

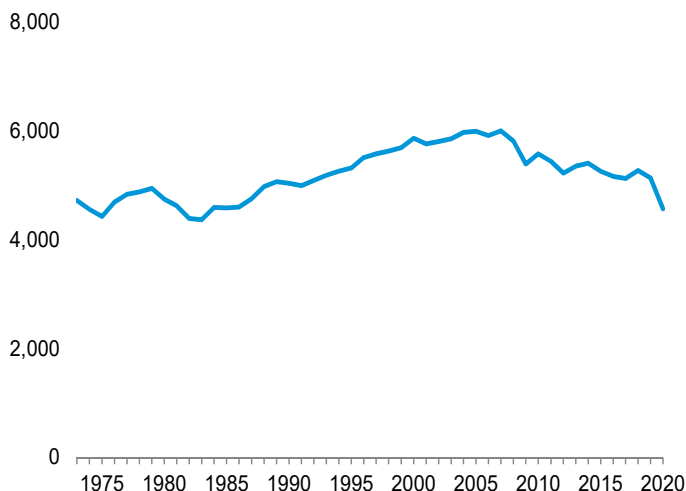
# 11. Environment

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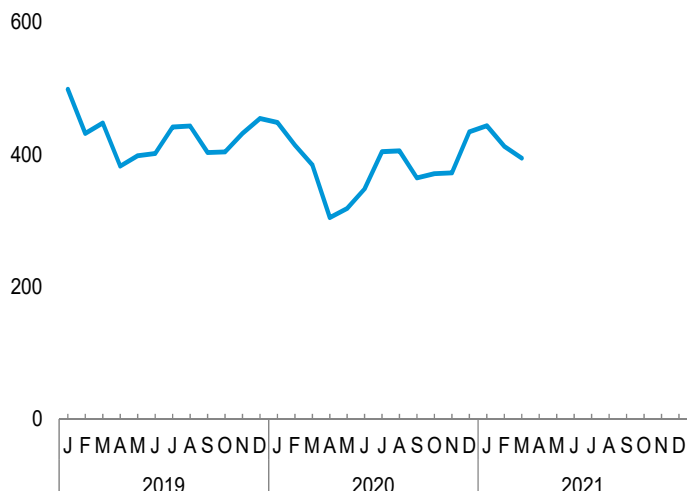
**Figure 11.1 Carbon Dioxide Emissions From Energy Consumption by Source**

(Million Metric Tons of Carbon Dioxide)

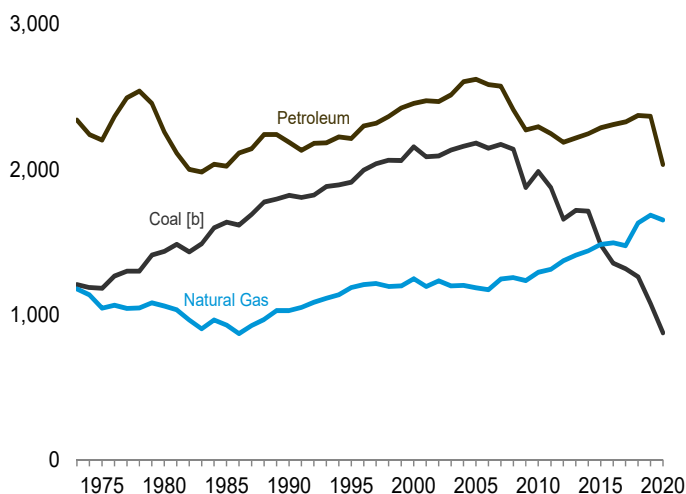
Total [a], 1973–2020



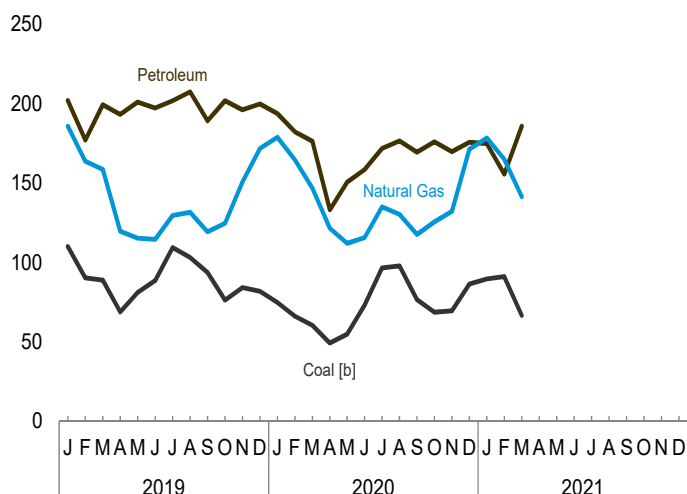
Total [a], Monthly



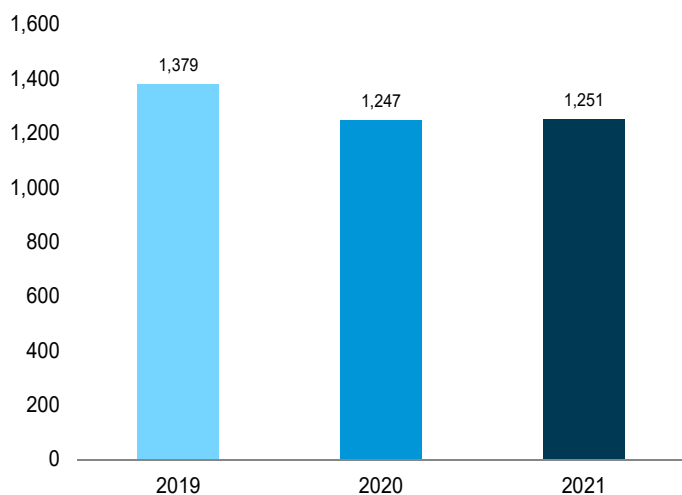
By Major Source, 1973–2020



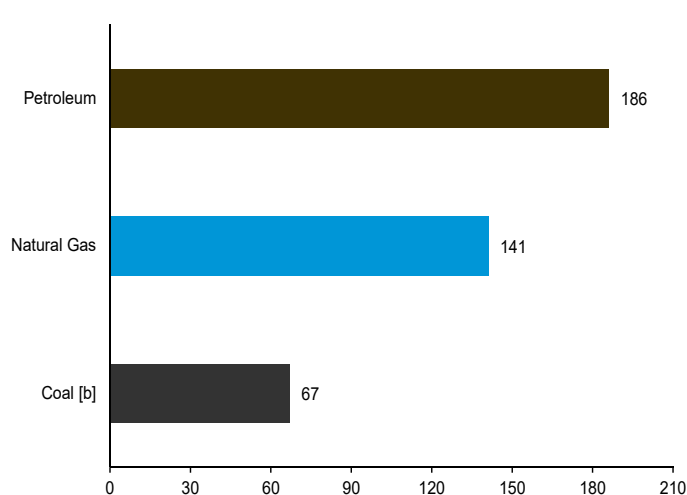
By Major Source, Monthly



Total [a], January–March



By Major Source, March 2021



[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<sup>a</sup>)

