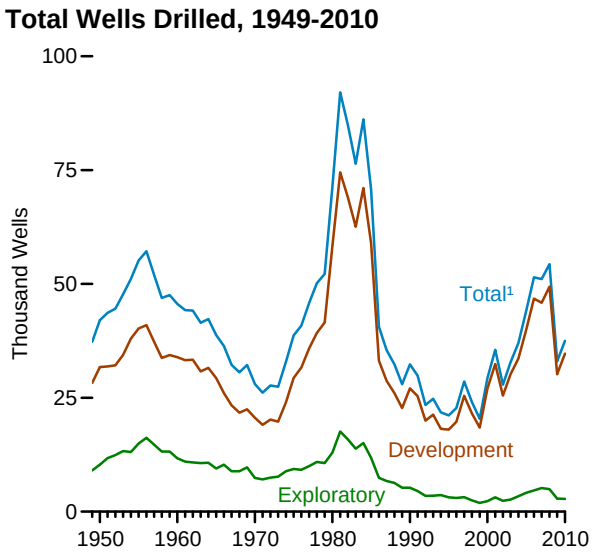
NA=Not available.

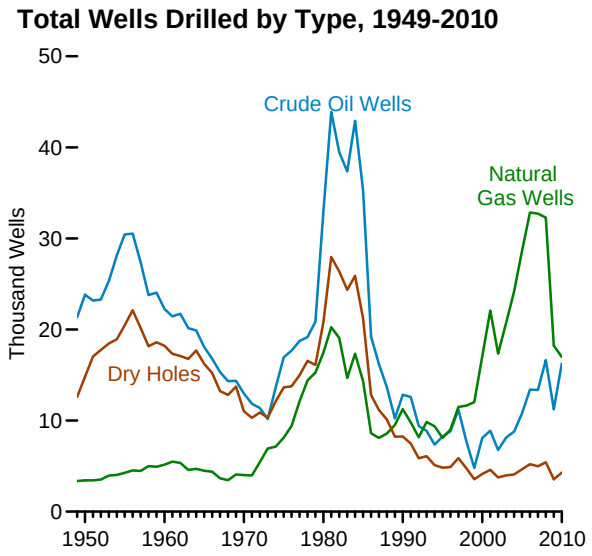
Notes: • Data are not for the exact calendar year but are an average for the 52 or 53 consecutive whole weeks that most nearly coincide with the calendar year. • Geographic coverage is the 50 States and the District of Columbia. • Totals may not equal sum of components due to independent rounding.

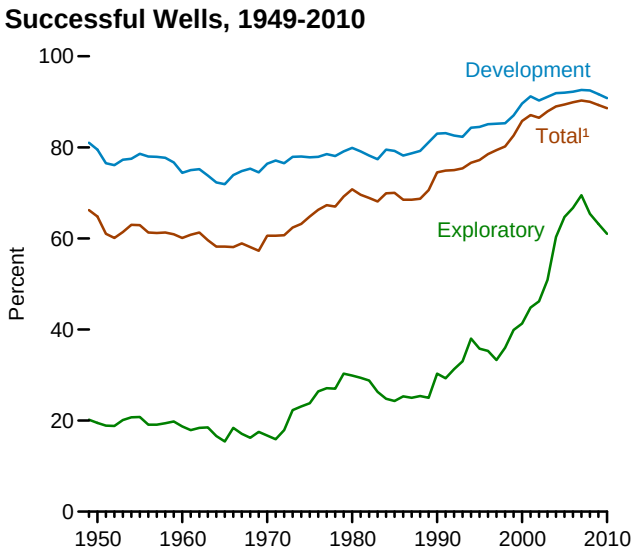
Web Pages: • See http://www.eia.gov/totalenergy/data/monthly/#crude for updated monthly and annual data. • See http://www.eia.gov/totalenergy/data/annual/#resources for all annual data beginning in 1949.

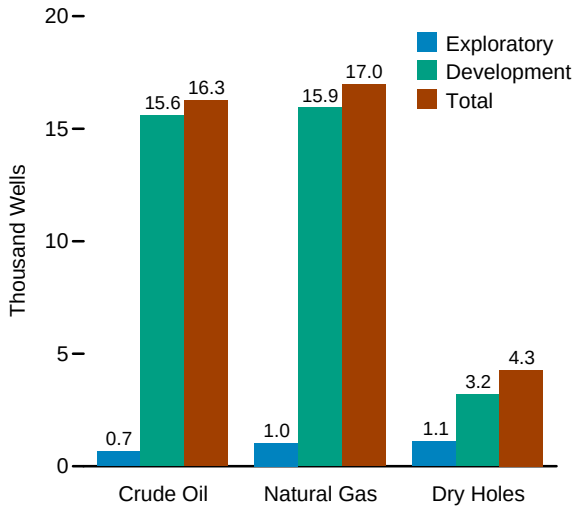
Source: Baker Hughes, Inc., Houston, TX, *Rotary Rigs Running—By State,* used with permission. See http://investor.shareholder.com/bhi/rig_counts/rc_index.cfm.

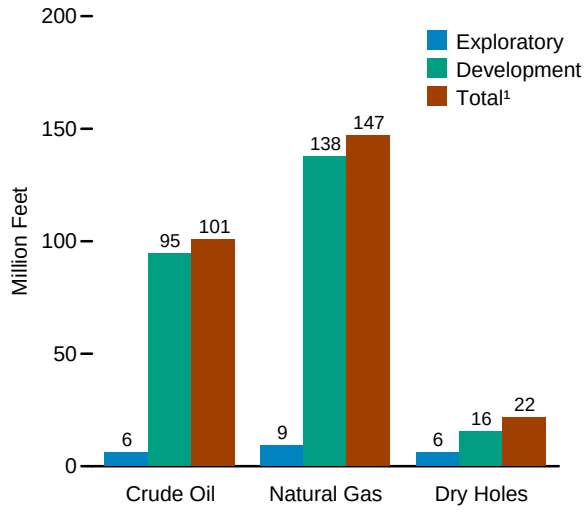
Figure 4.5 Crude Oil and Natural Gas Exploratory and Development Wells

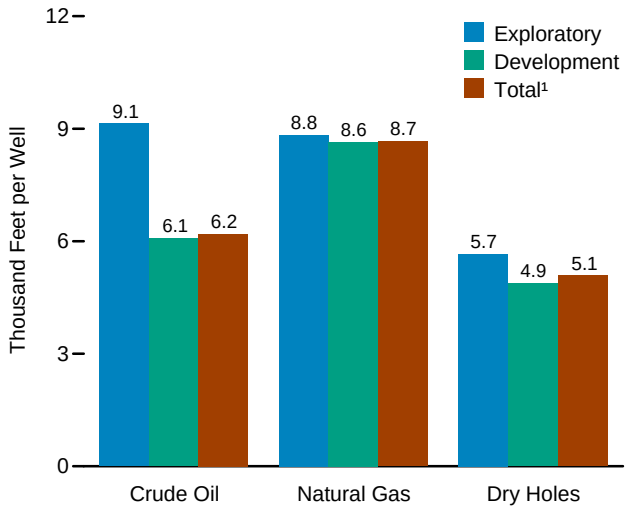












[1] Data are for exploratory and development wells combined.

Sources: Tables 4.5–4.7.

Table 4.5 Crude Oil and Natural Gas Exploratory and Development Wells, Selected Years, 1949-2010

	Wells Drilled				Successful Wells	Footage Drilled [1]				Average Footage Drilled			
	Crude Oil [2]	Natural Gas [3]	Dry Holes [4]	Total		Crude Oil [2]	Natural Gas [3]	Dry Holes [4]	Total	Crude Oil [2]	Natural Gas [3]	Dry Holes [4]	Total
Year	Number				Percent	Thousand Feet				Feet per Well			
1949	21,352	3,363	12,597	37,312	66.2	79,428	12,437	43,754	135,619	3,720	3,698	3,473	3,635
1950	23,812	3,439	14,799	42,050	64.8	92,695	13,685	50,977	157,358	3,893	3,979	3,445	3,742
1955	30,432	4,266	20,452	55,150	62.9	121,148	19,930	85,103	226,182	3,981	4,672	4,161	4,101
1960	22,258	5,149	18,212	45,619	60.1	86,568	28,246	77,361	192,176	3,889	5,486	4,248	4,213
1965	18,065	4,482	16,226	38,773	58.2	73,322	24,931	76,629	174,882	4,059	5,562	4,723	4,510
1970	12,968	4,011	11,031	28,010	60.6	56,859	23,623	58,074	138,556	4,385	5,860	5,265	4,943
1975	16,948	8,127	13,646	38,721	64.8	66,819	44,454	69,220	180,494	3,943	5,470	5,073	4,661
1976	17,688	9,409	13,758	40,855	66.3	68,892	49,113	68,977	186,982	3,895	5,220	5,014	4,577
1977	18,745	12,122	14,985	45,852	67.3	75,451	63,686	76,728	215,866	4,025	5,254	5,120	4,708
1978	19,181	14,413	16,551	50,145	67.0	77,041	75,841	85,788	238,669	4,017	5,262	5,183	4,760
1979	20,851	15,254	16,099	52,204	69.2	82,688	80,468	81,642	244,798	3,966	5,275	5,071	4,689
1980	32,959	17,461	20,785	71,205	70.8	125,262	92,106	99,575	316,943	3,801	5,275	4,791	4,451
1981	43,887	20,250	27,953	92,090	69.6	172,167	108,353	134,934	415,454	3,923	5,351	4,827	4,511
1982	39,459	19,076	26,379	84,914	68.9	149,674	107,149	123,746	380,569	3,793	5,617	4,691	4,482
1983	37,366	14,684	24,355	76,405	68.1	136,849	78,108	105,222	320,179	3,662	5,319	4,320	4,191
1984	42,906	17,338	25,884	86,128	69.9	162,653	91,480	119,860	373,993	3,791	5,276	4,631	4,342
1985	35,261	14,324	21,211	70,796	70.0	137,728	76,293	100,388	314,409	3,906	5,326	4,733	4,441
1986	19,213	8,599	12,799	40,611	68.5	76,825	45,039	60,961	182,825	3,999	5,238	4,763	4,502
1987	16,210	8,096	11,167	35,473	68.5	66,358	42,584	53,588	162,530	4,094	5,260	4,799	4,582
1988	13,646	8,578	10,119	32,343	68.7	58,639	45,363	52,517	156,519	4,297	5,288	5,190	4,839
1989	10,230	9,522	8,236	27,988	70.6	43,266	49,081	42,099	134,446	4,229	5,154	5,112	4,804
1990	12,839	11,246	8,245	32,330	74.5	R56,591	R57,028	R42,433	R156,052	R4,408	R5,071	R5,147	R4,827
1991	12,588	9,793	7,481	29,862	74.9	R56,196	R51,032	R37,750	R144,978	R4,464	R5,211	R5,046	R4,855
1992	9,402	8,163	5,862	23,427	75.0	R45,748	R44,727	R29,451	R119,926	R4,866	R5,479	R5,024	R5,119
1993	8,856	9,839	6,096	24,791	75.4	R44,236	R58,240	R31,018	R133,494	R4,995	R5,919	R5,088	R5,385
1994	7,348	9,375	5,096	21,819	76.6	R38,620	R58,340	R27,771	R124,731	R5,256	R6,223	R5,450	R5,717
1995	8,248	8,082	4,814	21,144	77.2	R41,076	R49,746	R26,349	R117,171	R4,980	R6,155	R5,473	R5,542
1996	8,836	9,027	4,890	22,753	78.5	R42,472	R56,042	R27,851	R126,365	R4,807	R6,208	R5,696	R5,554
1997	11,206	11,498	5,874	28,578	79.4	R56,371	R71,270	R33,640	R161,281	R5,030	R6,198	R5,727	R5,644
1998	7,682	11,639	4,761	24,082	80.2	R38,579	R70,099	R28,540	R137,218	R5,022	R6,023	R5,995	R5,698
1999	4,805	12,027	3,550	20,382	82.6	R22,024	R60,217	R20,608	R102,849	4,584	R5,007	R5,805	R5,046
2000	8,090	17,051	4,146	29,287	85.8	R36,745	R83,618	R24,076	R144,439	R4,542	R4,904	R5,807	R4,932
2001	8,888	22,072	4,598	35,558	87.1	R43,172	R110,734	R26,221	R180,127	R4,857	R5,017	R5,703	R5,066
2002	6,775	17,342	3,754	27,871	86.5	R30,892	R93,041	R21,232	R145,165	R4,560	R5,365	R5,656	R5,208
2003	8,129	20,722	3,982	32,833	87.9	R38,588	R115,916	R22,744	R177,248	R4,747	R5,594	R5,712	R5,398
2004	8,789	24,186	4,082	37,057	89.0	R42,109	R138,449	R23,714	R204,272	R4,791	R5,724	R5,809	R5,512
2005	10,779	R28,590	4,653	R44,022	89.4	R51,449	R163,820	R25,044	R240,313	R4,773	R5,730	R5,382	R5,459
2006	R13,404	R32,838	R5,206	R51,448	89.9	R63,340	R191,646	R27,778	R282,764	R4,725	R5,836	R5,336	R5,496
2007	R13,361	R32,719	R4,978	R51,058	90.3	R64,792	R208,907	R27,754	R301,453	R4,849	R6,385	R5,575	R5,904
2008	R16,645	R32,274	R5,428	R54,347	R90.0	R82,646	R223,224	R28,572	R334,442	R4,965	R6,917	R5,264	R6,154
2009	R11,261	R18,234	R3,552	R33,047	R89.3	R62,771	R156,200	R20,520	R239,491	R5,574	R8,566	R5,777	R7,247
2010	R16,254	R16,973	R4,277	R37,504	R88.6	R100,682	R146,973	R21,719	R269,374	R6,194	R8,659	R5,078	R7,183

