

U.S. Coal Supply and Demand: 2006 Review

by

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Overview

For the second time in four years, the coal industry was brought to the forefront of the Nation's consciousness in 2006, as two separate events unfolded which involved coal miners trapped underground. Unfortunately, the tragic results of the 2006 incidents were not the same as in 2002 when the trapped miners were all successfully rescued. In January, two different incidents, both in West Virginia, focused the public's attention on the dangers that miners face on a daily basis. As a result of these unfortunate events, new legislation requiring improvement in safety in underground mines passed both at the Federal and state level. For the year 2006, a total of 47 miners died on the job, matching the total number that occurred in 1995, and more than double the 22 killed in 2005.

Notwithstanding those tragic events, coal production in the United States reached another record level in 2006, ending the year at 1,161.4 million short tons according to preliminary data from the Energy Information Administration (Table 1). Production in 2006 was 29.9 million short tons higher than the prior record set in 2005 of 1,131.5 million short tons. Although coal production rose in 2006, U.S. total coal consumption actually declined for the year. Coal consumption decreased in the electric power sector by 1.1 percent, while coking coal consumption decreased slightly. Only the other industrial sector had higher coal consumption in 2006, increasing by 0.3 percent. (Note: All percentage change calculations are done at the short-tons level.) U.S. coal exports declined slightly in 2006, while coal imports again reached a record level. The excess production over consumption allowed total coal stocks to increase significantly during the year, as electric generators rebuilt their stockpiles that had

fallen substantially in 2005 due to missed shipments in the second half of that year.

The weather in 2006 was the primary driver for the decline in consumption of coal during the year, but the drop was also aided somewhat by declining natural gas prices during the year. Preliminary data show that total generation in the electric power sector (electric utilities and independent power producers) in the United States declined slightly in 2006. Coal-based generation also declined, resulting in an 11.0-million-short-ton decrease in coal consumed in the electric power sector. Coal use in the non-electricity sector decreased slightly by 0.2 percent to a level of 87.8 million short tons.

In international markets in 2006, U.S. coal exports declined slightly while coal imports increased. U.S. coal exports totaled 49.6 million short tons, a decrease of 0.3 million short tons over 2005. Coal imports in 2006 reached another record level, ending the year at 36.2 million short tons, 5.8 million short tons higher than in 2005.

For a third consecutive year, the average delivered price of coal increased in all markets in 2006, but the increases were smaller than those experienced in 2005. In the domestic markets, the delivered price-per-short-ton for electric utilities increased 9.9 percent, while the increase was 6.7 percent for independent power producers. Delivered coking coal prices increased by 10.8 percent, while the delivered price for the other industrial sector increased by 8.5 percent in 2006. In the international markets, the average price per short ton of export coal, measured in free alongside ship (f.a.s.) value, increased by 5.7 percent in 2006, while the price of coal imported into the U.S. rose by 5.1 percent.

Table 1. U.S. Coal Supply, Disposition, and Prices, 2002 – 2006
(Million Short Tons and Nominal Dollars per Short Ton)

Item	2002	2003	2004	2005	2006
Production By Region					
Appalachia	396.2	376.1	389.9	396.7	389.8
Interior.....	146.6	146.0	146.0	149.2	151.5
Western.....	550.4	548.7	575.2	585.0	619.4
Refuse Recovery	1.0	1.0	1.0	0.7	0.7
Total	1,094.3	1,071.8	1,112.1	1,131.5	1,161.4
Consumption By Sector					
Electric Power	977.5	1,005.1	1,016.3	1,037.5	1,026.5
Coke Plants.....	23.7	24.2	23.7	23.4	23.0
Other Industrial Plants	60.7	61.3	62.2	60.3	60.5
Combined Heat and Power (CHP)	26.2	24.8	26.6	25.9	25.8
Non - CHP.....	34.5	36.4	35.6	34.5	34.8
Residential/Commercial Users.....	4.4	4.2	5.1	4.2	4.2
Residential	0.5	0.6	0.6	0.5	0.5
Commercial.....	3.9	3.7	4.5	3.8	3.8
Total	1,066.4	1,094.9	1,107.3	1,125.5	1,114.2
Year-End Coal Stocks					
Electric Power	141.7	121.6	106.7	101.1	139.7
Coke Plants.....	1.4	0.9	1.3	2.6	2.9
Other Industrial Plants	5.8	4.7	4.8	5.6	6.5
Producers/Distributors	43.3	38.3	41.2	35.0	35.1
Total	192.1	165.5	154.0	144.3	184.2
U.S. Coal Trade					
Exports.....	39.6	43.0	48.0	49.9	49.6
Steam Coal	18.1	20.9	21.2	21.3	22.1
Metallurgical Coal	21.5	22.1	26.8	28.7	27.5
Imports	16.9	25.0	27.3	30.5	36.2
Net Exports	14.4	23.3	25.1	28.7	34.6
Average Delivered Price					
Electric Utilities(1)	\$24.74	\$25.82	\$27.30	\$30.91	\$34.31
Independent Power Producers(1)	\$27.96	\$26.20	\$27.27	\$30.26	\$32.44
Coke Plants.....	\$50.67	\$50.63	\$61.50	\$83.79	\$92.87
Other Industrial Plants	\$35.49	\$34.70	\$39.30	\$47.63	\$51.67
Average Free Alongside Ship (f.a.s.) Price					
Exports.....	\$40.44	\$35.98	\$54.11	\$67.10	\$70.93
Steam Coal	\$34.51	\$26.94	\$42.03	\$47.64	\$46.25
Metallurgical Coal	\$45.41	\$44.55	\$63.63	\$81.56	\$90.81
Imports	\$35.51	\$31.45	\$37.52	\$46.71	\$49.10
Steam Coal	\$33.93	\$30.24	\$36.06	\$43.35	\$46.15
Metallurgical Coal	\$44.90	\$47.83	\$54.27	\$101.88	\$109.36

(1) Average delivered price is through November 2006.

Notes: Totals may not equal sum of components due to independent rounding. Sum of net exports, stock changes, and consumption may not equal production, primarily because the supply and disposition data are obtained from different surveys. Electric power sector data is preliminary.

Sources: **Production, consumption, stocks, and prices:** Energy Information Administration, *Quarterly Coal Report*, October-December 2006, DOE/EIA-0121(2006/Q4) (Washington, DC, March 2007); *Annual Coal Report 2002*, DOE/EIA-0584(2002) (Washington, DC, November 2003); *Annual Coal Report 2004*, DOE/EIA-0584(2004) (Washington, DC, November 2005); and *Electric Power Monthly*, March 2007, DOE/EIA-0226(2007/03) (Washington DC, March 2007).

Exports and imports: U.S. Department of Commerce, Bureau of the Census, "Monthly Report EM 545" and "Monthly Report IM 145."

The coal synfuel industry in the U.S. reacted to the increases in oil prices that occurred in 2006 by idling numerous plants for a period of time during the year, since the amount of the eligible tax credits are based on the annual reference price of oil. As a result of this action, coal processed by coal synfuel plants decreased in 2006 by 21.6 percent.

Production

U.S. coal production increased in 2006 by 2.6 percent to reach a record level of 1,161.4 million short tons (Figure 1 and Table 1), 29.9 million short tons higher than the 2005 production. Although total U.S. coal production was higher in 2006, not all of the coal-producing regions shared in the increase. Exclusive of refuse production, the Interior and Western Regions had an increase in their production levels in 2006 of 1.5 percent and 5.9 percent respectively, while Appalachian coal production declined by 1.7 percent (Figure 2 and Table 2). In the amount of tons of coal produced, the increase in the Western Region production was five times the decrease in Appalachian Region production in 2006.

