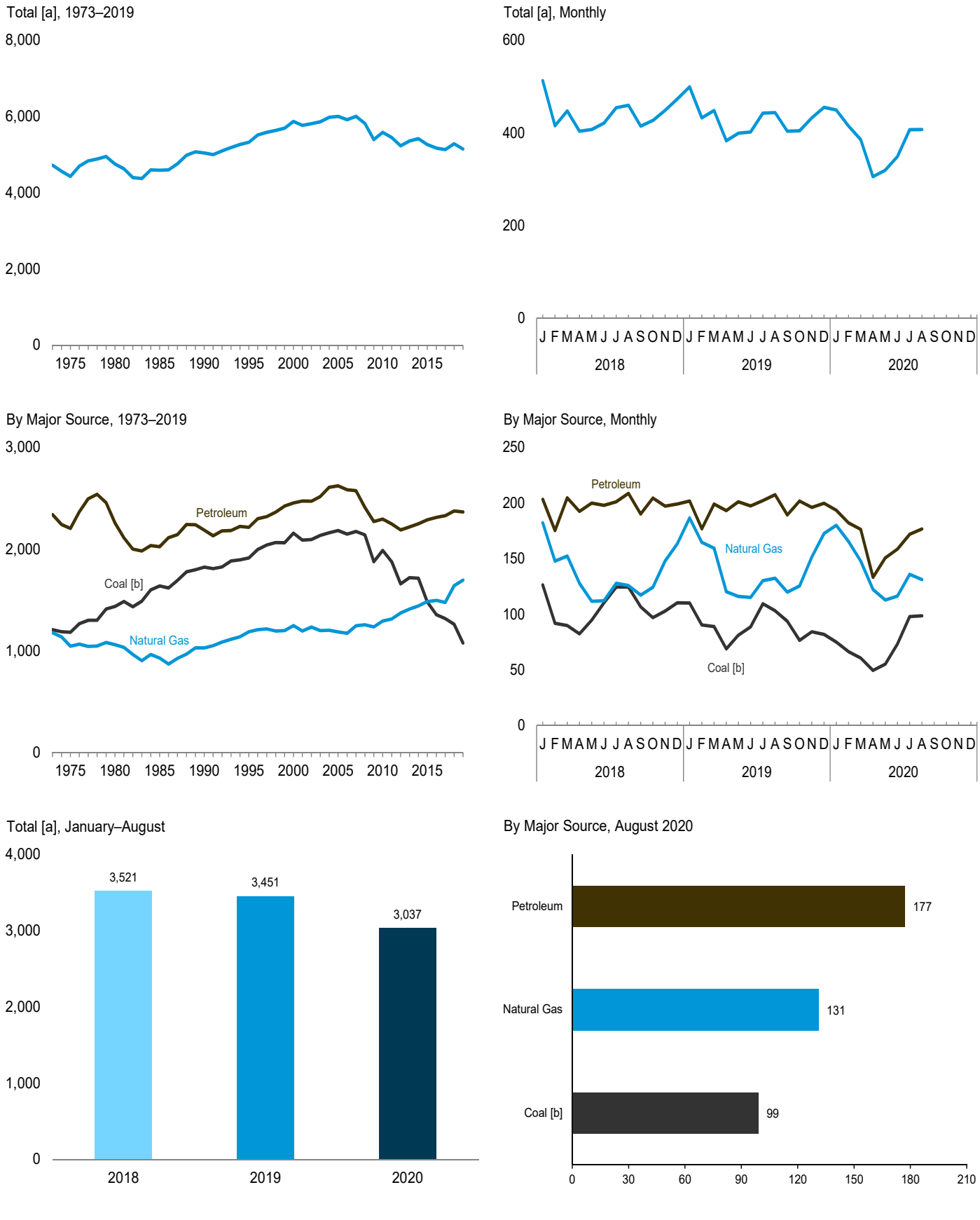
11. Environment

Figure 11.1 Carbon Dioxide Emissions From Energy Consumption by Source

(Million Metric Tons of Carbon Dioxide)



[a] Excludes emissions from biomass energy consumption.
[b] Includes coal coke net imports.

Web Page: http://www.eia.gov/totalenergy/data/monthly/#environment.
Source: Table 11.1.

Table 11.1 Carbon Dioxide Emissions From Energy Consumption by Source

(Million Metric Tons of Carbon Dioxide[a])

			Petroleum											
	Coal[b]	Natural Gas[c]	Aviation Gasoline	Distillate Fuel Oil[d]	HGL[e]	Jet Fuel	Kero-sene	Lubri-cants	Motor Gasoline[f]	Petroleum Coke	Residual Fuel Oil	Other[g]	Total	Total[h,i]
1973 Total	**1,206**	**1,176**	**6**	**480**	**80**	**155**	**32**	**13**	**911**	**54**	**510**	**99**	**2,340**	**4,722**
1975 Total	**1,181**	**1,044**	**5**	**442**	**73**	**146**	**24**	**11**	**911**	**51**	**445**	**94**	**2,202**	**4,426**
1980 Total	**1,435**	**1,059**	**4**	**446**	**78**	**156**	**24**	**13**	**900**	**49**	**455**	**131**	**2,256**	**4,750**
1985 Total	**1,637**	**927**	**3**	**445**	**82**	**178**	**17**	**12**	**930**	**55**	**217**	**83**	**2,022**	**4,587**
1990 Total	**1,821**	**1,027**	**3**	**470**	**75**	**223**	**6**	**13**	**988**	**70**	**222**	**115**	**2,185**	**5,040**
1995 Total	**1,913**	**1,186**	**3**	**498**	**90**	**222**	**8**	**13**	**1,042**	**77**	**154**	**107**	**2,214**	**5,323**
2000 Total	**2,156**	**1,246**	**3**	**579**	**106**	**254**	**10**	**14**	**1,133**	**84**	**165**	**107**	**2,454**	**5,867**
2001 Total	**2,088**	**1,193**	**2**	**597**	**96**	**243**	**11**	**13**	**1,149**	**90**	**147**	**125**	**2,472**	**5,765**
2002 Total	**2,094**	**1,231**	**2**	**586**	**98**	**237**	**6**	**12**	**1,180**	**100**	**126**	**122**	**2,471**	**5,809**
2003 Total	**2,135**	**1,196**	**2**	**610**	**96**	**231**	**8**	**11**	**1,186**	**99**	**140**	**134**	**2,517**	**5,860**
2004 Total	**2,160**	**1,201**	**2**	**632**	**96**	**240**	**10**	**12**	**1,209**	**113**	**157**	**136**	**2,606**	**5,979**
2005 Total	**2,181**	**1,183**	**2**	**639**	**92**	**246**	**10**	**12**	**1,208**	**111**	**166**	**135**	**2,623**	**5,999**
2006 Total	**2,147**	**1,171**	**2**	**645**	**86**	**240**	**8**	**11**	**1,216**	**104**	**125**	**147**	**2,584**	**5,914**
2007 Total	**2,172**	**1,246**	**2**	**647**	**90**	**238**	**5**	**12**	**1,208**	**98**	**131**	**143**	**2,573**	**6,003**
2008 Total	**2,140**	**1,255**	**2**	**610**	**89**	**226**	**2**	**11**	**1,139**	**92**	**113**	**126**	**2,410**	**5,817**
2009 Total	**1,876**	**1,234**	**2**	**555**	**86**	**204**	**3**	**10**	**1,126**	**85**	**92**	**107**	**2,271**	**5,392**
2010 Total	**1,986**	**1,292**	**2**	**583**	**85**	**210**	**3**	**11**	**1,110**	**82**	**97**	**115**	**2,296**	**5,585**
2011 Total	**1,875**	**1,311**	**2**	**592**	**79**	**209**	**2**	**10**	**1,077**	**79**	**83**	**114**	**2,247**	**5,446**
2012 Total	**1,657**	**1,372**	**2**	**569**	**76**	**206**	**1**	**9**	**1,071**	**79**	**67**	**110**	**2,189**	**5,229**
2013 Total	**1,718**	**1,409**	**2**	**573**	**85**	**210**	**1**	**10**	**1,086**	**77**	**58**	**116**	**2,218**	**5,356**
2014 Total	**1,714**	**1,440**	**2**	**606**	**86**	**216**	**1**	**10**	**1,095**	**78**	**46**	**108**	**2,249**	**5,413**
2015 Total	**1,480**	**1,483**	**1**	**598**	**87**	**227**	**1**	**11**	**1,125**	**79**	**47**	**112**	**2,288**	**5,263**
2016 Total	**1,354**	**1,494**	**1**	**576**	**83**	**237**	**1**	**11**	**1,144**	**78**	**59**	**120**	**2,311**	**5,171**
2017 Total	**1,316**	**1,475**	**1**	**584**	**86**	**247**	**1**	**10**	**1,140**	**72**	**62**	**126**	**2,328**	**5,131**
2018 January	126	182	(s)	57	12	20	(s)	1	91	7	5	11	203	513
February	92	148	(s)	46	9	18	(s)	1	83	3	4	11	175	415
March	90	152	(s)	53	9	21	(s)	1	99	6	4	12	205	447
April	82	128	(s)	51	8	20	(s)	1	93	6	6	9	193	404
May	95	112	(s)	53	6	21	(s)	1	99	6	5	10	200	407
June	110	112	(s)	48	6	22	(s)	1	99	7	4	11	198	421
July	124	128	(s)	50	6	22	(s)	1	100	6	5	10	201	454
August	124	126	(s)	53	7	23	(s)	1	101	8	4	10	209	460
September	107	117	(s)	49	7	21	(s)	1	92	7	5	8	190	415
October	97	124	(s)	55	8	21	(s)	1	96	8	4	11	204	426
November	103	148	(s)	51	10	21	(s)	1	93	5	5	10	197	449
December	110	163	(s)	51	11	21	(s)	1	95	5	6	10	199	473
Total	**1,260**	**1,639**	**2**	**618**	**98**	**250**	**1**	**10**	**1,141**	**74**	**57**	**123**	**2,374**	**5,284**
2019 January	110	R 187	(s)	55	12	20	(s)	1	91	6	5	11	202	499
February	90	R 165	(s)	49	10	18	(s)	1	85	2	4	7	177	432
March	89	159	(s)	53	10	21	(s)	1	95	6	3	10	199	448
April	69	120	(s)	50	7	21	(s)	1	95	4	3	11	193	383
May	81	116	(s)	52	7	22	(s)	1	98	6	3	12	201	399
June	89	115	(s)	49	6	22	(s)	1	97	8	5	10	197	402
July	R 109	R 130	(s)	49	7	23	(s)	1	99	8	5	10	202	R 443
August	103	R 132	(s)	51	7	23	(s)	1	102	6	5	12	207	R 444
September	94	R 120	(s)	48	7	21	(s)	1	92	5	5	11	189	R 404
October	76	R 125	(s)	54	8	22	(s)	1	96	4	5	11	202	R 404
November	84	R 151	(s)	52	10	21	(s)	1	92	6	3	11	196	R 432
December	82	R 173	(s)	50	11	23	(s)	1	93	7	4	11	200	R 455
Total	**R 1,076**	**R 1,694**	**2**	**613**	**103**	**256**	**1**	**9**	**1,137**	**69**	**50**	**127**	**2,365**	**R 5,146**
2020 January	75	180	(s)	51	10	21	(s)	1	91	5	4	11	194	449
February	66	R 165	(s)	47	9	19	(s)	1	87	5	2	12	182	415
March	R 61	148	(s)	50	9	17	(s)	(s)	81	5	2	12	176	385
April	49	122	(s)	43	7	8	(s)	1	59	4	2	10	133	R 306
May	55	113	(s)	45	7	7	(s)	1	74	4	1	11	151	319
June	73	116	(s)	43	6	9	(s)	1	83	4	3	9	158	349
July	98	136	(s)	45	7	12	(s)	1	88	5	5	9	172	R 407
August	99	131	(s)	46	7	13	(s)	1	88	7	5	10	177	407
8-Month Total	**576**	**1,111**	**1**	**370**	**61**	**107**	**1**	**5**	**652**	**38**	**24**	**83**	**1,343**	**3,037**
2019 8-Month Total	**740**	**1,124**	**1**	**409**	**66**	**171**	**1**	**6**	**763**	**46**	**33**	**82**	**1,579**	**3,451**
2018 8-Month Total	**844**	**1,087**	**1**	**412**	**63**	**167**	**1**	**7**	**764**	**48**	**37**	**84**	**1,583**	**3,521**

