

Supporting Information for:

Carbon Dioxide Emission Factors for U.S. Coal by Origin and Destination.

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The development of CO₂ emission factors for U.S. coal.

The origin, tonnage, heating value, ash yield, S content, and coal rank class (lignite, subbituminous, bituminous, or anthracite) of coal shipments delivered to U.S. power plants are reported (1, 2), but the coal C content is not. Consequently, CO₂ emission factors are used in greenhouse gas inventories to estimate CO₂ emissions from coal combustion (3, 4). Early inventories (5, 6) used a single factor for all coal. Subsequent studies (7, 8, 9, 10) showed that the CO₂ emission factor varies with coal rank. Accordingly, the Intergovernmental Panel on Climate Change (IPCC) recommended rank-specific emission factors (11), which were calculated from unpublished coal analyses for coals of unknown origin (8). Hong and Slatick (9) cite an unpublished study of 5426 U.S. coal assays collected by the disbanded U.S. Bureau of Mines as the basis of rank-specific CO₂ emission factors for coal-producing states. These factors were used to calculate the sector-specific emission factors, which were used in U.S. greenhouse gas inventories until 2002 (4) when new factors calculated from the U.S. Geological Survey COALQUAL data (12) were adopted. Table S1 shows some emission factors for U.S. coal. Emission factors for coal produced in other countries have been reviewed by Smith (13), Heite et al., (14) and Herold (15). New emission factors and approaches continue to be developed (16, 17).

Table S1. Some CO₂ emission factors for U.S. coal (kg CO₂/GJ) by coal rank classification.

	Hong and Slatick (9)	EPA (1) ^a	This Study
anthracite	97.76	98.19	98.91
bituminous	88.26	88.56	88.20
subbituminous	91.10	92.05	91.97
lignite	92.99	91.40	92.97

a. These values were introduced in 2002. In 2008, EPA increased the lignite emission factor to 92.35 kg CO₂/GJ, but the older value is listed here because it continues to be widely used (for example, in the greenhouse gas reporting rule (18)).

Net and gross energy

Emission factors shown in table S1 are reported on a gross energy basis; a net energy basis is more common in other countries. The net heating value (MJ/kg_{net}) may be calculated from approximation formulae, such as: $MJ/kg_{net} = MJ/kg_{gross} - 0.2142 \times (0.1119M + H)$, where Btu , M (% moisture), and H (% hydrogen, excluding H in

moisture) are on a moist, whole-coal basis (19). If coal oxygen (O) and nitrogen (N) assays are also available, an exact formula: $MJ/kg_{net} = MJ/kg_{gross} - (0.21215 \times H_{dry} - 0.00077 \times O_{dry} - 0.00089 \times N_{dry}) \times (1 - 0.01M) - 0.02443 \times M$, may be used (20). However, data needed to use these formulae are rarely reported. Thus, the net heating value of coal is sometimes assumed to be 5% less than the gross heating value (11). This assumption is reasonable for subbituminous A rank U.S. coal, but if used for CO₂ emission inventories, will systematically underestimate emissions from lower rank coal and overestimate emissions from higher rank coal (14, 21). The difference between CO₂ emission factors expressed on net and gross energy bases is more accurately illustrated in figure S1.

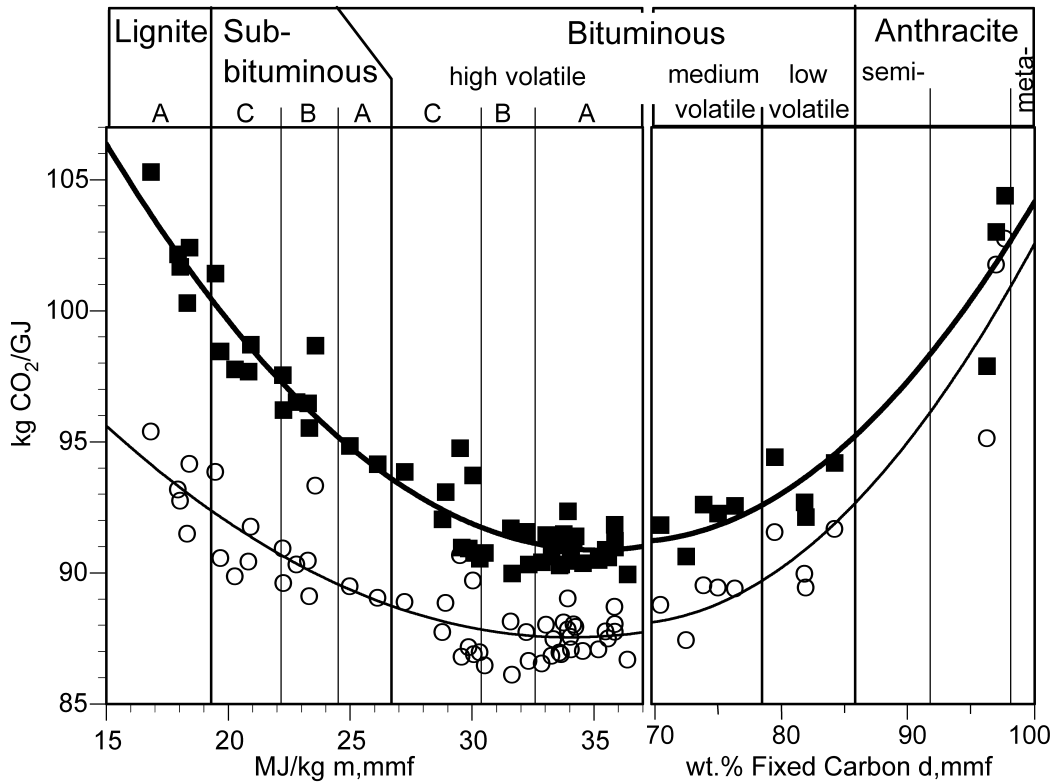


Figure S1. The difference between CO₂ emission factors expressed on a net energy basis (■) and a gross energy basis (○) systematically varies with the ASTM rank of 65 U.S. coal samples; modified with permission from (21).

Causes of variation of the CO₂ emission factor

Coal rank. Variation of the CO₂ emission factor with coal rank is well established (7, 8, 9, 11, 21) and is illustrated in figure S1 for U.S. coal using the ASTM classification of coal by rank (22). Examination of figure S1 also shows substantial variation within coal rank classes (lignite, subbituminous, bituminous, anthracite). As discussed in the manuscript, this variation limits the reliability of emission factors specified by coal rank class. It is worth noting that there are many different coal rank classification systems, so what is bituminous coal in one country, may be subbituminous in another. For example, coal produced from Louisiana (table SA1) is lignite according to U.S. protocol ($<19.30 \text{ MJ/kg}_{\text{m,mmf}}$ (22)) but is subbituminous according to international protocol ($>17.45 \text{ MJ/kg lb}_{\text{moist, ash-free}}$ (11, 23)).

Sulfur. Several studies (7, 14, 24) have shown that sulfur in coal reduces the CO₂ emission factor. Winschel (7) explicitly examined the effect of sulfur in practical combustion systems and noted that the reduction in CO₂ emissions may be offset by parasitic energy demand from S emission controls. Offsets due to CO₂ from carbonate sorbents have also been considered (24). As discussed in the manuscript, these considerations are complicated by hydrogen associated with the organic S fraction, which enhances the CO₂ emission reduction due to S.

Macerals. Variation of maceral content can also influence CO₂ emissions (21, 24, 25). However, the effect of maceral abundance on CO₂ emissions is less certain than that due to S because the maceral analyses are rarely reported for commercial U.S. coal. In general, CO₂ emission factors for Inertinite>Vitinites>Liptinites within a single coal sample. Inertinite abundance in commercial Australian bituminous coal has been shown to cause a 4.8 kg CO₂/GJ variation (24). Maceral assemblages isolated by density fractionation from five Kentucky bituminous coals have been shown to vary by more than 8.6 kg CO₂/GJ (25).

Minerals. Carbon dioxide from the endothermic decomposition of carbonate minerals during coal combustion are expected to increase the CO₂ emission factor (21). Although carbonate minerals are relatively rare in U.S. coal they can have a significant effect on CO₂ emissions elsewhere (26). In practical combustion systems abundant

mineral matter may also increase CO₂ emissions due to loss of sensible heat from the boiler in flyash, bottom ash, or slag, as well as increased parasitic energy consumption by pulverization mills; more work is required to evaluate these possibilities.

Main data sets

COALQUAL. The COALQUAL data (12) include comprehensive assays for 7432 U.S. coal samples collected from drill holes, mines, exploration pits, and outcrops (table S2). Details of the COALQUAL reporting conventions and assay procedures are fully explained in text that accompanies the data (27). Several details are worth noting. Hydrogen values include H in coal moisture. This reporting convention has significance for the calculation of heating values from elemental composition. Many samples were partially dried prior to analysis. This assay procedure precludes an accurate rank determination for most of the samples, which is why, in part, text that accompanies the data (27, p.10) emphatically states: **“THE USGS MAKES NO CLAIMS AS TO THE ACCURACY OF COAL RANK CALCULATED FROM PARAMETERS OF PROXIMATE AND ULTIMATE ANALYSES.”**

Table S2. Description of COALQUAL data.

Location Information	State, county, latitude, longitude, province, region, field, district, USGS map (quadrangle) name.
Geologic Information	Formation, group, bed, member, zone, depth, bed thickness, system, geologic age.
Collection Information	Collector name, drill hole/mine name, estimated rank, and laboratory submission date.
Laboratory	U.S. Bureau of Mines, Geochemical Testing Co., State lab, USGS lab, Dickinson Laboratories Inc.
Sample Type	Channel, drillcore, weathered channel, outcrop.
Data Type	Single sample assay, physical composite assay, calculated composite assay, partial composite assay, partial bed split.
ASTM ¹ Analyses	(whole-coal basis) moisture, heating value, ash, volatile matter, CHNOS, ² ash fusion temperatures, free swelling index, sulfur forms, air-dry-loss, equilibrium moisture, and Hardgrove grindability.
USGS Analyses	(residual-moisture basis) USGS method ash, 11 major and minor ash oxides, and up to 62 trace elements.

¹ American Society for Testing and Materials

² Carbon, Hydrogen, Nitrogen, Oxygen, and Sulfur

Hower et al., (28) advise users of published coal quality data to consider the sample origin, collection protocol, and assay reliability. Accordingly, only COALQUAL samples that originate from coal producing counties were selected. Likewise, samples collected from weathered outcrops were ignored, and assay results were tested for reliability.

COALQUAL is a geological database, which necessarily requires sample information such as a precise location, depth, bed thickness, formation, and age. Such information can rarely be assured for samples collected from commercial coal shipments. Consequently, COALQUAL does not include samples of commercially produced coal that is burned at power plants. Moreover, about 13% of the COALQUAL samples originate from counties with no coal production; although geologically significant, these samples are not representative of coal burned at power plants and were excluded from this study.

About 10% of the samples included in COALQUAL are weathered. Weathering at the outcrop can increase coal moisture and O (29, 30), and change the relative abundance of H and C (31, 32). Although weathering usually reduces the heating value, dynamic variation of the heating value has also been observed (33, 34). These sometimes-profound compositional changes make CO₂ emission factors calculated for weathered coal unreliable proxies for commercial coal production. Accordingly, samples collected from outcrops or identified as weathered coal were ignored. Weathered coal is not always easy to identify in the field. Because severe weathering inevitably reduces the free swelling index (35, 36), a few samples with both elevated moisture and a diminished free swelling index were also ignored.

A Mott-Spooner test was used to evaluate the reliability of the heating value and elemental (C, H, O, S) assays. This test is appropriate because results of these assays are used to calculate the CO₂ emission factor. The test reports the difference between the measured heating value and a heating value calculated from the elemental composition (37). Analytical error is likely where the Mott-Spooner difference is more than ± 0.58 MJ/kg (38). About 10% of the COALQUAL records exceed this threshold and were ignored. Table S3 shows a tabulation of selected and ignored COALQUAL data records.

Table S3. Tabulation of selected and ignored COALQUAL data records.

7,432 ORIGINAL RECORDS
18 nominal data or not representative ¹
75 FSI and moisture indicate weathering ¹
656 weathered or outcrop coal ¹
717 failed Mott-Spooner test ¹
843 lack carbon or heating value assays ¹
5,118 SELECTED RECORDS
12 from Illinois ¹
939 from non-producing counties ^{1,2}
4,167 RECORDS used

¹ ignored.

IGS. Twelve COALQUAL data records from Illinois were replaced by more numerous data records from the Illinois Geological Survey (39). With one exception, the same criteria used to select COALQUAL data records were applied to the IGS data. Unlike Mott-Spooner values for COALQUAL data, which were normally distributed around a median value near zero, Mott-Spooner difference values for the IGS data were normally distributed around a median near -0.31 MJ/kg, so selection thresholds were modified to $+0.27$ and -0.90 MJ/kg. The non-zero median is consistent with moisture in occluded pores, low inertinite content, and abundant organic sulfur but more work is required to support a definitive explanation. Ultimately, IGS data for 651 coal samples from 17 counties were used to characterize the in-ground quality of Illinois coal (table S4).

Table S4. Tabulation of selected and ignored Illinois Geological Survey data records.

5,837 ORIGINAL RECORDS
3197 lack carbon or heating value assays ¹
1191 uncertain location or not from Illinois ¹
160 failed Mott-Spooner test ¹
15 not coal ¹
7 likely weathered ¹
1,267 SELECTED RECORDS
616 from non-producing counties ¹
651 RECORDS used

¹ ignored.

FERC and EIA 423. The FERC-423 data (40) originate from the Federal Energy Regulatory Commission (FERC) Form 423, monthly survey of fossil-fueled electric utilities (41). Among other things (table S5), the FERC-423 data include county origin, tonnage, heating value, ash, and S values for coal shipments delivered to utility power plants with generation capacities of 50 MW or more. About half of the year 1999, FERC-423 data records were selected for this study (table S6). Records for liquid, gaseous, and other non-coal fuels were ignored, as were records for imported coal and domestic coal of uncertain state or county origin. Except for the CO₂ emission factor, the county-average produced coal quality values were weighted by shipment tonnage, state and rank-class averages for produced coal were weighted by county production tonnage, and state averages for delivered coal were weighted by shipment tonnage. The CO₂ emission factors were weighted by energy (tons × MJ/kg value).

Table S5. List of data fields in the 1999, FERC-423 data.

Company	Code for the name of utility parent company.
Plant	Code for the name of the utility power plant.
Year	Reporting year.
Month	Reporting month.
District	U.S. Bureau of Mines coal-producing district
State	U.S. state-of-origin (coal).
County	U.S. county-of-origin (coal).
Mine Type	Surface or underground coal mine.
Region (plant)	Regional location of the electric utility.
State (plant)	State location of the electric utility.
Generic Fuel	Type of fuel (solid, liquid, gaseous).
Specific Fuel	Bituminous, subbituminous, lignite, fuel oil, natural gas, etc.
Contract Type	Simple contract, contract with escalator, new, firm (gas), interruptible gas, spot and off peak gas, spot coal, or spot oil.
Contract Expire	Indicates if the contact expires within 24 months.
Quantity	Tons in coal shipment (short tons).
Btu	Heating value (gross Btu/lb, as-shipped).
Sulfur	Sulfur content (weight%, as-shipped).
Ash	Ash value (weight%, as-shipped).
Cost	Cents per million British thermal units (total, includes transportation and taxes).

Table S6. Tabulation of selected and ignored 1999, FERC-423 data records.

35,886	ORIGINAL RECORDS	
	15,790	Liquid or gas ¹
	20,096	Solid fuel
20,096	SOLID FUEL RECORDS	
	116	Imported coal ¹
	146	Uncertain origin ¹
	231	Petroleum coke ¹
	68	Refuse ¹
	42	Wood ¹
	19,493	Coal
19,493	SELECTED RECORDS	
	20	Anthracite
	15,948	Bituminous
	235	Lignite
	3,290	Subbituminous

¹ ignored.

Although fuel receipts reported in the 1999 FERC-423 data include over 99% of the coal delivered to electric utility power plants, non-utility power plants (independent power producers and combined heat and power plants) are not reported in this data set. These non-utility power plants received 51 Tg of coal (~5%) of the total 852 Tg delivered to U.S. power plants >50 MW during 1999 (42). Also not included is information on the quality of coal exports, shipments to coke and industrial plants, and coal delivered to institutions and homes. Despite these deficiencies, the 816 Tg of coal is reported in the 1999 FERC-423 data represents more than 80% of total 1999 U.S. production. The geographic extent of the FERC-423 data is even more impressive; during 1999, the 190 counties included in FERC-423 produced over 98% of U.S. coal production.

As noted, about 5% of the coal delivered to U.S. power plants during 1999 was not reported with the FERC-423 data. Since then, the market share of independent power producers, which do not report on FERC-423, has increased. During 2005 about 27% of the coal delivered to U.S. power plants was not reported on FERC-423. Beginning in 2002, information on the amount and quality of this coal has been reported with the EIA-423 data (43), which lack coal prices but are otherwise similar to the FERC-423 data. Consequently, FERC-423 and EIA-423 data were combined to tabulate the quality and

amount of coal delivered to U.S. coal-fired power plants (>50MW) during 2005. These combined data include more than 23,000 records for 918 Tg of coal shipped to 479 power plants. Selection criteria applied to the combined data were similar to those applied to the 1999 FERC-423 data, except that records for imported coal and coal of uncertain origin were included; CO₂ emission factors for these shipments were estimated using equation 5.

Rank designations reported with FERC-423 data are anecdotal; no guidance on how to determine rank is provided with the FERC Form-423 instructions (41). Consequently, the ASTM rank designations determined in this study, although largely calculated from FERC-423 data, sometimes differ from rank designations reported with these data. Rank designations reported with the related EIA-423 data are likewise uncertain because rank classification rules in the EIA-423 instructions (44) show overlapping indicative Btu ranges for lignite and subbituminous rank classes.

Determination of coal rank

In this paper, the rank of coal produced from 223 counties (table AS1) was determined in general accordance with the ASTM standard (22). The ASTM $Btu_{m,mmf}$ rank parameter was calculated from the tonnage-weighted ash, S, and heating values for produced coal (mostly FERC-423 data). Because fixed carbon (FC) is not reported for produced coal, the ASTM $FC_{d,mmf}$ rank parameter was calculated from FC, ash, S, and moisture values for in-ground coal (mostly COALQUAL data). Note that, because $FC_{d,mmf}$ is on a dry basis, it is not affected by the partial drying of COALQUAL assay specimens that precludes a reliable rank determination for most COALQUAL data records. The agglomerating character, which is used to distinguish certain bituminous and anthracite coals, is also not reported for produced coal. For these distinctions, western U.S. coal (Alaska, Arizona, Colorado, Montana, New Mexico, North Dakota, Utah, and Wyoming) and coal from counties with >89% $FC_{d,mmf}$ was assumed to be non-agglomerating, whereas the remaining coal was assumed to be agglomerating. Finally, the coal rank class was geographically inferred for 11 counties that lack appropriate assay data.

Other data sets

ICR and FERC-580. The 33 coal-producing counties that are not included in the FERC-423 data produced 17.6 Tg of coal during 1999 (~1.5% of total production). Average produced coal quality for 11 of these counties, which together produced 13.2 Tg coal, was calculated from the ICR and FERC-580 data. The ICR data originate from an Information Collection Request issued by the EPA (45) to inform the Clean Air Mercury Rule. The ICR data include the county origin as well as dry-basis, ash, S, Hg, Cl, and heating values for about every third coal shipment to power plants ≥ 25 MW during 1999. Estimated moisture values (46) were used to adjust the ICR data to an as-shipped basis. The FERC-580 data (47) contain 7905 records for commercial coal shipments delivered to certain power plants ≥ 50 MW between 1992 and 1999. These data include county-origin, shipment tonnage, heating value, ash, S, and moisture values reported on the FERC Form 580, biannual survey of investor-owned, interstate electric power plants.

EIA-906/920 data. These data (48) report generation and fuel consumption at the power plant and were used to estimate the quantity of coal shipped from transfer stations to certain power plants (mostly Tennessee Valley Authority plants).

Equations in U.S. customary units.

The CO₂ emission factor (*lbs CO₂/million Btu*) was calculated as:

$$\text{lbs } CO_2/\text{million Btu} = \frac{10^6}{\text{Btu/lb}} \times \frac{C}{100} \times 3.6642 \quad (1)$$

where C is wt.% carbon of the coal, Btu/lb is British thermal units per lb coal, and 3.6642 is the gravimetric factor to convert C to CO₂

An adjusted S value (S_{adj}) was calculated as:

$$S_{adj} = S_{prod} \times \frac{\left(Btu_{in-grd} - 4050 \times \frac{S_{in-grd}}{100} \right) \times \frac{100}{100 - S_{in-grd}}}{\left(Btu_{prod} - 4050 \times \frac{S_{prod}}{100} \right) \times \frac{100}{100 - S_{prod}}} \quad (2)$$

where S_{prod} is the weight percent S of the produced coal, Btu_{in-grd} is the average Btu/lb value for the in-ground coal by origin county, Btu_{prod} is the Btu/lb value for coal produced from that county, 4050 is the Btu/lb contribution from sulfur, and S_{adj} is the

weight percent S required for the in-ground coal to have the same S emission factor as the produced coal.

An adjusted C content (C_{adj}) was calculated as:

$$C_{adj} = C_{in-grd} \times \frac{(100 - S_{adj})}{(100 - S_{in-grd})} \quad (3)$$

where C_{in-grd} is the county-average C content of in-ground coal, S_{in-grd} is the corresponding in-ground S content, and S_{adj} is from equation 2.

An adjusted Btu/lb value (Btu_{adj}) was calculated as:

$$Btu_{adj} = \left(Btu_{in-grd} - 4050 \times \frac{S_{in-grd}}{100} \right) \times \frac{100 - S_{adj}}{100 - S_{in-grd}} + 4050 \times \frac{S_{adj}}{100} \quad (4)$$

For high volatile A bituminous and lower rank coal the CO₂ emission factor was estimated as:

$$lbs \text{ CO}_2 / \text{million Btu} = 252.9 - 1.647 \times S_{ef} - 5.862E^{-3} \times Btu_{m,mmf} + 1.821E^{-7} \times Btu_{m,mmf}^2 \quad (5)$$

where S_{ef} is the S emission factor (lbs S/million Btu) for the produced coal, and $Btu_{m,mmf}$ is the moist, mineral-matter-free Btu/lb rank parameter for produced coal.

For medium volatile bituminous and higher rank coal the CO₂ emission factor was estimated as:

$$lbs \text{ CO}_2 / \text{million Btu} = 336.0 - 0.7647 \times S_{ef} - 3.843 \times FC_{d,mmf} + 2.857E^{-2} \times FC_{d,mmf}^2 \quad (6)$$

where S_{ef} is the S emission factor (lbs S/million Btu) for the produced coal, and $FC_{d,mmf}$ is the dry, mineral-matter-free fixed-carbon rank parameter.

An approximation formula to calculate the net heating value is:

$$Btu/lb_{net} = Btu/lb_{gross} - 92.08 \times (0.1119M + H),$$

where Btu , M (% moisture), and H (% hydrogen, excluding H in moisture) are on a moist, whole-coal basis.

An exact formula to calculate the net heating value can be used if coal oxygen (O) and nitrogen (N) values are also available:

$$Btu/lb_{net} = Btu/lb_{gross} - (91.21 \times H_{dry} - 0.33 \times O_{dry} - 0.38 \times N_{dry}) \times (1 - 0.01M) - 10.50 \times M$$

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Appendix

Data Tables

Table AS1. Carbon dioxide emission factors for U.S. coal by origin state and county, 1999.

Table AS1a. (SI units)

Table AS1b. (U.S. customary units)

Table AS2. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005.

Table AS2a. (SI units)

Table AS2b. (U.S. customary units)

Explanation of Table SA1 headings

Carbon dioxide emission factors for U.S. coal by origin state and county
Table SA1a shows SI units. Table SA1b shows US customary units.

- STATE** **State of coal origin**, some states are divided according to historical (U.S. Bureau of Mines) convention. Coal quality values are weighted by county tonnage; the CO2 emission factor is weighted by energy (tons times heating value)
- County** **County of coal origin**, In-ground coal quality values are unweighted; produced and delivered values are weighted by tonnage, except for the CO2 emission factor, which is weighted by energy (tons times heating value)

In-ground coal

Data	Source of data , selected records from:
CQ	COALQUAL, U.S. Geological Survey, Open-File Report 97-134, at: <energy.er.usgs.gov/products/databases/CoalQual/intro.htm>
IGS	Illinois Geological Survey, coal resource data at: <isgs.uiuc.edu/maps-data-pub/coal-maps.shtml>
KEY	Keystone Coal Industry Manual (1975 edition, McGraw-Hill Inc., New York, 996 p; or 2001 edition, Intertec Publishing Corp., Chicago Illinois, 737 p.)
WH	Warwick, P.D., Hook, R.W., 1995, International Journal of Coal Geology, v.28, p. 303-342.
n	Number of data records
MJ/kg or Btu/lb	Heating Value , numeric county average; gross, moist-basis British thermal units per pound coal (Btu/lb) multiplied by 0.002326 to convert to megajoules per kilogram (MJ/kg).
Ash	% Ash , moist basis, numeric county average
S	% Sulfur , moist basis, numeric county average
C	% Carbon , moist basis, numeric county average
FC dimmf	ASTM %Fixed Carbon , dry, mineral-matter-free basis, numeric county average (ASTM 1990 rank parameter)

Produced coal 1999 (by origin)

**Gg or Tons
(1000)**

Produced Tons coal mine production reported in table 4 of the Coal Industry Annual 1999, at: <eia.doe.gov/cneaf/coal/page/acr/backissues.html>. Thousand short tons of coal (**Tons (1000)**) multiplied by 0.9072 to convert to thousand metric tons (gigagrams, **Gg**)

Data

Source of data, selected records from:

423 FERC-423, Monthly cost and quality of fuels for electric power plants, data at:

<eia.doe.gov/cneaf/electricity/page/ferc423.html>

580 FERC-580, Coal transportation rate data base for 1992-1999, at:

<eia.doe.gov/cneaf/coal/ctrdb/database.html>

ICR 1999 Information Collection Request, raw data at: <epa.gov/ttn/atw/combust/utiltox/utoxpg.html> (4 zipped files, see "relevant technical data - coal analysis results"), compiled and adjusted to a moist basis at: <geology.utah.gov/emp/mercury/index.htm> (see final report appendicies).

n **Number of data records**

MJ/kg or Btu/lb

Heating Value, average moist-basis gross British thermal units per pound coal (**Btu/lb**). Multiplied by 0.002326 to convert to megajoules per kilogram (**MJ/kg**).

Ash **% Ash**, moist basis

S **% Sulfur**, moist basis

**MJ/kg m,mmf or
Btu/lb m,mmf**

ASTM Heating Value, gross British thermal units per pound, moist, mineral-matter-free basis (**Btu/lb m,mmf**; ASTM 1990 rank parameter). Multiplied by 0.002326 to convert to moist, mineral-matter-free megajoules per kilogram (**MJ/kg**).

rank

Apparent ASTM rank class, with noted exceptions, determined using the produced Btu m,mmf and in-ground FC d,mmf values, assuming all western US coal is non-agglomerating

- l lignite
- s subbituminous
- b bituminous
- an anthracite

**kg CO2/GJ or lbs
CO2 per million
Btu**

Carbon dioxide emission factor, pounds CO2 per million gross Btu, weighted by energy (produced tons times produced heating value) and, except where noted, calculated using equation 1 using in-ground C and Btu values that were adjusted with equations 2 and 3 to comport with the sulfur content of the produced coal. Multiplied by 0.42992 to convert to kilograms CO2 per gigajoule (**kg CO2/GJ**).

notes

- a** **Carbon dioxide emission factor** calculated from equation 5 using **ASTM Heating Value** and **S** for produced coal.
- b** **Carbon dioxide emission factor** calculated from equation 6 using **FC d,mmf** for in-ground coal, and **S** for produced coal.
- c** **Carbon dioxide emission factor** calculated from equation 5 using **ASTM Heating Value** and **S** for in-ground coal.
- d** **Carbon dioxide emission factor** calculated from equation 1 using **C** and **Heating Value** for in-ground coal (not adjusted for S).
- e** **rank** from adjacent or nearby countries
- f** **rank** uncertain

Delivered coal 2005 (by origin)

**Gg or Tons
(1000)**

Tons of coal delivered to electric power plants during 2005, thousand short tons reported in the FERC-423 and EIA-423 data sets for 2005. The year 2005 quality data for this coal are also from these data sets, which are at: <eia.doe.gov/cneaf/electricity/page/ferc423.html> and, <eia.doe.gov/cneaf/electricity/page/eia423.html>

n **Number of data records**

MJ/kg or Btu/lb

Heating Value, moist-basis gross British thermal units per pound coal (**Btu/lb**). Multiplied by 0.002326 to convert to megajoules per kilogram (**MJ/kg**).

Ash **% Ash**, moist basis

S **% Sulfur**, moist basis

**kg CO2/GJ or lbs
CO2 per million
Btu**

Carbon dioxide emission factor, pounds CO2 per million gross Btu weighted by energy (delivered tons times delivered heating value). Except where noted, calculated with equation 1 using in-ground **C** and **Heating Value(s)** (according to the county origin of each coal shipment) that were adjusted with equations 2 and 3 to comport with the sulfur content of the coal shipment (delivered coal). Multiplied by 0.42992 to convert to kilograms CO2 per gigajoule (**kg CO2/GJ**).

**MJ/kg m,mmf or
Btu/lb m,mmf**

ASTM Heating Value, gross British thermal units per pound, moist, mineral-matter-free basis (**Btu/lb m,mmf**; ASTM 1990 rank parameter). Multiplied by 0.002326 to convert to moist, mineral-matter-free megajoules per kilogram (**MJ/kg m,mmf**).

notes

a

Carbon dioxide emission factor calculated from equation 5 using **ASTM Heating Value** for delivered coal and **S** for delivered coal.

b

Carbon dioxide emission factor calculated from equation 6 using **FC dmmf** for in-ground coal and **S** for delivered coal.

Table SA1a. Carbon dioxide emission factors for U.S. coal by origin state and county, 1999, SI units.