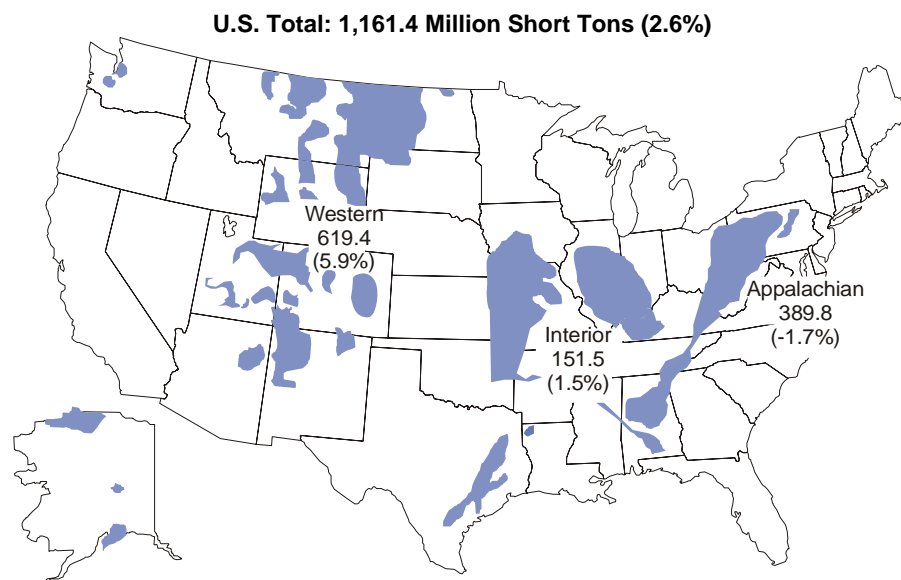
One of the most important aspects for the coal industry in 2006 was the lack of any major

transportation issues related to coal moving from the mines to the consumers. Although there were a few, somewhat minor and typical transportation problems, e.g., some partial train derailments; continuing track improvements and rail additions; river lock repairs; sunken barges; and low water levels on some major river systems during the summer, 2006 was free of the major transportation problems that the coal industry experienced in 2005.

Appalachian Region

Coal production in the Appalachian Region decreased in 2006 by 6.8 million short tons, to end the year at 389.8 million short tons, a decline of 1.7 percent, making it the fifth year in a row that the region has experienced coal production of less than 400 million short tons. The decrease in 2006 in coal production in the region was in part, a response to the drop in coal consumption for electricity generation, the slight decrease in coal exports, which are primarily produced in the East, and the increase in coal imports, which are in competition with Appalachian production. The decline in the Appalachian Region in 2006 brought the production level down to the 2004 level.

Figure 1. Coal Production by Coal-Producing Region, 2006
(Million Short Tons and Percent Change from 2005)
Regional totals do not include refuse recovery



Source: Energy Information Administration, *Quarterly Coal Report*, October-December 2006, DOE/EIA-0121(2006/Q4) (Washington, DC, March 2007).

Table 2. U.S. Coal Production by Coal-Producing Region and State, 2002 – 2006
(Million Short Tons)

Coal-Producing Region and State	2002	2003	2004	2005	2006	Percent Change 2005 - 2006
Appalachia Total	396.2	376.1	389.9	396.4	389.8	-1.7
Alabama.....	18.9	20.1	22.3	21.3	18.8	-11.8
Kentucky, Eastern.....	99.4	91.3	90.9	93.4	92.8	-0.5
Maryland.....	5.1	5.1	5.2	5.2	5.1	-2.5
Ohio.....	21.2	22.0	23.2	24.7	22.7	-8.1
Pennsylvania Total.....	68.4	63.7	66.0	67.3	66.0	-2.2
Anthracite.....	1.3	1.2	1.7	1.6	1.5	-8.5
Bituminous.....	67.1	62.5	64.3	65.6	64.5	-2.1
Tennessee.....	3.2	2.6	2.9	3.2	2.8	-12.8
Virginia.....	30.0	31.6	31.4	27.7	29.7	7.2
West Virginia Total.....	150.1	139.7	148.0	153.6	151.9	-1.2
Northern.....	34.0	34.9	40.6	42.6	42.7	0.2
Southern.....	116.0	104.8	107.3	110.9	109.2	-1.7
Interior Total	146.6	146.0	146.0	149.2	151.5	1.5
Arkansas.....	*	*	*	*	*	787.7
Illinois.....	33.3	31.6	31.9	32.1	32.2	0.6
Indiana.....	35.3	35.4	35.1	34.4	35.7	3.7
Kansas.....	0.2	0.2	0.1	0.2	0.4	149.6
Kentucky, Western.....	24.7	21.5	23.4	26.4	27.2	3.1
Louisiana.....	3.8	4.0	3.8	4.2	4.1	-1.1
Mississippi.....	2.3	3.7	3.6	3.6	3.8	6.8
Missouri.....	0.2	0.5	0.6	0.6	0.4	-34.1
Oklahoma.....	1.4	1.6	1.8	1.8	2.0	7.6
Texas.....	45.2	47.5	45.9	45.9	45.5	-0.9
Western Total	550.4	548.7	575.2	587.0	619.4	5.9
Alaska.....	1.1	1.1	1.5	1.5	1.4	-2.0
Arizona.....	12.8	12.1	12.7	12.1	8.2	-31.9
Colorado.....	35.1	35.8	39.9	38.5	36.3	-5.7
Montana.....	37.4	37.0	40.0	40.4	41.8	3.6
New Mexico.....	28.9	26.4	27.2	28.5	25.9	-9.1
North Dakota.....	30.8	30.8	29.9	30.0	30.4	1.5
Utah.....	25.3	23.1	21.7	24.5	26.0	6.1
Washington.....	5.8	6.2	5.7	5.3	2.6	-51.0
Wyoming.....	373.2	376.3	396.5	406.4	446.7	10.5
Refuse Recovery	1.0	1.0	1.0	0.7	0.7	-1.1
U.S. Total	1,094.3	1,071.8	1,112.1	1,133.3	1,161.4	2.6

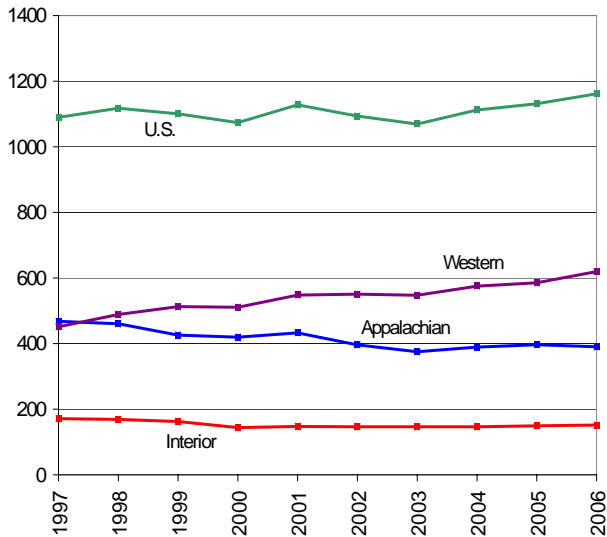
* Less than 50 thousand short tons.

Source: Energy Information Administration, *Annual Coal Report 2002*, DOE/EIA-0584(2002)(Washington, DC, November 2003); Energy Information Administration, *Annual Coal Report 2004*, DOE/EIA-0584(2004)(Washington, DC, November 2005); and *Quarterly Coal Report*, October-December 2006, DOE/EIA-0121(2006/Q4)(Washington, DC, March 2007).