[a] Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.
[b] Includes coal coke net imports.
[c] Natural gas, excluding supplemental gaseous fuels.
[d] Distillate fuel oil, excluding biodiesel.
[e] Hydrocarbon gas liquids.
[f] Finished motor gasoline, excluding fuel ethanol.
[g] Aviation gasoline blending components, crude oil, motor gasoline blending components, petrochemical feedstocks, special naphthas, still gas, unfinished oils, waxes, and miscellaneous petroleum products.
[h] Includes electric power sector use of geothermal energy and non-biomass waste. See Table 11.6.
[i] Excludes emissions from biomass energy consumption. See Table 11.7.

R=Revised. (s)=Less than 0.5 million metric tons.

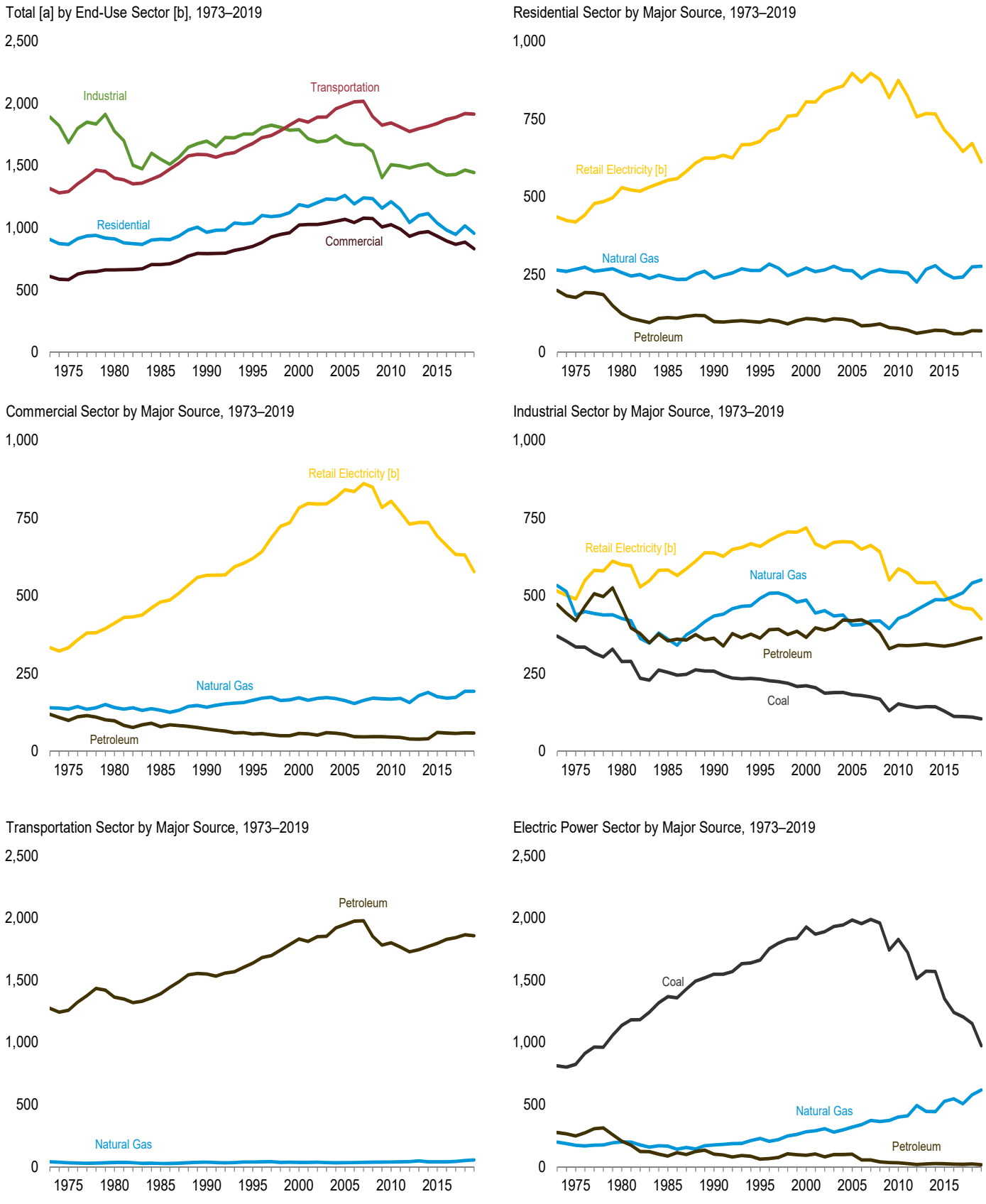
Notes: • Data are estimates for carbon dioxide emissions from energy consumption, plus the relatively small amount of emissions from the non-combustion use of fossil fuels. See "Section 11 Methodology and Sources" at end of section. • See "Carbon Dioxide" in Glossary. • See Note 1, "Emissions of Carbon Dioxide and Other Greenhouse Gases," at end of section. • Data exclude emissions from biomass energy consumption. See Table 11.7 and Note 2, "Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#environment (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: See end of section.

Figure 11.2 Carbon Dioxide Emissions From Energy Consumption by Sector

(Million Metric Tons of Carbon Dioxide)



[a] Excludes emissions from biomass energy consumption.

[b] Emissions from energy consumption in the electric power sector are allocated to the end-use sectors in proportion to each sector's share of total electricity retail sales.

Web Page: http://www.eia.gov/totalenergy/data/monthly/#environment.

Sources: Tables 11.2–11.6.

