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Energy-Related Carbon Dioxide Emissions by State, 2005–2016

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Overview

Energy-related carbon dioxide (CO2) emissions vary significantly across states, whether considered on an absolute basis (Figure 1) or on a per capita basis (Figure 2). Total state CO2 emissions include those from direct fuel use across all sectors, including residential, commercial, industrial, and transportation, as well as primary fuels consumed for electricity generation.

The physical size of a state, as well as the available fuels, types of businesses, climate, and population size and density, all play a role in determining the level of total and per capita emissions. In addition, each state's energy system reflects circumstances specific to that state. For example, some states have abundant hydroelectric supplies, and others contain abundant coal resources.

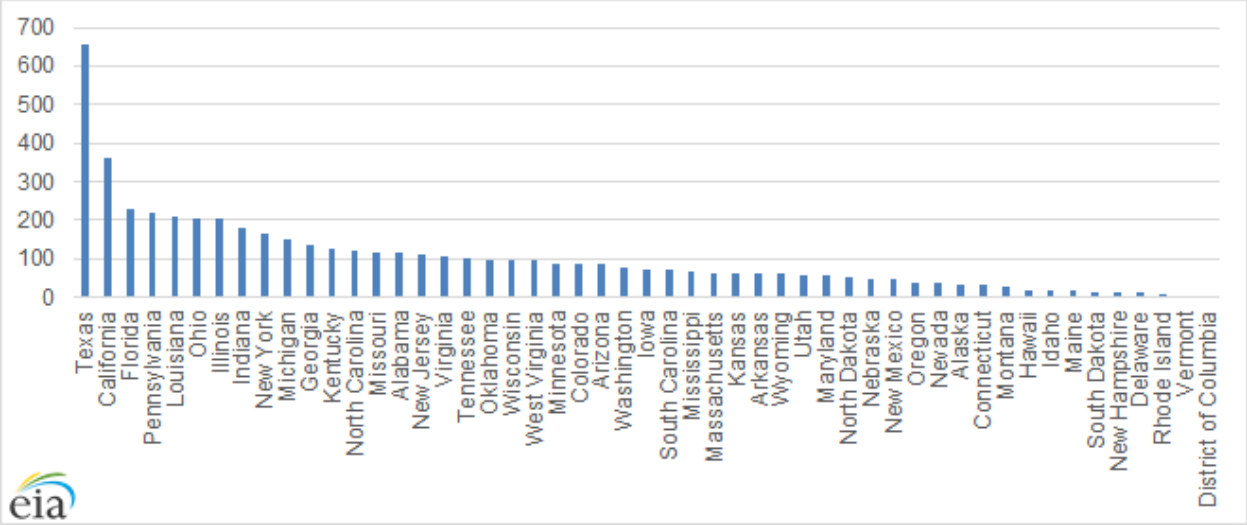
This paper examines the factors that contribute to a state's CO2 profile. The analysis does not attempt to assess the effect of state policies on absolute emissions levels or on current and future trends, nor does it intend to imply that certain policies would be appropriate for a particular state.

The term *energy-related CO2 emissions*, as used in this analysis, refers to emissions released at the location where fossil fuels are consumed. To the extent that fuels are used in one state to generate electricity consumed in another state, emissions are attributed to the state in which the electricity is generated and fuels are combusted. Attributing emissions to the state consuming the electricity, rather than the state where it is generated, would yield different results. For feedstock uses of fossil fuels, carbon stored in products such as plastics is allocated to the states where the petrochemicals are produced.

The calculations presented in this paper also assume that biomass used by electricity generators, by industries, and by homes and commercial buildings is carbon neutral, with combustion emissions fully offset by land sinks in a sustainable biomass cycle. Emissions may be underestimated to the extent that actual use of biomass energy may not be carbon neutral.

Figure 1. Energy-related carbon dioxide emissions by state, 2016

million metric tons of carbon dioxide



Source: EIA, State Energy Data System and EIA calculations made for this analysis.

Total state emission levels

In the period from 2005 to 2016, energy-related CO2 emissions fell in 41 states and rose in 9 states (not including the District of Columbia) (Table 1). The largest percentage decrease during that period was Maryland's 30%—a drop of 24 million metric tons (MMmt)—and the greatest absolute decline was 64 MMmt in Ohio (a 24% decrease). The largest percentage increase during that period was Idaho's 16% (3 MMmt). Texas, however, experienced the largest absolute increase between 2005 and 2016—52 MMmt (9%). The factors that led to these trends vary by state. In Ohio, for example, during the same period, coal-related CO2 emissions from the electric power sector declined by about 62 MMmt. During this period, the Ohio economy grew in total by less than 8%. In Texas, coal emissions from the electric power sector declined by about 23 MMmt between 2005 and 2016, but the economy grew by almost 42% during that period—and much of this growth was from energy-intensive energy production and petroleum refining.

From 2015 to 2016, 36 states saw a decrease in energy-related CO2 emissions, while 14 experienced an increase. During that period, national emissions decreased by almost 2%. Because of differences in how the national and state data sets are calculated, the total for all states is not the same as the total for the United States. This year, an adjustment factor was introduced to match the total for the United States. This factor is distributed to the states in proportion to each state's share of the total—see Table 2 for the adjusted values by state. See Appendix A for a comparison of the state- and national-level data used for this analysis. The analysis that appears in this report relied on the unadjusted values.

Emissions by fuel

States exhibit very different emissions profiles because of varying fuel types (Table 3). For example, in 2016, coal consumption accounted for 75% of energy-related CO2 emissions in West Virginia (71 MMmt) and 71% of Wyoming's energy-related CO2 emissions (43 MMmt). In California, where less than 1% of CO2 emissions came from coal (3 MMmt), 66% came from petroleum (239 MMmt). In Rhode Island, which had no emissions from coal, 52% of CO2 emissions were from petroleum (5 MMmt). Hawaii's and Vermont's shares of CO2 emissions from petroleum in 2016 were 92% (17 MMmt) and 89% (5 MMmt), respectively. Maine's petroleum share was 81% (13 MMmt).

In six states, coal emissions made up more than half of total emissions. These six states rely on coal for electric power generation. Petroleum accounted for more than half of emissions in 17 states. Many of these states are dominated by petroleum emissions from the transportation sector, although states such as Louisiana also have a sizable industrial component of their petroleum emissions. Natural gas accounted for more than half of emissions only in Alaska (mainly industrial) and the District of Columbia (buildings). Many states, Alabama for example, have energy-related CO2 emissions that are more or less evenly distributed across fuels.

