

ANNEX A

Methodology for Estimating Emissions of CO₂ from Fossil Fuel Combustion

Carbon dioxide (CO₂) emissions from fossil fuel combustion were estimated using a “bottom-up” methodology characterized by six steps. These steps are described below.

Step 1: Determine Energy Consumption by Fuel Type and Sector

The bottom-up methodology used by the United States for estimating CO₂ emissions from fossil fuel combustion is conceptually similar to the approach recommended by the Intergovernmental Panel on Climate Change (IPCC) for countries that intend to develop detailed, sector-based emission estimates (IPCC/UNEP/OECD/IEA 1997). Basic consumption data are presented in Columns 2-8 of Table A-1 through Table A-11, with totals by fuel type in Column 8 and totals by end-use sector in the last rows. Fuel consumption data for the bottom-up approach were obtained directly from the Energy Information Administration (EIA) of the U.S. Department of Energy. These data were first gathered in physical units, and then converted to their energy equivalents (see “Converting Physical Units to Energy Units” in Annex W). The EIA data were collected through a variety of consumption surveys at the point of delivery or use and qualified with survey data on fuel production, imports, exports, and stock changes. Individual data elements were supplied by a variety of sources within EIA. Most information was taken from published reports, although some data were drawn from unpublished energy studies and databases maintained by EIA.

Energy consumption data were aggregated by sector (i.e., residential, commercial, industrial, transportation, electricity generation, and U.S. territories), primary fuel type (e.g., coal, natural gas, and petroleum), and secondary fuel type (e.g., motor gasoline, distillate fuel, etc.). The 2000 total energy consumption across all sectors, including territories, and energy types was 83,610 trillion British thermal units (TBtu), as indicated in the last entry of Column 8 in Table A-1. This total includes fuel used for non-energy purposes and fuel consumed as international bunkers, both of which are deducted in later steps.

Fuel consumption data for electricity generation data by nonutility power producers are initially categorized by the EIA as part of the industrial sector. These data are then combined with fuel consumption by electric utilities to form the electricity generation sector. The method for this reallocation is described in detail in EIA’s report on U.S. GHG emissions, *Emissions of Greenhouse Gases in the United States, 2000* (EIA 2001c).

There were a number of modifications made in this report that may cause consumption information herein to differ from figures given in the cited literature. These are 1) the reallocation of some coking coal, petroleum coke, and natural gas consumption for ammonia production to the Industrial Processes chapter, 2) corrections for synthetic natural gas production, 3) corrections for ethanol added to motor gasoline, and 4) corrections for biogas in natural gas.

First, portions of the fuel consumption data for three fuel categories—coking coal, petroleum coke, and natural gas—were reallocated to the Industrial Processes chapter, as these portions were actually consumed as raw material during non-energy related industrial processes. Coking coal, also called “coal coke,” is used as a raw material (specifically as a reducing agent) in the blast furnace process to produce iron and steel, and therefore is not used as a fuel for this process. Similarly, petroleum coke is used in multiple processes as a raw material, and is thus not used as a fuel in those applications. The processes in which petroleum coke is used include 1) ferroalloy production, 2) aluminum production (for the production of carbon anodes and cathodes), and 3) titanium dioxide production (in the chloride process). Finally, natural gas consumption is used for the production of ammonia. Consumption of these fuels for non-energy purposes is presented in the Industrial Processes chapter, and is removed from the energy and non-energy consumption estimates within the Energy chapter.

Second, a portion of industrial coal accounted for in EIA combustion figures is actually used to make “synthetic natural gas” via coal gasification. The energy in this gas enters the natural gas stream, and is accounted for in natural gas consumption statistics. Because this energy is already accounted for as natural gas, it is deducted from industrial coal consumption to avoid double counting. This makes the figure for other industrial coal consumption in this report slightly lower than most EIA sources.

Third, ethanol has been added to the motor gasoline stream for several years, but prior to 1993 this addition was not captured in EIA motor gasoline statistics. Starting in 1993, ethanol was included in gasoline statistics. However, because ethanol is a biofuel, which is assumed to result in no net CO₂ emissions, the amount of ethanol added is subtracted from total gasoline consumption. Thus, motor gasoline consumption statistics given in this report may be slightly lower than in EIA sources.

Fourth, EIA natural gas consumption statistics include “biomass gas,” which is upgraded landfill methane that is sold to pipelines. However, because this gas is biogenic, the biomass gas total is deducted from natural gas consumption. The subtraction is done only from natural gas in the industrial sector, as opposed to all end-sectors, because the biogas amount is small. Due to this adjustment—and the ammonia adjustment mentioned previously—industrial natural gas consumption in this report is slightly lower than in EIA sources.

There are also three basic differences between the consumption figures presented in Table A-1 through Table A-11 and those recommended in the IPCC emission inventory methodology.

First, consumption data in the U.S. inventory are presented using higher heating values (HHV)¹ rather than the lower heating values (LHV)² reflected in the IPCC emission inventory methodology. This convention is followed because data obtained from EIA are based on HHV. Of note, however, is that EIA renewable energy statistics are often published using LHV. The difference between the two conventions relates to the treatment of the heat energy that is consumed in the process of evaporating the water contained in the fuel. The simplified convention used by the International Energy Agency for converting from HHV to LHV is to multiply the energy content by 0.95 for petroleum and coal and by 0.9 for natural gas.

Second, while EIA's energy use data for the United States includes only the 50 U.S. states and the District of Columbia, the data reported to the Framework Convention on Climate Change are to include energy consumption within territories. Therefore, consumption estimates for U.S. territories were added to domestic consumption of fossil fuels. Energy consumption data from U.S. territories are presented in Column 7 of Table A-1 through Table A-11. It is reported separately from domestic sectoral consumption, because it is collected separately by EIA with no sectoral disaggregation.

Third, the domestic sectoral consumption data in Table A-1 through Table A-11 include bunker fuels used for international transport activities and non-energy uses of fossil fuels. The IPCC requires countries to estimate emissions from international bunker fuels separately and exclude these emissions from national totals, so international bunker fuel emissions have been estimated in Table A-12 and deducted from national estimates (see Step 4). Similarly, fossil fuels used to produce non-energy products that store carbon rather than release it to the atmosphere are provided in Table A-13 and deducted from national emission estimates (see Step 3). The final fate of these fossil fuel based products is dealt with under the waste combustion source category in cases where the products are combusted through waste management practices.