STATE	County	Produced coal 1999 (by origin)										Delivered coal 2005 (by origin)												
		Data	n	MJ/kg	Ash	s	C	FC	d.mmt	Gg	Data	n	MJ/kg	Ash	s	MJ/kg	rank	kg CO2 per GJ	notes					
ALABAMA	Bibb	CQ	2	32.38	3.9	0.8	76.2	61.7	17,695	41	423	2	27.84	14.8	1.4	33.24	b	88.16	9,908	29.38	13.4	1.6	87.86	87.70 a
	Cullman	CQ	86	29.03	12.7	2.6	69.0	58.4	74	2,109	423	42	27.99	12.6	1.7	32.51	b	87.33	4,559	30.60	13.4	1.7	35.97	87.37
	Fayette	CQ	1	32.15	8.6	0.7	79.1	74.7	2,109	423	42	27.99	12.6	1.7	32.51	b	87.33	106	28.29	14.4	0.7	33.57	90.15	
	Jefferson	CQ	67	31.58	8.9	1.6	76.3	68.6	6,333	423	103	28.36	12.9	0.9	33.00	b	88.73	2,335	28.22	13.2	1.3	34.19	88.60	
	Madison	CQ	3	31.83	3.0	0.8	76.8	59.6	41	6,333	423	103	28.36	12.9	0.9	33.00	b	88.73	2,335	28.22	13.2	1.3	34.19	88.60
	Tuscaloosa	CQ	313	30.04	12.2	2.1	71.8	62.3	5,790	423	82	29.06	12.0	0.9	33.46	b	87.89	273	27.85	12.4	1.4	32.27	87.73	
	Walker	CQ	161	29.22	12.0	1.7	70.2	61.6	2,999	423	35	27.90	13.4	1.7	32.75	b	87.99	2,406	27.54	13.8	1.5	32.47	88.04	
	Winston	CQ	9	30.41	4.9	1.2	73.5	60.7	308	580	5	27.98	11.7	1.0	32.09	b	88.62	2,406	27.54	13.8	1.5	32.47	88.04	
	ALASKA	Yukon-Koyukuk	CQ	10	18.48	10.3	0.3	46.2	45.8	1,420	423	2	28.48	10.3	0.3	31.63	s	91.63	11,619	25.38	9.7	0.5	90.04	90.04
	ARIZONA	Navajo	CQ	10	25.65	7.7	0.5	63.0	53.6	10,693	423	24	25.48	9.6	0.5	28.44	b	90.04	11,619	25.38	9.7	0.5	28.38	90.04
ARKANSAS	Johnson	CQ	4	33.13	6.1	1.7	83.2	86.6	20	16	33.17	5.9	1.5	an	an	92.01	37	22.48	22.48	27.9	1.5	90.01	90.01	
	Sebastian	CQ	2	33.34	5.4	0.7	83.1	79.3	4	4	33.17	5.9	1.5	b	b	91.34	37	22.48	22.48	27.9	1.5	90.01	90.01	
	Scott	CQ	1	31.82	10.3	2.0	78.2	77.3	27,207	423	32	28.04	7.1	0.4	30.38	b	89.67	29,193	25.90	9.2	0.5	89.55	89.62	
COLORADO	Delta	CQ	26	24.03	9.4	0.8	58.7	56.3	1,559	423	32	28.04	7.1	0.4	30.38	b	89.67	2,513	27.44	8.3	0.5	30.19	89.62	
	Fremont	CQ	7	26.23	7.8	1.1	64.2	57.2	220	7,395	423	127	27.26	9.0	0.5	30.23	b	88.60	242	25.98	11.1	0.6	29.54	88.75
	Garfield	CQ	16	25.89	11.5	0.7	62.7	59.2	7,395	423	127	27.26	9.0	0.5	30.23	b	88.60	9,885	27.64	8.7	0.5	30.57	88.59	
	Gunnison	CQ	35	27.78	10.9	0.6	67.1	58.3	223	423	2	29.52	8.2	0.9	32.43	b	87.90	6,297	23.77	6.7	0.4	25.64	91.16	
	La Plata	CQ	4	29.66	9.2	0.7	71.2	60.1	259	423	22	26.26	12.1	0.5	30.25	b	88.50	377	24.84	19.4	0.9	31.50	92.55	
	Mesa	CQ	47	22.82	9.6	0.5	56.7	58.0	7,065	423	121	23.88	6.1	0.4	25.57	s	91.15	1,943	22.47	11.8	0.5	25.75	89.75	
	Moffat	CQ	2	29.38	8.4	0.8	74.3	64.3	326	423	12	25.09	19.8	0.8	31.98	b	92.56	7,937	25.80	10.9	0.5	29.25	89.48	
	Montrose	CQ	8	24.84	12.7	0.5	60.8	56.9	1,213	423	10	23.65	10.9	0.4	26.84	b	89.78	25,115	26.44	8.5	2.3	87.92	87.92	
	Rio Blanco	CQ	40	25.57	9.2	1.0	62.3	56.6	36,668	423	124	25.94	9.2	0.5	28.85	b	89.50	25,115	26.44	8.5	2.3	87.92	87.92	
	Routt	CQ	40	25.57	9.2	1.0	62.3	56.6	36,668	423	124	25.94	9.2	0.5	28.85	b	89.50	25,115	26.44	8.5	2.3	87.92	87.92	
ILLINOIS	Christian	IGS	40	24.15	11.5	3.5	57.9	54.8	65	423	1	28.39	6.1	1.0	30.45	b	88.74	129	26.75	6.7	0.9	28.87	88.83	
	Franklin	IGS	54	27.61	9.3	2.1	66.6	59.5	423	3	26.62	8.0	1.8	29.20	b	88.53	544	28.55	8.1	2.5	31.46	87.52		
	Gallatin	IGS	29	29.10	10.7	3.7	69.2	59.6	4,198	423	140	29.33	9.2	2.6	32.73	b	87.51	1,161	26.12	10.1	2.8	29.47	87.46	
	Jackson	IGS	10	27.67	10.0	2.8	66.1	59.4	740	423	57	26.10	10.5	2.8	29.59	b	87.46	1,161	26.12	10.1	2.8	29.47	87.46	
	Jefferson	IGS	28	27.37	9.9	1.3	66.7	59.4	3,417	423	117	27.80	6.5	1.1	29.93	b	89.38	1,920	24.60	8.9	3.3	27.35	87.62	
	Logan	IGS	129	24.19	12.2	3.8	57.7	55.9	2,126	423	36	24.35	9.4	3.1	27.21	b	87.66	5,258	24.40	8.3	2.3	26.89	87.85	
	Macoupin	IGS	125	23.64	13.2	4.2	56.2	55.9	4,157	423	72	24.22	8.2	1.7	26.63	b	88.04	14	24.79	8.1	3.3	27.30	87.83	
	McDonough	IGS	48	24.08	11.5	3.7	57.6	55.8	458	423	23	22.97	14.5	2.9	27.30	b	87.89	14	24.79	8.1	3.3	27.30	87.83	
	Montgomery	IGS	19	26.19	10.3	3.1	62.7	57.6	1,540	423	17	24.92	8.4	3.4	27.53	b	87.79	761	22.84	14.3	2.7	26.93	87.65	
	Perry	IGS	13	25.87	11.4	4.3	61.3	53.8	2,210	423	91	25.60	9.6	2.9	28.70	b	87.70	53	25.97	8.7	2.9	28.80	87.29	
INDIANA	Randolph	IGS	15	25.18	12.9	3.7	60.0	60.0	2,283	423	25	25.71	9.2	2.8	28.69	b	87.33	249	27.89	7.1	1.1	30.26	88.26	
	Saint Clair	IGS	65	28.57	10.5	2.6	68.5	60.9	8,398	423	216	28.25	7.5	1.5	30.86	b	88.22	9,837	28.11	8.1	2.1	30.95	88.05	
	Saline	IGS	1	25.30	10.5	2.9	60.9	52.2	423	1	26.28	6.0	2.8	28.22	b	88.28	1,189	25.24	7.3	1.6	27.46	87.75		
	Schuyler	IGS	37	26.08	9.7	2.7	62.2	52.1	699	423	21	25.17	8.7	1.3	27.85	b	87.87	1,330	25.93	10.3	1.5	29.27	87.98	
	Vermilion	IGS	1	24.86	11.1	1.8	59.6	52.2	1,176	423	22	25.70	10.3	1.5	28.97	b	87.99	1,330	25.93	10.3	1.5	29.27	87.98	
	Wabash	IGS	8	25.90	10.8	3.8	61.6	54.1	3,071	423	15	24.85	10.6	2.9	28.17	b	87.35	2,396	27.55	6.4	3.1	29.73	87.97	
	Washington	IGS	1	27.72	9.0	2.9	66.6	58.2	2,111	423	46	27.45	7.6	2.9	30.08	b	88.01	226	22.22	16.6	2.0	27.15	88.57	
	White	IGS	43	27.23	12.0	3.1	65.7	60.0	19	423	20	22.81	19.5	2.4	28.88	b	88.45	50	24.48	8.2	1.2	26.88	89.24 a	
	unknown	IGS	43	27.23	12.0	3.1	65.7	60.0	19	423	20	22.81	19.5	2.4	28.88	b	88.45	24,898	25.95	8.8	2.3	87.88	87.88	
	INDIANA	Clay	CQ	12	26.12	9.0	2.8	62.6	58.3	30,848	64	423	10	25.90	9.6	2.2	29.00	b	88.03	72	26.91	6.5	2.0	29.03

Table SA1a. Carbon dioxide emission factors for U.S. coal by origin state and county, 1999, SI units.

STATE	County	Produced coal 1999 (by origin)										Delivered coal 2005 (by origin)														
		n	MJ/kg	Ash	S	C	FC	d,mmt	Gg	Data	n	MJ/kg	Ash	S	MJ/kg	kg CO ₂ per GJ	notes	n	MJ/kg	Ash	S	MJ/kg	kg CO ₂ per GJ	notes		
Kentucky	Davies	CQ	3	27.33	12.5	6.0	64.1	57.4	3,214	423	116	26.23	8.0	1.9	28.80	b	88.37	a	2,519	111	26.60	7.0	2.1	28.89	88.23	a
	Dubois	CQ	2	26.03	14.3	4.2	62.1	57.2	5,342	423	102	25.93	8.9	2.3	28.80	b	86.00	d, e	11,573	180	25.97	9.1	2.4	28.93	87.91	
	Green	CQ	4	27.68	7.3	2.5	66.0	55.7	4,619	423	153	25.67	9.4	1.8	28.64	b	87.55		1,478	27	25.87	8.7	2.5	28.66	87.33	
	Knox	CQ	3	27.56	9.1	2.9	66.1	55.5	5,012	423	93	25.83	9.4	2.4	28.87	b	87.96		1,766	74	26.12	7.3	1.3	28.42	88.32	
	Owen	CQ	5	26.93	8.3	1.8	65.6	62.1	4,233	423	7	26.84	7.8	1.1	29.36	b	89.46									
	Parke	CQ	1	26.28	6.8	1.8	62.8	57.4	196	423	17	27.73	6.7	2.1	30.00	b	87.51		207	9	24.42	7.7	1.8	26.70	87.52	
	Pike	CQ	14	27.22	8.5	3.3	65.1	56.9	3,974	423	124	26.39	9.5	3.4	29.59	b	87.62		2,406	66	26.23	8.7	2.8	29.08	87.81	
	Spencer	CQ	14	27.24	7.3	3.0	65.3	59.7	1,855	580	3	25.65	8.7	1.9	28.38	b	88.21		1	4	24.77	9.1	1.3	27.51	88.40	
	Sullivan	CQ	9	26.66	10.2	2.3	64.0	58.2	1,433	423	62	25.49	9.6	1.8	28.51	b	88.12		464	20	25.15	12.3	3.4	29.17	87.57	
	Vanderburgh	CQ																	64	5	27.42	8.2	2.3	30.21	87.86	a
	Vigo	CQ	2	26.95	9.6	3.3	64.1	55.6	3,199	423	99	24.95	9.2	1.1	27.73	b	87.75		3,113	85	25.17	8.8	1.4	27.87	87.66	
	Warrick	CQ	25	26.29	9.7	3.4	63.0	58.7	3,544	423	43	25.87	9.9	3.6	29.16	b	87.79		1,224	26	26.08	11.3	4.0	29.93	87.67	
	unknown																		12	2	24.90	5.4	0.7	26.48	89.75	a
	KANSAS																		97		27.60	12.6	3.5	32.18	86.00	
	Bourbon	CQ	6	28.53	14.2	4.7	66.7	56.6	371	423	25	25.47	19.6	4.1	32.62	b	86.17		97	11	27.60	12.6	3.5	32.18	86.00	
	Linn	CQ																	371							
	KENTUCKY E																		371							
	Bell	CQ	48	31.18	8.2	1.5	74.5	60.2	99,833	423	113	29.12	9.8	1.0	32.63	b	88.23		74,175		28.78	10.7	1.1	32.79	88.18	
	Boyd	CQ	4	26.93	10.7	1.7	64.7	57.7	4,293	423	34	28.78	10.2	0.8	32.40	b	88.36		2,268	154	29.53	9.0	1.1	32.79	87.68	
	Breathitt	CQ	26	29.69	9.0	1.3	71.6	58.7	2,224	423	105	28.06	12.0	1.0	32.30	b	88.41		356	44	26.86	11.0	1.0	30.60	88.27	
	Carter	CQ																	403	31	28.86	11.1	1.4	32.87	88.31	
	Clay	CQ	50	31.04	8.9	2.6	73.5	58.3	78	423	31	28.30	11.1	1.0	32.22	b	87.21		9	1	27.98	12.5	0.8	32.41	88.36	a
	Floyd	CQ	21	29.28	10.6	1.5	70.4	59.9	4,462	423	268	28.78	10.3	0.9	32.43	b	88.28		1,032	57	28.74	10.4	1.3	32.47	87.12	
Greenup	CQ	2	23.08	23.6	4.1	54.6	53.9	7,724	423	12	29.84	12.2	0.9	33.30	b	87.92		1,990	173	28.83	10.5	1.1	32.60	88.21		
Harlan	CQ	27	30.68	9.0	1.6	73.7	59.6	7,724	423	350	29.80	8.7	1.0	32.99	b	88.14		9,058	473	29.31	10.0	1.0	32.92	88.15		
Jackson	CQ	8	30.97	5.2	1.3	74.4	60.1	4	423	4	26.87	11.9	1.5	30.95	b	87.56		7	1	29.67	9.5	1.0	33.13	88.10		
Johnson	CQ	12	28.89	9.8	1.8	69.5	58.2	1,074	423	66	27.88	11.5	1.3	31.90	b	88.26		9	28	28.42	11.1	1.2	32.84	88.30		
Knott	CQ	14	29.92	10.1	1.0	72.2	59.1	9,819	423	429	29.09	9.9	1.1	32.67	b	88.38		7,308	266	28.82	11.1	1.2	32.84	88.37		
Knox	CQ	18	31.90	5.0	1.9	76.1	59.3	474	580	3	29.15	8.9	0.7	32.29	b	87.68		181	26	28.82	10.8	1.2	32.72	87.53		
Laurel	CQ	13	31.37	5.4	2.1	74.9	59.4	45	423	4	26.87	11.9	1.5	30.95	b	87.56										
Lawrence	CQ	32	28.67	9.3	1.5	69.2	57.9	123	423	26	28.63	9.4	1.0	31.92	b	88.63		1,118	32	27.81	11.1	0.9	31.67	88.63		
Lee	CQ	5	28.91	6.7	1.0	70.0	60.1	4	423	2	31.16	5.4	0.7	33.13	b	88.87		14	5	28.14	11.2	1.5	32.11	88.60		
Leslie	CQ	35	29.70	10.4	1.5	71.4	59.0	7,316	423	66	29.00	9.8	1.1	32.50	b	88.16		303	39	27.46	12.5	1.2	31.84	88.12		
Letcher	CQ	16	30.64	10.0	1.1	73.6	61.1	8,354	423	297	30.12	7.6	1.4	32.91	b	87.94		6,384	318	29.24	10.3	1.1	32.97	88.00		
Magoffin	CQ	14	28.89	10.6	1.1	69.7	58.9	423	423	49	28.61	10.5	1.2	32.37	b	88.45		329	31	27.59	12.0	0.9	31.78	88.52		
Martin	CQ	23	28.82	11.3	1.0	70.0	60.4	10,439	423	322	28.05	11.7	0.8	32.16	b	89.08		5,126	278	28.29	10.7	0.9	32.05	89.05		
Menifee	CQ																	12	1	29.39	12.3	0.9	33.96	88.13	a	
Morgan	CQ	11	28.84	8.5	2.1	69.1	57.4	34	423	2	26.35	15.0	0.6	31.47	b	88.21		9	3	27.38	12.7	1.0	31.79	88.10		
Owsley	CQ	8	29.96	8.7	2.1	71.7	59.4	28	423	9	29.54	7.9	1.7	32.41	b	87.84										
Perry	CQ	37	29.62	10.4	1.7	70.9	58.5	11,746	423	482	28.85	10.3	1.0	32.52	b	87.90		12,416	589	28.81	10.4	1.1	32.53	87.88		
Pike	CQ	59	30.89	9.1	1.4	74.3	61.3	31,352	423	1342	29.33	9.6	1.0	32.77	b	88.24		17,488	1021	29.14	10.3	1.1	32.85	88.21		
Pulaski	CQ																	290	14	27.30	12.6	1.6	31.69	88.00	a	
Rockcastle	CQ	4	29.63	5.7	1.0	72.1	60.7	39	29.28	39	29.28	9.5	1.3	32.73	b	88.02		60	7	27.41	10.4	0.8	30.92	89.22		
Whitley	CQ	18	30.69	6.9	2.0	73.5	59.2	245	423	29	29.12	7.8	1.0	31.86	b	88.06		374	20	28.96	10.5	1.5	32.78	87.92		
unknown																		7,048	554	27.25	13.4	1.1	31.92	88.23	a	
KENTUCKY W																		23,375		26.62	11.2	3.1	31.15	86.87		
Butler	CQ	4	29.77	3.5	0.9	71.2	57.3	26,836	423	44	24.38	13.0	3.2	29.98	b	86.77		9	3	28.14	8.5	2.2	31.75	87.22		
Christian	CQ	1	27.71	8.0	2.8	65.7	56.7	302	423	44	24.38	16.7	4.3	29.98	b	86.19		17	2	29.11	10.0	1.1	32.70	87.35		
Crittenden	CQ	6	26.04	7.9	1.9	62.9	58.1	733	423	39	25.91	9.2	2.9	28.91	b	88.26		31	7	28.15	10.6	2.3	31.93	87.54	a	
Davies	CQ	2	26.58	7.2	1.8	63.7	59.2	423	423	1	27.58	7.8	3.7	30.32	b	87.23		2	5	26.71	8.7	2.3	29.60	87.62		
Hancock	CQ																									

Table SA1a. Carbon dioxide emission factors for U.S. coal by origin state and county, 1999, SI units.

STATE	County	Produced coal 1999 (by origin)										Delivered coal 2005 (by origin)															
		Data	n	MJ/kg	Ash	S	C	FC	d,mmt	Gg	Data	n	MJ/kg	Ash	S	MJ/kg	Ash	S	Gg	n	MJ/kg	Ash	S	MJ/kg	kg CO ₂ per GJ	notes	
IN-GROUND COAL	Henderson	CQ	6	25.32	12.1	3.7	60.9	55.1	1,149	423	60	24.65	12.9	3.4	28.83	b	88.15	2,247	48	24.93	12.1	3.4	28.84	88.17			
	Hopkins	CQ	21	26.78	13.5	4.4	63.1	55.3	6,765	423	140	26.21	13.3	3.2	30.79	b	86.76	4,094	117	26.89	12.5	3.4	31.33	86.73			
	McLean	CQ	2	26.86	10.5	3.2	63.5	56.5	530	423	9	24.18	15.8	3.5	29.36	b	86.38										
	Muhlenberg	CQ	13	26.66	13.6	5.3	62.4	55.2	3,073	423	41	23.28	24.4	5.3	32.06	b	85.58										
	Ohio	CQ	29	26.93	12.8	3.9	63.5	55.4	119	423	5	26.15	11.2	3.9	29.98	b	86.37										
	Union	CQ	15	26.22	12.9	4.9	61.8	55.6	6,422	423	78	27.19	9.3	2.8	30.39	b	87.04										
	Webster	CQ	11	28.03	11.7	4.2	66.0	57.7	7,743	423	117	28.05	11.5	2.7	32.23	b	86.69										
	unknown																										
	LOUISIANA	De Soto	CQ	1	18.50	5.2	1.4	45.9	50.2	2,679	423	12	16.13	12.2	1.0	18.57	i	92.61 a	1,998	25	16.04	13.2	1.1	18.69	92.43 a		
	Red River	CQ	1	18.50	5.2	1.4	45.9	50.2	650	423	11	16.38	13.3	0.7	19.13	i	91.22	0	1	15.77	14.0	0.6	18.57	91.26			
	MARYLAND	Allegany	CQ	6	30.77	11.8	1.2	76.1	79.6	3,481	423	18	28.56	15.3	1.8	33.37	b	89.33	7,326	70	26.69	19.1	1.7	33.78	90.45		
Garrett	CQ	32	30.33	13.7	2.1	73.8	75.7	3,085	423	45	28.65	15.4	1.9	34.52	b	89.17	6,589	80	28.41	13.0	1.9	33.22	89.17				
MISSISSIPPI	Choctaw	KEY	1	12.10	14.7	0.6			16		261	21.57	5.3	0.4	22.88	s	95.38	3,268	12	11.85	15.6	0.5	14.23	95.61 a			
MISSOURI	Big Horn	CQ	6	28.50	15.6	5.6	66.7	61.7	356	423	11	25.18	16.4	3.6	31.61	b	87.14	494	3	25.21	15.2	3.5	34.27	87.39			
Bates	CQ	3	24.34	19.8	4.9	57.7	56.5	289	423	11	24.73	17.3	3.7	30.65	b	87.32	491	23	25.19	15.2	3.5	30.35	87.39				
MONTANA	Rosebud	CQ	39	19.90	8.4	1.0	49.8	58.5	37,288	423	249	20.97	6.8	0.5	22.18	s	91.83	34,178	313	20.82	7.0	0.5	22.09	91.84			
NEW MEXICO	Cofax	CQ	6	31.11	9.2	0.5	74.7	59.5	26,450	423	14	27.55	15.6	0.6	33.17	b	88.95	11,726	75	21.93	19.0	0.7	22.09	89.11			
McKinley	CQ	50	22.66	15.5	0.8	54.5	53.5	10,988	423	84	22.46	15.6	0.6	27.01	b	88.29	9,159	85	22.30	16.0	0.7	26.97	88.26				
San Juan	CQ	61	20.98	18.3	0.6	51.3	54.3	14,405	423	24	21.22	23.2	0.8	28.42	b	89.58	16,804	29	21.73	20.6	0.8	27.98	89.59				
NORTH DAKOTA	McLean	CQ	1	15.10	5.7	0.5	38.3	54.0	28,246	423	12	14.40	11.3	0.7	16.38	i	92.86	21,742	12	15.24	9.6	0.7	16.53	93.79			
Mercer	CQ	45	16.35	7.8	0.9	41.9	53.7	17,524	423	59	15.52	8.5	0.7	17.08	i	94.13	9,252	48	15.48	8.9	0.7	17.10	94.15				
Oliver	CQ	4	16.42	5.9	0.6	42.3	52.5	4,197	423	48	15.65	8.8	0.9	17.27	i	94.23	5,484	48	15.73	8.6	0.9	17.32	94.26				
OHIO	Athens	CQ	3	27.66	9.2	1.8	66.6	55.1	20,394	423	6	27.38	11.1	3.5	32.05	b	87.05	23,233	7	26.41	13.2	1.5	30.82	87.05			
Belmont	CQ	92	28.05	14.4	3.6	66.5	55.9	4,887	423	129	28.87	9.7	3.9	32.51	b	88.24 d, e	8,221	242	28.66	9.7	4.1	32.30	86.71				
Carroll	CQ	11	28.83	11.1	2.8	68.6	55.9	145	423	16	28.09	12.6	3.5	32.76	b	86.93											
Columbiana	CQ	22	28.47	12.5	3.7	67.3	57.8	457	423	119	28.56	9.7	2.4	32.03	b	87.05	382	71	28.80	8.4	2.3	31.84	87.07				
Coshocton	CQ	31	28.42	8.6	3.7	67.4	55.0	91	423	13	27.87	7.6	2.7	30.50	b	87.24	2,778	36	27.06	10.4	2.8	30.67	87.20				
Gallia	CQ	20	26.70	12.1	4.0	63.3	54.4	200	423	12	25.74	11.9	2.8	29.69	b	87.28	5,500	36	28.93	8.8	3.6	32.22	87.15				
Guernsey	CQ	59	27.93	13.0	3.8	65.9	55.2	62	423	1	25.59	14.3	2.0	30.38	b	86.95	2,129	119	28.27	10.3	2.8	32.01	87.77				
Harrison	CQ	24	29.10	10.4	2.6	69.8	57.8	2,555	423	73	28.34	10.2	2.6	32.05	b	87.85											
Holmes	CQ	12	29.24	8.0	3.7	69.1	54.0	158	423	17	26.83	10.8	3.6	30.57	b	86.54											
Jackson	CQ	23	25.96	11.3	2.9	62.4	55.9	1,290	423	24	25.41	12.7	3.5	29.64	b	87.92	628	84	26.16	11.3	3.7	30.00	87.91				
Jefferson	CQ	18	28.03	13.1	2.8	67.2	59.1	650	423	12	27.69	11.5	2.3	31.79	b	87.96	552	57	27.89	10.5	2.3	31.63	87.99				
Mahoning	CQ	13	28.54	14.2	3.2	67.5	56.3	7	423	8	23.80	19.1	3.5	30.16	b	86.43											
Meigs	CQ	2	25.01	19.2	3.0	59.4	56.4	4,074	423	12	26.10	12.3	3.5	30.32	b	86.95											
Monroe	CQ	24	28.50	14.5	4.3	66.9	54.5	445	423	24	28.38	10.2	4.4	32.18	b	86.00	267	13	29.49	10.3	4.0	33.48	86.15				
Morgan	CQ	19	28.01	9.8	4.0	66.3	54.4	989	580	6	26.82	12.3	4.7	31.24	b	86.14 a											
Muskingum	CQ	30	28.48	13.7	3.8	67.3	55.6	601	423	12	26.83	12.7	4.6	31.40	b	86.51	302	31	26.24	14.7	4.0	31.50	86.44				
Noble	CQ	20	26.74	11.0	3.3	63.7	55.1	650	423	24	26.89	13.9	4.6	31.97	b	86.27	58	3	26.61	12.5	3.7	31.01	87.21				
Perry	CQ	20	26.74	11.0	3.3	63.7	55.1	870	423	25	26.15	11.6	2.7	30.05	b	87.51											

Table SA1a. Carbon dioxide emission factors for U.S. coal by origin state and county, 1999, SI units.

STATE	County	Produced coal 1999 (by origin)										Delivered coal 2005 (by origin)															
		Data	n	MJ/kg	Ash	S	FC	d.mmt	Gg	Data	n	MJ/kg	Ash	S	rank	kg CO ₂ per GJ	notes	Gg	n	MJ/kg	Ash	S	MJ/kg	kg CO ₂ per GJ	notes		
In-ground coal	Stark	CQ	17	28.10	11.3	3.2	66.7	55.8	501	423	4	29.24	8.1	2.3	32.18	b	87.32	96	29	26.78	10.0	3.2	30.19	87.01			
	Tuscarawas	CQ	42	28.76	8.5	3.4	68.0	54.6	729	423	59	26.81	11.3	3.3	30.75	b	86.64	2,244	22	30.34	7.4	2.7	33.16	86.92			
	Vinton	CQ	42	26.88	11.5	3.7	63.7	53.5	1,025	423	32	26.38	10.4	3.0	29.87	b	87.06	13	8	26.59	13.0	2.0	31.07	87.78			
Washington	CQ	3	29.42	11.5	3.5	69.6	57.3																				
unknown																											
OKLAHOMA	Craig	CQ	7	29.90	11.2	4.4	70.1	57.8	1,506	176	423	17	28.57	11.7	3.4	32.98	b	88.44	356	27	28.19	16.3	4.1	34.59	88.34		
	Haskell	CQ	7	33.08	6.0	1.2	80.6	73.6	557	ICR	11	28.57	16.1	3.3	34.97	b	88.60										
	Lattimer	CQ	2	28.33	17.0	4.8	67.0	59.6	105	ICR	1	29.53	13.5	3.7	34.88	b	87.03										
	Le Flore	CQ	7	30.52	12.1	1.6	75.7	80.3	462	ICR	28	28.42	16.2	3.4	34.74	b	90.32	441	48	22.87	28.5	1.5	33.21	90.78			
	Okmulgee	CQ	1	30.93	3.5	1.8	74.4	61.7	5	423																	
	Rogers	CQ	3	29.21	12.4	4.3	68.9	61.6	201	423	12	30.22	9.2	3.9	33.85	b	86.56										
	unknown								4,312																		
	Carbon	CQ	2	30.06	11.0	0.6	82.6	95.8	42																		
	Columbia	CQ	1	30.26	10.6	0.5	81.5	93.4	508																		
	Dauphin	CQ	4	26.51	22.2	0.8	67.6	84.7	2																		
PA ANTHRACITE	Lackawanna	CQ	14	29.41	11.7	0.7	80.9	95.4	9	423	2	30.00	6.6	1.4	32.39	an	98.34	111	27	13.95	47.5	0.5	28.71	100.72			
	Luzerne	CQ	7	30.12	13.2	1.0	78.5	92.3	797	ICR	50	25.31	16.8	0.6	31.80	an	100.84	1,262	140	14.28	41.8	0.4	26.14	100.74			
	Northumberland	CQ	7	29.54	12.6	1.5	80.2	95.3	1,911	423	14	17.01	39.0	0.6	29.35	an	99.66	1,324	127	15.48	39.0	0.4	26.89	99.72			
	Schuylkill	CQ	4	29.70	13.5	0.7	76.4	90.2	54	423	5	20.38	31.8	0.5	30.95	an	94.29										
	Sullivan	CQ	13	29.04	13.0	1.9	69.4	60.2	64,997	11	423	10	27.81	8.9	1.4	30.86	b	87.76	42,903	7	15.81	35.8	0.4	25.88	94.26		
	Allegheny	CQ	14	30.28	11.2	3.0	72.0	60.9	4,834	423	251	28.71	13.3	1.9	33.70	b	87.41	1,797	149	27.54	15.9	2.9	33.57	87.09			
	Armstrong	CQ	9	29.56	11.8	2.9	70.2	58.0	191	423	14	27.85	12.0	1.6	32.11	b	87.34	280	29	27.86	12.6	2.1	32.38	87.20			
	Beaver	CQ	1	30.43	13.8	0.7	76.0	80.9	5																		
	Bradford	CQ	4	32.03	9.6	2.4	78.8	81.8	2	423	1	29.68	10.7	1.1	33.64	b	90.51	5	1	30.10	8.2	1.5	33.13	91.23			
	Bedford	CQ	33	29.72	10.6	2.4	71.1	60.5	516	423	28	28.15	12.4	3.3	32.75	b	89.38	121	47	24.69	20.8	2.8	32.00	87.39			
Butler	CQ	26	30.88	11.4	1.9	75.2	75.4	1,255	423	54	29.07	13.0	2.1	34.00	b	89.18	472	14	14.39	44.1	1.6	27.53	88.82				
PENNSYLVANIA	Cambria	CQ	4	30.90	11.6	1.8	74.9	74.6	5																		
	Centre	CQ	18	29.80	11.9	3.4	70.3	58.4	386	423	36	29.69	9.3	1.5	33.12	b	87.03	30	23	28.06	12.3	2.4	32.50	86.74			
	Clarion	CQ	64	29.86	14.1	2.5	72.2	72.6	2,986	423	255	28.98	13.3	1.9	33.98	b	88.81	1,638	284	26.64	16.3	1.7	32.40	88.83			
	Clearfield	CQ	70	29.31	13.4	2.4	70.0	63.3	408	423	30	29.10	10.5	1.6	32.93	b	87.71	176	39	20.40	33.3	1.7	31.84	87.46			
	Elk	CQ	46	30.38	13.1	3.2	72.7	68.1	257	423	25	29.22	9.7	1.7	32.77	b	88.14	453	148	27.57	14.6	2.8	32.96	87.78			
	Fayette	CQ	30	29.02	14.7	2.9	68.8	60.2	34,516	423	658	30.42	7.7	1.9	33.31	b	87.18	17,300	654	30.32	7.8	2.0	33.27	87.15			
	Greene	CQ	1	31.05	12.7	0.8	76.6	79.7																			
	Huntingdon	CQ	67	30.08	13.9	2.1	72.8	70.4	4,608	423	102	28.40	14.6	1.8	33.86	b	88.72	6,261	136	26.67	18.4	2.2	33.53	88.55			
	Indiana	CQ	34	30.96	9.8	2.1	74.3	64.4	1,047	423	47	28.97	12.2	1.7	33.53	b	87.99	444	83	27.89	13.0	1.8	32.57	87.95			
	Jefferson	CQ	21	29.36	11.1	2.9	69.8	58.4	77																		
TENNESSEE	Lawrence	CQ	3	31.10	11.7	1.5	77.1	81.6	232	423	16	24.67	22.6	0.8	32.68	b	90.97	4	3	24.03	17.8	2.5	29.92	87.11			
	Lyonning	CQ	70	30.04	13.0	2.1	73.8	79.9	4,388	423	181	28.99	13.9	2.0	34.26	b	89.97	110	28	24.97	21.5	1.0	32.56	90.91			
	Somerset	CQ	4	29.70	14.5	0.9	72.9	76.8																			
	Tioga	CQ	4	30.09	8.9	4.2	71.0	56.1	84	423	2	31.21	9.6	1.3	34.93	b	87.29	2	6	17.17	37.3	0.5	28.84	89.94			
	Venango	CQ	33	29.23	12.6	2.7	69.6	58.2	8,764	423	193	30.61	7.1	1.5	33.24	b	87.54	3,322	142	30.09	7.8	1.6	32.98	87.51			
	Washington	CQ	12	29.78	14.3	2.7	71.5	67.9	430	423	57	29.11	11.9	2.0	33.57	b	88.15	130	50	22.61	21.9	1.2	29.62	88.28			
	Westmoreland	CQ																									
	unknown								2,756																		
	Anderson	CQ	12	31.16	7.7	1.8	74.6	62.0	83	423	10	28.71	9.6	1.3	32.13	b	87.82	1,469	4	28.99	10.2	1.7	32.72	87.83			
	Campbell	CQ	10	30.23	8.0	1.9	72.8	60.5	797	ICR	1	28.56	9.3	1.1	31.82	b	88.50	48	4	28.99	10.2	1.4	32.59	88.44			
Claborn	CQ	10	32.63	4.2	1.0	78.0	61.2	1,113	423	61	29.90	7.7	1.4	32.71	b	87.51	838	59	29.98	8.6	1.3	33.14	87.52				
Cumberland	CQ	1	29.36	9.6	2.8	69.8	60.7	232	423	12	29.22	11.1	0.9	33.26	b	88.18	7	79	28.29	12.4	1.7	32.65	87.78	a			
Fentress	CQ							3																			

Table SA1a. Carbon dioxide emission factors for U.S. coal by origin state and county, 1999, SI units.