Emissions by sector

CO2 emissions also vary across states significantly by sector (Tables 4 and 5), based on factors such as the use of different fuels for electricity generation, different climates, and different sources of economic outputs (e.g., commercial versus industrial activity). For example, in Vermont, the largest share of emissions in 2016 came from the transportation sector (57%, or 3 MMmt), predominantly from petroleum, while the electric power sector share rounded to 0.0% because Vermont had virtually no

reported generation using fossil fuels. Vermont's residential sector share of 22%, or slightly more than 1 MMmt, reflected its relatively cold climate where petroleum is the main heating fuel. On the other hand, Hawaii, where a dominant share of emissions is also from petroleum, had a residential share that rounds to zero, which was the lowest in the United States because of its minimal heating fuel requirements. The largest sector emissions share in Hawaii, like Vermont, was from the transportation sector (55%, or 10 MMmt). However, unlike Vermont, Hawaii's electric power sector share was relatively high (36%, or 7 MMmt) because petroleum is the dominant fossil fuel for generating electricity in Hawaii.

Only in the District of Columbia do combined residential and commercial sector building emissions make up more than half of total emissions. Louisiana is the only state where industrial sector emissions make up more than half of the total—dominated by high energy consuming refineries and petrochemical plants. The states with other dominant sectors (greater than half of emissions) are about evenly split—seven of these states have the electric power as the dominant sector and eight of these states have the transportation sector dominating. Those states where the electric power sector has the largest share of CO2 emissions are coal-generating states, and those states where the transportation sector has the largest share of CO2 emissions tend to use noncarbon or low-carbon fuels for electricity generation and petroleum used in the transportation sector is the main producer of energy-related CO2.

Per capita carbon dioxide emissions

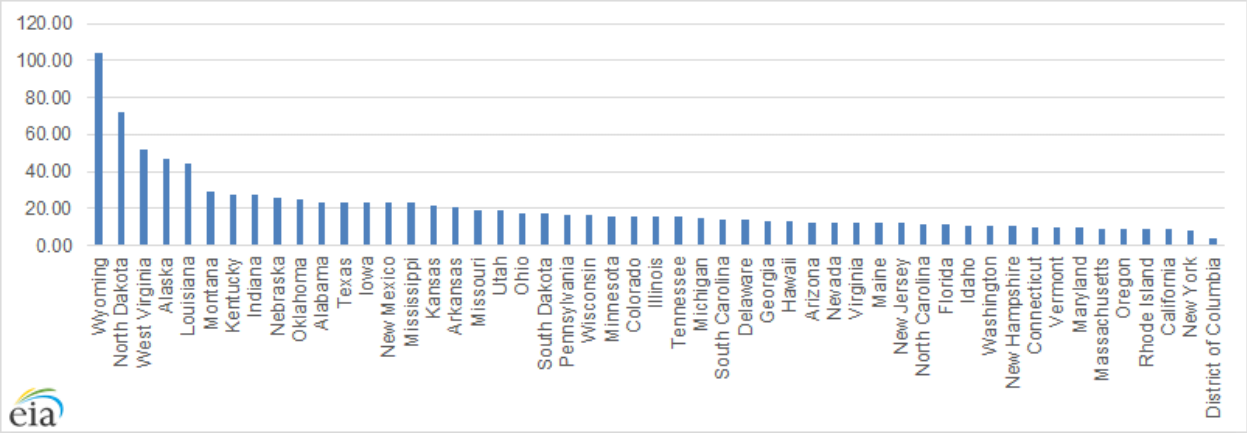
Another useful way to compare total CO2 emissions across states is to divide them by state population and examine them on a per capita basis (Table 6 and Figure 2). Many factors contribute to variation in the amount of emissions per capita, including climate, the structure of the state economy, population density, energy sources, building standards, and explicit state policies to reduce emissions. The 2016 CO2 emissions in Wyoming were 104 metric tons (mt) per capita, the highest in the United States. In 2016, Wyoming was the third-largest energy producer in the United States. Unlike the largest energy producer, Texas—with a population of 28 million—and the second-largest energy producer, Pennsylvania—with a population of 13 million—Wyoming has fewer than 600,000 people, giving Wyoming the lowest population density in the Lower 48 states.[1] Its winters are cold (the average low temperatures in January range between 5 degrees to 10 degrees Fahrenheit[2]). These factors raise Wyoming's per capita energy-related CO2 emissions compared with other states. The second-highest state per capita CO2 emissions level was North Dakota at 72 mt per capita. West Virginia (52 mt per capita), Alaska (47 mt per capita), and Louisiana (45 mt per capita) round out the five states with the highest per capita CO2 emissions.

[1] U.S. Energy Information Administration, State Profiles and Energy Estimates: https://www.eia.gov/state/.

[2] https://www.wrcc.dri.edu/narratives/WYOMING.htm.

Figure 2. Per capita energy-related carbon dioxide emissions by state, 2016

metric tons carbon dioxide per person



Source: EIA, State Energy Data System and EIA calculations made for this analysis.

New York, with a population of almost 20 million people, had the lowest per capita CO2 emissions of any state—about 8 mt per capita. A large portion of the population is located in the New York City metropolitan area, where mass transit is readily available and most residences are multi-family units that provide efficiencies of scale in terms of energy used for heating and cooling. The New York economy is oriented toward low energy-consuming activities (e.g., financial markets). Consequently, New York accounted for about 6% of the U.S. population in 2016, but it consumed only 1% of the country's industrial energy.[3] New York's energy prices are relatively high (the average retail electricity price of 14.47 cents per kWh compared to a U.S. average of 10.27 cents per kWh in 2016), which, in turn, encourages energy efficiency.[4] Other states with fewer than 9.5 mt per capita of energy-related CO2 emissions include California, Massachusetts, Oregon, and Rhode Island. The national average is 16 mt per capita.

Energy intensity

The energy intensity of a state, as measured by the amount of energy consumed per unit of economic output or, specifically, British thermal units (Btu) per dollar of a state's gross domestic product (GDP), plays an important role in its overall emissions profile (Table 7). The states with relatively high energy intensities tend to be in cold climates and rural or have a large industrial base relative to their overall economy. The states with the highest rates of energy-related CO2 emissions per capita in 2016 also tended to have higher energy-intensity values: Wyoming (24,000 Btu per chained 2009 dollar of GDP), Louisiana and West Virginia (both 19,000 Btu per dollar), North Dakota (16,000 Btu per dollar), and Montana and Alabama (both about 14,000 Btu per dollar). California, Connecticut, Maryland, Massachusetts, and New York were the lowest—each at about 3,000 Btu per dollar.

Many of the states with the lowest energy intensities are clustered in the relatively densely populated New England and Middle Atlantic regions. The 2016 national average was 6,000 Btu per dollar of GDP.