Step 2: Determine the Carbon Content of All Fuels

The carbon content of combusted fossil fuels was estimated by multiplying energy consumption (Columns 2 through 8 of Table A-1 through Table A-11) by fuel-specific carbon content coefficients (see Table A-14 and Table A-15) that reflect the amount of carbon per unit of energy in each fuel. The resulting carbon contents are sometimes referred to as potential emissions, or the maximum amount of carbon that could potentially be released to the atmosphere if all carbon in the fuels were oxidized. The carbon content coefficients used in the U.S. inventory were derived by EIA from detailed fuel information and are similar to the carbon content coefficients contained in the IPCC's default methodology (IPCC/UNEP/OECD/IEA 1997), with modifications reflecting fuel qualities specific to the United States.

Step 3: Adjust for the amount of Carbon Stored in Products

Depending on the end-use, non-energy uses of fossil fuels can result in long term storage of some or all of the carbon contained in the fuel. For example, asphalt made from petroleum can sequester up to 100 percent of the

¹ Also referred to as Gross Calorific Values (GCV).

² Also referred to as Net Calorific Values (NCV).

carbon contained in the petroleum feedstock for extended periods of time. Other non-energy fossil fuel products, such as lubricants or plastics also store carbon, but can lose or emit some of this carbon when they are used and/or burned as waste.³

The amount of carbon in non-energy fossil fuel products was based upon data that addressed the fraction of carbon that remains in products after they are manufactured, with all non-energy use attributed to the industrial, transportation, and territories end-use sectors. This non-energy consumption is presented in Table A-13. This data were then multiplied by fuel-specific carbon content coefficients (Table A-14 and Table A-15) to obtain the carbon content of the fuel, or the maximum amount of carbon that could remain in non-energy products (Column 4 of Table A-13). This carbon content was then multiplied by the fraction of carbon assumed to actually have remained in products (Column 5 of Table A-13), resulting in the final estimates by sector and fuel type, which are presented in Column 6 of Table A-13. A detailed discussion of carbon stored in products is provided in the Energy chapter and in Annex B.

Step 4: Subtract Carbon in International Bunker Fuels

Emissions from international transport activities, or international bunker fuel consumption, are not included in national totals, as required by the IPCC (IPCC/UNEP/OECD/IEA 1997). There is currently disagreement internationally as to how these emissions should be allocated, and until this issue is resolved, countries are asked to report them separately. EIA energy statistics, however, include these bunker fuels—jet fuel for aircraft, and distillate fuel oil and residual fuel oil for marine shipping—as part of fuel consumption by the transportation end-use sector. To compensate for this inclusion, international bunker fuel emissions⁴ were calculated separately (see Table A-12) and the carbon content of these fuels was subtracted from the transportation end-use sector. International bunker fuel emissions from military activities were developed using data provided by the Department of Defense as described in the International Bunker Fuels section of the Energy chapter and in Annex I. The calculations of international bunker fuel emissions followed the same procedures used for other fuel emissions (i.e., estimation of consumption, determination of carbon content, and adjustment for the fraction of carbon not oxidized).

Step 5: Account for Carbon that Does Not Oxidize During Combustion

Because combustion processes are not 100 percent efficient, some of the carbon contained in fuels is not emitted in a gaseous form to the atmosphere. Rather, it remains behind as soot, particulate matter and ash. The estimated fraction of carbon not oxidized in U.S. energy conversion processes due to inefficiencies during combustion ranges from 0.5 percent for natural gas to 1 percent for petroleum and coal. Except for coal these assumptions are consistent with the default values recommended by the IPCC (IPCC/UNEP/OECD/IEA 1997). In the United States, unoxidized carbon from coal combustion was estimated to be no more than one percent (Bechtel 1993).

Table A-14 presents fractions oxidized by fuel type, which are multiplied by the net carbon content of the combusted energy to give final emissions estimates.

Of the fraction of carbon that is oxidized (e.g., 99 to 99.5 percent), the vast majority is emitted in its fully oxidized form as carbon dioxide (CO₂). A much smaller portion of this “oxidized” carbon is also emitted as carbon monoxide (CO), methane (CH₄), and non-methane volatile organic compounds (NMVOCs). These partially oxidized or unoxidized carbon compounds when in the atmosphere, though, are generally oxidized to CO₂ through atmospheric processes (e.g., reaction with hydroxyl (OH)).⁵

³ See Waste Combustion section of the Energy chapter for a discussion of emissions from the combustion of plastics in the municipal solid waste stream.

⁴ Refer to the International Bunker Fuels section of the Energy chapter for a description of the methodology for distinguishing between bunker and non-bunker fuel consumption.

⁵ See indirect CO₂ from CH₄ oxidation section in Energy chapter for a discussion of proper accounting of carbon from hydrocarbon and CO emissions.

Step 6: Summarize Emission Estimates

Actual CO₂ emissions in the United States were summarized by major fuel (i.e., coal, petroleum, natural gas, geothermal) and consuming sector (i.e., residential, commercial, industrial, transportation, electricity generation, and U.S. territories). Adjustments for international bunker fuels and carbon in non-energy products were made. Emission estimates are expressed in teragrams of carbon dioxide equivalents (Tg CO₂ Eq.).

To determine total emissions by final end-use sector, emissions from electricity generation were distributed to each end-use sector according to its share of aggregate electricity consumption (see Table A-16). This pro-rated approach to allocating emissions from electricity generation may overestimate or underestimate emissions for particular sectors due to differences in the average carbon content of fuel mixes burned to generate electricity.

Table A-1: 2000 Energy Consumption Data and CO₂ Emissions from Fossil Fuel Combustion by Fuel Type