	Coal <sup>b</sup>	Natural Gas <sup>c</sup>	Petroleum										Total	Total <sup>h,i</sup>
			Aviation Gasoline	Distillate Fuel Oil <sup>d</sup>	HGL <sup>e</sup>	Jet Fuel	Kero-sene	Lubri-cants	Motor Gasoline <sup>f</sup>	Petroleum Coke	Residual Fuel Oil	Other <sup>g</sup>		
<b>1973 Total</b> .....	<b>1,206</b>	<b>1,176</b>	<b>6</b>	<b>480</b>	<b>80</b>	<b>155</b>	<b>32</b>	<b>13</b>	<b>911</b>	<b>55</b>	<b>510</b>	<b>99</b>	<b>2,341</b>	<b>4,723</b>
<b>1975 Total</b> .....	<b>1,181</b>	<b>1,044</b>	<b>5</b>	<b>442</b>	<b>73</b>	<b>146</b>	<b>24</b>	<b>11</b>	<b>911</b>	<b>52</b>	<b>445</b>	<b>94</b>	<b>2,203</b>	<b>4,428</b>
<b>1980 Total</b> .....	<b>1,435</b>	<b>1,059</b>	<b>4</b>	<b>446</b>	<b>78</b>	<b>156</b>	<b>24</b>	<b>13</b>	<b>900</b>	<b>50</b>	<b>455</b>	<b>131</b>	<b>2,257</b>	<b>4,752</b>
<b>1985 Total</b> .....	<b>1,637</b>	<b>927</b>	<b>3</b>	<b>445</b>	<b>82</b>	<b>178</b>	<b>17</b>	<b>12</b>	<b>930</b>	<b>56</b>	<b>217</b>	<b>83</b>	<b>2,024</b>	<b>4,588</b>
<b>1990 Total</b> .....	<b>1,821</b>	<b>1,027</b>	<b>3</b>	<b>470</b>	<b>75</b>	<b>223</b>	<b>6</b>	<b>13</b>	<b>988</b>	<b>72</b>	<b>222</b>	<b>115</b>	<b>2,187</b>	<b>5,041</b>
<b>1995 Total</b> .....	<b>1,913</b>	<b>1,186</b>	<b>3</b>	<b>498</b>	<b>90</b>	<b>222</b>	<b>8</b>	<b>13</b>	<b>1,042</b>	<b>78</b>	<b>154</b>	<b>107</b>	<b>2,214</b>	<b>5,324</b>
<b>2000 Total</b> .....	<b>2,156</b>	<b>1,246</b>	<b>3</b>	<b>579</b>	<b>106</b>	<b>254</b>	<b>10</b>	<b>14</b>	<b>1,133</b>	<b>85</b>	<b>165</b>	<b>107</b>	<b>2,455</b>	<b>5,868</b>
<b>2005 Total</b> .....	<b>2,181</b>	<b>1,183</b>	<b>2</b>	<b>639</b>	<b>92</b>	<b>246</b>	<b>10</b>	<b>12</b>	<b>1,208</b>	<b>110</b>	<b>166</b>	<b>135</b>	<b>2,621</b>	<b>5,998</b>
<b>2006 Total</b> .....	<b>2,147</b>	<b>1,171</b>	<b>2</b>	<b>645</b>	<b>86</b>	<b>240</b>	<b>8</b>	<b>11</b>	<b>1,216</b>	<b>106</b>	<b>125</b>	<b>147</b>	<b>2,586</b>	<b>5,915</b>
<b>2007 Total</b> .....	<b>2,172</b>	<b>1,246</b>	<b>2</b>	<b>647</b>	<b>90</b>	<b>238</b>	<b>5</b>	<b>12</b>	<b>1,208</b>	<b>99</b>	<b>131</b>	<b>143</b>	<b>2,575</b>	<b>6,005</b>
<b>2008 Total</b> .....	<b>2,140</b>	<b>1,255</b>	<b>2</b>	<b>610</b>	<b>89</b>	<b>226</b>	<b>2</b>	<b>11</b>	<b>1,139</b>	<b>94</b>	<b>113</b>	<b>126</b>	<b>2,411</b>	<b>5,818</b>
<b>2009 Total</b> .....	<b>1,876</b>	<b>1,234</b>	<b>2</b>	<b>555</b>	<b>86</b>	<b>204</b>	<b>3</b>	<b>10</b>	<b>1,126</b>	<b>87</b>	<b>92</b>	<b>107</b>	<b>2,273</b>	<b>5,393</b>
<b>2010 Total</b> .....	<b>1,986</b>	<b>1,292</b>	<b>2</b>	<b>583</b>	<b>85</b>	<b>210</b>	<b>3</b>	<b>11</b>	<b>1,110</b>	<b>81</b>	<b>97</b>	<b>115</b>	<b>2,295</b>	<b>5,584</b>
<b>2011 Total</b> .....	<b>1,875</b>	<b>1,311</b>	<b>2</b>	<b>592</b>	<b>79</b>	<b>209</b>	<b>2</b>	<b>10</b>	<b>1,077</b>	<b>78</b>	<b>83</b>	<b>114</b>	<b>2,247</b>	<b>5,445</b>
<b>2012 Total</b> .....	<b>1,657</b>	<b>1,372</b>	<b>2</b>	<b>569</b>	<b>76</b>	<b>206</b>	<b>1</b>	<b>9</b>	<b>1,071</b>	<b>78</b>	<b>67</b>	<b>110</b>	<b>2,188</b>	<b>5,228</b>
<b>2013 Total</b> .....	<b>1,718</b>	<b>1,409</b>	<b>2</b>	<b>573</b>	<b>85</b>	<b>210</b>	<b>1</b>	<b>10</b>	<b>1,086</b>	<b>77</b>	<b>58</b>	<b>116</b>	<b>2,217</b>	<b>5,355</b>
<b>2014 Total</b> .....	<b>1,714</b>	<b>1,440</b>	<b>2</b>	<b>606</b>	<b>86</b>	<b>216</b>	<b>1</b>	<b>10</b>	<b>1,095</b>	<b>77</b>	<b>46</b>	<b>108</b>	<b>2,247</b>	<b>5,412</b>
<b>2015 Total</b> .....	<b>1,480</b>	<b>1,483</b>	<b>1</b>	<b>598</b>	<b>87</b>	<b>227</b>	<b>1</b>	<b>11</b>	<b>1,125</b>	<b>77</b>	<b>47</b>	<b>112</b>	<b>2,287</b>	<b>5,262</b>
<b>2016 Total</b> .....	<b>1,354</b>	<b>1,494</b>	<b>1</b>	<b>576</b>	<b>83</b>	<b>237</b>	<b>1</b>	<b>11</b>	<b>1,144</b>	<b>77</b>	<b>59</b>	<b>120</b>	<b>2,310</b>	<b>5,169</b>
<b>2017 Total</b> .....	<b>1,316</b>	<b>1,475</b>	<b>1</b>	<b>584</b>	<b>86</b>	<b>247</b>	<b>1</b>	<b>10</b>	<b>1,140</b>	<b>71</b>	<b>62</b>	<b>126</b>	<b>2,327</b>	<b>5,130</b>
<b>2018 Total</b> .....	<b>1,260</b>	<b>1,631</b>	<b>2</b>	<b>618</b>	<b>98</b>	<b>250</b>	<b>1</b>	<b>10</b>	<b>1,141</b>	<b>73</b>	<b>57</b>	<b>123</b>	<b>2,373</b>	<b>5,275</b>
<b>2019</b> January .....	110	186	(s)	55	13	20	(s)	1	91	6	5	11	202	499
February .....	90	164	(s)	49	11	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	8	21	(s)	1	95	4	3	11	193	383
May .....	81	115	(s)	52	7	22	(s)	1	98	6	3	12	201	398
June .....	89	115	(s)	49	7	22	(s)	1	97	7	5	10	197	401
July .....	109	130	(s)	49	7	23	(s)	1	99	8	5	10	202	442
August .....	103	132	(s)	51	7	23	(s)	1	102	6	5	12	207	443
September .....	94	119	(s)	48	7	21	(s)	1	92	5	5	11	189	403
October .....	76	125	(s)	54	9	22	(s)	1	96	4	5	11	202	404
November .....	84	151	(s)	52	10	21	(s)	1	92	6	3	11	196	432
December .....	82	172	(s)	50	11	23	(s)	1	93	7	4	11	200	455
<b>Total</b> .....	<b>1,076</b>	<b>1,686</b>	<b>2</b>	<b>613</b>	<b>105</b>	<b>256</b>	<b>1</b>	<b>9</b>	<b>1,137</b>	<b>67</b>	<b>50</b>	<b>127</b>	<b>2,367</b>	<b>5,140</b>
<b>2020</b> January .....	75	179	(s)	51	10	21	(s)	1	91	5	4	11	194	448
February .....	66	165	(s)	47	9	19	(s)	1	87	5	2	12	182	414
March .....	60	147	(s)	50	10	17	(s)	(s)	81	5	2	12	176	385
April .....	49	122	(s)	43	7	8	(s)	1	59	3	2	10	133	305
May .....	55	112	(s)	45	7	7	(s)	1	74	4	1	11	151	318
June .....	73	116	(s)	43	6	9	(s)	1	83	4	3	9	158	348
July .....	96	135	(s)	45	7	12	(s)	1	88	5	5	9	172	404
August .....	98	130	(s)	46	7	13	(s)	1	88	7	5	10	177	406
September .....	77	118	(s)	47	7	11	(s)	1	86	5	5	8	169	364
October .....	69	126	(s)	51	9	13	(s)	1	86	4	4	8	176	371
November .....	70	132	(s)	48	10	14	(s)	1	80	6	3	9	170	372
December .....	86	171	(s)	49	13	14	(s)	1	81	5	3	10	176	435
<b>Total</b> .....	<b>873</b>	<b>1,651</b>	<b>1</b>	<b>563</b>	<b>102</b>	<b>159</b>	<b>1</b>	<b>8</b>	<b>984</b>	<b>58</b>	<b>39</b>	<b>118</b>	<b>2,035</b>	<b>4,571</b>
<b>2021</b> January .....	90	178	(s)	51	13	14	(s)	1	80	5	4	8	175	444
February .....	91	165	(s)	46	10	12	(s)	1	73	3	4	7	156	413
March .....	67	141	(s)	52	10	14	(s)	1	89	4	4	11	186	395
<b>3-Month Total</b> .....	<b>247</b>	<b>485</b>	<b>(s)</b>	<b>149</b>	<b>33</b>	<b>41</b>	<b>1</b>	<b>2</b>	<b>241</b>	<b>12</b>	<b>12</b>	<b>26</b>	<b>516</b>	<b>1,251</b>
<b>2020 3-Month Total</b> .....	<b>201</b>	<b>490</b>	<b>(s)</b>	<b>148</b>	<b>29</b>	<b>57</b>	<b>1</b>	<b>2</b>	<b>259</b>	<b>14</b>	<b>8</b>	<b>34</b>	<b>553</b>	<b>1,247</b>
<b>2019 3-Month Total</b> .....	<b>289</b>	<b>508</b>	<b>(s)</b>	<b>158</b>	<b>33</b>	<b>60</b>	<b>1</b>	<b>2</b>	<b>272</b>	<b>13</b>	<b>12</b>	<b>28</b>	<b>578</b>	<b>1,379</b>