STATE	County	Produced coal 1999 (by origin)										Delivered coal 2005 (by origin)												
		Data	n	MJ/kg	Ash	s	C	FC	d,mmt	Gg	Data	n	MJ/kg	Ash	s	MJ/kg	Ash	s	MJ/kg	kg CO ₂ per GJ	notes			
Morgan	CQ	2	30.92	8.1	1.1	74.5	62.1	7	423	3	29.77	9.1	1.6	33.13	b	88.08	120	12	29.05	9.6	1.7	32.52	87.73	
	CQ	8	30.17	9.5	2.5	72.0	60.9	152	423	12	28.67	11.5	1.4	32.82	b	87.81	41,546	12	15.19	16.3	1.2	16.43	91.56	
	CQ	2	31.00	8.3	0.7	74.8	66.1	369	423	12	28.84	14.5	0.9	34.27	b	88.36	10,295	24	16.04	15.1	1.0	19.14	91.44	
TEXAS	CQ	1	17.44	22.4	2.2	42.9	47.7	48,148	423	11	12.27	26.8	1.8	17.22	i	89.99	3,854	12	15.46	13.8	0.9	18.16	92.38	
	CQ	2	18.85	7.5	0.7	47.2	49.1	4,510	423	12	14.90	15.4	0.7	17.87	i	91.55								
Freestone	CQ	7	18.84	8.6	1.0	47.5	50.8	3,397	423	12	15.31	14.3	1.2	18.09	i	92.21								
	CQ	2	17.85	15.9	1.0	45.0	48.6	1,929								92.37	d,f							
Hopkins	CQ	6	18.98	12.1	1.1	47.0	47.7	8,361	ICR	12	16.33	18.2	1.1	20.31	s	91.57	5,566	24	14.11	19.6	1.4	17.95	90.31	
	CQ	6	18.98	12.1	1.1	47.0	47.7	5,648	423	12	16.03	16.5	1.1	19.50	s	90.55	11,700	12	15.98	13.7	1.4	18.75	92.03	a
Panola	CQ	7	20.47	423	12	15.12	13.4	1.1	17.66	i	92.97	a												
	CQ	1,465	423	12	15.75	18.1	0.9	19.67	s	92.08	a													
Robertson	CQ	5,658	423	12	15.12	13.4	1.1	17.66	i	92.97	a													
	CQ	6,837	423	11	13.57	19.0	0.5	17.07	i	92.07														
Titus	CQ	4	17.76	11.8	0.7	44.6	49.9	213																
	WH	5	28.91	12.8	1.2	66.7		23,926																
Webb	CQ	9	29.13	8.7	0.7	69.9	51.8	7,528	423	128	27.34	9.1	0.5	30.37	b	88.01	19,087	244	27.00	13.1	0.7	31.40	87.94	
	CQ	52	28.25	8.7	0.8	67.8	52.7	10,436	423	97	27.59	10.1	0.4	31.00	b	88.05	7,784	244	27.00	13.1	0.7	31.40	87.94	
Emery	CQ	7	25.08	13.9	0.9	61.4	55.8	5,961	423	37	26.45	8.3	0.4	29.07	b	89.86	4,968	92	25.61	16.2	0.7	31.04	87.96	
	CQ	7	25.08	13.9	0.9	61.4	55.8	5,961	423	37	26.45	8.3	0.4	29.07	b	89.86	6,320	101	26.04	9.4	0.4	28.99	89.85	
Sevier	CQ	55	32.59	7.4	1.0	79.3	70.8	29,296																
	CQ	41	31.18	9.8	1.3	75.1	63.8	9,667	423	145	31.36	6.9	0.8	33.92	b	89.24	16	6	28.04	8.0	0.6	30.72	88.78	a
Dickenson	CQ	24	30.87	9.9	1.7	74.0	60.1	3,781	423	109	30.29	8.9	1.2	33.59	b	88.30	19,087	244	27.00	13.1	0.7	31.40	87.94	
	CQ	25	31.23	10.0	0.8	75.9	65.0	907	423	128	29.40	9.5	0.9	32.84	b	88.10	2,689	149	29.06	11.2	0.9	33.12	89.19	
Russell	CQ	9	30.75	9.9	1.4	74.0	60.3	357	423	98	28.98	14.1	0.7	34.25	b	89.06	7,784	244	27.00	13.1	0.7	31.40	87.94	
	CQ	25	32.63	6.8	0.9	79.8	72.3	1,878	423	20	29.47	10.7	0.7	33.39	b	89.68	825	76	29.90	11.3	1.3	34.19	88.26	
Tazewell	CQ	68	32.10	7.2	1.2	77.3	63.9	12,705	423	742	29.85	9.9	1.1	33.53	b	88.21	1,454	126	29.19	9.2	0.9	32.46	88.11	
	CQ	4	26.08	25.2	0.9	64.9	75.7																	
Wythe	CQ	8	27.39	10.8	0.6	49.6		3,720																
	KEY	1	19.35	14.5	0.4	48.1	51.3	3,717	423	12	18.15	15.1	0.9	21.68	s	88.71	4,794	12	18.26	15.3	0.8	21.89	91.19	a
WASHINGTON	CQ	26	30.95	9.5	2.5	73.7	60.4	35,188	423	5	18.10	14.6	0.9	21.49	s	90.86	19,087	244	27.00	13.1	0.7	31.40	87.94	
	CQ	2	30.94	6.6	1.7	74.1	59.2	938	423	35	30.65	8.9	1.3	34.02	b	87.51	39,570	113	29.44	10.5	1.2	33.28	87.64	
Barbour	CQ	1	29.54	6.6	1.5	71.3	60.0	1,492	423	48	28.63	10.5	3.7	32.56	b	87.79	1,281	113	29.44	10.5	1.2	33.28	87.64	
	CQ	2	30.94	6.6	1.7	74.1	59.2	938	423	2	29.09	12.9	1.4	33.92	b	87.84	126	8	28.89	11.5	1.2	33.09	87.88	
Braxton	CQ	1	29.54	6.6	1.5	71.3	60.0	1,492	423	48	28.63	10.5	3.7	32.56	b	87.79	281	22	28.27	11.5	2.2	32.40	88.23	
	CQ	1	29.54	6.6	1.5	71.3	60.0	1,492	423	48	28.63	10.5	3.7	32.56	b	87.79	54	6	27.79	12.6	0.9	32.22	88.29	a
Brooke	CQ	1	29.54	6.6	1.5	71.3	60.0	1,492	423	48	28.63	10.5	3.7	32.56	b	87.79	202	18	22.65	14.7	1.4	27.05	91.89	b
	CQ	1	29.54	6.6	1.5	71.3	60.0	1,492	423	48	28.63	10.5	3.7	32.56	b	87.79	4,815	174	28.62	12.3	3.6	33.26	86.79	
Cabell	CQ	6	31.31	7.6	2.9	74.4	57.7	6,455	423	108	29.27	11.1	3.3	33.49	b	86.87	2,743	149	28.46	12.0	2.3	32.69	87.90	
	CQ	13	29.88	10.7	2.8	71.1	57.1	1																
Grant	CQ	3	31.81	6.6	1.6	76.5	60.0	10,341	423	44	29.91	9.8	2.8	33.68	b	87.17	2,743	149	28.46	12.0	2.3	32.69	87.90	
	CQ	1	31.81	6.6	1.6	76.5	60.0	10,341	423	44	29.91	9.8	2.8	33.68	b	87.17	11,654	197	28.78	10.7	2.7	32.72	87.23	a
Harrison	CQ	1	31.81	6.6	1.6	76.5	60.0	10,341	423	44	29.91	9.8	2.8	33.68	b	87.17	8	4	27.85	14.9	2.0	33.38	91.82	b
	CQ	1	31.81	6.6	1.6	76.5	60.0	10,341	423	44	29.91	9.8	2.8	33.68	b	87.17	6,900	523	29.37	10.5	2.2	33.25	87.62	
Marion	CQ	8	29.02	13.8	2.2	69.4	61.3	5,848	423	343	29.99	9.0	2.2	33.40	b	87.93	685	62	30.19	9.4	1.6	33.71	88.20	
	CQ	1	31.77	10.4	1.5	76.5	70.9	1,229	423	76	30.40	9.4	1.4	33.94	b	88.26	990	54	29.14	11.2	0.7	33.20	88.31	a
Monongalia	CQ	6	29.66	13.0	2.5	72.4	75.0	234	580	4	28.62	13.5	1.7	33.65	b	89.65	767	146	29.24	11.4	1.7	33.48	87.75	
	CQ	7	30.18	10.4	2.3	72.1	60.2	2,159	423	95	29.96	10.2	1.9	33.81	b	87.72	2,171	120	28.84	12.1	1.1	33.25	88.71	
Preston	CQ	16	32.03	6.0	1.0	77.6	66.6	4,946	423	156	29.08	12.0	0.9	33.49	b	88.77	78	8	26.88	14.2	1.0	31.84	88.31	a
	CQ	16	32.03	6.0	1.0	77.6	66.6	4,946	423	156	29.08	12.0	0.9	33.49	b	88.77								
Tyler	CQ	6	29.66	13.0	2.5	72.4	75.0	234	580	4	28.62	13.5	1.7	33.65	b	89.65								
	CQ	7	30.18	10.4	2.3	72.1	60.2	2,159	423	95	29.96	10.2	1.9	33.81	b	87.72								
Tucker	CQ	16	32.03	6.0	1.0	77.6	66.6	4,946	423	156	29.08	12.0	0.9	33.49	b	88.77								
	CQ	16	32.03	6.0	1.0	77.6	66.6	4,946	423	156	29.08	12.0	0.9	33.49	b	88.77								
Upshur	CQ	16	32.03	6.0	1.0	77.6	66.6	4,946	423	156	29.08	12.0	0.9	33.49	b	88.77								
	CQ	16	32.03	6.0	1.0	77.6	66.6	4,946	423	156	29.08	12.0	0.9	33.49	b	88.77								
Webster	CQ	16	32.03	6.0	1.0</																			

Table SA1a. Carbon dioxide emission factors for U.S. coal by origin state and county, 1999, SI units.

STATE	County	Produced coal 1999 (by origin)										Delivered coal 2005 (by origin)											
		Data	n	MJ/kg	Ash	S	C	FC	d.mmt	Gg	Data	n	MJ/kg	Ash	S	MJ/kg	Ash	S	MJ/kg	kg CO ₂ per GJ	notes		
unknown	WEST VIRGINIA S.																						
Boone		CQ	37	29.94	10.9	1.3	72.0	62.1	108,131	27,471	423	864	28.86	11.9	0.8	28.75	11.9	0.8	28.41	12.1	0.8	88.76	88.31 a
Clay									6,202	423	136	28.72	12.2	0.9	33.13	12.2	0.9	28.47	11.7	0.8	88.25	88.46	
Fayette		CQ	33	32.18	7.2	0.9	77.8	67.3	1,832	423	311	28.62	11.7	1.1	32.83	11.7	1.1	28.74	12.4	0.8	88.25	88.25 a	
Greenbrier		CQ	15	32.23	6.9	1.1	78.3	74.1	298	423	3	30.40	9.7	0.9	34.04	9.7	0.9	29.74	9.9	1.1	33.38	88.53	
Kanawha		CQ	55	30.24	10.4	1.0	73.0	60.9	13,594	423	580	28.21	13.2	0.8	32.93	13.2	0.8	28.39	12.4	0.8	32.82	88.57	
Lincoln									324	423	20	26.48	14.7	0.8	31.52	14.7	0.8	28.39	12.4	0.8	32.82	88.57	
Logan		CQ	61	30.83	9.6	1.0	74.3	62.8	8,696	423	217	28.49	12.1	0.8	32.84	12.1	0.8	28.31	12.4	0.7	32.73	88.36	
McDowell		CQ	31	33.24	6.4	0.9	81.9	79.1	4,369	423	9	32.00	6.0	0.7	34.26	6.0	0.7	30.29	9.0	1.8	33.68	89.99	
Mercer		CQ	8	31.87	10.1	0.7	79.0	81.9	9	423	1	20.15	5.6	0.3	21.44	5.6	0.3	30.29	9.0	1.8	33.68	89.99	
Mingo		CQ	35	31.44	7.3	0.9	76.0	63.0	17,689	423	687	28.53	11.6	0.7	32.68	11.6	0.7	28.34	12.2	0.7	32.67	88.60	
Nicholas		CQ	35	31.83	7.0	0.9	77.0	65.5	3,740	423	160	28.95	11.6	1.0	33.16	11.6	1.0	29.03	13.7	0.9	33.16	88.58	
Raleigh		CQ	34	32.23	8.3	1.1	78.8	74.2	9,647	423	27	26.65	19.7	1.0	33.98	19.7	1.0	29.03	13.7	0.9	33.30	89.57	
Randolph		CQ	4	32.80	5.0	0.8	79.6	68.5	7	423	1	28.49	10.2	0.5	32.05	10.2	0.5	28.49	10.2	0.5	32.05	89.03	
Wayne		CQ	2	28.12	11.0	1.5	67.8	57.5	6,062	423	231	27.76	11.4	0.8	31.72	11.4	0.8	28.28	10.9	0.8	32.09	88.49	
Wyoming		CQ	32	32.74	7.5	0.9	80.6	78.6	8,198	423	45	31.51	6.9	0.7	34.10	6.9	0.7	29.70	10.1	0.7	33.38	90.28	
unknown	WYOMING								305,834				20.15	5.3	0.3	20.19	5.3	0.3	27.77	12.7	1.2	32.25	88.15 a
Campbell		CQ	97	17.92	8.1	0.7	45.0	52.8	267,434	423	2562	20.02	5.1	0.3	21.20	5.1	0.3	20.10	5.0	0.3	21.26	92.14	
Carbon		CQ	89	22.49	12.7	1.1	55.6	56.8	2,474	423	125	25.02	6.3	0.6	26.88	6.3	0.6	24.19	6.3	0.5	25.97	90.79	
Converse		CQ	5	21.08	7.2	0.5	53.0	51.3	23,262	423	225	20.05	6.0	0.3	21.42	6.0	0.3	20.58	5.4	0.3	21.85	92.19	
Johnson		CQ	31	22.43	4.1	0.3	56.4	58.7	3,919	423	12	23.21	4.9	0.7	24.52	4.9	0.7	20.77	5.0	0.3	21.95	92.10	
Lincoln		CQ	9	25.18	10.1	0.5	61.6	56.3	69	423	69	23.21	4.9	0.7	24.52	4.9	0.7	23.34	4.8	0.9	24.64	89.54	
Sheridan		CQ	51	18.67	8.7	0.9	47.3	51.8	8,676	423	24	21.73	10.1	0.5	24.40	10.1	0.5	21.74	10.1	0.5	24.40	91.37	
Sweetwater		CQ	47	22.96	7.3	1.1	57.1	55.9	516	423	7	20.32	5.2	0.3	21.52	5.2	0.3	20.32	5.2	0.3	21.52	91.91 a	
unknown	IMPORT								21,709				27.07	6.1	0.6	27.07	6.1	0.6	27.07	6.1	0.6	89.17	89.17
Columbia									15,926				27.10	6.4	0.6	27.10	6.4	0.6	27.10	6.4	0.6	29.15	89.12 a
Indonesia									1,936				24	23.08	2.3	0.2	23.08	2.3	0.2	23.72	91.01 a	91.01 a	
Russia									67				2	27.50	9.0	0.5	27.50	9.0	0.5	30.49	88.88 a	88.88 a	
Venezuela									3,779				138	29.01	6.6	0.6	29.01	6.6	0.6	31.30	88.66 a	88.66 a	
unknown	UNKNOWN								9,313				29.34	10.4	2.1	29.34	10.4	2.1	29.34	10.4	2.1	87.54	87.54 a
unknown	unknown								9,313				29.34	10.4	2.1	29.34	10.4	2.1	29.34	10.4	2.1	87.54	87.54 a

Table SA1b. Carbon dioxide emission factors for U.S. coal by origin state and county, 1999, U.S. customary units.

STATE	County	In-ground coal										Produced coal 1999 (by origin)										Delivered coal 2005 (by origin)									
		Data	n	Btu/lb	Ash	s	C	FC dmmf	Tons (1000)	Data	n	Btu/lb	Ash	s	Btu/lb dmmf	rank	million Btu	notes	Tons (1000)	n	Btu/lb	Ash	s	Btu/lb dmmf	million Btu	notes					
ALABAMA	Bibb	CQ	2	13,922	3.9	0.8	78.2	61.7	45	423	19,505	12,245	12.6	1.1	14,293	b	205.0	204.4 a	10,921	252	12	12,179	13.4	1.6	14,220	204.3	203.9 a				
	Cullman	CQ	86	12,482	12.7	2.6	69.0	58.4	82	423	2,325	12,034	12.6	1.7	13,978	b	203.1	204.4 a	5,025	58	13,157	13.4	1.7	15,462	203.2	203.2					
	Fayette	CQ	1	13,821	8.6	0.7	79.1	74.7	2,325	423	42	12,034	12.6	1.7	13,978	b	203.1	204.4 a	117	23	12,161	14.4	0.7	14,431	209.7	209.7					
	Jackson	CQ	67	13,578	8.9	1.6	76.3	68.6	6,981	423	103	12,191	12.9	0.9	14,189	b	206.3	205.7 d,e	2,574	32	12,562	13.2	1.3	14,701	206.0	206.0					
	Jefferson	CQ	3	13,683	3.0	0.8	76.8	59.6	45	423	6,981	12,191	12.9	0.9	14,189	b	206.3	205.7 d,e	300	15	11,973	12.4	1.4	13,875	204.0	204.0					
	Marion	CQ	313	12,916	12.2	2.1	71.8	62.3	6,382	423	82	12,492	12.0	0.9	14,386	b	204.4	204.4	2,652	60	11,840	13.8	1.5	13,959	204.7	204.7					
	Tuscaloosa	CQ	161	12,561	12.0	1.7	70.2	61.6	3,306	423	35	11,996	13.4	1.7	14,080	b	204.6	204.6	300	15	11,973	12.4	1.4	13,875	204.0	204.0					
	Walker	CQ	9	13,074	4.9	1.2	73.5	60.7	339	580	5	12,027	11.7	1.0	13,797	b	206.1	206.1	2,652	60	11,840	13.8	1.5	13,959	204.7	204.7					
	Winston	CQ	9	13,074	4.9	1.2	73.5	60.7	339	580	5	12,027	11.7	1.0	13,797	b	206.1	206.1	2,652	60	11,840	13.8	1.5	13,959	204.7	204.7					
	ALASKA	Yukon-Koyukuk	CQ	10	7,945	10.3	0.3	46.2	45.8	1,565	423	1,565	7,945	10.3	0.3	213.1	d,f	213.1	213.1	12,808	24	10,911	9.7	0.5	12,202	209.4	209.4				
ARIZONA	Navajo	CQ	10	11,028	7.7	0.5	63.0	53.6	11,787	423	24	10,955	9.6	0.5	12,228	b	209.4	209.4	12,808	24	10,911	9.7	0.5	12,202	209.4	209.4					
ARKANSAS	Johnson	CQ	4	14,243	6.1	1.7	83.2	86.6	22	18	22	14,259	5.9	1.5	214.0	d	214.0	214.0	41	22	9,663	27.9	1.5	13,884	209.3	209.3					
Sebastian	CQ	2	14,335	5.4	0.7	83.1	79.3	4	4	4	14,259	5.9	1.5	214.0	d	214.0	214.0	41	22	9,663	27.9	1.5	13,884	209.3	209.3						
Scott	CQ	1	13,680	10.3	2.0	78.2	77.3	29,990	423	1,718	11,095	8.4	0.5	13,059	b	208.5	208.5	32,179	102	11,799	8.3	0.5	12,980	208.4	208.4						
COLORADO	Delta	CQ	26	10,332	9.4	0.8	58.7	56.3	1,718	423	32	12,055	7.1	0.4	13,059	b	208.5	208.5	2,770	102	11,799	8.3	0.5	12,980	208.4	208.4					
Fremont	CQ	7	11,275	7.8	1.1	64.2	57.2	242	423	8,151	11,095	8.4	0.5	12,998	b	206.0	206.0	266	12	11,169	11.1	0.6	12,700	206.4	206.4						
Garfield	CQ	16	11,132	11.5	0.7	62.7	59.2	8,151	423	127	11,719	9.0	0.5	12,998	b	206.0	206.0	10,896	306	11,884	8.7	0.5	13,143	206.0	206.0						
Gunnison	CQ	35	11,942	10.9	0.6	67.1	58.3	246	423	246	11,095	8.4	0.5	12,998	b	206.0	206.0	266	12	11,169	11.1	0.6	12,700	206.4	206.4						
La Plata	CQ	4	12,754	9.2	0.7	71.2	60.1	246	423	246	11,095	8.4	0.5	12,998	b	206.0	206.0	266	12	11,169	11.1	0.6	12,700	206.4	206.4						
Mesa	CQ	4	11,727	14.3	1.2	66.7	58.5	285	423	285	11,288	12.1	0.5	13,004	b	205.8	205.8	41	22	9,663	27.9	1.5	13,884	209.3	209.3						
Moffat	CQ	47	9,809	9.6	0.5	56.7	58.0	7,788	423	7,788	10,267	6.1	0.4	10,993	s	212.0	212.0	6,941	135	10,221	6.7	0.4	11,024	212.0	212.0						
Montrose	CQ	2	12,631	8.4	0.8	74.3	64.3	359	423	359	10,267	6.1	0.4	10,993	s	212.0	212.0	6,941	135	10,221	6.7	0.4	11,024	212.0	212.0						
Rio Blanco	CQ	8	10,681	12.7	0.5	60.8	56.9	1,337	423	10	10,169	10.9	0.8	13,748	b	215.3	215.3	2,142	12	9,660	19.4	0.9	13,544	215.2	215.2						
Routt	CQ	40	10,993	9.2	1.0	62.3	56.6	9,864	423	124	11,154	9.2	0.5	12,404	b	208.1	208.1	8,749	177	11,091	10.9	0.5	12,573	208.1	208.1						
ILLINOIS	Christian	IGS	40	10,384	11.5	3.5	57.9	54.8	40,419	423	40,419	11,440	8.6	2.2	12,404	b	204.6	204.6	27,684	11,369	8.5	2.3	11,562	204.5	204.5						
Franklin	IGS	54	11,869	9.3	2.1	66.6	59.5	72	423	72	12,206	6.1	1.0	13,090	b	206.4	206.4	142	5	11,500	6.7	0.9	12,410	206.6	206.6						
Gallatin	IGS	29	12,510	10.7	3.7	69.2	59.6	4,627	423	423	11,445	8.0	1.8	12,554	b	205.9	205.9	142	5	11,500	6.7	0.9	12,410	206.6	206.6						
Jackson	IGS	10	11,897	10.0	2.8	66.1	59.4	816	423	140	12,609	9.2	2.6	14,069	b	203.5	203.5	600	43	12,272	8.1	2.5	13,526	203.5	203.5						
Jefferson	IGS	28	11,768	9.9	1.3	66.7	59.4	3,767	423	57	11,220	10.5	2.8	12,720	b	203.4	203.4	1,280	68	11,228	10.1	2.8	12,672	203.4	203.4						
Logan	IGS	129	10,401	12.2	3.8	57.7	55.9	2,344	423	36	10,468	9.4	3.1	11,700	b	203.9	203.9	2,116	72	10,576	8.9	3.3	11,759	203.8	203.8						
Macoupin	IGS	125	10,162	13.2	4.2	56.2	55.9	4,582	423	72	10,414	8.2	1.7	11,449	b	204.8	204.8	5,796	157	10,492	8.3	2.3	11,562	204.3	204.3						
McDonough	IGS	48	10,351	11.5	3.7	57.6	55.8	505	423	23	9,877	14.5	2.9	11,735	b	204.2	204.2	15	2	10,657	8.1	3.3	11,737	204.3	204.3						
Montgomery	IGS	19	11,261	10.3	3.1	62.7	57.6	1,698	423	17	10,715	8.4	3.4	11,834	b	204.4	204.4	839	31	9,821	14.3	2.7	11,578	203.8	203.8						
Perry	IGS	13	11,122	11.4	4.3	61.3	53.8	2,436	423	91	11,004	9.6	2.9	12,339	b	204.0	204.0	59	5	11,165	8.7	2.9	12,382	203.0	203.0						
Randolph	IGS	15	10,826	12.9	3.7	60.0	53.8	2,516	423	25	11,053	9.2	2.8	12,334	b	203.1	203.1	274	8	11,992	7.1	1.1	13,009	205.3	205.3						
Saint Clair	IGS	65	12,283	10.5	2.6	68.5	60.9	9,257	423	216	12,146	7.5	1.5	13,266	b	205.2	205.2	10,843	325	12,085	8.1	2.1	13,305	204.8	204.8						
Schuyler	IGS	1	10,878	10.5	2.9	60.9	52.2	423	423	1	11,300	6.0	2.8	12,134	b	205.3	205.3	1,310	55	10,849	7.3	1.6	11,804	204.1	204.1						
Vermillion	IGS	37	11,211	9.7	2.7	62.2	52.1	770	423	21	10,823	8.7	1.3	11,974	b	204.6	204.6	1,466	20	11,148	10.3	1.5	12,582	204.6	204.6						
Washington	IGS	1	10,689	11.1	1.8	59.6	52.2	1,296	423	22	11,047	10.3	1.5	12,456	b	204.6	204.6	1,466	20	11,148	10.3	1.5	12,582	204.6	204.6						
White	IGS	8	11,137	10.8	3.8	61.6	54.1	3,385	423	15	10,682	10.6	2.9	12,113	b	203.1	203.1	2,641	62	11,845	6.4	3.1	12,784	204.6	204.6						
Williamson	IGS	1	11,918	9.0	2.9	66.6	58.2	2,327	423	46	11,802	7.6	2.9	12,931	b	204.7	204.7	250	23	9,552	16.6	2.0	11,672	206.0	206.0						
Williamson	IGS	43	11,708	12.0	3.1	65.7	60.0	21	423	20	9,806	19.5	2.4	12,416	b	205.7	205.7	250	23	9,552	16.6	2.0	11,672	206.0	206.0						

Table SA1b. Carbon dioxide emission factors for U.S. coal by origin state and county, 1999, U.S. customary units.

STATE County	In-ground coal										Produced coal 1999 (by origin)										Delivered coal 2005 (by origin)									
	Data	n	Bt/lb	Ash	S	C	FC dmmf	Tons (1000)	Data	n	Bt/lb	Ash	S	Bt/lb mmmf	rank	lbs CO2 per million Btu	notes	Tons (1000)	n	Bt/lb	Ash	S	Bt/lb mmmf	lbs CO2 per million Btu	notes					
unknown																														
INDIANA																														
Clay	CQ	12	11,230	9.0	2.8	62.6	58.3	34,004	70	423	10	11,137	9.6	2.2	12,466	b	204.7	27,445	4	11,570	6.5	2.0	12,482	204.9	204.4					
Davies	CQ	3	11,751	12.5	6.0	64.1	57.4	73	3,543	423	116	11,276	8.0	1.9	12,383	b	205.5 a	2,776	111	11,438	7.0	2.1	12,419	205.2 a	207.5 a					
Dubois	CQ	3	11,751	12.5	6.0	64.1	57.4	73	3,543	423	116	11,276	8.0	1.9	12,383	b	200.0 d, e	2,776	111	11,438	7.0	2.1	12,419	205.2 a	207.5 a					
Gibson	CQ	2	11,192	14.3	4.2	62.1	57.2	5,888	423	102	11,150	8.9	2.3	12,380	b	204.5	12,757	180	11,165	9.1	2.4	12,437	204.4	204.4						
Greene	CQ	4	11,900	7.3	2.5	66.0	55.7	5,092	423	153	11,037	9.4	1.8	12,313	b	203.6	1,629	27	11,121	8.7	2.5	12,321	203.1	203.1						
Knox	CQ	3	11,850	9.1	2.9	66.1	55.5	5,525	423	93	11,104	9.4	2.4	12,410	b	204.6	1,947	74	11,230	7.3	1.3	12,219	205.4	205.4						
Owen	CQ	5	11,578	8.3	1.8	65.6	62.1	423	7	11,540	7.8	1.1	12,623	b	208.1	208.1	228	9	10,500	7.7	1.8	11,479	203.5	203.5						
Parke	CQ	1	11,300	6.8	1.8	62.8	57.4	216	423	17	11,920	6.7	2.1	12,897	b	203.5	2,652	66	11,277	8.7	2.8	12,504	204.2	204.2						
Pike	CQ	14	11,702	8.5	3.3	65.1	56.9	4,380	423	124	11,345	9.5	3.4	12,719	b	203.8	1	4	10,649	9.1	1.3	11,828	205.6	205.6						
Spencer	CQ	14	11,710	7.3	3.0	65.3	59.7	204	580	3	11,029	8.7	1.9	12,199	b	205.1	1	4	10,649	9.1	1.3	11,828	205.6	205.6						
Sullivan	CQ	9	11,464	10.2	2.3	64.0	58.2	1,580	423	62	10,958	9.6	1.8	12,258	b	204.9	512	20	10,810	12.3	3.4	12,541	203.7	203.7						
Vanderburgh	CQ																													
Vigo	CQ	2	11,585	9.6	3.3	64.1	55.6	3,526	423	99	10,726	9.2	1.1	11,921	b	204.1	70	5	11,790	8.2	2.3	12,988	204.3 a	204.3 a						
Warrick	CQ	25	11,301	9.7	3.4	63.0	58.7	3,907	423	43	11,124	9.9	3.6	12,535	b	204.2	1,349	26	11,211	11.3	4.0	12,867	203.9	203.9						
unknown																														
KANSAS																														
Bourbon	CQ	6	12,264	14.2	4.7	66.7	56.6	409	423	25	10,949	19.6	4.1	14,023	b	200.4 a	107	11	11,866	12.6	3.5	13,836	200.0	200.0						
Linn	CQ																													
unknown																														
KENTUCKY E																														
Bell	CQ	48	13,404	8.2	1.5	74.5	60.2	110,045	409	423	25	10,949	19.6	4.1	14,023	b	200.4 a	81,762	154	12,695	9.0	1.1	14,098	205.1	205.1					
Boyd	CQ	4	11,580	10.7	1.7	64.7	57.7	4,732	423	113	12,629	9.0	1.4	14,028	b	203.8	2,500	154	12,695	9.0	1.1	14,098	203.9	203.9						
Breathitt	CQ	26	12,765	9.0	1.3	71.6	58.7	2,452	423	105	12,063	12.0	1.0	13,888	b	205.6	393	44	11,548	11.0	1.0	13,157	205.3	205.3						
Carter	CQ																													
Clay	CQ	50	13,343	8.9	2.6	73.5	58.3	86	423	31	12,167	11.1	1.0	13,852	b	202.8	444	31	12,407	11.1	1.4	14,133	205.4	205.4						
Floyd	CQ	21	12,589	10.6	1.5	70.4	59.9	4,918	423	268	12,373	10.3	0.9	13,944	b	205.3	1,138	57	12,355	10.4	1.3	13,958	202.6	202.6						
Greenup	CQ	2	9,923	23.6	4.1	54.6	53.9	423	12	12,400	12.2	0.9	14,317	b	204.5	2,194	173	12,395	10.5	1.1	14,014	205.2	205.2							
Harlan	CQ	27	13,189	9.0	1.6	73.7	59.6	8,514	423	350	12,813	8.7	1.0	14,183	b	205.0	9,984	473	12,602	10.0	1.0	14,155	205.0	205.0						
Jackson	CQ	8	13,315	5.2	1.3	74.4	60.1	4	4																					
Johnson	CQ	12	12,420	9.8	1.8	69.5	58.2	1,184	423	66	11,987	11.5	1.3	13,717	b	204.7 d, e	8	1	12,754	9.5	1.0	14,242	204.9	204.9						
Knott	CQ	14	12,862	10.1	1.0	72.2	59.1	10,823	423	429	12,508	9.9	1.1	14,045	b	205.5	654	28	12,229	9.4	1.2	13,643	205.4	205.4						
Knox	CQ	18	13,715	5.0	1.9	76.1	59.3	522	580	3	12,534	8.9	0.7	13,884	b	203.9	8,055	266	12,391	11.1	1.2	14,118	205.5	205.5						
Laurel	CQ	13	13,487	5.4	2.1	74.9	59.4	50	423	4	11,552	11.9	1.5	13,304	b	203.6	199	26	12,392	10.8	1.2	14,066	203.6	203.6						
Lawrence	CQ	32	12,327	9.3	1.5	69.2	57.9	136	423	26	12,308	9.4	1.0	13,724	b	206.1	1,232	32	11,954	11.1	0.9	13,614	206.1	206.1						
Lee	CQ	5	12,427	6.7	1.0	70.0	60.1	423	2	13,397	5.4	0.7	14,244	b	206.7	15	5	12,099	11.2	1.5	13,804	206.1	206.1							
Leslie	CQ	35	12,770	10.4	1.5	71.4	59.0	8,064	423	66	12,467	9.8	1.1	13,974	b	205.0	333	39	11,805	12.5	1.2	13,689	204.9	204.9						
Letcher	CQ	16	13,174	10.0	1.1	73.6	61.1	9,209	423	297	12,948	7.6	1.4	14,150	b	204.5	7,037	318	12,570	10.3	1.1	14,176	204.6	204.6						
Magoffin	CQ	14	12,420	10.6	1.1	69.7	58.9	423	49	12,302	10.5	1.2	13,918	b	205.7	363	31	11,862	12.0	0.9	13,662	205.9	205.9							
Martin	CQ	23	12,392	11.3	1.0	70.0	60.4	11,507	423	322	12,061	11.7	0.8	13,827	b	207.2	5,651	278	12,162	10.7	0.9	13,778	207.1	207.1						
Menifee	CQ																													
Morgan	CQ	11	12,398	8.5	2.1	69.1	57.4	37	423	2	11,327	15.0	0.6	13,531	b	205.1	13	1	12,635	12.3	0.9	14,602	205.0 a	205.0 a						
Owsley	CQ	8	12,883	8.7	2.1	71.7	59.4	31	423	9	12,700	7.9	1.7	13,934	b	204.3	10	3	11,773	12.7	1.0	13,668	204.9	204.9						
Perry	CQ	37	12,734	10.4	1.7	70.9	58.5	12,947	423	482	12,402	10.3	1.0	13,979	b	204.4	13,686	589	12,387	10.4	1.1	13,984	204.4	204.4						
Pike	CQ	59	13,279	9.1	1.4	74.3	61.3	34,559	423	1342	12,608	9.6	1.0	14,090	b	205.2	19,277	1021	12,527	10.3	1.1	14,124	205.1	205.1						
Pulaski	CQ																													
Rockcastle	CQ	4	12,740	5.7	1.0	72.1	60.7	270	423	29	12,518	7.8	1.0	13,697	b	204.8	66	7	11,782	10.4	0.8	13,292	207.5	207.5						
Whitley	CQ	18	13,194	6.9	2.0	73.5	59.2	413	423	20	12,452	10.5	1.5	14,094	b	204.8	413	20	12,452	10.5	1.5	14,094	204.5	204.5						
unknown																														

Table SA1b. Carbon dioxide emission factors for U.S. coal by origin state and county, 1999, U.S. customary units.

