Section 2. Coal

Two forms of coal—anthracite (AC) and bituminous coal and lignite (BC)—are added to provide coal totals (CL).

Anthracite

Physical Units

There are seven input data series used to estimate the State end-use consumption of anthracite, and all are in units of thousand short tons. "ZZ" in the variable names is used to represent the two-letter State code that differs for each State:

ACEUPZZ = anthracite consumed by the electric utilities in each State;
ACHCPUS = anthracite consumed by the residential and commercial sectors in the United States;
ACHDPZZ = anthracite distributed to the residential and commercial sectors in each State;
ACKCPUS = anthracite consumed by coke plants in the United States;
ACKDPZZ = anthracite distributed to coke plants in each State;
ACOCPUS = anthracite consumed by other industrial users in the United States; and
ACODPZZ = anthracite distributed to other industrial users in each State.

The U.S. totals for the four State-level series, ACEUPZZ, ACHDPZZ, ACKDPZZ, and ACOCDPZZ, are calculated by summing the State data.

Estimates of anthracite consumed by the residential and commercial sectors combined are made by assuming that anthracite is consumed in proportion to the amount of anthracite distributed to the residential and commercial sectors in each State:

ACHCPZZ = (ACHDPZZ/ACHDPUS) * ACHCPUS

Little information is available regarding disaggregating the combined residential and commercial estimates. An estimate of 60 percent to the residential sector and 40 percent to the commercial sector is made for all States and years. Therefore, the residential sector consumption of anthracite, ACRCPZZ, is estimated:

ACRCPZZ = ACHCPZZ * 0.60

and the commercial sector consumption, ACCCPZZ, is estimated:

ACCCPZZ = ACHCPZZ * 0.40

To gain a perspective on these estimates: all anthracite consumed in the United States in 1999 accounted for 0.2 percent of total coal consumption, and the residential and commercial use of anthracite was less than half of all anthracite consumed.

The industrial sector consumption is estimated by State. An assumption is made that anthracite is consumed by coke plants in proportion to the amount of anthracite distributed to coke plants in each State. It is also assumed that the consumption of anthracite by industrial users other than coke plants is in proportion to the amount of anthracite delivered to the other industrial users in each State. The industrial sector consumption is the sum of anthracite consumed by coke plants and by other industrial users for each State:

ACKCPZZ = ACKDPZZ/ACKDPUS) * ACKCPUS
ACOCPZZ = (ACODPZZ/ACODPUS) * ACOCPUS
ACICPZZ = ACKCPZZ + ACOCPZZ

Total anthracite consumption in each State is the sum of the sectors' consumption:

ACTCPZZ = ACRCPZZ + ACCCPZZ + ACICPZZ + ACEUPZZ

The U.S. anthracite consumption estimates for each of the sectors and the total are calculated as the sum of the States' values.

British Thermal Units (Btu)

Two factors are used for converting anthracite consumption from physical units to Btu. The factors, in million Btu per short ton, are:

ACEUKUS = the factor for converting anthracite consumed in the electric utility sector from short tons to Btu; and
ACNUKUS = the factor for converting anthracite consumed by all sectors other than electric utilities from short tons to Btu.

The industrial sector Btu consumption is estimated in three steps in order to maintain separate series for anthracite used as coking coal (ACKCB) and anthracite consumed by other industrial users (ACOCB):

ACKCBZZ = ACKCPZZ * ACNUKUS
ACOCBZZ = ACOCPZZ * ACNUKUS
ACICBZZ = ACKCBZZ + ACOCBZZ

The remaining end-use sectors are calculated for all States:

ACEUBZZ = ACEUPZZ * ACEUKUS
ACRCBZZ = ACRCPZZ * ACNUKUS
ACCCBZZ = ACCCPZZ * ACNUKUS
ACTCBZZ = ACRCBZZ + ACCCBZZ + ACICBZZ + ACEUBZZ

Total U.S. end-use consumption estimates are calculated as the sum of the States' data.

Additional Notes on Anthracite

Anthracite consumption at the national level for the residential and commercial sectors (ACHCPUS), coke plants (ACKCPUS), and industries other than coke plants (ACOCPUS) are continuous data series. However, the total coal distribution and anthracite distribution data series used to develop State-level estimates are not continuous.

For 1960 through 1979, State-level anthracite data are not available and the 1980 State data are used to apportion the U.S. totals to the States. From 1980 forward, the data in the distribution series variables—ACKDPZZ, ACODPZZ, and ACHDPZZ—are estimates of actual anthracite consumption rather than the distribution.