<sup>a</sup> Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.

<sup>b</sup> Includes coal coke net imports.

<sup>c</sup> Natural gas, excluding supplemental gaseous fuels.

<sup>d</sup> Distillate fuel oil, excluding biodiesel.

<sup>e</sup> Hydrocarbon gas liquids.

<sup>f</sup> Finished motor gasoline, excluding fuel ethanol.

<sup>g</sup> Aviation gasoline blending components, crude oil, motor gasoline blending components, petrochemical feedstocks, special naphthas, still gas, unfinished oils, waxes, and miscellaneous petroleum products.

<sup>h</sup> Includes electric power sector use of geothermal energy and non-biomass waste. See Table 11.6.

<sup>i</sup> Excludes emissions from biomass energy consumption. See Table 11.7.

(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.

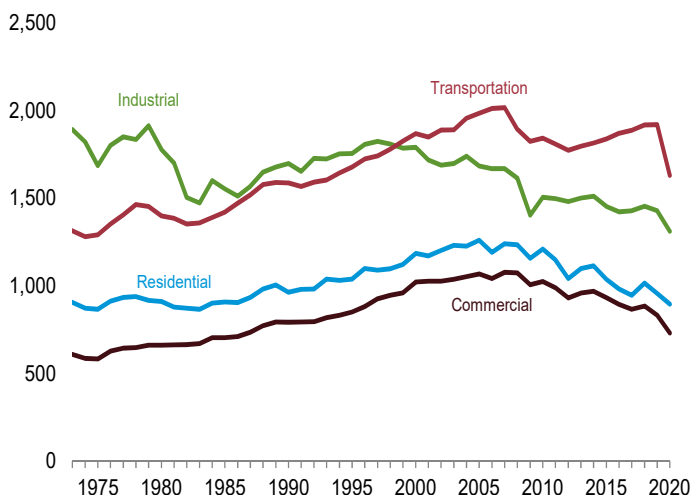
Web Page: See <http://www.eia.gov/totalenergy/data/monthly/#environment> (Excel and CSV files) for all available annual and monthly data beginning in 1973.

Sources: See end of section.

