

# Overview

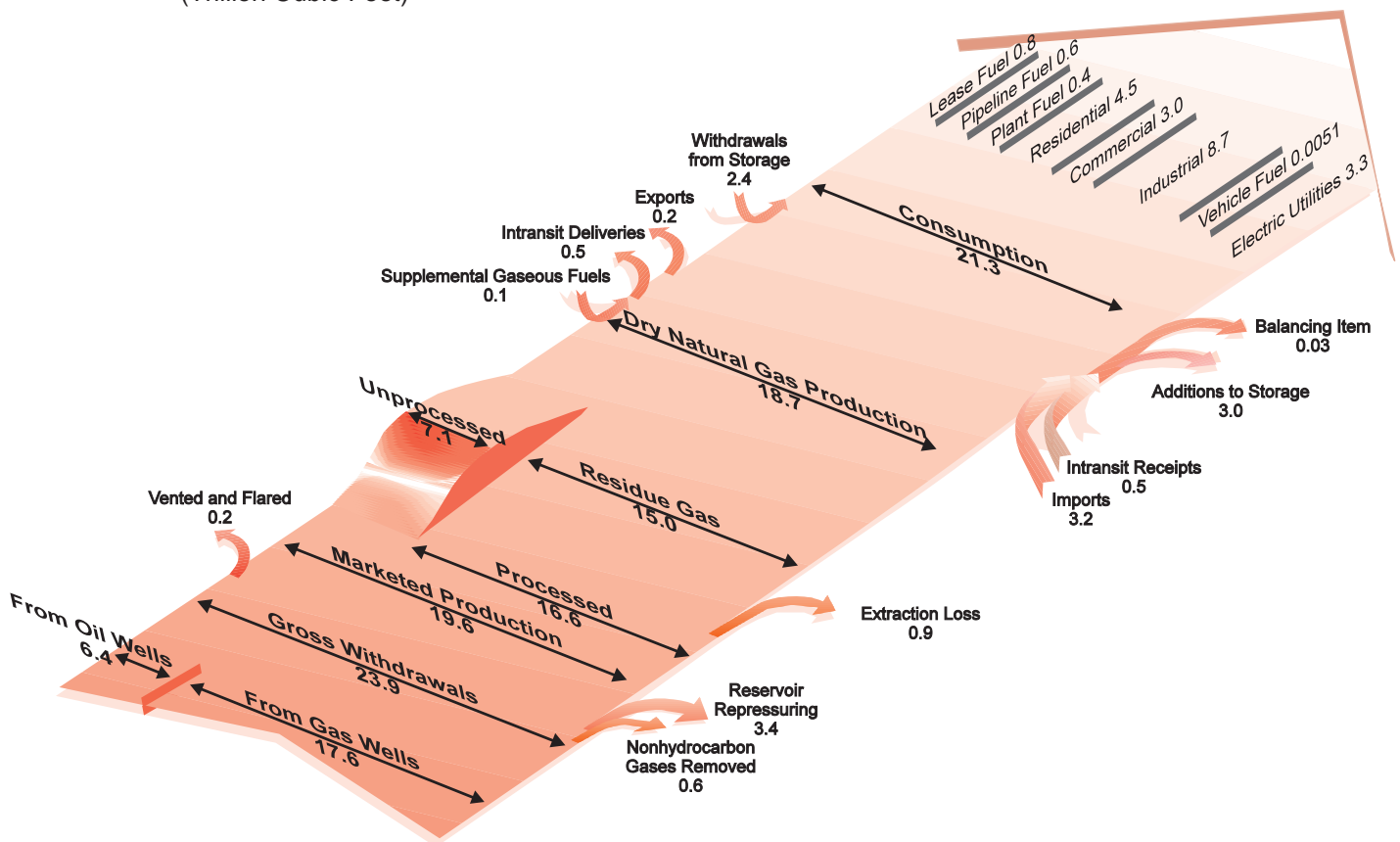
During 1998, the natural gas industry showed modest declines in both production and end-use consumption. Production decreased slightly, by 1 percent, to 18.7 trillion cubic feet. Consumption fell in nearly every end use sector, contributing to an overall drop of 3 percent. Declines in consumption were seen in the residential, commercial, and industrial sectors. These decreases were somewhat offset by an increase in deliveries to electric utilities, attributed in part to the warmer-than-normal summer weather seen during 1998. Natural gas prices also fell in 1998 from the wellhead to every end use sector except vehicle fuel.