[3] U.S. Energy Information Administration, State Energy Data 2016, state population and energy consumption by sector. https://www.eia.gov/state/seds/

[4] U.S. Energy Information Administration, State Electricity Profiles, Table 1, 2016 Summary Statistics from archive. https://www.eia.gov/electricity/state/newyork/.

Carbon intensity of the energy supply

The carbon intensity of energy supply (CO2/Btu) reflects the energy fuel mix within a state (Table 8). As with energy intensity, the states with a higher carbon-intensive energy supply tend to be the states with high per capita emissions. The states with the most carbon-intensive energy supply as measured in kilograms of CO2 per million Btu (kg CO2/MMBtu) were

- West Virginia (79 kg CO2/MMBtu)
- Wyoming (76 kg CO2/MMBtu)
- Kentucky (72 kg CO2/MMBtu)
- Utah (69 kg CO2/MMBtu)
- Indiana, Missouri, and North Dakota (all about 68 kg CO2/MMBtu)

In all of these states, coal was the dominant emissions source (Table 3). The national average carbon intensity of the energy supply in 2016 was 54 kg CO2/MMBtu. The states with a lower carbon-intensive energy supply tend to be those states with relatively substantial non-carbon electricity generation from sources such as nuclear or hydropower. These states included

- Washington and Oregon (both 35 kg CO2/MMBtu)
- New Hampshire (36 kgCO2/MMBtu)
- Vermont (39 kg CO2/MMBtu)
- Maine, South Carolina, and South Dakota (all 41 kg CO2/MMBtu)

Carbon intensity of the economy

Another measure, the overall carbon intensity of the economy (CO2/dollar of state GDP), combines energy intensity with the carbon intensity of that state's energy supply. As expected, the states with the highest carbon intensity of their economies (Table 9) as measured in mt of CO2 per million dollars of state GDP (mt CO2/million chained 2009 dollars of GDP) are also the states with the highest values of energy intensity and carbon intensity of that energy supply. In 2016, these states included

- Wyoming (1,748 mt CO2/million dollars of GDP)
- West Virginia (1,430 mt CO2/million dollars of GDP)
- North Dakota (1,118 mt CO2/million dollars of GDP)
- Louisiana (1,004 mt CO2/million dollars of GDP)
- Alaska (744 mt CO2/million dollars of GDP)

The 2016 U.S. average was 309 mt CO2/million dollars of GDP. The states with the lowest carbon intensity of economic activity are also states that appear on the lower end of both energy intensity and the carbon intensity of that energy supply. These states included

- New York (128 mt CO2/million dollars of GDP)
- Massachusetts (144 mt CO2/million dollars of GDP)
- Connecticut (152 mt CO2/million dollars of GDP)
- California (156 mt CO2/million dollars of GDP)
- Maryland (171 mt CO2/million dollars of GDP)

Electricity trade

This analysis assigns all emissions related to the primary energy consumed for the production of electricity to the state where that electricity was produced rather than where it was consumed. As a result, the states that produce electricity from fossil fuels (especially coal) and sell that electricity across state lines tend to have higher per capita CO2 emissions than states that consume more electricity than they produce. If the emissions associated with the generation of electricity were allocated to the states where that electricity was consumed, the emissions profiles of both the producing and consuming states would be different in many cases.

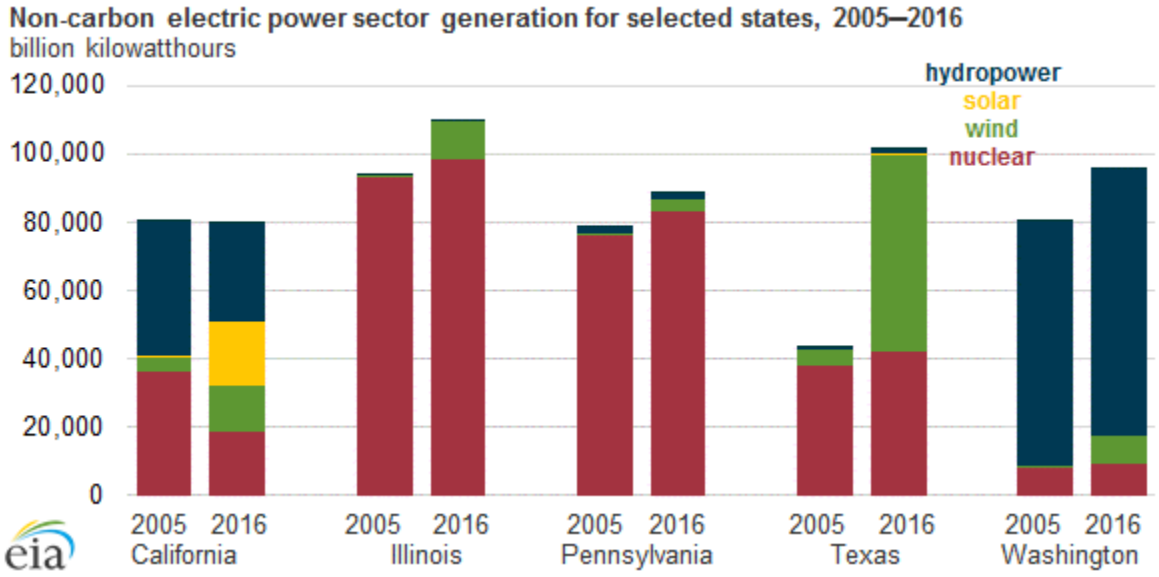
In an index of net electricity trade, a value greater than 1.0 indicates a net interstate exporter of electricity, a value less than 1.0 indicates a net interstate importer of electricity, and a value equal to 1 indicates self-sufficient electricity generation on a statewide basis. For example Wyoming has had an index value of 2.5 or higher for most years since 2005 (Table 10). This rating means that one and a half times or more of the electricity generated and consumed in the state was sent across state lines. Idaho, on the other hand, only generated about 60% of its own electricity from 2012–16. Only 3 of the top 10 states for energy-related CO2 per capita emissions (Alaska, Louisiana, and Oklahoma) use natural gas as the primary source of electricity generation. The other seven states use coal as the primary fuel. None of the states with the lowest per capita emissions generate electricity with coal as the primary fuel. Half of those states generate electricity with a non-carbon source and the other half with natural gas as the primary fuel source. Of those states with the lowest per capita CO2, only Vermont has been a significant electricity exporter in recent years.

Non-carbon energy

Traditionally, the primary non-carbon-producing energy forms have been nuclear and hydroelectric generation. Neither energy form has experienced significant capacity growth in the United States in recent years. More recently, nonhydropower renewable energy forms such as wind and solar have experienced significant growth during the past decade, which has changed the non-carbon generation profile of several states. These energy forms have been supported by state policies such as Renewable Portfolio Standards as well as federal policies such as production and investment tax credits. These policies have, in turn, subsidized these generation investments to make them more competitive with more established forms of electricity generation.