[1] See "Footage Drilled" in Glossary.
[2] See "Crude Oil Well" in Glossary.
[3] See "Natural Gas Well" in Glossary.
[4] See "Dry Hole" in Glossary.
R=Revised.

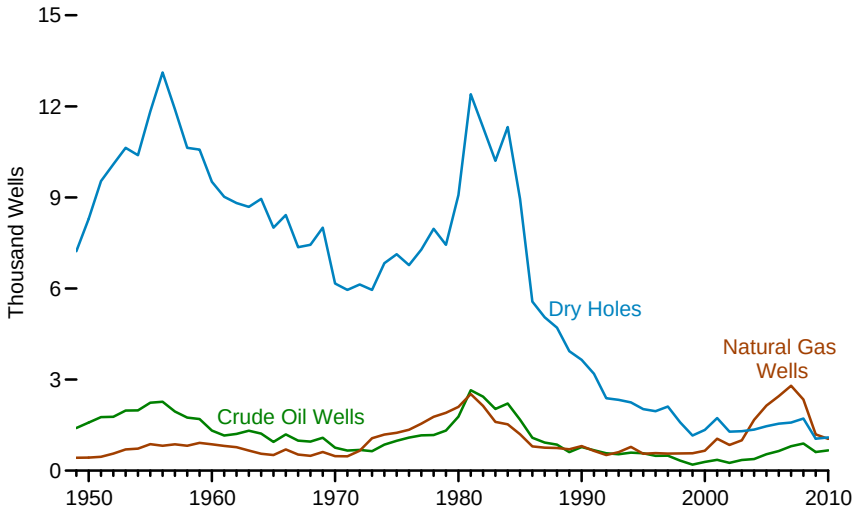
Notes: • 2011 data for this table were not available in time for publication. • Data are estimates. • Data are for exploratory and development wells combined; see Table 4.6 for exploratory wells only, and Table 4.7 for development wells only. • Service wells, stratigraphic tests, and core tests are excluded. • For 1949–1959, data represent wells completed in a given year. For 1960–1969, data are for well completion reports received by the American Petroleum Institute during the reporting year. For 1970 forward, the data represent wells completed in a given year. The as-received well completion data for recent years are incomplete due to delays in the reporting of wells drilled. The U.S. Energy Information Administration (EIA) therefore statistically imputes the missing data. • Totals may not equal sum of components due to independent rounding. Average depth may not equal average of components due to independent rounding.

Web Pages: • See http://www.eia.gov/totalenergy/data/monthly/#crude for updated monthly and annual data. • See http://www.eia.gov/totalenergy/data/annual/#resources for all annual data beginning in 1949. • See http://www.eia.gov/petroleum/ for related information.

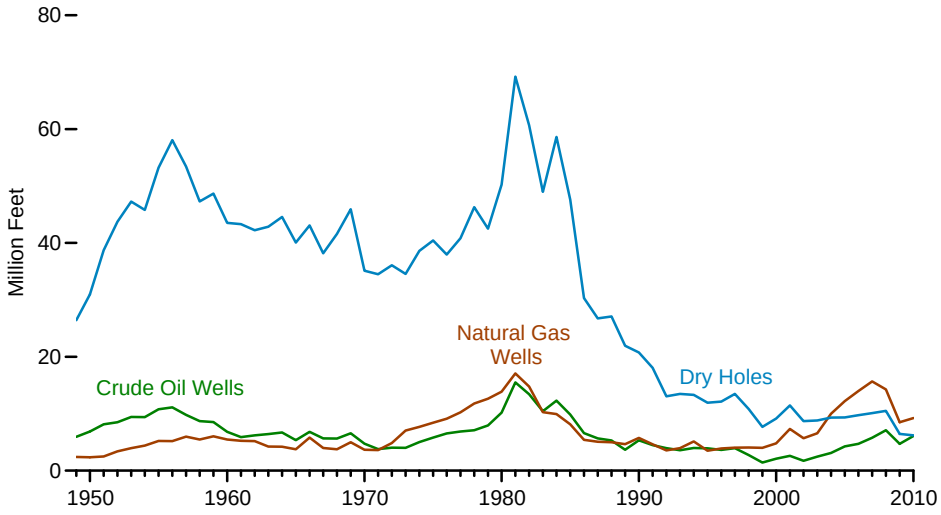
Sources: • 1949-1965—Gulf Publishing Company, *World Oil,* "Forecast-Review" issue. • 1966-1969—American Petroleum Institute (API), *Quarterly Review of Drilling Statistics for the United States,* annual summaries and monthly reports. • 1970-1989—EIA computations based on well reports submitted to the API. • 1990 forward—EIA computations based on well reports submitted to IHS, Inc., Denver, CO.

Figure 4.6 Crude Oil and Natural Gas Exploratory Wells, 1949-2010

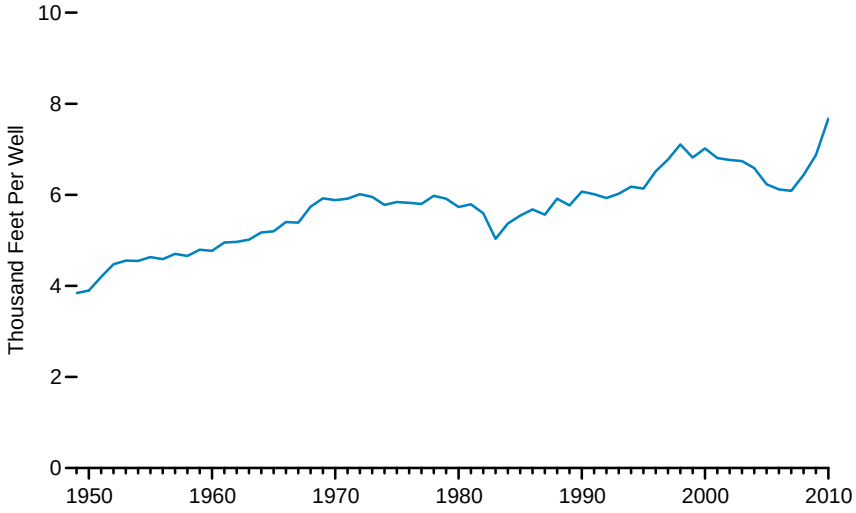
Exploratory Wells Drilled by Well Type



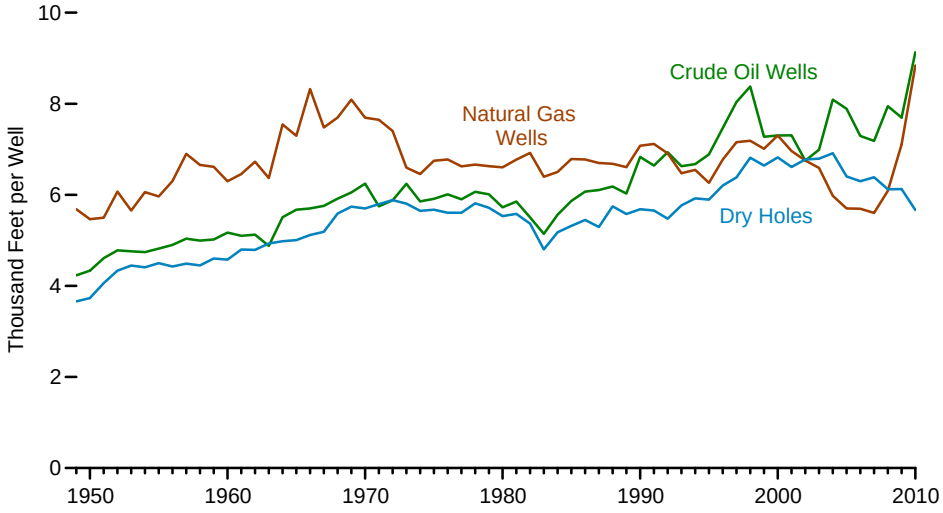
Exploratory Footage Drilled by Well Type



Exploratory Wells Average Depth, All Wells



Exploratory Wells Average Depth by Well Type



Note: These graphs depict exploratory wells only; see Figure 4.5 for all wells and Figure 4.7 for development wells only.

Source: Table 4.6.