Imports took on a greater role in meeting supply during 1998, contributing a 15-percent share of U.S. gas consumption, compared with a 5-percent share in the early 1980's. Underground storage continued to enable supply reliability during periods when demand was high.

Some of the national highlights of 1998 were:

- Total natural gas consumption declined to 21.3 trillion cubic feet. This level was 3 percent below the 1997 and 1996 levels. Higher natural gas use by the electric

**Figure 1. Natural Gas Flow Diagram, 1998**  
(Trillion Cubic Feet)



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

**Sources:** Energy Information Administration (EIA), Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition"; Form EIA-895, "Monthly Quantity and Value of Natural Gas Report"; Form EIA-816, "Monthly Natural Gas Liquids Report"; Form EIA-759, "Monthly Power Plant Report"; Office of Fossil Energy, U.S. Department of Energy, Natural Gas Imports and Exports; *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves, Annual Reports*, DOE/EIA-0216, and the U.S. Minerals Management Service.

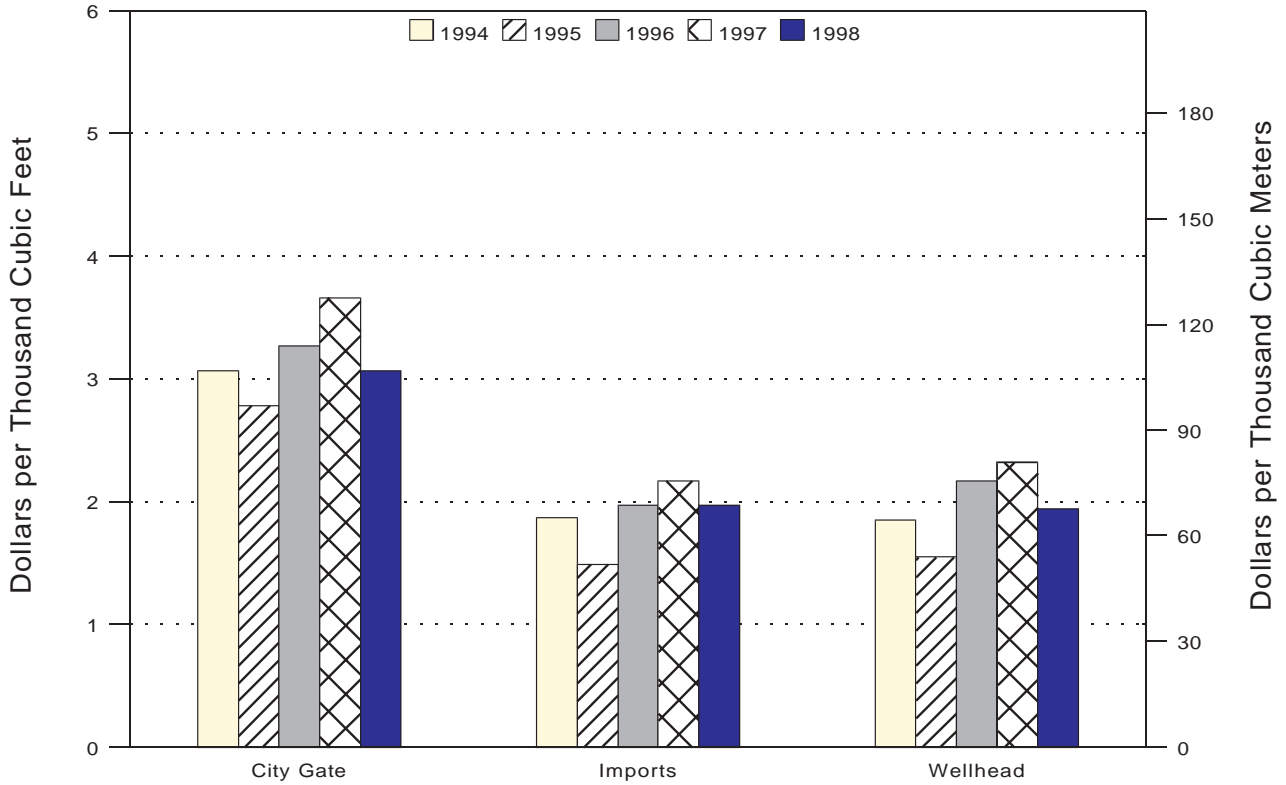
utility sector was offset by lower use in the residential and commercial sectors, due to warmer-than-normal temperatures during the winter months.