For 1980 forward, State-level total coal consumption data are available, but consumption by sector within many States is withheld. Estimates of the withheld sector consumption of total coal are derived by using the distribution series for the residential and commercial sectors to fill in withheld residential and commercial consumption. In most States, this leaves only one sector withheld and it can be derived by subtracting known sectors from the State total. This gives total coal consumption estimates for the end-use sectors that are compatible with State coal consumption data published in other EIA reports. Anthracite consumption is then derived by using anthracite distribution data to estimate consumption within each sector and State. These estimates equal U.S. totals for anthracite consumption by sector contained in other EIA databases.

Data Sources for Anthracite

ACEUKUS — Factor for converting anthracite consumed by the electric utilities from physical units to Btu.

- 1960 through 1972: Energy Information Administration (EIA) assumed that all anthracite consumed at electric utilities was recovered from culm banks and river dredging and was estimated to have an average heat content of 17.500 million Btu per short ton.
- 1973 through 1997: Calculated annually by EIA by dividing the heat content of anthracite receipts at electric utilities by the quantity of anthracite received at electric utilities. These data are reported on the Federal Energy Regulatory Commission (FERC) Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants," and predecessor forms.
- 1998 and 1999: No data available. The 1997 value is repeated.

ACEUPZZ — Anthracite consumed by the electric utilities by State.

- EIA, Form EIA-759, "Monthly Power Plant Report," and predecessor forms.

ACHCPUS — Anthracite consumed by the residential and commercial sectors in the United States.

- 1960 through 1972: U.S. Department of the Interior, Bureau of Mines, *Minerals Yearbook*, "Coal-Pennsylvania Anthracite Annual."
- 1973 through 1984: EIA, *Weekly Coal Production*, August 9, 1986, Table 9.
- 1985 through 1987: EIA, *Weekly Coal Production*, July 16, 1988, Table 8.
- 1988 forward: EIA, Unpublished data from Form EIA-6.

ACHDPZZ — Anthracite distributed to the residential and commercial sectors.

- 1960 through 1979: No data available. The 1980 State data are used for years 1960 through 1979.
- 1980 forward: Consumption estimates are used for this distribution series. Consumption of all types of coal by State is published in EIA, *Quarterly Coal Report, October–December* for each year. Data are from the report of the following year, i.e., 1982 final data are published in the *Quarterly Coal Report, October–December 1983*. The specific tables are:
  - — 1980: Unpublished data.
  - — 1981 through 1983: Table 27.
  - — 1984 through 1990: Table 29.
  - — 1991 through 1994: Table 51.
  - — 1995: Table 43.
  - — 1996 forward: Table 44.

  Withheld State values for consumption of all types of coal are estimated by using distribution data. When U.S. residential and commercial coal distribution does not equal U.S. residential and commercial coal consumption, the State distribution values are adjusted proportionally until the sum of State distribution values equals the U.S. consumption value published in the *Quarterly Coal Report*. The distribution data are published in:
  - — 1980 through 1984: EIA, *Coal Distribution, January-December 1984*, Table 21.
  - — 1985 through 1989: EIA, *Coal Distribution, January-December 1989*, Table 15.
  - — 1990 and 1991: EIA, *Coal Distribution, January-December* for each year, Table 16.
  - — 1992 through 1994: EIA, *Quarterly Coal Report, October-December* for the following year, Table 10.
  - — 1995 thourgh 1997: Unpublished data from Form EIA-6.
  - — 1998 forward: EIA, *Coal Industry Annual*, Table 64.

  Anthracite consumption is estimated by using distribution data published in EIA, *Coal Distribution, January-December* for each year. The specific tables are:
  ("District 24" represents all anthracite.)
  - — 1980 through 1983: Tables 8 and 9.
  - — 1984: Tables 6 and 8.
  - — 1985 through 1989: Tables 6 and 3.

  ("Origin: Pennsylvania, Anthracite" represents all anthracite.)
  - — 1990 and 1991: Table 33.
  - — 1992 through 1997: Unpublished data from Form EIA-6.
  - — 1998 forward: EIA *Coal Industry Annual*, Table 63.

  State distribution data are increased or decreased proportionally until the sum of the States' distribution values equals the U.S. consumption (ACHCPUS).

ACKCPUS — Anthracite carbonized by coke plants in the United States.

- 1960 through 1972: U.S. Department of the Interior, Bureau of Mines, *Minerals Yearbook*, "Coal-Pennsylvania Anthracite Annual."
- 1973 through 1984: EIA, *Weekly Coal Production*, August 9, 1986, Table 9.
- 1985 through 1987: EIA, *Weekly Coal Production*, July 16, 1988, Table 8.
- 1988 forward: EIA, Unpublished data from Form EIA-5.

ACKDPZZ — Anthracite distributed to coke plants by State.