STATE County	In-ground coal										Produced coal 1999 (by origin)										Delivered coal 2005 (by origin)										notes
	Data	n	Btu/lb	Ash	S	C	FC dmmf	Tons (1000)	Data	n	Btu/lb	Ash	S	Btu/lb mmmf	rank	lbs CO2 per million Btu	notes	Tons (1000)	n	Btu/lb	Ash	S	Btu/lb mmmf	lbs CO2 per million Btu	notes						
KENTUCKY W								29,581			11,395	13.0	3.2			201.8		25,766		11,443	11.2	3.1			202.0						
Butler	CQ	4	12,797	3.5	0.9	71.2	57.3	333	423	44	10,481	16.7	4.3	12,890	b	200.4		10	3	12,099	8.5	2.2	13,391	203.1							
Christian	CQ	1	11,913	8.0	2.8	65.7	56.7											19	2	12,517	10.0	1.1	14,059	203.8							
Crittenden																		34	7	12,102	10.6	2.3	13,725	203.6 a							
Davless	CQ	6	11,197	7.9	1.9	62.9	58.1	808	423	39	11,138	9.2	2.9	12,431	b	205.2		2	5	11,485	8.7	2.3	12,727	203.8							
Hancock	CQ	2	11,427	7.2	1.8	63.7	59.2	423	423	1	11,856	7.8	3.7	13,034	b	202.9		2,477	48	10,716	12.1	3.4	12,398	205.1							
Henderson	CQ	6	10,886	12.1	3.7	60.9	55.1	1,267	423	60	10,597	12.9	3.4	12,394	b	205.0		4,512	117	11,561	12.5	3.4	13,468	201.7							
Hopkins	CQ	21	11,513	13.5	4.4	63.1	55.3	7,457	423	140	11,268	13.3	3.2	13,238	b	201.8		4,115	113	11,478	10.6	3.0	13,030	201.2							
McLean	CQ	2	11,550	10.5	3.2	63.5	56.5	584	423	9	10,396	15.8	3.5	12,624	b	200.9		487	6	10,294	17.9	3.2	12,838	201.1							
Muhlenberg	CQ	13	11,462	13.6	5.3	62.4	55.2	3,387	423	41	10,009	24.4	5.3	13,783	b	199.0		4,797	94	11,331	9.0	2.8	12,600	202.4							
Ohio	CQ	29	11,576	12.8	3.9	63.5	55.4	131	423	5	11,243	11.2	3.9	12,890	b	200.9		7,009	171	11,978	10.2	3.1	13,543	201.4							
Union	CQ	15	11,272	12.9	4.9	61.8	55.6	7,079	423	78	11,689	9.3	2.8	13,066	b	202.4		2,305	117	10,754	15.3	3.2	12,962	202.6 a							
Webster	CQ	11	12,053	11.7	4.2	66.0	57.7	8,535	423	117	12,061	11.5	2.7	13,855	b	201.6		2,202	25	6,895	13.2	1.1	8,035	215.0 a							
unknown																		0	1	6,782	14.0	0.6	7,986	212.2							
LOUISIANA								2,953			6,962	12.5	0.9			214.6		2,202		6,895	13.2	1.1	8,035	215.0 a							
De Soto	CQ	1	7,955	5.2	1.4	45.9	50.2	2,236	423	12	6,937	12.2	1.0	7,982	i	215.4 a		0	1	6,782	14.0	0.6	7,986	212.2							
Red River	CQ	1	7,955	5.2	1.4	45.9	50.2	717	423	11	7,042	13.3	0.7	8,223	i	212.1															
MARYLAND								3,837			12,278	15.3	1.8			207.7		8,076		12,142	13.6	1.8		207.6							
Allegany	CQ	6	13,228	11.8	1.2	76.1	79.6	436	423	18	11,974	15.0	1.3	14,348	b	210.7		813	70	11,474	19.1	1.7	14,524	210.3							
Garrett	CQ	32	13,039	13.7	2.1	73.8	75.7	3,401	423	45	12,317	15.4	1.9	14,842	b	207.4		7,263	80	12,216	13.0	1.9	14,284	207.4							
MISSISSIPPI								18			5,200	14.7	0.6			221.8		3,603		5,096	15.6	0.5		222.3							
Choctaw	KEY	1	5,200	14.7	0.6			18			10,826	16.4	3.6			202.6		545		10,837	15.2	3.5		203.2							
MISSOURI								392			11,673	12.5	3.2	13,590	b	201.0		73	423	11	10,632	17.3	3.7	13,178	203.1						
Barton	CQ	6	12,251	15.6	5.6	66.7	61.7	319	423	11	10,632	17.3	3.7	13,178	b	203.1		541	23	10,828	15.2	3.5	13,048	203.2							
Bates	CQ	3	10,465	19.8	4.9	57.7	56.5	41,102			9,016	6.8	0.5			213.6		37,674		8,952	7.0	0.5		213.6							
MONTANA								27,338			9,273	5.3	0.4	9,839	s	213.5		24,427		9,190	5.7	0.4	9,794	213.5							
Big Horn	CQ	61	8,750	6.0	0.6	50.9	56.8				6,714	8.0	0.5	7,344	i	220.6		54	2	10,452	7.0	0.5	11,311	212.6							
Musselshell	CQ	6	10,082	7.9	0.8	58.4	60.2	275	423	10	6,714	8.0	0.5	7,344	i	220.6		265	11	6,767	8.5	0.5	7,447	220.6							
Powder River	CQ	65	7,516	6.6	0.5	44.4	54.8	13,489	423	51	8,542	9.6	0.8	9,536	s	213.7		12,926		8,539	9.3	0.7	9,499	213.7							
Richland	CQ	7	6,686	6.2	0.4	40.3	53.3				9,453	19.7	0.7			206.9		28,619		9,428	19.0	0.7		207.2							
Rosebud	CQ	39	8,555	8.4	1.0	49.8	58.5	29,156			9,453	19.7	0.7			206.9		28,619		9,428	19.0	0.7		207.2							
NEW MEXICO								1,166			11,845	15.6	0.6	14,260	b	204.6		1,166		11,845	15.6	0.6	14,260	204.6							
Cofax	CQ	6	13,375	9.2	0.5	74.7	59.5	1,166	423	14	11,845	15.6	0.6	14,260	b	204.6		12,112	423	84	9,654	15.6	0.6	11,613	205.3						
McKinley	CQ	50	9,741	15.5	0.8	54.5	53.5	12,112	423	84	9,654	15.6	0.6	11,613	b	205.3		15,878	423	24	9,124	23.2	0.8	12,217	208.3						
San Juan	CQ	61	9,019	18.3	0.6	51.3	54.3	15,878	423	24	9,124	23.2	0.8	12,217	b	208.3		31,135		6,570	9.2	0.7		218.3							
NORTH DAKOTA								7			6,189	11.3	0.7	7,044	i	215.9		7	192	423	12	6,189	11.3	0.7	7,044	215.9					
McLean	CQ	1	6,491	5.7	0.5	38.3	54.0	7	423	12	6,189	11.3	0.7	7,044	i	215.9		19,317	423	59	6,674	8.5	0.7	7,343	218.9						
Mercer	CQ	45	7,028	7.8	0.9	41.9	53.7	19,317	423	59	6,674	8.5	0.7	7,343	i	218.9		4,626	423	48	6,728	8.8	0.9	7,425	219.1						
Oliver	CQ	4	7,060	5.9	0.6	42.3	52.5	4,626	423	48	6,728	8.8	0.9	7,425	i	219.1		22,480		11,771	11.1	3.5		202.4							
OHIO								7			12,414	9.7	3.9	13,975	b	205.2 d, e		5,387		12,414	9.7	3.9	13,975	205.2							
Athens	CQ	3	11,893	9.2	1.8	66.6	55.1	7			12,414	9.7	3.9	13,975	b	205.2 d, e		5,387		12,414	9.7	3.9	13,975	205.2							
Belmont	CQ	92	12,058	14.4	3.6	66.5	55.9	5,387	423	129	12,414	9.7	3.9	13,975	b	205.2 d, e		160	423	16	12,075	12.6	3.5	14,082	202.2						
Carroll	CQ	11	12,394	11.1	2.8	68.6	55.9	160	423	16	12,075	12.6	3.5	14,082	b	202.2		504	423	119	12,280	9.7	2.4	13,769	202.4						
Columbiana	CQ	22	12,242	12.5	3.7	67.3	57.8	504	423	119	12,280	9.7	2.4	13,769	b	202.4		100	423	13	11,980	7.6	2.7	13,112	202.9						
Coshocton	CQ	31	12,218	8.6	3.7	67.4	55.0	100	423	13	11,980	7.6	2.7	13,112	b	202.9		221	423	12	11,067	11.9	2.8	12,764	203.0						
Gallia	CQ	20	11,480	12.1	4.0	63.3	54.4	221	423	12	11,067	11.9	2.8	12,764	b	203.0		68	423	1	11,001	14.3	2.0	13,063	202.2						
Guernsey	CQ	59	12,009	13.0	3.8	65.9	55.2	68	423	1	11,001	14.3	2.0	13,063	b	202.2		2,816	423	73	12,185	10.2	2.6	13,779	204.3						
Harrison	CQ	24	12,511	10.4	2.6	69.8	57.8	2,816	423	73	12,185	10.2	2.6	13,779	b	204.3		174	423	17	11,535	10.8	3.6	13,145	201.3						
Holmes	CQ	12	12,571	8.0	3.7	69.1	54.0	174	423	17	11,535	10.8	3.6	13,145	b	201.3															

Table SA1b. Carbon dioxide emission factors for U.S. coal by origin state and county, 1999, U.S. customary units.

STATE	County	In-ground coal										Produced coal 1999 (by origin)										Delivered coal 2005 (by origin)									
		Data	Y	Btu/lb	Ash	S	C	FC dmmf	Tons (1000)	Data	Y	Btu/lb	Ash	S	Btu/lb mmmf	rank	lbs CO2 per million Btu	notes	Tons (1000)	Y	Btu/lb	Ash	S	Btu/lb mmmf	lbs CO2 per million Btu	notes					
Alabama	Jackson	CQ	23	11,160	11.3	2.9	62.4	55.9	1,422	423	24	10,922	12.7	3.5	12,745	b	204.5		683	84	11,247	11.3	3.7	12,896	204.5						
	Jefferson	CQ	18	12,050	13.1	2.8	67.2	59.1	717	423	12	11,904	11.5	2.3	13,666	b	204.6		608	57	11,992	10.5	2.3	13,599	204.6						
	Madison	CQ	13	12,268	14.2	3.2	67.5	56.3	8	423	8	10,231	19.1	3.5	12,965	b	201.0														
	Meigs	CQ	2	10,752	19.2	3.0	59.4	56.4	4,491	423	12	11,221	12.3	3.5	13,034	b	202.2														
	Monroe	CQ	24	12,254	14.5	4.3	66.9	54.5	490	423	24	12,200	10.2	4.4	13,833	b	200.0		294	13	12,677	10.3	4.0	14,394	200.4						
	Morgan	CQ	19	12,040	9.8	4.0	66.3	54.4	1,090	580	6	11,531	12.3	4.7	13,432	b	200.3 a														
	Muskingum	CQ	30	12,246	13.7	3.8	67.3	55.6	663	423	12	11,534	12.7	4.6	13,502	b	201.2														
	Noble	CQ	20	11,496	11.0	3.3	63.7	55.1	717	423	24	11,559	13.9	4.6	13,743	b	200.6		333	31	11,280	14.7	4.0	13,544	201.0						
	Perry	CQ	17	12,083	11.3	3.2	66.7	55.8	959	423	25	11,241	11.6	2.7	12,920	b	203.5		64	3	11,439	12.5	3.7	13,330	202.8						
	Stark	CQ	42	12,363	8.5	3.4	68.0	54.6	552	423	4	12,569	8.1	2.3	13,834	b	203.1														
Tuscarawas	CQ	42	11,556	11.5	3.7	63.7	53.5	804	423	59	11,525	11.3	3.3	13,220	b	201.5		106	29	11,512	10.0	3.2	12,980	202.4							
Washington	CQ	3	12,647	11.5	3.5	69.6	57.3	1,130	423	32	11,342	10.4	3.0	12,842	b	202.5		2,474	22	13,044	7.4	2.7	14,258	202.1							
unknown																		14	8	11,431	13.0	2.0	13,358	204.1							
OKLAHOMA	Craig	CQ	7	12,856	11.2	4.4	70.1	57.8	1,660	423	17	12,283	11.7	3.4	14,178	b	205.7		879	10,856	23.0	2.7	13,358	208.3							
	Haskell	CQ	7	14,220	6.0	1.2	80.6	73.6	614	ICR	11	12,304	16.1	3.3	15,033	b	206.0		393	27	12,121	16.3	4.1	14,873	205.5						
	Lattimer	CQ	2	12,180	17.0	4.8	67.0	59.6	116	ICR	1	12,697	13.5	3.7	14,996	b	202.4														
	Le Flore	CQ	7	13,119	12.1	1.6	75.7	80.3	509	ICR	28	12,220	16.2	3.4	14,936	b	210.1		486	48	9,833	28.5	1.5	14,278	211.1						
	Oklmulgee	CQ	1	13,297	3.5	1.8	74.4	61.7	5	423								205.0 d, f													
	Rogers	CQ	3	12,558	12.4	4.3	68.9	61.6	222	423	12	12,993	9.2	3.9	14,554	b	201.3														
	Carbon	CQ	2	12,925	11.0	0.6	82.6	95.8	46									230.1	3,062	6,404	40.5	0.4	11,766	232.9							
	Columbia	CQ	1	13,010	10.6	0.5	81.5	93.4	560									234.2 d	2	1	6,320	42.8	0.5	11,766	233.9						
	Dauphin	CQ	4	11,397	22.2	0.8	87.6	84.7	2									229.5 d	61	13	6,700	32.8	0.4	10,392	229.3						
	Lackawanna	CQ	14	12,644	11.7	0.7	80.9	95.4	10	423	2	12,899	6.6	1.4	13,927	an	217.3 d		1	3	8,318	27.5	0.7	11,881	217.2						
Luzerne	CQ	7	12,950	13.2	1.0	78.5	92.3	1,090	ICR	2	12,134	10.31	0.6	13,670	an	228.7 b, d		122	27	5,999	47.5	0.5	12,345	234.2							
Northumberland	CQ	7	12,699	12.6	1.5	80.2	95.3	878	ICR	50	10,880	16.8	0.6	13,313	an	234.5		1,391	140	6,141	41.8	0.4	11,237	234.3							
Schuykill	CQ	7	12,699	12.6	1.5	80.2	95.3	2,107	423	14	7,311	39.0	0.6	12,618	an	222.3		23	39	7,669	30.5	0.5	11,408	222.2							
Sullivan	CQ	4	12,768	13.5	0.7	76.4	90.2	60	423	5	8,764	31.8	0.5	13,305	an	231.8		1,459	127	6,655	39.0	0.4	11,560	231.9							
PENNSYLVANIA	Allegheny	CQ	13	12,485	13.0	1.9	69.4	60.2	71,646	423	10	11,955	8.9	1.4	13,268	b	203.9		3	7	6,797	35.8	0.4	11,128	219.2						
	Armstrong	CQ	14	13,020	11.2	3.0	72.0	60.9	12	423	10	12,758	10.7	1.1	14,462	b	204.1		47,292	12,313	12.0	2.0	13,854	203.8							
	Beaver	CQ	9	12,708	11.8	2.9	70.2	58.0	5,328	423	251	12,344	13.3	1.9	14,488	b	203.3		1,978	51	12,005	12.6	2.0	13,854	203.7						
	Bradford	CQ	1	13,083	13.8	0.7	76.0	80.9	210	423	14	11,972	12.0	1.6	13,804	b	203.1		1,981	149	11,838	15.9	2.9	14,431	202.5						
	Butler	CQ	33	12,779	10.6	2.4	71.1	60.5	569	423	28	12,104	12.4	3.3	14,081	b	203.2		308	29	11,976	12.6	2.1	13,920	202.8						
	Cambria	CQ	26	13,274	11.4	1.9	75.2	75.4	1,383	423	54	12,499	13.0	2.1	14,615	b	206.4		6	1	12,940	8.2	1.5	14,243	212.2						
	Centre	CQ	4	13,285	11.6	1.8	74.9	74.6	6									210.5													
	Clarion	CQ	18	12,812	11.9	3.4	70.3	59.4	2	423	1	12,758	10.7	1.1	14,462	b	202.4		134	47	10,614	20.8	2.8	13,757	203.2						
	Clearfield	CQ	64	12,835	14.1	2.5	72.2	72.6	3,291	423	255	12,460	13.3	1.9	14,610	b	206.5		521	14	6,187	44.1	1.6	11,836	206.6						
	Eik	CQ	70	12,601	13.4	2.4	70.0	63.3	426	423	36	12,764	9.3	1.5	14,240	b	202.4		33	23	12,065	12.3	2.4	13,971	201.7						
Fayette	CQ	46	13,060	13.1	3.2	72.7	68.1	3,291	423	30	12,510	10.5	1.6	14,159	b	204.0		1,806	284	11,453	16.3	1.7	13,929	206.6							
Greene	CQ	30	12,475	14.7	2.9	68.8	60.2	450	423	30	12,510	10.5	1.6	14,159	b	204.0		194	39	8,771	33.3	1.7	13,688	203.4							
Huntingdon	CQ	1	13,349	12.7	0.8	76.8	79.7	283	423	25	12,564	9.7	1.7	14,090	b	205.0		499	148	11,854	14.6	2.8	14,170	204.1							
Indiana	CQ	67	12,931	13.9	2.1	72.8	70.4	38,047	423	658	13,077	7.7	1.9	14,321	b	202.7		19,070	654	13,034	7.8	2.0	14,303	202.7							
Jefferson	CQ	34	13,309	9.8	2.1	74.3	64.4	5,079	423	102	12,209	14.6	1.8	14,557	b	206.3		8	7	7,690	39.7	0.8	13,481	205.9							
Lawrence	CQ	21	12,624	11.1	2.9	69.8	58.4	1,154	423	47	12,457	12.2	1.7	14,413	b	204.6		6,902	136	11,466	18.4	2.2	14,417	209.9							
Lycoming	CQ	3	13,372	11.7	1.5	77.1	81.6	85									202.6 d, e	5	3	10,332	17.8	2.5	12,862	202.6							
								256	423	16	10,607	22.6	0.8	14,052	b	211.6		121	28	10,734	21.5	1.0	14,000	211.4							

Table SA1b. Carbon dioxide emission factors for U.S. coal by origin state and county, 1999, U.S. customary units.

STATE	County	In-ground coal										Produced coal 1999 (by origin)										Delivered coal 2005 (by origin)									
		Data	n	Btu/lb	Ash	s	C	FC dmmf	Data	n	Btu/lb	Ash	s	Btu/lb mmmf	rank	lbs CO2 per million Btu	notes	Tons (1000)	n	Btu/lb	Ash	s	Btu/lb mmmf	rank	lbs CO2 per million Btu	notes					
Brooke	CQ	1	12,700	6.6	1.5	71.3	60.0	1,645	423	48	12,307	10.5	3.7	14,000	b	204.2		309	22	12,153	11.5	2.2	13,931		205.2						
Cabell	KEY	1				84.0		516	423	39	12,336	13.8	1.7	14,561	b	213.7	b	60	6	11,949	12.6	0.9	13,853		205.3	a					
Harrison	CQ	6	13,462	7.6	2.9	74.4	57.7	7,115	423	108	12,583	11.1	3.3	14,400	b	202.0		222	18	9,736	14.7	1.4	11,629		213.7	b					
Lewis	CQ	13	12,846	10.7	2.8	71.1	57.1	1								202.7	d, e	5,307	174	12,306	12.3	3.6	14,301		201.8						
Marion	CQ	3	13,677	6.6	1.6	76.5	60.0	1,137	423	44	12,861	9.8	2.8	14,480	b	204.2		3,024	149	12,235	12.0	2.3	14,053		204.4						
Marshall	KEY	1				84.0		11,399	423	181	12,163	11.7	3.7	14,040	b	201.5	a	12,846	197	12,371	10.7	2.7	14,068		202.9	a					
Mineral	CQ	8	12,476	13.8	2.2	69.4	61.3	49	580	6	12,334	14.8	1.7	14,733	b	213.8	b	9	4	11,975	14.9	2.0	14,350		213.5	b					
Monongalia	CQ	8	12,476	13.8	2.2	69.4	61.3	6,446	423	343	12,895	9.0	2.2	14,359	b	203.8		7,606	523	12,626	10.5	2.2	14,295		203.8						
Preston	CQ	1	13,660	10.4	1.5	76.5	70.9	1,355	423	76	13,068	9.4	1.4	14,593	b	205.2		755	62	12,979	9.4	1.6	14,495		205.1						
Tyler																205.2		1,091	54	12,530	11.2	0.7	14,273		205.4	a					
Tucker	CQ	6	12,750	13.0	2.5	72.4	75.0	258	580	4	12,303	13.5	1.7	14,466	b	208.5		845	146	12,570	11.4	1.7	14,396		204.1						
Upshur	CQ	7	12,974	10.4	2.3	72.1	60.2	2,380	423	95	12,881	10.2	1.9	14,536	b	204.0		2,393	120	12,401	12.1	1.1	14,294		206.3						
Webster	CQ	16	13,773	6.0	1.0	77.6	66.6	5,452	423	156	12,503	12.0	0.9	14,398	b	206.4		86	8	11,558	14.2	1.0	13,688		205.4	a					
Wood																206.4		7,514	186	12,210	11.5	0.9	13,969		205.4	a					
WEST VIRGINIA S.								119,192			12,360	11.9	0.8			206.4		60,805		12,214	12.1	0.8			205.7						
Boone	CQ	37	12,873	10.9	1.3	72.0	62.1	30,281	423	864	12,408	11.0	0.8	14,104	b	205.2		21,157	1003	12,240	11.7	0.8	14,038		205.2						
Clay	CQ	33	13,834	7.2	0.9	77.8	67.3	6,836	423	136	12,347	12.2	0.9	14,244	b	205.2	a	171	19	12,354	12.4	0.8	14,296		205.2	a					
Fayette	CQ	15	13,855	6.9	1.1	78.3	74.1	2,019	423	311	12,302	11.7	1.1	14,115	b	207.3		904	77	12,788	9.9	1.1	14,350		205.9						
Greenbrier	CQ	15	13,855	6.9	1.1	78.3	74.1	328	423	3	13,069	9.7	0.9	14,634	b	207.3		9	4	11,975	14.9	2.0	14,350		213.5	b					
Kanawha	CQ	55	13,001	10.4	1.0	73.0	60.9	14,985	423	580	12,126	13.2	0.8	14,159	b	206.0		7,606	523	12,626	10.5	2.2	14,295		203.8						
Lincoln	CQ	61	13,254	9.6	1.0	74.3	62.8	357	423	20	11,383	14.7	0.8	13,551	b	205.7	a	1,091	54	12,530	11.2	0.7	14,273		205.4	a					
Logan	CQ	31	14,290	6.4	0.9	81.9	79.1	9,586	423	217	12,247	12.1	0.8	14,119	b	205.4		9,170	509	12,204	12.4	0.8	14,110		206.0						
McDowell	CQ	8	13,701	10.1	0.7	79.0	81.9	4,816	423	9	13,756	6.0	0.7	14,729	b	210.0		6,250	297	12,173	12.4	0.7	14,073		205.5						
Mercer	CQ	35	13,519	7.3	0.9	76.0	63.0	10	423	1	8,661	5.6	0.3	9,219	b	211.3		232	20	13,024	9.0	1.8	14,479		209.3						
Mingo	CQ	35	13,519	7.3	0.9	76.0	63.0	19,498	423	687	12,266	11.6	0.7	14,049	b	206.1		9,116	494	12,182	12.2	0.7	14,046		206.1						
Nicholas	CQ	35	13,682	7.0	0.9	77.0	65.5	4,123	423	160	12,444	11.6	1.0	14,256	b	206.0		6,501	340	12,126	13.7	0.9	14,258		206.0						
Raleigh	CQ	34	13,856	8.3	1.1	78.8	74.2	10,634	423	27	11,458	19.7	1.0	14,610	b	208.4		912	45	12,479	11.6	1.3	14,318		208.3						
Randolph	CQ	4	14,102	5.0	0.8	79.6	68.5	357	423	20	11,383	14.7	0.8	13,551	b	205.7	a	8	1	12,250	10.2	0.5	13,781		207.0						
Wayne	CQ	2	12,092	11.0	1.5	67.8	57.5	6,682	423	231	11,933	11.4	0.8	13,636	b	205.8		4,589	241	12,158	10.9	0.8	13,796		205.8						
Wyoming	CQ	32	14,077	7.5	0.9	80.6	78.6	9,037	423	45	13,549	6.9	0.7	14,659	b	210.0		508	35	12,769	10.1	0.7	14,351		210.0						
unknown																210.0		1,286	94	11,939	12.7	1.2	13,867		205.0	a					
WYOMING								337,119			8,665	5.3	0.3			214.1		381,636		8,680	5.2	0.3			214.2						
Campbell	CQ	97	7,705	8.1	0.7	45.0	52.8	294,791	423	2562	8,608	5.1	0.3	9,114	s	214.3		351,892	3988	8,644	5.0	0.3	9,141		214.3						
Carbon	CQ	89	9,670	12.7	1.1	55.6	56.8	2,727	423	125	10,755	6.3	0.6	11,555	b	211.1		25	4	10,398	6.3	0.5	11,163		211.1						
Converse	CQ	5	9,063	7.2	0.5	53.0	51.3	25,642	423	225	8,622	6.0	0.3	9,210	s	214.3		17,131	288	8,849	5.4	0.3	9,394		214.4						
Johnson	CQ	31	9,645	4.1	0.3	56.4	58.7									214.3		44	1	8,928	5.0	0.3	9,438		214.2						
Lincoln	CQ	9	10,828	10.1	0.5	61.6	56.3	4,320	423	12	9,977	4.9	0.7	10,543	s	208.4		2,766	12	10,035	4.8	0.9	10,593		208.2						
Sheridan	CQ	51	8,026	8.7	0.9	47.3	51.8	76								215.8	d, e	9,209	50	9,347	10.1	0.5	10,491		212.5						
Sweetwater	CQ	47	9,871	7.3	1.1	57.1	55.9	9,563	423	24	9,343	10.1	0.5	10,489	s	212.5		568	7	8,735	5.2	0.3	9,254		213.7	a					
unknown																212.5		23,929		11,639	6.1	0.6			207.4						
IMPORT																212.5		17,555	388	11,649	6.4	0.6	12,534		207.2	a					
Columbia																212.5		2,134	24	9,923	2.3	0.2	10,197		211.7	a					
Indonesia																212.5		74	2	11,824	9.0	0.5	13,108		206.7	a					
Russia																212.5		4,166	138	12,472	6.6	0.6	13,457		206.2	a					
Venezuela																212.5		10,266		12,616	10.4	2.1			203.6						
UNKNOWN																212.5		10,266	108	12,616	10.4	2.1	14,285		203.6	a					
unknown																212.5															

Explanation of Table SA2 headings

Carbon dioxide emission factors for U.S. coal by destination state and power Table SA2a shows SI units. Table SA2b shows US customary units.

STATE State where the power plant is located

Plant Name of power plant

Delivered coal 2005 (by destination)

Data **Source of data**
 FERC FERC-423, year 2005, Monthly cost and quality of fuels for electric power plants, data at: <eia.doe.gov/cneaf/electricity/page/ferc423.html>
 EIA EIA-423, year 2005, Monthly non-utility fuel receipts and fuel quality, data at: <eia.doe.gov/cneaf/electricity/page/eia423.html>

n **Number of data records**, note, records for coal delivered to transfer stations, and subsequently shipped to power plants are not included in this total

Mg or tons **Tons** of coal delivered to the power plant; **tons** = 2000 pounds, which were multiplied by 0.9072 to convert to metric tons (megagrams, **Mg**). Where noted, includes estimated tonnage delivered to transfer stations, which was assigned to presumably affiliated plants according to year 2005 coal consumption reported in EIA 906/920 data at: <eia.doe.gov/cneaf/electricity/page/eia906_920.html>. The actual distribution of coal from transfer stations, and quality of the likely blended coal product, is not publically reported.

MJ/kg or Btu/lb **Heating Value**, annual average moist-basis gross British thermal units per pound coal (**Btu/lb**). Multiplied by 0.002326 to convert to megajoules per kilogram (**MJ/kg**).

Ash **% Ash**, annual average, moist basis

S **% Sulfur**, annual average, moist basis

kg CO2/GJ or lbs CO2 per million Btu

Carbon dioxide emission factor, pounds CO2 per million gross Btu was multiplied by 0.42992 to convert to kilograms CO2 per gigajoule (**kg CO2/GJ**). This annual average was calculated from shipment values by county origin (table SA1), aggregated by destination, and weighted by energy (shipment tons times shipment heating value).

notes

- a includes pro-rated coal tonnage and average quality of coal delivered to a transfer station; results for these plants are less reliable
- b year 2006 EIA-423 data were used (no year 2005 data reported)
- c includes synthetic coal shipments

eGRID consumed coal 2005 (by destination)

These data are reported in eGRID2007 version 1.1 at: epa.gov/cleanenergy/energy-resources/egr/id/index.html

ORISPL

DOE/EIA ORIS plant or facility code

SOURCEM
CEM

Plant emissions source(s) of data (for CO2, as reported in eGRID)
EPA emissions tracking system/continuous emissions monitoring system (ETS/CEM)

767

EIA-767 Data files, Annual steam-electric plant operation and design data, eia.doe.gov/cneaf/electricity/page/eia767.html

906

EIA-906/920 Data files, Combined (utility, non-utility, and combined heat & power plant) database, eia.doe.gov/cneaf/electricity/page/eia906_920.html

NAMEPCAP

Plant nameplate capacity (MW)

PLCO2RA

Plant annual CO2 input emission rate annual average, pounds CO2 per million gross Btu from fuel (excludes CO2 emissions from biomass, but includes biomass heat input). Multiplied by 0.42992 to convert to kilograms CO2 per gigajoule (kgCO2/GJ)

PLPRMFL

Plant primary fuel

- BIT Bituminous coal
- SUB Subbituminous coal
- LIG Lignite coal

BLQ
NG
PC
RFO
SC
SLW
WC
WDS

Black liquor
Natural gas
Petroleum coke
Petroleum, heavy fuel oil, residual oil
Synthetic coal
Sludge waste
Waste coal
Wood, waste solids

PLCLPR

Plant coal generation percent (resource mix) percent of plant annual net generation from coal

Table SA2a. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, Si units.
Delivered coal 2005 (by destination)

STATE Plant	Data	T	Mg	Mj/kg	Ash	S	kg CO2/GJ	notes	eGRID consumed fuel 2005 (by destination)							
									ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR		
ALABAMA			31,655,676	25.22	8.6	1.0	89.40									
Charles R Lowman	FERC	72	1,803,917	27.65	8.5	1.1	88.26		56	CEM	538	88.24	BIT	100		
Barry	FERC	15	3,689,945	26.76	5.5	0.5	89.28		3	CEM	2671	82.35	BIT	80		
Gadsden	FERC	12	228,932	28.33	13.0	1.8	87.70		7	CEM	138	88.24	SC	100		
Gorgas	FERC	65	2,941,914	28.12	13.0	1.3	88.33		8	CEM	1417	88.24	BIT	100		
Greene County	FERC	29	1,261,044	27.05	14.3	1.5	88.02		10	CEM	1288	87.03	SC	97		
E C Gaston	FERC	13	4,068,695	31.39	13.8	1.7	87.58 c		26	CEM, 906	2034	88.23	SC	100		
James H Miller Jr	FERC	53	10,130,829	20.27	4.9	0.3	92.16		6002	CEM	2822	88.24	SUB	100		
Colbert (includes GRT coal)	FERC	13	3,286,889	24.34	7.1	0.7	89.81 a		47	CEM, 906	1826	88.22	BIT	100		
Widows Creek (includes GRT coal)	FERC	109	4,141,551	26.72	11.4	2.0	87.95 a		50	CEM	1969	88.24	BIT	100		
Mobile Energy Services LLC	EIA	26	101,960	27.20	7.4	0.9	88.31		50407	767	79	38.19	WDS	41		
ALASKA																
ARIZONA			18,537,371	23.49	11.7	0.6	89.52									
Apache Station	FERC	37	1,351,184	22.78	8.1	0.5	90.85		160	CEM	661	86.78	SUB	96		
Cholla	FERC	20	3,340,310	22.77	14.5	0.5	88.38		113	CEM	1129	88.22	SUB	100		
Navajo	FERC	12	7,481,497	25.27	9.6	0.5	90.03		4941	CEM	2409	88.24	BIT	100		
Coronado	FERC	56	2,890,521	21.63	9.3	0.4	90.21		6177	CEM	822	88.24	SUB	100		
Irvington (H Wilson Sundt Generating Station)	FERC	17	341,871	25.44	11.2	0.5	89.31		126	CEM, 906	559	76.31	SUB	68		
Springerville	FERC	12	2,803,883	21.65	17.9	0.9	88.15		8223	CEM	1305	88.24	SUB	100		
Abitibi Consolidated Snowflake	EIA	12	328,105	23.12	13.2	0.4	88.35		50805	767	71	90.40	SUB	95		
ARKANSAS			11,128,443	20.31	4.8	0.3	92.15									
White Bluff	FERC	69	4,742,690	19.98	5.1	0.3	92.10		6009	CEM	1700	88.22	SUB	100		
Independence	FERC	18	4,498,896	20.75	4.5	0.2	92.18		6641	CEM	1700	88.22	SUB	100		
Flint Creek	FERC	24	1,886,857	20.09	4.5	0.2	92.17		6138	CEM	558	88.24	SUB	100		
CALIFORNIA			1,478,463	27.98	10.6	0.8	87.99									
ACE Cogeneration Facility	EIA	12	293,432	28.31	10.7	0.8	87.93		10002	767	108	90.65	BIT	75		
Stockton Cogen	EIA	39	138,793	27.39	11.0	0.6	88.41		10640	767	60	89.02	BIT	60		
Argus Cogen Plant	EIA	23	749,994	27.98	11.1	0.9	87.94 c		10684	767	55	88.57	BIT	100		
Port of Stockton District Energy Facility	EIA	11	147,791	27.67	8.1	0.6	87.99		54238	767	54	88.64	BIT	100		
Mt Poso Cogeneration	EIA	20	148,452	28.13	10.6	0.9	87.93		54626	767	62	90.03	BIT	68		
COLORADO			16,792,859	22.94	7.7	0.4	90.90									
Martin Drake	FERC	26	957,813	24.91	9.3	0.5	89.96		492	CEM	257	88.17	BIT	99		
Ray D Nixon	FERC	23	895,062	21.10	5.1	0.2	91.87		8219	CEM	279	88.11	SUB	100		
Rawhide	FERC	12	1,085,568	20.60	5.3	0.2	92.20		6761	CEM	651	87.82	SUB	99		
Arapahoe	FERC	16	498,549	20.51	5.5	0.3	92.15		465	CEM	160	88.24	SUB	100		
Cameo	FERC	13	248,986	26.02	11.1	0.6	88.75		468	CEM, 767	66	88.25	BIT	100		
Cherokee	FERC	32	2,141,469	26.05	10.6	0.5	89.52		469	CEM	807	88.04	BIT	100		
Comanche	FERC	14	2,211,331	19.96	4.5	0.3	92.16		470	CEM	779	88.09	SUB	100		
Valmont	FERC	29	574,363	25.72	7.7	0.4	90.02		477	CEM, 906	237	88.23	BIT	100		
Hayden	FERC	35	1,661,928	24.24	11.4	0.5	89.61		525	CEM	465	88.24	BIT	100		
Pawnee	FERC	14	1,678,786	19.56	4.7	0.3	92.13		6248	CEM	552	88.03	SUB	100		

Table SA2a. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, Si units.
 Delivered coal 2005 (by destination)