- The residential sector saw the largest decrease (463 billion cubic feet) with 4.5 trillion cubic feet consumed, down 9 percent from the 1997 level and 14 percent from the 1996 level. Commercial consumption of natural gas was 3.0 trillion cubic feet, a decline of 7 percent from the historical high of 3.2 trillion cubic feet in 1997. During 1998, natural gas consumption by the industrial sector fell to 8.7 trillion cubic feet, 2 percent below the 1997 level. Natural gas delivered to electric utilities rose to 3.3 trillion cubic feet, 10 percent (290 billion cubic feet) above the 1997 level. The increase in this sector was largely driven by utility use of natural gas for peak air-conditioning demand as extremely high temperatures lingered in the Southwest during the summer.
- Prices declined during 1998 from the wellhead to the burner tip. The average wellhead price of natural gas fell 16 percent (\$0.38 per thousand cubic feet) from \$2.32 per thousand cubic feet in 1997 to \$1.94 in 1998. The average city gate price decreased substantially from \$3.66 per thousand cubic feet in 1997 to \$3.07 in 1998, a decrease of 16 percent. Average prices paid across the consuming sectors followed this downward trend, but sharper declines were seen in the industrial and electric utility sectors.
- The average price paid by the residential sector showed a modest decline of 2 percent (\$0.12 per thousand cubic feet) between 1997 and 1998 to \$6.82 per thousand cubic feet. The price paid by the commercial sector decreased by 5 percent, or \$0.31 per thousand cubic feet, to an average price of \$5.48 per thousand cubic feet during the same period.
- Prices paid for natural gas by industrial consumers that continue to purchase gas from their local distribution company dropped 13 percent, from \$3.59 per thousand cubic feet in 1997 to \$3.14 in 1998, and prices paid by electric utilities declined 14 percent,

from \$2.78 in 1997 to \$2.40 per thousand cubic feet in 1998.

- At 19.6 trillion cubic feet, natural gas marketed production saw a modest 1 percent decline during 1998 compared to the 19.9 trillion cubic feet produced during 1997. This 1998 level was 13 percent below the 1973 historical peak of 22.6 trillion cubic feet. Texas, Louisiana, Oklahoma, and New Mexico continued to lead the nation in the production of natural gas. Together these four States supplied 14.8 trillion cubic feet, 75 percent of marketed natural gas production in 1998.
- Net imports of natural gas increased for the 12th consecutive year, moving up 5 percent between 1997 and 1998 to 3.0 trillion cubic feet. They contributed a 15-percent share of 1998 U.S. gas consumption. Pipeline imports from Canada and liquefied natural gas (LNG) imports from all sources moved higher, while imports from Mexico declined. U.S. exports of natural gas totaled 159 billion cubic feet, 1 percent higher than in 1997. A substantial drop in exports to Canada (29 percent) was more than offset by increased pipeline exports to Mexico and LNG exports to Japan.
- Imports from Canada, by far the primary foreign supplier of gas, reached a record level of nearly 3.1 trillion cubic feet, more than double the 1990 level. With additional crossborder pipeline capacity available, U.S. imports from Canada climbed by 153 billion cubic feet between 1997 and 1998.
- At the end of 1998, there were 410 underground storage fields in operation in the United States with 3.7 trillion cubic feet of working gas capacity. From January through December, injections into underground storage reservoirs were larger than withdrawals and resulted in a net change of 526 billion cubic feet. LNG storage additions exceeded LNG withdrawals by 4 billion cubic feet. The net change for total gas in storage for the year was an additional 530 billion cubic feet.