- 1960 through 1979: No data available. The 1980 State data are used for years 1960 through 1979.
- 1980 forward: Consumption estimates are used for this distribution series. Consumption of all types of coal by State is published in EIA, *Quarterly Coal Report, October-December* for each year. Data are from the report of the following year, i.e., 1982 final data are published in the *Quarterly Coal Report, October-December 1983*. The specific tables are:
  - — 1980: Unpublished data.
  - — 1981 through 1983: Table 25.

— 1984, 1985, and 1987: Table 27.
— 1986, 1988, and 1989: Unpublished State revisions that are components of the U.S. revisions published in the *Quarterly Coal Report, October-December 1991,* Table 45.
— 1990: Table 27.
— 1991 through 1994: Table 48.
— 1995: Table 40.
— 1996 forward: Table 41.

Withheld State values for consumption of all types of coal are estimated by using distribution data. After withheld residential and commercial coal consumption values have been estimated, withheld coke plant consumption is the difference between the sum of the published and estimated end-use sectors' consumption and the published State total consumption. For States where both coke plant and other industrial coal use are withheld, it is assumed that a State not listed in the EIA *Coal Industry Annual 1998*, Table 73 has no coke plant consumption.

Anthracite consumption is estimated by using distribution data published in EIA, *Coal Distribution, January-December* for each year. The specific tables are:

("District 24" represents all anthracite.)
— 1980 through 1983: Tables 8 and 9.
— 1984: Tables 6 and 8.
— 1985 through 1989: Tables 6 and 33.

("Origin: Pennsylvania, Anthracite" represents all anthracite.)
— 1990 and 1991: Table 33.
— 1992 through 1997: Unpublished data from Form EIA-6.
— 1998 forward: EIA *Coal Industry Annual*, Table 63.

State distribution data are increased or decreased proportionally until the sum of the States' distribution values equals the U.S. consumption (ACKCPUS).

ACNUKUS — Factor for converting anthracite consumed by all sectors other than the electric utility sector from physical units to Btu.

- 1960 through 1997: Calculated annually by EIA by dividing the heat content of anthracite produced less the heat content of the anthracite consumed at electric utilities, net exports, and shipments to U.S. Armed Forces overseas by the quantity of anthracite consumption by all sectors other than the electric utility sector less the quantity of anthracite stock changes, losses, and "unaccounted for."
- 1998 and 1999: No data available. The 1997 value is repeated.

ACOCPUS — Anthracite consumed by industrial users other than coke plants in the United States.

- 1960 through 1972: U.S. Department of the Interior, Bureau of Mines, *Minerals Yearbook*, "Coal-Pennsylvania Anthracite, Annual."
- 1973 through 1984: EIA, *Weekly Coal Production*, August 9, 1986, Table 9.
- 1985 through 1987: EIA, *Weekly Coal Production*, July 16, 1988, Table 8.
- 1988 forward: EIA, Unpublished data from Forms EIA-3 and EIA-6.

ACODPZZ — Anthracite distributed to industrial plants (other than coke plants) by State.

- 1960 through 1979: No data available. The 1980 State data are used for years 1960 through 1979.
- 1980 forward: Consumption estimates are used for this distribution series. Consumption of all types of coal by State is published in EIA, *Quarterly Coal Report, October-December* for each year. Data are from the report of the following year, i.e., 1982 final data are published in the *Quarterly Coal Report, October-December 1983*. The specific tables are:
  — 1980: Unpublished data.
  — 1981 through 1983: Table 26.
  — 1984 through 1990: Table 28.
  — 1991 through 1994: Table 49.
  — 1995: Table 41.
  — 1996 forward: Table 42.

  Withheld State values for consumption of all types of coal are estimated by using distribution data. After withheld residential and commercial coal consumption values have been estimated, withheld consumption by other industrial users is the difference between the sum of the published and estimated end-use sectors' consumption and the published State total consumption.

  Anthracite consumption is estimated by using distribution data published in EIA, *Coal Distribution, January-December* for each year. The specific tables are:

  ("District 24" represents all anthracite.)
  — 1980 through 1983: Tables 8 and 9.
  — 1984: Tables 6 and 8.
  — 1985 through 1989: Tables 6 and 33.

  ("Origin: Pennsylvania, Anthracite" represents all anthracite.)
  — 1990 and 1991: Table 33.

— 1992 through 1997: Unpublished data from Form EIA-6.
— 1998 forward: EIA *Coal Industry Annual*, Table 63.

State distribution data are increased or decreased proportionally until the sum of the States' distribution values equals total U.S. consumption (ACOCPUS).