Although California increased its electricity generated by wind and solar between 2005 and 2016 (Figure 3), generation from hydropower and nuclear fell between 2005 and 2016. In total, California non-carbon electricity generation fell slightly from 81 billion kilowatthours (kWh) in 2005 to 80 billion kWh in 2016. Illinois increased its nuclear output from existing nuclear capacity while adding wind capacity and in 2016. Illinois produced 109 billion kWh from non-carbon generation sources. Pennsylvania experienced a pattern similar to that in Illinois. In contrast, Texas more than doubled its non-carbon generation output during that period, from 44 billion kWh in 2005 to 102 billion kWh in 2016. This doubling resulted from a stable level of nuclear generation and additions of wind capacity. Washington State has always relied heavily on hydropower generation and has added wind capacity to its generation mix, which helped it achieve 96 billion kWh of non-carbon electric generation in 2016.

Figure 3. Changes in non-carbon electric power sector generation in selected states, 2005–2016



Source: EIA, State Energy Data System, and EIA calculations made for this analysis

See Appendix B for other EIA state-related energy and environmental products.

Table 1. State energy-related carbon dioxide emissions by year, unadjusted (2005–2016)

million metric tons of carbon dioxide

State	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Change (2005–2016) Percent	Change (2005–2016) Absolute
Alabama	143.3	145.8	147.4	139.6	120.1	132.8	129.9	123.2	120.9	123.2	120.1	115.1	-19.7%	-28.2
Alaska	48.2	45.9	44.2	39.6	38.0	38.9	38.8	38.2	36.2	35.3	36.2	34.9	-27.6%	-13.3
Arizona	96.7	99.9	101.9	102.3	93.4	95.3	93.4	91.4	95.2	93.2	91.0	87.0	-10.0%	-9.7
Arkansas	60.1	62.0	63.3	64.1	61.5	65.8	67.3	66.0	68.4	69.0	59.3	62.4	3.9%	2.3
California	383.8	392.2	397.4	381.5	368.1	362.8	348.6	353.1	356.0	352.9	360.8	361.4	-5.8%	-22.4
Colorado	95.2	96.2	98.8	96.9	92.7	95.3	91.6	90.5	91.1	91.7	90.4	89.0	-6.5%	-6.2
Connecticut	44.1	41.0	40.3	37.7	35.9	36.3	34.9	34.1	34.9	35.2	36.5	34.3	-22.2%	-9.8
Delaware	16.8	15.7	16.5	15.6	12.0	11.3	12.3	13.4	13.1	12.8	12.9	13.3	-20.7%	-3.5
District of Columbia	3.9	3.2	3.4	3.1	3.2	3.2	3.1	2.7	2.8	3.0	3.0	2.8	-29.6%	-1.2
Florida	260.7	259.1	256.8	238.6	224.3	242.3	229.2	222.9	222.0	227.7	232.2	230.1	-11.7%	-30.6
Georgia	184.3	181.8	184.5	171.9	162.1	171.6	156.3	136.2	134.6	139.6	137.0	136.2	-26.1%	-48.1
Hawaii	22.9	23.2	24.0	19.3	18.9	19.0	19.4	18.9	18.4	18.4	18.5	18.4	-19.5%	-4.5
Idaho	15.8	15.8	16.4	15.6	15.2	16.0	15.8	15.7	17.2	16.7	18.0	18.4	16.3%	2.6
Illinois	242.0	233.9	241.6	240.0	224.8	229.9	228.8	216.0	229.5	232.4	215.0	204.1	-15.7%	-37.9
Indiana	233.5	231.3	231.2	226.8	203.9	216.3	209.0	194.3	199.9	205.3	186.0	181.9	-22.1%	-51.7
Iowa	78.7	80.0	85.2	89.1	84.0	88.4	85.5	79.4	81.0	81.8	75.9	73.1	-7.0%	-5.5
Kansas	71.6	71.9	79.7	74.2	72.4	72.2	70.4	65.6	69.4	69.6	63.9	62.1	-13.3%	-9.5
Kentucky	149.6	152.0	152.5	150.1	139.8	149.1	148.0	136.7	136.2	137.6	128.2	123.9	-17.2%	-25.7
Louisiana	205.4	217.5	222.4	225.6	208.8	221.4	224.2	211.8	203.5	201.2	203.9	209.1	1.8%	3.7
Maine	23.1	21.3	21.0	19.1	18.4	18.1	17.6	15.8	16.6	16.7	16.9	16.5	-28.8%	-6.7
Maryland	82.0	77.2	77.5	73.8	70.5	69.1	64.4	59.9	59.2	61.4	59.5	57.6	-29.8%	-24.5
Massachusetts	84.5	76.5	79.9	76.7	70.3	71.8	68.1	61.7	65.6	63.8	65.6	64.2	-24.0%	-20.3
Michigan	190.5	179.3	181.4	175.0	164.0	164.8	159.6	152.8	161.6	161.5	161.7	151.8	-20.3%	-38.7
Minnesota	101.4	98.7	100.3	99.9	92.1	91.9	91.6	86.6	89.6	94.8	87.8	89.3	-12.0%	-12.1
Mississippi	63.9	65.9	68.0	64.6	60.5	65.3	60.5	62.3	60.6	63.9	65.2	68.9	7.9%	5.0
Missouri	141.2	139.4	138.5	135.2	129.5	133.6	134.2	126.4	132.0	131.6	122.4	117.7	-16.6%	-23.5
Montana	34.9	35.1	36.5	35.8	32.4	34.3	31.4	30.1	31.5	32.0	31.9	30.5	-12.7%	-4.4
Nebraska	43.7	44.3	44.6	46.6	47.3	49.8	52.3	50.5	53.5	52.2	50.7	48.6	11.1%	4.9
Nevada	49.9	41.5	41.7	40.9	39.4	37.6	33.9	34.5	36.4	37.2	35.3	36.7	-26.5%	-13.2
New Hampshire	21.3	19.4	19.2	18.7	17.1	16.6	16.2	14.6	14.3	15.0	15.2	13.8	-35.3%	-7.5
New Jersey	128.4	121.3	128.9	126.7	109.6	113.9	114.2	103.6	107.3	113.3	111.6	110.8	-13.7%	-17.6
New Mexico	59.0	59.6	58.8	56.2	57.1	53.0	55.5	53.4	53.0	50.0	50.1	48.4	-18.0%	-10.6
New York	209.4	190.9	197.6	187.8	172.0	173.8	164.1	160.4	162.1	169.8	167.7	163.7	-21.8%	-45.7
North Carolina	154.0	148.6	154.5	149.2	133.0	143.0	128.6	121.3	125.1	127.4	121.1	120.6	-21.7%	-33.5
North Dakota	52.3	50.6	52.4	52.7	51.2	52.1	53.6	55.9	56.6	58.6	57.2	54.3	3.9%	2.0
Ohio	270.7	263.6	267.3	259.9	235.1	246.8	235.1	215.2	229.5	231.4	212.7	206.3	-23.8%	-64.5
Oklahoma	106.3	109.6	108.9	111.6	105.8	105.5	107.2	104.4	103.3	104.5	100.7	96.9	-8.8%	-9.4