West Virginia, the largest coal-producing State in the Appalachian Region and the second largest in the U.S., decreased 1.2 percent in 2006 to end the year with 151.9 million short tons of production, 1.8 million short tons under the 2005 level. The decline in coal production in West Virginia was in part a result of the suspensions of production after accidents that occurred in January at two new mines in the state: Sago and Aracoma mines. Although there were a few new mines in 2006 and a full year's production

from mines that came on line during 2005 (Toney's Fork, Grapevine South, Camp Branch, and No. 130 mines), those increases in coal production were more than offset by the declines in production at other mines in the State (Upper Big Branch, American Eagle, Harris No. 1, and Alex Energy's No. 1) in combination with the idling of the Shoemaker mine in April of 2006.

Figure 2. Coal Production by Region, 1997-2006
(Million Short Tons)
Regional totals do not include refuse recovery



Sources: Energy Information Administration, *Quarterly Coal Report*, October-December 2005, DOE/EIA-0121(2005/Q4) (Washington, DC, March 2006); *Coal Industry Annual*, DOE/EIA-0584, various issues; *Annual Coal Report 2002*, DOE/EIA-0584(2002) (Washington, DC, November 2003); and *Annual Coal Report 2004*, DOE/EIA-0584(2004) (Washington, DC, November 2004).

Eastern Kentucky produced 92.8 million short tons of coal in 2006, a decline of 0.5 million short tons or 0.5 percent. Although there were six mines in eastern Kentucky that had an increase in coal production of at least a half-a-million short tons, production decreases by numerous other mines resulted in the lower annual production. Two mines with lower 2006 coal production in eastern Kentucky, the Halfway Branch Surface and the Branham mine, were placed into non-producing status during the year. Pennsylvania produced 66.0 million short tons, a decrease of 2.2 percent from 2005, or 1.5 million short tons. The decrease in coal production level at Consol's Bailey mine and the idling of ANR's Ridge Deep mine accounted for most of the drop in production in 2006.

Coal production in Virginia increased in 2006, the only state in the Appalachian Region to have higher production than 2005. Virginia produced a total of 29.7 million short tons, an increase of 7.2 percent. The increase in coal production in Virginia was primarily a result of the resumption of production at Consol's Buchanan mine that had experienced both a fire and later mechanical problems in 2005 that had substantially reduced production. Ohio's coal

production declined in 2006 by 8.1 percent to end the year at 22.7 million short tons. The lower production was a result of the drop in production at Ohio Valley's Powhatan longwall mine and Consol's Mahoning Valley No. 36 mine, which only had production in the first quarter of 2006. Coal production decreased in Alabama in 2006 by 11.8 percent to 18.8 million short tons. The Jim Walter Resources No. 4 mine had lower production in 2006 as a result of a longwall move combined with some roof control issues. Production also decreased in 2006 at Drummond's Shoal Creek mine due to a series of methane ignitions in February that resulted in suspension of production for an extended period of time during the year. Maryland and Tennessee both had slightly decreased coal production in 2006 from their prior year levels.

Interior Region

The Interior Region experienced an increase in coal production in 2006 of 2.3 million short tons, or 1.5 percent to achieve a total of 151.5 million short tons, the highest level seen in the region since 1999. The increase in coal production in the Interior Region was primarily a result of the increased coal production in Indiana and Western Kentucky, which accounted for over 90 percent of the total regional increase. Indiana coal production rose 1.3 million short tons in 2006 to end the year at 35.7 million short tons, an increase of 3.7 percent and the highest in 4 years.

Most of the increase in Indiana's coal production in 2006 can be attributed to Black Beauty Coal Company's Miller Creek Mine - Knox Pit that began production in the fourth quarter of 2005. Western Kentucky coal production in 2006 was 27.2 million short tons, an increase of 0.8 million short tons or 3.1 percent. While a few mines in Western Kentucky ceased production in 2006, a full year's production by two mines that started in the last half of 2005, Advent Mining's Onton No. 9 and Hopkins County Coal's Elk Creek mine, accounted for the majority of the production increase for the year.

Texas is the largest coal-producing State in the Interior Region and in 2006 it accounted for slightly less than one-third of the region's coal production with a total of 45.5 million short tons, a slight decrease of 0.9 percent from 2005. Coal production in Illinois rose slightly by 0.6 percent to end the year at 32.2 million short tons, an increase of 0.2 million short tons. The other States in the Interior Region (Arkansas, Kansas, Louisiana, Mississippi, Missouri, and Oklahoma), which together produced 10.8

million short tons of coal and accounted for a total of 7.1 percent of the entire region's production in 2006, all fluctuated some from their 2005 coal production levels.

Western Region

Coal production in the Western Region increased in 2006 by 5.9 percent to a total of 619.4 million short tons, and accounted for over 53 percent of total U.S. coal production for the year. The increase of 34.5 million short tons resulted in another record level for the region, the third year in a row that the region achieved a record. Despite the record level of coal production, only four of the nine States in the Western Region had higher production levels in 2006: Montana, North Dakota, Utah, and Wyoming.

Wyoming is by far the largest coal-producing State in the Nation, a position it has held since 1988. In 2006, Wyoming produced 446.7 million short tons of coal, an increase of 42.4 million short tons or 10.5 percent for the year. Although five of the twenty-one mines in Wyoming had slight decreases in coal production in 2006, the increased production levels at the rest of the mines pushed the State to a new record level for the year. The dominance of Wyoming in U.S. coal production is reflected by the fact that the largest mine in the State (and the United States) is the Black Thunder mine which produced 92.7 million short tons in 2006. This Wyoming mine alone produced more coal than 23 other individual coal-producing states. Other examples of Wyoming's dominance are: in 2006, it accounted for about 72 percent of the Western Region production total; was 56.9 million short tons more than the entire Appalachian Region; was almost three times the Interior Region; and was 38.5 percent of the total U.S. coal production for the year. Also, if the 26 States that produced coal in 2006 were ranked by descending total production levels, Wyoming produced 108.8 million short tons more than the next three largest coal-producing States (West Virginia, Kentucky, and Pennsylvania), and 70.7 million short tons more coal than the summation of the States ranked 5th through 26th. Wyoming was able to transport more coal by rail in 2006. Improved railroad capacity in Wyoming resulted in increased shipments which allowed utilities to rebuild stockpiles during the year and was able to alleviate the pent-up demand caused by the restrictions the railroads experienced during the repair and maintenance work on the southern Powder River Basin (PRB) rail line in 2005.

In 2006, Montana, the second largest coal-producing State in the Western Region, produced a total of 41.8 million short tons, an increase of 3.6 percent. Although there was a decrease in production at Western Energy's Rosebud mine, the increase in coal production at Spring Creek Coal's Spring Creek mine due to the completion of an expansion project more than offset the decline. Total coal production in North Dakota increased in 2006 by 1.5 percent to end the year at 30.4 million short tons. Declines in production by two of the four North Dakota mines, Beulah and Center, were offset by increases in the other two mines, Falkirk and Freedom. Coal production in Utah in 2006 increased by 6.1 percent to a level of 26.0 million short tons. The 1.5-million-short-ton increase in Utah was primarily a result of the increase in production at Canyon Fuel's Skyline No. 3 mine.