Table 4.6 Crude Oil and Natural Gas Exploratory Wells, Selected Years, 1949-2010

Year	Wells Drilled				Successful Wells	Footage Drilled [1]				Average Footage Drilled			
	Crude Oil [2]	Natural Gas [3]	Dry Holes [4]	Total		Crude Oil [2]	Natural Gas [3]	Dry Holes [4]	Total	Crude Oil [2]	Natural Gas [3]	Dry Holes [4]	Total
	Number				Percent	Thousand Feet				Feet per Well			
1949	1,406	424	7,228	9,058	20.2	5,950	2,409	26,439	34,798	4,232	5,682	3,658	3,842
1950	1,583	431	8,292	10,306	19.5	6,862	2,356	30,957	40,175	4,335	5,466	3,733	3,898
1955	2,236	874	11,832	14,942	20.8	10,774	5,212	53,220	69,206	4,819	5,964	4,498	4,632
1960	1,321	868	9,515	11,704	18.7	6,829	5,466	43,535	55,831	5,170	6,298	4,575	4,770
1965	946	515	8,005	9,466	15.4	5,366	3,757	40,081	49,204	5,672	7,295	5,007	5,198
1970	757	477	6,162	7,396	16.7	4,729	3,678	35,123	43,530	6,247	7,695	5,700	5,885
1975	982	1,248	7,129	9,359	23.8	5,806	8,422	40,448	54,677	5,913	6,748	5,674	5,842
1976	1,086	1,346	6,772	9,204	26.4	6,527	9,121	37,969	53,617	6,010	6,777	5,607	5,825
1977	1,164	1,548	7,283	9,995	27.1	6,870	10,255	40,823	57,949	5,902	6,625	5,605	5,798
1978	1,171	1,771	7,965	10,907	27.0	7,105	11,798	46,295	65,197	6,067	6,662	5,812	5,978
1979	1,321	1,907	7,437	10,665	30.3	7,941	12,643	42,512	63,096	6,011	6,630	5,716	5,916
1980	1,777	2,099	9,081	12,957	29.9	10,177	13,862	50,249	74,288	5,727	6,604	5,533	5,733
1981	2,651	2,522	12,400	17,573	29.4	15,515	17,079	69,214	101,808	5,853	6,772	5,582	5,793
1982	2,437	2,133	11,307	15,877	28.8	13,413	14,763	60,680	88,856	5,504	6,921	5,367	5,597
1983	2,030	1,605	10,206	13,841	26.3	10,437	10,264	48,989	69,690	5,141	6,395	4,800	5,035
1984	2,209	1,528	11,321	15,058	24.8	12,294	9,935	58,624	80,853	5,565	6,502	5,178	5,369
1985	1,680	1,200	8,954	11,834	24.3	9,854	8,144	47,604	65,602	5,865	6,787	5,317	5,544
1986	1,084	797	5,567	7,448	25.3	6,579	5,401	30,325	42,305	6,069	6,777	5,447	5,680
1987	926	756	5,052	6,734	25.0	5,652	5,064	26,746	37,462	6,104	6,698	5,294	5,563
1988	855	747	4,711	6,313	25.4	5,286	4,992	27,079	37,357	6,182	6,683	5,748	5,917
1989	607	706	3,934	5,247	25.0	3,659	4,664	21,947	30,270	6,028	6,606	5,579	5,769
1990	778	811	3,652	5,241	30.3	R5,316	R5,740	R20,761	R31,817	R6,833	R7,078	R5,685	R6,071
1991	673	649	3,191	4,513	29.3	4,470	R4,619	18,049	R27,138	6,642	R7,117	5,656	6,013
1992	571	513	2,384	3,468	31.3	R3,959	3,544	13,058	R20,561	R6,933	6,908	5,477	R5,929
1993	539	610	2,334	3,483	33.0	R3,572	R3,950	R13,465	R20,987	R6,627	R6,475	R5,769	R6,026
1994	595	782	2,247	3,624	38.0	3,971	R5,121	R13,306	R22,398	6,674	R6,549	5,922	R6,180
1995	570	558	2,024	3,152	35.8	R3,927	R3,494	R11,927	R19,348	R6,889	R6,262	5,893	R6,138
1996	489	576	1,956	3,021	35.3	R3,650	R3,902	12,137	R19,689	R7,464	R6,774	6,205	R6,517
1997	491	562	2,113	3,166	33.3	R3,946	R4,022	R13,485	R21,453	R8,037	R7,157	R6,382	R6,776
1998	327	566	1,590	2,483	36.0	2,740	R4,068	R10,836	R17,644	8,379	R7,187	R6,815	R7,106
1999	197	570	1,157	1,924	39.9	1,433	R3,997	7,687	R13,117	7,274	R7,012	6,644	R6,818
2000	288	657	1,341	2,286	41.3	2,103	R4,798	R9,147	R16,048	7,302	R7,303	R6,821	R7,020
2001	357	1,052	1,733	3,142	44.8	R2,608	R7,323	R11,458	R21,389	R7,305	R6,961	R6,612	R6,807
2002	258	844	1,282	2,384	46.2	R1,742	R5,701	R8,687	R16,130	R6,752	R6,755	R6,776	R6,766
2003	350	997	1,297	2,644	50.9	R2,446	R6,569	R8,810	R17,825	R6,989	R6,589	R6,793	R6,742
2004	383	1,671	1,350	3,404	60.3	R3,098	R9,988	R9,331	R22,417	R8,089	R5,977	R6,912	R6,585
2005	539	R2,141	1,462	R4,142	64.7	R4,252	R12,208	R9,359	R25,819	R7,889	R5,702	R6,402	R6,233
2006	R646	R2,456	R1,547	R4,649	R66.7	R4,710	R13,987	R9,745	R28,442	R7,291	R5,695	R6,299	R6,118
2007	R806	R2,794	R1,582	R5,182	R69.5	R5,790	R15,658	R10,102	R31,550	R7,184	R5,604	R6,386	R6,088
2008	R892	R2,345	R1,715	R4,952	R65.4	R7,088	R14,276	R10,500	R31,864	R7,946	R6,088	R6,122	R6,435
2009	R612	R1,196	R1,052	R2,860	R63.2	R4,711	R8,499	R6,443	R19,653	R7,698	R7,106	R6,125	R6,872
2010	R668	R1,044	R1,093	R2,805	R61.0	R6,099	R9,226	R6,192	R21,517	R9,130	R8,837	R5,665	R7,671

[1] See "Footage Drilled" in Glossary.
[2] See "Crude Oil Well" in Glossary.
[3] See "Natural Gas Well" in Glossary.
[4] See "Dry Hole" in Glossary.
R=Revised.

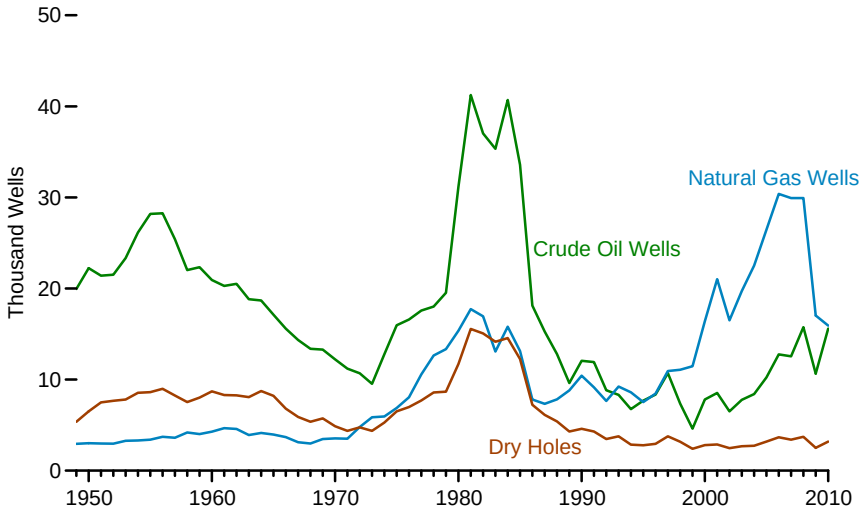
Notes: • 2011 data for this table were not available in time for publication. • Data are estimates. • Data are for exploratory wells only; see Table 4.5 for exploratory and development wells combined, and Table 4.7 for development wells only. • For 1949–1959, data represent wells completed in a given year. For 1960–1969, data are for well completion reports received by the American Petroleum Institute (API) during the reporting year. For 1970 forward, the data represent wells completed in a given year. The as-received well completion data for recent years are incomplete due to delays in the reporting of wells drilled. The U.S. Energy Information Administration (EIA) therefore statistically imputes the missing data. • Totals may not equal sum of components due to independent rounding. Average depth may not equal average of components due to independent rounding.

Web Pages: • See http://www.eia.gov/totalenergy/data/monthly/#crude for updated monthly and annual data. • See http://www.eia.gov/totalenergy/data/annual/#resources for all annual data beginning in 1949. • See http://www.eia.gov/petroleum/ for related information.

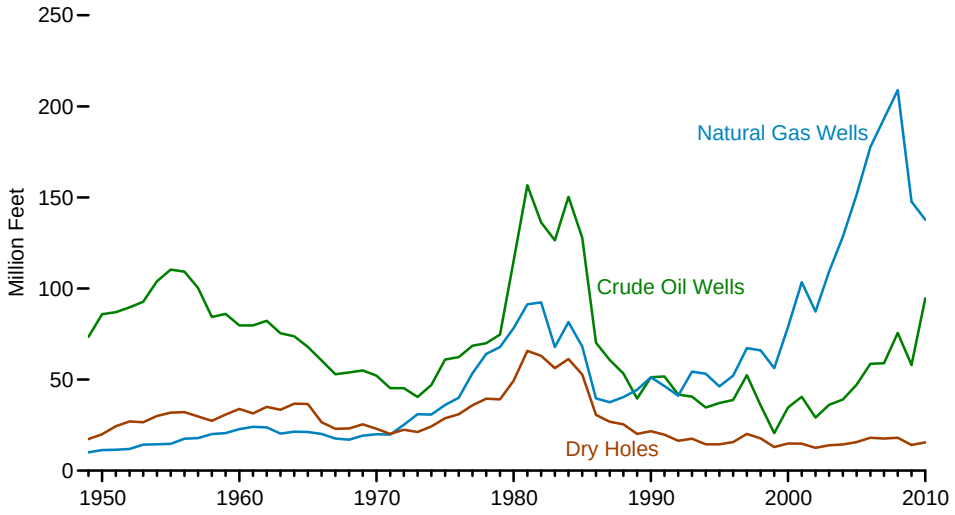
Sources: • 1949-1965—Gulf Publishing Company, *World Oil,* "Forecast-Review" issue. • 1966-1969—American Petroleum Institute (API), *Quarterly Review of Drilling Statistics for the United States,* annual summaries and monthly reports. • 1970-1989—EIA computations based on well reports submitted to the API. • 1990 forward—EIA computations based on well reports submitted to IHS, Inc., Denver, CO.

Figure 4.7 Crude Oil and Natural Gas Development Wells, 1949-2010

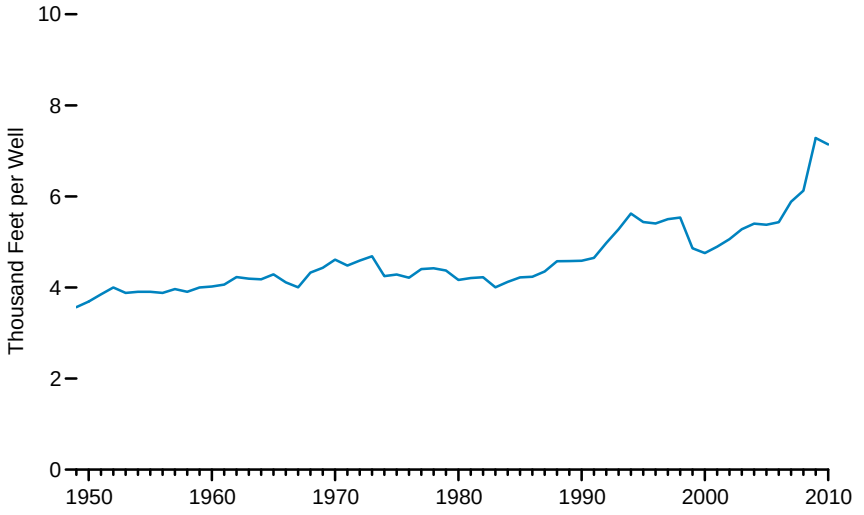
Development Wells Drilled by Well Type



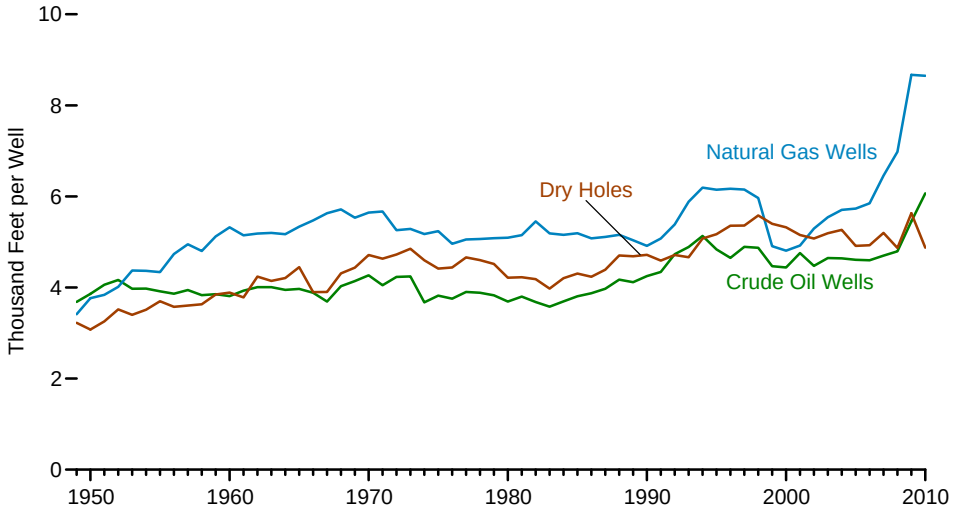
Development Footage Drilled by Well Type



Development Wells Average Depth, All Wells



Development Wells Average Depth by Well Type



Note: These graphs depict development wells only; see Figure 4.5 for all wells and Figure 4.6 for exploratory wells only.