STATE Plant	eGRID consumed fuel 2005 (by destination)													
	Data	lb	Mg	Mj/kg	Ash	lb	kg CO2/GJ	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
Nucla	FERC	12	376,760	24.84	19.4	0.9	92.55		527	CEM	114	88.30	BIT	100
Craig	FERC	80	4,462,245	23.82	7.3	0.4	90.96		6021	CEM	1339	88.24	SUB	100
CONNECTICUT														
Bridgeport Station	EIA	10	1,249,023	21.81	4.4	0.4	90.74		568	CEM, 906	582	87.94	SUB	98
AES Thames	EIA	11	497,512	28.04	13.0	1.3	88.64		10675	767	214	88.64	BIT	100
DELEWARE														
Edge Moor	EIA	36	494,136	29.48	10.2	0.7	89.38		593	CEM, 906	710	81.95	BIT	63
Indian River Operations	EIA	101	1,531,136	28.04	9.4	0.7	89.15		594	CEM, 906	799	88.23	BIT	99
NRG Energy Center Dover	EIA	8	37,576	30.47	8.7	1.4	88.11		10030	CEM, 767	118	83.76	BIT	81
FLORIDA														
Crystal River (McDuffie and IMT coal)	FERC	240	5,537,767	28.92	9.2	0.8	88.43 a		628	CEM	3333	88.24	BIT	71
Deerhaven Generating Station	FERC	34	550,050	29.69	9.7	0.7	88.33		663	CEM	471	84.36	BIT	84
Crist	FERC	69	2,071,863	27.21	6.3	0.7	88.99		641	CEM	1201	88.20	BIT	100
Scholz	FERC	11	167,832	27.78	12.4	1.3	87.79		642	CEM	98	88.23	BIT	100
Lansing Smith	FERC	41	948,024	27.51	6.7	0.9	88.61		643	CEM, 906	1002	74.62	BIT	53
St Johns River Power Park	FERC	24	2,455,183	27.35	9.4	0.9	88.64		207	CEM	1358	88.24	BIT	76
Northside Generating Station	FERC	23	310,444	28.58	10.1	3.8	86.82		667	CEM, 906	1407	84.81	PC	15
C D McIntosh Jr	FERC	44	630,504	28.79	8.3	1.2	88.37		676	CEM, 906	994	81.52	BIT	70
Stanton Energy Center	FERC	71	1,840,890	29.37	9.3	1.2	88.06		564	CEM	929	88.24	BIT	98
Big Bend (includes Davant coal)	FERC	4	3,313,603	27.74	8.4	2.7	87.74 a		645	CEM, 906	1998	88.21	BIT	97
Polk (Davant coal)	FERC	37	395,203	27.70	8.5	2.8	87.69 a		7242	CEM,	1030	104.63	BIT	89
Seminole	FERC	37	2,489,247	28.69	8.0	3.0	86.92 c		136	CEM	1429	88.24	BIT	74
Jefferson Smurfit Fernandina Beach	EIA	12	226,708	30.17	9.4	0.7	88.29		10202	767	118	31.42	BLQ	32
Central Power & Lime	EIA	10	294,288	30.10	8.2	0.7	88.32		10333	767	125	88.64	BIT	99
Cedar Bay Generating LP	EIA	110	890,625	28.31	12.1	1.1	88.25		10672	767	292	88.39	BIT	99
Indiantown Cogen Facility	EIA	17	830,913	28.66	10.9	1.1	88.18		50976	767	395	88.13	BIT	99
GEORGIA														
Atkinson	FERC	34	35,236,017	25.74	8.8	0.8	89.23							
Bowen	FERC	238	1,146,701	29.50	10.4	1.0	88.00		703	CEM, 906	3540	88.24	BIT	100
Georgia Pacific Cedar Springs	FERC	72	1,701,753	29.53	9.8	1.1	87.93		54101	767	101	53.76	BIT	27
Hammond	FERC	88	3,364,342	28.54	11.3	1.2	87.97		708	CEM	953	88.24	BIT	100
Harlee Branch	FERC	16	227,435	29.05	10.5	1.3	87.89		709	CEM	1746	88.24	BIT	100
Mitchell	FERC	100	2,507,047	28.86	11.2	1.3	88.10		727	CEM, 906	289	88.21	BIT	100
Yates	FERC	184	4,308,293	28.72	10.8	1.0	88.27		728	CEM	1487	88.24	BIT	96
Wansley	FERC	97	12,353,705	20.30	5.2	0.3	92.14		6052	CEM, 906	1957	88.23	BIT	100
Scherer	FERC	20	772,844	28.07	6.1	0.6	88.92		6297	CEM	3564	88.24	SUB	100
Kraft	FERC	15	392,908	27.51	7.0	0.6	88.98		733	CEM, 906	352	88.23	BIT	94
McIntosh	FERC	8	37,474	24.74	10.5	1.4	88.81		6124	CEM	988	85.96	BIT	95
Savannah River Mill	EIA	24	285,335	29.54	9.3	0.7	88.32		10361	767, 906	140	93.46	PC	7
International Paper Savannah Mill	EIA	62	119,541	29.74	9.6	1.2	88.04		50398	767	154	35.90	BLQ	33
SP Newsprint	EIA	62	119,541	29.74	9.6	1.2	88.04		54004	767, 906	82	52.86	SLW	41

Table SA2a. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, Si units.
Delivered coal 2005 (by destination)

STATE Plant	eGRID consumed fuel 2005 (by destination)											
	Data	Notes	Mg	Mj/kg	Ash	kg CO2/GJ	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
International Paper Augusta Mill	EIA	16	164,827	29.75	9.8	1.0	88.27	54358	767	85	18.92	25
HAWAII												
AES Hawaii	EIA	12	640,651	25.53	4.8	0.6	89.69	10673	767	203	91.27	97
IOWA												
Ames Electric Services Power Plant	FERC	11	299,376	20.44	4.4	0.2	92.18	1122	CEM	98	88.24	94
Sireteer Station	FERC	18	92,947	26.68	7.2	1.6	88.67	1131	CEM, 767	52	87.41	100
Fair Station	FERC	10	164,342	25.40	10.0	2.8	87.49	1218	CEM, 767	63	88.37	100
6th St	FERC	8	92,870	24.26	6.3	0.3	91.43	1058	CEM	85	84.04	78
Prairie Creek 1-4	FERC	20	932,511	19.78	5.4	0.3	92.10	1073	CEM, 767	245	88.45	98
Sutherland	FERC	25	470,782	20.75	5.0	0.3	92.01	1077	CEM	157	88.23	99
Burlington	FERC	26	665,123	19.48	4.8	0.3	92.12	1104	CEM, 906	302	87.67	99
Ottumwa	FERC	40	2,014,456	19.59	5.0	0.3	92.13	6254	CEM	726	88.24	100
Dubuque	FERC	17	198,550	23.85	6.7	0.4	90.16	1046	CEM, 906	85	88.23	100
Earl F Wisdom												
Lansing	FERC	13	851,471	19.91	5.1	0.3	91.85	1217	CEM	143	86.07	96
Kapp	FERC	10	768,625	19.56	5.0	0.4	92.11	1047	CEM, 906	341	88.24	100
Riverside	FERC	16	385,025	20.29	5.2	0.4	92.11	1048	CEM, 767	237	88.23	100
Council Bluffs	FERC	38	3,164,604	20.12	4.8	0.3	92.16	1081	CEM, 767	141	87.73	96
George Neal North	FERC	52	5,408,599	19.89	4.9	0.3	92.12	1082	CEM	1779	88.23	100
George Neal South	FERC							1091	CEM	1046	88.18	100
Louisa	FERC	28	1,909,701	19.95	4.8	0.3	92.13	7343	CEM	640	88.20	100
Muscatine Plant #1	FERC	20	1,029,982	19.41	6.3	0.6	92.00	6664	CEM	738	88.24	100
Archer Daniels Midland Cedar Rapids	EIA	46	1,000,976	21.94	6.6	1.3	89.91	1167	CEM, 767	294	88.49	100
ILLINOIS								10864	767	256	90.32	100
Edwards	FERC	29	2,595,057	20.42	6.3	0.7	91.89	866	CEM	780	88.45	100
Duck Creek	FERC	26	784,127	24.74	7.9	3.4	87.52	6016	CEM	441	88.25	100
Marion	FERC	60	1,183,166	22.07	17.2	2.7	87.47	976	CEM	422	90.59	94
Dallman	FERC	12	1,012,870	24.54	8.9	3.3	87.62	963	CEM	388	88.24	100
Lakeside	FERC	11	102,104	24.51	8.9	3.2	87.63	964	CEM	80	88.24	98
Joliet 29	EIA	28	2,529,266	20.14	4.8	0.3	92.15	384	CEM	1320	88.24	100
Coffeen	EIA	13	2,088,554	23.90	8.3	0.9	88.37	861	CEM	1005	88.24	100
Hutsonville	EIA	28	397,069	23.62	7.1	1.2	89.43	863	CEM, 906	153	88.23	100
Meredosia	EIA	36	689,407	21.39	5.6	0.8	91.17	864	CEM	564	87.55	97
Crawford	EIA	47	1,600,845	20.27	5.0	0.3	92.15	867	CEM, 906	805	88.23	100
Joliet 9	EIA	28	1,390,521	19.94	4.7	0.3	92.16	874	CEM	360	88.24	100
Joppa Steam								887	CEM	1100	88.22	100
Kincaid Generation LLC	EIA	34	3,332,626	20.61	5.2	0.3	92.16	876	CEM	1319	88.24	100
Powerton	EIA	42	5,175,262	20.21	4.7	0.2	92.16	879	CEM	1786	88.24	100
Waukegan	EIA	32	2,628,898	20.08	4.7	0.3	92.15	883	CEM, 906	915	88.23	100
Will County	EIA	48	2,973,608	20.28	5.0	0.3	92.14	884	CEM	1269	88.24	99
Fisk Street	EIA	44	770,665	20.27	5.0	0.3	92.15	886	CEM, 906	663	88.20	99

Table SA2a. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, Si units.
Delivered coal 2005 (by destination)

STATE Plant	eGRID consumed fuel 2005 (by destination)													
	Data	₪	Mg	MJ/kg	Ash	₪	kg CO2/GJ	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
Baldwin Energy Complex	EIA	21	6,472,564	20.47	4.5	0.2	92.18		889	CEM	1892	88.24	SUB	100
Havana	EIA	13	1,728,915	20.51	4.8	0.2	91.82		891	CEM	718	87.77	SUB	98
Hennepin Power Station	EIA	12	1,051,418	20.47	4.5	0.2	92.18		892	CEM	306	88.23	SUB	100
Vermilion	EIA	13	244,177	24.19	7.6	1.7	87.77		897	CEM, 906	197	87.99	BIT	99
Wood River	EIA	12	1,680,820	20.50	5.1	0.2	92.17		898	CEM	650	88.18	SUB	99
Newton	EIA	50	3,872,388	20.48	5.2	0.3	92.16		6017	CEM	1235	88.24	SUB	100
Archer Daniels Midland Decatur	EIA	73	1,763,645	23.54	8.1	2.6	88.53 c		10865	767	335	89.43	BIT	99
Archer Daniels Midland Peoria	EIA	47	178,160	27.81	8.6	2.6	87.75		10866	767, 906	64	63.35	NG	19
A E Staley Decatur Cogen (Tate & Lyle Decatur Plant Cogen)	EIA	12	351,256	24.55	8.8	3.2	87.63		10867	767	62	88.64	BIT	100
Corn Products Illinois	EIA	13	306,147	27.65	6.3	3.1	87.88		54556	767, 906	55	79.02	BIT	74
University of Illinois Abbott Power Plt	EIA	12	61,768	25.56	8.3	3.6	87.48		54780	767, 906	85	60.33	NG	20
INDIANA														
Frank E Ratts	FERC	24	504,675	26.38	7.3	1.5	88.34		1043	CEM	233	88.24	BIT	100
Merom	FERC	64	2,734,101	25.86	9.9	3.4	87.37		6213	CEM	1080	88.24	BIT	100
Clifty Creek	FERC	84	4,421,784	24.11	6.1	1.0	89.97		983	CEM	1303	88.24	SUB	100
Harding Street	FERC	43	1,493,839	25.39	8.5	1.5	87.75		990	CEM	1185	87.16	BIT	97
Logansport	FERC	15	679,125	25.30	8.6	1.2	87.74		1032	767, 906	61	88.60	BIT	100
Eagle Valley	FERC	58	4,778,679	26.36	8.5	3.0	87.75		994	CEM, 906	396	88.19	BIT	100
AES Petersburg	FERC	101	1,873,277	27.55	9.4	1.1	88.48		988	CEM, 906	1881	88.24	BIT	100
Tanners Creek	FERC	161	8,051,309	21.68	6.4	0.4	91.22		6166	CEM	1100	88.24	BIT	100
Rockport	FERC	33	1,120,301	27.95	6.7	2.9	87.86		995	CEM, 906	2600	88.24	SUB	100
Bailly	FERC	27	1,227,351	22.28	5.8	0.7	91.11		997	CEM	680	88.20	BIT	99
Michigan City	FERC	99	4,877,470	24.31	6.6	1.7	89.48		6085	CEM, 906	2201	88.11	BIT	98
R M Schahfer	FERC	56	2,084,219	25.95	7.1	1.4	88.27		1001	CEM	1193	88.07	BIT	100
Cayuga	FERC	18	126,382	26.00	7.7	1.8	87.94		1004	CEM	144	88.24	BIT	100
Edwardsport	FERC	68	976,664	27.60	9.2	2.2	87.70		1008	CEM	600	88.24	BIT	99
R Gallagher	FERC	32	1,660,811	25.27	8.8	1.6	87.73		6705	CEM, 906	1173	88.82	BIT	96
Wabash River	FERC	97	7,594,824	26.09	8.8	1.9	88.06		6113	CEM	755	88.18	BIT	100
Warrick	FERC	42	276,968	26.82	8.4	2.0	87.44		1040	CEM	3340	88.24	BIT	100
Gibson	FERC	40	1,112,239	26.12	10.5	3.5	87.77		1012	CEM	94	88.24	BIT	100
Whitewater Valley	FERC	25	1,382,306	25.84	10.2	3.0	87.78		6137	CEM	415	88.22	BIT	100
F B Cullley	FERC	18	1,421,523	21.83	4.1	0.3	91.83		981	CEM	707	87.59	BIT	98
A B Brown	EIA	10	227,656	20.53	4.8	0.3	92.15		1239	CEM	614	88.24	SUB	99
State Line Energy	FERC	15	532,509	20.30	5.2	0.4	92.10		1295	CEM, 906	311	87.43	SUB	99
KANSAS														
Riverton	FERC	12	1,031,875	18.59	5.3	0.4	92.10		6064	CEM	388	87.63	SUB	97
Riverton	FERC	95	4,725,559	20.38	6.0	0.6	91.67		1241	CEM	355	88.24	SUB	100
Quindaro	FERC	14	1,622,700	20.55	5.4	0.3	92.13		1250	CEM	1578	88.24	SUB	100
Quindaro	FERC	14	1,622,700	20.55	5.4	0.3	92.13		1250	CEM	566	88.21	SUB	100
Nearman Creek	FERC	14	1,622,700	20.55	5.4	0.3	92.13		1250	CEM	566	88.21	SUB	100
La Cygne	FERC	14	1,622,700	20.55	5.4	0.3	92.13		1250	CEM	566	88.21	SUB	100
Lawrence	FERC	14	1,622,700	20.55	5.4	0.3	92.13		1250	CEM	566	88.21	SUB	100

Table SA2a. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, Si units.
Delivered coal 2005 (by destination)

STATE Plant	Data	T	Mg	Mj/kg	Ash	S	kg CO2/GJ	notes	eGRID consumed fuel 2005 (by destination)						
									ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR	
Tecumseh	FERC	14	777,362	20.54	5.4	0.3	92.14	1252	CEM, 906	290	88.21	PLCO2RA	PLPRMFL	PLCLPR	100
Jeffrey Energy Cnt	FERC	12	8,011,420	19.59	4.9	0.4	92.09	6068	CEM	2160	88.23	CEM	SUB	SUB	100
Holcomb	FERC	29	1,449,634	20.07	5.4	0.4	92.10	108	CEM	349	88.16	CEM	SUB	SUB	100
KENTUCKY			36,243,972	26.88	11.0	2.1	87.80								
Reid-Henderson II (Robert A Reid)	EIA	33	350,481	27.32	9.9	2.9	86.79 c	1383	CEM, 906	195	88.07	CEM, 906	BIT	BIT	98
East Bend	FERC	17	40,180	28.05	10.8	2.8	87.34	6018	CEM	669	88.24	CEM	BIT	BIT	100
Cooper	FERC	69	787,522	28.15	11.2	1.4	87.83	1384	CEM	344	88.24	CEM	BIT	BIT	100
Dale	FERC	67	544,393	28.39	10.2	0.9	88.23	1385	CEM, 767	216	88.33	CEM, 767	BIT	BIT	100
H L Spurlock	FERC	239	2,805,062	27.68	12.6	1.7	87.99	6041	CEM	1279	83.49	CEM	BIT	BIT	100
E W Brown	FERC	83	1,331,089	29.05	10.4	1.6	87.85	1355	CEM	1720	83.07	CEM	BIT	BIT	87
Ghent	FERC	297	5,101,840	27.30	10.4	1.3	88.32	1356	CEM	2226	88.24	CEM	BIT	BIT	100
Green River	FERC	30	287,939	28.42	9.0	2.5	87.14	1357	CEM	189	88.24	CEM	BIT	BIT	100
Tyrone	FERC	30	173,430	29.07	10.3	0.9	87.95	1361	CEM	137	88.24	CEM	BIT	BIT	99
Cane Run	FERC	43	1,607,997	26.24	11.5	3.1	87.15 c	1363	CEM, 906	661	88.23	CEM, 906	BIT	BIT	99
Mill Creek	FERC	112	4,186,581	26.58	11.4	3.3	87.05 c	1364	CEM	1717	88.24	CEM	BIT	BIT	100
Trimble County	FERC	83	1,688,563	27.50	11.1	3.3	86.90	6071	CEM	1760	84.84	CEM	BIT	BIT	93
Elmer Smith	FERC	35	1,024,918	24.32	13.7	3.8	88.01	1374	CEM	445	88.24	CEM	BIT	BIT	99
Paradise (includes GRT coal)	FERC	70	5,960,166	26.37	9.4	2.4	87.40 a	1378	CEM	2558	88.24	CEM	BIT	BIT	100
Shawnee (includes GRT coal)	FERC	95	3,849,855	26.53	8.8	0.7	89.10 a	1379	CEM	1750	88.24	CEM	BIT	BIT	100
Big Sandy	FERC	145	2,667,640	27.99	11.2	0.9	88.61	1353	CEM	1097	88.24	CEM	BIT	BIT	100
Kenneth C Coleman	EIA	50	1,214,438	26.93	13.3	2.1	87.67 c	1381	CEM	521	88.24	CEM	SC	SC	99
HMP&L Station Two Henderson	EIA	34	527,891	27.00	9.5	2.8	87.26	1382	CEM	365	88.24	CEM	BIT	BIT	63
R D Green	EIA	67	1,043,732	24.44	16.6	3.6	86.69 c	6639	CEM	528	88.24	CEM	BIT	BIT	59
D B Wilson	EIA	62	1,050,255	24.51	15.5	3.4	86.70	6823	CEM	440	88.24	CEM	PC	PC	53
LOUISIANA			10,908,056	19.24	6.6	0.5	92.15								
Dolet Hills	FERC	24	1,990,392	16.04	13.2	1.1	92.43	51	CEM	721	93.63	CEM	LIG	LIG	100
Rodemacher	FERC	24	563,878	20.34	5.2	0.3	92.06	6190	CEM	1004	82.29	CEM	SUB	SUB	80
R S Nelson	FERC	12	1,831,818	20.29	5.3	0.3	92.13	1393	CEM, 767	1597	83.18	CEM, 767	SUB	SUB	53
Big Cajun 2	EIA	69	6,475,252	19.77	5.1	0.3	92.13	6055	CEM	1871	88.24	CEM	SUB	SUB	100
International Paper Louisiana Mill	EIA	24	34,624	29.08	10.0	1.0	88.24	54090	767	59	17.53	767	BLQ	BLQ	0
Gaylor Container Bogalusa	EIA	4	12,090	23.25	11.1	2.5	88.44	54427	767	100	5.07	767	WDS	WDS	1
MASSACHUSETTS			4,567,345	27.27	6.3	0.5	89.10								
Mount Tom	FERC	17	407,218	26.96	6.2	0.5	89.43	1606	CEM	136	88.24	CEM	BIT	BIT	100
Somerset Station	EIA	15	237,741	29.32	6.6	0.7	88.50	1613	CEM	199	86.55	CEM	BIT	BIT	94
Brayton Point	EIA	97	2,953,222	27.22	6.6	0.5	89.07	1619	CEM, 906	1611	86.87	CEM, 906	BIT	BIT	94
Salem Harbor	EIA	26	969,164	27.06	5.7	0.5	89.22	1626	CEM	805	84.60	CEM	BIT	BIT	81
MARYLAND			10,653,921	29.40	10.3	1.3	88.58								
Brandon Shores	EIA	82	3,057,905	28.86	11.7	0.7	88.46	602	CEM	1370	88.24	CEM	BIT	BIT	100
C P Crane	EIA	24	681,519	30.39	7.7	1.8	87.48	1552	CEM, 906	416	88.21	CEM, 906	BIT	BIT	99
Herbert A Wagner	EIA	37	958,890	28.93	11.8	0.9	88.54	50282	CEM, 906	1059	85.44	CEM, 906	BIT	BIT	80
Luke Mill									767,	65	52.31	767,	BIT	BIT	61

Table SA2a. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, Si units.
Delivered coal 2005 (by destination)

STATE Plant		eGRID consumed fuel 2005 (by destination)											
Data	Notes	kg CO2/GJ	Ash	S	MJ/kg	Mg	ton	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
R Paul Smith Power Station		169,857	14.3	0.9	27.88	42	42	1570	CEM	110	88.24	BIT	99
Chalk Point LLC		1,461,578	8.0	1.6	29.94	98	98	1571	CEM	2647	79.02	BIT	58
Dickerson		1,177,615	9.2	1.4	30.28	74	74	1572	CEM	930	86.50	BIT	92
Morgantown Generating Plant		2,472,740	7.9	1.8	30.07	23	23	1573	CEM, 906	1548	87.55	SC	97
AES Warrior Run Cogeneration Facility		673,816	19.6	1.8	26.64	51	51	10678	767	229	88.64	BIT	100
MAINE		233,326	7.6	0.8	29.83								
Rumford Cogeneration		132,087	6.9	0.8	30.11	13	13	10495	767	103	47.91	BIT	23
S D Warren Westbrook		101,240	8.6	0.8	29.46	12	12	50447	767	71	38.45	WDS	37
MICHIGAN		33,163,025	6.2	0.6	23.43								
B C Cobb		968,708	7.9	0.6	22.75	26	26	1695	CEM	520	87.14	SUB	96
Dan E Karn		1,223,541	5.2	0.3	20.56	36	36	1702	CEM	1946	83.50	SUB	83
J H Campbell		4,349,298	23.57	0.5	23.57	155	155	1710	CEM	1559	88.24	SUB	100
J C Weadock		1,536,525	25.10	0.7	25.10	79	79	1720	CEM, 906	331	88.22	SUB	99
J R Whiting		1,195,508	22.02	0.4	22.02	50	50	1723	CEM, 906	364	88.24	SUB	100
Harbor Beach		171,461	28.86	0.6	28.86	13	13	1731	CEM, 906	125	88.22	BIT	99
Monroe		7,788,312	24.17	0.7	24.17	126	126	1733	CEM, 906	3293	88.24	BIT	100
River Rouge		1,261,008	23.25	0.5	23.25	58	58	1740	CEM, 906	944	87.27	BIT	98
S D Warren Muskegon		4,160,419	22.69	0.6	22.69	60	60	50438	767	51	79.78	BIT	66
St Clair		2,013,984	24.08	0.7	24.08	67	67	1743	CEM, 906	1571	88.22	SUB	99
Trenton Channel		3,492,720	21.78	0.3	21.78	38	38	6034	CEM	1664	87.44	SUB	98
Belle River		170,098	26.95	2.1	26.95	12	12	1825	CEM	65	88.24	BIT	100
J B Sims		136,987	28.18	0.9	28.18	7	7	1830	CEM, 767	63	88.48	BIT	100
James De Young		906,853	20.72	0.3	20.72	23	23	1831	CEM	375	88.24	SUB	100
Marysville		584,712	20.91	0.3	20.91	21	21	1832	CEM	155	88.24	SUB	100
Eckert Station		196,017	22.93	0.4	22.93	14	14	1843	CEM, 767	78	88.30	SUB	100
Erickson Station		174,065	27.78	3.4	27.78	28	28	4259	CEM	58	88.24	BIT	98
Shiras		2,010,854	24.52	0.5	24.52	39	39	1769	CEM, 767	625	88.24	BIT	100
Endicott Station		176,873	25.74	0.8	25.74	18	18	1866	CEM	78	88.24	BIT	85
Presque Isle		67,958	31.32	1.6	31.32	12	12	10148	767	60	88.60	BIT	100
Wyandotte		165,563	28.95	0.7	28.95	24	24	1771	767, 906	50	88.07	BIT	84
White Pine Electric Power		226,059	29.81	1.4	29.81	69	69	10328	767	99	86.98	BIT	96
Escanaba Paper Company		185,502	24.39	0.7	24.39	40	40	50835	767	70	85.40	BIT	77
T B Simon Power Plant		18,213,717	20.72	0.4	20.72								
TES Filer City Station		412,776	21.85	0.4	21.85	12	12	1891	CEM	116	88.24	SUB	100
MINNESOTA		3,973,500	6.6	0.4	21.85								
Syl Laskin		20.98	6.7	0.5	20.98	36	36	1893	CEM	1073	88.27	SUB	100
Clay Boswell		858,946	20.58	0.2	20.58	12	12	1904	CEM	619	83.58	SUB	75
Black Dog		640,229	20.73	0.2	20.73	12	12	1912	CEM	277	88.24	SUB	96
High Bridge		1,177,682	20.67	0.3	20.67	22	22	1915	CEM	598	88.24	SUB	84
Allen S King		1,055,799	20.76	0.2	20.76	12	12	1927	CEM	404	88.24	SUB	92
Riverside			4.3	0.2									

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 Delivered coal 2005 (by destination)

STATE Plant	Data	T	Mg	Mj/kg	Ash	S	kg CO2/GJ	notes	eGRID consumed fuel 2005 (by destination)					
									ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
Sherburne County	FERC	84	8,238,019	20.28	7.8	0.5	91.86		6090	CEM	2129	88.24	SUB	100
Hoot Lake	FERC	12	531,037	21.54	4.7	0.4	91.81		1943	CEM	138	88.24	SUB	100
M L Hibbard									1897	CEM,	73	88.93	SUB	76
Silver Lake	FERC	19	147,239	27.18	7.3	1.0	88.19		2008	CEM; 767	99	86.91	BIT	95
Taconite Harbor Energy Center	EIA	10	748,252	21.98	4.1	0.3	91.82		10075	CEM;	252	88.21	SUB	100
Silver Bay Power	EIA	7	430,238	20.62	5.3	0.2	91.82		10849	767	132	91.83	SUB	98
MISSOURI			39,189,872	20.59	5.2	0.4	91.91							
New Madrid	FERC	12	3,842,491	20.45	4.5	0.2	92.18		2167	CEM	1200	88.24	SUB	100
Thomas Hill	FERC	12	3,760,761	20.66	4.5	0.2	92.19		2168	CEM	1135	88.23	SUB	100
Chamois	FERC	44	255,382	21.64	5.7	1.0	90.91		2169	CEM; 767	59	88.36	SUB	100
Columbia	FERC	10	40,072	31.02	7.3	1.4	88.14		2123	CEM; 906	95	88.16	BIT	100
Asbury	FERC	25	497,200	21.86	6.2	0.9	90.63		2076	CEM	232	88.24	SUB	99
Blue Valley	FERC	26	188,521	24.95	13.3	2.9	87.58		2132	CEM; 767, 9	176	87.62	BIT	97
Hawthorn	FERC	45	1,820,587	20.07	5.2	0.3	92.13		2079	CEM	1071	85.18	SUB	90
Montrose	FERC	34	1,845,626	20.35	5.5	0.4	92.10		2080	CEM	564	88.24	SUB	99
Iatan	FERC	36	2,477,055	19.85	5.0	0.3	92.12		6065	CEM	726	88.24	SUB	100
Sibley	FERC	41	1,261,498	22.15	6.2	0.5	91.01		2094	CEM	524	88.24	SUB	99
Sikeston Power Station	FERC	11	991,513	20.58	5.3	0.3	92.14		6768	CEM	261	91.23	SUB	100
James River Power Station	FERC	20	1,023,957	20.64	5.2	0.2	92.19		2161	CEM; 767	451	88.56	SUB	99
Southwest Power Station	FERC	18	698,635	20.72	4.5	0.2	92.19		6195	CEM; 906	303	88.16	SUB	100
Lakeroad	FERC	36	435,184	22.21	6.1	0.4	91.11		2098	CEM; 767, 9	273	87.18	SUB	98
Marshall									2144	767, 906,	57	85.42	BIT	93
Labadie	FERC	87	8,917,455	20.34	5.2	0.3	92.14		2103	CEM	2389	88.24	SUB	100
Meramec	FERC	50	3,299,803	20.54	5.1	0.3	92.16		2104	CEM; 906	1041	88.21	SUB	99
Sioux	FERC	62	3,137,033	22.16	5.6	0.8	90.91		2107	CEM	1099	88.24	SUB	99
Rush Island	FERC	58	4,563,662	19.59	5.2	0.3	92.10		6155	CEM	1242	88.24	SUB	100
University of Missouri Columbia	EIA	12	133,436	25.28	8.0	3.6	87.45		50969	767, 906	91	85.28	BIT	87
Henderson									2062	767, 906	59	88.00	BIT	96
MISSISSIPPI			9,203,538	20.92	10.9	0.6	90.67							
Jack Watson	FERC	33	1,686,322	26.33	7.1	0.7	89.14		2049	CEM; 906	1216	87.68	BIT	99
Victor J Daniel Jr	FERC	62	3,203,604	24.64	7.9	0.4	90.07		6073	CEM	2229	80.72	BIT	72
R D Morrow	FERC	30	1,045,150	29.13	11.9	1.2	88.17		6061	CEM	400	88.24	BIT	100
Red Hills Generating Facility	EIA	12	3,268,462	11.85	15.6	0.5	95.61		55076	CEM,	514	93.49	LIG	100
MONTANA			10,345,393	19.65	9.1	0.7	91.98							
Lewis and Clark	FERC	14	242,948	15.79	8.5	0.5	94.83		6089	CEM	50	93.47	LIG	100
Colstrip	EIA	48	9,512,349	19.76	9.4	0.7	91.91		6076	CEM	2272	88.23	SUB	100
J E Corette Plant	EIA	22	590,095	19.48	4.5	0.2	92.16		2187	CEM	173	88.24	SUB	100
NORTH CAROLINA			27,471,028	28.67	11.5	0.9	88.41							
Asheville	FERC	67	889,895	29.25	11.2	0.8	88.30		2706	CEM	837	86.37	BIT	94
Cape Fear	FERC	48	741,005	28.64	11.8	0.9	88.49		2708	CEM; 906	431	88.17	BIT	100
Lee	FERC	23	792,897	28.86	9.9	0.8	88.48		2709	CEM	508	86.31	BIT	100

Table SA2a. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, Si units.
Delivered coal 2005 (by destination)

STATE Plant	eGRID consumed fuel 2005 (by destination)												
	Data	lb	Mg	MJ/kg	Ash	kg CO2/GJ	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
Roxboro	FERC	221	5,907,421	28.92	10.9	0.9	88.46	2712	CEM	2575	88.23	BIT	100
L V Sutton	FERC	68	1,187,932	29.18	9.3	0.8	88.39	2713	CEM, 906	763	88.19	BIT	100
W H Weatherspoon	FERC	23	341,705	28.42	11.9	1.1	88.30	2716	CEM, 906	342	88.16	BIT	100
Mayo	FERC	107	1,948,713	28.78	10.9	0.7	88.54	6250	CEM	736	88.23	BIT	100
G G Allen	FERC	216	2,356,906	27.26	15.2	0.9	88.58	2718	CEM	1155	88.24	BIT	100
Buck	FERC	52	603,288	26.91	15.5	0.7	88.72	2720	CEM, 906	474	88.14	BIT	100
Cliffside	FERC	135	1,477,829	28.47	12.0	1.0	88.27	2721	CEM	781	88.24	BIT	100
Dan River	FERC	19	293,933	29.65	10.1	0.7	88.62	2723	CEM, 906	388	88.03	BIT	100
Marshall	FERC	298	3,080,851	28.70	11.5	0.9	88.17	2727	CEM	1996	88.24	BIT	100
Riverbend	FERC	68	730,296	28.44	11.6	0.9	88.14	2732	CEM, 906	601	88.09	BIT	100
Belwvs Creek	FERC	357	5,235,451	28.54	12.2	0.9	88.53	8042	CEM	2160	88.24	BIT	100
Cogenitrx Southport (Primary Energy Southport)	EIA	25	206,581	30.16	8.2	0.8	88.28	10378	767	135	85.01	BIT	90
Cogenitrx Roxboro (Primary Energy Roxboro)	EIA	30	76,025	30.80	7.3	0.8	88.10	10379	767	68	79.56	BIT	82
Cogenitrx Dwayne Collier Battle Cogen (Edgecombe Genco LLC)	EIA	13	390,144	30.41	7.6	0.7	88.38	10384	767	115	88.64	BIT	100
Weyerhaeuser Plymouth NC	EIA	12	258,357	29.57	9.2	0.7	88.50	50189	767	154	20.08	WDS	26
Canton North Carolina	EIA	36	374,048	30.24	7.2	1.0	87.74	50244	767	53	88.64	BIT	51
Westmoreland-LG&E Roanoke Valley I	EIA	44	577,751	29.03	11.1	1.3	87.99	54035	767	182	88.63	BIT	100
Roanoke Valley Energy Facility II								54755	767	58	88.63	BIT	100
NORTH DAKOTA			23,032,515	15.54	9.4	0.7	93.65						
Leland Olds	FERC	20	3,616,916	15.84	8.2	0.6	93.88	2817	CEM	656	93.63	LIG	100
Antelope Valley	FERC	12	4,954,673	15.30	9.1	0.6	94.17	6469	CEM	870	93.63	LIG	100
Coal Creek	FERC	12	7,006,306	14.54	11.2	0.6	92.89	6030	CEM	1212	93.63	LIG	100
Milton R Young	FERC	24	3,970,602	15.50	8.5	0.8	94.28	2823	CEM	734	93.63	LIG	100
Heskett	FERC	36	488,618	18.22	8.1	0.7	93.62	2790	CEM, 767	115	93.11	LIG	100
Coyote	FERC	24	2,252,578	16.13	9.0	1.0	94.10	8222	CEM	450	93.63	LIG	100
Stanton	FERC	12	742,824	21.66	5.3	0.3	91.83	2824	CEM	190	88.24	SUB	100
NEBRASKA			11,149,059	19.93	4.9	0.3	92.13						
Lon Wright	FERC	18	323,580	20.58	5.1	0.3	92.15	2240	CEM, 767	170	88.13	SUB	98
Whelan Energy Center	FERC	35	361,774	19.22	5.4	0.4	92.10	60	CEM	76	88.31	SUB	100
Sheldon	FERC	12	884,286	19.99	4.4	0.3	92.16	2277	CEM	229	88.24	SUB	100
Gerald Gentleman	FERC	46	5,253,708	19.91	4.6	0.3	92.15	6077	CEM	1363	88.24	SUB	100
North Omaha	FERC	12	1,712,159	20.20	5.4	0.4	92.09	2291	CEM	645	88.00	SUB	99
Nebraska City	FERC	25	2,212,570	19.81	5.1	0.3	92.12	6096	CEM	652	88.24	SUB	100
Platte	FERC	13	400,982	19.73	5.1	0.3	92.13	59	CEM	110	88.24	SUB	100
NEW HAMPSHIRE			1,556,668	30.23	7.3	1.2	88.09						
Merrimack	FERC	48	803,906	30.68	7.0	1.5	87.84	2364	CEM, 906	496	88.23	BIT	100
Schiller	FERC	19	752,762	29.73	7.7	0.8	88.36	2367	CEM, 906	171	87.77	BIT	98
NEW JERSEY			4,208,993	29.41	9.5	1.1	88.11						
B L England	FERC	31	514,338	30.14	8.0	2.0	87.77	2378	CEM, 906	484	86.51	BIT	94