Fuel Type	Consumption (TBTu) ^a															Emissions (Tg CO ₂ Eq.) including Adjustments ^b and Fraction Oxidized				
	Res.	Comm.	Ind.	Trans.	Elec.	Terr.	Total	Res.	Comm.	Ind.	Trans.	Elec.	Terr.	Total	Res.	Comm.	Ind.	Trans.	Elec.	Terr.
Total Coal	46.6	69.9	1,119.2	NE	20,486.7	9.8	21,732.3	4.4	6.6	102.8	NE	1,915.4	0.9	2,030.1						
Residential Coal	46.6	69.9	1,119.2	NE	20,486.7	9.8	21,732.3	4.4	6.6	102.8	NE	1,915.4	0.9	2,030.1						
Commercial Coal																				
Industrial Coking Coal																				
Industrial Other Coal																				
Coke Imports																				
Transportation Coal																				
Utility Coal																				
US Territory Coal (btu)																				
Natural Gas	5,081.5	3,425.4	7,249.8	793.2	6,476.7	9.8	23,038.3	268.3	180.8	371.3	41.9	341.9	0.9	1,915.4						
Total Petroleum	1,492.3	722.5	8,657.4	26,043.6	1,194.8	725.3	38,836.0	102.2	51.8	355.1	1,747.6	95.2	36.3	0.6	1,204.8					
Asphalt & Road Oil																				
Aviation Gasoline																				
Distillate Fuel Oil																				
Jet Fuel																				
Kerosene	103.0	25.0	11.9	3,580.4	199.4	125.8	8,061.2	61.3	31.5	76.2	382.7	14.4	9.1	575.2						
LPG	542.6	95.7	2,293.1	13.7	6.5	73.7	3,654.0	7.4	1.8	194.0	5.2	199.1								
Lubricants																				
Motor Gasoline	46.2	152.7	15,749.1	189.9	179.4	8.5	2,953.5	33.5	5.9	75.2	0.8	0.5	116.0							
Residual Fuel	121.1	48.9	1,085.4	835.1	186.0	1,340.0	1,4	370.6	3.2	12.7	12.0	0.1	24.7							
Other Petroleum																				
AvGas Blend Components																				
Crude Oil																				
MoGas Blend Components																				
Misc. Products																				
Naphtha (<401 deg. F)	119.2	613.5	222.5	341.7	613.5	613.5	16.9													
Other Oil (>401 deg. F)																				
Pentanes Plus	722.2	343.2	722.2	722.2	343.2	343.2	21.9													
Petroleum Coke																				
Still Gas	650.5	160.2	650.5	810.7	160.2	810.7	10.7													
Special Naphtha	1,448.2	97.4	1,448.2	1,448.2	97.4	1,448.2	91.7													
Unfinished Oils	(401.2)	(401.2)	(401.2)	(401.2)	(401.2)	(401.2)	7.0													
Waxes	33.1	33.1	33.1	33.1	33.1	33.1	29.5													
Geothermal																				
TOTAL (All Fuels)	6,620.4	4,217.8	17,026.5	26,836.9	28,161.3	746.8	83,609.8	374.8	239.3	829.2	1,789.5	2,352.5	37.8	5,623.1						

^aExpressed as gross calorific values (i.e., higher heating values).^bAdjustments include: International bunker fuel consumption (see Table A-12) and carbon in non-energy products (see Table A-13).+ Does not exceed 0.05 Tg CO₂ Eq.

NE (Not Estimated)

Table A-2. 1999 Energy Consumption Data and CO₂ Emissions from Fossil Fuel Combustion by Fuel Type

Fuel Type	Consumption (TBTu) ^a						Terr.	Emissions (Tg CO ₂ Eq) including Adjustments ^b and Fraction Oxidized						
	Res.	Comm.	Ind.	Trans.	Elec.	Total		Res.	Comm.	Ind.	Trans.	Elec.	Terr.	
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total Coal	46.6	69.9	1,270.9	NE		19,552.7	9.8	20,949.9	4.4	6.6	117.0	NE	1,828.0	0.9
Residential Coal	46.6	69.9	34.4	NE		1,178.8	57.7	69.9	4.4	6.6	1.5	109.7	4.4	6.6
Commercial Coal			1,178.8	NE		57.7		34.4	1,178.8	57.7	109.7	5.8	1.5	5.8
Industrial Coking Coal				NE				NE		5.8		NE		NE
Industrial Other Coal				NE										
Coke Imports				NE										
Transportation Coal				NE										
Utility Coal				NE										
US Territory Coal (btu)				NE										
Natural Gas	4,858.0	3,129.9	7,278.8	761.5	5,879.7	9.8	21,907.9	256.5	165.2	372.9	40.2	310.4	0.9	0.9
Total Petroleum	1,456.1	671.6	8,895.4	25,315.0	1,352.4	694.4	38,384.9	99.6	48.0	368.2	1,688.0	107.7	34.8	1,145.2
Asphalt & Road Oil			1,324.4	NE				1,324.4						2,346.3
Aviation Gasoline				NE										
Distillate Fuel Oil				NE										
Jet Fuel				NE										
Kerosene				NE										
LPG				NE										
Lubricants				NE										
Motor Gasoline				NE										
Residual Fuel				NE										
Other Petroleum				NE										
AvGas Blend Components				NE										
Crude Oil				NE										
MoGas Blend Components				NE										
Misc. Products				NE										
Naphtha (<401 deg. F)				NE										
Other Oil (>401 deg. F)				NE										
Pentanes Plus				NE										
Petroleum Coke				NE										
Still Gas				NE										
Special Naphtha				NE										
Unfinished Oils				NE										
Waxes				NE										
Geothermal				NE										
TOTAL (All Fuels)	6,360.7	3,871.4	17,445.1	26,076.5	26,790.6	704.2	81,248.5	360.5	219.8	858.1	1,728.2	2,246.2	35.7	5,448.4

^aExpressed as gross calorific values (i.e., higher heating values).^bAdjustments include: international bunker fuel consumption (see Table A-12) and carbon in non-energy products (see Table A-13).+ Does not exceed 0.05 Tg CO₂ Eq.

NE (Not Estimated)

Table A-3: 1998 Energy Consumption Data and CO₂ Emissions from Fossil Fuel Combustion by Fuel Type

Fuel Type	1998 Energy Consumption Data and CO ₂ Emissions from Fossil Fuel Combustion by Fuel Type														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total Coal	44.3	66.4	1,317.3	NE	19,434.2	9.8	20,872.0	4.2	6.3	121.4	NE	1,817.0	0.9	1,949.7	4.2
Residential Coal	44.3	66.4	25.9				44.3	4.2	6.3						6.3
Commercial Coal			1,224.3				66.4								0.7
Industrial Coking Coal			67.1				25.9								113.9
Industrial Other Coal							1,224.3								6.8
Coke Imports							67.1								NE
Transportation Coal															1,817.0
Utility Coal															
US Territory Coal (bbl)															
Natural Gas	4,669.4	3,098.5	7,366.0	661.7	5,736.8	9.8	21,532.4	246.5	163.6	378.0	34.9	302.9	0.9	1,125.8	0.9
Total Petroleum	1,323.8	664.7	8,857.0	24,472.5	1,353.7	668.2	37,339.8	91.1	47.7	381.7	1,620.1	106.5	33.3	2,280.3	
Asphalt & Road Oil			1,262.6				1,262.6								
Aviation Gasoline															2.4
Distillate Fuel Oil															529.6
Jet Fuel															185.3
Kerosene															120.0
LPG															102.2
Lubricants															24.8
Motor Gasoline															1,101.5
Residual Fuel															116.8
Other Petroleum															
AvGas Blend Components															
Crude Oil															
MoGas Blend Components															
Misc. Products															
Naphtha (<401 deg. F)															
Other Oil (>401 deg. F)															
Pentanes Plus															
Petroleum Coke															
Still Gas															
Special Naphtha															
Unfinished Oils															
Waxes															
Geothermal															
TOTAL (All Fuels)	6,037.5	3,829.5	17,540.3	25,134.1	26,542.3	678.0	79,761.8	341.8	217.5	881.1	1,655.0	2,226.4	0.1	5,356.0	0.1

^aExpressed as gross calorific values (i.e., higher heating values).