Source: Table 4.7.

Table 4.7 Crude Oil and Natural Gas Development Wells, Selected Years, 1949-2010

Year	Wells Drilled				Successful Wells	Footage Drilled [1]				Average Footage Drilled			
	Crude Oil [2]	Natural Gas [3]	Dry Holes [4]	Total		Crude Oil [2]	Natural Gas [3]	Dry Holes [4]	Total	Crude Oil [2]	Natural Gas [3]	Dry Holes [4]	Total
	Number				Percent	Thousand Feet				Feet per Well			
1949	19,946	2,939	5,369	28,254	81.0	73,478	10,028	17,315	100,821	3,684	3,412	3,225	3,568
1950	22,229	3,008	6,507	31,744	79.5	85,833	11,329	20,020	117,183	3,861	3,766	3,077	3,691
1955	28,196	3,392	8,620	40,208	78.6	110,374	14,718	31,883	156,976	3,915	4,339	3,699	3,904
1960	20,937	4,281	8,697	33,915	74.4	79,739	22,780	33,826	136,345	3,809	5,321	3,889	4,020
1965	17,119	3,967	8,221	29,307	71.9	67,956	21,174	36,548	125,678	3,970	5,337	4,446	4,288
1970	12,211	3,534	4,869	20,614	76.4	52,130	19,945	22,951	95,026	4,269	5,644	4,714	4,610
1975	15,966	6,879	6,517	29,362	77.8	61,013	36,032	28,772	125,817	3,821	5,238	4,415	4,285
1976	16,602	8,063	6,986	31,651	77.9	62,365	39,992	31,008	133,365	3,756	4,960	4,439	4,214
1977	17,581	10,574	7,702	35,857	78.5	68,581	53,431	35,905	157,917	3,901	5,053	4,662	4,404
1978	18,010	12,642	8,586	39,238	78.1	69,936	64,043	39,493	173,472	3,883	5,066	4,600	4,421
1979	19,530	13,347	8,662	41,539	79.1	74,747	67,825	39,130	181,702	3,827	5,082	4,517	4,374
1980	31,182	15,362	11,704	58,248	79.9	115,085	78,244	49,326	242,655	3,691	5,093	4,214	4,166
1981	41,236	17,728	15,553	74,517	79.1	156,652	91,274	65,720	313,646	3,799	5,149	4,226	4,209
1982	37,022	16,943	15,072	69,037	78.2	136,261	92,386	63,066	291,713	3,681	5,453	4,184	4,225
1983	35,336	13,079	14,149	62,564	77.4	126,412	67,844	56,233	250,489	3,577	5,187	3,974	4,004
1984	40,697	15,810	14,563	71,070	79.5	150,359	81,545	61,236	293,140	3,695	5,158	4,205	4,125
1985	33,581	13,124	12,257	58,962	79.2	127,874	68,149	52,784	248,807	3,808	5,193	4,306	4,220
1986	18,129	7,802	7,232	33,163	78.2	70,246	39,638	30,636	140,520	3,875	5,080	4,236	4,237
1987	15,284	7,340	6,115	28,739	78.7	60,706	37,520	26,842	125,068	3,972	5,112	4,390	4,352
1988	12,791	7,831	5,408	26,030	79.2	53,353	40,371	25,438	119,162	4,171	5,155	4,704	4,578
1989	9,623	8,816	4,302	22,741	81.1	39,607	44,417	20,152	104,176	4,116	5,038	4,684	4,581
1990	12,061	10,435	4,593	27,089	83.0	R51,275	R51,288	R21,672	R124,235	R4,251	R4,915	R4,718	R4,586
1991	11,915	9,144	4,290	25,349	83.1	R51,726	R46,413	R19,701	R117,840	R4,341	R5,076	R4,592	R4,649
1992	8,831	7,650	3,478	19,959	82.6	R41,789	R41,183	R16,393	R99,365	R4,732	R5,383	R4,713	R4,978
1993	8,317	9,229	3,762	21,308	82.3	R40,664	R54,290	R17,553	R112,507	R4,889	R5,883	R4,666	R5,280
1994	6,753	8,593	2,849	18,195	84.3	R34,649	R53,219	R14,465	R102,333	R5,131	R6,193	R5,077	R5,624
1995	7,678	7,524	2,790	17,992	84.5	R37,149	R46,252	R14,422	R97,823	R4,838	R6,147	R5,169	R5,437
1996	8,347	8,451	2,934	19,732	85.1	R38,822	R52,140	R15,714	R106,676	R4,651	R6,170	R5,356	R5,406
1997	10,715	10,936	3,761	25,412	85.2	R52,425	R67,248	R20,155	R139,828	R4,893	R6,149	R5,359	R5,502
1998	7,355	11,073	3,171	21,599	85.3	R35,839	R66,031	R17,704	R119,574	R4,873	R5,963	R5,583	R5,536
1999	4,608	11,457	2,393	18,458	87.0	R20,591	R56,220	R12,921	R89,732	4,469	R4,907	R5,399	R4,861
2000	7,802	16,394	2,805	27,001	89.6	R34,642	R78,820	R14,929	R128,391	R4,440	R4,808	5,322	R4,755
2001	8,531	21,020	2,865	32,416	91.2	R40,564	R103,411	R14,763	R158,738	R4,755	R4,920	R5,153	R4,897
2002	6,517	16,498	2,472	25,487	90.3	R29,150	R87,340	R12,545	R129,035	R4,473	R5,294	R5,075	R5,063
2003	7,779	19,725	2,685	30,189	91.1	R36,142	R109,347	R13,934	R159,423	R4,646	R5,544	R5,190	R5,281
2004	8,406	22,515	2,732	33,653	91.9	R39,011	R128,461	R14,383	R181,855	R4,641	R5,706	R5,265	R5,404
2005	10,240	26,449	3,191	39,880	92.0	R47,197	R151,612	R15,685	R214,494	R4,609	R5,732	R4,915	R5,378
2006	R12,758	R30,382	R3,659	R46,799	92.2	R58,630	R177,659	R18,033	R254,322	R4,596	R5,848	R4,928	R5,434
2007	R12,555	R29,925	R3,396	R45,876	R92.6	R59,002	R193,249	R17,652	R269,903	R4,699	R6,458	R5,198	R5,883
2008	R15,753	R29,929	R3,713	R49,395	R92.5	R75,558	R208,948	R18,072	R302,578	R4,796	R6,981	R4,867	R6,126
2009	R10,649	R17,038	R2,500	R30,187	91.7	R58,060	R147,701	R14,077	R219,838	R5,452	R8,669	R5,631	R7,283
2010	R15,586	R15,929	R3,184	R34,699	R90.8	R94,583	R137,747	R15,527	R247,857	R6,068	R8,648	R4,877	R7,143

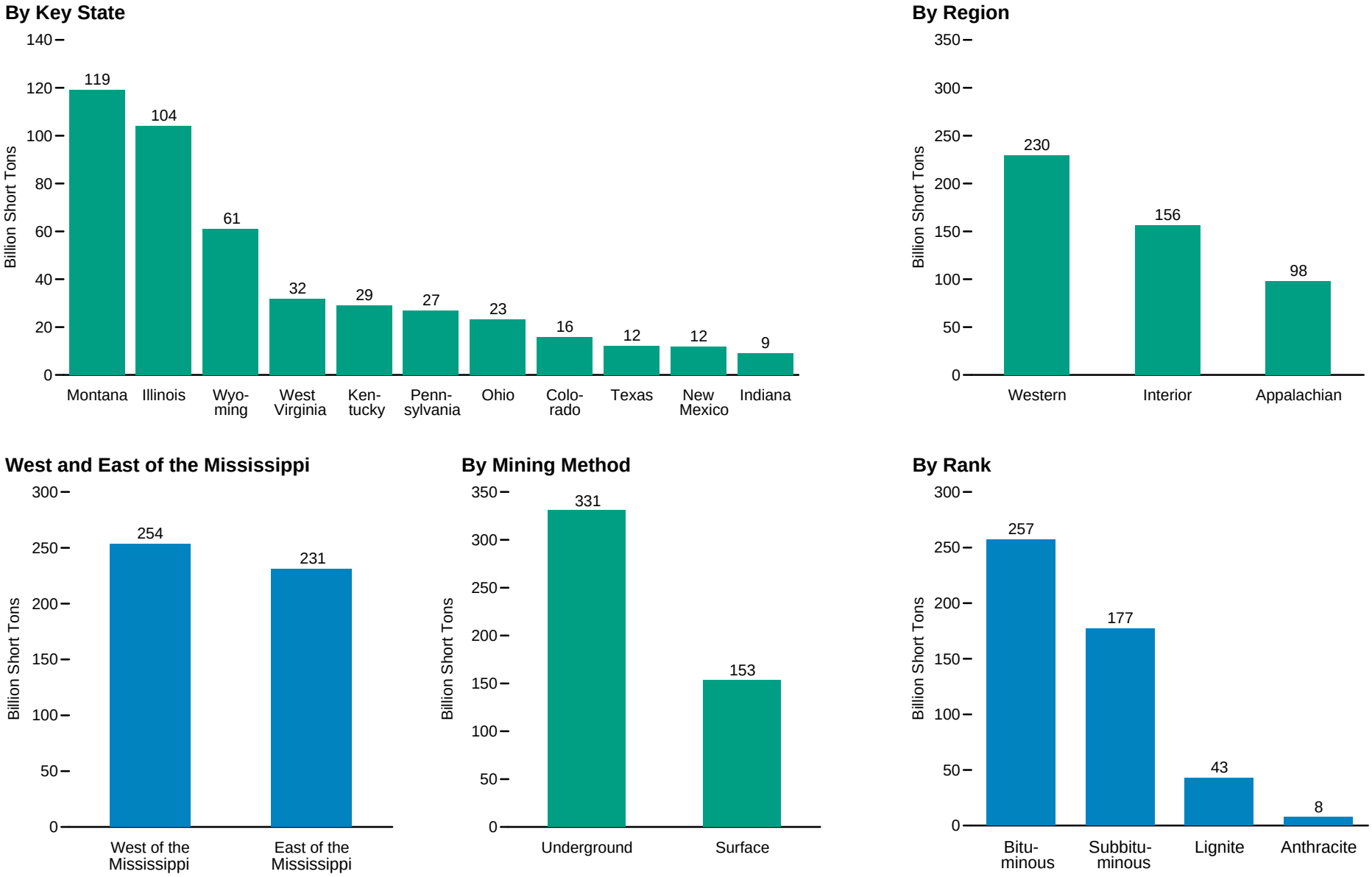
[1] See "Footage Drilled" in Glossary.
[2] See "Crude Oil Well" in Glossary.
[3] See "Natural Gas Well" in Glossary.
[4] See "Dry Hole" in Glossary.
R=Revised.

Notes: • 2011 data for this table were not available in time for publication. • Data are estimates. • Data are for development wells only; see Table 4.5 for exploratory and development wells combined, and Table 4.6 for exploratory wells only. • Service wells, stratigraphic tests, and core tests are excluded. • For 1949–1959, data represent wells completed in a given year. For 1960–1969, data are for well completion reports received by the American Petroleum Institute during the reporting year. For 1970 forward, the data represent wells completed in a given year. The as-received well completion data for recent years are incomplete due to delays in the reporting of wells drilled. The U.S. Energy Information Administration (EIA) therefore statistically imputes the missing data. • Totals may not equal sum of components due to independent rounding. Average depth may not equal average of components due to independent rounding.

Web Pages: • See http://www.eia.gov/totalenergy/data/monthly/#crude for updated monthly and annual data. • See http://www.eia.gov/totalenergy/data/annual/#resources for all annual data beginning in 1949. • See http://www.eia.gov/petroleum/ for related information.