Bituminous Coal and Lignite

Physical Units

Eight data series are used to estimate bituminous coal and lignite consumption. They are consumption and distribution data, and they are all in units of thousand short tons:

BCACPUS = bituminous coal and lignite consumed by the transportation sector in the United States;
BCEUPZZ = bituminous coal and lignite consumed by the electric utilities in each State;
BCHCPUS = bituminous coal and lignite consumed by the residential and commercial sectors in the United States;
BCHDPZZ = bituminous coal and lignite distributed to the residential and commercial sectors in each State.
BCKCPUS = bituminous coal and lignite consumed by coke plants in the United States;
BCKDPZZ = bituminous coal and lignite distributed to coke plants in each State;
BCOCPUS = bituminous coal and lignite consumed by other industrial users in the United States; and
BCODPZZ = bituminous coal and lignite distributed to other industrial users in each State.

The U.S. totals for the four State-level series, BCEUPZZ, BCHDPZZ, BCKDPZZ, and BCODPZZ, are calculated by summing the State data.

An assumption is made that bituminous coal and lignite are consumed by the residential and commercial sectors combined in proportion to the amount of bituminous coal and lignite distributed to the residential and commercial sectors in each State:

BCHCPZZ = (BCHDPZZ / BCHDPUS) * BCHCPUS

Little information exists for disaggregating the combined residential and commercial estimates. An estimate of 35 percent to the residential sector and 65 percent to the commercial sector is made for all States and years. That is, the residential sector consumption, BCRCPZZ, is estimated:

BCRCPZZ = BCHCPZZ * 0.35

and the commercial sector consumption, BCCCPZZ, is estimated:

BCCCPZZ = BCHCPZZ * 0.65

To gain a perspective on these estimates: bituminous coal and lignite consumed by residential and commercial users in 1999 accounted for only 0.4 percent of all bituminous coal and lignite consumed—that is, 4 million short tons out of the 991 million short tons consumed in 1999.

Consumption in the industrial sector is estimated by State. An assumption is made that bituminous coal and lignite is consumed by coke plants in proportion to the amount of bituminous coal and lignite distributed to coke plants in each State. It is also assumed that the consumption of bituminous coal and lignite by industrial users other than coke plants is in proportion to the amount delivered to other industrial users in each State. The industrial sector consumption is the sum of bituminous coal and lignite consumed by coke plants and by other industrial users for each State:

BCKCPZZ = (BCKDPZZ / BCKDPUS) * BCKCPUS
BCOCPZZ = (BCODPZZ / BCODPUS) * BCOCPUS
BCICPZZ = BCKCPZZ + BCOCPZZ

There are no data available for estimating the transportation sector's consumption of bituminous coal and lignite by State. The quantity would be very small. The transportation sector accounted for only 1 percent of the national total consumption in 1960 and none since 1978. An assumption is made that when transportation sector consumption exists, the consumption by State, BCACPZZ, is in proportion to the share of the U.S. industrial sector attributed to each State:

BCACPZZ = (BCICPZZ / BCICPUS) * BCACPUS

Total consumption in each State, BCTCPZZ, is the sum of the sectors' consumption:

BCTCPZZ = BCRCPZZ + BCCCPZZ + BCICPZZ + BCACPZZ + BCEUPZZ

The U.S. bituminous coal and lignite consumption estimates for each of the sectors and the total are calculated as the sum of the States' values.

British Thermal Units (Btu)

Three factors are used for converting bituminous coal and lignite from physical units to Btu. The three factors, State-specific for each year, in units of million Btu per short ton, are:

BCEUKZZ = the factor for converting bituminous coal and lignite consumed by the electric utility sector in each State from short tons to Btu;
BCHCKZZ = the factor for converting bituminous coal and lignite consumed by the residential and commercial sectors in each State from short tons to Btu; and
BCOCKZZ = the factor for converting bituminous coal and lignite consumed by other industrial users in each State from short tons to Btu.

The electric utility factor for each State is applied to estimate bituminous coal and lignite consumed by electric utilities in Btu:

BCEUBZZ = BCEUPZZ * BCEUKZZ

The residential and commercial sectors' State factor is applied to estimate bituminous coal and lignite consumed by the two sectors in Btu:

BCRCBZZ = BCRCPZZ * BCHCKZZ
BCCCBZZ = BCCCPZZ * BCHCKZZ

The industrial sector Btu consumption is estimated in three steps. A constant conversion factor of 26.80 million Btu per short ton is used for coking coal consumption for all years. The conversion factor for industrial users other than coke plants in each State is applied to other industrial users sector consumption. The industrial sector Btu consumption is then estimated by adding coking coal Btu consumption and other industrial users Btu consumption:

BCKCBZZ = BCKCPZZ * 26.80
BCOCBZZ = BCOCPZZ * BCOCKZZ
BCICBZZ = BCKCBZZ + BCOCBZZ

The transportation sector Btu consumption is estimated by applying the other industrial users' State factor to the transportation consumption:

BCACBZZ = BCACPZZ * BCOCKZZ

Total consumption for each State is the sum of the sectors' consumption:

BCTCBZZ = BCRCBZZ + BCCCBZZ + BCICBZZ + BCACBZZ + BCEUBZZ

The U.S. consumption estimates in Btu are calculated by summing the State values for each of the data series.

