

**Table A18. Energy-related carbon dioxide emissions by sector and source**  
(million metric tons, unless otherwise noted)

Sector and source	Reference case							Annual growth 2013-2040 (percent)
	2012	2013	2020	2025	2030	2035	2040	
<b>Residential</b>								
Petroleum .....	61	64	50	45	41	37	33	-2.4%
Natural gas .....	225	267	246	241	240	235	229	-0.6%
Electricity <sup>1</sup> .....	757	773	761	761	770	776	779	0.0%
<b>Total residential .....</b>	<b>1,044</b>	<b>1,105</b>	<b>1,057</b>	<b>1,047</b>	<b>1,051</b>	<b>1,048</b>	<b>1,042</b>	<b>-0.2%</b>
<b>Commercial</b>								
Petroleum .....	40	41	44	43	42	41	41	-0.1%
Natural gas .....	157	178	175	175	182	189	197	0.4%
Coal .....	4	4	5	5	5	5	4	0.5%
Electricity <sup>1</sup> .....	731	744	755	772	788	801	814	0.3%
<b>Total commercial .....</b>	<b>933</b>	<b>968</b>	<b>979</b>	<b>994</b>	<b>1,016</b>	<b>1,037</b>	<b>1,057</b>	<b>0.3%</b>
<b>Industrial<sup>2</sup></b>								
Petroleum .....	345	350	410	425	424	424	429	0.8%
Natural gas <sup>3</sup> .....	447	462	512	523	539	549	563	0.7%
Coal .....	142	143	150	148	144	139	139	-0.1%
Electricity <sup>1</sup> .....	543	531	586	615	613	601	592	0.4%
<b>Total industrial .....</b>	<b>1,476</b>	<b>1,486</b>	<b>1,658</b>	<b>1,711</b>	<b>1,719</b>	<b>1,714</b>	<b>1,723</b>	<b>0.5%</b>
<b>Transportation</b>								
Petroleum <sup>4</sup> .....	1,774	1,792	1,752	1,701	1,662	1,647	1,631	-0.3%
Natural gas <sup>5</sup> .....	41	49	49	53	59	67	89	2.2%
Electricity <sup>1</sup> .....	4	4	5	5	6	8	9	2.9%
<b>Total transportation .....</b>	<b>1,819</b>	<b>1,845</b>	<b>1,806</b>	<b>1,759</b>	<b>1,727</b>	<b>1,722</b>	<b>1,728</b>	<b>-0.2%</b>
<b>Electric power<sup>6</sup></b>								
Petroleum .....	19	23	13	13	13	13	13	-2.1%
Natural gas .....	493	442	412	441	478	497	509	0.5%
Coal .....	1,511	1,575	1,670	1,687	1,674	1,664	1,661	0.2%
Other <sup>7</sup> .....	12	12	12	12	12	12	12	0.0%
<b>Total electric power .....</b>	<b>2,035</b>	<b>2,053</b>	<b>2,107</b>	<b>2,153</b>	<b>2,177</b>	<b>2,186</b>	<b>2,195</b>	<b>0.2%</b>
<b>Total by fuel</b>								
Petroleum <sup>4</sup> .....	2,240	2,272	2,269	2,227	2,182	2,163	2,147	-0.2%
Natural gas .....	1,363	1,399	1,394	1,432	1,497	1,538	1,586	0.5%
Coal .....	1,657	1,722	1,824	1,840	1,822	1,808	1,804	0.2%
Other <sup>7</sup> .....	12	12	12	12	12	12	12	0.0%
<b>Total .....</b>	<b>5,272</b>	<b>5,405</b>	<b>5,499</b>	<b>5,511</b>	<b>5,514</b>	<b>5,521</b>	<b>5,549</b>	<b>0.1%</b>
<b>Carbon dioxide emissions</b>								
<b>(tons per person) .....</b>	<b>16.8</b>	<b>17.1</b>	<b>16.5</b>	<b>15.9</b>	<b>15.4</b>	<b>14.9</b>	<b>14.6</b>	<b>-0.6%</b>

<sup>1</sup>Emissions from the electric power sector are distributed to the end-use sectors.

<sup>2</sup>Includes combined heat and power plants that have a non-regulatory status, and small on-site generating systems.

<sup>3</sup>Includes lease and plant fuel.

<sup>4</sup>This includes carbon dioxide from international bunker fuels, both civilian and military, which are excluded from the accounting of carbon dioxide emissions under the United Nations convention. From 1990 through 2013, international bunker fuels accounted for 90 to 126 million metric tons annually.

<sup>5</sup>Includes pipeline fuel natural gas and natural gas used as fuel in motor vehicles, trains, and ships.

<sup>6</sup>Includes electricity-only and combined heat and power plants that have a regulatory status.

<sup>7</sup>Includes emissions from geothermal power and nonbiogenic emissions from municipal waste.

Note: By convention, the direct emissions from biogenic energy sources are excluded from energy-related carbon dioxide emissions. The release of carbon from these sources 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. If, however, increased use of biomass energy results in a decline in terrestrial carbon stocks, a net positive release of carbon may occur. See Table A19, "Energy-Related Carbon Dioxide Emissions by End Use", for the emissions from biogenic energy sources as an indication of the potential net release of carbon dioxide in the absence of offsetting sequestration. Totals may not equal sum of components due to independent rounding. Data for 2012 and 2013 are model results and may differ from official EIA data reports.

Sources: 2012 and 2013 emissions and emission factors: U.S. Energy Information Administration (EIA), *Monthly Energy Review*, DOE/EIA-0035(2014/11) (Washington, DC, November 2014). Projections: EIA, AEO2015 National Energy Modeling System run REF2015.D021915A.