Colorado had a decline in coal production in 2006, ending the year with a total of 36.3 million short tons, a decrease of 2.2 million short tons, due in part to the closing of HNR's Bowie No. 3 mine at the end of 2005 and the idling of Peabody's Seneca mine at the beginning of 2006. New Mexico had a decrease of 2.6 million short tons in 2006 to end the year with a total of 25.9 million short tons, a decline of 9.1 percent, which was attributable to the decreased production levels at BHP's Navajo and San Juan South mines. Coal production in 2006 in Alaska was 1.4 million short tons, slightly below the prior year total.

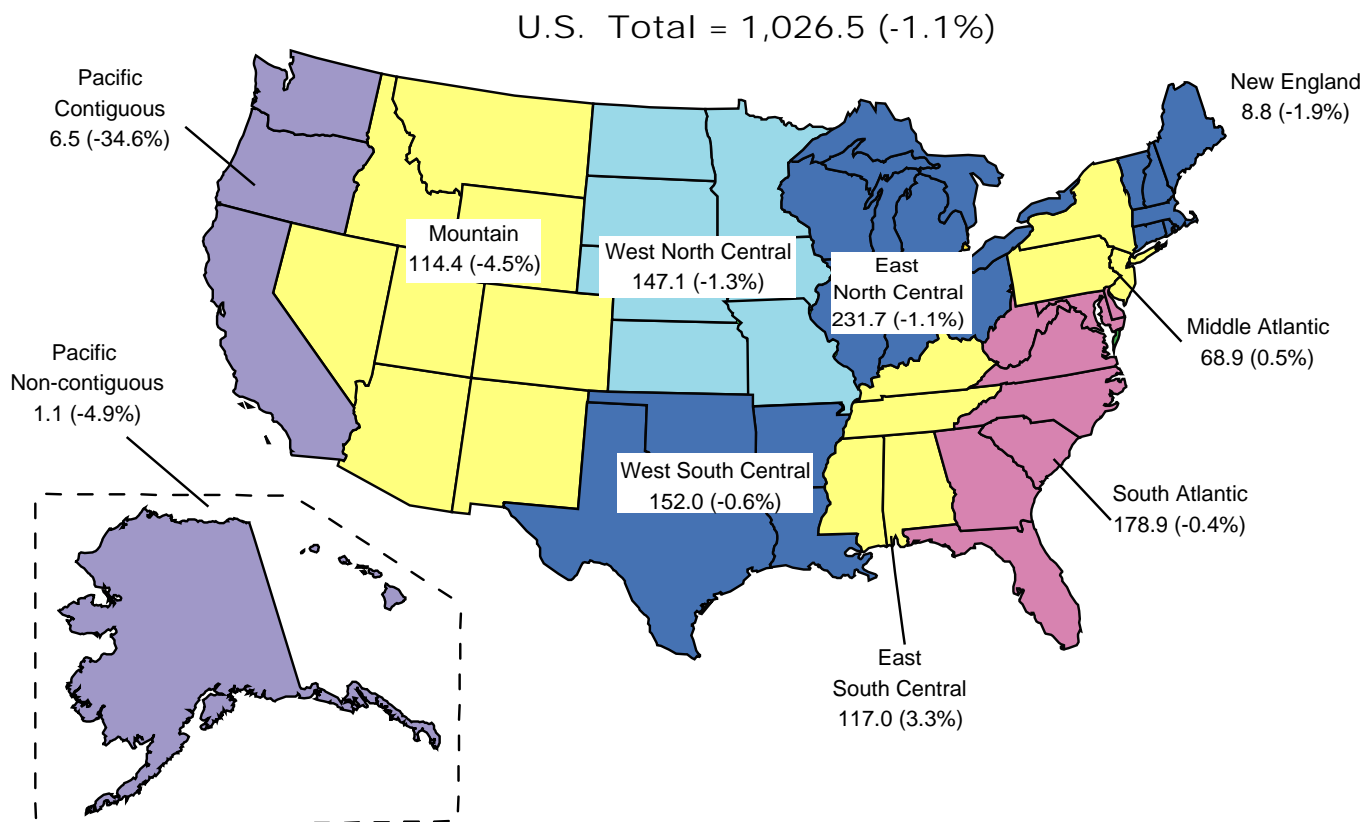
Arizona and Washington both had major declines in coal production in 2006 as a consequence of mine closures. Coal production in Arizona in 2006 was 8.2 million short tons, a decrease of 3.9 million short tons, or 31.9 percent due to the idling of the Peabody's Black Mesa mine which had provided coal to the jointly-owned Mohave electric generation facility that closed at the end of 2005, due to an agreement with several organizations that required the plant to install environmental equipment or cease operation. Coal production in Washington in 2006 declined by 51.0 percent to 2.6 million short tons. The only mine in the State, TransAlta's Centralia mine, had deteriorating mining conditions and escalating mining costs that resulted in the company deciding to close the mine at the end of November 2006.

Consumption

The combination of moderate weather and declining natural gas prices resulted in lower coal consumption in the electric power sector, which in turn lowered total coal consumption in the United States in 2006. Preliminary data show that total coal consumption decreased 11.3 million short tons to a level of 1,114.2 million short tons, a decline of 1.0 percent. The electric power sector (electric utilities and independent power producers) accounts for about 92 percent of all coal consumed in the United States and is the driving force for the Nation's coal consumption. The other coal consuming sectors (other industrial, coking coal, and residential and commercial sectors) had minor changes in their consumption totals. The other industrial sector had an increase in coal consumption in 2006 of 0.3 percent, while the coking coal sector had a decrease of 2.0 percent. The residential and commercial sector (which is the smallest of all coal consuming sectors, accounting for less than one-half of one percent of total consumption), remained at about the same level as in 2005.

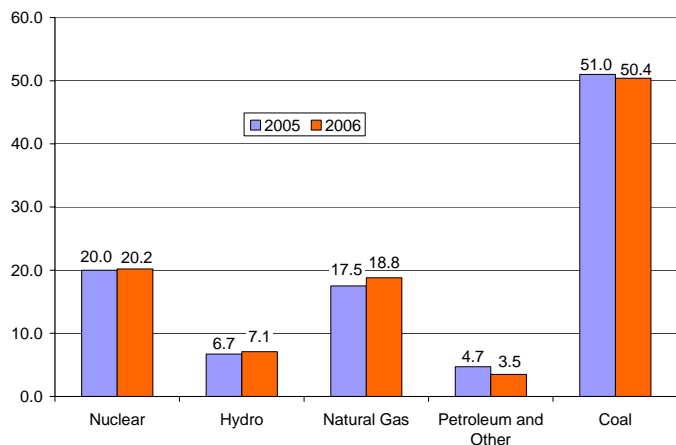
Coal consumption in the electric power sector decreased by 1.1 percent or 11.0 million short tons to end 2006 at 1,026.5 million short tons (Figure 3). However, coal-based generation decreased at a slightly higher rate of 1.3 percent for the year. This apparent inconsistency is explained by the increased usage of lower-Btu western coals (subbituminous and lignite) to generate electricity. Nationally, total generation in the electric power sector from all fuels decreased marginally in 2006 by 0.1 percent. However, there were substantial gains in electricity generation by natural gas and hydroelectric generation facilities in the United States (Figure 4). The increase of 6.8 percent in electricity generation by hydroelectric facilities in the United States was a direct result of the increased precipitation during the year. The increase in electric generation by natural gas plants of 7.2 percent in 2006 was due in part to the decreasing costs of natural gas during the year combined with the numerous new gas-fired generating facilities that opened during the last several years. In 2006, 71 percent of the new capacity to come on line during the year was natural gas-fired, while new coal-fired capacity was less than

Figure 3. Electric Power Sector Consumption of Coal by Census Division, 2006
(Million Short Tons and Percent Change from 2005)



Source: Energy Information Administration, Form EIA-906, "Power Plant Report."