Table 11.2 Carbon Dioxide Emissions From Energy Consumption: Residential Sector

(Million Metric Tons of Carbon Dioxide[a])

	Coal	Natural Gas[b]	Petroleum				Retail Electricity[e]	Total[f]
			Distillate Fuel Oil[c]	HGL[d]	Kerosene	Total		
1973 Total	**9**	**264**	**147**	**36**	**16**	**199**	**435**	**907**
1975 Total	**6**	**266**	**132**	**32**	**12**	**176**	**419**	**867**
1980 Total	**3**	**256**	**96**	**20**	**8**	**124**	**529**	**911**
1985 Total	**4**	**241**	**80**	**20**	**11**	**111**	**553**	**909**
1990 Total	**3**	**238**	**72**	**22**	**5**	**98**	**624**	**963**
1995 Total	**2**	**263**	**66**	**25**	**5**	**96**	**678**	**1,039**
2000 Total	**1**	**271**	**66**	**35**	**7**	**108**	**805**	**1,185**
2001 Total	**1**	**259**	**66**	**33**	**7**	**106**	**805**	**1,171**
2002 Total	**1**	**265**	**63**	**34**	**4**	**101**	**835**	**1,203**
2003 Total	**1**	**276**	**68**	**34**	**5**	**108**	**847**	**1,232**
2004 Total	**1**	**264**	**67**	**32**	**6**	**106**	**856**	**1,227**
2005 Total	**1**	**262**	**62**	**32**	**6**	**101**	**897**	**1,261**
2006 Total	**1**	**237**	**52**	**28**	**5**	**85**	**869**	**1,191**
2007 Total	**1**	**257**	**53**	**31**	**3**	**86**	**897**	**1,241**
2008 Total	**NA**	**266**	**55**	**35**	**2**	**91**	**877**	**1,235**
2009 Total	**NA**	**259**	**43**	**35**	**2**	**79**	**819**	**1,157**
2010 Total	**NA**	**259**	**41**	**33**	**2**	**77**	**874**	**1,210**
2011 Total	**NA**	**255**	**38**	**31**	**1**	**71**	**823**	**1,149**
2012 Total	**NA**	**225**	**35**	**25**	**1**	**61**	**757**	**1,043**
2013 Total	**NA**	**267**	**36**	**29**	**1**	**66**	**768**	**1,100**
2014 Total	**NA**	**278**	**39**	**31**	**1**	**71**	**766**	**1,115**
2015 Total	**NA**	**253**	**40**	**28**	**1**	**69**	**714**	**1,037**
2016 Total	**NA**	**239**	**32**	**27**	**1**	**60**	**683**	**982**
2017 Total	**NA**	**242**	**32**	**27**	**1**	**59**	**645**	**947**
2018 January	NA	54	6	5	(s)	12	72	138
February	NA	38	4	4	(s)	8	48	94
March	NA	36	3	4	(s)	7	45	88
April	NA	24	3	3	(s)	6	39	69
May	NA	9	2	1	(s)	3	46	59
June	NA	7	1	1	(s)	2	60	69
July	NA	6	1	1	(s)	2	76	84
August	NA	5	1	1	(s)	2	74	81
September	NA	6	2	1	(s)	3	60	69
October	NA	14	3	2	(s)	6	48	67
November	NA	33	4	4	(s)	8	49	90
December	NA	42	6	5	(s)	10	57	110
Total	**NA**	**275**	**37**	**32**	**1**	**70**	**671**	**1,016**
2019 January	NA	53	5	5	(s)	11	R 61	R 124
February	NA	45	4	4	(s)	9	50	R 103
March	NA	38	4	4	(s)	8	47	93
April	NA	18	3	2	(s)	5	34	57
May	NA	12	2	2	(s)	4	41	R 56
June	NA	7	2	1	(s)	3	R 51	R 61
July	NA	6	2	1	(s)	3	R 70	R 79
August	NA	6	2	1	(s)	3	R 67	R 76
September	NA	6	1	1	(s)	3	R 57	R 65
October	NA	13	2	2	(s)	4	R 42	R 59
November	NA	32	4	4	(s)	8	44	R 84
December	NA	41	5	4	(s)	9	49	100
Total	**NA**	**276**	**37**	**31**	**1**	**69**	**R 611**	**R 956**
2020 January	NA	45	4	4	(s)	9	48	102
February	NA	40	3	4	(s)	8	42	90
March	NA	29	3	3	(s)	6	37	73
April	NA	21	3	3	(s)	5	33	59
May	NA	13	3	2	(s)	5	R 38	55
June	NA	7	2	1	(s)	3	52	63
July	NA	6	1	1	(s)	2	75	R 84
August	NA	6	1	1	(s)	2	71	80
8-Month Total	**NA**	**168**	**21**	**19**	**1**	**40**	**396**	**604**
2019 8-Month Total	**NA**	**184**	**24**	**20**	**(s)**	**44**	**421**	**649**
2018 8-Month Total	**NA**	**179**	**22**	**20**	**1**	**43**	**459**	**682**

[a] Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.
[b] Natural gas, excluding supplemental gaseous fuels.
[c] Distillate fuel oil, excluding biodiesel.
[d] Hydrocarbon gas liquids.
[e] Emissions from energy consumption (for electricity and a small amount of useful thermal output) in the electric power sector are allocated to the end-use sectors in proportion to each sector's share of total electricity retail sales. See Tables 7.6 and 11.6.
[f] Excludes emissions from biomass energy consumption. See Table 11.7.
R=Revised. NA=Not available. (s)=Less than 0.5 million metric tons.

Notes: • Data are estimates for carbon dioxide emissions from energy consumption. See "Section 11 Methodology and Sources" at end of section. • See "Carbon Dioxide" in Glossary. • See Note 1, "Emissions of Carbon Dioxide and Other Greenhouse Gases," at end of section. • Data exclude emissions from biomass energy consumption. See Table 11.7 and Note 2, "Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.
Web Page: See http://www.eia.gov/totalenergy/data/monthly/#environment (Excel and CSV files) for all available annual and monthly data beginning in 1973.
Sources: See end of section.

Table 11.3 Carbon Dioxide Emissions From Energy Consumption: Commercial Sector

(Million Metric Tons of Carbon Dioxide[a])

	Coal	Natural Gas[b]	Petroleum							Retail Electricity[f]	Total[g]
			Distillate Fuel Oil[c]	HGL[d]	Kerosene	Motor Gasoline[e]	Petroleum Coke	Residual Fuel Oil	Total		
1973 Total	**15**	**141**	**47**	**9**	**5**	**6**	**NA**	**52**	**120**	**334**	**609**
1975 Total	**14**	**136**	**43**	**8**	**4**	**6**	**NA**	**39**	**100**	**333**	**583**
1980 Total	**11**	**141**	**38**	**6**	**3**	**8**	**NA**	**44**	**98**	**412**	**662**
1985 Total	**13**	**132**	**46**	**6**	**2**	**7**	**NA**	**18**	**79**	**480**	**705**
1990 Total	**12**	**142**	**39**	**6**	**1**	**8**	**0**	**18**	**73**	**566**	**793**
1995 Total	**11**	**164**	**35**	**7**	**2**	**1**	**(s)**	**11**	**56**	**620**	**851**
2000 Total	**9**	**173**	**36**	**9**	**2**	**3**	**(s)**	**7**	**58**	**783**	**1,022**
2001 Total	**9**	**164**	**37**	**9**	**2**	**3**	**(s)**	**6**	**57**	**797**	**1,027**
2002 Total	**9**	**170**	**32**	**9**	**1**	**3**	**(s)**	**6**	**52**	**795**	**1,026**
2003 Total	**8**	**173**	**36**	**10**	**1**	**4**	**(s)**	**9**	**60**	**796**	**1,037**
2004 Total	**10**	**170**	**34**	**10**	**1**	**3**	**(s)**	**10**	**58**	**815**	**1,053**
2005 Total	**9**	**163**	**33**	**8**	**2**	**3**	**(s)**	**9**	**55**	**841**	**1,069**
2006 Total	**6**	**154**	**29**	**8**	**1**	**3**	**(s)**	**6**	**47**	**835**	**1,043**
2007 Total	**7**	**164**	**28**	**8**	**1**	**4**	**(s)**	**6**	**46**	**861**	**1,078**
2008 Total	**8**	**171**	**28**	**10**	**(s)**	**3**	**(s)**	**6**	**47**	**849**	**1,075**
2009 Total	**7**	**169**	**29**	**9**	**(s)**	**3**	**(s)**	**6**	**47**	**784**	**1,007**
2010 Total	**7**	**168**	**29**	**9**	**(s)**	**3**	**(s)**	**5**	**46**	**804**	**1,025**
2011 Total	**6**	**171**	**29**	**9**	**(s)**	**3**	**(s)**	**4**	**45**	**768**	**990**
2012 Total	**4**	**157**	**26**	**9**	**(s)**	**3**	**(s)**	**2**	**40**	**731**	**932**
2013 Total	**4**	**179**	**25**	**10**	**(s)**	**3**	**(s)**	**2**	**39**	**736**	**958**
2014 Total	**4**	**190**	**26**	**10**	**(s)**	**4**	**(s)**	**1**	**41**	**736**	**970**
2015 Total	**3**	**176**	**26**	**9**	**(s)**	**25**	**(s)**	**(s)**	**61**	**692**	**932**
2016 Total	**2**	**171**	**24**	**9**	**(s)**	**25**	**(s)**	**(s)**	**59**	**662**	**894**
2017 Total	**2**	**174**	**24**	**10**	**(s)**	**24**	**(s)**	**(s)**	**58**	**633**	**867**
2018 January	(s)	30	4	2	(s)	2	(s)	(s)	7	56	94
February	(s)	23	2	1	(s)	2	(s)	(s)	5	43	72
March	(s)	23	2	1	(s)	2	(s)	(s)	5	45	74
April	(s)	17	2	1	(s)	2	(s)	(s)	5	42	64
May	(s)	9	1	1	(s)	2	0	(s)	4	50	63
June	(s)	8	1	1	(s)	2	0	(s)	4	56	68
July	(s)	8	1	1	(s)	2	0	(s)	4	65	76
August	(s)	8	1	1	(s)	2	0	(s)	3	65	76
September	(s)	8	1	1	(s)	2	(s)	(s)	4	57	68
October	(s)	13	2	1	(s)	2	(s)	(s)	5	52	70
November	(s)	21	3	1	(s)	2	(s)	(s)	6	50	77
December	(s)	25	4	1	(s)	2	(s)	(s)	7	50	83
Total	**2**	**193**	**24**	**11**	**(s)**	**24**	**(s)**	**(s)**	**59**	**632**	**886**
2019 January	(s)	31	3	1	(s)	2	(s)	(s)	7	R 51	89
February	(s)	26	3	1	(s)	2	(s)	(s)	6	44	76
March	(s)	23	3	1	(s)	2	(s)	(s)	6	45	R 74
April	(s)	14	2	1	(s)	2	(s)	(s)	4	R 38	57
May	(s)	10	1	1	(s)	2	0	(s)	4	R 45	60
June	(s)	8	1	1	(s)	2	0	(s)	4	R 49	R 61
July	(s)	8	1	1	(s)	2	0	(s)	4	R 60	R 72
August	(s)	8	2	1	(s)	2	0	(s)	4	R 59	R 71
September	(s)	8	1	1	(s)	2	0	(s)	3	R 53	R 64
October	(s)	12	1	1	(s)	2	0	(s)	4	R 45	R 61
November	(s)	21	3	1	(s)	2	0	(s)	6	R 44	72
December	(s)	25	3	1	(s)	2	(s)	(s)	7	44	76
Total	**2**	**193**	**23**	**11**	**(s)**	**24**	**(s)**	**(s)**	**59**	**R 578**	**R 831**
2020 January	(s)	27	3	1	(s)	2	(s)	(s)	6	42	75
February	(s)	24	2	1	(s)	2	(s)	(s)	5	38	68
March	(s)	19	2	1	(s)	2	0	(s)	5	37	61
April	(s)	13	2	1	(s)	1	0	(s)	4	30	47
May	(s)	9	2	1	(s)	2	0	(s)	4	33	R 47
June	(s)	7	1	1	(s)	2	0	(s)	4	43	54
July	(s)	7	1	1	(s)	2	0	(s)	3	56	67
August	(s)	7	1	1	(s)	2	0	(s)	3	55	65
8-Month Total	**1**	**113**	**13**	**7**	**(s)**	**14**	**(s)**	**(s)**	**34**	**335**	**484**
2019 8-Month Total	**1**	**127**	**15**	**7**	**(s)**	**16**	**(s)**	**(s)**	**39**	**391**	**558**
2018 8-Month Total	**1**	**126**	**14**	**7**	**(s)**	**16**	**(s)**	**(s)**	**38**	**422**	**587**