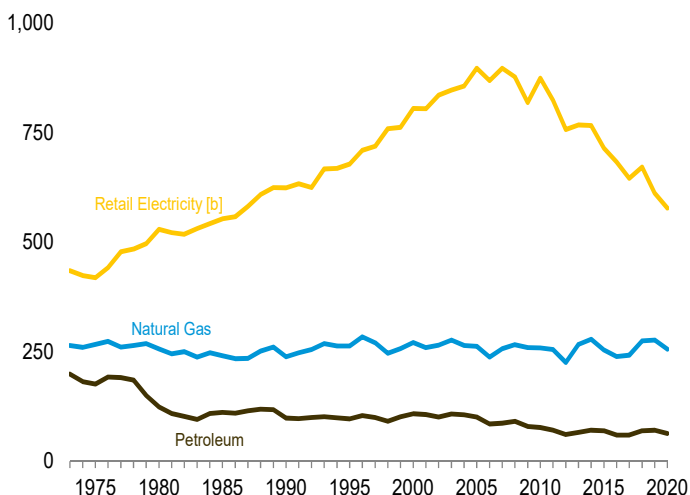
**Figure 11.2 Carbon Dioxide Emissions From Energy Consumption by Sector**

(Million Metric Tons of Carbon Dioxide)

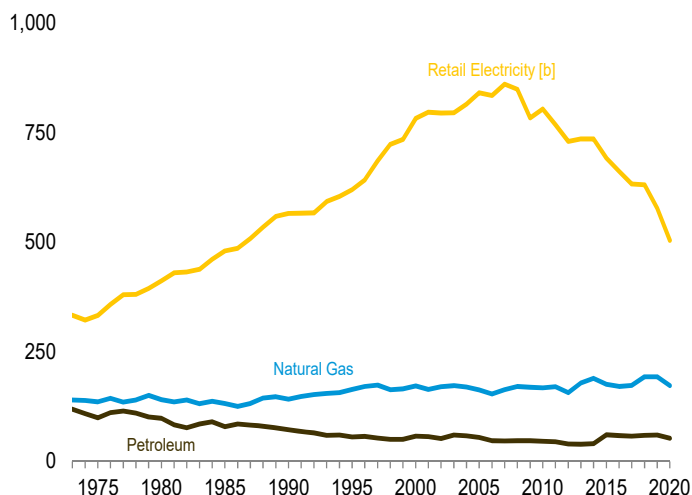
Total [a] by End-Use Sector [b], 1973–2020



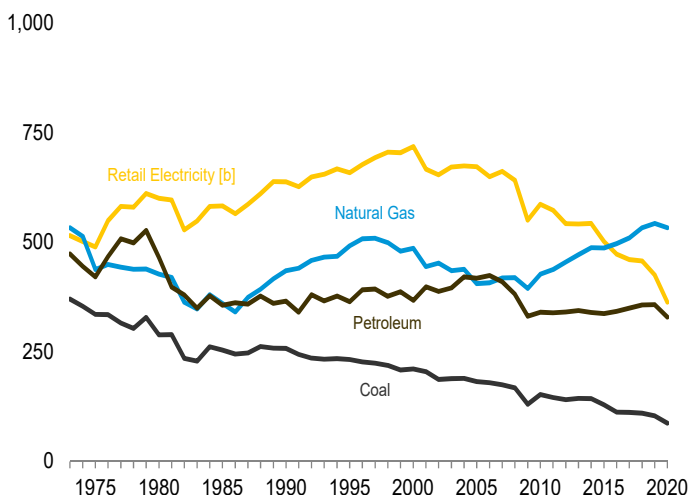
Residential Sector by Major Source, 1973–2020



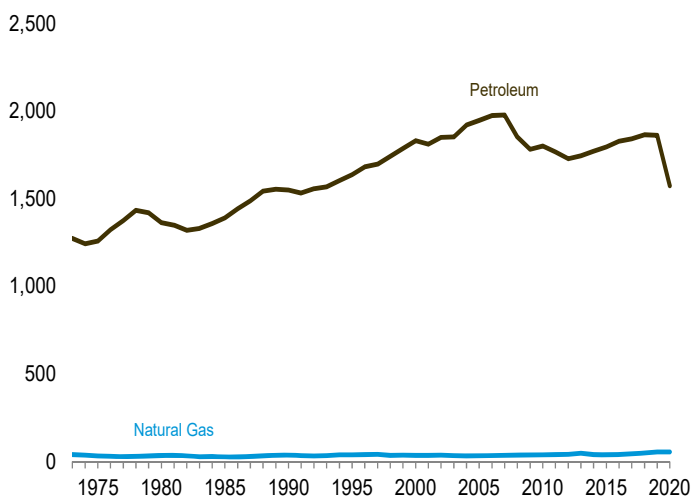
Commercial Sector by Major Source, 1973–2020



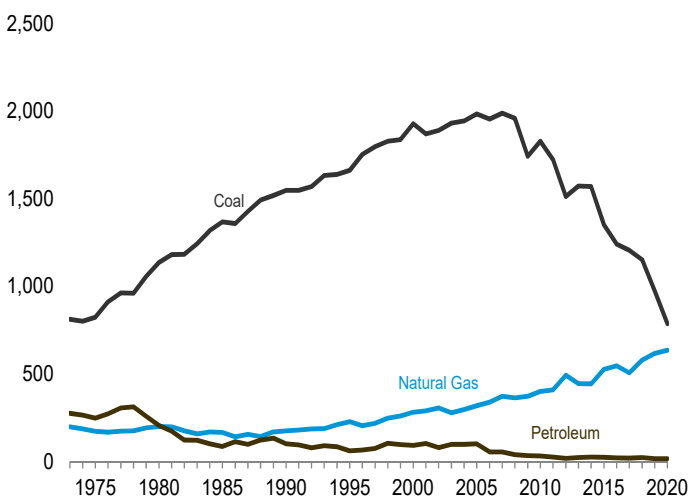
Industrial Sector by Major Source, 1973–2020



Transportation Sector by Major Source, 1973–2020



Electric Power Sector by Major Source, 1973–2020



[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<sup>a</sup>)