Figure 4. Share of Electric Power Sector Net Generation by Energy Source, 2005 vs. 2006 (Percent)



Source: Energy Information Administration, Form EIA-906, "Power Plant Report."

5 percent. The average cost of natural gas delivered to the electricity sector through November 2006 compared to 2005 has decreased by 13.9 percent, while the cost of coal has increased by 10.0 percent in the same time period.

There are two major factors that influence total electric generation: economic growth and weather. Even though economic growth continued throughout 2006, with the gross domestic product (GDP) of the United States increasing by 3.3 percent for the year, the moderate weather across the country for most of the year was enough to dampen the demand for electricity. According to preliminary data from the National Weather Service Climate Prediction Center of the National Oceanic and Atmospheric Administration (NOAA), compared to 2005, cooling degree-days in 2006 were slightly lower for the country as a whole (2.4 percent), while heating degree-days were 8.0 percent lower. Although the summer weather in 2006 was hotter than normal (30-year average) for the Nation by 15.8 percent, the winter weather (warmest January ever recorded) was warmer than normal and the heating degree-days for 2006 were 13.3 percent below normal.

Of the nine Census Divisions, coal is less than 20 percent of the fuel mix for electricity generation in two divisions, New England and Pacific, and more than 50 percent of the fuel mix in five divisions, East North Central, West North Central, South Atlantic,

East South Central, and Mountain. In the other two divisions, coal is one of two main fuel sources for the electric power sector. In the Middle Atlantic, coal competes with nuclear power for dominance, while in the West South Central coal competes with natural gas.

Seven of the nine Census Divisions had decreases in coal consumption in the electric power sector in 2006, with six of those seven having a decline of at least half a million short tons. One of the Census Divisions, the Mountain, accounted for almost 50 percent of the decrease in total coal consumption in the electric power sector. Total generation in the Mountain Census Division declined in 2006 by 1.6 percent (Table 3). Coal is the primary fuel for electricity generation in the Mountain division and it accounted for 61.1 percent of total generation for the year. The combination of lower total generation in the Mountain division with the increases in generation of both natural gas, up 5.0 percent, and hydroelectric facilities, up 14.2 percent in 2006, resulted in a decline in coal consumption for the division of 5.4 million short tons, a drop of 4.5 percent.

The Pacific Census Division (Pacific Contiguous and Pacific Non-contiguous) was one of three divisions to have an increase in total generation in the electric power sector in 2006, increasing by 7.9 percent. However, coal is a small portion of total generation, usually less than 5 percent. Even though coal is such a small part of the total generation for the division, the decrease in coal consumption for the electric power sector was the second-largest in the Nation in 2006. Total coal consumption for the electric power sector in the Pacific Census Division declined by 3.5 million short tons or 31.5 percent. Increases in generation by natural gas and hydroelectric facilities in the division of 9.5 percent and 17.5 percent respectively, helped push down the need for coal to generate electricity. In the East North Central Census Division, coal accounts for about 70 percent of total generation in the electric power sector. For 2006, total electricity generation in this division decreased by 1.9 percent from the 2005 level, while the coal-based generation declined by 1.7 percent. The drop in coal-based generation resulted in a decrease in coal consumption for the electric power sector of 2.6 million short tons for the year.

In the West North Central Census Division, where coal accounts for about three-fourths of generation, total generation in the electric power sector in 2006

Table 3. Electric Power Sector Net Generation, 2005-2006 (Million Kilowatthours)

	2005	2006	Percent Change
Census Division			
New England			
Coal	20,101	19,640	-2.9
Total	129,477	125,808	-2.9
Middle Atlantic			
Coal	151,957	151,763	0.4
Total	416,822	413,236	-1.3
East North Central			
Coal	459,316	451,163	-1.7
Total	651,014	639,073	-1.9
West North Central			
Coal	229,279	226,259	-1.7
Total	297,525	299,481	-0.1
South Atlantic			
Coal	424,971	423,442	-0.4
Total	798,006	788,832	-1.5
East South Central			
Coal	241,057	246,597	2.2
Total	367,667	370,154	0.6
West South Central			
Coal	227,685	226,802	-0.4
Total	535,630	548,179	1.4
Mountain			
Coal	220,516	207,804	-5.5
Total	343,893	340,119	-1.6
Pacific			
Coal	17,647	12,569	-28.8
Total	343,385	374,926	7.9
U.S. Total			
Coal	1,992,530	1,966,039	-1.3
Total	3,883,420	3,899,806	-0.1

Source: Energy Information Administration, Form EIA-906, "Power Plant Report."

was about the same as the prior year, declining by 0.1 percent. However, a large increase in generation by nuclear plants resulted in a decrease in generation by coal plants. Total coal-fired generation in the West North Central division declined by 1.7 percent while coal consumption for generation decreased by 1.3 percent, or 1.9 million short tons. In the West South Central Census Division coal competes with natural gas as the primary fuel for electricity generation, both typically accounting for over 40 percent of total generation. In 2006, total generation in the West South Central division increased by 1.4 percent, with natural gas generation increasing by 2.2 percent and nuclear-powered generation increasing by 8.3 percent. As a consequence of the increases in generation by those fuels in the division, coal-based generation declined by 0.4 percent with coal consumption for electric power generation decreasing in 2006 by 1.0 million short tons.

In the South Atlantic Census Division total generation in the electric power sector declined in 2006 by 1.5 percent. Coal typically accounts for over half of the generation in the South Atlantic division and in 2006 coal-based generation decreased by 0.4 percent resulting in a decrease in coal consumption for electric power generation of 0.6 million short tons. Coal accounts for less than one-sixth of total generation in the New England Census Division, and in 2006 total coal consumption for electricity generation decreased by 0.2 million short tons, or 1.9 percent.

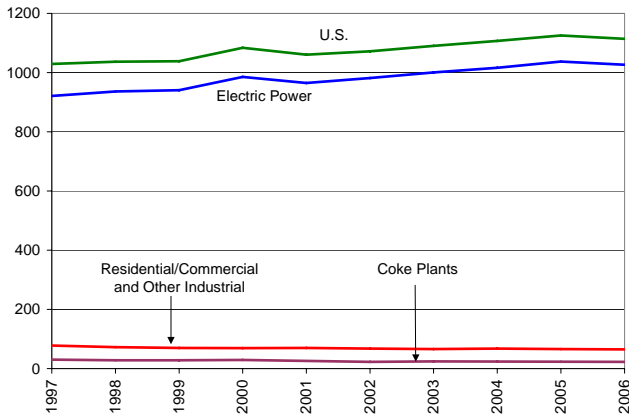
Of the two Census Divisions (the East South Central and the Middle Atlantic) that had increases in coal consumption for electricity generation, the East South Central Division accounted for about 92 percent of the total increase. Coal is the primary fuel for generation in the East South Central division, typically accounting for over two-thirds of total generation in a year, while nuclear power accounts for just under 20 percent. Total electricity generation in the East South Central division increased slightly by 0.6 percent in 2006. Nuclear power generation declined in the division by 3.7 percent while coal-based generation increased by 2.2 percent for the year. This resulted in an increase in coal consumption of 3.8 million short tons over the 2005 level.