[a] Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.
[b] Natural gas, excluding supplemental gaseous fuels.
[c] Distillate fuel oil, excluding biodiesel.
[d] Hydrocarbon gas liquids.
[e] Finished motor gasoline, excluding fuel ethanol.
[f] Emissions from energy consumption (for electricity and a small amount of useful thermal output) in the electric power sector are allocated to the end-use sectors in proportion to each sector's share of total electricity retail sales. See Tables 7.6 and 11.6.
[g] Excludes emissions from biomass energy consumption. See Table 11.7.
R=Revised. NA=Not available. (s)=Less than 0.5 million metric tons.

Notes: • Data are estimates for carbon dioxide emissions from energy consumption. See "Section 11 Methodology and Sources" at end of section. • See "Carbon Dioxide" in Glossary. • See Note 1, "Emissions of Carbon Dioxide and Other Greenhouse Gases," at end of section. • Data exclude emissions from biomass energy consumption. See Table 11.7 and Note 2, "Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#environment (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: See end of section.

Table 11.4 Carbon Dioxide Emissions From Energy Consumption: Industrial Sector

(Million Metric Tons of Carbon Dioxide[a])

	Coal	Coal Coke Net Imports	Natural Gas[b]	Petroleum									Retail Electricity[g]	Total[h]
				Distillate Fuel Oil[c]	HGL[d]	Kerosene	Lubricants	Motor Gasoline[e]	Petroleum Coke	Residual Fuel Oil	Other[f]	Total		
1973 Total	**371**	**-1**	**533**	**106**	**31**	**11**	**7**	**18**	**52**	**146**	**99**	**472**	**515**	**1,891**
1975 Total	**335**	**2**	**438**	**97**	**30**	**9**	**6**	**16**	**51**	**119**	**94**	**420**	**490**	**1,685**
1980 Total	**289**	**-4**	**428**	**96**	**52**	**13**	**7**	**11**	**48**	**106**	**131**	**464**	**601**	**1,777**
1985 Total	**255**	**-2**	**361**	**81**	**54**	**3**	**6**	**15**	**54**	**59**	**83**	**356**	**583**	**1,553**
1990 Total	**258**	**1**	**436**	**84**	**45**	**1**	**7**	**13**	**67**	**32**	**115**	**364**	**638**	**1,697**
1995 Total	**233**	**7**	**492**	**82**	**57**	**1**	**7**	**14**	**69**	**27**	**107**	**364**	**659**	**1,754**
2000 Total	**211**	**7**	**486**	**87**	**61**	**1**	**7**	**11**	**74**	**19**	**107**	**366**	**719**	**1,790**
2001 Total	**205**	**3**	**444**	**95**	**53**	**2**	**6**	**21**	**79**	**16**	**125**	**397**	**667**	**1,717**
2002 Total	**187**	**7**	**453**	**88**	**54**	**1**	**6**	**22**	**82**	**15**	**122**	**390**	**654**	**1,691**
2003 Total	**189**	**6**	**435**	**85**	**50**	**2**	**6**	**23**	**81**	**17**	**134**	**398**	**672**	**1,700**
2004 Total	**190**	**16**	**438**	**88**	**53**	**2**	**6**	**26**	**92**	**20**	**136**	**423**	**674**	**1,741**
2005 Total	**182**	**5**	**406**	**92**	**49**	**3**	**6**	**25**	**88**	**22**	**135**	**420**	**672**	**1,685**
2006 Total	**180**	**7**	**408**	**91**	**49**	**2**	**6**	**26**	**84**	**19**	**147**	**423**	**650**	**1,667**
2007 Total	**175**	**3**	**419**	**91**	**50**	**1**	**6**	**21**	**81**	**15**	**143**	**409**	**662**	**1,667**
2008 Total	**168**	**5**	**419**	**98**	**41**	**(s)**	**6**	**17**	**78**	**15**	**126**	**380**	**642**	**1,614**
2009 Total	**131**	**-3**	**395**	**78**	**41**	**(s)**	**5**	**16**	**72**	**10**	**107**	**330**	**550**	**1,403**
2010 Total	**152**	**-1**	**427**	**84**	**42**	**1**	**5**	**17**	**68**	**9**	**115**	**341**	**587**	**1,507**
2011 Total	**146**	**1**	**438**	**90**	**38**	**(s)**	**5**	**17**	**65**	**10**	**114**	**340**	**574**	**1,498**
2012 Total	**141**	**(s)**	**455**	**93**	**42**	**(s)**	**4**	**17**	**70**	**5**	**110**	**342**	**543**	**1,481**
2013 Total	**144**	**-2**	**472**	**92**	**46**	**(s)**	**5**	**17**	**65**	**4**	**116**	**345**	**542**	**1,501**
2014 Total	**143**	**-2**	**488**	**100**	**45**	**(s)**	**5**	**14**	**66**	**3**	**108**	**341**	**543**	**1,513**
2015 Total	**129**	**-2**	**487**	**85**	**49**	**(s)**	**5**	**17**	**67**	**3**	**112**	**338**	**502**	**1,455**
2016 Total	**113**	**-2**	**497**	**84**	**46**	**(s)**	**5**	**17**	**66**	**4**	**120**	**343**	**473**	**1,424**
2017 Total	**112**	**-3**	**510**	**88**	**48**	**(s)**	**5**	**18**	**62**	**4**	**126**	**350**	**461**	**1,430**
2018 January	9	(s)	49	10	5	(s)	(s)	1	5	(s)	11	33	39	129
February	9	(s)	44	7	4	(s)	(s)	1	3	(s)	11	26	32	111
March	9	(s)	47	9	4	(s)	(s)	2	5	(s)	12	33	34	122
April	9	(s)	44	7	4	(s)	(s)	1	5	(s)	9	27	32	113
May	9	(s)	43	9	4	(s)	(s)	2	5	(s)	10	30	38	120
June	9	(s)	42	6	4	(s)	(s)	2	6	(s)	11	29	40	119
July	9	(s)	43	6	5	(s)	(s)	2	5	(s)	10	28	44	125
August	9	(s)	44	8	5	(s)	(s)	2	7	(s)	10	33	44	130
September	9	(s)	43	7	5	(s)	(s)	1	7	(s)	8	29	40	121
October	9	(s)	45	9	5	(s)	(s)	2	7	(s)	11	34	38	126
November	9	(s)	47	7	5	(s)	(s)	1	4	(s)	10	29	38	124
December	10	(s)	49	5	5	(s)	(s)	1	4	(s)	10	26	37	122
Total	**110**	**-3**	**541**	**92**	**54**	**(s)**	**5**	**18**	**64**	**3**	**123**	**358**	**457**	**1,464**
2019 January	9	(s)	51	10	6	(s)	(s)	1	5	(s)	11	34	R 38	R 131
February	9	(s)	46	9	5	(s)	(s)	1	1	(s)	7	24	R 33	R 111
March	9	(s)	48	9	4	(s)	(s)	1	5	(s)	10	30	R 34	R 122
April	8	(s)	44	8	4	(s)	(s)	1	4	(s)	11	30	R 30	R 112
May	9	(s)	45	8	4	(s)	(s)	2	5	(s)	12	32	R 34	R 119
June	9	(s)	42	7	5	(s)	(s)	2	7	(s)	10	30	R 36	R 117
July	8	(s)	43	6	5	(s)	(s)	2	7	(s)	10	30	R 42	R 123
August	9	(s)	45	6	5	(s)	(s)	2	6	(s)	12	31	R 41	R 125
September	8	(s)	43	7	6	(s)	(s)	1	4	(s)	11	30	R 37	R 118
October	9	(s)	45	9	5	(s)	(s)	2	4	(s)	11	32	R 33	119
November	8	(s)	48	8	5	(s)	(s)	1	6	(s)	11	32	R 34	R 122
December	9	(s)	51	6	5	(s)	(s)	1	R 6	(s)	11	31	R 32	R 122
Total	**104**	**-2**	**551**	**92**	**60**	**(s)**	**4**	**18**	**61**	**3**	**127**	**365**	**R 425**	**R 1,444**
2020 January	8	(s)	51	9	4	(s)	(s)	1	4	(s)	11	30	30	120
February	8	(s)	47	9	4	(s)	(s)	1	4	(s)	12	30	28	114
March	8	(s)	47	8	5	(s)	(s)	1	4	(s)	12	30	28	113
April	7	(s)	43	3	3	(s)	(s)	1	3	(s)	10	21	23	93
May	6	(s)	42	3	4	(s)	(s)	1	R 4	(s)	11	23	25	96
June	7	(s)	40	2	4	(s)	(s)	1	3	(s)	9	21	30	98
July	8	(s)	43	4	5	(s)	(s)	1	4	(s)	9	24	36	111
August	7	(s)	43	4	5	(s)	(s)	1	6	(s)	10	28	37	116
8-Month Total	**60**	**-1**	**356**	**42**	**36**	**(s)**	**2**	**10**	**32**	**1**	**83**	**207**	**238**	**861**
2019 8-Month Total	**70**	**-1**	**364**	**63**	**39**	**(s)**	**3**	**12**	**40**	**2**	**82**	**241**	**287**	**961**
2018 8-Month Total	**73**	**-2**	**357**	**63**	**35**	**(s)**	**3**	**12**	**41**	**2**	**84**	**240**	**302**	**971**