^bAdjustments include: international bunker fuel consumption (see Table A-12) and carbon in non-energy products (see Table A-13).

+ Does not exceed 0.05 Tg CO₂ Eq.

NE (Not Estimated)

Table A-4: 1997 Energy Consumption Data and CO₂ Emissions from Fossil Fuel Combustion by Fuel Type

Fuel Type	Consumption (TBTU) ^a and Emissions (Tg CO ₂ Eq.) including Adjustments ^b and Fraction Oxidized														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total Coal	57.8	86.8	1,380.8	NE	19,134.9	10.4	20,670.7	5.5	8.2	126.9	NE	1,789.0	0.9	1,930.5	5.5
Residential Coal	57.8	86.8	36.1				57.8	5.5	8.2						8.2
Commercial Coal			1,298.3				86.8								1.4
Industrial Coking Coal			46.4				36.1								120.8
Industrial Other Coal							1,298.3								4.7
Coke Imports							46.4								NE
Transportation Coal								NE							
Utility Coal															1,789.0
US Territory Coal (bbl)															
Natural Gas	5,124.6	3,309.7	7,965.7	785.7	5,122.2	992.8	598.4	36,735.2	270.5	174.7	409.6	41.5	270.4	0.9	0.9
Total Petroleum	1,431.9	705.2	9,056.4	23,950.5	1,223.6	39.7	10.4	22,307.8	98.9	50.8	398.7	1,587.3	78.4	27.9	2,242.0
Asphalt & Road Oil								1,223.6							
Aviation Gasoline									19,134.9						
Distillate Fuel Oil										10.4					
Jet Fuel											20.6				
Kerosene	92.9	24.6	1,108.1	4,733.9	115.7	107.1	64.0	7,411.3	65.2	32.3	80.0	333.7	8.4	7.8	2.7
LPG	439.1	77.5	2,159.6	13.4	3,308.2		4.0	3,372.1				176.2		4.5	527.4
Lubricants			182.3	172.1				7.9	2,697.5	27.1	4.8	73.6	0.8		180.7
Motor Gasoline			43.1	213.5	14,956.7			2.5	356.9			12.2	11.5	0.2	10.0
Residual Fuel			113.6	205.1	726.5	783.1		143.6	15,356.8		3.0	15.0	1,050.6	10.1	1,166.7
Other Petroleum								60.0	1,888.2		8.9	14.0	11.8	60.5	2,242.0
AvGas Blend Components										39.7					
Crude Oil											9.1				
MoGas Blend Components											4.6				
Misc. Products												0.6			0.6
Naphtha (<401 deg. F)												0.3			0.3
Other Oil (>401 deg. F)															
Pentanes Plus															
Petroleum Coke															
Still Gas															
Special Naphtha															
Unfinished Oils															
Waxes															
Geothermal															
TOTAL (All Fuels)	6,614.4	4,101.7	18,402.9	24,736.2	25,268.5	608.8	79,732.5	374.9	233.7	935.2	1,628.8	2,137.9	28.9	0.1	5,339.4

^aExpressed as gross calorific values (i.e., higher heating values).^bAdjustments include: international bunker fuel consumption (see Table A-12) and carbon in non-energy products (see Table A-13).+ Does not exceed 0.05 Tg CO₂ Eq.

NE (Not Estimated)

Table A-5: 1996 Energy Consumption Data and CO₂ Emissions from Fossil Fuel Combustion by Fuel Type

Fuel Type	Consumption (TBTu) ^a										Emissions (Tg CO ₂ Eq.) Including Adjustments ^b and Fraction Oxidized				
	Res.	Comm.	Ind.	Trans.	Elec.	Terr.	Total	Res.	Comm.	Ind.	Trans.	Elec.	Terr.	Total	
Total Coal	54.5	81.9	1,369.7					5.1	7.7	125.5				0.9	1,878.4
Residential Coal	54.5	81.9	59.7					54.5	5.1	7.7					5.1
Commercial Coal			1,287.2					81.9							7.7
Industrial Coking Coal			22.8					59.7							3.5
Industrial Other Coal								1,287.2							119.6
Coke Imports								22.8							2.3
Transportation Coal															NE
Utility Coal															
US Territory Coal (btl)															
Natural Gas	5,390.2	3,250.4	8,052.1	737.1	4,782.8			10.3	10.3						0.9
Total Petroleum	1,457.3	740.7	8,857.6	23,716.8	885.2			560.0	36,217.6	22,212.5	284.6	171.6	414.8	38.9	252.5
Asphalt & Road Oil			1,175.9					1,175.9		100.7	53.5	396.2	1,579.8	69.5	25.8
Aviation Gasoline															
Distillate Fuel Oil															
Jet Fuel															
Kerosene	88.8	21.0	18.3					106.3	7,280.8	67.3	34.5	79.5	320.7	9.0	7.7
LPG	438.7	77.4	2,199.5	14.7				66.1	3,340.3				177.6		4.6
Lubricants			172.5	163.0				3.0	131.1	6.4	1.5	1.3		0.2	9.4
Motor Gasoline		26.7	201.3	14,818.6				7.3	2,667.8	27.1	4.8	72.5	0.9		0.5
Residual Fuel		139.5	254.9	865.7				692.0	118.6	15,165.3	0.8	336.3	11.5	10.9	0.1
Other Petroleum															22.4
AvGas Blend Components															105.7
Crude Oil															182.2
MoGas Blend Components															9.4
Misc. Products															
Naphtha (<401 deg. F)															
Other Oil (>401 deg. F)															
Pentanes Plus															
Petroleum Coke															
Still Gas															
Special Naphtha															
Unfinished Oils															
Waxes															
Geothermal															0.1
TOTAL (All Fuels)	6,902.0	4,073.0	18,279.4	24,453.8	24,296.3			570.3	78,574.8	390.4	232.8	936.5	1,618.7	2,061.2	26.8
															0.1

^aExpressed as gross calorific values (i.e., higher heating values).^bAdjustments include: international bunker fuel consumption (see Table A-12) and carbon in non-energy products (see Table A-13).+ Does not exceed 0.05 Tg CO₂ Eq.