The Middle Atlantic Census Division had a decrease in electric power sector generation in 2006 of 1.3 percent. Natural gas generation increased by 24.8 percent while coal-based generation increased by only 0.4 percent in 2006. This resulted in an increase in coal consumption for electric power generation in the Middle Atlantic division of only 0.3 million short tons.

Coal consumption in the non-electric power sector declined somewhat in 2006 (Figure 5). Coal consumption at coke plants decreased by 0.5 million short tons to end the year at 23.0 million short tons, a decline of 2.0 percent. Although there was a decline in U.S. coke production in 2006 due to a slowing in the demand for coke both domestically and internationally, a previously announced expansion at the newest coke plant (another 100 batteries to be built) is still planned but the start of the construction has been delayed.

Although the GDP grew by 3.3 percent, the economic growth did not extend into the entire manufacturing sector in 2006, and as a result, coal consumption in the other industrial sector increased by only 0.2

Figure 5. Coal Consumption by Sector, 1997-2006
(Million Short Tons)



Source: Energy Information Administration, *Monthly Energy Review*, March 2007, DOE/EIA-0035(2007/03) (Washington, DC, March 2007).

million short tons to end the year at 60.5 million short tons. The increases in coal consumption in 2006 experienced in some of the manufacturing sectors (nonmetallic mineral products and primary metal manufacturing) offset the decreases in other manufacturing sectors (food, beverage, textile, paper, chemical, fabricated metal, and transportation equipment). Coal consumption in the residential and commercial sector remained basically flat in 2006.

Coal Prices

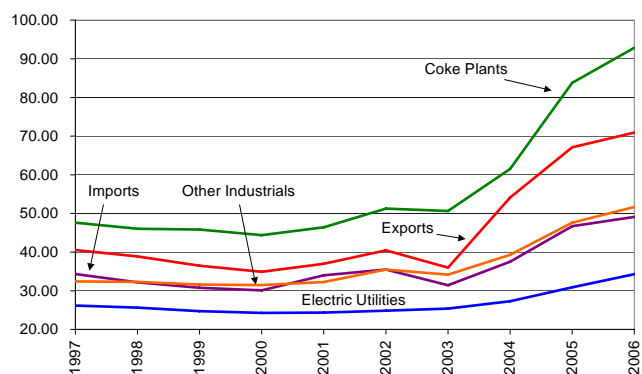
For the third consecutive year, coal prices rose across the board. Even though spot coal prices for some of the producing regions declined in 2006, average delivered prices in the consuming sectors increased for the year. The majority of coal sold in the electric power sector is through long-term contracts, in conjunction with spot purchases to supplement the demand. According to preliminary data through November 2006, delivered coal prices at electric utilities (a subset of the electric power sector) increased for a sixth consecutive year, to \$34.31 per short ton (\$1.69 per million Btu), an increase of 9.9 percent over the 2005 price. Delivered coal prices at independent power producers through November 2006 increased to \$32.44 per short ton (\$1.68 per million Btu), an increase of 6.8 percent. The delivered price of coal to the other coal-consuming sectors also increased in 2006. The average delivered price of coal to the other industrial sector increased by 8.5 percent to an average of \$51.67 per short ton in 2006. However, the largest increase in consumer prices was in the coking coal sector. The limited availability and the tight specifications needed for coal to produce coke influence the price. High international prices for metallurgical coal in 2006 also affected prices in the U.S. market. In 2006 the delivered price of coal to U.S. coke plants increased by 10.8 percent

to reach an average price of \$92.87 per short ton in (Figure 6).

Coal Synfuel

The coal synfuel industry in 2006 was affected by the increases in oil prices that occurred during the year. These coal synfuel plants can lose tax credits (IRS Section 45 [formally Section 29]) the higher the reference price of oil is for the year. (The credit is subject to a ranged phase-out if the average annual domestic wellhead oil price reaches a certain level.) According to preliminary data, there were 57 coal synfuel plants in operation in the United States at the end of 2006 (Figure 7 and Table 4). The amount of coal processed by all the coal synfuel plants in 2006 was a total of 109.6 million short tons, a decline of 30.1 million short tons from the 2005 amount. The average price of coal delivered to the coal synfuel plants increased in 2006 by 12.0 percent to \$47.90 per short ton. These plants process both run-of-mine and waste coal to produce their end product, typically referred to as coal synfuel, which enters into the supply chain and is consumed by various users in almost all sectors, including the export market. As in the traditional coal industry, more than 90 percent of coal synfuel is distributed to the electric power sector, while smaller amounts are sent to coke plants, other industrial plants and exported.

Figure 6. Delivered Coal Prices, 1997-2006
(Nominal Dollars per Short Ton)



Sources: Energy Information Administration, *Quarterly Coal Report*, October-December 2006, DOE/EIA-0121(2006/Q4) (Washington, DC March 2007); *Coal Industry Annual*, DOE/EIA-0584, various issues; and *Annual Coal Report 2002*, DOE/EIA-0584(2002), (Washington, DC, November 2003); *Annual Coal Report 2004*, DOE/EIA-0584(2004), (Washington, DC November 2005); *Electric Power Monthly*, March 2007, DOE/EIA-0226 (2007/03), (Washington, DC); and U.S. Department of Commerce, Bureau of the Census, "Monthly Report EM 545" and "Monthly Report IM 145."

Exports and Imports

Exports. U.S. coal exports declined slightly in 2006, reversing a 3-year trend. Total U.S. coal exports in 2006 were 49.6 million short tons, a decrease of 0.3 million short tons over 2005 (Figure 8). Although total coal exports were down by 0.6 percent for the year, the average free alongside ship (f.a.s.) price increased by 5.7 percent to \$70.93 per short ton as the tight world metallurgical coal market continued to push export prices higher.

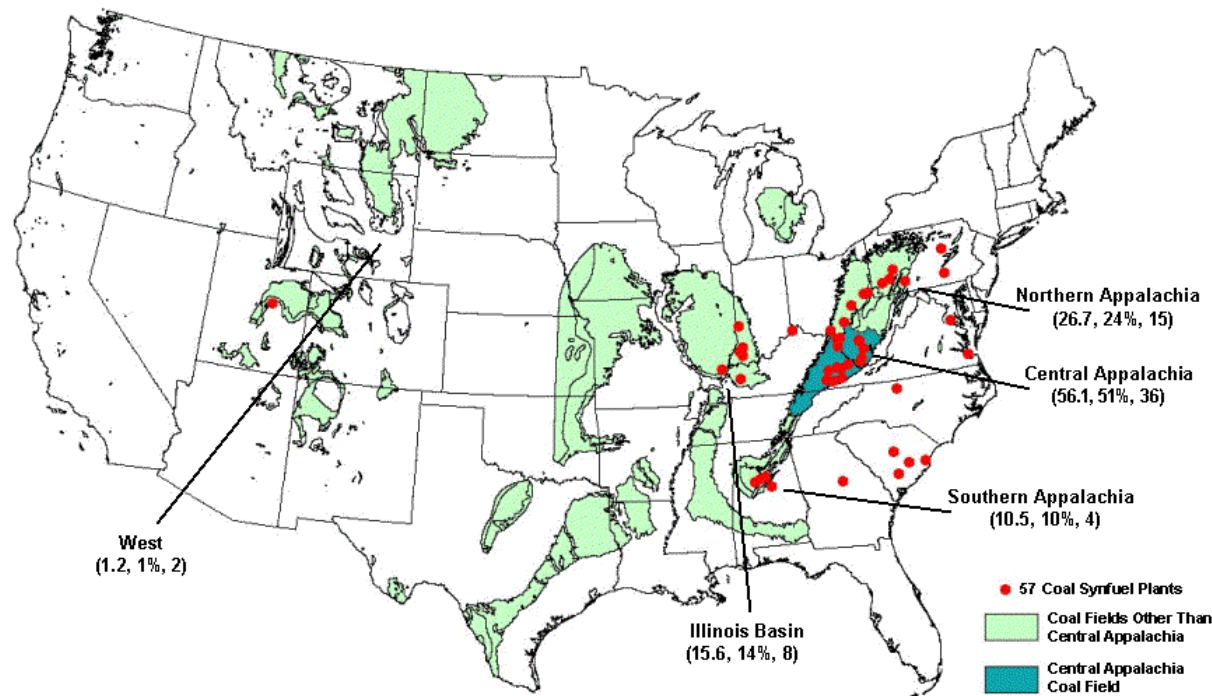
Total U.S. steam coal exports actually increased in 2006, the fourth year in a row that this has occurred. Steam coal exports rose by 4.1 percent to a level of 22.1 million short tons in 2006, while the average f.a.s. price decreased by 2.9 percent to \$46.25 per short ton.