	Coal	Natural Gas <sup>b</sup>	Petroleum				Retail Electricity <sup>e</sup>	Total <sup>f</sup>
			Distillate Fuel Oil <sup>c</sup>	HGL <sup>d</sup>	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
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 Total .....	NA	275	37	32	1	70	671	1,016
2019 January .....	NA	53	5	6	(s)	11	61	124
February .....	NA	45	4	5	(s)	9	50	104
March .....	NA	38	4	4	(s)	8	47	93
April .....	NA	18	2	3	(s)	5	34	57
May .....	NA	12	2	2	(s)	4	41	56
June .....	NA	7	2	1	(s)	3	51	61
July .....	NA	6	2	1	(s)	3	70	79
August .....	NA	6	2	1	(s)	3	67	76
September .....	NA	6	1	1	(s)	3	57	65
October .....	NA	13	2	2	(s)	4	42	60
November .....	NA	32	4	4	(s)	8	44	85
December .....	NA	41	5	5	(s)	10	49	100
Total .....	NA	276	34	36	1	71	611	958
2020 January .....	NA	45	4	5	(s)	9	48	102
February .....	NA	40	3	4	(s)	8	42	90
March .....	NA	29	3	4	(s)	7	37	73
April .....	NA	21	3	3	(s)	6	33	59
May .....	NA	13	3	2	(s)	5	37	55
June .....	NA	7	2	1	(s)	3	52	63
July .....	NA	6	1	1	(s)	2	75	83
August .....	NA	6	1	1	(s)	2	71	80
September .....	NA	7	2	1	(s)	3	52	62
October .....	NA	13	2	2	(s)	4	42	59
November .....	NA	24	3	3	(s)	6	39	69
December .....	NA	44	3	5	(s)	8	54	106
Total .....	NA	256	30	33	1	63	578	897
2021 January .....	NA	48	3	5	(s)	8	56	113
February .....	NA	47	3	5	(s)	9	56	112
March .....	NA	31	3	4	(s)	6	41	79
3-Month Total .....	NA	127	9	14	(s)	24	154	304
2020 3-Month Total .....	NA	114	10	13	1	23	127	265
2019 3-Month Total .....	NA	135	13	15	(s)	28	158	321

<sup>a</sup> Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.

<sup>b</sup> Natural gas, excluding supplemental gaseous fuels.

<sup>c</sup> Distillate fuel oil, excluding biodiesel.

<sup>d</sup> Hydrocarbon gas liquids.

<sup>e</sup> 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.

<sup>f</sup> Excludes emissions from biomass energy consumption. See Table 11.7.

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<sup>a</sup>)

	Coal	Natural Gas <sup>b</sup>	Petroleum							Retail Electricity <sup>f</sup>	Total <sup>g</sup>
			Distillate Fuel Oil <sup>c</sup>	HGL <sup>d</sup>	Kerosene	Motor Gasoline <sup>e</sup>	Petroleum Coke	Residual Fuel Oil	Total		
<b>1973 Total</b> .....	15	141	47	9	5	6	NA	52	120	334	609
<b>1975 Total</b> .....	14	136	43	8	4	6	NA	39	100	333	583
<b>1980 Total</b> .....	11	141	38	6	3	8	NA	44	98	412	662
<b>1985 Total</b> .....	13	132	46	6	2	7	NA	18	79	480	705
<b>1990 Total</b> .....	12	142	39	6	1	8	0	18	73	566	793
<b>1995 Total</b> .....	11	164	35	7	2	1	(s)	11	56	620	851
<b>2000 Total</b> .....	9	173	36	9	2	3	(s)	7	58	783	1,022
<b>2005 Total</b> .....	9	163	33	8	2	3	(s)	9	55	841	1,069
<b>2006 Total</b> .....	6	154	29	8	1	3	(s)	6	47	835	1,043
<b>2007 Total</b> .....	7	164	28	8	1	4	(s)	6	46	861	1,078
<b>2008 Total</b> .....	8	171	28	10	(s)	3	(s)	6	47	849	1,075
<b>2009 Total</b> .....	7	169	29	9	(s)	3	(s)	6	47	784	1,007
<b>2010 Total</b> .....	7	168	29	9	(s)	3	(s)	5	46	804	1,025
<b>2011 Total</b> .....	6	171	29	9	(s)	3	(s)	4	45	768	990
<b>2012 Total</b> .....	4	157	26	9	(s)	3	(s)	2	40	731	932
<b>2013 Total</b> .....	4	179	25	10	(s)	3	(s)	2	39	736	958
<b>2014 Total</b> .....	4	190	26	10	(s)	4	(s)	1	41	736	970
<b>2015 Total</b> .....	3	176	26	9	(s)	25	(s)	(s)	61	692	932
<b>2016 Total</b> .....	2	171	24	9	(s)	25	(s)	(s)	59	662	894
<b>2017 Total</b> .....	2	174	24	10	(s)	24	(s)	(s)	58	633	867
<b>2018 Total</b> .....	2	193	24	11	(s)	24	(s)	(s)	59	632	886
<b>2019</b> January .....	(s)	31	3	2	(s)	2	(s)	(s)	7	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	74
April .....	(s)	14	2	1	(s)	2	(s)	(s)	5	38	57
May .....	(s)	10	1	1	(s)	2	0	(s)	4	45	60
June .....	(s)	8	1	1	(s)	2	0	(s)	4	49	61
July .....	(s)	8	1	1	(s)	2	0	(s)	4	60	72
August .....	(s)	8	2	1	(s)	2	0	(s)	4	59	71
September .....	(s)	8	1	1	(s)	2	0	(s)	3	53	64
October .....	(s)	12	1	1	(s)	2	0	(s)	4	45	62
November .....	(s)	21	3	1	(s)	2	0	(s)	6	44	72
December .....	(s)	25	3	1	(s)	2	(s)	(s)	7	44	76
<b>Total</b> .....	2	193	24	11	(s)	24	(s)	(s)	60	578	833
<b>2020</b> 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	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
September .....	(s)	8	1	1	(s)	2	0	(s)	4	45	57
October .....	(s)	11	1	1	(s)	2	0	(s)	4	42	58
November .....	(s)	16	2	1	(s)	2	0	(s)	5	38	59
December .....	(s)	25	2	1	(s)	2	0	(s)	5	43	74
<b>Total</b> .....	1	173	21	11	(s)	21	(s)	(s)	53	504	731
<b>2021</b> January .....	(s)	27	2	1	(s)	2	0	(s)	5	43	75
February .....	(s)	27	2	1	(s)	2	(s)	(s)	5	44	76
March .....	(s)	19	2	1	(s)	2	(s)	(s)	5	37	61
<b>3-Month Total</b> .....	(s)	73	6	4	(s)	5	(s)	(s)	16	123	212
<b>2020 3-Month Total</b> .....	1	70	7	4	(s)	6	(s)	(s)	16	117	203
<b>2019 3-Month Total</b> .....	1	80	9	4	(s)	6	(s)	(s)	19	140	239

<sup>a</sup> Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.

<sup>b</sup> Natural gas, excluding supplemental gaseous fuels.

<sup>c</sup> Distillate fuel oil, excluding biodiesel.

<sup>d</sup> Hydrocarbon gas liquids.

<sup>e</sup> Finished motor gasoline, excluding fuel ethanol.

<sup>f</sup> 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.

<sup>g</sup> Excludes emissions from biomass energy consumption. See Table 11.7.