NE (Not Estimated)

Table A-6: 1995 Energy Consumption Data and CO₂ Emissions from Fossil Fuel Combustion by Fuel Type

Fuel Type	Emissions (Tg CO ₂ Eq.) including Adjustments ^b and Fraction Oxidized														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total Coal	53.3	80.4	1,427.3	NE	17,634.6	10.2	19,205.8	5.0	7.6	131.2	NE	1,647.9	0.9	1,792.7	5.0
Residential Coal	53.3	80.4	50.6				53.3	5.0	7.6						7.6
Commercial Coal			1,315.6				80.4								2.6
Industrial Coking Coal			61.1	NE			50.6								122.4
Industrial Other Coal							1,315.6	61.1							6.2
Coke Imports															NE
Transportation Coal															1,647.9
Utility Coal															
US Territory Coal (bit)															
Natural Gas	4,984.4	3,116.9	7,743.5	725.8	5,242.5	10.2	21,813.1	263.1	164.5	398.5	38.3	276.8	0.9	1,141.3	0.9
Total Petroleum	1,361.1	715.2	8,381.7	23,133.1	819.2	605.5	35,015.8	94.2	51.8	365.1	1,541.0	64.5	34.3	2,150.9	
Asphalt & Road Oil			1,178.2				1,178.2								
Aviation Gasoline	882.6	459.8	1,048.3	4,310.5	116.5	125.6	6,943.3	63.9	33.3	75.7	2.7				2.7
Distillate Fuel Oil				3,132.2		75.5	3,207.7								493.5
Jet Fuel						3.6	115.4	5.3	1.6						174.0
Kerosene	74.3	22.1	15.4				5.6	2,517.3	24.9	4.4	68.0	1.0			8.3
LPG	404.2	71.3	2,019.4	16.7			2.0	347.7			11.9	11.2			98.8
Lubricants			177.8	167.9											23.2
Motor Gasoline		18.2	201.6	14,541.5			148.1	14,909.5		1.3	14.2	1,023.0	10.4	1,048.9	
Residual Fuel		143.7	255.5	924.7	630.8	111.9	2,066.6		11.2	18.0	31.3	48.8	8.7		118.0
Other Petroleum															
AvGas Blend Components															
Crude Oil															
MoGas Blend Components															
Misc. Products															
Naphtha (<401 deg. F)	97.1						133.2	230.3							
Other Oil (>401 deg. F)	373.0							373.0							10.3
Pentanes Plus	801.0							801.0							24.3
Petroleum Coke	337.9							337.9							10.7
Still Gas	648.8								720.6						67.3
Special Naphtha	1,417.5								1,417.5						88.1
Unfinished Oils	70.8								70.8						5.1
Waxes	(320.9)								(320.9)						(23.6)
Geothermal															
TOTAL (All Fuels)	6,398.8	3,912.5	17,552.5	23,858.9	23,712.5	615.7	76,030.9	362.3	223.9	894.9	1,579.4	1,989.3	35.2	5,084.9	0.1

^aExpressed as gross calorific values (i.e., higher heating values).^bAdjustments include: international bunker fuel consumption (see Table A-12) and carbon in non-energy products (see Table A-13).+ Does not exceed 0.05 Tg CO₂ Eq.

NE (Not Estimated)

Table A-7: 1994 Energy Consumption Data and CO₂ Emissions from Fossil Fuel Combustion by Fuel Type

Fuel Type	Emissions (Tg CO ₂ Eq.) including Adjustments ^b and Fraction Oxidized														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total Coal	55.1	82.7	1,436.5	NE	17,529.3	10.0	19,113.6	5.2	7.8	132.1	NE	1,636.5	0.9	1,782.6	
Residential Coal	55.1	82.7	37.0	1,341.2	58.3		82.7	5.2	7.8						5.2
Commercial Coal							37.0	1,341.2	58.3						7.8
Industrial Coking Coal								58.3	NE						1.5
Industrial Other Coal									17,529.3						124.8
Coke Imports															5.9
Transportation Coal															NE
Utility Coal															1,636.5
US Territory Coal (bit)															0.9
Natural Gas	4,980.3	2,977.6	7,380.3	708.0	4,875.3	1,129.9	561.8	35,054.6	92.8	262.9	157.2	378.7	37.4	257.4	
Total Petroleum	1,340.3	753.5	8,607.5	22,661.6	1,172.9		17,529.3	10.0	10.0	383.5	1,514.0	88.5	88.5	37.3	1,093.6
Asphalt & Road Oil								1,172.9							2,170.8
Aviation Gasoline	880.0	464.3	1,082.9	4,175.0	3,154.5	121.1	118.8	6,842.1	65.8	3,220.3	63.7	33.6	78.2	293.6	8.8
Distillate Fuel Oil									3.0	104.3				173.2	4.6
Jet Fuel										2,501.2					177.9
Kerosene	64.9	19.5	16.9	1,996.5	32.2		7.3			4.6	1.4	1.2			0.2
LPG	395.4	69.8	180.9	170.8			1.9			24.4	4.3	68.2	2.0		0.4
Lubricants															99.3
Motor Gasoline		25.3	193.3	14,194.9			148.0	14,561.6				12.1	11.4		0.1
Residual Fuel		174.6	338.5	896.0			933.4	164.1	2,506.5			1.8	13.6	1,002.2	10.5
Other Petroleum												13.6	24.4	29.0	12.8
AvGas Blend Components															152.0
Crude Oil															
MoGas Blend Components															
Misc. Products															
Naphtha (<401 deg. F)															
Other Oil (>401 deg. F)															
Pentanes Plus															
Petroleum Coke															
Still Gas															
Special Naphtha															
Unfinished Oils															
Waxes															
Geothermal															
TOTAL (All Fuels)	6,375.7	3,813.7	17,424.3	23,369.6	23,558.2	571.8	75,113.4	360.9	219.7	894.4	1,551.4	1,982.6	38.2	5,047.1	0.2

^aExpressed as gross calorific values (i.e., higher heating values).^bAdjustments include: international bunker fuel consumption (see Table A-12) and carbon in non-energy products (see Table A-13).+ Does not exceed 0.05 Tg CO₂ Eq.