Canada is the single largest market for all U.S. coal exports. In 2006, Canada received 15.3 million short

tons of steam coal exports, an increase of 0.3 million short tons. The increase in steam coal exports to Canada occurred even though the Provincial government of Ontario closed its 1,140 megawatt Lakeview coal-fired generating plant in April 2005. U.S. steam coal exports to Canada account for 69.2 percent of all of 2006 steam coal exports. The average f.a.s. price of steam coal exports to Canada actually increased by 6.0 percent to \$40.95 per short ton in 2006.

Europe is the second largest market for U.S. steam coal exports due to the declining coal production in many of the countries combined with the proximity of the eastern U.S. major coal ports. Total steam coal exports to Europe increased in 2006 to a total of 5.6 million short tons, an increase of 61.3 percent from 2005. The average f.a.s. price of steam coal to Europe decreased in 2006 by 17.2 percent, dropping to a level of \$58.18 per short ton. Almost all of the increase in U.S. steam coal exports to Europe was accounted for by four countries: the United Kingdom,

Figure 7. Coal Shipments from Coal-Producing Regions to Coal Synfuel Plants, 2006
(Million Short Tons, Percent of U.S. Total, and Number of Plants)



Note: The numbers of plants inside the parentheses add to 65 rather than 57 plants because seven synfuel plants received coal from two or more coal-producing regions.

Source: Energy Information Administration, Form EIA-3, "Quarterly Coal Consumption and Quality Report – Manufacturing Plants."

Table 4. Coal Statistics for Synthetic Fuel Plants
(Thousand Short Tons and Nominal Dollars per Short Ton)

Year and Quarter	Coal Receipts	Average Price of Receipts	Coal Used	Coal Stocks
2002				
January - March	17,635	\$32.27	17,237	970
April - June	20,367	\$31.48	20,652	771
July - September	23,578	\$31.87	23,248	1,128
October - December	23,600	\$32.02	23,789	951
	85,180	\$31.90	84,925	
2003				
January - March	26,558	\$32.10	26,334	1,210
April - June	31,327	\$32.71	31,077	1,455
July - September	27,911	\$33.13	28,110	1,287
October - December	29,380	\$33.52	29,787	1,132
	115,177	\$32.88	115,309	
2004				
January - March	31,633	\$34.39	31,374	1,251
April - June	31,882	\$35.99	31,968	1,023
July - September	32,006	\$37.46	32,172	810
October - December	30,645	\$37.63	30,297	1,072
	126,165	\$36.36	125,810	
2005				
January - March	33,510	\$41.82	33,523	1,064
April - June	36,770	\$42.60	36,123	1,774
July - September	37,259	\$42.44	37,516	1,488
October - December	33,060	\$44.33	32,580	1,728
	140,598	\$42.78	139,743	
2006				
January - March	33,677	\$46.58	33,468	1,951
April - June	26,061	\$47.85	25,492	2,426
July - September	16,847	\$52.65	17,007	2,130
October - December	33,397	\$46.87	33,636	1,701
	109,982	\$47.90	109,603	

Note: Total may not equal sum of the components because of independent rounding.

Source: Energy Information Administration, Form EIA-3, "Quarterly Coal Consumption and Quality Report - Manufacturing Plants."

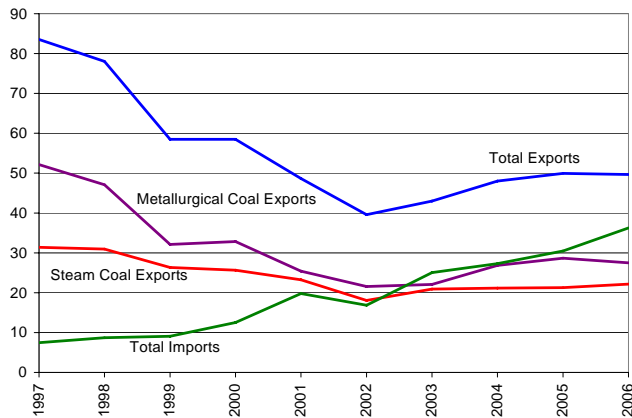
Germany, Denmark, and Finland. The increased shipments of steam coal to the United Kingdom of 759 thousand short tons accounted for over one-third of the total increase in steam coal exports to Europe. Increases in steam coal exports in 2006 also occurred in Germany and Denmark of 481 thousand short tons and 310 thousand short tons, respectively, and accounted for 22.7 percent and 14.7 percent of the increase in steam coal exports to the European continent. Finland, which did not receive U.S. steam coal exports in 2005, received a total of 397 thousand short tons in 2006.

Steam coal exports to Asia continued its declining trend in 2006, dropping by 56.5 percent for the year. Total steam coal exports to Asia were 0.6 million short tons, a decline of 0.7 million short tons. Although there were slight tonnage increases in a few countries, the decline in U.S. steam coal exports to

Japan accounted for the majority of the drop in steam coal exports to Asia. In 2006, Japan only received 4 thousand short tons of steam coal from the United States, a level 256 thousand short tons lower than the 2005 total. Other Asian countries that had large declines in steam coal exports in 2006 were South Korea and India. The average f.a.s. price of steam coal exports to Asia dropped in 2006 to \$46.58 per short ton, a 27.1 percent decrease over the 2005 price of \$63.88 per short ton.

Although U.S. steam coal exports to the African continent increased by 77.2 percent in 2006, the increase in tonnage was only 106 thousand short tons. Steam coal exports to South America fell in 2006 by 657 thousand short tons with Brazil accounting for most of the decrease. Steam coal exports to Brazil were 196 thousand short tons in 2006, declining by 570 thousand short tons.

Figure 8. U.S. Coal Exports and Imports, 1997-2006
(Million Short Tons)



Sources: U.S. Department of Commerce, Bureau of the Census, "Monthly Report EM 545" and "Monthly Report IM 145."

Metallurgical coal exports declined in 2006 to end the year at 27.5 million short tons, a decrease of 4.1 percent as the world metallurgical coal market eased from the tight market conditions experienced in 2005. Although the tonnage was down from the prior year, the average f.a.s. price of U.S. metallurgical coal exports rose in 2006 to \$90.81 per short ton, an increase of \$9.25 per short ton over the 2005 level.