[a] Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.

[b] Natural gas, excluding supplemental gaseous fuels.

[c] Distillate fuel oil, excluding biodiesel.

[d] Hydrocarbon gas liquids.

[e] Finished motor gasoline, excluding fuel ethanol.

[f] Aviation gasoline blending components, crude oil, motor gasoline blending components, petrochemical feedstocks, special naphthas, still gas, unfinished oils, waxes, and miscellaneous petroleum products.

[g] Emissions from energy consumption (for electricity and a small amount of useful thermal output) in the electric power sector are allocated to the end-use sectors in proportion to each sector's share of total electricity retail sales. See Tables 7.6 and 11.6.

[h] Excludes emissions from biomass energy consumption. See Table 11.7.

R=Revised. (s)=Less than 0.5 million metric tons and greater than -0.5 million metric tons.

Notes: • Data are estimates for carbon dioxide emissions from energy consumption, plus the relatively small amount of emissions from the non-combustion use of fossil fuels. See "Section 11 Methodology and Sources" at end of section. • See "Carbon Dioxide" in Glossary. • See Note 1, "Emissions of Carbon Dioxide and Other Greenhouse Gases," at end of section. • Data exclude emissions from biomass energy consumption. See Table 11.7 and Note 2, "Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#environment (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: See end of section.

Table 11.5 Carbon Dioxide Emissions From Energy Consumption: Transportation Sector

(Million Metric Tons of Carbon Dioxide[a])

	Coal	Natural Gas[b]	Petroleum								Retail Electricity[f]	Total[g]
			Aviation Gasoline	Distillate Fuel Oil[c]	HGL[d]	Jet Fuel	Lubricants	Motor Gasoline[e]	Residual Fuel Oil	Total		
1973 Total	**(s)**	**39**	**6**	**163**	**3**	**152**	**6**	**886**	**57**	**1,273**	**2**	**1,315**
1975 Total	**(s)**	**32**	**5**	**155**	**3**	**145**	**6**	**889**	**56**	**1,258**	**2**	**1,292**
1980 Total	**(h)**	**34**	**4**	**204**	**1**	**155**	**6**	**881**	**110**	**1,363**	**2**	**1,400**
1985 Total	**(h)**	**28**	**3**	**232**	**2**	**178**	**6**	**908**	**62**	**1,391**	**3**	**1,421**
1990 Total	**(h)**	**36**	**3**	**268**	**1**	**223**	**7**	**967**	**80**	**1,548**	**3**	**1,588**
1995 Total	**(h)**	**38**	**3**	**307**	**1**	**222**	**6**	**1,026**	**72**	**1,637**	**3**	**1,679**
2000 Total	**(h)**	**36**	**3**	**377**	**1**	**254**	**7**	**1,119**	**70**	**1,830**	**4**	**1,870**
2001 Total	**(h)**	**35**	**2**	**387**	**1**	**243**	**6**	**1,125**	**46**	**1,810**	**4**	**1,849**
2002 Total	**(h)**	**37**	**2**	**394**	**1**	**237**	**6**	**1,156**	**53**	**1,849**	**4**	**1,890**
2003 Total	**(h)**	**33**	**2**	**408**	**1**	**231**	**6**	**1,159**	**45**	**1,853**	**5**	**1,891**
2004 Total	**(h)**	**32**	**2**	**433**	**1**	**240**	**6**	**1,180**	**58**	**1,921**	**5**	**1,957**
2005 Total	**(h)**	**33**	**2**	**444**	**2**	**246**	**6**	**1,180**	**66**	**1,946**	**5**	**1,984**
2006 Total	**(h)**	**33**	**2**	**467**	**2**	**240**	**5**	**1,187**	**71**	**1,974**	**5**	**2,012**
2007 Total	**(h)**	**35**	**2**	**469**	**1**	**238**	**6**	**1,183**	**78**	**1,977**	**5**	**2,018**
2008 Total	**(h)**	**37**	**2**	**424**	**3**	**226**	**5**	**1,119**	**73**	**1,852**	**5**	**1,893**
2009 Total	**(h)**	**38**	**2**	**400**	**2**	**204**	**5**	**1,107**	**62**	**1,782**	**5**	**1,825**
2010 Total	**(h)**	**38**	**2**	**423**	**(s)**	**210**	**6**	**1,089**	**70**	**1,800**	**5**	**1,843**
2011 Total	**(h)**	**39**	**2**	**431**	**(s)**	**209**	**6**	**1,057**	**61**	**1,766**	**4**	**1,809**
2012 Total	**(h)**	**41**	**2**	**411**	**(s)**	**206**	**5**	**1,051**	**53**	**1,728**	**4**	**1,773**
2013 Total	**(h)**	**47**	**2**	**416**	**(s)**	**210**	**5**	**1,066**	**46**	**1,745**	**4**	**1,796**
2014 Total	**(h)**	**40**	**2**	**435**	**(s)**	**216**	**6**	**1,077**	**35**	**1,770**	**4**	**1,815**
2015 Total	**(h)**	**40**	**1**	**441**	**(s)**	**227**	**6**	**1,083**	**37**	**1,795**	**4**	**1,839**
2016 Total	**(h)**	**40**	**1**	**431**	**(s)**	**237**	**6**	**1,102**	**49**	**1,827**	**4**	**1,871**
2017 Total	**(h)**	**42**	**1**	**436**	**(s)**	**247**	**5**	**1,099**	**52**	**1,842**	**4**	**1,888**
2018 January	(h)	6	(s)	36	(s)	20	(s)	88	3	146	(s)	152
February	(h)	5	(s)	32	(s)	18	(s)	80	4	134	(s)	139
March	(h)	5	(s)	38	(s)	21	(s)	95	3	158	(s)	163
April	(h)	4	(s)	38	(s)	20	(s)	89	5	153	(s)	157
May	(h)	3	(s)	41	(s)	21	(s)	95	4	161	(s)	165
June	(h)	3	(s)	39	(s)	22	(s)	95	3	161	(s)	165
July	(h)	4	(s)	41	(s)	22	(s)	96	5	165	(s)	169
August	(h)	4	(s)	43	(s)	23	(s)	98	4	168	(s)	172
September	(h)	4	(s)	39	(s)	21	(s)	89	4	153	(s)	157
October	(h)	4	(s)	41	(s)	21	(s)	93	3	158	(s)	163
November	(h)	5	(s)	37	(s)	21	(s)	90	4	153	(s)	158
December	(h)	5	(s)	36	(s)	21	(s)	92	5	154	(s)	159
Total	**(h)**	**51**	**2**	**460**	**(s)**	**250**	**5**	**1,099**	**48**	**1,864**	**4**	**1,919**
2019 January	(h)	6	(s)	36	(s)	20	(s)	88	4	149	(s)	155
February	(h)	5	(s)	33	(s)	18	(s)	82	3	137	(s)	142
March	(h)	5	(s)	37	(s)	21	(s)	92	3	154	(s)	160
April	(h)	4	(s)	38	(s)	21	1	91	2	153	(s)	157
May	(h)	4	(s)	40	(s)	22	(s)	95	2	160	(s)	164
June	(h)	4	(s)	39	(s)	22	(s)	94	4	159	(s)	163
July	(h)	4	(s)	40	(s)	23	(s)	95	4	164	(s)	168
August	(h)	4	(s)	41	(s)	23	(s)	99	4	167	(s)	172
September	(h)	4	(s)	38	(s)	21	(s)	89	4	152	(s)	157
October	(h)	4	(s)	41	(s)	22	(s)	93	4	160	(s)	164
November	(h)	5	(s)	37	(s)	21	(s)	89	3	149	(s)	155
December	(h)	6	(s)	36	(s)	23	(s)	89	4	152	(s)	158
Total	**(h)**	**55**	**2**	**456**	**(s)**	**256**	**5**	**1,095**	**42**	**1,856**	**3**	**1,915**
2020 January	(h)	6	(s)	35	(s)	21	(s)	87	3	147	(s)	153
February	(h)	5	(s)	33	(s)	19	(s)	84	2	138	(s)	144
March	(h)	5	(s)	37	(s)	17	(s)	78	1	134	(s)	139
April	(h)	4	(s)	35	(s)	8	(s)	57	1	102	(s)	106
May	(h)	4	(s)	37	(s)	7	(s)	72	1	117	(s)	121
June	(h)	4	(s)	37	(s)	9	(s)	80	3	129	(s)	133
July	(h)	4	(s)	39	(s)	12	(s)	84	5	141	(s)	145
August	(h)	4	(s)	40	(s)	13	(s)	85	4	142	(s)	146
8-Month Total	**(h)**	**36**	**1**	**291**	**(s)**	**107**	**3**	**628**	**20**	**1,050**	**2**	**1,088**
2019 8-Month Total	**(h)**	**36**	**1**	**305**	**(s)**	**171**	**3**	**735**	**28**	**1,243**	**2**	**1,282**
2018 8-Month Total	**(h)**	**34**	**1**	**308**	**(s)**	**167**	**4**	**736**	**30**	**1,246**	**2**	**1,282**