**Figure 2. Selected Average Prices of Natural Gas in the United States, 1994-1998**



**Sources:** Energy Information Administration (EIA), Form EIA-857, "Monthly Report of Natural Gas Purchases and Deliveries to Consumers"; Form FPC-14, "Annual Report for Importers and Exporters of Natural Gas" (1994); Office of Fossil Energy, U.S. Department of Energy, Natural Gas Imports and Exports (1995 through 1998); Form EIA-627, "Annual Quantity and Value of Natural Gas Report" (1994 and 1995); and Form EIA-895, "Monthly Quantity and Value of Natural Gas Report" (1996 through 1998).

**Table 1. Summary Statistics for Natural Gas in the United States, 1994-1998**

	1994	1995	1996	1997	1998
<b>Reserves (billion cubic feet)</b>					
Estimated Proved Reserves (dry) as of December 31 .....	163,837	165,146	166,474	167,223	NA
<b>Number of Gas and Gas Condensate Wells</b>					
Producing at End of Year .....	291,773	298,541	301,811	<sup>R</sup> 310,971	316,373
<b>Production (million cubic feet)</b>					
Gross Withdrawals					
From Gas Wells.....	17,351,060	17,282,032	<sup>R</sup> 17,737,334	17,844,046	17,558,621
From Oil Wells.....	6,229,645	6,461,596	<sup>R</sup> 6,376,201	6,368,631	6,365,612
<b>Total.....</b>	<b>23,580,706</b>	<b>23,743,628</b>	<b><sup>R</sup>24,113,536</b>	<b>24,212,677</b>	<b>23,924,233</b>
Repressuring .....	-3,230,667	-3,565,023	<sup>R</sup> -3,510,753	-3,491,542	-3,433,323
Nonhydrocarbon Gases Removed.....	-412,178	-388,392	-518,425	<sup>R</sup> -598,691	-611,226
Wet After Lease Separation .....	19,937,861	19,790,213	<sup>R</sup> 20,084,357	<sup>R</sup> 20,122,444	19,879,684
Vented and Flared.....	-228,336	-283,739	-272,117	<sup>R</sup> -256,351	-234,130
Marketed Production .....	19,709,525	19,506,474	<sup>R</sup> 19,812,241	<sup>R</sup> 19,866,093	19,645,554
Extraction Loss.....	-888,500	-907,795	-958,178	-963,759	-937,798
<b>Total Dry Production.....</b>	<b>18,821,025</b>	<b>18,598,679</b>	<b><sup>R</sup>18,854,063</b>	<b><sup>R</sup>18,902,334</b>	<b>18,707,756</b>
<b>Supply (million cubic feet)</b>					
Dry Production.....	18,821,025	18,598,679	<sup>R</sup> 18,854,063	<sup>R</sup> 18,902,334	18,707,756
Receipts at U.S. Borders					
Imports .....	2,623,839	2,841,048	2,937,413	2,994,173	3,152,058
Intransit Receipts .....	487,760	492,481	536,333	548,000	481,581
Withdrawals from Storage					
Underground Storage.....	2,508,151	2,974,102	2,911,327	2,824,245	2,377,344
LNG Storage .....	70,689	50,446	69,287	69,517	54,365
Supplemental Gas Supplies.....	110,826	110,290	109,455	103,153	102,189
Balancing Item.....	-415,579	-230,002	<sup>R</sup> 217,114	<sup>R</sup> 61,024	-33,330
<b>Total Supply.....</b>	<b>24,206,711</b>	<b>24,837,044</b>	<b><sup>R</sup>25,634,990</b>	<b><sup>R</sup>25,502,445</b>	<b>24,841,963</b>
<b>Disposition (million cubic feet)</b>					
Consumption .....	20,707,717	21,580,665	<sup>R</sup> 21,966,616	<sup>R</sup> 21,958,660	21,262,023
Deliveries at U.S. Borders					
Exports .....	161,739	154,119	153,393	157,006	159,007
Intransit Deliveries.....	472,499	492,481	536,333	516,620	459,461
Additions to Storage					
Underground Storage.....	2,796,279	2,565,882	2,905,592	2,800,294	2,903,585
LNG Storage .....	68,478	43,897	73,057	69,865	57,887
<b>Total Disposition.....</b>	<b>24,206,711</b>	<b>24,837,044</b>	<b><sup>R</sup>25,634,990</b>	<b><sup>R</sup>25,502,445</b>	<b>24,841,963</b>
<b>Consumption (million cubic feet)</b>					
Lease Fuel.....	699,842	792,315	<sup>R</sup> 799,629	<sup>R</sup> 776,306	756,184
Pipeline Fuel.....	685,362	700,335	711,446	<sup>R</sup> 751,470	635,477
Plant Fuel .....	423,878	427,853	450,033	426,873	401,314
Delivered to Consumers					
Residential.....	4,847,702	4,850,318	5,241,414	4,983,772	4,520,276
Commercial .....	2,895,013	3,031,077	3,158,244	<sup>R</sup> 3,214,912	2,999,491
Industrial.....	8,167,033	8,579,585	8,870,422	<sup>R</sup> 8,832,450	8,686,147
Vehicle Fuel.....	1,741	2,674	2,932	4,424	5,079
Electric Utilities .....	2,987,146	3,196,507	2,732,496	<sup>R</sup> 2,968,453	3,258,054
<b>Total Delivered to Consumers.....</b>	<b>18,898,635</b>	<b>19,660,161</b>	<b>20,005,508</b>	<b><sup>R</sup>20,004,012</b>	<b>19,469,047</b>
<b>Total Consumption.....</b>	<b>20,707,717</b>	<b>21,580,665</b>	<b><sup>R</sup>21,966,616</b>	<b><sup>R</sup>21,958,660</b>	<b>21,262,023</b>
<b>Delivered for the Account of Others (million cubic feet)</b>					
Residential.....	42,338	45,269	49,148	61,013	105,128
Commercial .....	599,058	706,139	706,667	<sup>R</sup> 939,332	990,265
Industrial.....	6,112,919	6,517,352	7,151,885	<sup>R</sup> 7,272,947	7,339,353
Electric Utilities .....	2,092,124	2,110,284	1,871,496	1,932,394	2,152,846