Sources: • 1949-1965—Gulf Publishing Company, *World Oil,* "Forecast-Review" issue. • 1966-1969—American Petroleum Institute (API), *Quarterly Review of Drilling Statistics for the United States,* annual summaries and monthly reports. • 1970-1989—EIA computations based on well reports submitted to the API. • 1990 forward—EIA computations based on well reports submitted to IHS, Inc., Denver, CO.

Figure 4.8 Coal Demonstrated Reserve Base, January 1, 2011



Source: Table 4.8.

Table 4.8 Coal Demonstrated Reserve Base, January 1, 2011

(Billion Short Tons)

Region and State	Anthracite		Bituminous Coal		Subbituminous Coal		Lignite	Total		
	Underground	Surface	Underground	Surface	Underground	Surface	Surface [1]	Underground	Surface	Total
Appalachian	**4.0**	**3.3**	**68.2**	**21.9**	**0.0**	**0.0**	**1.1**	**72.1**	**26.3**	**98.4**
Alabama	.0	.0	.9	2.1	.0	.0	1.1	.9	3.1	4.0
Kentucky, Eastern	.0	.0	.8	9.1	.0	.0	.0	.8	9.1	9.8
Ohio	.0	.0	17.4	5.7	.0	.0	.0	17.4	5.7	23.1
Pennsylvania	3.8	3.3	18.9	.8	.0	.0	.0	22.7	4.2	26.9
Virginia	.1	.0	.9	.5	.0	.0	.0	1.0	.5	1.5
West Virginia	.0	.0	28.3	3.4	.0	.0	.0	28.3	3.4	31.7
Other [2]	.0	.0	1.1	.3	.0	.0	.0	1.1	.3	1.4
Interior	**.1**	**(s)**	**116.6**	**27.1**	**.0**	**.0**	**12.6**	**116.7**	**39.6**	**156.4**
Illinois	.0	.0	87.6	16.5	.0	.0	.0	87.6	16.5	104.2
Indiana	.0	.0	8.6	.6	.0	.0	.0	8.6	.6	9.2
Iowa	.0	.0	1.7	.5	.0	.0	.0	1.7	.5	2.2
Kentucky, Western	.0	.0	15.6	3.6	.0	.0	.0	15.6	3.6	19.2
Missouri	.0	.0	1.5	4.5	.0	.0	.0	1.5	4.5	6.0
Oklahoma	.0	.0	1.2	.3	.0	.0	.0	1.2	.3	1.5
Texas	.0	.0	.0	.0	.0	.0	12.1	.0	12.1	12.1
Other [3]	.1	(s)	.3	1.1	.0	.0	0.4	.4	1.5	1.9
Western	**(s)**	**.0**	**21.2**	**2.3**	**121.2**	**55.9**	**29.2**	**142.4**	**87.4**	**229.7**
Alaska	.0	.0	.6	.1	4.8	.6	(s)	5.4	.7	6.1
Colorado	(s)	.0	7.5	.6	3.7	.0	4.2	11.2	4.8	15.9
Montana	.0	.0	1.4	.0	69.6	32.3	15.8	70.9	48.0	119.0
New Mexico	(s)	.0	2.7	.9	3.4	5.0	.0	6.1	5.9	12.0
North Dakota	.0	.0	.0	.0	.0	.0	8.9	.0	8.9	8.9
Utah	.0	.0	4.9	.3	(s)	.0	.0	4.9	.3	5.2
Washington	.0	.0	.3	.0	1.0	.0	(s)	1.3	(s)	1.3
Wyoming	.0	.0	3.8	.5	38.6	18.1	.0	42.5	18.5	61.0
Other [4]	.0	.0	(s)	.0	(s)	(s)	.4	(s)	.4	.4
U.S. Total	**4.1**	**3.4**	**206.0**	**51.2**	**121.1**	**55.9**	**42.8**	**331.2**	**153.3**	**484.5**
States East of the Mississippi River	4.0	3.3	180.0	42.6	.0	.0	1.1	184.0	47.0	231.0
States West of the Mississippi River	.1	(s)	25.9	8.6	121.1	55.9	41.7	147.2	106.3	253.5

[1] Lignite resources are not mined underground in the United States.
[2] Georgia, Maryland, North Carolina, and Tennessee.
[3] Arkansas, Kansas, Louisiana, and Michigan.
[4] Arizona, Idaho, Oregon, and South Dakota.
(s)=Less than 0.05 billion short tons.

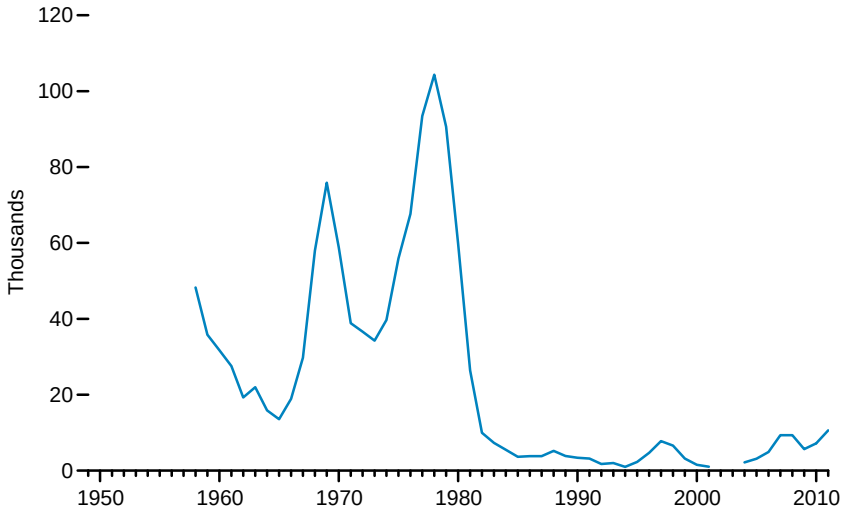
Notes: • See *U.S. Coal Reserves: 1997 Update* on the Web Page for a description of the methodology used to produce these data. • Data represent remaining measured and indicated coal resources, analyzed and on file, meeting minimum seam and depth criteria, and in the ground as of January 1, 2011. These coal resources are not totally recoverable. Net recoverability with current mining technologies ranges from 0 percent (in far northern Alaska) to more than 90 percent. Fifty-four percent of the demonstrated reserve base of coal in the United States is estimated to be recoverable. • Totals may not equal sum of components due to independent rounding.

Web Page: For related information, see http://www.eia.gov/coal/.

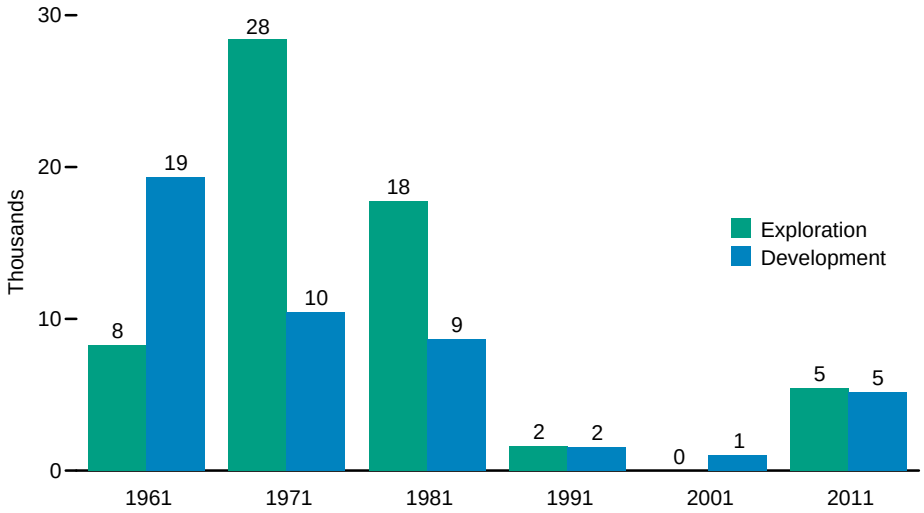
Source: U.S. Energy Information Administration, Coal Reserves Database.

Figure 4.9 Uranium Exploration and Development Drilling

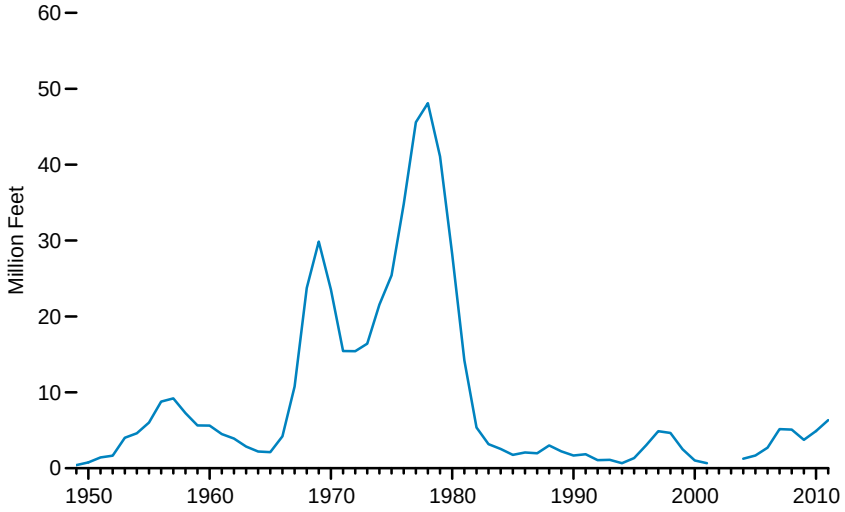
Total Holes Drilled, 1958-2011[1]



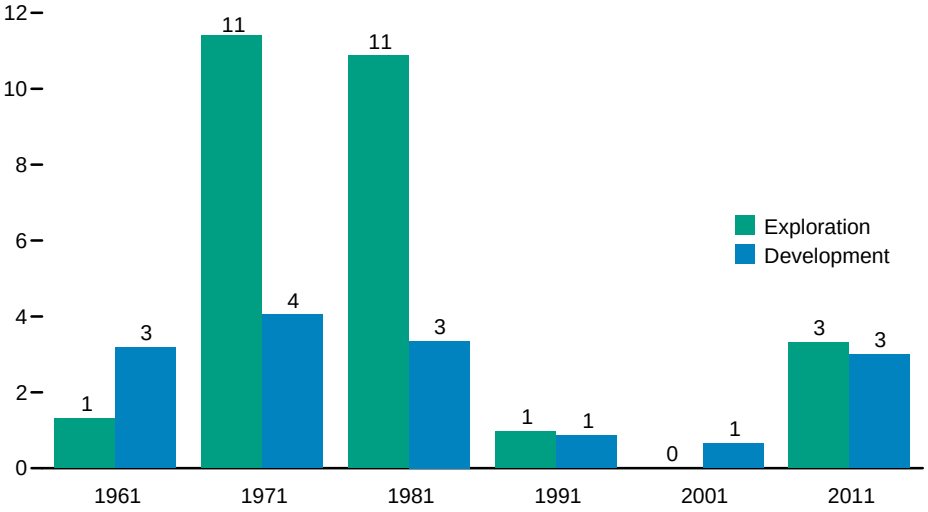
Holes Drilled, Selected Years



Total Footage Drilled, 1949-2011[1]



Footage Drilled, Selected Years



[1] In 2002 and 2003, data are withheld to avoid disclosure.

Source: Table 4.9.