[a] Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.
[b] Natural gas, excluding supplemental gaseous fuels.
[c] Distillate fuel oil, excluding biodiesel.
[d] Hydrocarbon gas liquids.
[e] Finished motor gasoline, excluding fuel ethanol.
[f] Emissions from energy consumption (for electricity and a small amount of useful thermal output) in the electric power sector are allocated to the end-use sectors in proportion to each sector's share of total electricity retail sales. See Tables 7.6 and 11.6.
[g] Excludes emissions from biomass energy consumption. See Table 11.7.
[h] Beginning in 1978, the small amounts of coal consumed for transportation are reported as industrial sector consumption.

(s)=Less than 0.5 million metric tons.

Notes: • Data are estimates for carbon dioxide emissions from energy consumption, plus the relatively small amount of emissions from the non-combustion use of fossil fuels. See "Section 11 Methodology and Sources" at end of section. • See "Carbon Dioxide" in Glossary. • See Note 1, "Emissions of Carbon Dioxide and Other Greenhouse Gases," at end of section. • Data exclude emissions from biomass energy consumption. See Table 11.7 and Note 2, "Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#environment (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: See end of section.

Table 11.6 Carbon Dioxide Emissions From Energy Consumption: Electric Power Sector

(Million Metric Tons of Carbon Dioxide[a])

	Coal	Natural Gas[b]	Petroleum				Geo-thermal	Non-Biomass Waste[d]	Total[e]
			Distillate Fuel Oil[c]	Petroleum Coke	Residual Fuel Oil	Total			
1973 Total	**812**	**199**	**20**	**2**	**254**	**276**	**NA**	**NA**	**1,286**
1975 Total	**824**	**172**	**17**	**(s)**	**231**	**248**	**NA**	**NA**	**1,244**
1980 Total	**1,137**	**200**	**12**	**1**	**194**	**207**	**NA**	**NA**	**1,544**
1985 Total	**1,367**	**166**	**6**	**1**	**79**	**86**	**NA**	**NA**	**1,619**
1990 Total	**1,548**	**176**	**7**	**3**	**92**	**102**	**(s)**	**6**	**1,831**
1995 Total	**1,661**	**228**	**8**	**8**	**45**	**61**	**(s)**	**10**	**1,960**
2000 Total	**1,927**	**281**	**13**	**10**	**69**	**91**	**(s)**	**10**	**2,310**
2001 Total	**1,870**	**290**	**12**	**11**	**79**	**102**	**(s)**	**11**	**2,273**
2002 Total	**1,890**	**306**	**9**	**18**	**52**	**79**	**(s)**	**13**	**2,288**
2003 Total	**1,931**	**278**	**12**	**18**	**69**	**98**	**(s)**	**11**	**2,319**
2004 Total	**1,943**	**297**	**8**	**22**	**69**	**99**	**(s)**	**11**	**2,350**
2005 Total	**1,984**	**319**	**8**	**24**	**69**	**101**	**(s)**	**11**	**2,416**
2006 Total	**1,954**	**338**	**5**	**21**	**28**	**55**	**(s)**	**12**	**2,358**
2007 Total	**1,987**	**372**	**6**	**17**	**31**	**54**	**(s)**	**11**	**2,425**
2008 Total	**1,959**	**362**	**5**	**15**	**19**	**39**	**(s)**	**12**	**2,373**
2009 Total	**1,741**	**373**	**5**	**13**	**14**	**33**	**(s)**	**11**	**2,158**
2010 Total	**1,828**	**399**	**6**	**14**	**12**	**32**	**(s)**	**11**	**2,270**
2011 Total	**1,723**	**409**	**5**	**14**	**7**	**26**	**(s)**	**11**	**2,170**
2012 Total	**1,511**	**493**	**4**	**9**	**6**	**19**	**(s)**	**11**	**2,034**
2013 Total	**1,571**	**444**	**4**	**13**	**6**	**23**	**(s)**	**11**	**2,050**
2014 Total	**1,569**	**444**	**6**	**12**	**7**	**26**	**(s)**	**11**	**2,050**
2015 Total	**1,350**	**527**	**5**	**11**	**7**	**24**	**(s)**	**11**	**1,913**
2016 Total	**1,241**	**547**	**4**	**12**	**6**	**22**	**(s)**	**11**	**1,821**
2017 Total	**1,206**	**507**	**4**	**10**	**5**	**19**	**(s)**	**11**	**1,743**
2018 January	117	43	2	1	2	5	(s)	1	166
February	83	38	(s)	1	(s)	1	(s)	1	123
March	81	41	(s)	1	(s)	1	(s)	1	124
April	73	38	(s)	1	(s)	1	(s)	1	114
May	86	46	(s)	1	(s)	1	(s)	1	134
June	101	52	(s)	1	(s)	2	(s)	1	156
July	115	67	(s)	1	(s)	2	(s)	1	185
August	115	65	(s)	1	(s)	2	(s)	1	183
September	98	56	(s)	1	(s)	2	(s)	1	156
October	88	49	(s)	1	(s)	1	(s)	1	138
November	94	42	(s)	1	(s)	2	(s)	1	138
December	101	42	(s)	1	(s)	2	(s)	1	145
Total	**1,151**	**579**	**6**	**10**	**6**	**22**	**(s)**	**11**	**1,764**
2019 January	101	46	(s)	1	1	2	(s)	1	150
February	R 81	43	(s)	1	(s)	1	(s)	1	126
March	80	R 45	(s)	1	(s)	1	(s)	1	126
April	R 60	40	(s)	R (s)	(s)	1	(s)	1	103
May	72	R 46	(s)	1	(s)	2	(s)	1	R 121
June	80	54	(s)	1	(s)	1	(s)	1	R 136
July	101	R 69	(s)	1	(s)	2	(s)	1	R 172
August	95	R 70	(s)	1	(s)	2	(s)	1	R 167
September	R 85	R 59	(s)	1	(s)	1	(s)	1	R 147
October	68	R 51	(s)	(s)	(s)	1	(s)	1	R 121
November	76	45	(s)	(s)	(s)	1	(s)	1	123
December	73	R 50	(s)	R 1	(s)	1	(s)	1	R 125
Total	**R 973**	**R 618**	**4**	**8**	**5**	**16**	**(s)**	**11**	**R 1,618**
2020 January	66	51	(s)	1	(s)	R 1	(s)	1	120
February	58	48	(s)	R 1	(s)	1	(s)	1	108
March	52	48	(s)	1	(s)	1	(s)	1	103
April	43	42	(s)	1	(s)	1	(s)	1	86
May	R 49	46	(s)	1	(s)	1	(s)	1	96
June	66	57	(s)	1	(s)	2	(s)	1	126
July	90	75	(s)	1	(s)	2	(s)	1	168
August	91	70	(s)	1	(s)	2	(s)	1	164
8-Month Total	**515**	**437**	**2**	**6**	**3**	**11**	**(s)**	**7**	**971**
2019 8-Month Total	**670**	**413**	**3**	**6**	**3**	**12**	**(s)**	**7**	**1,102**
2018 8-Month Total	**772**	**391**	**5**	**7**	**5**	**16**	**(s)**	**7**	**1,186**

[a] Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.
[b] Natural gas, excluding supplemental gaseous fuels.
[c] Distillate fuel oil, excluding biodiesel.
[d] Municipal solid waste from non-biogenic sources, and tire-derived fuels. Through 1994, also includes blast furnace gas, and other manufactured and waste gases derived from fossil fuels.
[e] Excludes emissions from biomass energy consumption. See Table 11.7.

R=Revised. NA=Not available. (s)=Less than 0.5 million metric tons.

Notes: • Data are estimates for carbon dioxide emissions from energy consumption. See "Section 11 Methodology and Sources" at end of section. • See "Carbon Dioxide" in Glossary. • See Note 1, "Emissions of Carbon Dioxide and Other Greenhouse Gases," at end of section. • Data exclude emissions from biomass energy consumption. See Table 11.7 and Note 2, "Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#environment (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: See end of section.