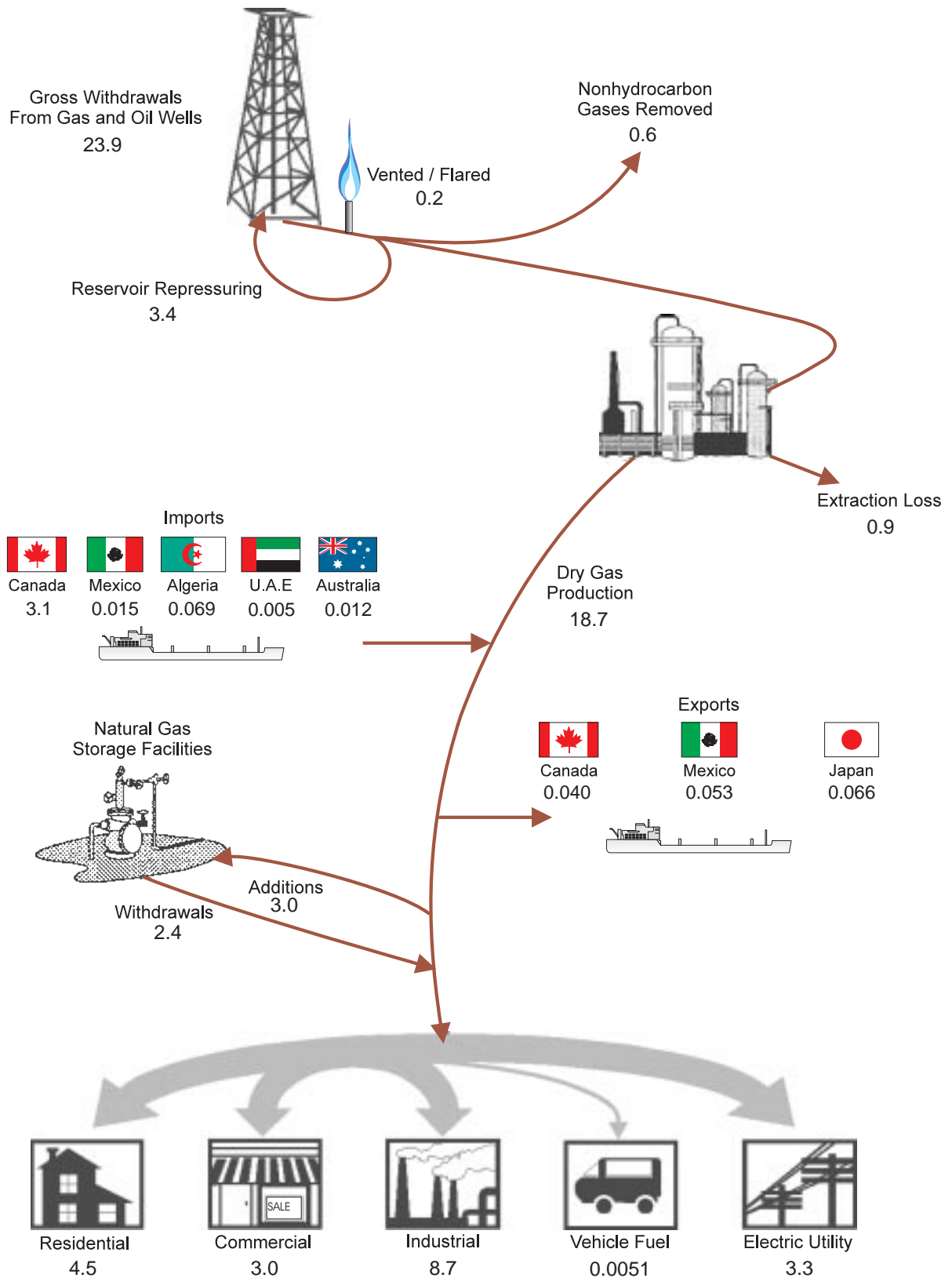
See footnotes at end of table.