Additional Notes for Bituminous Coal and Lignite

1. Bituminous coal and lignite consumption at the national level for the residential and commercial sectors (BCHCPUS), coke plants (BCKCPUS), and industries other than coke plants (BCOCPUS) are continuous data series. However, the distribution data series used to develop State-level estimates by end-use sector are not continuous.

   For 1960 through 1979, State-level bituminous coal and lignite distribution data are used to apportion the U.S. consumption data to the States. From 1980 forward, the data in the distribution series variables—BCKDPZZ, BCODPZZ, and BCHDPZZ—are estimates of actual bituminous coal and lignite consumption rather than the distribution data used for the previous years.

   For 1980 forward, State-level total coal consumption data are available, but data for consumption by sector within many States are withheld. Estimates of the withheld sector consumption of total coal are

derived by using the distribution series for the residential and commercial sectors to fill in withheld residential and commercial consumption. In most States, this leaves only one sector withheld and it can be derived by subtracting known sectors from the State total. This gives total coal consumption estimates for the end-use sectors that are compatible with State coal consumption data published in other EIA reports. Anthracite consumption is derived by using anthracite distribution data to estimate consumption within each sector and State that sum to the U.S. totals for anthracite consumption by sector contained in other EIA databases. Bituminous coal and lignite consumption for each sector and State is, then, the difference between the total coal consumption estimates and anthracite consumption estimates.

2. Prior to 1974, data for distribution of bituminous coal and lignite by State included several groupings of States for which separate State data were unavailable. These groupings were: (1) Maine, New Hampshire, Vermont, and Rhode Island; (2) North Dakota and South Dakota; (3) Delaware and Maryland; (4) Georgia and Florida; (5) Alabama and Mississippi; (6) Arkansas, Louisiana, Oklahoma, and Texas; (7) Montana and Idaho; (8) Arizona and Nevada; and (9) Washington and Oregon. Beginning with 1974, individual State distribution data became available. To estimate the 1960 through 1973 State distribution data, the combined States were disaggregated in proportion to the individual States' shares of each similar State grouping in 1974.

3. Total coal consumption by State for 1980 through 1989 published in the EIA *Quarterly Coal Report* do not sum to the U.S. totals due to a quantity called "Unknown" in the source tables. This unknown coal consumption is assumed to be bituminous coal and lignite and is added to the residential, commercial, and "other industrial" sectors of Alabama, Illinois, Kentucky, Pennsylvania, Tennessee, and West Virginia.

Data Sources for Bituminous Coal and Lignite

BCACPUS — Bituminous coal and lignite consumed by the transportation sector in the United States.

- 1960 through 1975: U.S. Department of the Interior, Bureau of Mines, *Minerals Yearbook*, "Coal-Bituminous and Lignite."
- 1976 and 1977: EIA, *Energy Data Reports*, "Coal-Bituminous and Lignite by Consumer and Retail Deliveries."
- 1978 forward: Small amounts of bituminous coal and lignite consumed by the transportation sector are included in the other industrial category (see BCOCPUS). Zero is entered for this variable.

BCEUKZZ — Factor for converting bituminous coal and lignite consumed by the electric utilities from physical units to Btu by State.

- 1960 through 1972: EIA adopted the average thermal conversion factor of the Bureau of Mines, which used the National Coal Association (NCA) average thermal conversion factor for electric utilities calculated from the Federal Power Commission's (FPC) Form 1 and published in *Steam Electric Plant Factors*, an NCA annual report. The specific tables are:
  - — 1960 and 1961: Table 1.
  - — 1962 through 1972: Table 2.
- 1973 through 1982: The average heat content of coal received at steam electric plants 25 megawatts or greater from the Federal Energy Regulatory Commission (FERC) Form 423 and published in Btu per pound in EIA, *Cost and Quality of Fuels for Electric Utility Plants*, tables titled "Destination and Origin of Coal 'Delivered to' (1973–1979) 'Receipts to' (1980) 'Received at' (1981–1982) Steam-Electric Plants 25-MW or Greater."
- 1983 forward: The average heat content of coal received at steam electric plants 50 megawatts capacity or larger from FERC Form 423 and published in Btu per pound in the EIA, *Cost and Quality of Fuels for Electric Utility Plants.* This report is available only via the Internet at http://www.eia.doe.gov. In the box titled "Search EIA by Google" type "Cost and Quality of Fuels for Electric" and click on the "Go" button. Select the report from the list. The specific tables are:
  - — 1983 and 1984: Table 58.
  - — 1985 through 1989: Table 48.
  - — 1990 and 1991: Table 35.
  - — 1992: Table 22.
  - — 1993 forward: Table 4 and Table 22.