Table 4.9 Uranium Exploration and Development Drilling, Selected Years, 1949-2011

Year	Exploration [1]		Development [2]		Total	
	Holes Drilled	Footage Drilled	Holes Drilled	Footage Drilled	Holes Drilled	Footage Drilled
	Thousands	Million Feet	Thousands	Million Feet	Thousands	Million Feet
1949	NA	0.36	NA	0.05	NA	0.41
1950	NA	.57	NA	.21	NA	.78
1955	NA	5.27	NA	.76	NA	6.03
1960	7.34	1.40	24.40	4.21	31.73	5.61
1965	6.23	1.16	7.33	.95	13.56	2.11
1970	43.98	17.98	14.87	5.55	58.85	23.53
1975	34.29	15.69	21.60	9.73	55.89	25.42
1976	40.41	20.36	27.23	14.44	67.64	34.80
1977	62.60	27.96	30.86	17.62	93.45	45.58
1978	75.07	28.95	29.29	19.15	104.35	48.10
1979	60.46	28.07	30.19	13.01	90.65	41.08
1980	39.61	19.60	20.19	8.59	59.80	28.19
1981	17.75	10.87	8.67	3.35	26.42	14.22
1982	6.97	4.23	3.00	1.13	9.97	5.36
1983	4.29	2.09	3.01	1.08	7.30	3.17
1984	4.80	2.26	.72	.29	5.52	2.55
1985	2.88	1.42	.77	.34	3.65	1.76
1986	1.99	1.10	1.85	.97	3.83	2.07
1987	1.82	1.11	1.99	.86	3.81	1.97
1988	2.03	1.28	3.18	1.73	5.21	3.01
1989	2.09	1.43	1.75	.80	3.84	2.23
1990	1.51	.87	1.91	.81	3.42	1.68
1991	1.62	.97	1.57	.87	3.20	1.84
1992	.94	.56	.83	.50	1.77	1.06
1993	.36	.22	1.67	.89	2.02	1.11
1994	.52	.34	.48	.32	1.00	.66
1995	.58	.40	1.73	.95	2.31	1.35
1996	1.12	.88	3.58	2.16	4.70	3.05
1997	1.94	1.33	5.86	3.56	7.79	4.88
1998	1.37	.89	5.23	3.75	6.60	4.64
1999	.27	.18	2.91	2.33	3.18	2.50
2000	W	W	W	W	1.55	1.02
2001	.00	.00	1.02	.66	1.02	.66
2002	W	W	W	W	W	W
2003	NA	NA	NA	NA	W	W
2004	W	W	W	W	2.19	1.25
2005	W	W	W	W	3.14	1.67
2006	1.47	.82	3.43	1.89	4.90	2.71
2007	4.35	2.20	5.00	2.95	9.35	5.15
2008	5.20	2.54	4.16	2.55	9.36	5.09
2009	1.79	1.05	3.89	2.69	5.68	3.74
2010	2.44	1.46	4.77	3.44	7.21	4.90
2011	5.44	3.32	5.16	3.00	10.60	6.33

[1] Includes surface drilling in search of new ore deposits or extensions of known deposits and drilling at the location of a discovery up to the time the company decides sufficient ore reserves are present to justify commercial exploitation.

[2] Includes all surface drilling on an ore deposit to determine more precisely size, grade, and configuration subsequent to the time that commercial exploitation is deemed feasible.

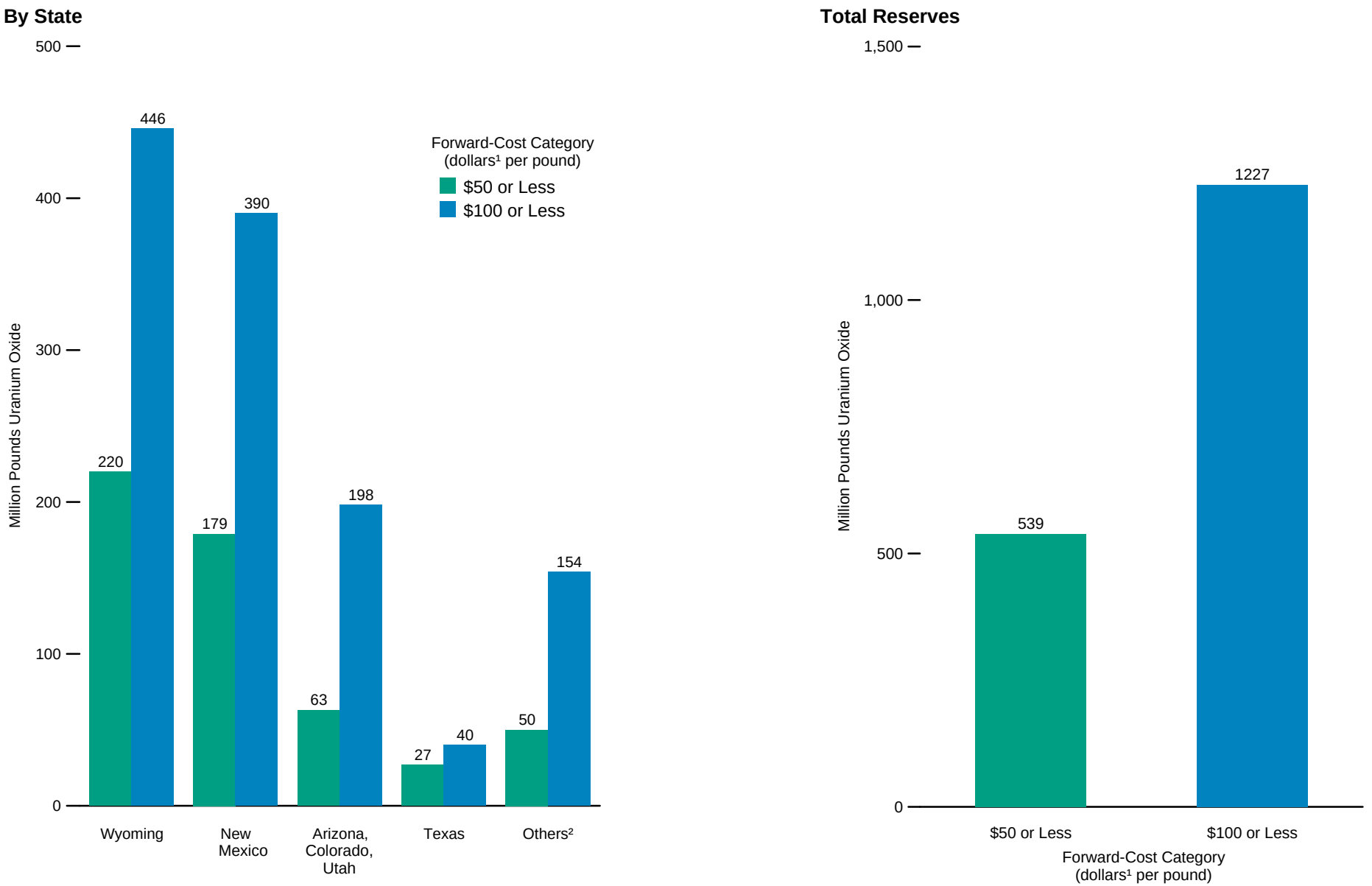
NA=Not available. W=Value withheld to avoid disclosure of individual company data.

Note: Totals may not equal sum of components due to independent rounding.

Web Pages: • See http://www.eia.gov/totalenergy/data/annual/#resources for all data beginning in 1949. • For related information, see http://www.eia.gov/nuclear/.

Sources: • 1949-1981—U.S. Department of Energy, Grand Junction Office, *Statistical Data of the Uranium Industry, January 1, 1983,* Report No. GJO-100 (1983), Table VIII-5. • 1982-2002—U.S. Energy Information Administration (EIA), *Uranium Industry Annual,* annual reports. • 2003-2005—EIA, "Domestic Uranium Production Report," annual reports. • 2006 forward—EIA, "2011 Domestic Uranium Production Report" (May 2012), Table 1.

Figure 4.10 Uranium Reserves, 2008



[1] See "Nominal Dollars" in Glossary.
[2] Alaska, California, Idaho, Montana, Nebraska, Nevada, North Dakota, Oregon, South Dakota, Virginia, and Washington.

Notes: • See "Uranium Oxide" in Glossary. • Data are at end of year.
Source: Table 4.10.

Table 4.10 Uranium Reserves,[1] 2008

(Million Pounds Uranium Oxide)

State	Forward-Cost [2] Category (dollars [3] per pound)	
	$50 or Less	$100 or Less
Total	**539**	**1,227**
Wyoming	220	446
New Mexico	179	390
Arizona, Colorado, Utah	63	198
Texas	27	40
Others [4]	50	154

[1] The U.S. Energy Information Administration (EIA) category of uranium reserves is equivalent to the internationally reported category of "Reasonably Assured Resources" (RAR).

[2] Forward costs include the costs for power and fuel, labor, materials, insurance, severance and ad valorem taxes, and applicable administrative costs. Past capital costs are considered "sunk" costs and mining of the individual deposits may or may not return such costs to investors. Sunk costs for such items as exploration and land acquisition are excluded as are the costs for income taxes, profit, and the cost of money. The forward costs used to estimate U.S. uranium ore reserves are independent of the price at which uranium produced from the estimated reserves might be sold in the commercial market. Reserves values in forward-cost categories are cumulative; that is, the quantity at each level of forward cost includes all reserves at the lower cost in that category.

[3] Prices are not adjusted for inflation. See "Nominal Dollars" in Glossary.

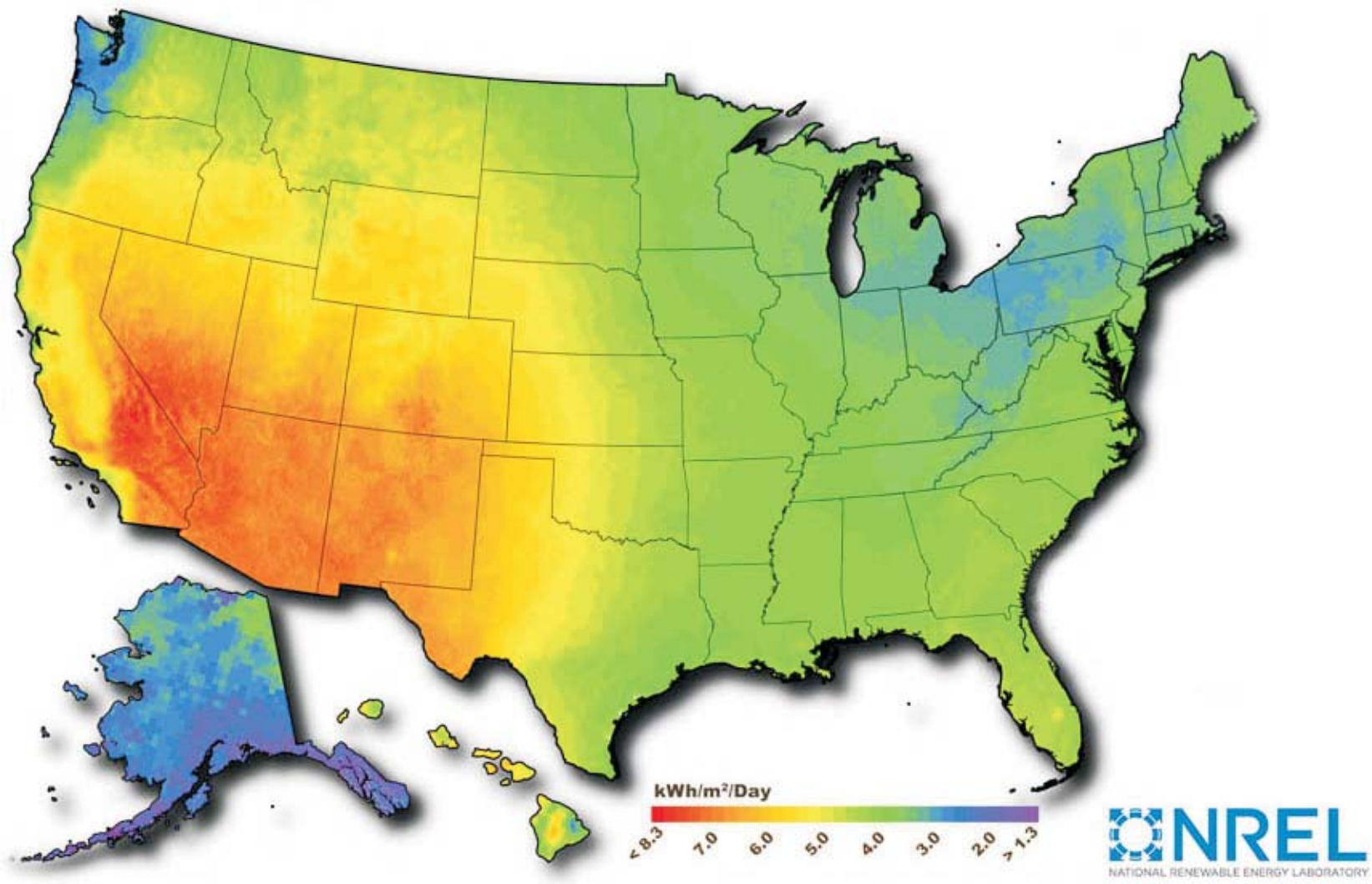
[4] Alaska, California, Idaho, Montana, Nebraska, Nevada, North Dakota, Oregon, South Dakota, Virginia, and Washington.