Table 1. State energy-related carbon dioxide emissions by year, unadjusted (2005–2016) (cont.)

million metric tons of carbon dioxide

State	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Change (2005–2016) Percent	Change (2005–2016) Absolute
Oregon	41.1	40.3	43.8	42.8	40.9	40.7	37.2	36.9	39.2	38.0	38.1	38.0	-7.6%	-3.1
Pennsylvania	278.7	272.9	275.7	267.6	242.5	254.4	247.2	236.4	246.3	245.9	229.8	217.4	-22.0%	-61.3
Rhode Island	11.2	10.5	11.1	10.7	11.3	11.0	11.1	10.5	10.2	10.7	10.9	9.8	-12.9%	-1.5
South Carolina	86.0	86.3	86.8	84.6	79.1	83.4	79.5	73.0	70.0	74.2	72.6	71.7	-16.6%	-14.3
South Dakota	13.3	13.4	13.9	15.0	14.8	15.1	14.6	15.0	15.5	15.5	14.3	15.0	12.8%	1.7
Tennessee	125.1	127.2	126.9	120.4	102.0	109.6	106.1	99.7	98.3	103.7	100.0	103.1	-17.6%	-22.1
Texas	601.6	611.3	608.6	574.9	541.1	576.2	595.2	590.1	620.0	618.0	618.6	653.8	8.7%	52.3
Utah	66.8	68.1	70.0	69.2	64.4	63.6	64.1	61.4	66.8	65.1	63.5	58.8	-12.0%	-8.0
Vermont	6.8	6.7	6.5	5.9	6.2	5.9	5.8	5.5	5.8	5.9	6.2	6.0	-12.6%	-0.9
Virginia	128.9	122.5	127.7	116.5	105.5	108.7	99.8	97.8	105.0	104.1	103.2	104.2	-19.2%	-24.7
Washington	75.8	73.4	78.9	75.5	73.4	73.4	68.5	68.3	73.1	71.5	73.4	78.9	4.1%	3.1
West Virginia	112.0	112.2	114.4	110.2	89.4	100.4	97.7	92.1	94.3	100.0	92.1	94.6	-15.6%	-17.4
Wisconsin	110.5	102.7	104.4	104.8	95.9	98.2	97.4	90.2	100.8	101.1	99.8	95.6	-13.5%	-14.9
Wyoming	63.0	63.9	66.2	66.7	63.5	65.0	63.8	66.1	68.2	65.3	63.4	60.7	-3.7%	-2.3
Total of states (unadjusted)[1]	5,893.6	5,822.3	5,919.1	5,726.3	5,313.8	5,514.3	5,382.5	5,162.6	5,301.5	5,350.3	5,207.4	5,161.0	-12.4%	-732.6
Adjustments to match United States	98.1	90.2	86.1	89.2	81.8	76.7	71.1	80.1	70.3	69.1	66.7	28.4		
United States	5,991.6	5,912.5	6,005.2	5,815.5	5,395.6	5,591.0	5,453.6	5,242.7	5,371.8	5,419.3	5,274.1	5,189.4	-13.4%	-802.2

Sources: U.S. Energy Information Administration (EIA), State Energy Data System and EIA calculations made for this table. United States national-level total, EIA *Monthly Energy Review*, September 2018 Section 12.

Note: The District of Columbia is included in the data tables, but not in the analysis as it is not a state.

[1]State values in this table are unadjusted.

The adjustment factor is allocated to each state by the share of that state's emissions of the national total. See Table 2. for the adjusted state values.

See Appendix A. for details on the data series differences.

Table 2. State energy-related carbon dioxide emissions by year, adjusted (2005–2016)