NE (Not Estimated)

Table A-8: 1993 Energy Consumption Data and CO₂ Emissions from Fossil Fuel Combustion by Fuel Type

Fuel Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Res.	Comm.	Ind.	Trans.	Elec.	Terr.	Total	Res.	Comm.	Ind.	Trans.	Elec.	Frac.	Ind.	Total
Total Coal	56.6	85.5	1,413.3	NE	17,364.1	9.6	18,929.1	5.3	8.1	129.6	NE	1,620.3	0.9	1,764.1	5.3
Residential Coal	56.6	85.5	38.3				56.6	5.3	8.1			1.5			8.1
Commercial Coal			1,347.9				85.5					125.3			1.5
Industrial Coking Coal			27.1	NE			38.3					2.7			125.3
Industrial Other Coal							1,347.9								2.7
Coke Imports							27.1								NE
Transportation Coal							NE								
Utility Coal															
US Territory Coal (bit)															
Natural Gas	5,097.5	2,943.7	7,244.6	644.1	4,507.2	9.6	20,437.1	269.1	155.4	373.8	34.0	237.9	0.9	1,070.3	0.9
Total Petroleum	1,387.0	752.8	8,220.6	22,056.6	1,195.3	534.1	34,146.6	96.1	54.7	369.2	1,468.6	93.8	34.0	2,116.3	1,620.3
Asphalt & Road Oil			1,149.0				1,149.0								
Aviation Gasoline															
Distillate Fuel Oil															
Jet Fuel															
Kerosene	75.6	14.0	13.1	3,028.0		3.8	62.1	3,090.1	5.4	1.0	0.9				7.6
LPG	398.6	70.3	1,794.4	19.0			4.9	2,287.3	24.6	4.3	62.6	1.2		0.3	93.0
Lubricants			173.1	163.5			3.3	339.8			11.5	10.9		0.2	22.7
Motor Gasoline			29.6	179.4	13,981.5		128.3	14,318.8		2.1	12.7	986.1		9.0	1,009.9
Residual Fuel			175.0	374.9	913.4	1,015.4	155.9	2,634.6		13.7	27.1	29.6		78.5	12.2
Other Petroleum															
AvGas Blend Components															
Crude Oil															
MoGas Blend Components															
Misc. Products															
Naphtha (<401 deg. F)															
Other Oil (>401 deg. F)															
Pentanes Plus															
Petroleum Coke															
Still Gas															
Special Naphtha															
Unfinished Oils															
Waxes															
Geothermal															
TOTAL (All Fuels)	6,541.1	3,782.0	16,878.5	22,700.7	23,092.5	543.7	73,538.5	370.5	218.1	872.6	1,502.5	1,952.3	0.2	0.2	0.2

^aExpressed as gross calorific values (i.e., higher heating values).^bAdjustments include: international bunker fuel consumption (see Table A-12) and carbon in non-energy products (see Table A-13).+ Does not exceed 0.05 Tg CO₂ Eq.

NE (Not Estimated)

Table A-9: 1992 Energy Consumption Data and CO₂ Emissions from Fossil Fuel Combustion by Fuel Type

Fuel Type	Emissions (Tg CO ₂ Eq.) including Adjustments ^b and Fraction Oxidized														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Res.	Comm.	Ind.	Trans.	Elec.	Terr.	Total	Res.	Comm.	Ind.	Trans.	Elec.	Terr.	Total	
Total Coal	56.7	85.7	1,408.3	NE	16,719.4	8.8	18,278.9	5.4	8.1	128.5	NE	1,559.4	0.8	1,702.2	
Residential Coal	56.7	85.7	24.9				56.7	5.4							5.4
Commercial Coal			1,348.7				85.7								8.1
Industrial Coking Coal			34.6				24.9								(0.5)
Industrial Other Coal							1,348.7								125.4
Coke Imports							34.6								3.5
Transportation Coal							NE								NE
Utility Coal															1,559.4
US Territory Coal (bit)															
Natural Gas	4,821.1	2,884.2	7,006.4	609.0	4,434.8	8.8	19,755.5	254.5	152.3	361.9	32.1	234.1	0.8	1,035.0	
Total Petroleum	1,312.4	813.5	8,428.3	21,795.0	1,068.6	507.5	33,925.2	90.9	59.1	391.4	1,440.8	83.7	32.7	2,098.6	
Asphalt & Road Oil			1,102.2				1,102.2								
Aviation Gasoline															2.8
Distillate Fuel Oil															455.7
Jet Fuel															168.5
Kerosene	65.0	11.1	9.8				91.8	6,442.7	62.6	33.6	81.3	265.4	6.2	6.6	6.4
LPG	382.5	67.5	1,859.8	18.4			61.3	3,062.6				164.2		4.3	
Lubricants			170.0	160.5			3.3	89.2	4.7	0.8	0.7		0.2		0.7
Motor Gasoline		79.6	194.3	13,681.5			11.9	2,340.1	23.6	4.2	65.3	1.1			94.9
Residual Fuel		191.2	328.2	1,082.0			916.7	122.1	14,077.5	5.6	11.3	10.7	0.1		22.1
Other Petroleum								154.6	2,672.7	14.9	23.3	964.5	8.6		992.4
AvGas Blend Components															153.3
Crude Oil															
MoGas Blend Components															
Misc. Products															
Naphtha (<401 deg. F)															
Other Oil (>401 deg. F)															
Pentanes Plus															
Petroleum Coke															
Still Gas															
Special Naphtha															
Unfinished Oils															
Waxes															
Geothermal															
TOTAL (All Fuels)	6,190.2	3,783.3	16,843.0	22,403.9	22,250.4	516.4	71,987.2	350.8	219.5	881.8	1,473.0	1,877.5	0.2	0.2	0.2

^aExpressed as gross calorific values (i.e., higher heating values).^bAdjustments include: international bunker fuel consumption (see Table A-12) and carbon in non-energy products (see Table A-13).+ Does not exceed 0.05 Tg CO₂ Eq.