Notes: • Estimates are at end of year. • See "Uranium Oxide" in Glossary. • For updates, see http://www.eia.gov/cneaf/nuclear/page/reserves/ures.html.

Web Page: For related information, see http://www.eia.gov/nuclear/.

Sources: EIA, *U.S. Uranium Reserves Estimates* (July 2010), Table 1.

Figure 4.11 Concentrating Solar Resources

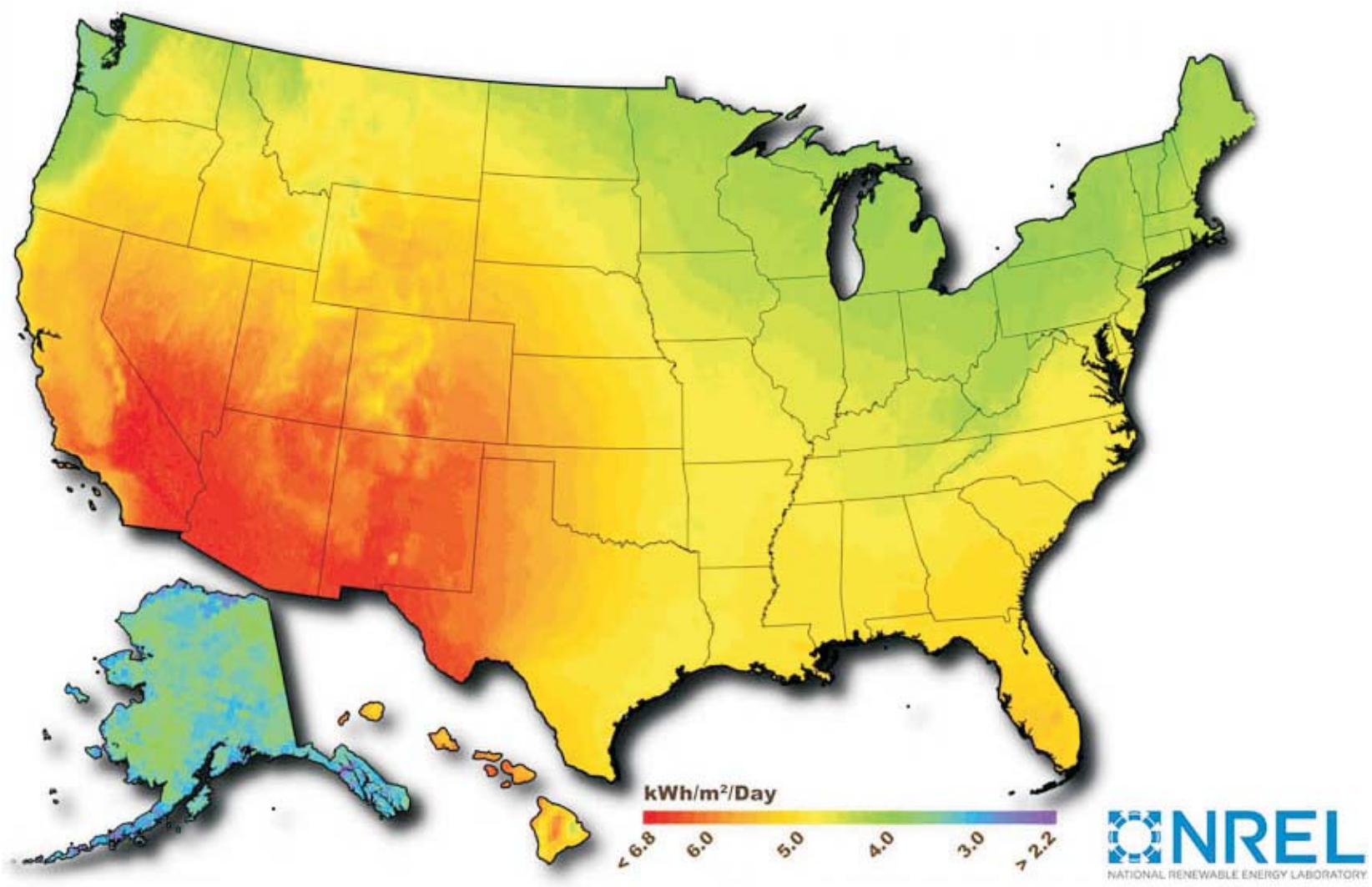


Notes: • Annual average direct normal solar resource data are shown. • kWh/m^2/Day = kilowatthours per square meter per day.

Web Page: For related information, see http://www.nrel.gov/gis/maps.html.

Sources: This map was created by the National Renewable Energy Laboratory for the Department of Energy (October 20, 2008). The data for Hawaii and the 48 contiguous States are a 10-kilometer (km) satellite modeled dataset (SUNY/NREL, 2007) representing data from 1998-2005. The data for Alaska are a 40-km dataset produced by the Climatological Solar Radiation Model (NREL, 2003).

Figure 4.12 Photovoltaic Solar Resources

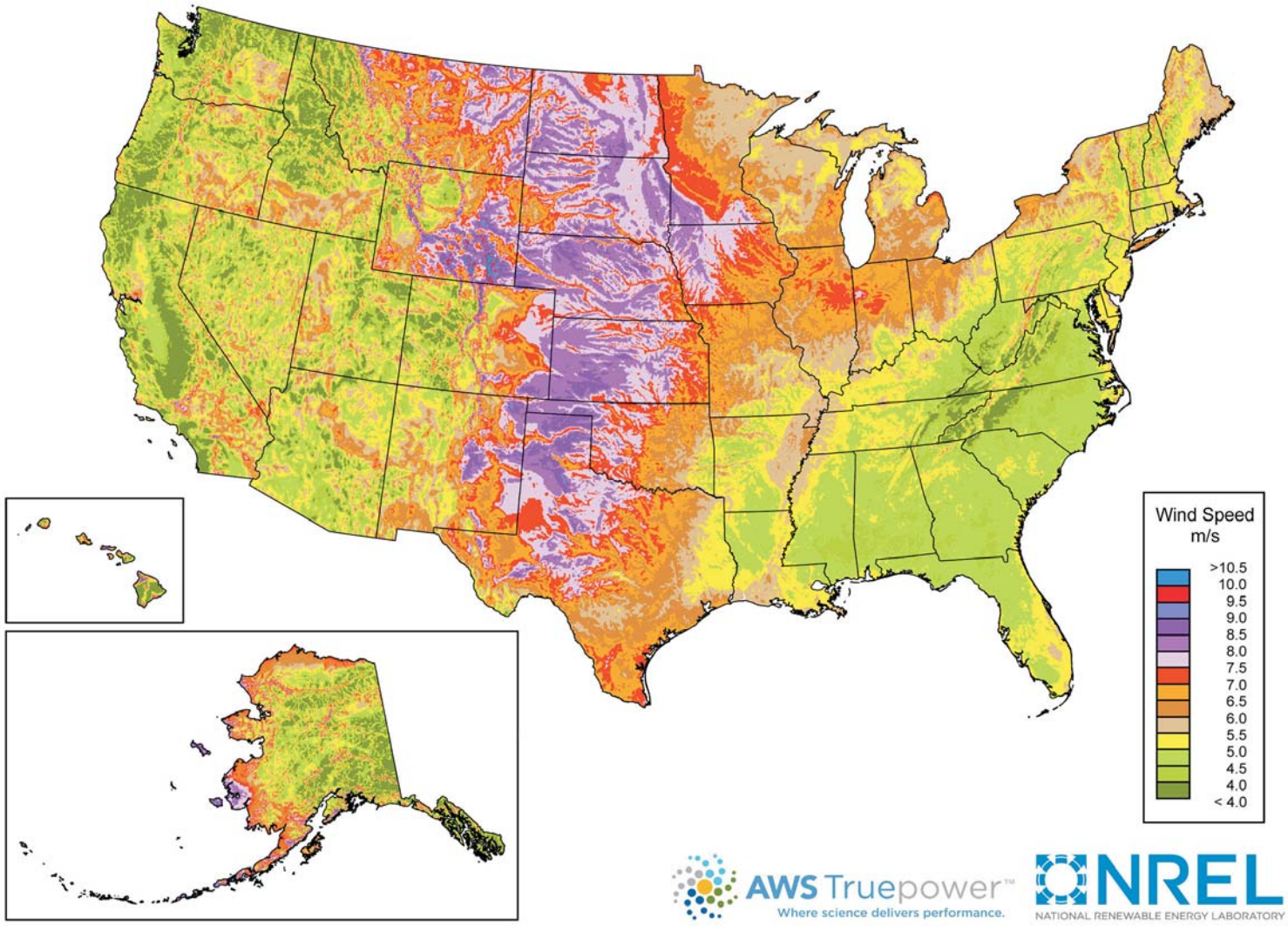


Notes: • Annual average solar resource data are shown for a tilt=latitude collector. • kWh/m^2/Day = kilowatthours per square meter per day.

Web Page: For related information, see http://www.nrel.gov/gis/maps.html.

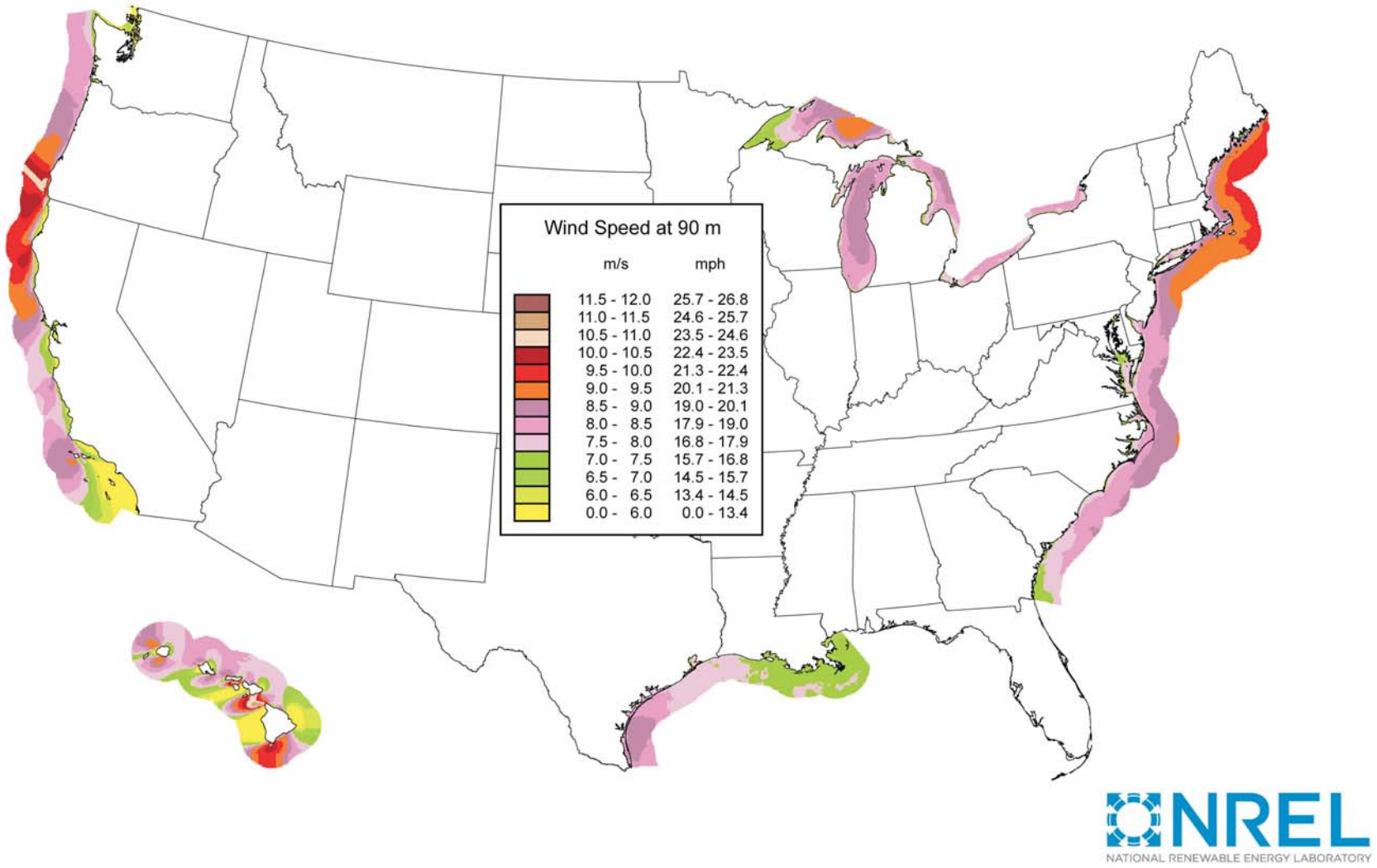
Sources: This map was created by the National Renewable Energy Laboratory for the Department of Energy (October 20, 2008). The data for Hawaii and the 48 contiguous States are a 10-kilometer (km) satellite modeled dataset (SUNY/NREL, 2007) representing data from 1998-2005. The data for Alaska are a 40-km dataset produced by the Climatological Solar Radiation Model (NREL, 2003).