million metric tons of carbon dioxide

State	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Change (2005–2016) Percent	Change (2005–2016) Absolute
Alabama	145.7	148.0	149.6	141.8	121.9	134.6	131.6	125.1	122.5	124.8	121.7	115.7	-20.6%	-30.0
Alaska	49.0	46.6	44.9	40.3	38.6	39.5	39.3	38.8	36.7	35.8	36.7	35.1	-28.4%	-13.9
Arizona	98.3	101.5	103.4	103.8	94.8	96.6	94.6	92.8	96.5	94.4	92.1	87.5	-11.0%	-10.8
Arkansas	61.1	62.9	64.2	65.1	62.4	66.7	68.1	67.0	69.3	69.9	60.0	62.8	2.7%	1.7
California	390.1	398.3	403.1	387.4	373.8	367.8	353.2	358.6	360.7	357.5	365.4	363.3	-6.9%	-26.8
Colorado	96.8	97.7	100.3	98.4	94.2	96.6	92.8	91.9	92.4	92.9	91.6	89.5	-7.5%	-7.3
Connecticut	44.8	41.7	40.8	38.3	36.5	36.8	35.3	34.7	35.4	35.6	37.0	34.5	-23.0%	-10.3
Delaware	17.1	16.0	16.8	15.9	12.2	11.4	12.4	13.6	13.3	12.9	13.0	13.4	-21.5%	-3.7
District of Columbia	4.0	3.2	3.4	3.1	3.2	3.3	3.1	2.7	2.9	3.1	3.0	2.8	-30.2%	-1.2
Florida	265.0	263.2	260.6	242.3	227.7	245.7	232.2	226.3	225.0	230.7	235.2	231.3	-12.7%	-33.7
Georgia	187.4	184.6	187.1	174.5	164.6	174.0	158.4	138.3	136.4	141.4	138.8	137.0	-26.9%	-50.4
Hawaii	23.3	23.5	24.3	19.6	19.1	19.3	19.7	19.2	18.7	18.6	18.8	18.5	-20.4%	-4.8
Idaho	16.1	16.1	16.6	15.8	15.4	16.2	16.0	15.9	17.4	16.9	18.2	18.5	15.0%	2.4
Illinois	246.0	237.5	245.1	243.7	228.3	233.1	231.8	219.4	232.6	235.4	217.8	205.2	-16.6%	-40.8
Indiana	237.4	234.9	234.6	230.3	207.0	219.3	211.8	197.4	202.6	207.9	188.4	182.9	-23.0%	-54.5
Iowa	80.0	81.2	86.5	90.4	85.3	89.6	86.6	80.6	82.0	82.9	76.8	73.5	-8.0%	-6.4
Kansas	72.8	73.0	80.8	75.4	73.6	73.2	71.3	66.6	70.3	70.5	64.7	62.4	-14.2%	-10.4
Kentucky	152.1	154.4	154.7	152.4	141.9	151.2	150.0	138.8	138.0	139.3	129.8	124.6	-18.1%	-27.5
Louisiana	208.8	220.9	225.6	229.1	212.0	224.5	227.1	215.1	206.2	203.8	206.5	210.3	0.7%	1.5
Maine	23.5	21.6	21.3	19.4	18.7	18.3	17.8	16.1	16.8	16.9	17.1	16.6	-29.6%	-7.0
Maryland	83.4	78.4	78.7	74.9	71.6	70.1	65.3	60.8	59.9	62.2	60.2	57.9	-30.6%	-25.5
Massachusetts	85.9	77.7	81.0	77.9	71.4	72.8	68.9	62.7	66.5	64.6	66.5	64.5	-24.8%	-21.3
Michigan	193.6	182.1	184.0	177.8	166.5	167.0	161.7	155.1	163.7	163.6	163.8	152.6	-21.2%	-41.0
Minnesota	103.1	100.3	101.8	101.4	93.5	93.2	92.8	88.0	90.8	96.0	88.9	89.7	-12.9%	-13.3
Mississippi	64.9	66.9	69.0	65.6	61.4	66.2	61.3	63.3	61.4	64.7	66.0	69.3	6.7%	4.3
Missouri	143.5	141.5	140.5	137.3	131.5	135.4	136.0	128.4	133.8	133.3	123.9	118.3	-17.6%	-25.2
Montana	35.5	35.6	37.1	36.3	32.8	34.7	31.8	30.6	31.9	32.4	32.3	30.6	-13.7%	-4.9
Nebraska	44.4	45.0	45.3	47.4	48.0	50.5	52.9	51.3	54.2	52.8	51.3	48.8	9.9%	4.4
Nevada	50.7	42.1	42.3	41.5	40.0	38.1	34.3	35.1	36.9	37.7	35.7	36.9	-27.3%	-13.8
New Hampshire	21.6	19.7	19.5	19.0	17.3	16.8	16.4	14.8	14.5	15.2	15.4	13.8	-36.0%	-7.8
New Jersey	130.5	123.2	130.8	128.6	111.3	115.5	115.7	105.2	108.8	114.7	113.0	111.4	-14.6%	-19.1
New Mexico	60.0	60.5	59.6	57.1	57.9	53.8	56.2	54.3	53.7	50.6	50.7	48.7	-18.9%	-11.4
New York	212.9	193.9	200.5	190.7	174.7	176.3	166.2	162.9	164.2	172.0	169.9	164.6	-22.7%	-48.3
North Carolina	156.6	150.9	156.7	151.5	135.0	145.0	130.3	123.2	126.7	129.0	122.6	121.2	-22.6%	-35.4
North Dakota	53.1	51.4	53.1	53.6	52.0	52.8	54.3	56.8	57.4	59.4	58.0	54.6	2.7%	1.5
Ohio	275.2	267.6	271.2	264.0	238.7	250.2	238.2	218.5	232.5	234.4	215.4	207.4	-24.6%	-67.8
Oklahoma	108.1	111.3	110.5	113.3	107.5	107.0	108.7	106.1	104.6	105.9	102.0	97.4	-9.8%	-10.6

Table 2. State energy-related carbon dioxide emissions by year, adjusted (2005–2016) (cont.)

million metric tons of carbon dioxide

State	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Change (2005–2016) Percent	Change (2005–2016) Absolute
Oregon	41.8	40.9	44.4	43.4	41.5	41.3	37.7	37.5	39.7	38.5	38.6	38.2	-8.7%	-3.6
Pennsylvania	283.3	277.1	279.7	271.7	246.2	257.9	250.5	240.1	249.5	249.1	232.7	218.6	-22.8%	-64.7
Rhode Island	11.4	10.7	11.2	10.8	11.4	11.2	11.2	10.7	10.3	10.8	11.0	9.8	-13.9%	-1.6
South Carolina	87.4	87.7	88.1	85.9	80.3	84.5	80.6	74.1	70.9	75.2	73.6	72.1	-17.5%	-15.3
South Dakota	13.5	13.6	14.1	15.2	15.0	15.3	14.8	15.2	15.7	15.7	14.4	15.1	11.5%	1.6
Tennessee	127.2	129.1	128.8	122.3	103.5	111.1	107.5	101.2	99.6	105.0	101.2	103.6	-18.5%	-23.6
Texas	611.6	620.7	617.4	583.8	549.5	584.3	603.0	599.3	628.2	626.0	626.5	657.4	7.5%	45.8
Utah	67.9	69.1	71.0	70.2	65.4	64.5	65.0	62.4	67.7	65.9	64.3	59.1	-12.9%	-8.8
Vermont	6.9	6.8	6.6	6.0	6.3	6.0	5.9	5.6	5.8	6.0	6.2	6.0	-13.5%	-0.9
Virginia	131.1	124.4	129.6	118.3	107.1	110.2	101.1	99.3	106.4	105.4	104.5	104.8	-20.0%	-26.3
Washington	77.0	74.5	80.0	76.7	74.5	74.4	69.4	69.4	74.1	72.5	74.4	79.3	3.0%	2.3
West Virginia	113.8	113.9	116.0	111.9	90.7	101.8	99.0	93.5	95.6	101.2	93.3	95.1	-16.5%	-18.8
Wisconsin	112.3	104.2	105.9	106.4	97.3	99.6	98.7	91.6	102.1	102.4	101.1	96.1	-14.4%	-16.2
Wyoming	64.0	64.8	67.2	67.7	64.4	65.9	64.7	67.1	69.1	66.2	64.2	61.0	-4.7%	-3.0
United States[1]	5,991.6	5,912.5	6,005.2	5,815.5	5,395.6	5,591.0	5,453.6	5,242.7	5,371.8	5,419.3	5,274.1	5,189.4	-13.4%	-802.2

[1] Source: United States total, *Monthly Energy Review*, September 2018, Section 12

The state values that appear in this table have been adjusted to add to the United States total. See Table 1 for the adjustment factor.

Note: The District of Columbia is included in the data tables and figures but not in the analysis because it is not a state.
Source: EIA, State Energy Data System, and EIA calculations made for this analysis.