**Table 1. Summary Statistics for Natural Gas in the United States, 1994-1998 (Continued)**

	1994	1995	1996	1997	1998
<b>Firm Deliveries (million cubic feet)</b>					
Residential.....	4,843,995	4,846,360	5,236,112	4,980,060	4,517,711
Commercial .....	2,559,500	2,650,412	2,799,442	<sup>R</sup> 2,755,098	2,536,659
Industrial.....	4,734,106	5,140,048	5,388,436	<sup>R</sup> 5,295,826	5,381,146
Electric Utilities.....	1,580,745	1,758,945	1,506,864	1,445,885	1,748,729
Vehicle Fuel.....	1,336	2,449	2,674	4,168	4,806
<b>Interruptible Deliveries (million cubic feet)</b>					
Residential.....	3,706	3,958	5,301	3,712	2,565
Commercial .....	335,513	380,665	358,802	<sup>R</sup> 459,814	462,832
Industrial.....	3,432,927	3,439,537	3,481,986	<sup>R</sup> 3,536,624	3,305,001
Electric Utilities.....	1,210,453	1,147,860	989,185	1,177,631	1,182,015
Vehicle Fuel.....	405	225	258	257	273
<b>Number of Consumers</b>					
Residential.....	53,392,557	54,322,179	55,263,673	56,186,958	57,321,746
Commercial .....	4,533,905	4,636,500	4,720,227	<sup>R</sup> 4,761,409	5,044,497
Industrial.....	202,940	209,398	206,049	<sup>R</sup> 238,961	231,438
<b>Average Annual Consumption per Consumer (thousand cubic feet)</b>					
Residential.....	91	89	95	<sup>R</sup> 89	79
Commercial .....	639	654	669	<sup>R</sup> 675	595
Industrial.....	40,244	40,973	43,050	<sup>R</sup> 36,962	37,531
<b>Average Prices for Natural Gas (dollars per thousand cubic feet)</b>					
Wellhead (Marketed Production).....	1.85	1.55	2.17	2.32	1.94
Imports .....	1.87	1.49	1.97	2.17	1.97
Exports .....	2.50	2.39	2.97	3.02	2.45
Pipeline Fuel.....	1.70	1.49	2.27	2.29	2.01
City Gate .....	3.07	2.78	3.27	3.66	3.07
<b>Delivered to Consumers</b>					
Residential.....	6.41	6.06	6.34	6.94	6.82
Commercial .....	5.44	5.05	5.40	<sup>R</sup> 5.80	5.48
Industrial.....	3.05	2.71	3.42	3.59	3.14
Vehicle Fuel.....	4.11	3.98	4.34	4.44	4.59
Electric Utilities.....	2.28	2.02	2.69	<sup>R</sup> 2.78	2.40