Figure 4.13 Onshore Wind Resources



Notes: • Data are annual average wind speed at 80 meters. • m/s = meters per second.
Web Page: For related information, see http://www.nrel.gov/gis/maps.html.
Sources: This map was created by the National Renewable Energy Laboratory for the Department of Energy (April 1, 2011). Wind resource estimates developed by AWS Truepower, LLC for windNavigator®. See http://www.windnavigator.com and http://www.awstruepower.com. Spatial resolution of wind resource data: 2.5 kilometers. Projection: Albers Equal Area WGS84.

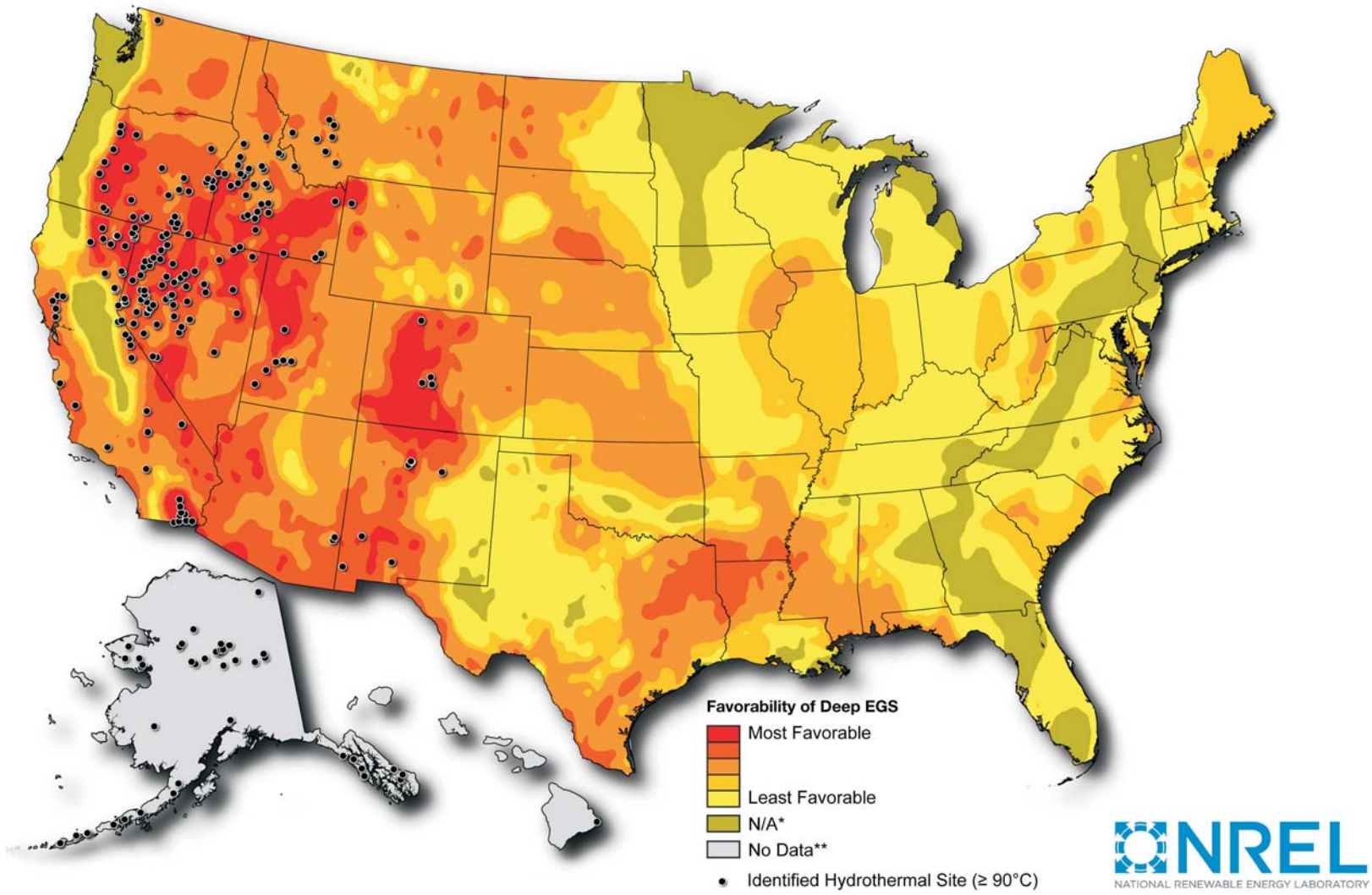
Figure 4.14 Offshore Wind Resources



Notes: • Data are annual average wind speed at 90 meters. • m/s = meters per second. • mph = miles per hour.

Web Page: For related information, see http://www.nrel.gov/gis/maps.html.
Source: This map was created by the National Renewable Energy Laboratory for the Department of Energy (January 10, 2011).

Figure 4.15 Geothermal Resources

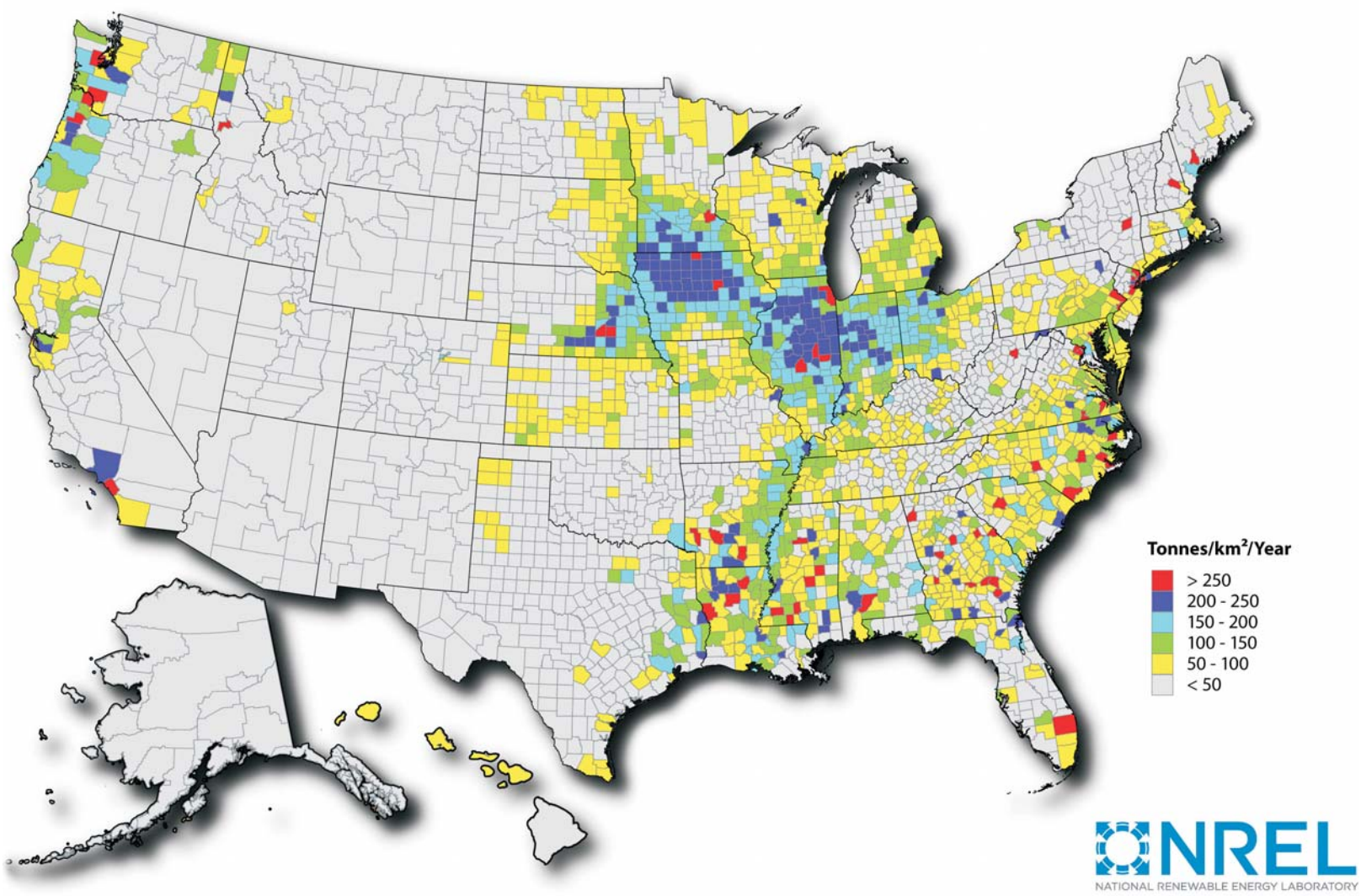


Notes: • Data are for locations of identified hydrothermal sites and favorability of deep enhanced geothermal systems (EGS). • Map does not include shallow EGS resources located near hydrothermal sites or USGS assessment of undiscovered hydrothermal resources. • *"N/A" regions have temperatures less than 150°C at 10 kilometers (km) depth and were not assessed for deep EGS potential. • **Temperature at depth data for deep EGS in Alaska and Hawaii not available.

Web Page: For related information, see http://www.nrel.gov/gis/maps.html.

Sources: This map was created by the National Renewable Energy Laboratory for the Department of Energy (October 13, 2009). Source data for deep EGS includes temperature at depth from 3 to 10 km provided by Southern Methodist University Geothermal Laboratory (Blackwell & Richards, 2010) and analyses (for regions with temperatures ≥150°C) performed by NREL (2009). Source data for identified hydrothermal sites from USGS Assessment of Moderate- and High-Temperature Geothermal Resources of the United States (2008).

Figure 4.16 Biomass Resources



Notes: • Data are for total biomass per square kilometer. • km^2 = square kilometer. • This study estimates the biomass resources currently available in the United States by county. It includes the following feedstock categories: crop residues (5 year average: 2003-2007), forest and primary mill residues (2007), secondary mill and urban wood waste (2002), methane emissions from landfills (2008), domestic wastewater treatment (2007), and animal manure (2002). For more information on the data development, please refer to http://www.nrel.gov/docs/fy06osti/39181.pdf. Although, the document contains the methodology for the development of an older assessment, the information is applicable to this assessment as well. The difference is only in the data's time period.

Web Page: For related information, see http://www.nrel.gov/gis/maps.html.

Source: This map was created by the National Renewable Energy Laboratory for the Department of Energy (September 23, 2009).

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