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<sup>a</sup>)

	Coal	Coal Coke Net Imports	Natural Gas <sup>b</sup>	Petroleum									Retail Elec- tricity <sup>g</sup>	Total <sup>h</sup>
				Distillate Fuel Oil <sup>c</sup>	HGL <sup>d</sup>	Kero- sene	Lubri- cants	Motor Gasoline <sup>e</sup>	Petroleum Coke	Residual Fuel Oil	Other <sup>f</sup>	Total		
<b>1973 Total</b> .....	371	-1	533	106	31	11	7	18	54	146	99	473	515	1,892
<b>1975 Total</b> .....	335	2	438	97	30	9	6	16	52	119	94	421	490	1,686
<b>1980 Total</b> .....	289	-4	428	96	52	13	7	11	50	106	131	465	601	1,778
<b>1985 Total</b> .....	255	-2	361	81	54	3	6	15	55	59	83	357	583	1,554
<b>1990 Total</b> .....	258	1	436	84	45	1	7	13	69	32	115	366	638	1,698
<b>1995 Total</b> .....	233	7	492	82	57	1	7	14	69	27	107	364	659	1,755
<b>2000 Total</b> .....	211	7	486	87	61	1	7	11	75	19	107	368	719	1,791
<b>2005 Total</b> .....	182	5	406	92	49	3	6	25	86	22	135	418	672	1,684
<b>2006 Total</b> .....	180	7	408	91	49	2	6	26	85	19	147	425	650	1,669
<b>2007 Total</b> .....	175	3	419	91	50	1	6	21	83	15	143	410	662	1,669
<b>2008 Total</b> .....	168	5	419	98	41	(s)	6	17	79	15	126	382	642	1,615
<b>2009 Total</b> .....	131	-3	395	78	41	(s)	5	16	73	10	107	331	550	1,404
<b>2010 Total</b> .....	152	-1	427	84	42	1	5	17	67	9	115	340	587	1,507
<b>2011 Total</b> .....	146	1	438	90	38	(s)	5	17	64	10	114	339	574	1,498
<b>2012 Total</b> .....	141	(s)	455	93	42	(s)	4	17	69	5	110	341	543	1,481
<b>2013 Total</b> .....	144	-2	472	92	46	(s)	5	17	64	4	116	344	542	1,501
<b>2014 Total</b> .....	143	-2	488	100	45	(s)	5	14	65	3	108	340	543	1,512
<b>2015 Total</b> .....	129	-2	487	85	49	(s)	5	17	66	3	112	337	502	1,454
<b>2016 Total</b> .....	113	-2	497	84	46	(s)	5	17	65	4	120	342	473	1,423
<b>2017 Total</b> .....	112	-3	510	88	48	(s)	5	18	61	4	126	349	461	1,429
<b>2018 Total</b> .....	110	-3	533	91	<sup>R</sup> 55	(s)	5	18	62	3	123	357	457	1,455
<b>2019</b> January .....	9	(s)	50	10	5	(s)	(s)	1	5	(s)	11	33	38	130
February .....	9	(s)	45	8	4	(s)	(s)	1	1	(s)	7	23	33	110
March .....	9	(s)	48	9	4	(s)	(s)	1	5	(s)	10	29	34	120
April .....	8	(s)	44	8	4	(s)	(s)	1	4	(s)	11	29	30	111
May .....	9	(s)	44	8	4	(s)	(s)	2	5	(s)	12	31	34	118
June .....	9	(s)	42	6	5	(s)	(s)	2	7	(s)	10	30	36	116
July .....	8	(s)	43	6	5	(s)	(s)	2	7	(s)	10	30	42	122
August .....	8	(s)	44	5	5	(s)	(s)	2	6	(s)	12	30	41	124
September .....	8	(s)	42	7	5	(s)	(s)	1	4	(s)	11	29	37	117
October .....	9	(s)	45	9	5	(s)	(s)	1	4	(s)	11	32	33	118
November .....	8	(s)	47	7	5	(s)	(s)	1	6	(s)	11	31	34	121
December .....	9	(s)	50	5	5	(s)	(s)	1	6	(s)	11	30	32	121
<b>Total</b> .....	<b>104</b>	<b>-2</b>	<b>543</b>	<b>88</b>	<b>58</b>	<b>(s)</b>	<b>4</b>	<b>18</b>	<b>60</b>	<b>3</b>	<b>127</b>	<b>358</b>	<b>426</b>	<b>1,429</b>
<b>2020</b> January .....	8	(s)	50	10	4	(s)	(s)	1	4	(s)	11	31	30	119
February .....	8	(s)	47	10	3	(s)	(s)	1	4	(s)	12	31	28	113
March .....	8	(s)	47	9	5	(s)	(s)	1	4	(s)	12	31	28	113
April .....	7	(s)	42	4	3	(s)	(s)	1	3	(s)	10	22	23	93
May .....	6	(s)	41	4	4	(s)	(s)	1	3	(s)	11	24	25	97
June .....	7	(s)	40	4	4	(s)	(s)	1	3	(s)	9	22	30	99
July .....	6	(s)	42	5	5	(s)	(s)	1	4	(s)	9	25	36	110
August .....	7	(s)	43	5	5	(s)	(s)	1	6	(s)	10	29	37	115
September .....	7	(s)	42	7	5	(s)	(s)	1	5	(s)	8	27	31	107
October .....	7	(s)	45	9	6	(s)	(s)	1	4	(s)	8	29	31	112
November .....	8	(s)	46	8	6	(s)	(s)	1	5	(s)	9	30	30	112
December .....	8	(s)	50	8	7	(s)	(s)	1	4	(s)	10	30	32	119
<b>Total</b> .....	<b>87</b>	<b>-1</b>	<b>533</b>	<b>81</b>	<b>59</b>	<b>(s)</b>	<b>4</b>	<b>15</b>	<b>50</b>	<b>2</b>	<b>118</b>	<b>330</b>	<b>363</b>	<b>1,312</b>
<b>2021</b> January .....	8	(s)	50	10	6	(s)	(s)	1	4	(s)	8	30	32	120
February .....	5	(s)	42	8	3	(s)	(s)	1	2	(s)	7	22	32	101
March .....	4	(s)	45	10	5	(s)	(s)	1	4	(s)	11	32	27	108
<b>3-Month Total</b> .....	<b>17</b>	<b>-1</b>	<b>138</b>	<b>28</b>	<b>14</b>	<b>(s)</b>	<b>1</b>	<b>4</b>	<b>10</b>	<b>1</b>	<b>26</b>	<b>83</b>	<b>92</b>	<b>330</b>
<b>2020 3-Month Total</b> .....	<b>25</b>	<b>-1</b>	<b>143</b>	<b>28</b>	<b>12</b>	<b>(s)</b>	<b>1</b>	<b>4</b>	<b>12</b>	<b>(s)</b>	<b>34</b>	<b>92</b>	<b>86</b>	<b>346</b>
<b>2019 3-Month Total</b> .....	<b>27</b>	<b>-1</b>	<b>143</b>	<b>27</b>	<b>14</b>	<b>(s)</b>	<b>1</b>	<b>4</b>	<b>11</b>	<b>1</b>	<b>28</b>	<b>86</b>	<b>104</b>	<b>360</b>

<sup>a</sup> Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.

<sup>b</sup> Natural gas, excluding supplemental gaseous fuels.

<sup>c</sup> Distillate fuel oil, excluding biodiesel.

<sup>d</sup> Hydrocarbon gas liquids.

<sup>e</sup> Finished motor gasoline, excluding fuel ethanol.