Table SA2a. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, Si units.
Delivered coal 2005 (by destination)

STATE Plant	Data	n	Mg	Mj/kg	Ash	s	kg CO2/GJ	notes	eGRID consumed fuel 2005 (by destination)					
									ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
Howard Down	FERC	10	39,128	30.00	6.9	0.7	88.42		2434	767	71	86.56	BIT	85
Deepwater	EIA	9	131,031	28.69	11.7	0.7	88.31		2384	CEM, 906	174	103.16	BIT	89
PSEG Hudson Generating Station	EIA	12	1,171,856	29.08	10.3	0.8	88.34		2403	CEM	1114	85.37	BIT	93
PSEG Mercer Generating Station	EIA	12	968,903	29.08	10.3	0.8	88.34		2408	CEM, 906	768	85.89	BIT	95
Logan Generating Plant	EIA	80	598,938	29.26	10.6	1.1	88.60		10043	767	242	88.59	BIT	100
Chambers Cogeneration LP	EIA	24	784,801	30.08	7.5	1.8	87.34		10566	767	285	88.61	BIT	100
NEW MEXICO			17,835,579	21.71	20.5	0.8	89.51							
Four Corners	FERC	11	7,411,824	20.48	21.8	0.8	89.56		2442	CEM	2270	88.11	SUB	100
San Juan	FERC	18	9,391,815	22.72	19.7	0.8	89.61		2451	CEM	1848	88.25	SUB	100
Escalante	FERC	12	1,031,940	21.39	18.4	0.8	88.19		87	CEM	257	88.24	SUB	100
NEVADA			7,176,196	26.03	10.0	0.5	89.51							
Reid Gardner	FERC	43	1,416,421	28.12	9.1	0.7	88.37		2324	CEM	612	88.09	BIT	100
North Valmy	FERC	34	1,622,035	25.35	11.2	0.5	89.24		8224	CEM	521	88.24	BIT	100
Mohave	FERC	12	4,137,739	25.58	9.9	0.5	90.05		2341	CEM	1636	88.19	BIT	100
NEW YORK			8,676,315	27.52	7.4	1.4	88.60							
S A Carlson	FERC	51	76,640	28.69	11.2	1.8	87.72		2882	CEM,	101	86.96	BIT	94
Rochester 7	FERC	54	428,274	30.49	8.6	1.8	87.58		2642	CEM	253	88.24	BIT	100
Danskammer Generating Station	EIA	32	806,550	29.79	7.0	0.6	88.50		2480	CEM	537	86.05	BIT	91
AES Westover	EIA	30	316,667	30.11	8.7	2.0	87.41		2526	CEM	119	88.24	BIT	100
AES Greenidge LLC	EIA	33	354,559	30.45	8.0	1.9	87.41		2527	CEM	163	88.24	BIT	99
AES Cayuga	EIA	16	807,834	30.00	8.2	2.2	87.59		2535	CEM	323	88.24	BIT	100
C R Huntley Generating Station	EIA	37	1,239,552	21.99	5.5	0.5	91.22		2549	CEM	816	88.24	SUB	100
Dunkirk Generating Station	EIA	50	1,622,180	22.51	5.6	0.6	90.69		2554	CEM	627	88.44	SUB	100
Lovett	EIA	38	620,320	30.13	9.3	0.6	88.31		2629	CEM	449	87.39	BIT	98
AES Somerset LLC	EIA	51	1,451,654	30.22	8.1	2.9	87.34		6082	CEM	655	88.24	BIT	79
Kodak Park Site	EIA	30	606,133	30.39	8.1	1.6	87.99		10025	767	201	85.03	BIT	90
Black River Generation	EIA	9	112,973	30.83	8.1	2.0	87.15		10464	767	56	86.53	BIT	63
WPS Power Niagara (Niagara Generating Facility)	EIA	59	86,332	24.83	20.6	2.0	87.79		50202	CEM	56	94.26	BIT	46
Trigen Syracuse Energy	EIA	12	146,647	30.89	6.6	0.8	88.18		50651	767	101	88.64	BIT	87
OHIO			53,549,264	27.03	9.9	1.8	88.26							
Ashtabula	EIA	53	973,539	20.65	5.4	0.3	92.05 b		2835	CEM	256	87.92	SUB	100
Bay Shore	EIA	63	1,697,158	20.56	5.5	0.3	92.15 b		2878	CEM, 906	655	89.19	SUB	75
Eastlake	EIA	105	3,714,941	25.45	6.4	1.1	89.13 b		2837	CEM, 906	1289	88.23	BIT	100
Lake Shore	EIA	39	543,642	20.61	5.1	0.3	92.17 b		2838	CEM, 906	260	88.23	SUB	100
R E Burger	EIA	42	768,619	25.59	7.5	1.1	89.21 b		2864	CEM, 906	548	88.23	BIT	100
W H Sammis	EIA	162	6,902,309	24.82	9.1	0.6	89.65 b		2866	CEM, 906	2468	88.24	BIT	100
Cardinal	FERC	205	4,271,823	28.37	11.6	1.3	88.17		2828	CEM	1880	88.24	BIT	100
Walter C Beckjord	FERC	233	2,467,511	27.40	13.1	1.2	88.15		2830	CEM, 906	1433	88.15	BIT	100
Miami Fort	FERC	225	2,414,377	27.61	11.4	1.4	88.09		2832	CEM, 906	1444	88.23	BIT	100
W H Zimmer	FERC	137	3,303,605	28.45	10.2	3.7	86.85		6019	CEM	1426	88.24	BIT	100

Table SA2a. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, Si units.

Delivered coal 2005 (by destination)		eGRID consumed fuel 2005 (by destination)												
STATE Plant	Data	lb	Mg	MJ/kg	Ash	lb	kg CO2/GJ	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
Conesville	FERC	68	3,581,444	27.23	10.4	2.9	87.30		2840	CEM	2175	88.24	BIT	100
Dover	FERC								2914	767, 906	54	87.04	BIT	97
Picway	FERC	59	120,658	27.07	8.5	2.6	87.61		2843	CEM	106	88.24	BIT	99
O H Hutchings	FERC	18	243,402	29.36	8.8	0.9	88.33		2848	CEM, 906	447	88.45	BIT	97
J M Stuart	FERC	186	5,256,045	27.05	13.9	0.9	88.44 c		2850	CEM, 906	2452	88.24	BIT	100
Killen Station	FERC	100	1,566,916	27.66	13.1	0.6	88.43 c		6031	CEM, 906	687	88.19	SC	100
Hamilton	FERC	32	150,344	28.29	11.6	1.3	88.07		2917	CEM, 767, 9	138	87.77	BIT	98
Muskingum River	FERC	38	2,714,977	30.26	7.7	2.7	87.03		2872	CEM	1529	88.24	BIT	100
General James M Gavin	FERC	43	6,916,511	28.97	9.0	3.6	87.10		8102	CEM	2600	88.24	BIT	100
Kyger Creek	FERC	143	3,019,978	27.85	8.7	1.3	88.43		2876	CEM	1086	88.24	BIT	100
Orrville	FERC	12	178,755	30.11	10.3	4.2	86.13		2935	767	85	88.57	BIT	100
Painesville	FERC	24	117,618	28.56	7.3	3.1	86.83		2936	767	54	88.51	BIT	100
Richard Gorsuch	FERC	36	582,393	24.27	13.9	2.0	88.59		7286	CEM	200	88.24	BIT	99
Avon Lake	EIA	61	1,325,921	29.63	8.7	1.6	87.65		2836	CEM, 906	870	88.22	BIT	100
Niles	EIA	13	437,835	28.26	11.8	3.3	87.64		2861	CEM, 906	293	88.23	BIT	100
MW Custom Papers (P H Glatfelter Co - Chillicothe Facility)	EIA	36	278,943	26.15	11.7	4.2	87.74		10244	767	93	50.93	BIT	54
OKLAHOMA			19,355,150	20.39	5.9	0.4	91.98							
GRDA	FERC	44	3,725,757	19.60	5.0	0.3	92.11		165	CEM	1010	88.03	SUB	100
Muskogee	FERC	57	5,072,102	20.45	5.0	0.2	92.18		2952	CEM	1889	87.77	SUB	99
Sooner	FERC	43	3,300,135	20.43	5.0	0.2	92.18		6095	CEM	1138	88.18	SUB	100
Northeastern	FERC	18	3,792,920	20.21	5.5	0.4	92.08		2963	CEM	1951	76.53	SUB	55
Hugo	FERC	24	1,723,855	19.48	4.8	0.3	92.13		6772	CEM	446	88.24	SUB	100
Muskogee Mill	EIA	23	457,623	21.89	5.7	0.4	91.09		10362	767	114	91.16	SUB	100
AES Shady Point	EIA	114	1,282,759	23.53	17.0	1.8	90.36		10671	767	350	88.64	BIT	100
OREGON			2,062,260	19.44	4.9	0.3	92.12							
Boardman	FERC	11	2,062,260	19.44	4.9	0.3	92.12		6106	CEM	601	88.24	SUB	100
PENNSYLVANIA			47,628,837	27.58	14.3	2.1	88.09							
Bruce Mansfield	EIA	101	6,762,694	29.24	10.2	2.9	87.00 b		6094	CEM	2741	88.24	BIT	100
Hatfield (Hatfields Ferry Power Station)	EIA	196	3,188,397	29.92	8.6	2.3	87.64		3179	CEM	1728	88.24	BIT	100
Eirama Power Plant	EIA	16	663,900	30.11	7.2	1.6	87.73 c		3098	CEM	510	88.24	BIT	99
Portland	EIA	21	747,660	30.45	7.3	1.8	87.32		3113	CEM	621	87.69	BIT	97
Titus	EIA	25	479,826	30.34	7.6	1.5	87.64		3115	CEM, 906	261	88.22	BIT	100
Conemaugh	EIA	24	4,424,599	29.19	11.4	2.5	87.30 c		3118	CEM, 906	1883	88.23	SC	100
Homer City Station	EIA	175	6,933,443	27.45	16.5	2.4	88.38		3122	CEM	2012	88.24	BIT	100
Shawville	EIA	149	1,297,022	27.91	13.8	1.8	88.67		3131	CEM, 906	632	88.23	BIT	100
St Nicholas Cogen Project	EIA								54634	767	99	89.54	WC	99
Keystone	EIA	24	4,559,118	29.73	9.8	1.9	87.66 c		3136	CEM, 906	1884	88.23	SC	100
New Castle Plant	EIA	70	518,949	29.47	8.1	1.6	87.58		3138	CEM, 906	354	88.24	BIT	100
PPL Brunner Island	EIA	24	3,558,960	29.46	9.4	1.5	87.89 c		3140	CEM, 906	1567	88.23	SC	100
PPL Martins Creek	EIA	9	311,435	28.88	10.6	1.7	87.79		3148	CEM, 906	2113	77.04	RFO	23

Table SA2a. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, Si units.
Delivered coal 2005 (by destination)

STATE Plant	eGRID consumed fuel 2005 (by destination)												
	Data	ton	Mg	Mj/kg	Ash	kg CO2/GJ	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
PPL Montour	EIA	24	3,686,067	29.23	10.8	1.8	87.71 c	3149	CEM	1642	88.24	SC	100
Sunbury (WPS Energy Servs Sunbury Gen)	EIA	267	922,519	23.39	21.5	1.2	90.28	3152	CEM, 906	491	92.74	BIT	100
Cromby Generating Station	EIA	35	280,000	30.87	6.8	1.8	87.95	3159	CEM, 906	420	82.07	BIT	67
Eddystone Generating Station	EIA	62	1,079,364	30.59	7.1	1.7	87.83	3161	CEM, 906	1569	83.18	BIT	68
Hunlock Power Station	EIA	71	152,126	20.64	29.5	0.9	95.70	3176	CEM	50	92.29	BIT	84
Armstrong Power Station	EIA	98	732,841	28.54	11.5	2.0	87.50	3178	CEM	326	88.24	BIT	100
Mitchell Power Station	EIA	52	692,214	28.46	10.9	3.8	86.85 c	3181	CEM	374	88.18	BIT	100
Cheswick Power Plant	EIA	45	954,761	29.61	9.6	1.7	87.71	8226	CEM	637	88.12	BIT	100
John B Rich Memorial Power Station	EIA	12	603,242	15.98	41.9	0.4	99.73	10113	767	88	89.54	WC	100
Colver Power Project	EIA	12	600,923	15.80	38.5	2.2	87.65	10143	767	118	89.47	WC	100
Ebensburg Power	EIA	12	465,759	14.16	44.6	1.6	88.80	10603	767	58	89.54	WC	100
Cambria Cogen	EIA	12	547,484	17.09	46.1	3.2	87.63	10641	767	98	89.54	WC	100
AES Beaver Valley Partners Beaver Valley	EIA	21	424,885	30.49	8.5	2.3	87.09	10676	767	149	88.70	BIT	99
Kline Township Cogen Facility	EIA	59	467,551	12.09	49.5	0.3	100.68	50039	767	58	89.54	WC	99
G F Weaton Power Station	EIA	14	297,466	21.96	7.2	0.4	90.53	50130	767	120	90.13	SUB	99
P H Glatfelter	EIA	23	296,197	30.24	6.9	1.8	87.38	50397	767	110	44.75	BIT	50
Chester Operations	EIA	24	232,147	13.39	39.8	0.6	100.23	50410	767	67	92.72	PC	47
Panther Creek Energy Facility	EIA	76	686,058	15.34	37.2	0.3	100.31	50776	767	94	89.51	WC	100
Northampton Generating LP	EIA	47	508,614	14.88	39.4	0.5	100.47	50888	767	114	88.55	WC	76
Scrubgrass Generating	EIA	94	552,616	17.40	37.9	2.4	87.04	50974	767	95	89.61	WC	98
Seward								3130	CEM	585	88.24	WC	100
SOUTH CAROLINA			14,296,305	29.30	10.0	1.2	87.97						
H B Robinson	FERC	40	415,745	28.61	11.9	1.2	88.12	3251	CEM, 906	992	88.21	BIT	17
W S Lee	FERC	47	528,898	28.96	10.9	0.9	88.27	3264	CEM, 906	542	88.02	BIT	100
Canadys Steam	FERC	44	931,967	29.51	9.1	1.2	87.86	3280	CEM	490	88.24	BIT	99
Cogen South								7737	767	99	52.67	BIT	49
McMeekin	FERC	20	187,972	29.73	8.2	1.2	87.83	3287	CEM	294	88.24	BIT	100
Urquhart	FERC	27	353,989	29.93	8.1	1.3	87.82	3295	CEM	759	76.82	BIT	61
US DOE Savannah River Site (D Area)								7652	767	78	88.50	BIT	100
Wateree	FERC	160	2,783,017	29.24	10.2	1.0	88.04	3297	CEM	772	88.24	BIT	100
Williams	FERC	54	1,382,936	29.69	8.6	0.9	88.04	3298	CEM, 906	687	88.23	BIT	100
Cope	FERC	57	541,598	29.13	10.4	1.1	87.93	7210	CEM	417	88.24	BIT	100
Cross	FERC	85	2,859,149	29.90	9.4	1.8	87.65 c	130	CEM	1738	88.45	SC	96
Dolphus M Grainger	FERC	23	402,068	28.87	10.3	1.3	87.96 c	3317	CEM	163	88.24	BIT	100
Jefferies	FERC	48	683,832	28.99	10.4	1.4	88.00 c	3319	CEM	578	87.73	BIT	88
Winyah	FERC	103	3,044,399	28.74	11.1	1.2	88.17	6249	CEM	1260	88.24	SC	100
Ben French								3325	767, 906	135	91.29	SUB	98
Stone Container Florence Mill	EIA	12	180,735	29.49	8.1	0.9	88.18	50806	767	108	28.33	BIT	24
SOUTH DAKOTA			1,576,714	20.26	5.4	0.3	92.14						
Big Stone	FERC	27	1,576,714	20.26	5.4	0.3	92.14	6098	CEM	457	88.24	SUB	100
TENNESSEE			25,063,525	26.30	8.7	1.2	88.84						

Table SA2a. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, Si units.
Delivered coal 2005 (by destination)

STATE Plant	eGRID consumed fuel 2005 (by destination)													
	Data	lb	Mg	Mj/kg	Ash	lb	kg CO2/GJ	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
Bull Run	FERC	85	2,240,612	28.80	11.1	0.7	88.29		3396	CEM	950	88.24	BIT	100
Cumberland	FERC	75	5,815,034	27.60	9.0	3.0	87.38		3399	CEM	2600	88.24	BIT	100
Gallatin (includes GRT coal)	FERC	5	3,603,645	24.27	7.3	0.7	89.88 a		3403	CEM	1918	87.91	SUB	99
John Sevier	FERC	28	1,840,999	28.98	11.9	0.7	88.24		3405	CEM	800	88.24	BIT	100
Kingston (includes GRT coal)	FERC	162	3,885,333	25.84	9.5	0.7	89.39 a		3407	CEM	1700	88.24	BIT	100
Allen Steam Plant (includes Cora and GRT coal)	FERC	35	2,495,876	23.31	6.5	0.5	90.45 a		3393	CEM, 906	1611	88.20	SUB	100
Johnsonville (GRT coal)	FERC		3,527,100	24.10	7.1	0.7	89.96 a		3406	CEM	2911	87.75	SUB	99
Tennessee Eastman Operations	EIA	114	1,486,354	30.00	8.3	0.9	88.14 c		50481	767	194	87.27	BIT	100
Bowater Newsprint Calhoun Operation	EIA	12	168,572	30.18	7.4	1.0	87.72		50956	767	63	20.13	WDS	67
TEXAS			90,097,407	17.74	10.2	0.7	91.88							
Fayette Power Project	FERC	29	3,979,061	20.10	5.1	0.3	92.10		6179	CEM	1690	88.18	SUB	100
Oklauion	FERC	27	2,438,562	19.32	5.2	0.4	92.11		127	CEM	720	88.01	SUB	100
J T Deely	FERC	32	5,119,448	19.84	5.3	0.3	92.09		6181	CEM	932	88.24	SUB	100
San Miguel	FERC	12	3,019,844	12.25	22.7	2.4	89.51		6183	CEM	410	93.63	LIG	100
Welsh	FERC	38	5,441,367	19.96	4.6	0.3	92.15		6139	CEM	1674	88.24	SUB	100
Pirkey	FERC	12	3,854,179	15.46	13.8	0.9	92.38		7902	CEM	721	93.63	LIG	100
Harrington	FERC	12	4,255,584	20.63	4.9	0.3	92.16		6193	CEM	1080	88.24	SUB	100
J K Spruce									7097	CEM	566	88.24	SUB	100
Tolk	FERC	12	4,011,357	20.06	5.0	0.3	92.15		6194	CEM	1136	88.24	SUB	100
Gibbons Creek	FERC	30	1,875,710	19.69	5.3	0.3	92.13		6136	CEM	454	88.24	SUB	100
Limestone	EIA	26	7,748,309	16.36	14.3	0.9	91.56		298	CEM	1850	93.63	LIG	99
W A Parish	EIA	39	9,554,231	19.76	5.1	0.4	92.11		3470	CEM, 906	3969	85.81	SUB	94
Big Brown	EIA	24	5,506,416	17.43	10.7	0.7	91.70		3497	CEM	1187	92.73	LIG	100
Martin Lake	EIA	24	13,122,308	16.35	12.8	1.3	92.04		6146	CEM	2380	92.81	LIG	100
Monticello	EIA	24	10,417,723	16.72	12.2	0.4	92.10		6147	CEM	1980	92.35	SUB	100
Coletto Creek	EIA	28	2,245,496	22.11	5.3	0.3	91.57		6178	CEM	600	88.24	SUB	100
Sandow No 4	EIA	12	3,508,278	13.38	18.0	1.2	90.41		6648	CEM	591	91.42	LIG	100
Twin Oaks Power One	EIA	12	1,942,251	16.02	15.4	1.1	92.09		7030	CEM	349	93.63	LIG	100
Sandow Station	EIA	12	2,057,282	15.35	22.2	1.8	90.17		52071	767	363	91.52	LIG	100
UTAH			15,754,903	25.08	13.3	0.5	88.96							
Intermountain Power Project	FERC	90	5,534,464	26.34	10.8	0.6	88.89		6481	CEM	1640	88.24	BIT	100
Carbon	FERC	35	615,082	26.55	10.0	0.4	88.74 c		3644	CEM	189	88.24	BIT	100
Hunter	FERC	35	4,088,750	25.88	11.5	0.5	89.19		6165	CEM	1472	88.24	BIT	100
Huntington	FERC	28	2,770,589	24.76	17.4	0.5	88.27 c		8069	CEM	996	88.24	BIT	100
Bonanza	FERC	12	1,942,814	22.47	11.8	0.5	89.75		7790	CEM	500	88.24	BIT	100
Sunnyside Cogen Associates	EIA	12	442,581	12.30	51.2	0.9	87.53		50951	767	58	89.54	WC	100
KUCC	EIA	12	360,623	26.21	8.9	0.4	89.86		56163	767	214	88.64	BIT	99
VIRGINIA			13,967,698	29.41	10.5	1.0	88.54							
Clinch River	FERC	58	1,431,834	28.85	13.0	0.9	88.77		3775	CEM	713	88.24	BIT	100
Glen Lyn	FERC	80	658,083	29.66	10.3	0.9	88.92		3776	CEM	338	88.24	BIT	99

Table SA2a. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, Si units.
Delivered coal 2005 (by destination)

STATE Plant	eGRID consumed fuel 2005 (by destination)												
	Data	lb	Mg	Mj/kg	Ash	kg CO2/GJ	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
Bremo Bluff	FERC	38	680,953	28.33	12.1	0.9	88.94	3796	CEM	254	88.24	BIT	100
Chesterfield	FERC	215	3,026,637	29.32	10.3	1.2	88.19	3797	CEM	1800	86.76	BIT	90
Chesapeake	FERC	153	1,429,439	29.23	10.8	0.9	88.84	3803	CEM, 906	812	88.18	BIT	99
Yorktown	FERC	55	746,535	29.49	9.4	1.4	88.13	3809	CEM	1257	79.43	BIT	54
Clover	FERC	139	2,504,153	29.41	10.9	1.1	88.66	7213	CEM	848	88.24	BIT	100
Altavista	FERC	34	152,382	29.35	10.6	0.9	88.88	10773	CEM	71	88.24	BIT	99
Southampton	FERC	28	150,894	29.14	10.9	0.8	88.24	10774	CEM	71	88.24	BIT	99
Mecklenburg Cogeneration Facility	FERC	23	353,209	29.71	8.9	1.1	89.00	52007	CEM	140	88.24	BIT	99
Potomac River	EIA	45	558,787	29.72	9.3	0.7	88.69	3788	CEM	514	88.24	BIT	99
Cogentrix Portsmouth	EIA	48	350,647	30.22	8.1	0.7	88.67	10071	767	115	88.64	BIT	100
Cogentrix Hopewell (James River Cogeneration)	EIA	22	372,830	31.20	8.2	0.9	88.27	10377	767	115	88.64	BIT	100
International Paper Franklin Mill	EIA	31	194,965	30.35	8.3	0.7	88.32	52152	767, 906	155	29.01	BLQ	14
Cogentrix of Richmond (Spruance Genco LLC)	EIA	24	785,959	30.14	8.5	0.9	88.28	54081	767	230	87.93	BIT	98
Birchwood Power	EIA	68	570,391	29.20	10.5	0.7	88.38	54304	767	258	88.64	BIT	100
WASHINGTON	EIA	24	5,895,707	18.91	13.3	0.7	91.33	3845	CEM	1782	87.51	SUB	98
Transalta Centralia Generation	EIA	24	5,895,707	18.91	13.3	0.7	91.33	3845	CEM	1782	87.51	SUB	98
WISCONSIN	EIA	24	22,243,434	21.15	5.3	0.4	91.54	3845	CEM	1782	87.51	SUB	98
Alma	FERC	29	1,656,184	22.35	6.0	0.5	90.92	4140	CEM, 767	181	88.66	BIT	100
Genoa	FERC	23	1,113,134	23.67	6.7	0.6	90.22	4143	CEM	346	88.24	SUB	100
Blount Street	FERC	15	205,207	25.34	8.3	1.4	87.71	3992	CEM, 767	188	83.93	SUB	80
Manitowoc	FERC	14	105,414	28.77	9.3	1.2	88.09	4125	CEM, 767, 9	138	88.29	BIT	64
Bay Front	FERC	23	127,477	23.56	5.1	0.4	91.08	3982	CEM	68	59.83	BIT	63
Oak Creek (South Oak Creek)	FERC	13	2,956,795	20.64	4.5	0.2	92.18	4041	CEM, 906	1211	88.19	SUB	99
Valley	FERC	11	786,372	28.26	8.3	0.4	88.62	4042	CEM, 906	275	88.23	BIT	100
Pleasant Prairie	FERC	29	4,576,648	19.82	5.1	0.3	92.13	6170	CEM	1235	88.24	SUB	100
Edgewater	FERC	84	2,323,820	20.37	5.3	0.3	92.11	4050	CEM	770	88.24	SUB	99
Nelson Dewey	FERC	13	497,772	21.84	4.1	0.3	91.83	4054	CEM	200	89.56	SUB	81
Columbia	FERC	54	3,780,856	19.66	4.8	0.3	92.12	8023	CEM	1023	88.24	SUB	100
Pulliam	FERC	29	1,458,778	21.53	5.0	0.4	91.59	4072	CEM	493	86.62	SUB	95
Weston	FERC	59	1,949,573	20.54	5.3	0.3	92.15	4078	CEM, 906	565	87.86	SUB	99
E J Stoneman Station	EIA	15	64,244	27.80	7.7	1.1	88.34	4146	CEM, 906	53	87.40	BIT	99
Biron Mill	EIA	24	190,479	23.67	6.6	1.4	89.36	10234	767	62	85.19	SUB	92
Green Bay West Mill	EIA	17	295,873	28.52	9.2	1.5	88.46	10360	767	129	92.27	BIT	65
John P Madgett	EIA	12	154,807	20.47	4.5	0.2	92.18	10477	CEM	387	88.24	SUB	100
Wisconsin Rapids Pulp Mill	EIA	12	154,807	20.47	4.5	0.2	92.18	10477	CEM	72	24.31	BLQ	21
WEST VIRGINIA	EIA	12	34,598,518	27.85	12.5	1.8	88.05	10477	CEM	72	24.31	BLQ	21
John E Amos	FERC	202	6,991,246	28.07	12.2	0.8	88.31	3935	CEM	2933	88.24	BIT	100
Kanawha River	FERC	85	826,769	28.31	13.0	0.8	88.40	3936	CEM	439	88.24	BIT	100
Mountaineer	FERC	156	3,810,957	26.23	10.9	0.5	89.16	6264	CEM	1300	88.24	BIT	100

Table SA2a. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, Si units.
Delivered coal 2005 (by destination)

STATE Plant	eGRID consumed fuel 2005 (by destination)													
	Data	ton	Mg	MJ/kg	Ash	lb	kg CO2/GJ	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
Philip Sporn	FERC	160	1,962,228	27.92	11.9	1.0	88.46		3938	CEM	1106	88.24	BIT	99
Albright	FERC	146	421,547	27.67	14.7	1.7	88.08		3942	CEM	278	88.24	BIT	100
Rivesville	FERC	52	77,715	28.22	12.2	0.9	87.62		3945	CEM	110	88.24	BIT	99
Willow Island	FERC	41	236,846	24.96	6.4	1.0	89.31		3946	CEM	213	88.24	BIT	98
Kammer	FERC	14	1,326,780	30.34	7.1	1.5	87.54		3947	CEM	713	88.24	BIT	100
Mitchell	FERC	41	2,914,289	28.34	11.8	1.1	88.29		3948	CEM	1633	88.24	BIT	99
Mt Storm	FERC	106	4,382,656	28.15	14.6	1.8	89.13		3954	CEM, 906	1681	88.24	BIT	100
North Branch	FERC	20	344,273	22.64	29.3	2.9	88.63		7537	CEM	80	88.24	BIT	100
Harrison Power Station	FERC	250	4,478,786	28.36	12.9	3.6	86.80		3944	CEM	2052	88.24	BIT	100
Pleasants Power Station	FERC	62	3,186,008	28.87	9.0	4.3	86.68		6004	CEM	1368	88.24	BIT	100
Fort Martin Power Station	FERC, EI	145	2,410,694	29.22	8.7	1.7	87.45		3943	CEM	1152	88.24	BIT	100
Grant Town Power Plant	EIA	117	509,782	17.68	35.6	2.0	87.56		10151	767	96	89.54	WC	100
Morgantown Energy Facility	EIA	24	339,223	18.52	38.9	2.3	87.19		10743	767	69	89.10	WC	100
PPG Natrium Plant	EIA	38	378,718	28.13	11.5	1.2	88.33		50491	767	123	81.64	BIT	90
WYOMING			23,118,403	20.47	7.0	0.5	91.53							
Wygen 1	EIA	12	463,361	18.65	6.5	0.5	92.02	b	55479	CEM	88	88.24	SUB	100
Laramie River Station	FERC	35	7,003,493	19.42	5.2	0.3	92.13		6204					
Laramie River Station 1									6204.1					
Laramie River Station 2 & 3									6204.2					
Dave Johnston	FERC	39	3,435,566	19.20	5.3	0.4	92.10		4158	CEM	570	88.25	LIG	100
Naughton	FERC	12	2,509,315	23.34	4.8	0.9	89.54		4162	CEM	1140	88.24	LIG	100
Wyodak	FERC	12	1,758,154	18.56	7.1	0.6	91.98		6101	CEM	817	88.24	SUB	100
Jim Bridger	FERC	28	7,514,338	21.72	10.2	0.6	91.36		8066	CEM	707	88.11	SUB	100
Neil Simpson II	FERC	12	434,177	18.69	6.3	0.5	92.03		7504	CEM	362	88.24	SUB	100
											2318	88.24	SUB	100
											120	87.48	SUB	97

Table SA2b. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, U.S. customary units.

		Delivered coal 2005 (by destination)					eGRID consumed fuel 2005 (by destination)							
STATE	Plant	Data	tons	Btu/lb	Ash	S	lbs CO ₂ per million Btu	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
ALABAMA			34,893,823	10,843	8.6	1.0	207.9							
	Charles R Lowman	FERC	1,988,445	11,888	8.5	1.1	205.2		56	CEM	538	205.2	BIT	100
	Barry	FERC	4,067,400	11,503	5.5	0.5	207.6		3	CEM	2671	191.5	BIT	80
	Gadsden	FERC	252,350	12,179	13.0	1.8	203.9		7	CEM	138	205.2	SC	100
	Gorgas	FERC	3,242,850	12,089	13.0	1.3	205.4		8	CEM	1417	205.2	BIT	100
	Greene County	FERC	1,390,040	11,628	14.3	1.5	204.7		10	CEM	1288	202.4	SC	97
	E C Gaston	FERC	4,484,893	13,496	13.8	1.7	203.7 c		26	CEM, 906	2034	205.2	SC	100
	James H Miller Jr	FERC	11,167,140	8,713	4.9	0.3	214.3		6002	CEM	2822	205.2	SUB	100
	Colbert (includes GRT coal)	FERC	3,623,114	10,466	7.1	0.7	208.9 a		47	CEM, 906	1826	205.2	BIT	100
	Widows Creek (includes GRT coal)	FERC	4,565,202	11,486	11.4	2.0	204.5 a		50	CEM	1969	205.2	BIT	100
	Mobile Energy Services LLC	EIA	112,390	11,693	7.4	0.9	205.4		50407	767	79	88.8	WDS	41
ALASKA														
ARIZONA			20,433,610	10,097	11.7	0.6	208.2							
	Apache Station	FERC	1,489,400	9,795	8.1	0.5	211.3		160	CEM	661	201.8	SUB	96
	Cholla	FERC	3,682,000	9,788	14.5	0.5	205.5		113	CEM	1129	205.2	SUB	100
	Navajo	FERC	8,246,800	10,863	9.6	0.5	209.4		4941	CEM	2409	205.2	BIT	100
	Coronado	FERC	3,186,200	9,298	9.3	0.4	209.8		6177	CEM	822	205.2	SUB	100
	Irvington (H Wilson Sundt Generating	FERC	376,842	10,936	11.2	0.5	207.7		126	CEM, 906	559	177.5	SUB	68
	Springerville	FERC	3,090,700	9,307	17.9	0.9	205.0		8223	CEM	1305	205.2	SUB	100
	Abitibi Consolidated Snowflake	EIA	361,668	9,938	13.2	0.4	205.5		50805	767	71	210.2	SUB	95
ARKANSAS			12,266,802	8,731	4.8	0.3	214.3							
	White Bluff	FERC	5,227,833	8,588	5.1	0.3	214.2		6009	CEM	1700	205.2	SUB	100
	Independence	FERC	4,959,100	8,921	4.5	0.2	214.4		6641	CEM	1700	205.2	SUB	100
	Flint Creek	FERC	2,079,869	8,636	4.5	0.2	214.3		6138	CEM	558	205.2	SUB	100
CALIFORNIA			1,629,699	12,027	10.6	0.8	204.6							
	ACE Cogeneration Facility	EIA	323,448	12,171	10.7	0.8	204.5		10002	767	108	210.8	BIT	75
	Stockton Cogen	EIA	152,991	11,774	11.0	0.6	205.6		10640	767	60	207.0	BIT	60
	Argus Cogen Plant	EIA	826,713	12,031	11.1	0.9	204.5 c		10684	767	55	206.0	BIT	100
	Port of Stockton District Energy Facility	EIA	162,909	11,896	8.1	0.6	204.6		54238	767	54	206.1	BIT	100
	Mt Poso Cogeneration	EIA	163,638	12,092	10.6	0.9	204.5		54626	767	62	209.4	BIT	68
COLORADO			18,510,647	9,864	7.7	0.4	211.4							
	Martin Drake	FERC	1,055,790	10,711	9.3	0.5	209.2		492	CEM	257	205.1	BIT	99
	Ray D Nixon	FERC	986,620	9,073	5.1	0.2	213.6		8219	CEM	279	204.9	SUB	100
	Rawhide	FERC	1,196,614	8,855	5.3	0.2	214.4		6761	CEM	651	204.2	SUB	99
	Arapahoe	FERC	549,547	8,816	5.5	0.3	214.3		465	CEM	160	205.2	SUB	100

Table SA2b. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, U.S. customary units.