Table 3. 2016 state energy-related carbon dioxide emissions by fuel

	million metric tons of carbon dioxide				shares		
State	Coal	Petroleum	Natural gas	Total	Coal	Petroleum	Natural gas
Alabama	38.6	38.5	38.0	115.1	33.5%	33.5%	33.0%
Alaska	1.6	15.8	17.6	34.9	4.5%	45.2%	50.3%
Arizona	30.6	36.7	19.7	87.0	35.1%	42.2%	22.7%
Arkansas	23.3	22.4	16.8	62.4	37.3%	35.9%	26.8%
California	3.0	239.1	119.3	361.4	0.8%	66.2%	33.0%
Colorado	30.4	32.1	26.6	89.0	34.1%	36.0%	29.9%
Connecticut	0.2	20.6	13.5	34.3	0.6%	60.0%	39.4%
Delaware	0.8	6.5	6.0	13.3	5.8%	48.9%	45.2%
District of Columbia	0.0	1.2	1.6	2.8	0.0%	42.4%	57.6%
Florida	40.2	114.8	75.0	230.1	17.5%	49.9%	32.6%
Georgia	37.7	59.9	38.6	136.2	27.7%	44.0%	28.4%
Hawaii	1.6	16.9	0.0	18.4	8.4%	91.5%	0.1%
Idaho	0.2	12.3	5.9	18.4	1.3%	66.9%	31.8%
Illinois	66.2	82.4	55.5	204.1	32.4%	40.4%	27.2%
Indiana	89.1	51.3	41.4	181.9	49.0%	28.2%	22.8%
Iowa	28.1	28.2	16.8	73.1	38.5%	38.5%	23.0%
Kansas	23.9	23.4	14.8	62.1	38.5%	37.7%	23.8%
Kentucky	69.6	39.3	15.1	123.9	56.1%	31.7%	12.2%
Louisiana	13.3	108.5	87.4	209.1	6.3%	51.9%	41.8%
Maine	0.2	13.4	2.9	16.5	1.3%	81.2%	17.6%
Maryland	15.4	30.9	11.3	57.6	26.7%	53.6%	19.7%
Massachusetts	1.9	38.8	23.5	64.2	3.0%	60.4%	36.6%
Michigan	44.4	58.1	49.2	151.8	29.3%	38.3%	32.4%
Minnesota	24.7	39.8	24.8	89.3	27.6%	44.6%	27.7%
Mississippi	5.8	33.2	29.9	68.9	8.4%	48.2%	43.4%
Missouri	60.4	42.7	14.5	117.7	51.3%	36.3%	12.3%
Montana	15.3	11.1	4.1	30.5	50.2%	36.3%	13.5%
Nebraska	22.7	16.7	9.2	48.6	46.8%	34.4%	18.9%
Nevada	2.9	17.0	16.8	36.7	7.9%	46.4%	45.7%
New Hampshire	0.5	10.1	3.2	13.8	3.6%	73.5%	23.0%
New Jersey	1.7	67.0	42.2	110.8	1.5%	60.5%	38.1%
New Mexico	18.6	16.0	13.8	48.4	38.5%	33.1%	28.5%
New York	2.8	90.0	70.8	163.7	1.7%	55.0%	43.3%
North Carolina	36.0	55.9	28.7	120.6	29.9%	46.3%	23.8%
North Dakota	37.2	11.5	5.6	54.3	68.6%	21.1%	10.4%
Ohio	77.6	75.8	52.9	206.3	37.6%	36.7%	25.6%
Oklahoma	21.0	36.8	39.2	96.9	21.6%	38.0%	40.4%

Table 3. 2016 state energy-related carbon dioxide emissions by fuel (cont.)

	million metric tons of carbon dioxide				shares		
State	Coal	Petroleum	Natural gas	Total	Coal	Petroleum	Natural gas
Oregon	1.8	22.9	13.3	38.0	4.8%	60.3%	34.9%
Pennsylvania	68.9	76.1	72.4	217.4	31.7%	35.0%	33.3%
Rhode Island	0.0	5.0	4.7	9.8	0.0%	51.6%	48.3%
South Carolina	21.0	35.7	15.1	71.7	29.2%	49.8%	21.0%
South Dakota	2.5	7.9	4.5	15.0	16.8%	52.9%	30.3%
Tennessee	35.8	49.2	18.0	103.1	34.8%	47.8%	17.5%
Texas	125.0	319.2	209.7	653.8	19.1%	48.8%	32.1%
Utah	25.4	20.1	13.3	58.8	43.2%	34.1%	22.7%
Vermont	0.0	5.3	0.7	6.0	0.0%	89.1%	11.1%
Virginia	20.9	52.9	30.4	104.2	20.1%	50.8%	29.1%
Washington	5.0	56.6	17.2	78.9	6.4%	71.8%	21.9%
West Virginia	71.0	13.7	10.0	94.6	75.0%	14.4%	10.5%
Wisconsin	33.7	35.4	26.5	95.6	35.3%	37.0%	27.7%
Wyoming	43.2	10.5	7.1	60.7	71.2%	17.2%	11.6%
Total[1]	1,341.6	2,324.9	1,494.5	5,161.0	26.0%	45.0%	29.0%

[1]For the United States as a whole, see EIA's *Monthly Energy Review*, Section 12: Environment. The total for all states is different from the national-level estimate because of differing methodologies. Values here are unadjusted. See Appendix A for details on the data series differences.
Note: The District of Columbia is included in the data tables and figures but not in the analysis because it is not a state.
Source: EIA, State Energy Data System, and EIA calculations made for this analysis