Table 11.7 Carbon Dioxide Emissions From Biomass Energy Consumption

(Million Metric Tons of Carbon Dioxide[a])

	By Source					By Sector					
	Wood[b]	Biomass Waste[c]	Fuel Ethanol[d]	Bio-diesel	Total	Resi-dential	Com-mercial[e]	Indus-trial[f]	Trans-portation	Electric Power[g]	Total
1973 Total	**143**	**(s)**	**NA**	**NA**	**143**	**33**	**1**	**109**	**NA**	**(s)**	**143**
1975 Total	**140**	**(s)**	**NA**	**NA**	**141**	**40**	**1**	**100**	**NA**	**(s)**	**141**
1980 Total	**232**	**(s)**	**NA**	**NA**	**232**	**80**	**2**	**150**	**NA**	**(s)**	**232**
1985 Total	**252**	**14**	**3**	**NA**	**270**	**95**	**2**	**168**	**3**	**1**	**270**
1990 Total	**208**	**24**	**4**	**NA**	**237**	**54**	**8**	**147**	**4**	**23**	**237**
1995 Total	**222**	**30**	**8**	**NA**	**260**	**49**	**9**	**166**	**8**	**28**	**260**
2000 Total	**212**	**27**	**9**	**NA**	**248**	**39**	**9**	**161**	**9**	**29**	**248**
2001 Total	**188**	**33**	**10**	**(s)**	**231**	**35**	**9**	**147**	**10**	**31**	**231**
2002 Total	**187**	**36**	**12**	**(s)**	**235**	**36**	**9**	**144**	**12**	**35**	**235**
2003 Total	**188**	**36**	**16**	**(s)**	**240**	**38**	**9**	**141**	**16**	**37**	**240**
2004 Total	**199**	**35**	**20**	**(s)**	**255**	**38**	**10**	**151**	**20**	**36**	**255**
2005 Total	**200**	**37**	**23**	**1**	**261**	**40**	**10**	**150**	**23**	**37**	**261**
2006 Total	**197**	**36**	**31**	**2**	**266**	**36**	**9**	**151**	**33**	**38**	**266**
2007 Total	**196**	**37**	**39**	**3**	**276**	**39**	**9**	**146**	**41**	**39**	**276**
2008 Total	**193**	**39**	**55**	**3**	**290**	**44**	**10**	**139**	**57**	**40**	**290**
2009 Total	**182**	**41**	**62**	**3**	**288**	**47**	**10**	**125**	**64**	**41**	**288**
2010 Total	**208**	**42**	**73**	**2**	**325**	**51**	**10**	**149**	**74**	**42**	**325**
2011 Total	**208**	**42**	**73**	**8**	**331**	**49**	**11**	**151**	**80**	**40**	**331**
2012 Total	**202**	**42**	**73**	**8**	**325**	**41**	**10**	**153**	**80**	**42**	**325**
2013 Total	**219**	**45**	**75**	**13**	**353**	**54**	**11**	**158**	**87**	**43**	**353**
2014 Total	**225**	**47**	**76**	**13**	**361**	**54**	**12**	**158**	**88**	**49**	**361**
2015 Total	**217**	**47**	**79**	**14**	**357**	**48**	**13**	**157**	**90**	**48**	**357**
2016 Total	**209**	**46**	**81**	**20**	**355**	**41**	**14**	**155**	**98**	**47**	**355**
2017 Total	**205**	**45**	**82**	**19**	**350**	**40**	**14**	**152**	**98**	**47**	**350**
2018 January	18	4	7	1	30	4	1	13	8	4	30
February	17	4	6	1	27	4	1	12	7	4	27
March	18	4	7	1	30	4	1	13	8	4	30
April	17	4	6	1	28	4	1	12	8	4	28
May	18	4	7	2	30	4	1	13	9	4	30
June	17	4	7	2	30	4	1	12	8	4	30
July	18	4	7	2	31	4	1	13	9	4	31
August	18	4	7	2	31	4	1	13	9	4	31
September	17	3	6	2	28	4	1	12	8	3	28
October	18	4	7	2	30	4	1	13	8	4	30
November	17	4	7	1	29	4	1	12	8	4	29
December	18	4	7	2	31	4	1	13	8	4	31
Total	**212**	**44**	**82**	**18**	**356**	**49**	**14**	**151**	**97**	**46**	**356**
2019 January	R 18	R 4	6	1	R 29	4	1	R 13	7	4	R 29
February	R 16	3	6	1	R 27	4	1	12	7	3	R 27
March	18	3	7	1	R 29	4	1	13	8	3	R 29
April	R 17	3	7	1	R 28	4	1	R 12	8	3	R 28
May	R 17	3	7	2	R 29	4	1	R 12	9	R 3	R 29
June	R 17	3	7	1	29	4	1	R 12	8	3	29
July	18	3	7	2	30	4	1	13	8	4	30
August	R 18	3	7	2	R 30	4	1	13	8	4	R 30
September	17	3	7	1	R 28	4	1	12	8	3	R 28
October	R 17	3	7	1	R 29	4	1	R 12	8	3	R 29
November	R 17	3	7	1	29	4	1	R 12	8	3	29
December	18	R 4	7	1	30	4	1	13	8	4	30
Total	**R 209**	**R 40**	**83**	**17**	**R 349**	**50**	**13**	**R 148**	**97**	**41**	**R 349**
2020 January	17	R 4	7	1	29	4	1	13	8	R 4	29
February	16	3	6	1	27	4	1	12	7	3	27
March	17	3	6	1	27	4	1	12	7	3	27
April	16	3	4	1	25	4	1	12	5	3	25
May	17	3	6	1	27	4	1	12	7	3	27
June	16	3	6	1	27	4	1	11	7	3	27
July	17	3	6	2	28	4	1	12	8	3	28
August	17	3	6	2	28	4	1	12	8	4	28
8-Month Total	**134**	**26**	**47**	**11**	**219**	**31**	**8**	**96**	**56**	**26**	**219**
2019 8-Month Total	**139**	**27**	**55**	**12**	**233**	**33**	**9**	**99**	**64**	**28**	**233**
2018 8-Month Total	**142**	**30**	**55**	**12**	**238**	**32**	**9**	**101**	**64**	**31**	**238**

[a] Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.
[b] Wood and wood-derived fuels.
[c] Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass.
[d] Fuel ethanol minus denaturant.
[e] Commercial sector, including commercial combined-heat-and-power (CHP) and commercial electricity-only plants.
[f] Industrial sector, including industrial combined-heat-and-power (CHP) and industrial electricity-only plants.
[g] The electric power sector comprises electricity-only and combined-heat-and-power (CHP) plants within the NAICS 22 category whose primary business is to sell electricity, or electricity and heat, to the public.

R=Revised. NA=Not available. (s)=Less than 0.5 million metric tons.

Notes: • Carbon dioxide emissions from biomass energy consumption are excluded from the energy-related carbon dioxide emissions reported in Tables 11.1–11.6. See Note 2, "Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion," at end of section. • Data are estimates. See "Section 11 Methodology and Sources" at end of section. • See "Carbon Dioxide" in Glossary. • See Note 1, "Emissions of Carbon Dioxide and Other Greenhouse Gases," at end of section. • Totals may not equal sum of components due to independent rounding. • Geographic coverage is the 50 states and the District of Columbia.

Web Page: See http://www.eia.gov/totalenergy/data/monthly/#environment (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: See end of section.

Note 1. Emissions of Carbon Dioxide and Other Greenhouse Gases. Greenhouse gases are those gases—such as water vapor, carbon dioxide (CO2), methane, nitrous oxide, hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride—that are transparent to solar (short-wave) radiation but opaque to long-wave (infrared) radiation, thus preventing long-wave radiant energy from leaving Earth's atmosphere. The net effect is a trapping of absorbed radiation and a tendency to warm the planet's surface.

The vast majority of U.S. CO2 emissions come from fossil fuel combustion, with smaller amounts from the non-combustion use of fossil fuels, as well as from electricity generation using geothermal energy and non-biomass waste. Other sources of CO2 emissions include industrial processes, such as cement and limestone production. Data in the U.S. Energy Information Administration's (EIA) *Monthly Energy Review* (MER) Tables 11.1–11.6 are estimates for U.S. CO2 emissions from energy consumption, plus the non-combustion use of fossil fuels (excluded are estimates for CO2 emissions from biomass energy consumption, which appear in MER Table 11.7).

For annual U.S. estimates of CO2 emissions from all sources, as well as emissions for other greenhouse gases, see the U.S. Environmental Protection Agency's *Inventory of U.S. Greenhouse Gas Emissions and Sinks* reports at https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks.

Note 2. Accounting for Carbon Dioxide Emissions From Biomass Energy Combustion. Carbon dioxide (CO2) emissions from the combustion of biomass to produce energy are excluded from the energy-related CO2 emissions reported in MER Tables 11.1–11.6, but appear in MER Table 11.7. According to current international convention (see the Intergovernmental Panel on Climate Change's "2006 IPCC Guidelines for National Greenhouse Gas Inventories"), carbon released through biomass combustion is excluded from reported energy-related emissions. The release of carbon from biomass combustion is assumed to be balanced by the uptake of carbon when the feedstock is grown, resulting in zero net emissions over some period of time. (This is not to say that biomass energy is carbon-neutral. Energy inputs are required in order to grow, fertilize, and harvest the feedstock and to produce and process the biomass into fuels.)

However, analysts have debated whether increased use of biomass energy may result in a decline in terrestrial carbon stocks, leading to a net positive release of carbon rather than the zero net release assumed by its exclusion from reported energy-related emissions. For example, the clearing of forests for biofuel crops could result in an initial release of carbon that is not fully recaptured in subsequent use of the land for agriculture.

To reflect the potential net emissions, the international convention for greenhouse gas inventories is to report biomass emissions in the category "agriculture, forestry, and other land use," usually based on estimates of net changes in carbon stocks over time.