Notes: The State conversion factors for 1960 through 1972 were derived from actual consumption data, while the conversion factors for 1973 to the present were based on receipts of coal. The factors for 1960 through 1972 may also have included some quantities of anthracite. These breaks in the series create some data discrepancies. Alaska and Hawaii were excluded

from the NCA report, FPC Form 423, and FERC Form 423. However, Alaska reported consumption of bituminous coal and lignite at electric utilities for all years. An FPC heat rate for coal at electric utilities in Alaska was used for 1960 through 1978 as published in EIA, *Federal Energy Data System (FEDS) Technical Documentation*, June 1978, Table 21. The 1972 conversion factor (the last year for which a conversion factor was reported for Alaska) was used for 1972 through 1978. According to industry sources, new mines were opened in 1978 and a more representative factor was used for 1979 and following years. In instances where a State had no receipts for a particular year but did report consumption, it was assumed that the coal received in one year was consumed during the following year and the Btu value of the previous year's receipts was used.

BCEUPZZ — Bituminous coal and lignite consumed by the electric utilities by State.

- EIA, Form EIA-759, "Monthly Power Plant Report," and predecessor forms.

BCHCKZZ — State factor for converting bituminous coal and lignite consumed by the residential and commercial sectors from physical units to Btu.

- 1960 through 1973: Estimated by EIA by adjusting the 1974 average heat value of bituminous coal and lignite consumed in the residential and commercial sector by the ratios of 1960 through 1973 national averages for the sector to its 1974 average.
- 1974 through 1998: Calculated by EIA by assuming that the bituminous coal and lignite consumed in the residential and commercial sector in each State contained heating values equal to those of bituminous coal and lignite received at electric utilities in each State from identified coal-producing districts as reported on the Federal Energy Regulatory Commission (FERC) Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants." The average Btu content of coal delivered from each coal-producing district was applied to deliveries to the residential and commercial sector in each State and the sum total of the heat content was divided by total tonnages, yielding a weighted average. The coal distribution data by coal-producing district are reported on Form EIA-6, "Coal Distribution Report," and predecessor Bureau of Mines Form 6-1419-Q.
- 1999: No data available. The 1998 value is repeated.

BCHCPUS — Bituminous coal and lignite consumed by the residential and commercial sectors in the United States.

- 1960 through 1972: U.S. Department of the Interior, Bureau of Mines, *Minerals Yearbook*, "Coal-Bituminous and Lignite," column titled "Retail dealers" or "Retail sales."
- 1973 through 1984: EIA, *Weekly Coal Production*, August 9, 1986, Table 8.
- 1985 through 1987: EIA, *Weekly Coal Production*, July 16, 1988, Table 7.
- 1988 forward: EIA, Unpublished data from Form EIA-6.

BCHDPZZ — Bituminous coal and lignite distributed to the residential and commercial sectors by State.

- 1960 through 1976: U.S. Department of the Interior, Bureau of Mines, *Minerals Yearbook*, "Coal-Bituminous and Lignite," column titled "Retail dealers."
- 1977 through 1979: EIA, *Energy Data Reports*, "Coal-Bituminous and Lignite." The specific tables are:
  - 1977: "Comparative Summary of Distribution of Bituminous Coal and Lignite Produced in the United States During the First Nine Months of 1977" and "Distribution of Bituminous Coal and Lignite Produced in the United States During October-December 1977, by Geographic Division and State Destination," columns titled "Retail dealers."
  - 1978: "Distribution of Bituminous Coal and Lignite Produced in the United States," column titled "Retail sales."
  - 1979: "Overall Summary of Distribution of Bituminous, Subbituminous, and Lignite Coal Produced in the United States," column titled "Retail sales."
- 1980 forward: Consumption estimates are used for this distribution series. Bituminous coal and lignite consumption is the remainder when estimated anthracite consumption is subtracted from all coal consumption in each State. (See ACHDPZZ for data sources and estimation procedures.) Consumption shown as "Unknown" is assumed to be bituminous coal and lignite and is allocated to six States (Alabama, Illinois, Kentucky, Pennsylvania, Tennessee, and West Virginia) in proportion to their total distribution of all coal.