<sup>f</sup> Aviation gasoline blending components, crude oil, motor gasoline blending components, petrochemical feedstocks, special naphthas, still gas, unfinished oils, waxes, and miscellaneous petroleum products.

<sup>g</sup> 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.

<sup>h</sup> 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<sup>a</sup>)

		Coal	Natural Gas <sup>b</sup>	Petroleum							Retail Elec- tricity <sup>i</sup>	Total <sup>g</sup>
				Aviation Gasoline	Distillate Fuel Oil <sup>c</sup>	HGL <sup>d</sup>	Jet Fuel	Lubri- cants	Motor Gasoline <sup>e</sup>	Residual Fuel Oil		
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
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 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)	34	(s)	18	(s)	82	3	137	(s)	143
March .....	(h)	5	(s)	38	(s)	21	(s)	92	3	155	(s)	160
April .....	(h)	4	(s)	38	(s)	21	1	91	2	154	(s)	158
May .....	(h)	4	(s)	41	(s)	22	(s)	95	2	160	(s)	164
June .....	(h)	4	(s)	40	(s)	22	(s)	94	4	160	(s)	164
July .....	(h)	4	(s)	41	(s)	23	(s)	95	4	164	(s)	169
August .....	(h)	4	(s)	41	(s)	23	(s)	99	4	168	(s)	172
September .....	(h)	4	(s)	39	(s)	21	(s)	89	4	153	(s)	157
October .....	(h)	4	(s)	41	(s)	22	(s)	93	4	160	(s)	165
November .....	(h)	5	(s)	37	(s)	21	(s)	89	3	150	(s)	155
December .....	(h)	6	(s)	36	(s)	23	(s)	89	4	152	(s)	158
Total .....	(h)	55	2	462	(s)	256	5	1,095	42	1,862	3	1,920
2020 January .....	(h)	6	(s)	34	(s)	21	(s)	87	3	146	(s)	152
February .....	(h)	5	(s)	32	(s)	19	(s)	84	2	137	(s)	143
March .....	(h)	5	(s)	36	(s)	17	(s)	78	1	133	(s)	138
April .....	(h)	4	(s)	34	(s)	8	(s)	57	1	101	(s)	105
May .....	(h)	4	(s)	35	(s)	7	(s)	72	1	116	(s)	120
June .....	(h)	4	(s)	36	(s)	9	(s)	80	3	128	(s)	132
July .....	(h)	4	(s)	38	(s)	12	(s)	84	4	139	(s)	144
August .....	(h)	4	(s)	38	(s)	13	(s)	85	4	141	(s)	145
September .....	(h)	4	(s)	36	(s)	11	(s)	83	4	135	(s)	139
October .....	(h)	4	(s)	38	(s)	13	(s)	83	4	138	(s)	142
November .....	(h)	4	(s)	35	(s)	14	(s)	77	3	129	(s)	133
December .....	(h)	6	(s)	35	(s)	14	(s)	78	2	130	(s)	136
Total .....	(h)	54	1	428	(s)	159	4	948	33	1,573	3	1,630
2021 January .....	(h)	6	(s)	35	(s)	14	(s)	77	3	130	(s)	136
February .....	(h)	5	(s)	32	(s)	12	(s)	70	3	118	(s)	123
March .....	(h)	5	(s)	37	(s)	14	(s)	85	4	142	(s)	147
3-Month Total .....	(h)	16	(s)	105	(s)	41	1	232	10	389	1	405
2020 3-Month Total .....	(h)	16	(s)	102	(s)	57	1	249	6	417	1	433
2019 3-Month Total .....	(h)	17	(s)	108	(s)	60	1	262	10	441	1	458

<sup>a</sup> Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.

<sup>b</sup> Natural gas, excluding supplemental gaseous fuels.

<sup>c</sup> Distillate fuel oil, excluding biodiesel.

<sup>d</sup> Hydrocarbon gas liquids.

<sup>e</sup> Finished motor gasoline, excluding fuel ethanol.

<sup>f</sup> 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.

<sup>g</sup> Excludes emissions from biomass energy consumption. See Table 11.7.

<sup>h</sup> 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<sup>a</sup>)

	Coal	Natural Gas <sup>b</sup>	Petroleum				Geo-thermal	Non-Biomass Waste <sup>d</sup>	Total <sup>e</sup>
			Distillate Fuel Oil <sup>c</sup>	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
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 Total .....	1,151	579	6	10	6	22	(s)	11	1,764
2019 January .....	101	46	(s)	1	1	2	(s)	1	150
February .....	81	43	(s)	1	(s)	1	(s)	1	126
March .....	80	45	(s)	1	(s)	1	(s)	1	126
April .....	60	40	(s)	(s)	(s)	1	(s)	1	103
May .....	72	46	(s)	1	(s)	2	(s)	1	121
June .....	80	54	(s)	1	(s)	1	(s)	1	136
July .....	101	69	(s)	1	(s)	2	(s)	1	172
August .....	95	70	(s)	1	(s)	2	(s)	1	167
September .....	85	59	(s)	1	(s)	1	(s)	1	147
October .....	68	51	(s)	(s)	(s)	1	(s)	1	121
November .....	76	45	(s)	(s)	(s)	1	(s)	1	123
December .....	73	50	(s)	1	(s)	1	(s)	1	125
<b>Total .....</b>	<b>973</b>	<b>618</b>	<b>4</b>	<b>8</b>	<b>5</b>	<b>16</b>	<b>(s)</b>	<b>11</b>	<b>1,618</b>
2020 January .....	66	51	(s)	1	(s)	1	(s)	1	120
February .....	58	48	(s)	1	(s)	1	(s)	1	108
March .....	52	48	(s)	1	(s)	1	(s)	1	102
April .....	43	42	(s)	1	(s)	1	(s)	1	86
May .....	48	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
September .....	70	57	(s)	(s)	(s)	1	(s)	1	129
October .....	61	52	(s)	(s)	(s)	1	(s)	1	115
November .....	62	42	(s)	1	(s)	1	(s)	1	106
December .....	79	48	(s)	1	(s)	1	(s)	1	129
<b>Total .....</b>	<b>786</b>	<b>635</b>	<b>3</b>	<b>8</b>	<b>4</b>	<b>16</b>	<b>(s)</b>	<b>11</b>	<b>1,448</b>
2021 January .....	82	47	(s)	1	(s)	1	(s)	1	132
February .....	87	43	1	1	(s)	2	(s)	1	133
March .....	62	41	(s)	1	(s)	1	(s)	1	105
<b>3-Month Total .....</b>	<b>231</b>	<b>131</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>5</b>	<b>(s)</b>	<b>3</b>	<b>370</b>
2020 3-Month Total .....	176	147	1	2	1	4	(s)	3	330
2019 3-Month Total .....	262	134	1	2	1	5	(s)	3	403

<sup>a</sup> Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.

<sup>b</sup> Natural gas, excluding supplemental gaseous fuels.

<sup>c</sup> Distillate fuel oil, excluding biodiesel.