This indirect accounting of CO2 emissions from biomass can potentially lead to confusion in accounting for and understanding the flow of CO2 emissions within energy and non-energy systems. In recognition of this issue, reporting of CO2 emissions from biomass combustion alongside other energy-related CO2 emissions offers an alternative accounting treatment. It is important, however, to avoid misinterpreting emissions from fossil energy and biomass energy sources as necessarily additive. Instead, the combined total of direct CO2 emissions from biomass and energy-related CO2 emissions implicitly assumes that none of the carbon emitted was previously or subsequently reabsorbed in terrestrial sinks or that other emissions sources offset any such sequestration.

Section 11 Methodology and Sources

To estimate carbon dioxide emissions from energy consumption for the *Monthly Energy Review* (MER), Tables 11.1–11.7, the U.S. Energy Information Administration (EIA) uses the following methodology and sources:

Step 1. Determine Fuel Consumption

Coal—Coal sectoral (residential, commercial, coke plants, other industrial, transportation, electric power) consumption data in thousand short tons are from MER Table 6.2. Coal sectoral consumption data are converted to trillion Btu by multiplying by the coal heat content factors in MER Table A5.

Coal Coke Net Imports—Coal coke net imports data in trillion Btu are derived from coal coke imports and exports data in MER Tables 1.4a and 1.4b.

Natural Gas (excluding supplemental gaseous fuels)—Natural gas sectoral consumption data in trillion Btu are from MER Tables 2.2–2.6.

Petroleum—Total and sectoral consumption (product supplied) data in thousand barrels per day for asphalt and road oil, aviation gasoline, distillate fuel oil, hydrocarbon gas liquids (HGL), jet fuel, kerosene, lubricants, motor gasoline, petroleum coke, and residual fuel oil are from MER Tables 3.5 and 3.7a–3.7c. For the component products of HGL (ethane/ethylene, propane/propylene, normal butane/butylene, isobutane/isobutylene, and natural gasoline) and "other petroleum" (aviation gasoline blending components, crude oil, motor gasoline blending components, naphthas for petrochemical feedstock use, other oils for petrochemical feedstock use, special naphthas, still gas, unfinished oils, waxes, and miscellaneous petroleum products), consumption (product supplied) data in thousand barrels per day are from EIA's *Petroleum Supply Annual* (PSA), *Petroleum Supply Monthly* (PSM), and earlier publications (see sources for MER Table 3.5). Petroleum consumption data by product are converted to trillion Btu by multiplying by the petroleum heat content factors in MER Tables A1 and A3.

Biomass—Sectoral consumption data in trillion Btu for wood, biomass waste, fuel ethanol (minus denaturant), and biodiesel are from MER Tables 10.2a–10.2c.

Step 2. Remove Biofuels From Petroleum

Distillate Fuel Oil—Beginning in 2009, the distillate fuel oil data (for total and transportation sector) in Step 1 include biodiesel and other renewable diesel fuel, which are non-fossil renewable fuels.

2009–2011: To remove the biodiesel portion from distillate fuel oil, data for biodiesel consumption (calculated using data from EIA, EIA-22M, "Monthly Biodiesel Production Survey") and biomass-based diesel fuel data (from EIA-810, "Monthly Refinery Report," EIA-812, "Monthly Product Pipeline Report," and EIA-815, "Monthly Bulk Terminal and Blender Report") are converted to trillion Btu by multiplying by the biodiesel heat content factor in MER Table A1, and then subtracted from the distillate fuel oil consumption values. To remove the other renewable diesel fuel portion from distillate fuel oil, data for refinery and blender net inputs (from EIA-810, "Monthly Refinery Report," and EIA-815, "Monthly Bulk Terminal and Blender Report") are converted to trillion Btu by multiplying by the other renewable diesel fuel heat content factor in MER Table A1, and then subtracted from the distillate fuel oil consumption values.

2012 forward: To remove the biodiesel portion from distillate fuel oil, data for biodiesel consumption (from MER Table 10.4) is subtracted from the distillate fuel oil consumption values. To remove the other renewable diesel fuel portion from distillate fuel oil, data for refinery and blender net inputs (from EIA-810, "Monthly Refinery Report," and EIA-815, "Monthly Bulk Terminal and Blender Report") are converted to trillion Btu by multiplying by the other renewable diesel fuel heat content factor in MER Table A1, and then subtracted from the distillate fuel oil consumption values.

Motor Gasoline—Beginning in 1993, the motor gasoline data (for total, commercial sector, industrial sector, and transportation sector) in Step 1 include fuel ethanol, a non-fossil renewable fuel. To remove the fuel ethanol portion from motor gasoline, data in trillion Btu for fuel ethanol consumption (from MER Tables 10.2a, 10.2b, and 10.3) are subtracted from the motor gasoline consumption values. (Note that about 2% of fuel ethanol is fossil-based petroleum denaturant, to make the fuel ethanol undrinkable. For 1993–2008, petroleum denaturant is double counted in the PSA product supplied statistics, in both the original product category—e.g., natural gasoline—and also in the finished motor gasoline category; for this time period for MER Section 11, petroleum denaturant is removed along with the fuel ethanol from motor gasoline, but left in the original product. Beginning in 2009, petroleum denaturant is counted only in the PSA/PSM product supplied statistics for motor gasoline; for this time period for MER Section 11, petroleum denaturant is left in motor gasoline.)

Step 3. Remove Carbon Sequestered by Non-Combustion Use

The following fuels have industrial non-combustion uses as chemical feedstocks and other products: coal, natural gas, asphalt and road oil, distillate fuel oil, hydrocarbon gas liquids (ethane/ethylene, propane/propylene, normal butane/butylene, isobutane/isobutylene, and natural gasoline), lubricants (which have industrial and transportation non-combustion uses), naphthas for petrochemical feedstock use, other oils for petrochemical feedstock use, petroleum coke, residual fuel oil, special naphthas, still gas, waxes, and miscellaneous petroleum products. In the non-combustion use of these fuels, some of the carbon is sequestered, and is thus subtracted from the fuel consumption values in Steps 1 and 2.

Estimates of annual non-combustion use and associated carbon sequestration are developed by EIA using the methodology detailed in "Documentation for *Emissions of Greenhouse Gases in the United States 2008*" at https://www.eia.gov/environment/archive/1605/ggrpt/documentation/pdf/0638_2008.pdf.

To obtain monthly estimates of non-combustion use and associated carbon sequestration, monthly patterns for industrial consumption and product supplied data series are used. For coal non-combustion use, the monthly pattern for coke plants coal consumption from MER Table 6.2 is used. For natural gas, the monthly pattern for other industrial non-CHP natural gas consumption from MER Table 4.3 is used. For distillate fuel oil, petroleum coke, and residual fuel oil, the monthly patterns for industrial consumption from MER Table 3.7b are used. For the other petroleum products, the monthly patterns for product supplied from the PSA and PSM are used. See Tables 1.11a and 1.11b for estimates of fossil fuel non-combustion uses.

Step 4. Determine Carbon Dioxide Emissions From Energy Consumption

Carbon dioxide (CO2) emissions data in million metric tons are calculated by multiplying consumption values in trillion Btu from Steps 1 and 2 (minus the carbon sequestered in non-combustion use in Step 3) by the CO2 emissions factors at http://www.eia.gov/environment/archive/1605/ggrpt/excel/CO2_coeffs_09_v2.xls.

Coal—CO2 emissions for coal are calculated for each sector (residential, commercial, coke plants, other industrial, transportation, electric power). Total coal emissions are the sum of the sectoral coal emissions.

Coal Coke Net Imports—CO2 emissions for coal coke net imports are calculated.

Natural Gas—CO2 emissions for natural gas are calculated for each sector (residential, commercial, industrial, transportation, electric power). Total natural gas emissions are the sum of the sectoral natural gas emissions.

Petroleum—CO2 emissions are calculated for each petroleum product. Total petroleum emissions are the sum of the product emissions. Total HGL emissions are the sum of the emissions for the component products (ethane/ethylene, propane/propylene, normal butane/butylene, isobutane/isobutylene, and natural gasoline); residential, commercial, and transportation sector HGL emissions are estimated by multiplying consumption values in trillion Btu from MER Tables 3.8a and 3.8c by the propane emissions factor; industrial sector HGL emissions are estimated as total HGL emissions minus emissions by the other sectors.

Geothermal and Non-Biomass Waste—Annual CO2 emissions data for geothermal and non-biomass waste are EIA estimates based on Form EIA-923, "Power Plant Operations Report" (and predecessor forms). Monthly estimates are created by dividing the annual data by the number of days in the year and then multiplying by the number of days in the month. (Annual estimates for the current year are set equal to those of the previous year.)

Biomass—CO2 emissions for wood, biomass waste, fuel ethanol (minus denaturant), and biodiesel are calculated for each sector. Total emissions for each biomass fuel are the sum of the sectoral emissions. The following factors, in million metric tons CO2 per quadrillion Btu, are used: wood—93.80; biomass waste—90.70; fuel ethanol—68.44; and biodiesel—73.84. For 1973–1988, the biomass portion of waste in MER Tables 10.2a–10.2c is estimated as 67%; for 1989–2000, the biomass portion of waste is estimated as 67% in 1989 to 58% in 2000, based on the biogenic shares of total municipal solid waste shown in EIA's "Methodology for Allocating Municipal Solid Waste to Biogenic and Non-Biogenic Energy," Table 1 at http://www.eia.gov/totalenergy/data/monthly/pdf/historical/msw.pdf.