<sup>R</sup> = Revised data.  
 NA = Not available.  
**Notes:** Beginning in 1987, prices for gas delivered to consumers are calculated using only on-system sales data. No imputations are made for prices of gas delivered for the account of others. In previous years, prices were calculated using reported values and values imputed for gas delivered for the account of others. The United States includes the 50 states and the District of Columbia. Totals may not equal sum of components due to independent rounding. Beginning in 1996, consumption of natural gas for agricultural use was classified as industrial use. In 1995 and earlier years, agricultural use was classified as commercial use.  
**Sources:** Energy Information Administration (EIA), Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition"; Form EIA-627, "Annual Quantity and Value of Natural Gas Report" (1994 and 1995); Form EIA-895, "Monthly Quantity and Value of Natural Gas Report" (1996 through 1998); Form EIA-857, "Monthly Report of Natural Gas Purchases and Deliveries to Consumers"; Form EIA-816, "Monthly Natural Gas Liquids Report"; Form EIA-64A, "Annual Report of the Origin of Natural Gas Liquids Production"; Form EIA-759, "Monthly Power Plant Report"; Form FERC-423, "Monthly Report of Cost and Quality of Fuels for Electric Plants"; Form EIA-191, "Underground Gas Storage Report"; Form FPC-14, "Annual Report for Importers and Exporters of Natural Gas" (1994); Office of Fossil Energy, U.S. Department of Energy, Natural Gas Imports and Exports (1995 through 1998); *U.S. Crude Oil, Natural Gas, and Natural Gas Liquids Reserves, Annual Reports*, DOE/EIA-0216; and the U.S. Minerals Management Service.