<sup>d</sup> 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.

<sup>e</sup> Excludes emissions from biomass energy consumption. See Table 11.7.

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<sup>a</sup>)

	By Source					By Sector					
	Wood <sup>b</sup>	Biomass Waste <sup>c</sup>	Fuel Ethanol <sup>d</sup>	Bio-diesel	Total	Residential	Commercial <sup>e</sup>	Industrial <sup>f</sup>	Transportation	Electric Power <sup>g</sup>	Total
<b>1973 Total</b> .....	143	(s)	NA	NA	143	33	1	109	NA	(s)	143
<b>1975 Total</b> .....	140	(s)	NA	NA	141	40	1	100	NA	(s)	141
<b>1980 Total</b> .....	232	(s)	NA	NA	232	80	2	150	NA	(s)	232
<b>1985 Total</b> .....	252	14	3	NA	270	95	2	168	3	1	270
<b>1990 Total</b> .....	208	24	4	NA	237	54	8	147	4	23	237
<b>1995 Total</b> .....	222	30	8	NA	260	49	9	166	8	28	260
<b>2000 Total</b> .....	212	27	9	NA	248	39	9	161	9	29	248
<b>2005 Total</b> .....	200	37	23	1	261	40	10	150	23	37	261
<b>2006 Total</b> .....	197	36	31	2	266	36	9	151	33	38	266
<b>2007 Total</b> .....	196	37	39	3	276	39	9	146	41	39	276
<b>2008 Total</b> .....	193	39	55	3	290	44	10	139	57	40	290
<b>2009 Total</b> .....	182	41	62	3	288	47	10	125	64	41	288
<b>2010 Total</b> .....	208	42	73	2	325	51	10	149	74	42	325
<b>2011 Total</b> .....	208	42	73	8	331	49	11	151	80	40	331
<b>2012 Total</b> .....	202	42	73	8	325	41	10	153	80	42	325
<b>2013 Total</b> .....	219	45	75	13	353	54	11	158	87	43	353
<b>2014 Total</b> .....	225	47	76	13	361	54	12	158	88	49	361
<b>2015 Total</b> .....	217	47	79	14	357	48	13	157	90	48	357
<b>2016 Total</b> .....	209	46	81	20	355	42	14	155	98	47	355
<b>2017 Total</b> .....	205	45	82	19	351	40	14	152	98	47	351
<b>2018 Total</b> .....	212	44	82	18	356	49	14	151	97	46	356
<b>2019</b> January .....	18	4	6	1	30	4	1	13	7	4	30
February .....	17	3	6	1	27	4	1	12	7	3	27
March .....	18	3	7	1	29	4	1	13	8	3	29
April .....	17	3	7	1	28	4	1	12	8	3	28
May .....	17	3	7	2	30	4	1	12	9	3	30
June .....	17	3	7	1	29	4	1	12	8	3	29
July .....	18	3	7	2	30	4	1	13	8	4	30
August .....	18	3	7	2	30	4	1	13	8	4	30
September .....	17	3	7	1	28	4	1	12	8	3	28
October .....	17	3	7	1	29	4	1	12	8	3	29
November .....	17	3	7	1	29	4	1	12	8	3	29
December .....	18	4	7	1	30	4	1	13	8	4	30
<b>Total</b> .....	210	40	83	17	350	51	13	147	97	41	350
<b>2020</b> January .....	17	4	7	1	29	4	1	13	8	4	29
February .....	16	3	6	1	27	3	1	12	7	3	27
March .....	17	3	6	1	27	4	1	12	7	3	27
April .....	16	3	4	1	24	4	1	12	5	3	24
May .....	17	3	6	1	27	4	1	12	7	3	27
June .....	16	3	6	1	26	4	1	11	7	3	26
July .....	16	3	6	2	28	4	1	12	8	3	28
August .....	16	3	6	2	28	4	1	12	8	4	28
September .....	16	3	6	2	27	4	1	12	8	3	27
October .....	16	3	6	2	27	4	1	12	7	3	27
November .....	16	3	6	1	27	4	1	12	7	3	27
December .....	17	3	6	2	29	4	1	13	8	3	29
<b>Total</b> .....	197	39	72	18	325	43	13	144	86	39	325
<b>2021</b> January .....	17	3	6	1	27	4	1	13	6	3	27
February .....	15	3	5	1	25	3	1	11	6	3	25
March .....	17	3	7	1	28	4	1	12	8	3	28
<b>3-Month Total</b> .....	49	10	17	4	80	11	3	36	20	10	80
<b>2020 3-Month Total</b> .....	50	10	18	4	83	11	3	37	22	10	83
<b>2019 3-Month Total</b> .....	53	10	20	4	86	13	3	37	23	11	86

<sup>a</sup> Metric tons of carbon dioxide can be converted to metric tons of carbon equivalent by multiplying by 12/44.

<sup>b</sup> Wood and wood-derived fuels.

<sup>c</sup> Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass.

<sup>d</sup> Fuel ethanol minus denaturant.

<sup>e</sup> Commercial sector, including commercial combined-heat-and-power (CHP) and commercial electricity-only plants.

<sup>f</sup> Industrial sector, including industrial combined-heat-and-power (CHP) and industrial electricity-only plants.

<sup>g</sup> 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.

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 (CO<sub>2</sub>), 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. CO<sub>2</sub> 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 CO<sub>2</sub> 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. CO<sub>2</sub> emissions from energy consumption, plus the non-combustion use of fossil fuels (excluded are estimates for CO<sub>2</sub> emissions from biomass energy consumption, which appear in MER Table 11.7).

For annual U.S. estimates of CO<sub>2</sub> 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 (CO<sub>2</sub>) emissions from the combustion of biomass to produce energy are excluded from the energy-related CO<sub>2</sub> 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 CO<sub>2</sub> emissions from biomass can potentially lead to confusion in accounting for and understanding the flow of CO<sub>2</sub> emissions within energy and non-energy systems. In recognition of this issue, reporting of CO<sub>2</sub> emissions from biomass combustion alongside other energy-related CO<sub>2</sub> 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 CO<sub>2</sub> emissions from biomass and energy-related CO<sub>2</sub> 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.

2012–2020: 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.

2021 forward: To remove the biodiesel and other renewable diesel fuel portions 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 biodiesel and other renewable diesel fuel heat content factors 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](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 (CO<sub>2</sub>) 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 CO<sub>2</sub> emissions factors at [http://www.eia.gov/environment/archive/1605/ggrpt/excel/CO2\\_coeffs\\_09\\_v2.xls](http://www.eia.gov/environment/archive/1605/ggrpt/excel/CO2_coeffs_09_v2.xls).

Coal—CO<sub>2</sub> 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—CO<sub>2</sub> emissions for coal coke net imports are calculated.

Natural Gas—CO<sub>2</sub> 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—CO<sub>2</sub> 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 CO<sub>2</sub> 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—CO<sub>2</sub> 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 CO<sub>2</sub> 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>.