		Delivered coal 2005 (by destination)					eGRID consumed fuel 2005 (by destination)							
STATE	Plant	Data	tons	Btu/lb	Ash	S	lbs CO ₂ per million Btu	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
	Cameo	FERC	13	274,455	11,186	11.1	0.6	206.4	468	CEM, 767	66	205.2	BIT	100
	Cherokee	FERC	32	2,360,526	11,198	10.6	0.5	208.2	469	CEM	807	204.7	BIT	100
	Comanche	FERC	14	2,437,534	8,582	4.5	0.3	214.3	470	CEM	779	204.9	SUB	100
	Valmont	FERC	29	633,116	11,056	7.7	0.4	209.4	477	CEM, 906	237	205.2	BIT	100
	Hayden	FERC	35	1,831,931	10,423	11.4	0.5	208.4	525	CEM	465	205.2	BIT	100
	Pawnee	FERC	14	1,850,514	8,410	4.7	0.3	214.3	6248	CEM	552	204.7	SUB	100
	Nucla	FERC	12	415,300	10,680	19.4	0.9	215.2	527	CEM	114	205.3	BIT	100
	Craig	FERC	80	4,918,700	10,242	7.3	0.4	211.5	6021	CEM	1339	205.2	SUB	100
CONNECTICUT				1,925,193	10,139	4.4	0.4	211.0						
	Bridgeport Station	EIA	10	1,376,789	9,376	1.0	0.1	213.5	568	CEM, 906	582	204.5	SUB	98
	AES Thames	EIA	11	548,404	12,055	13.0	1.3	206.1	10675	767	214	206.1	BIT	100
DELEWARE				2,273,862	12,222	9.6	0.7	207.4						
	Edge Moor	EIA	36	544,682	12,675	10.2	0.7	207.9	593	CEM, 906	710	190.6	BIT	63
	Indian River Operations	EIA	101	1,687,760	12,055	9.4	0.7	207.3	594	CEM, 906	799	205.2	BIT	99
	NRG Energy Center Dover	EIA	8	41,420	13,099	8.7	1.4	204.9	10030	CEM, 767	118	194.8	BIT	81
FLORIDA				25,301,085	12,191	8.8	1.5	205.0						
	Crystal River (McDuffie and IMT coal)	FERC	240	6,104,241	12,434	9.2	0.8	205.6 a	628	CEM	3333	205.2	BIT	71
	Deerhaven Generating Station	FERC	34	606,316	12,766	9.7	0.7	205.4	663	CEM	471	196.2	BIT	84
	Crist	FERC	69	2,283,800	11,699	6.3	0.7	206.9	641	CEM	1201	205.1	BIT	100
	Scholz	FERC	11	185,000	11,945	12.4	1.3	204.2	642	CEM	98	205.2	BIT	100
	Lansing Smith	FERC	41	1,045,000	11,829	6.7	0.9	206.1	643	CEM, 906	1002	173.5	BIT	53
	St Johns River Power Park	FERC	24	2,706,330	11,757	9.4	0.9	206.1	207	CEM	1358	205.2	BIT	76
	Northside Generating Station	FERC	23	342,200	12,286	10.1	3.8	201.9	667	CEM, 906	1407	197.2	PC	15
	C D McIntosh Jr	FERC	44	695,000	12,376	8.3	1.2	205.5	676	CEM, 906	994	189.6	BIT	70
	Stanton Energy Center	FERC	71	2,029,200	12,628	9.3	1.2	204.8	564	CEM	929	205.2	BIT	98
	Big Bend (includes Davant coal)	FERC	4	3,652,561	11,925	8.4	2.7	204.0 a	645	CEM, 906	1998	205.1	BIT	97
	Polk (Davant coal)	FERC		435,629	11,909	8.5	2.8	203.9 a	7242	CEM,	1030	243.3	BIT	89
	Seminole	FERC	37	2,743,879	12,336	8.0	3.0	202.2 c	136	CEM	1429	205.2	BIT	74
	Jefferson Smurfit Fernandina Beach	EIA	12	249,899	12,971	9.4	0.7	205.3	10202	767	118	73.1	BLQ	32
	Central Power & Lime	EIA	10	324,391	12,941	8.2	0.7	205.4	10333	767	125	206.1	BIT	99
	Cedar Bay Generating LP	EIA	110	981,730	12,170	12.1	1.1	205.2	10672	767	292	205.6	BIT	99
	Indiantown Cogen Facility	EIA	17	915,909	12,320	10.9	1.1	205.1	50976	767	395	205.0	BIT	99
GEORGIA				38,840,407	11,066	8.8	0.8	207.5						
	Atkinson	FERC	34	1,264,000	12,685	10.4	1.0	204.6						
	Bowen	FERC	238	8,657,200	12,213	11.4	1.1	204.7	703	CEM, 906	3540	205.2	BIT	100

Table SA2b. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, U.S. customary units.

		Delivered coal 2005 (by destination)					eGRID consumed fuel 2005 (by destination)							
STATE	Plant	n	tons	Btu/lb	Ash	S	lbs CO ₂ per million Btu	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
Georgia	Pacific Cedar Springs	72	1,875,830	12,694	9.8	1.1	204.5		54101	767	101	125.0	BIT	27
	Hammond	88	3,708,490	12,268	11.3	1.2	204.6		708	CEM	953	205.2	BIT	100
	Harlee Branch	16	250,700	12,488	10.5	1.3	204.4		709	CEM	1746	205.2	BIT	100
	Mitchell	100	2,763,500	12,408	11.2	1.3	204.9		727	CEM, 906	289	205.1	BIT	100
	Yates	184	4,749,000	12,347	10.8	1.0	205.3		728	CEM	1487	205.2	BIT	96
	Wansley	97	13,617,400	8,726	5.2	0.3	214.3		6052	CEM, 906	1957	205.2	BIT	100
	Scherer	20	851,900	12,069	6.1	0.6	206.8		6257	CEM	3564	205.2	SUB	100
	Kraft	15	433,100	11,825	7.0	0.6	206.9		733	CEM, 906	352	205.2	BIT	94
	McIntosh	8	41,307	10,635	10.5	1.4	206.5		6124	CEM	988	199.9	BIT	95
	Savannah River Mill	24	314,523	12,699	9.3	0.7	205.4		10361	767, 906	140	217.3	PC	7
	International Paper Savannah Mill	62	131,769	12,786	9.6	1.2	204.7		50398	767	154	83.5	BLQ	33
	SP Newsprint	16	181,688	12,791	9.8	1.0	205.3		54004	767, 906	82	122.9	SLW	41
	International Paper Augusta Mill	12	706,185	10,975	4.8	0.6	208.6		54358	767	85	44.0	BLQ	25
HAWAII	AES Hawaii	11	330,000	8,787	4.4	0.2	214.4		10673	767	203	212.3	SUB	97
IOWA	Ames Electric Services Power Plant	18	102,455	11,469	7.2	1.6	206.2		1122	CEM	98	205.2	SUB	94
	Streeter Station	10	181,153	10,918	10.0	2.8	203.5		1131	CEM, 767	52	203.3	BIT	100
	Fair Station	8	102,370	10,429	6.3	0.3	212.6		1218	CEM, 767	63	205.5	BIT	100
	6th St	20	1,027,900	8,504	5.4	0.3	214.2		1058	CEM	85	195.4	SUB	78
	Prairie Creek 1-4	25	518,940	8,922	5.0	0.3	214.0		1073	CEM, 767	245	205.7	SUB	98
	Sutherland	26	733,160	8,376	4.8	0.3	214.2		1077	CEM	157	205.2	SUB	99
	Burlington	40	2,220,520	8,421	5.0	0.3	214.3		1104	CEM, 906	302	203.9	SUB	99
	Ottumwa	17	218,860	10,256	6.7	0.4	209.7		6254	CEM	726	205.2	SUB	100
	Dubuque	13	938,570	8,559	5.1	0.3	213.6		1046	CEM, 906	85	205.2	SUB	100
	Earl F Wisdom	10	847,250	8,410	5.0	0.4	214.2		1217	CEM	143	200.2	BIT	96
	Lansing	16	424,410	8,724	5.2	0.4	214.2		1047	CEM, 906	341	205.2	SUB	100
	Kapp	38	3,488,320	8,648	4.8	0.3	214.3		1048	CEM, 767	237	205.2	SUB	100
	Riverside	52	5,961,860	8,551	4.9	0.3	214.2		1081	CEM, 767	141	204.0	SUB	96
	Council Bluffs	28	2,105,050	8,579	4.8	0.3	214.3		1082	CEM	1779	205.2	SUB	100
	George Neal North	20	1,135,342	8,347	6.3	0.6	214.0		1091	CEM	1046	205.1	SUB	100
	George Neal South	46	1,103,369	9,432	6.6	1.3	209.1 c		7343	CEM	640	205.1	SUB	100
	Louisa	20	1,135,342	8,347	6.3	0.6	214.0		6664	CEM	738	205.2	SUB	100
	Muscatine Plant #1	20	1,135,342	8,347	6.3	0.6	214.0		1167	CEM, 767	294	205.8	SUB	100
	Archer Daniels Midland Cedar Rapids	46	1,103,369	9,432	6.6	1.3	209.1 c		10864	767	256	210.0	BIT	100

Table SA2b. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, U.S. customary units.

		Delivered coal 2005 (by destination)					eGRID consumed fuel 2005 (by destination)						
STATE	Plant	tons	Btu/lb	Ash	S	lbs CO ₂ per million Btu	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
ILLINOIS		51,769,514	9,038	5.7	0.7	212.3							
	Edwards	29	2,860,513	8,779	6.3	0.7	213.7	856	CEM	780	205.7	SUB	100
	Duck Creek	26	864,337	10,638	7.9	3.4	203.5	6016	CEM	441	205.2	BIT	100
	Marion	60	1,304,195	9,487	17.2	2.7	203.4	976	CEM	422	210.7	BIT	94
	Dallman	12	1,116,479	10,551	8.9	3.3	203.8	963	CEM	388	205.2	BIT	100
	Lakeside	11	112,549	10,539	8.9	3.2	203.8	964	CEM	80	205.2	BIT	98
	Joliet 29	28	2,787,992	8,659	4.8	0.3	214.3	384	CEM	1320	205.2	SUB	100
	Coffeen	13	2,302,198	10,276	8.3	0.9	205.5	861	CEM	1005	205.2	BIT	100
	Hutsonville	28	437,686	10,155	7.1	1.2	208.0	863	CEM, 906	153	205.2	SUB	100
	Meredosia	36	759,928	9,195	5.6	0.8	212.0	864	CEM	564	203.6	SUB	97
	Crawford	47	1,764,600	8,715	5.0	0.3	214.3	867	CEM, 906	805	205.2	SUB	100
	Joliet 9	28	1,532,761	8,571	4.7	0.3	214.3	874	CEM	360	205.2	SUB	100
	Joppa Steam							887	CEM	1100	205.2	SUB	100
	Kincaid Generation LLC	34	3,673,529	8,861	5.2	0.3	214.3	876	CEM	1319	205.2	SUB	100
	Powerton	42	5,704,654	8,688	4.7	0.2	214.3	879	CEM	1786	205.2	SUB	100
	Waukegan	32	2,897,815	8,633	4.7	0.3	214.3	883	CEM, 906	915	205.2	SUB	100
	Will County	48	3,277,787	8,720	5.0	0.3	214.3	884	CEM	1269	205.2	SUB	99
	Fisk Street	44	849,499	8,714	5.0	0.3	214.3	886	CEM, 906	663	205.1	SUB	99
	Baldwin Energy Complex	21	7,134,660	8,800	4.5	0.2	214.4	889	CEM	1892	205.2	SUB	100
	Havana	13	1,905,771	8,816	4.8	0.2	213.5	891	CEM	718	204.1	SUB	98
	Hennepin Power Station	12	1,158,971	8,800	4.5	0.2	214.4	892	CEM	306	205.2	SUB	100
	Vermilion	13	269,155	10,400	7.6	1.7	204.1	897	CEM, 906	197	204.6	BIT	99
	Wood River	12	1,852,756	8,814	5.1	0.2	214.4	898	CEM	650	205.1	SUB	99
	Newton	50	4,268,505	8,806	5.2	0.3	214.3	6017	CEM	1235	205.2	SUB	100
	Archer Daniels Midland Decatur	73	1,944,053	10,122	8.1	2.6	205.9 c	10865	767	335	208.0	BIT	99
	Archer Daniels Midland Peoria	47	196,384	11,954	8.6	2.6	204.1	10866	767, 906	64	147.3	NG	19
	A E Staley Decatur Cogen (Tate & Lyle	12	387,187	10,556	8.8	3.2	203.8	10867	767	62	206.1	BIT	100
	Corn Products Illinois	13	337,464	11,887	6.3	3.1	204.4	54556	767, 906	55	183.8	BIT	74
	University of Illinois Abbott Power Plt	12	68,086	10,988	8.3	3.6	203.4	54780	767, 906	85	140.3	NG	20
INDIANA		53,348,600	10,684	7.7	1.7	206.7							
	Frank E Ratts	24	556,300	11,342	7.3	1.5	205.4	1043	CEM	233	205.2	BIT	100
	Merom	64	3,013,780	11,116	9.9	3.4	203.2	6213	CEM	1080	205.2	BIT	100
	Clifty Creek	84	4,874,100	10,363	6.1	1.0	209.2	983	CEM	1303	205.2	SUB	100
	Harding Street	43	1,646,648	10,917	8.5	1.5	204.1	990	CEM	1185	202.7	BIT	97
	Logansport							1032	767, 906	61	206.1	BIT	100

Table SA2b. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, U.S. customary units.

		Delivered coal 2005 (by destination)					eGRID consumed fuel 2005 (by destination)							
STATE	Plant	Data	tons	Btu/lb	Ash	S	lbs CO ₂ per million Btu	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
	Eagle Valley	FERC	15	748,595	10,879	8.6	1.2	204.1	991	CEM, 906	396	205.1	BIT	100
	AES Petersburg	FERC	58	5,267,503	11,331	8.5	3.0	204.1	994	CEM, 906	1881	205.2	BIT	100
	Tanners Creek	FERC	101	2,064,900	11,844	9.4	1.1	205.8	988	CEM	1100	205.2	BIT	100
	Rockport	FERC	161	8,874,900	9,322	6.4	0.4	212.1	6166	CEM	2600	205.2	SUB	100
	Bailey	FERC	33	1,234,900	12,018	6.7	2.9	204.3	995	CEM, 906	641	205.1	BIT	100
	Michigan City	FERC	27	1,352,900	9,578	5.8	0.7	211.9	997	CEM	680	205.2	SUB	99
	R M Schahfer	FERC	99	5,376,400	10,450	6.6	1.7	208.1	6085	CEM, 906	2201	204.9	BIT	98
	Cayuga	FERC	56	2,297,420	11,155	7.1	1.4	205.3	1001	CEM	1193	204.8	BIT	100
	Edwardsport	FERC	18	139,310	11,177	7.7	1.8	204.5	1004	CEM	144	205.2	BIT	100
	R Gallagher	FERC	68	1,076,570	11,868	9.2	2.2	204.0	1008	CEM	600	205.2	BIT	99
	Wabash River	FERC	32	1,830,700	10,865	8.8	1.6	204.0	1010	CEM, 906	1173	206.5	BIT	96
	Warrick								6705	CEM	755	205.1	BIT	100
	Gibson	FERC	97	8,371,720	11,216	8.8	1.9	204.8	6113	CEM	3340	205.2	BIT	100
	Whitewater Valley	FERC	42	305,300	11,530	8.4	2.0	203.4	1040	CEM	94	205.2	BIT	100
	F B Culley	FERC	40	1,226,013	11,228	10.5	3.5	204.1	1012	CEM	415	205.2	BIT	100
	A B Brown	FERC	25	1,523,706	11,107	10.2	3.0	204.1	6137	CEM	707	203.7	BIT	98
	State Line Energy	EIA	18	1,566,935	9,387	4.1	0.3	213.5	981	CEM	614	205.2	SUB	99
	KANSAS			20,258,724	8,568	5.3	0.4	213.9						
	Riverton	FERC	10	250,944	8,827	4.8	0.3	214.3	1239	CEM, 906	311	203.3	SUB	99
	Quindaro	FERC	15	586,981	8,727	5.2	0.4	214.2	1295	CEM, 906	388	203.8	SUB	97
	Nearman Creek	FERC	12	1,137,428	7,992	5.3	0.4	214.2	6064	CEM	355	205.2	SUB	100
	La Cygne	FERC	95	5,208,950	8,762	6.0	0.6	213.2	1241	CEM	1578	205.2	SUB	100
	Lawrence	FERC	14	1,788,690	8,835	5.4	0.3	214.3	1250	CEM	566	205.1	SUB	100
	Tecumseh	FERC	14	856,880	8,832	5.4	0.3	214.3	1252	CEM, 906	290	205.1	SUB	100
	Jeffrey Energy Cnt	FERC	12	8,830,930	8,420	4.9	0.4	214.2	6068	CEM	2160	205.2	SUB	100
	Holcomb	FERC	29	1,597,921	8,627	5.4	0.4	214.2	108	CEM	349	205.0	SUB	100
	KENTUCKY			39,951,469	11,555	11.0	2.1	204.2						
	Reid-Henderson II (Robert A Reid)	EIA	33	386,333	11,744	9.9	2.9	201.8 c	1383	CEM, 906	195	204.8	BIT	98
	East Bend	FERC	17	44,290	12,058	10.8	2.8	203.1	6018	CEM	669	205.2	BIT	100
	Cooper	FERC	69	868,080	12,103	11.2	1.4	204.3	1384	CEM	344	205.2	BIT	100
	Dale	FERC	67	600,080	12,205	10.2	0.9	205.2	1385	CEM, 767	216	205.4	BIT	100
	H L Spurlock	FERC	239	3,092,000	11,899	12.6	1.7	204.6	6041	CEM	1279	194.2	BIT	100
	E W Brown	FERC	83	1,467,250	12,488	10.4	1.6	204.3	1355	CEM	1720	193.2	BIT	87
	Ghent	FERC	297	5,623,721	11,737	10.4	1.3	205.4	1356	CEM	2226	205.2	BIT	100
	Green River	FERC	30	317,393	12,219	9.0	2.5	202.6	1357	CEM	189	205.2	BIT	100

Table SA2b. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, U.S. customary units.

		Delivered coal 2005 (by destination)					eGRID consumed fuel 2005 (by destination)							
STATE	Plant	Data	tons	Btu/lb	Ash	S	lbs CO ₂ per million Btu	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
	Tyrone	FERC	30	191,171	12,496	10.3	0.9	204.5	1361	CEM	137	205.2	BIT	99
	Cane Run	FERC	43	1,772,483	11,282	11.5	3.1	202.7 c	1363	CEM, 906	661	205.2	BIT	99
	Mill Creek	FERC	112	4,614,838	11,427	11.4	3.3	202.4 c	1364	CEM	1717	205.2	BIT	100
	Trimble County	FERC	83	1,861,291	11,822	11.1	3.3	202.1	6071	CEM	1760	197.3	BIT	93
	Elmer Smith	FERC	35	1,129,760	10,454	13.7	3.8	204.7	1374	CEM	445	205.2	BIT	99
	Paradise (includes GRT coal)	FERC	70	6,569,848	11,338	9.4	2.4	203.2 a	1378	CEM	2558	205.2	BIT	100
	Shawnee (includes GRT coal)	FERC	95	4,243,667	11,406	8.8	0.7	207.2 a	1379	CEM	1750	205.2	BIT	100
	Big Sandy	FERC	145	2,940,520	12,035	11.2	0.9	206.1	1353	CEM	1097	205.2	BIT	100
	Kenneth C Coleman	EIA	50	1,338,666	11,576	13.3	2.1	203.9 c	1381	CEM	521	205.2	SC	99
	HMP&L Station Two Henderson	EIA	34	581,890	11,606	9.5	2.8	202.9	1382	CEM	365	205.2	BIT	63
	R D Green	EIA	67	1,150,498	10,508	16.6	3.6	201.6 c	6639	CEM	528	205.2	BIT	59
	D B Wilson	EIA	62	1,157,689	10,537	15.5	3.4	201.6	6823	CEM	440	205.2	PC	53
	LOUISIANA			12,023,871	8,272	6.6	0.5	214.3						
	Dolet Hills	FERC	24	2,193,995	6,894	13.2	1.1	215.0	51	CEM	721	217.7	LIG	100
	Rodemacher	FERC	24	621,559	8,745	5.2	0.3	214.1	6190	CEM	1004	191.4	SUB	80
	R S Nelson	FERC	12	2,019,200	8,723	5.3	0.3	214.3	1393	CEM, 767	1597	193.5	SUB	53
	Big Cajun 2	EIA	69	7,137,624	8,500	5.1	0.3	214.3	6055	CEM	1871	205.2	SUB	100
	International Paper Louisiana Mill	EIA	24	38,166	12,500	10.0	1.0	205.2	54090	767	59	40.8	BLQ	0
	Gaylord Container Bogalusa	EIA	4	13,327	9,994	11.1	2.5	205.7	54427	767	100	11.8	WDS	1
	MASSACHUSETTS			5,034,551	11,724	6.3	0.5	207.2						
	Mount Tom	FERC	17	448,874	11,592	6.2	0.5	208.0	1606	CEM	136	205.2	BIT	100
	Somerset Station	EIA	15	262,060	12,606	6.6	0.7	205.8	1613	CEM	199	201.3	BIT	94
	Brayton Point	EIA	97	3,255,315	11,701	6.6	0.5	207.1	1619	CEM, 906	1611	202.0	BIT	94
	Salem Harbor	EIA	26	1,068,302	11,632	5.7	0.5	207.5	1626	CEM	805	196.7	BIT	81
	MARYLAND			11,743,740	12,638	10.3	1.3	206.0						
	Brandon Shores	EIA	82	3,370,707	12,407	11.7	0.7	205.7	602	CEM	1370	205.2	BIT	100
	C P Crane	EIA	24	751,234	13,067	7.7	1.8	203.4	1552	CEM, 906	416	205.1	BIT	99
	Herbert A Wagner	EIA	37	1,056,978	12,439	11.8	0.9	205.9	1554	CEM, 906	1059	198.7	BIT	80
	Luke Mill								50282	767,	65	121.7	BIT	61
	R Paul Smith Power Station	EIA	42	187,232	11,986	14.3	0.9	210.0	1570	CEM	110	205.2	BIT	99
	Chalk Point LLC	EIA	98	1,611,087	12,874	8.0	1.6	204.9 c	1571	CEM	2647	183.8	BIT	58
	Dickerson	EIA	74	1,298,076	13,019	9.2	1.4	204.9	1572	CEM	930	201.2	BIT	92
	Morgantown Generating Plant	EIA	23	2,725,683	12,929	7.9	1.8	207.0 c	1573	CEM, 906	1548	203.6	SC	97
	AES Warrior Run Cogeneration Facility	EIA	51	742,743	11,452	19.6	1.8	210.3	10678	767	229	206.1	BIT	100
	MAINE			257,194	12,823	7.6	0.8	205.5						

Table SA2b. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, U.S. customary units.

		Delivered coal 2005 (by destination)						eGRID consumed fuel 2005 (by destination)							
STATE	Plant	Data	n	tons	Btu/lb	Ash	S	lbs CO ₂ per million Btu	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
	Rumford Cogeneration	EIA	13	145,598	12,944	6.9	0.8	205.6		10495	767	103	111.4	BIT	23
	S D Warren Westbrook	EIA	12	111,596	12,664	8.6	0.8	205.5		50447	767	71	89.4	WDS	37
	MICHIGAN			36,555,363	10,071	6.2	0.6	210.8							
	B C Cobb	FERC	26	1,067,800	9,779	7.9	0.6	210.9		1695	CEM	520	202.6	SUB	96
	Dan E Karn	FERC	36	1,348,700	8,837	5.2	0.3	214.3		1702	CEM	1946	194.2	SUB	83
	J H Campbell	FERC	155	4,794,200	10,132	6.7	0.5	210.3		1710	CEM	1559	205.2	SUB	100
	J C Weadock	FERC	79	1,693,700	10,789	8.6	0.7	208.5		1720	CEM, 906	331	205.2	SUB	99
	J R Whiting	FERC	50	1,317,800	9,466	6.3	0.4	212.1		1723	CEM, 906	364	205.2	SUB	100
	Harbor Beach	FERC	13	189,000	12,406	8.1	0.6	207.2		1731	CEM, 906	125	205.2	BIT	99
	Monroe	FERC	126	8,585,000	10,393	6.3	0.7	210.2		1733	CEM, 906	3293	205.2	BIT	100
	River Rouge	FERC	58	1,390,000	9,996	7.1	0.5	210.8		1740	CEM, 906	944	202.9	BIT	98
	S D Warren Muskegon								50438		767	51	185.5	BIT	66
	St Clair	FERC	60	4,586,000	9,754	4.7	0.6	212.3		1743	CEM, 906	1571	205.2	SUB	99
	Trenton Channel	FERC	67	2,220,000	10,352	5.8	0.7	209.7		1745	CEM	776	205.2	BIT	100
	Belle River	FERC	38	3,850,000	9,364	4.3	0.3	213.6		6034	CEM	1664	203.3	SUB	98
	J B Sims	FERC	12	187,498	11,586	8.2	2.1	203.1		1825	CEM	65	205.2	BIT	100
	James De Young	FERC	7	151,000	12,115	9.3	0.9	207.8		1830	CEM, 767	63	205.8	BIT	100
	Marysville									1732	906	150		BIT	100
	Eckert Station	FERC	23	999,617	8,910	5.3	0.3	214.0		1831	CEM	375	205.2	SUB	100
	Erickson Station	FERC	21	644,524	8,988	5.6	0.3	213.7		1832	CEM	155	205.2	SUB	100
	Shiras	FERC	14	216,068	9,858	4.3	0.4	212.2		1843	CEM, 767	78	205.3	SUB	100
	Endicott Station	FERC	28	191,871	11,942	10.6	3.4	202.8		4259	CEM	58	205.2	BIT	98
	Presque Isle	FERC	39	2,216,550	10,540	7.2	0.5	209.2		1769	CEM, 767	625	205.2	BIT	100
	Wyandotte	FERC	18	194,966	11,068	8.4	0.8	207.6		1866	CEM	78	205.2	BIT	85
	White Pine Electric Power	EIA	12	74,910	13,465	8.9	1.6	204.1		10148	767	60	206.1	BIT	100
	Escanaba Paper Company	EIA	24	182,499	12,447	9.4	0.7	205.6		1771	767, 906	50	204.8	BIT	84
	T B Simon Power Plant	EIA	69	249,183	12,816	9.0	1.4	205.1		10328	767	99	202.3	BIT	96
	TES Filer City Station	EIA	40	204,477	10,486	6.0	0.7	209.1		50835	767	70	198.6	BIT	77
	MINNESOTA			20,076,848	8,908	6.6	0.4	213.7							
	Syl Laskin	FERC	12	455,000	9,393	4.3	0.4	213.5		1891	CEM	116	205.2	SUB	100
	Clay Boswell	FERC	36	4,379,960	9,019	6.7	0.5	213.6		1893	CEM	1073	205.3	SUB	100
	Black Dog	FERC	12	946,810	8,847	4.4	0.2	214.4		1904	CEM	619	194.4	SUB	75
	High Bridge	FERC	12	705,720	8,910	4.4	0.2	214.4		1912	CEM	277	205.2	SUB	96
	Allen S King	FERC	22	1,298,150	8,885	5.4	0.3	214.2		1915	CEM	598	205.2	SUB	84
	Riverside	FERC	12	1,163,800	8,925	4.3	0.2	214.4		1927	CEM	404	205.2	SUB	92

Table SA2b. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, U.S. customary units.

		Delivered coal 2005 (by destination)					eGRID consumed fuel 2005 (by destination)							
STATE	Plant	Data	tons	Btu/lb	Ash	S	lbs CO ₂ per million Btu	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
	Sherburne County	FERC	84	9,080,709	8,719	7.8	0.5	213.6	6090	CEM	2129	205.2	SUB	100
	Hoot Lake	FERC	12	585,358	9,261	4.7	0.4	213.5	1943	CEM	138	205.2	SUB	100
	M L Hibbard								1897	CEM,	73	206.8	SUB	76
	Silver Lake	FERC	19	162,300	11,686	7.3	1.0	205.1	2008	CEM, 767	99	202.1	BIT	95
	Taconite Harbor Energy Center	EIA	10	824,793	9,451	4.1	0.3	213.5	10075	CEM	252	205.1	SUB	100
	Silver Bay Power	EIA	7	474,248	8,867	5.3	0.2	213.5	10849	767	132	213.6	SUB	98
	MISSOURI													
	New Madrid	FERC	12	4,235,550	8,793	4.5	0.2	214.4	2167	CEM	1200	205.2	SUB	100
	Thomas Hill	FERC	12	4,145,460	8,882	4.5	0.2	214.4	2168	CEM	1135	205.2	SUB	100
	Chamois	FERC	44	281,506	9,303	5.7	1.0	211.4	2169	CEM, 767	59	205.5	SUB	100
	Columbia	FERC	10	44,171	13,335	7.3	1.4	205.0	2123	CEM, 906	95	205.0	BIT	100
	Asbury	FERC	25	548,060	9,396	6.2	0.9	210.8	2076	CEM	232	205.2	SUB	99
	Blue Valley	FERC	26	207,805	10,725	13.3	2.9	203.7	2132	CEM, 767, :	176	203.8	BIT	97
	Hawthorn	FERC	45	2,006,820	8,630	5.2	0.3	214.2	2079	CEM	1071	198.1	SUB	90
	Montrose	FERC	34	2,034,420	8,748	5.5	0.4	214.2	2080	CEM	564	205.2	SUB	99
	Iatan	FERC	36	2,730,440	8,536	5.0	0.3	214.2	6065	CEM	726	205.2	SUB	100
	Sibley	FERC	41	1,390,540	9,525	6.2	0.5	211.6	2094	CEM	524	205.2	SUB	99
	Sikeston Power Station	FERC	11	1,092,938	8,847	5.3	0.3	214.3	6768	CEM	261	212.2	SUB	100
	James River Power Station	FERC	20	1,128,700	8,872	5.2	0.2	214.4	2161	CEM, 767	451	206.0	SUB	99
	Southwest Power Station	FERC	18	770,100	8,907	4.5	0.2	214.4	6195	CEM, 906	303	205.0	SUB	100
	Lakeroad	FERC	36	479,700	9,547	6.1	0.4	211.9	2098	CEM, 767, :	273	202.7	SUB	98
	Marshall								2144	767, 906,	57	198.7	BIT	93
	Labadie	FERC	87	9,829,646	8,743	5.2	0.3	214.3	2103	CEM	2389	205.2	SUB	100
	Meramec	FERC	50	3,637,349	8,832	5.1	0.3	214.3	2104	CEM, 906	1041	205.1	SUB	99
	Sioux	FERC	62	3,457,929	9,526	5.6	0.8	211.4	2107	CEM	1099	205.2	SUB	99
	Rush Island	FERC	58	5,030,492	8,420	5.2	0.3	214.2	6155	CEM	1242	205.2	SUB	100
	University of Missouri Columbia	EIA	12	147,086	10,870	8.0	3.6	203.4	50969	767, 906	91	198.3	BIT	87
	Henderson								2062	767, 906	59	204.6	BIT	96
	MISSISSIPPI													
	Jack Watson	FERC	33	1,858,820	11,320	7.1	0.7	207.3	2049	CEM, 906	1216	203.9	BIT	99
	Victor J Daniel Jr	FERC	62	3,531,310	10,591	7.9	0.4	209.5	6073	CEM	2229	187.7	BIT	72
	R D Morrow	FERC	30	1,152,061	12,524	11.9	1.2	205.0	6061	CEM	400	205.2	BIT	100
	Red Hills Generating Facility	EIA	12	3,602,802	5,096	15.6	0.5	222.3	55076	CEM,	514	217.4	LIG	100
	MONTANA													
	Lewis and Clark	FERC	14	267,800	6,787	8.5	0.5	220.5	6089	CEM	50	217.4	LIG	100

Table SA2b. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, U.S. customary units.