NE (Not Estimated)

Table A-10: 1991 Energy Consumption Data and CO₂ Emissions from Fossil Fuel Combustion by Fuel Type

Fuel Type	Emissions (Tg CO ₂ Eq.) including Adjustments ^b and Fraction Oxidized														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Total Coal	56.3	84.5	1,458.7	NE	16,465.7	7.7	18,072.9	5.3	8.0	134.3	NE	1,535.7	0.7	1,684.0	5.3
Residential Coal	56.3	84.5	28.5		84.5		56.3	5.3	8.0						8.0
Commercial Coal			1,420.5				1,420.5	28.5							1.4
Industrial Coking Coal			9.7	NE			9.7								132.0
Industrial Other Coal															1.0
Coke Imports															NE
Transportation Coal															1,535.7
Utility Coal															
US Territory Coal (bit)															0.7
Natural Gas	4,685.0	2,807.7	6,929.7	621.9	4,189.4	7.7	19,233.6	247.3	148.2	356.6	32.8	221.2	0.7	1,006.1	0.7
Total Petroleum	1,293.3	860.7	7,884.8	21,441.9	1,261.6	539.8	33,282.0	89.4	62.6	356.5	1,404.9	98.2	31.1	2,042.6	
Asphalt & Road Oil			1,076.5				1,076.5								
Aviation Gasoline															2.9
Distillate Fuel Oil															443.8
Jet Fuel															172.0
Kerosene	72.3	12.1	11.4												7.1
LPG	389.5	68.7	1,749.3	19.9	3,677.6	93.4	71.4	6,281.3	60.2	34.9	81.3	255.5	6.8	5.2	89.2
Lubricants			166.7	157.5	3,025.0		2.8	3,103.2				166.5		5.5	
Motor Gasoline			85.0	193.3	13,488.3		0.6								21.7
Residual Fuel			213.2	290.9	1,031.9		124.7	324.8							978.8
Other Petroleum							1,121.0	13,891.2							10.5
AvGas Blend Components								134.6	2,791.7						152.0
Crude Oil															
MoGas Blend Components															
Misc. Products															
Naphtha (<401 deg. F)															
Other Oil (>401 deg. F)															
Pentanes Plus															
Petroleum Coke															
Still Gas															
Special Naphtha															
Unfinished Oils															
Waxes															
Geothermal															
TOTAL (All Fuels)	6,034.6	3,752.8	16,273.1	22,063.8	21,944.2	547.5	70,616.1	342.0	218.8	847.4	1,437.7	1,855.3	31.8	0.2	4,733.0

^aExpressed as gross calorific values (i.e., higher heating values).^bAdjustments include: international bunker fuel consumption (see Table A-12) and carbon in non-energy products (see Table A-13).+ Does not exceed 0.05 Tg CO₂ Eq.

NE (Not Estimated)

Table A-11: 1990 Energy Consumption Data and CO₂ Emissions from Fossil Fuel Combustion by Fuel Type

Fuel Type	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
	Res.	Comm.	Ind.	Trans.	Elec.	Terr.	Total	Res.	Comm.	Ind.	Trans.	Elec.	Terr.	Total	Fraction Oxidized ^b
Total Coal	61.9	92.9	1,478.0	NE	16,535.8	7.0	18,175.6	5.8	8.7	135.9	NE	1,541.5	0.6	1,692.6	
Residential Coal	61.9	92.9	21.0		1,452.2		61.9	5.8	8.7	21.0		1,452.2		5.8	
Commercial Coal							92.9								8.7
Industrial Coking Coal															0.5
Industrial Other Coal															134.9
Coke Imports															0.5
Transportation Coal															NE
Utility Coal															NE
US Territory Coal (bit)															1,541.5
Natural Gas	4,518.7	2,698.1	6,963.2	682.4	4,049.8	7.0	18,912.2	238.5	142.4	358.0	36.0	213.8	0.6	988.8	
Total Petroleum	1,266.3	907.5	8,152.3	21,791.8	1,329.1	461.5	33,908.4	87.7	66.1	377.8	1,435.8	103.4	27.4	2,098.2	
Asphalt & Road Oil															
Aviation Gasoline															
Distillate Fuel Oil															
Jet Fuel															
Kerosene	63.9	11.8	12.3		3,129.5		61.0	3,190.5		2.6	90.6	4.6	0.8	0.9	3.1
LPG	365.0	64.4	1,607.7	21.6						14.4	2,073.1	22.5	4.0	56.4	1.3
Lubricants															458.7
Motor Gasoline	111.2	185.2	13,559.0		0.7		101.0	13,956.4		7.8	12.4	11.7		0.2	178.1
Residual Fuel	233.1	375.0	1,030.2	1,181.6		121.8	2,941.7		18.2		27.4	24.5	91.3	7.1	6.5
Other Petroleum															85.2
AvGas Blend Components															24.2
Crude Oil															983.3
MoGas Blend Components															13.4
Misc. Products															61.5
Naphtha (<401 deg. F)															9.6
Other Oil (>401 deg. F)															22.8
Pentanes Plus															13.4
Petroleum Coke															7.7
Still Gas															92.6
Special Naphtha															(27.0)
Unfinished Oils															7.7
Waxes															33.3
Geothermal															0.2
TOTAL (All Fuels)	5,846.9	3,698.5	16,593.5	22,474.1	21,944.0	468.6	71,025.5	332.1	217.3	871.6	1,471.8	1,858.9	28.0	0.2	4,779.8

^aExpressed as gross calorific values (i.e., higher heating values).^bAdjustments include: International bunker fuel consumption (see Table A-12) and carbon in non-energy products (see Table A-13).+ Does not exceed 0.05 Tg CO₂ Eq.

NE (Not Estimated)

Table A-12: 2000 CO₂ Emissions From International Bunker Fuel Consumption

Fuel Type	Bunker Fuel Consumption (TBTU)	Carbon Content Coefficient (Tg Carbon/QBtu) ¹	Potential Emissions (Tg Carbon)	Fraction Oxidized	Emissions (Tg CO ₂ Eq.)
Distillate Fuel Oil	115	19.95	2.3	0.99	8.3
Jet Fuel	816	19.33	15.8	0.99	57.3
Residual Fuel Oil	444	21.49	9.5	0.99	34.6
Total	1,375		27.6		100.2

Note: See Annex I for additional information on military bunkers.