**Figure 3. Natural Gas Supply and Disposition in the United States, 1998**  
(Trillion Cubic Feet)



**Table 2. Natural Gas Production, Transmission, and Consumption by State, 1998**  
(Million Cubic Feet)

State	Marketed Production	Extraction Loss	Balancing Item <sup>a</sup>	Net Interstate Movements <sup>b</sup>	Net Movements Across U.S. Borders <sup>c</sup>	Net Storage Changes <sup>c</sup>	Supplemental Gas Supplies	Consumption
Alabama .....	563,779	4,263	-29,996	-200,953	0	478	2	328,091
Alaska .....	466,648	40,120	74,285	0	-65,951	0	0	434,862
Arizona .....	457	0	71,367	86,844	-4,166	0	0	154,502
Arkansas .....	188,372	451	-10,142	96,715	0	1,776	0	272,719
California .....	315,277	10,242	-67,706	1,820,433	-2,067	40,855	0	2,014,839
Colorado .....	696,321	24,365	-163,402	-196,610	0	5,072	5,292	312,163
Connecticut .....	0	0	6,984	114,837	0	66	33	121,788
D.C. ....	0	0	-794	31,164	0	0	0	30,371
Delaware .....	0	0	4,043	36,749	0	8	0	40,785
Florida .....	5,796	1,523	-10,664	472,632	0	0	0	466,241
Georgia .....	0	0	-38,231	394,824	0	-698	16	357,307
Hawaii .....	0	0	-61	0	0	0	2,715	2,654
Idaho .....	0	0	18,849	-831,635	879,840	-460	0	67,514
Illinois .....	209	70	23,707	940,495	0	9,430	2,736	957,647
Indiana .....	615	0	-22,397	540,755	0	1,407	3,149	520,715
Iowa .....	0	0	-32,185	267,998	0	3,234	17	232,596
Kansas .....	603,586	45,801	-144,189	-80,882	0	18,833	0	313,880
Kentucky .....	81,868	2,263	-49,634	186,793	0	11,700	2	205,065
Louisiana .....	5,287,870	144,609	22,174	-3,542,665	42,922	96,731	0	1,568,961
Maine .....	0	0	-78	5,734	0	17	24	5,663
Maryland .....	63	0	357	180,453	0	1,660	80	179,293
Massachusetts .....	0	0	10,148	277,789	42,531	-7,243	68	337,778
Michigan .....	278,076	5,938	-79,717	1,155,676	-451,801	74,840	21,967	843,423
Minnesota .....	0	0	-5,808	-626,113	956,733	-408	50	325,269
Mississippi .....	108,068	495	132,238	11,621	0	10,185	0	241,248
Missouri .....	0	0	20,759	238,205	0	-173	40	259,177
Montana .....	57,645	410	-21,334	-556,233	580,548	400	0	59,817
Nebraska .....	1,695	0	-26,390	153,537	0	-1,817	11	130,669
Nevada .....	9	0	22,650	121,071	0	-31	0	143,761
New Hampshire .....	0	0	-5,343	24,365	0	0	103	19,125
New Jersey .....	0	0	48,625	524,708	0	617	9,082	581,799
New Mexico .....	1,501,098	106,665	18,363	-1,166,885	0	6,479	0	239,432
New York .....	16,699	0	114,859	355,404	666,256	10,715	699	1,143,203
North Carolina .....	0	0	-27,982	240,980	0	203	0	212,795
North Dakota .....	53,185	5,481	-13,381	-48,759	9,268	0	54,672	49,504
Ohio .....	108,542	78	-36,692	766,728	0	26,672	1,194	813,022
Oklahoma .....	1,644,531	92,785	-53,520	-881,316	0	48,008	0	568,902
Oregon .....	1,067	0	-11,986	217,378	0	1,022	2	205,439
Pennsylvania .....	68,343	732	-17,942	612,248	0	40,541	80	621,456
Rhode Island .....	0	0	-9,810	95,207	0	-749	1	86,147
South Carolina .....	0	0	21,894	134,395	0	-350	0	156,639
South Dakota .....	1,620	0	-3,987	35,390	0	-9	4	33,036
Tennessee .....	1,420	0	8,976	268,165	0	-1,684	4	280,249
Texas .....	6,318,754	388,011	59,584	-1,827,728	-32,401	102,118	0	4,028,080
Utah .....	277,340	11,801	-140,370	43,788	0	-676	0	169,634
Vermont .....	0	0	55	-11,319	18,998	0	0	7,734
Virginia .....	57,263	0	-33,538	219,286	0	368	148	242,792
Washington .....	0	0	-45,839	-65,804	374,458	-338	0	263,153
West Virginia .....	178,023	7,337	132,454	-132,917	0	28,267	0	141,957
Wisconsin .....	0	0	-2,216	362,128	0	-21	0	359,934
Wyoming .....	761,313	44,358	259,632	-864,676	0	2,719	0	109,193
<b>Total .....</b>	<b>19,645,554</b>	<b>937,798</b>	<b>-33,330</b>	<b>0</b>	<b>3,015,170</b>	<b>529,763</b>	<b>102,189</b>	<b>21,262,023</b>

<sup>a</sup> Balancing Item volumes are equal to Total Disposition (net storage changes plus extraction loss plus consumption) minus Total Supply (marketed production plus net interstate movements plus net movements across U.S. borders plus supplemental gas supplies).

<sup>b</sup> Positive numbers denote net receipts; negative numbers denote net deliveries.

<sup>c</sup> Negative numbers indicate withdrawals from storage in excess of additions to storage and are, therefore, additions to total supply.

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

**Sources:** Energy Information Administration (EIA), Form EIA-176, "Annual Report of Natural and Supplemental Gas Supply and Disposition"; Form EIA-895, "Monthly Quantity and Value of Natural Gas Report"; Form EIA-816, "Monthly Natural Gas Liquids Report"; Form EIA-64A, "Annual Report of the Origin of Natural Gas Liquids Production"; and the U.S. Minerals Management Service.