BCKCPUS — Bituminous coal and lignite carbonized at coke plants in the United States.

- 1960 through 1972: U.S. Department of the Interior, Bureau of Mines, *Minerals Yearbook*, "Coal-Bituminous and Lignite," sum of columns "Beehive coke plants" and "Oven coke plants."
- 1973 through 1984: EIA, *Weekly Coal Production*, August 9, 1986, Table 8.
- 1985 through 1987: EIA, *Weekly Coal Production*, July 16, 1988, Table 7.
- 1988 forward: EIA, Unpublished data from Form EIA-5.

BCKDPZZ — Bituminous coal and lignite distributed to coke plants, a portion of the industrial sector by State.

- 1960 through 1976: U.S. Department of the Interior, Bureau of Mines, *Minerals Yearbook*, "Coal-Bituminous and Lignite."
- 1977 through 1979: EIA, *Energy Data Reports*, "Coal-Bituminous and Lignite." The specific tables are:
  - — 1977: "Comparative Summary of Distribution of Bituminous Coal and Lignite Produced in the United States During the First Nine Months of 1977" and "Distribution of Bituminous Coal and Lignite Produced in the United States During October-December 1977, by Geographic Division and State Destination."
  - — 1978: "Distribution of Bituminous Coal and Lignite Produced in the United States."
  - — 1979: "Overall Summary of Distribution of Bituminous, Subbituminous, and Lignite Coal Produced in the United States."
- 1980 forward: Consumption estimates are used for this distribution series. Bituminous coal and lignite consumption is the remainder when estimated anthracite consumption is subtracted from all coal consumption in each State. See ACKDPZZ for data sources and estimation procedures.

BCOCKZZ — State factor for converting bituminous coal and lignite consumed by other industrial users from physical units to Btu.

- 1960 through 1973: Estimated by EIA by adjusting the 1974 average heat value of bituminous coal and lignite consumed by industrial users other than coke plants by the ratios of 1960 through 1973 national averages for the other industrial users to its 1974 average.
- 1974 through 1998: Calculated by EIA by assuming that the bituminous coal and lignite consumed by industrial users other than coke plants in each State contained heating values equal to those of bituminous coal and lignite received at electric utilities in each State from identified coal-producing districts as reported on Federal Energy Regulatory Commission (FERC) Form 423, "Monthly Report of Cost and Quality of Fuels for Electric Plants." The average Btu content of coal delivered from each coal-producing district was applied to deliveries to other industrial users in each State and the sum total of the heat content was divided by total tonnages, yielding a weighted average. The coal distribution data by coal-producing district are reported on Form EIA-6, "Coal Distribution Report," and predecessor Bureau of Mines Form 6-1419-Q.
- 1999: No data are available. The 1998 value is repeated.

BCOCPUS — Bituminous coal and lignite consumed by industrial users other than coke plants in the United States.

- 1960 through 1972: U.S. Department of the Interior, Bureau of Mines, *Minerals Yearbook*, "Coal-Bituminous and Lignite," table titled "Consumption of bituminous coal and lignite, by consumer class, and retail deliveries in the United States." Sum of columns titled "Steel and rolling mills," "Cement mills," and "Other manufacturing and mining industries."
- 1973 through 1984: EIA, *Weekly Coal Production*, August 9, 1986, Table 8.
- 1985 through 1987: EIA, *Weekly Coal Production*, July 16, 1988, Table 7.
- 1988 forward: EIA, Unpublished data from Forms EIA-3 and EIA-6.

BCODPZZ — Bituminous coal and lignite distributed to industrial plants (other than coke plants) by State.

- 1960 through 1976: U.S. Department of the Interior, Bureau of Mines, *Minerals Yearbook*, "Coal-Bituminous and Lignite."
- 1977 through 1979: EIA, *Energy Data Reports*, "Coal-Bituminous and Lignite." The specific tables are:
  - — 1977: "Comparative Summary of Distribution of Bituminous Coal and Lignite Produced in the United States During the First Nine Months of 1977" and "Distribution of Bituminous Coal and Lignite Produced in the United States During October-December 1977, by Geographic Division and State Destination."
  - — 1978: "Distribution of Bituminous Coal and Lignite Produced in the United States."

— 1979: "Overall Summary of Distribution of Bituminous, Subbituminous, and Lignite Coal Produced in the United States."