Table A-13: 2000 Carbon In Non-Energy Products

1	2	3	4	5	6
Fuel Type	Non-energy Use (TBTU)	Carbon Content Coefficient (Tg Carbon/QBtu)	Potential Emissions (Tg Carbon)	Fraction Sequestered ^a	Carbon Stored (Tg CO ₂ Eq.)
Industry	5,512.4		103.6		265.6
Industrial Coking Coal	26.4	25.56	0.7	0.75	1.9
Natural Gas	342.4	14.47	5.0	0.63	11.5
Asphalt & Road Oil	1,275.7	20.62	26.3	1.00	96.4
LPG	1,707.3	16.87	28.8	0.63	66.8
Lubricants	189.9	20.24	3.8	0.09	1.3
Pentanes Plus	286.8	18.24	5.2	0.63	12.1
Petrochemical Feedstocks					
Naphtha (<401 deg. F)	564.2	18.14	10.2	0.63	23.7
Other Oil (>401 deg. F)	664.1	19.95	13.2	0.63	30.7
Still Gas	7.4	17.51	0.1	0.80	0.4
Petroleum Coke	141.4	27.85	3.9	0.50	7.2
Special Naphtha	97.4	19.86	1.9	0.00	0.0
Other (Wax/Misc.)					
Distillate Fuel Oil	7.0	19.95	0.1	0.50	0.3
Residual Fuel	50.3	21.49	1.1	0.50	2.0
Waxes	33.1	19.81	0.7	1.00	2.4
Miscellaneous	119.2	20.23	2.4	1.00	8.8
Transportation	179.4		3.6		1.2
Lubricants	179.4	20.24	3.6	0.09	1.2
U.S. Territories	223.8		4.5		16.5
Lubricants	1.4	20.24	0.0	0.09	0.0
Other Petroleum (Misc.)	222.5	variable	4.5	1.00	16.5
Total	5,915.6		111.7		283.4

^aSee Annex B for additional information.

¹ One QBtu is one quadrillion Btu, or 10¹⁵ Btu. This unit is commonly referred to as a “Quad.”

Table A-14: Key Assumptions for Estimating Carbon Dioxide Emissions

Fuel Type	Carbon Content Coefficient (Tg Carbon/QBtu)	Fraction Oxidized
Coal		
Residential Coal	[a]	0.99
Commercial Coal	[a]	0.99
Industrial Coking Coal	[a]	0.99
Industrial Other Coal	[a]	0.99
Coke Imports	27.85	0.99
Transportation Coal	NC	NC
Utility Coal	[a]	0.99
U.S. Territory Coal (bit)	25.14	0.99
Natural Gas	14.47	0.995
Petroleum		
Asphalt & Road Oil	20.62	0.99
Aviation Gasoline	18.87	0.99
Distillate Fuel Oil	19.95	0.99
Jet Fuel	[a]	0.99
Kerosene	19.72	0.99
LPG	[a]	0.99
LPG (energy use/Territories)	[a]	0.99
LPG (non-energy use)	[a]	-
Lubricants	20.24	0.99
Motor Gasoline	[a]	0.99
Residual Fuel	21.49	0.99
Other Petroleum		
AvGas Blend Components	18.87	0.99
Crude Oil	[a]	0.99
MoGas Blend Components	[a]	0.99
Misc. Products	[a]	0.99
Misc. Products (Territories)	variable	0.99
Naphtha (<401 deg. F)	18.14	0.99
Other Oil (>401 deg. F)	19.95	0.99
Pentanes Plus	18.24	0.99
Petrochemical Feedstocks	19.37	0.99
Petroleum Coke	27.85	0.99
Still Gas	17.51	0.99
Special Naphtha	19.86	0.99
Unfinished Oils	[a]	0.99
Waxes	19.81	0.99
Other Wax & Misc.	19.81	0.99
Geothermal	2.05	1.00

Sources: Carbon coefficients from EIA. Combustion efficiency for coal from Bechtel (1993) and for petroleum and natural gas from IPCC (IPCC/UNEP/OECD/IEA 1997).

- Not applicable

NC (Not Calculated)

[a] These coefficients vary annually due to fluctuations in fuel quality (see Table A-15).

Table A-15: Annually Variable Carbon Content Coefficients by Year (Tg Carbon/QBtu)

Fuel Type	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Residential Coal	25.92	26.00	26.13	25.97	25.95	26.00	25.92	26.00	26.00	26.00	26.00
Commercial Coal	25.92	26.00	26.13	25.97	25.95	26.00	25.92	26.00	26.00	26.00	26.00
Industrial Coking Coal	25.51	25.51	25.51	25.51	25.52	25.53	25.55	25.56	25.56	25.56	25.56
Industrial Other Coal	25.58	25.59	25.62	25.61	25.63	25.63	25.61	25.63	25.63	25.63	25.63
Utility Coal	25.68	25.69	25.69	25.71	25.72	25.74	25.74	25.76	25.76	25.76	25.76
LPG	16.99	16.98	16.99	16.97	17.01	17.00	16.99	16.99	16.99	16.99	16.99
LPG (energy use/Territories)	17.21	17.21	17.21	17.22	17.22	17.20	17.20	17.18	17.18	17.18	17.18
LPG (non-energy use)	16.83	16.84	16.84	16.80	16.88	16.87	16.86	16.88	16.87	16.88	16.87
Motor Gasoline	19.41	19.41	19.42	19.43	19.45	19.38	19.36	19.35	19.33	19.33	19.34
Jet Fuel	19.40	19.40	19.39	19.37	19.35	19.34	19.33	19.33	19.33	19.33	19.33
MoGas Blend Components	19.41	19.41	19.42	19.43	19.45	19.38	19.36	19.35	19.33	19.33	19.34
Misc. Products	20.16	20.18	20.22	20.22	20.21	20.23	20.25	20.24	20.24	20.19	20.23
Unfinished Oils	20.16	20.18	20.22	20.22	20.21	20.23	20.25	20.24	20.24	20.19	20.23
Crude Oil	20.16	20.18	20.22	20.22	20.21	20.23	20.25	20.24	20.24	20.19	20.23

Source: EIA (2001a) and EIA (2001c)

Table A-16: Electricity Consumption by End-Use Sector (Billion Kilowatt-Hours)

End-Use Sector	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Residential	924	955	936	995	1,008	1,043	1,083	1,076	1,130	1,145	1,192
Commercial	839	856	851	886	914	954	981	1,028	1,079	1,105	1,135
Industrial	946	947	973	977	1,008	1,013	1,034	1,038	1,051	1,058	1,068
Transportation	4	4	4	4	4	4	4	4	4	4	4
U.S. Territories*	-	-	-	-	-	-	-	-	-	-	-
Total	2,713	2,762	2,763	2,861	2,935	3,013	3,101	3,146	3,264	3,312	3,398

*EIA data on fuel consumption for electricity generation does not include the U.S. territories.

- Not applicable

Source: EIA (2001a)