Europe is the main destination of U.S. metallurgical coal, and there was a slight decrease in shipments in 2006, ending the year at 15.2 million short tons, a drop of 0.9 percent from 2005. In 2006, Italy was the primary European destination of U.S. metallurgical coal exports with a total of 3.3 million short tons, an increase of 35.1 percent. The average f.a.s. price of metallurgical coal exports to Italy was \$95.22 per short ton in 2006, an increase of \$17.01 per short ton. Belgium received 1.8 million short tons of U.S. metallurgical coal in 2006, an increase of 8.5 percent, while the average f.a.s. price increased \$9.73 per short ton, from \$80.67 to \$90.40. While both France and the Netherlands each received 1.4 million short tons of U.S. metallurgical coal in 2006, that total was an increase of 14.6 percent for France and a decrease of 15.8 percent for the Netherlands. The percentage increase in the average price per short ton of metallurgical coal exports to both countries was 2.6 percent; the average f.a.s. price per short ton for metallurgical coal to France was \$92.81, and the price for the Netherlands was \$86.59 in 2006. Other major European destinations for U.S. metallurgical coal in 2006 were the United Kingdom, Spain, Sweden, and Germany, with each receiving over 1

million short tons of coal. The average f.a.s. price of metallurgical coal exports to these major destinations ranged from \$88.61 per short ton in Spain to \$98.75 per short ton in Germany.

The Asian market, which has the location advantage of being near the major metallurgical coal mines of Australia, accounted for the majority of the decline in U.S. metallurgical coal exports in 2006. Total metallurgical coal exports to Asia totaled 1.5 million short tons in 2006, a decline of 61.8 percent. All three of the Asian countries that were the principal destination of U.S. metallurgical coal exports had large decreases in their shipments in 2006. Japan, which was the largest Asian importer in 2005, accounted for the largest drop in metallurgical coal exports in 2006. Total U.S. metallurgical coal exports to Japan in 2006 were 328 thousand short tons, a decline of 1.5 million short tons, while the average f.a.s. price decreased by \$9.80 to \$81.47 per short ton. The two other principal Asian countries to receive U.S. metallurgical coal exports both had a decrease in 2006. South Korea received 145 thousand short tons in 2006, a drop of 657 thousand short tons, while India received 981 thousand short tons, a drop of only 207 thousand short tons. The average f.a.s. price for India was \$97.90 per short ton, a decline of \$11.14 per ton. The average f.a.s. price for metallurgical coal exports to South Korea actually increased in 2006 by \$5.04 per short ton to \$92.24.

Total U.S. metallurgical coal exports to countries in North America decreased slightly in 2006, while shipments to South America increased, with the primary destinations being Canada and Brazil. Canada received 4.6 million short tons of metallurgical coal exports, an increase of 2.5 percent over the 2005 level, while shipments to Brazil were 4.3 million short tons, an increase of 26.4 percent. The average f.a.s. price of metallurgical coal in 2006 to Canada was \$77.74 per short ton, while the price to Brazil was \$95.19 per short ton.

U.S. coke exports declined in 2006 by 7.5 percent to a total of 1.6 million short tons. Most of the coke exports went to Canada which accounted for 52.0 percent of all coke exports with 0.8 million short tons. The other major destination of U.S. coke exports was Mexico with 23.7 percent of the total coke exports.

Imports. 2006 was another record year for U.S. coal imports, the fourth in a row. Total coal imports were 36.2 million short tons, an increase of 19.0 percent,

or 5.8 million short tons. Although imports represented about 3 percent of total U.S. coal consumption in 2006, they are a factor in the supply and demand balance, particularly for the coastal electric power producers. The average customs import value (c.i.v.) price of imported coal increased in 2006, just as all other domestic coal prices did for the year. The average c.i.v. price of U.S. coal imports increased by 5.1 percent to a level of \$49.10 per short ton. Colombia continued its complete dominance in the U.S. coal import market, where it has accounted for at least 50 percent of total coal imports since 1999. In 2006, Colombian coal imports were 25.3 million short tons, or almost 70 percent of all coal imports, a level it has maintained for 2 years. This was an increase of 4.1 million short tons from the 2005 level. The average c.i.v. price of Colombian coal into the U.S. was \$46.93 per short ton, an increase of 4.7 percent over 2005. Coal imports from Venezuela, the second largest supplier, increased in 2006 by 0.5 million short tons, while the average c.i.v. price increased by 17.7 percent to \$54.70 per short ton. Coal imports from Indonesia rose by 27.5 percent to 3.1 million short tons, while coal imports from Canada increased by only 1.5 percent to 2.0 million short tons in 2006. These four countries account for about 96 percent of total U.S. coal imports. Although most coal imports are used for electric generation, metallurgical coal imports were 1.7 million short tons in 2006, mostly from Canada.

U.S. coke imports increased in 2006 by 15.3 percent to end the year at 4.1 million short tons. Increased shipments of coke from China of 954 thousand short tons in 2006 helped to offset the lower levels of coke imports from most other countries as well as the complete lack of imports from the Ukraine.

Coal Stocks

Total coal stocks at the end of 2006 were 184.2 million short tons, an increase of 39.9 million short tons from the prior year (Figure 9). Coal stocks held by producers and distributors were slightly higher by 0.1 million short tons. Industrial users, including coke plants, held a total of 9.4 million short tons at the end of 2006, 1.2 million short tons more than the level at the start of the year. Coal stocks in the electric power sector, which by the end of 2005 had dropped to its lowest level since 1997, increased substantially in 2006. As no atypical transportation problems arose during the course of the year, coal

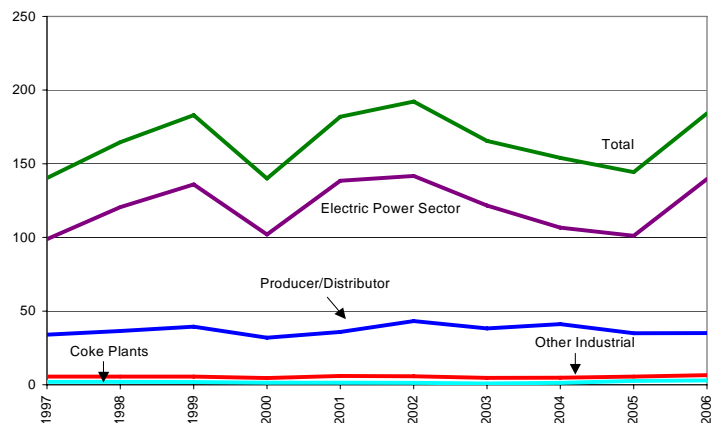
stocks in the electric power sector increased by 38.5 million short tons, or 38.1 percent, to end 2006 at a level of 139.7 million short tons.

Summary

The U.S. coal industry in 2006 experienced record production but lower coal consumption. Coal imports again reached a record level while coal exports declined slightly, resulting in a decline in net exports for 2006. On the positive side in 2006 for coal producers, delivered coal prices continued to increase for the year and for coal consumers, coal stocks recovered from their low 2005 levels in the electric power sector. Producers and consumers both benefited by the resolution of some of the major transportation problems that plagued the industry in 2005.

Absent any unusual transportation issues, the outlook for U.S. coal in 2007 is also mixed. Expectations of continued economic expansion and a return to more normal weather should drive an increase in coal consumption. However, the softening of the spot market prices and the somewhat lower end-of-year consumer stock level will result in lower production to keep the coal market in balance. (See Energy Information Administration's *Short-Term Energy Outlook*.)

Figure 9. Year-End Coal Stocks, 1997-2006
(Million Short Tons)



Sources: Energy Information Administration, Quarterly Coal Report, October-December 2006, DOE/EIA-0121(2006/Q4) (Washington, DC, March 2005); and Coal Industry Annual, DOE/EIA-0584, various issues.