- 1980 forward: Consumption estimates are used for this distribution series. Bituminous coal and lignite consumption is the remainder when estimated anthracite consumption is subtracted from all coal consumption in each State. (See ACODPZZ for data sources and estimation procedures.) Consumption shown as "Unknown" is assumed to be bituminous coal and lignite and is allocated to six States (Alabama, Illinois, Kentucky, Pennsylvania, Tennessee, and West Virginia) in proportion to their total distribution of all coal.

Coal

Physical Units

All coal totals are the sum of the anthracite and bituminous coal and lignite estimates for the residential and commercial sectors and electric utilities. The industrial sector includes total coal by nonutility power producers. It is assumed that no anthracite is consumed by the transportation sector. The calculations for each State and the U.S. total are:

CLRCP = ACRCP + BCRCP
CLCCP = ACCCP + BCCCP
CLICP = ACICP + BCICP
CLACP = BCACP
CLEUP = ACEUP + BCEUP
CLTCP = ACTCP + BCTCP

British Thermal Units (Btu)

Estimates of total coal consumption in Btu for each State and the U.S. are calculated:

CLRCB = ACRCB + BCRCB
CLCCB = ACCCB + BCCCB
CLICB = ACICB + BCICB
CLACB = BCACB
CLEUB = ACEUB + BCEUB
CLTCB = ACTCB + BCTCB

Additonal Calculations

Additional calculations are performed in the Combined State Energy Data System (CSEDS) to provide coal consumption estimates for the price and expenditure calculations published in the *State Energy Price and Expenditure Report*. Total coal used at coke plants (CLKCB) and total coal consumed by all other industrial users (CLOCP and CLOCB) are calculated at the State and U.S. levels:

CLKCB = ACKCB + BCKCB
CLOCP = ACOCP + BCOCP
CLOCB = ACOCB + BCOCB

Net Imports of Coal Coke

Physical Units

Net imports of coal coke is a component of total U.S. energy consumption. There is no attempt to estimate State allocations of this energy source. All of it is considered to be used by the industrial sector. In the *State Energy Data Report*, net imports of coal coke is included in the U.S. data but not in the State-level data in all tables of total energy consumption and industrial sector energy consumption. Variables for net imports of coal coke into the United States are:

CCIMPUS = coal coke imported into the United States, in thousand short tons; and
CCEXPUS = coal coke exported from the United States, in thousand short tons.

Net imports is calculated:

CCNIPUS = CCIMPUS – CCEXPUS

British Thermal Units (Btu)

The factor for converting coal coke from short tons to Btu is 24.80 million Btu per short ton:

CCIMBUS = CCIMPUS * 24.80
CCEXBUS = CCEXPUS * 24.80
CCNIBUS = CCIMBUS – CCEXBUS

Data Sources for Net Imports of Coal

CCEXPUS — Coal coke exported from the United States.

- 1960 through 1975: U.S. Department of the Interior, Bureau of Mines, *Minerals Yearbook*, "Coke and Coal Chemicals Annual."
- 1976 through 1979: EIA, *Energy Data Reports*, "Coke and Coal Chemicals Monthly."
- 1980 through 1990: EIA, *Quarterly Coal Report* (January-March of the following year). The specific tables are:
  - — 1980: Table 7.
  - — 1981 through 1984: Table A10.
  - — 1985 through 1990: Table A9.
- 1991 and 1992: Unpublished revisions in short tons from the EIA, Office of Energy Markets and End Use, Integrated Modeling Data System.
- 1993 through 1997: Unpublished revisions in short tons from the EIA, Office of Energy Markets and End Use, Integrated Modeling Data System, as published in thousand short tons in the EIA, *Quarterly Coal Report October-December 1999*, Table 2.
- 1998 and 1999: EIA, *Quarterly Coal Report October-December 1999*, Table 15.

CCIMPUS — Coal coke imported into the United States.

- 1960 through 1975: U.S. Department of the Interior, Bureau of Mines, *Minerals Yearbook*, "Coke and Coal Chemicals Annual."
- 1976 through 1979: EIA, *Energy Data Reports*, "Coke and Coal Chemicals Monthly."
- 1980 through 1990: EIA, *Quarterly Coal Report* (October-December of the following year). The specific tables are:
  - — 1980: Table 8.
  - — 1981 through 1984: Table A12.
  - — 1985 through 1987: Table A11.
  - — 1988 through 1990: Table A10.
- 1991 and 1992: Unpublished revisions in short tons from the EIA, Office of Energy Markets and End Use, Integrated Modeling Data System.
- 1993 through 1997: Unpublished revisions in short tons from the EIA, Office of Energy Markets and End Use, Integrated Modeling Data System, as published in thousand short tons in the EIA, *Quarterly Coal Report October-December 1999*, Table 2.
- 1998 and 1999: EIA, *Quarterly Coal Report October-December 1999*, Table 19.