Delivered coal 2005 (by destination)										eGRID consumed fuel 2005 (by destination)					
Data	State	Plant	Units	Tons	Btu/lb	Ash	S	lbs CO ₂ per million Btu	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
EIA		Colstrip	48	10,485,394	8,496	9.4	0.7	213.7		6076	CEM	2272	205.2	SUB	100
EIA		J E Corette Plant	22	650,458	8,375	4.5	0.2	214.3		2187	CEM	173	205.2	SUB	100
		NORTH CAROLINA		30,281,116	12,325	11.5	0.9	205.6							
FERC		Asheville	67	980,925	12,575	11.2	0.8	205.4		2706	CEM	837	200.9	BIT	94
FERC		Cape Fear	48	816,804	12,311	11.8	0.9	205.8		2708	CEM, 906	431	205.1	BIT	100
FERC		Lee	23	874,005	12,410	9.9	0.8	205.8		2709	CEM	508	200.7	BIT	100
FERC		Roxboro	221	6,511,708	12,435	10.9	0.9	205.7		2712	CEM	2575	205.2	BIT	100
FERC		L V Sutton	68	1,309,449	12,545	9.3	0.8	205.6		2713	CEM, 906	763	205.1	BIT	100
FERC		W H Weatherspoon	23	376,659	12,218	11.9	1.1	205.3		2716	CEM, 906	342	205.0	BIT	100
FERC		Mayo	107	2,148,052	12,375	10.9	0.7	205.9		6250	CEM	736	205.2	BIT	100
FERC		G G Allen	216	2,598,000	11,719	15.2	0.9	206.0		2718	CEM	1155	205.2	BIT	100
FERC		Buck	52	665,000	11,569	15.5	0.7	206.3		2720	CEM, 906	474	205.0	BIT	100
FERC		Cliffside	135	1,629,000	12,239	12.0	1.0	205.3		2721	CEM	781	205.2	BIT	100
FERC		Dan River	19	324,000	12,748	10.1	0.7	206.1		2723	CEM, 906	388	204.7	BIT	100
FERC		Marshall	298	3,396,000	12,341	11.5	0.9	205.1		2727	CEM	1996	205.2	BIT	100
FERC		Riverbend	68	805,000	12,226	11.6	0.9	205.0		2732	CEM, 906	601	204.9	BIT	100
FERC		Belews Creek	357	5,771,000	12,270	12.2	0.9	205.9		8042	CEM	2160	205.2	BIT	100
EIA		Cogenrix Southport (Primary Energy)	25	227,713	12,965	8.2	0.8	205.3		10378	767	135	197.7	BIT	90
EIA		Cogenrix Roxboro (Primary Energy)	30	83,802	13,241	7.3	0.8	204.9		10379	767	68	185.0	BIT	82
EIA		Cogenrix Dwayne Collier Battle Cogen (Edgecombe Genco LLC)	13	430,053	13,073	7.6	0.7	205.5		10384	767	115	206.1	BIT	100
EIA		Weyerhaeuser Plymouth NC	12	284,785	12,715	9.2	0.7	205.8		50189	767	154	46.7	WDS	26
EIA		Canton North Carolina	36	412,310	13,000	7.2	1.0	204.0		50244	767	53	206.1	BIT	51
EIA		Westmoreland-LG&E Roanoke Valley I	44	636,851	12,480	11.1	1.3	204.6		54035	767	182	206.1	BIT	100
		Roanoke Valley Energy Facility II								54755	767	58	206.1	BIT	100
		NORTH DAKOTA		25,388,575	6,679	9.4	0.7	217.8							
FERC		Leland Olds	20	3,986,900	6,812	8.2	0.6	218.3		2817	CEM	656	217.7	LIG	100
FERC		Antelope Valley	12	5,461,500	6,577	9.1	0.6	219.0		6469	CEM	870	217.7	LIG	100
FERC		Coal Creek	12	7,723,000	6,251	11.2	0.6	216.0		6030	CEM	1212	217.7	LIG	100
FERC		Milton R Young	24	4,376,766	6,664	8.5	0.8	219.3		2823	CEM	734	217.7	LIG	100
FERC		Heskett	36	538,600	7,833	8.1	0.7	217.7		2790	CEM, 767	115	216.5	LIG	100
FERC		Coyote	24	2,483,000	6,933	9.0	1.0	218.8		8222	CEM	450	217.7	LIG	100
FERC		Stanton	12	818,809	9,314	5.3	0.3	213.6		2824	CEM	190	205.2	SUB	100
		NEBRASKA		12,289,527	8,570	4.9	0.3	214.3							
FERC		Lon Wright	18	356,680	8,846	5.1	0.3	214.3		2240	CEM, 767	170	205.0	SUB	98
FERC		Whelan Energy Center	35	398,781	8,264	5.4	0.4	214.2		60	CEM	76	205.4	SUB	100

Table SA2b. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, U.S. customary units.

		Delivered coal 2005 (by destination)					eGRID consumed fuel 2005 (by destination)							
STATE	Plant	Data	Units	Btu/lb	Ash	S	lbs CO ₂ per million Btu	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
	Sheldon	FERC	12	974,742	8,595	4.4	0.3	214.3		CEM	229	205.2	SUB	100
	Gerald Gentleman	FERC	46	5,791,124	8,561	4.6	0.3	214.3		CEM	1363	205.2	SUB	100
	North Omaha	FERC	12	1,887,300	8,683	5.4	0.4	214.2		CEM	645	204.6	SUB	99
	Nebraska City	FERC	25	2,438,900	8,518	5.1	0.3	214.2		CEM	652	205.2	SUB	100
	Platte	FERC	13	442,000	8,482	5.1	0.3	214.3		CEM	110	205.2	SUB	100
	NEW HAMPSHIRE			1,715,904	12,995	7.3	1.2	204.9						
	Merrimack	FERC	48	886,140	13,192	7.0	1.5	204.3		CEM, 906	496	205.2	BIT	100
	Schiller	FERC	19	829,764	12,784	7.7	0.8	205.5		CEM, 906	171	204.1	BIT	98
	NEW JERSEY			4,639,543	12,646	9.5	1.1	204.9						
	B L England	FERC	31	566,951	12,956	8.0	2.0	204.1		CEM, 906	484	201.2	BIT	94
	Howard Down	FERC	10	43,130	12,896	6.9	0.7	205.6		767	71	201.3	BIT	85
	Deepwater	EIA	9	144,434	12,333	11.7	0.7	205.4		CEM, 906	174	239.9	BIT	89
	PSEG Hudson Generating Station	EIA	12	1,291,728	12,500	10.3	0.8	205.4		CEM	1114	198.5	BIT	93
	PSEG Mercer Generating Station	EIA	12	1,068,015	12,500	10.3	0.8	205.4		CEM, 906	768	199.7	BIT	95
	Logan Generating Plant	EIA	80	660,205	12,580	10.6	1.1	206.1		767	242	206.0	BIT	100
	Chambers Cogeneration LP	EIA	24	865,080	12,931	7.5	1.8	203.1		767	285	206.1	BIT	100
	NEW MEXICO			19,660,030	9,334	20.5	0.8	208.2						
	Four Corners	FERC	11	8,170,000	8,805	21.8	0.8	208.3		CEM	2270	204.9	SUB	100
	San Juan	FERC	18	10,352,530	9,767	19.7	0.8	208.4		CEM	1848	205.2	SUB	100
	Escalante	FERC	12	1,137,500	9,197	18.4	0.8	205.1		CEM	257	205.2	SUB	100
	NEVADA			7,910,269	11,190	10.0	0.5	208.2						
	Reid Gardner	FERC	43	1,561,311	12,088	9.1	0.7	205.5		CEM	612	204.9	BIT	100
	North Valmy	FERC	34	1,787,958	10,897	11.2	0.5	207.5		CEM	521	205.2	BIT	100
	Mohave	FERC	12	4,561,000	10,997	9.9	0.5	209.4		CEM	1636	205.1	BIT	100
	NEW YORK			9,563,839	11,832	7.4	1.4	206.1						
	S A Carlson	FERC	51	84,480	12,334	11.2	1.8	204.0		CEM,	101	202.2	BIT	94
	Rochester 7	FERC	54	472,083	13,109	8.6	1.8	203.7		CEM	253	205.2	BIT	100
	Danskammer Generating Station	EIA	32	889,054	12,807	7.0	0.6	205.8		CEM	537	200.1	BIT	91
	AES Westover	EIA	30	349,060	12,946	8.7	2.0	203.3		CEM	119	205.2	BIT	100
	AES Greenidge LLC	EIA	33	390,828	13,092	8.0	1.9	203.3		CEM	163	205.2	BIT	99
	AES Cayuga	EIA	16	890,470	12,898	8.2	2.2	203.7		CEM	323	205.2	BIT	100
	C R Huntley Generating Station	EIA	37	1,366,349	9,454	5.5	0.5	212.1		CEM	816	205.2	SUB	100
	Dunkirk Generating Station	EIA	50	1,788,117	9,679	5.6	0.6	210.9		CEM	627	205.7	SUB	100
	Lovett	EIA	38	683,774	12,954	9.3	0.6	205.4		CEM	449	203.2	BIT	98
	AES Somerset LLC	EIA	51	1,600,148	12,994	8.1	2.9	203.1		CEM	655	205.2	BIT	79

Table SA2b. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, U.S. customary units.

		Delivered coal 2005 (by destination)					eGRID consumed fuel 2005 (by destination)									
STATE	Plant	Data	tons	Btu/lb	Ash	S	lbs CO2 per million Btu	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR		
	Kodak Park Site	EIA	30	668,136	13,067	8.1	1.6	204.6	10025	767	201	197.8	BIT	90		
	Black River Generation	EIA	9	124,529	13,254	8.1	2.0	202.7	10464	767	56	201.2	BIT	63		
	WPS Power Niagara (Niagara Generating	EIA	59	95,163	10,675	20.6	2.0	204.2	50202	CEM	56	219.2	BIT	46		
	Trigen Syracuse Energy	EIA	12	161,648	13,282	6.6	0.8	205.1	50651	767	101	206.1	BIT	87		
OHIO				59,026,967	11,620	9.9	1.8	205.3								
	Ashtabula	EIA	53	1,073,125	8,878	5.4	0.3	214.1 b	2835	CEM	256	204.5	SUB	100		
	Bay Shore	EIA	63	1,870,765	8,840	5.5	0.3	214.3 b	2878	CEM, 906	655	207.4	SUB	75		
	Eastlake	EIA	105	4,094,953	10,943	6.4	1.1	207.3 b	2837	CEM, 906	1289	205.2	BIT	100		
	Lake Shore	EIA	39	599,253	8,861	5.1	0.3	214.3 b	2838	CEM, 906	260	205.2	SUB	100		
	R E Burger	EIA	42	847,243	11,000	7.5	1.1	207.5 b	2864	CEM, 906	548	205.2	BIT	100		
	W H Sammis	EIA	162	7,608,365	10,672	9.1	0.6	208.5 b	2866	CEM, 906	2468	205.2	BIT	100		
	Cardinal	FERC	205	4,708,800	12,195	11.6	1.3	205.0	2828	CEM	1880	205.2	BIT	100		
	Walter C Beckjord	FERC	233	2,719,920	11,781	13.1	1.2	205.0	2830	CEM, 906	1433	205.0	BIT	100		
	Miami Fort	FERC	225	2,661,350	11,869	11.4	1.4	204.9	2832	CEM, 906	1444	205.2	BIT	100		
	W H Zimmer	FERC	137	3,641,540	12,231	10.2	3.7	202.0	6019	CEM	1426	205.2	BIT	100		
	Conesville	FERC	68	3,947,800	11,707	10.4	2.9	203.0	2840	CEM	2175	205.2	BIT	100		
	Dover								2914	767, 906	54	202.4	BIT	97		
	Picway	FERC	59	133,000	11,636	8.5	2.6	203.7	2843	CEM	106	205.2	BIT	99		
	O H Hutchings	FERC	18	268,300	12,622	8.8	0.9	205.4	2848	CEM, 906	447	205.7	BIT	97		
	J M Stuart	FERC	186	5,793,700	11,628	13.9	0.9	205.7 c	2850	CEM, 906	2452	205.2	BIT	100		
	Killen Station	FERC	100	1,727,200	11,893	13.1	0.6	205.7 c	6031	CEM, 906	687	205.1	SC	100		
	Hamilton	FERC	32	165,723	12,162	11.6	1.3	204.8	2917	CEM, 767, !	138	204.1	BIT	98		
	Muskingum River	FERC	38	2,992,700	13,009	7.7	2.7	202.4	2872	CEM	1529	205.2	BIT	100		
	General James M Gavin	FERC	43	7,624,020	12,455	9.0	3.6	202.6	8102	CEM	2600	205.2	BIT	100		
	Kyger Creek	FERC	143	3,328,900	11,972	8.7	1.3	205.7	2876	CEM	1086	205.2	BIT	100		
	Orrville	FERC	12	197,040	12,944	10.3	4.2	200.3	2935	767	85	206.0	BIT	100		
	Painesville	FERC	24	129,650	12,277	7.3	3.1	201.9	2936	767	54	205.8	BIT	100		
	Richard Gorsuch	FERC	36	641,968	10,435	13.9	2.0	206.0	7286	CEM	200	205.2	BIT	99		
	Avon Lake	EIA	61	1,461,553	12,737	8.7	1.6	203.8	2836	CEM, 906	870	205.2	BIT	100		
	Niles	EIA	13	482,622	12,150	11.8	3.3	203.8	2861	CEM, 906	293	205.2	BIT	100		
	MW Custom Papers (P H Glatfelter Co - Chillicothe Facility)	EIA	36	307,477	11,242	11.7	4.2	204.0	10244	767	93	118.4	BIT	54		
OKLAHOMA				21,335,042	8,765	5.9	0.4	213.9								
	GRDA	FERC	44	4,106,875	8,427	5.0	0.3	214.2	165	CEM	1010	204.7	SUB	100		
	Muskogee	FERC	57	5,590,941	8,790	5.0	0.2	214.4	2952	CEM	1889	204.1	SUB	99		

Table SA2b. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, U.S. customary units.

		Delivered coal 2005 (by destination)					eGRID consumed fuel 2005 (by destination)							
STATE	Plant	Data	tons	Btu/lb	Ash	S	lbs CO2 per million Btu	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
	Sooner	FERC	43	3,637,715	8,782	5.0	0.2	214.4	6095	CEM	1138	205.1	SUB	100
	Northeastern	FERC	18	4,180,908	8,688	5.5	0.4	214.1	2963	CEM	1951	178.0	SUB	55
	Hugo	FERC	24	1,900,193	8,375	4.8	0.3	214.3	6772	CEM	446	205.2	SUB	100
	Muskogee Mill	EIA	23	504,434	9,409	5.7	0.4	211.8	10362	767	114	212.0	SUB	100
	AES Shady Point	EIA	114	1,413,976	10,117	17.0	1.8	210.1	10671	767	350	206.1	BIT	100
	OREGON			2,273,214	8,356	4.9	0.3	214.2						
	Boardman	FERC	11	2,273,214	8,356	4.9	0.3	214.2	6106	CEM	601	205.2	SUB	100
	PENNSYLVANIA			52,500,923	11,859	14.3	2.1	204.9						
	Bruce Mansfield	EIA	101	7,454,469	12,573	10.2	2.9	202.3 b	6094	CEM	2741	205.2	BIT	100
	Hatfield (Hatfields Ferry Power Station)	EIA	196	3,514,547	12,862	8.6	2.3	203.8	3179	CEM	1728	205.2	BIT	100
	Eirama Power Plant	EIA	16	731,812	12,946	7.2	1.6	204.0 c	3098	CEM	510	205.2	BIT	99
	Portland	EIA	21	824,140	13,092	7.3	1.8	203.1	3113	CEM	621	203.9	BIT	97
	Titus	EIA	25	528,909	13,044	7.6	1.5	203.8	3115	CEM, 906	261	205.2	BIT	100
	Conemaugh	EIA	24	4,877,203	12,548	11.4	2.5	203.0 c	3118	CEM, 906	1883	205.2	SC	100
	Homer City Station	EIA	175	7,642,684	11,800	16.5	2.4	205.5	3122	CEM	2012	205.2	BIT	100
	Shawville	EIA	149	1,429,698	12,000	13.8	1.8	206.2	3131	CEM, 906	632	205.2	BIT	100
	St Nicholas Cogen Project								54634	767	99	208.2	WC	99
	Keystone	EIA	24	5,025,483	12,780	9.8	1.9	203.9 c	3136	CEM, 906	1884	205.2	SC	100
	New Castle Plant	EIA	70	572,034	12,670	8.1	1.6	203.7	3138	CEM, 906	354	205.2	BIT	100
	PPL Brunner Island	EIA	24	3,923,016	12,664	9.4	1.5	204.4 c	3140	CEM, 906	1567	205.2	SC	100
	PPL Martins Creek	EIA	9	343,292	12,414	10.6	1.7	204.2	3148	CEM, 906	2113	179.2	RFO	23
	PPL Montour	EIA	24	4,063,125	12,567	10.8	1.8	204.0 c	3149	CEM	1642	205.2	SC	100
	Sunbury (WPS Energy Servs Sunbury	EIA	267	1,016,886	10,057	21.5	1.2	210.0	3152	CEM, 906	491	215.7	BIT	100
	Cromby Generating Station	EIA	35	308,642	13,270	6.8	1.8	204.5	3159	CEM, 906	420	190.8	BIT	67
	Eddystone Generating Station	EIA	62	1,189,775	13,150	7.1	1.7	204.2	3161	CEM, 906	1569	193.4	BIT	68
	Hunlock Power Station	EIA	71	167,687	8,875	29.5	0.9	222.6	3176	CEM	50	214.6	BIT	84
	Armstrong Power Station	EIA	98	807,805	12,271	11.5	2.0	203.5	3178	CEM	326	205.2	BIT	100
	Mitchell Power Station	EIA	52	763,022	12,236	10.9	3.8	202.0 c	3181	CEM	374	205.1	BIT	100
	Cheswick Power Plant	EIA	45	1,052,426	12,732	9.6	1.7	204.0	8226	CEM	637	204.9	BIT	100
	John B Rich Memorial Power Station	EIA	12	664,949	6,868	41.9	0.4	231.9	10113	767	88	208.2	WC	100
	Colver Power Project	EIA	12	662,393	6,792	38.5	2.2	203.8	10143	767	118	208.1	WC	100
	Ebensburg Power	EIA	12	513,403	6,088	44.6	1.6	206.5	10603	767	58	208.2	WC	100
	Cambria Cogen	EIA	12	603,488	7,349	46.1	3.2	203.8	10641	767	98	208.2	WC	100
	AES Beaver Valley Partners Beaver Valley	EIA	21	468,348	13,108	8.5	2.3	202.5	10676	767	149	206.3	BIT	99
	Kline Township Cogen Facility	EIA	59	515,378	5,196	49.5	0.3	234.1	50039	767	58	208.2	WC	99

Table SA2b. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, U.S. customary units.

		Delivered coal 2005 (by destination)					eGRID consumed fuel 2005 (by destination)							
STATE	Plant	Data	tons	Btu/lb	Ash	S	lbs CO ₂ per Million Btu	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
	G F Weaton Power Station	EIA	14	327,895	9,442	7.2	0.4	210.5	50130	767	120	209.6	SUB	99
	P H Glatfelter	EIA	23	326,496	13,000	6.9	1.8	203.2	50397	767	110	104.1	BIT	50
	Chester Operations	EIA	24	255,894	5,755	39.8	0.6	233.1	50410	767	67	215.6	PC	47
	Panther Creek Energy Facility	EIA	76	756,237	6,597	37.2	0.3	233.3	50776	767	94	208.2	WC	100
	Northampton Generating LP	EIA	47	560,642	6,397	39.4	0.5	233.7	50888	767	114	205.9	WC	76
	Scrubgrass Generating	EIA	94	609,145	7,480	37.9	2.4	202.4	50974	767	95	208.4	WC	98
	Seward								3130	CEM	585	205.2	WC	100
	SOUTH CAROLINA													
	H B Robinson	FERC	40	458,273	12,302	11.9	1.2	204.9	3251	CEM, 906	992	205.1	BIT	17
	W S Lee	FERC	47	583,000	12,449	10.9	0.9	205.3	3264	CEM, 906	542	204.7	BIT	100
	Canadys Steam	FERC	44	1,027,300	12,688	9.1	1.2	204.3	3280	CEM	490	205.2	BIT	99
	Cogen South								7737	767	99	122.5	BIT	49
	McMeekin	FERC	20	207,200	12,783	8.2	1.2	204.2	3287	CEM	294	205.2	BIT	100
	Urquhart	FERC	27	390,200	12,869	8.1	1.3	204.2	3295	CEM	759	178.6	BIT	61
	US DOE Savannah River Site (D Area)								7652	767	78	205.8	BIT	100
	Waterree	FERC	160	3,067,700	12,572	10.2	1.0	204.7	3297	CEM	772	205.2	BIT	100
	Williams	FERC	54	1,524,400	12,763	8.6	0.9	204.8	3298	CEM, 906	687	205.2	BIT	100
	Cope	FERC	57	597,000	12,522	10.4	1.1	204.5	7210	CEM	417	205.2	BIT	100
	Cross	FERC	85	3,151,619	12,855	9.4	1.8	203.8 c	130	CEM	1738	205.7	SC	96
	Dolphus M Grainger	FERC	23	443,197	12,414	10.3	1.3	204.6 c	3317	CEM	163	205.2	BIT	100
	Jefferies	FERC	48	753,783	12,464	10.4	1.4	204.6 c	3319	CEM	578	204.0	BIT	88
	Winyah	FERC	103	3,355,819	12,357	11.1	1.2	205.0	6249	CEM	1260	205.2	SC	100
	Ben French								3325	767, 906	135	212.3	SUB	98
	Stone Container Florence Mill	EIA	12	199,223	12,679	8.1	0.9	205.1	50806	767	108	65.9	BIT	24
	SOUTH DAKOTA													
	Big Stone	FERC	27	1,738,000	8,711	5.4	0.3	214.3	6098	CEM	457	205.2	SUB	100
	TENNESSEE													
	Bull Run	FERC	85	2,469,810	12,383	11.1	0.7	205.3	3396	CEM	950	205.2	BIT	100
	Cumberland	FERC	75	6,409,870	11,867	9.0	3.0	203.2	3399	CEM	2600	205.2	BIT	100
	Gallatin (includes GRT coal)	FERC	5	3,972,272	10,432	7.3	0.7	209.0 a	3403	CEM	1918	204.4	SUB	99
	John Sevier	FERC	28	2,029,320	12,461	11.9	0.7	205.2	3405	CEM	800	205.2	BIT	100
	Kingston (includes GRT coal)	FERC	162	4,282,774	11,111	9.5	0.7	207.9 a	3407	CEM	1700	205.2	BIT	100
	Allen Steam Plant (includes Cora and GRT coal)	FERC	35	2,751,186	10,020	6.5	0.5	210.4 a	3393	CEM, 906	1611	205.1	SUB	100
	Johnsonville (GRT coal)	FERC		3,887,896	10,363	7.1	0.7	209.2 a	3406	CEM	2911	204.1	SUB	99

Table SA2b. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, U.S. customary units.

		Delivered coal 2005 (by destination)						eGRID consumed fuel 2005 (by destination)						
STATE	Plant	Data	tons	Btu/lb	Ash	S	lbs CO ₂ per million Btu	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
Tennessee	Eastman Operations	EIA	1,638,397	12,898	8.3	0.9	205.0 c		50481	767	194	202.9	BIT	100
Mississippi	Bowater Newsprint Calhoun Operation	EIA	185,816	12,975	7.4	1.0	204.0		50956	767	63	46.8	WDS	67
TEXAS			99,313,720	7,628	10.2	0.7	213.7							
Arkansas	Fayette Power Project	FERC	4,386,090	8,642	5.1	0.3	214.2		6179	CEM	1690	205.1	SUB	100
Alabama	Oklaunion	FERC	2,688,009	8,307	5.2	0.4	214.2		127	CEM	720	204.7	SUB	100
Alabama	J T Deely	FERC	5,643,130	8,528	5.3	0.3	214.2		6181	CEM	932	205.2	SUB	100
Alabama	San Miguel	FERC	3,328,752	5,267	22.7	2.4	208.2		6183	CEM	410	217.7	LIG	100
Alabama	Welsh	FERC	5,997,980	8,581	4.6	0.3	214.3		6139	CEM	1674	205.2	SUB	100
Alabama	Pirkey	FERC	4,248,434	6,644	13.8	0.9	214.8		7902	CEM	721	217.7	LIG	100
Alabama	Harrington	FERC	4,690,900	8,868	4.9	0.3	214.3		6193	CEM	1080	205.2	SUB	100
Alabama	J K Spruce	FERC							7097	CEM	566	205.2	SUB	100
Alabama	Tolk	FERC	4,421,690	8,626	5.0	0.3	214.3		6194	CEM	1136	205.2	SUB	100
Alabama	Gibbons Creek	FERC	2,067,582	8,464	5.3	0.3	214.3		6136	CEM	454	205.2	SUB	100
Alabama	Limestone	EIA	8,540,905	7,034	14.3	0.9	212.9		298	CEM	1850	217.7	LIG	99
Alabama	W A Parish	EIA	10,531,560	8,494	5.1	0.4	214.2		3470	CEM, 906	3969	199.6	SUB	94
Alabama	Big Brown	EIA	6,069,683	7,492	10.7	0.7	213.3		3497	CEM	1187	215.6	LIG	100
Alabama	Martin Lake	EIA	14,464,625	7,029	12.8	1.3	214.1		6146	CEM	2380	215.8	LIG	100
Alabama	Monticello	EIA	11,483,381	7,190	12.2	0.4	214.2		6147	CEM	1980	214.8	SUB	100
Alabama	Coleto Creek	EIA	2,475,194	9,506	5.3	0.3	213.0		6178	CEM	600	205.2	SUB	100
Alabama	Sandow No 4	EIA	3,867,149	5,753	18.0	1.2	210.2		6648	CEM	591	212.6	LIG	100
Alabama	Twin Oaks Power One	EIA	2,140,929	6,886	15.4	1.1	214.2		7030	CEM	349	217.7	LIG	100
Alabama	Sandow Station	EIA	2,267,727	6,598	22.2	1.8	209.7		52071	767	363	212.8	LIG	100
UTAH			17,366,516	10,781	13.3	0.5	206.9							
Utah	Intermountain Power Project	FERC	6,100,600	11,322	10.8	0.6	206.7		6481	CEM	1640	205.2	BIT	100
Utah	Carbon	FERC	678,000	11,415	10.0	0.4	206.4 c		3644	CEM	189	205.2	BIT	100
Utah	Hunter	FERC	4,507,000	11,128	11.5	0.5	207.4		6165	CEM	1472	205.2	BIT	100
Utah	Huntington	FERC	3,054,000	10,644	17.4	0.5	205.3 c		8069	CEM	996	205.2	BIT	100
Utah	Bonanza	FERC	2,141,550	9,660	11.8	0.5	208.7		7790	CEM	500	205.2	BIT	100
Utah	Sunnyside Cogen Associates	EIA	487,854	5,288	51.2	0.9	203.6		50951	767	58	208.2	WC	100
Utah	KUCC	EIA	397,512	11,268	8.9	0.4	209.0		56163	767	214	206.1	BIT	99
VIRGINIA			15,396,493	12,643	10.5	1.0	205.9							
Virginia	Clinch River	FERC	1,578,300	12,403	13.0	0.9	206.4		3775	CEM	713	205.2	BIT	100
Virginia	Glen Lyn	FERC	725,400	12,753	10.3	0.9	206.8		3776	CEM	338	205.2	BIT	99
Virginia	Bremo Bluff	FERC	750,610	12,180	12.1	0.9	206.8		3796	CEM	254	205.2	BIT	100
Virginia	Chesterfield	FERC	3,336,240	12,604	10.3	1.2	205.1		3797	CEM	1800	201.8	BIT	90

Table SA2b. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, U.S. customary units.

		Delivered coal 2005 (by destination)					eGRID consumed fuel 2005 (by destination)							
STATE	Plant	Data	tons	Btu/lb	Ash	S	lbs CO ₂ per million Btu	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
	Chesapeake	FERC	153	1,575,660	12,565	10.8	0.9	206.6	3803	CEM, 906	812	205.1	BIT	99
	Yorktown	FERC	55	822,900	12,679	9.4	1.4	204.9	3809	CEM	1257	184.7	BIT	54
	Clover	FERC	139	2,760,310	12,643	10.9	1.1	206.2	7213	CEM	848	205.2	BIT	100
	Altavista	FERC	34	167,970	12,618	10.6	0.9	206.7	10773	CEM	71	205.2	BIT	99
	Southampton	FERC	28	166,329	12,529	10.9	0.8	205.2	10774	CEM	71	205.2	BIT	99
	Mecklenburg Cogeneration Facility	FERC	23	389,340	12,772	8.9	1.1	207.0	52007	CEM	140	205.2	BIT	99
	Potomac River	EIA	45	615,947	12,779	9.3	0.7	206.3	3788	CEM	514	205.2	BIT	99
	Cogentrix Portsmouth	EIA	48	386,516	12,993	8.1	0.7	206.2	10071	767	115	206.1	BIT	100
	Cogentrix Hopewell (James River)	EIA	22	410,968	13,414	8.2	0.9	205.3	10377	767	115	206.1	BIT	100
	International Paper Franklin Mill	EIA	31	214,908	13,050	8.3	0.7	205.4	52152	767, 906	155	67.5	BLQ	14
	Cogentrix of Richmond (Spruance Genco)	EIA	24	866,357	12,957	8.5	0.9	205.3	54081	767	230	204.5	BIT	98
	Birchwood Power	EIA	68	628,738	12,553	10.5	0.7	205.5	54304	767	258	206.1	BIT	100
	WASHINGTON			6,498,795	8,131	13.3	0.7	212.4			1782	203.5	SUB	98
	Transalta Centralia Generation	EIA	24	6,498,795	8,131	13.3	0.7	212.4	3845	CEM				
	WISCONSIN			24,518,776	9,093	5.3	0.4	212.9						
	Alma	FERC	29	1,825,600	9,611	6.0	0.5	211.4	4140	CEM, 767	181	206.2	BIT	100
	Genoa	FERC	23	1,227,000	10,177	6.7	0.6	209.8	4143	CEM	346	205.2	SUB	100
	Blount Street	FERC	15	226,198	10,893	8.3	1.4	204.0	3992	CEM, 767	188	195.2	BIT	80
	Manitowoc	FERC	14	116,197	12,367	9.3	1.2	204.9	4125	CEM, 767, 1	138	205.3	BIT	64
	Bay Front	FERC	23	140,517	10,131	5.1	0.4	211.8	3982	CEM	68	139.1	BIT	63
	Oak Creek (South Oak Creek)	FERC	13	3,259,254	8,873	4.5	0.2	214.4	4041	CEM, 906	1211	205.1	SUB	99
	Valley	FERC	11	866,812	12,148	8.3	0.4	206.1	4042	CEM, 906	275	205.2	BIT	100
	Pleasant Prairie	FERC	29	5,044,806	8,523	5.1	0.3	214.3	6170	CEM	1235	205.2	SUB	100
	Edgewater	FERC	84	2,561,530	8,756	5.3	0.3	214.2	4050	CEM	770	205.2	SUB	99
	Nelson Dewey	FERC	13	548,690	9,389	4.1	0.3	213.6	4054	CEM	200	208.3	SUB	81
	Columbia	FERC	54	4,167,610	8,453	4.8	0.3	214.2	8023	CEM	1023	205.2	SUB	100
	Pulliam	FERC	29	1,608,000	9,256	5.0	0.4	213.0	4072	CEM	493	201.4	SUB	95
	Weston	FERC	59	2,149,000	8,829	5.3	0.3	214.3	4078	CEM, 906	565	204.3	SUB	99
	E J Stoneman Station	EIA	15	70,816	11,952	7.7	1.1	205.4	4146	CEM	53	203.3	BIT	99
	Biron Mill	EIA	24	209,964	10,174	6.6	1.4	207.8	10234	767	62	198.1	SUB	92
	Green Bay West Mill	EIA	17	326,139	12,263	9.2	1.5	205.7	10360	767	129	214.6	BIT	65
	John P Madgett								4271	CEM	387	205.2	SUB	100
	Wisconsin Rapids Pulp Mill								10477	767	72	56.5	BLQ	21
	WEST VIRGINIA			38,137,696	11,974	12.5	1.8	204.8			2933	205.2	BIT	100
	John E Amos	FERC	202	7,706,400	12,068	12.2	0.8	205.4	3935	CEM				

Table SA2b. Carbon dioxide emission factors for U.S. coal by destination state and power plant, 2005, U.S. customary units.

		Delivered coal 2005 (by destination)					eGRID consumed fuel 2005 (by destination)							
STATE	Plant	Data	tons	Btu/lb	Ash	S	lbs CO ₂ per million Btu	notes	ORISPL	SOURCEM	NAMEPCAP	PLCO2RA	PLPRMFL	PLCLPR
	Kanawha River	FERC	85	911,341	12,173	13.0	0.8	205.6	3936	CEM	439	205.2	BIT	100
	Mountaineer	FERC	156	4,200,790	11,276	10.9	0.5	207.4	6264	CEM	1300	205.2	BIT	100
	Philip Sporn	FERC	160	2,162,950	12,004	11.9	1.0	205.7	3938	CEM	1106	205.2	BIT	99
	Albright	FERC	146	464,668	11,896	14.7	1.7	204.8	3942	CEM	278	205.2	BIT	100
	Rivesville	FERC	52	85,665	12,132	12.2	0.9	203.8	3945	CEM	110	205.2	BIT	99
	Willow Island	FERC	41	261,074	10,733	6.4	1.0	207.7	3946	CEM	213	205.2	BIT	98
	Kammer	FERC	14	1,462,500	13,044	7.1	1.5	203.6	3947	CEM	713	205.2	BIT	100
	Mitchell	FERC	41	3,212,400	12,185	11.8	1.1	205.3	3948	CEM	1633	205.2	BIT	99
	Mt Storm	FERC	106	4,830,970	12,104	14.6	1.8	207.3	3954	CEM, 906	1681	205.2	BIT	100
	North Branch	FERC	20	379,490	9,735	29.3	2.9	206.1	7537	CEM	80	205.2	BIT	100
	Harrison Power Station	FERC	250	4,936,933	12,194	12.9	3.6	201.9	3944	CEM	2052	205.2	BIT	100
	Pleasants Power Station	FERC	62	3,511,914	12,412	9.0	4.3	201.6	6004	CEM	1368	205.2	BIT	100
	Fort Martin Power Station	FERC, E	145	2,657,291	12,564	8.7	1.7	203.4	3943	CEM	1152	205.2	BIT	100
	Grant Town Power Plant	EIA	117	561,929	7,603	35.6	2.0	203.6	10151	767	96	208.2	WC	100
	Morgantown Energy Facility	EIA	24	373,923	7,963	38.9	2.3	202.8	10743	767	69	207.2	WC	100
	PPG Natrium Plant	EIA	38	417,458	12,092	11.5	1.2	205.4	50491	767	123	189.9	BIT	90
	WYOMING			25,483,249	8,799	7.0	0.5	212.9						
	Wygen 1	EIA	12	510,759	8,020	6.5	0.5	214.0	55479	CEM	88	205.2	SUB	100
	Laramie River Station	FERC	35	7,719,900	8,347	5.2	0.3	214.3	6204					
	Laramie River Station 1							6204.1		CEM	570	205.2	LIG	100
	Laramie River Station 2 & 3							6204.2		CEM	1140	205.2	LIG	100
	Dave Johnston	FERC	39	3,787,000	8,255	5.3	0.4	214.2	4158	CEM	817	205.2	SUB	100
	Naughton	FERC	12	2,766,000	10,035	4.8	0.9	208.2	4162	CEM	707	204.9	SUB	100
	Wyodak	FERC	12	1,938,000	7,981	7.1	0.6	213.9	6101	CEM	362	205.2	SUB	100
	Jim Bridger	FERC	28	8,283,000	9,338	10.2	0.6	212.5	8066	CEM	2318	205.2	SUB	100
	Neil Simpson II	FERC	12	478,590	8,037	6.3	0.5	214.0	7504	CEM	120	203.4	SUB	97