Table 4. 2016 state energy-related carbon dioxide emissions by sector

million metric tons of carbon dioxide

State	Commercial	Electric power	Residential	Industrial	Transportation	Total
Alabama	2.2	55.3	1.9	21.1	34.7	115.1
Alaska	2.0	2.8	1.5	16.8	11.9	34.9
Arizona	2.9	44.3	2.2	4.6	33.1	87.0
Arkansas	2.9	30.2	1.7	8.2	19.4	62.4
California	18.9	36.6	24.1	68.8	213.0	361.4
Colorado	3.9	35.3	7.5	14.3	28.2	89.0
Connecticut	3.9	7.0	6.3	1.9	15.3	34.3
Delaware	0.9	3.6	0.8	3.4	4.6	13.3
District of Columbia	0.9	0.0	0.6	0.0	1.2	2.8
Florida	7.3	105.9	1.2	12.0	103.6	230.1
Georgia	4.6	57.5	6.8	13.3	54.0	136.2
Hawaii	0.3	6.6	0.0	1.3	10.2	18.4
Idaho	1.4	1.3	1.6	3.4	10.8	18.4
Illinois	13.3	66.4	22.1	33.9	68.3	204.1
Indiana	5.2	83.7	7.6	42.0	43.4	181.9
Iowa	3.5	24.7	4.1	19.5	21.4	73.1
Kansas	2.4	24.8	3.4	12.8	18.7	62.1
Kentucky	2.7	72.6	2.9	13.5	32.2	123.9
Louisiana	2.2	36.1	1.8	121.7	47.3	209.1
Maine	1.6	1.5	2.9	1.5	8.9	16.5
Maryland	5.2	17.2	5.5	2.2	27.6	57.6
Massachusetts	7.0	10.7	11.4	3.4	31.7	64.2
Michigan	10.2	55.1	18.6	17.6	50.2	151.8
Minnesota	6.3	26.5	8.1	17.0	31.4	89.3
Mississippi	1.6	25.9	1.4	10.2	29.8	68.9
Missouri	4.2	61.7	5.6	8.1	38.0	117.7
Montana	1.4	16.0	1.5	3.8	7.9	30.5
Nebraska	1.8	21.2	2.2	9.6	13.8	48.6
Nevada	2.3	13.9	2.3	3.2	15.0	36.7
New Hampshire	1.4	2.4	2.5	0.8	6.7	13.8
New Jersey	10.0	19.7	13.6	9.6	58.0	110.8
New Mexico	1.7	23.0	2.1	7.4	14.2	48.4

Table 4. 2016 state energy-related carbon dioxide emissions by sector (cont.)

million metric tons of carbon dioxide

State	Commercial	Electric power	Residential	Industrial	Transportation	Total
New York	21.7	27.7	30.6	8.3	75.4	163.7
North Carolina	5.3	50.8	5.1	10.4	49.1	120.6
North Dakota	1.0	28.9	0.9	15.1	8.3	54.3
Ohio	11.0	80.6	16.2	35.5	63.0	206.3
Oklahoma	3.0	35.3	3.2	22.8	32.6	96.9
Oregon	2.1	7.8	2.5	5.1	20.4	38.0
Pennsylvania	10.7	82.1	18.4	45.6	60.7	217.4
Rhode Island	0.9	2.6	1.8	0.6	3.9	9.8
South Carolina	2.2	27.5	1.8	7.6	32.6	71.7
South Dakota	0.7	2.6	1.0	3.9	6.8	15.0
Tennessee	3.7	35.9	3.6	16.2	43.7	103.1
Texas	12.6	207.5	10.8	198.0	224.8	653.8
Utah	2.6	27.5	3.7	7.4	17.7	58.8
Vermont	0.9	0.0	1.3	0.4	3.4	6.0
Virginia	5.8	33.6	5.7	11.7	47.5	104.2
Washington	4.4	9.5	5.1	11.0	48.9	78.9
West Virginia	1.7	68.8	1.6	10.2	12.2	94.6
Wisconsin	5.9	38.5	8.7	13.1	29.5	95.6
Wyoming	1.1	40.3	0.9	10.7	7.8	60.7
Total[1]	233.4	1,796.5	298.6	940.4	1,892.2	5,161.0

[1]For the United States as a whole, see, EIA's *Monthly Energy Review*, Section 12: Environment. The total for all states is different from the national-level estimate because of differing methodologies. These values are unadjusted. See Appendix A for details on the data series differences.

Note: The District of Columbia is included in the data tables and figures but not in the analysis because it is not a state.

Source: EIA, State Energy Data System, and EIA calculations made for this analysis.

Table 5. 2016 state energy-related carbon dioxide emission shares by sector

percent of total

	Shares				
State	Commercial	Electric power	Residential	Industrial	Transportation
Alabama	1.9%	48.0%	1.6%	18.3%	30.1%
Alaska	5.8%	7.9%	4.3%	48.1%	33.9%
Arizona	3.3%	50.9%	2.5%	5.3%	38.0%
Arkansas	4.7%	48.4%	2.7%	13.2%	31.1%
California	5.2%	10.1%	6.7%	19.1%	58.9%
Colorado	4.4%	39.6%	8.4%	16.0%	31.6%
Connecticut	11.4%	20.4%	18.3%	5.4%	44.6%
Delaware	7.0%	26.9%	6.3%	25.2%	34.6%
District of Columbia	34.1%	0.0%	23.2%	1.1%	41.7%
Florida	3.2%	46.0%	0.5%	5.2%	45.0%
Georgia	3.4%	42.2%	5.0%	9.8%	39.7%
Hawaii	1.8%	35.7%	0.2%	7.2%	55.2%
Idaho	7.5%	6.8%	8.9%	18.3%	58.5%
Illinois	6.5%	32.5%	10.8%	16.6%	33.5%
Indiana	2.9%	46.0%	4.2%	23.1%	23.8%
Iowa	4.8%	33.8%	5.6%	26.6%	29.2%
Kansas	3.9%	40.0%	5.4%	20.6%	30.1%
Kentucky	2.2%	58.6%	2.3%	10.9%	26.0%
Louisiana	1.0%	17.3%	0.9%	58.2%	22.6%
Maine	9.8%	9.1%	17.7%	9.1%	54.2%
Maryland	8.9%	29.8%	9.5%	3.8%	47.9%
Massachusetts	10.9%	16.7%	17.7%	5.3%	49.4%
Michigan	6.7%	36.3%	12.3%	11.6%	33.1%
Minnesota	7.1%	29.6%	9.0%	19.1%	35.1%
Mississippi	2.3%	37.6%	2.1%	14.8%	43.3%
Missouri	3.6%	52.4%	4.8%	6.9%	32.3%
Montana	4.5%	52.4%	4.8%	12.5%	25.8%
Nebraska	3.7%	43.6%	4.5%	19.7%	28.5%
Nevada	6.2%	37.9%	6.3%	8.7%	40.9%
New Hampshire	10.1%	17.2%	18.3%	5.5%	48.9%
New Jersey	9.1%	17.7%	12.2%	8.6%	52.4%
New Mexico	3.5%	47.6%	4.3%	15.3%	29.2%

Table 5. 2016 state energy-related carbon dioxide emission shares by sector (cont.)

percent of total

	Shares				
State	**Commercial**	**Electric power**	**Residential**	**Industrial**	**Transportation**
New York	13.2%	16.9%	18.7%	5.1%	46.1%
North Carolina	4.4%	42.1%	4.2%	8.6%	40.7%
North Dakota	1.8%	53.2%	1.7%	27.9%	15.3%
Ohio	5.3%	39.1%	7.8%	17.2%	30.5%
Oklahoma	3.1%	36.5%	3.3%	23.5%	33.6%
Oregon	5.6%	20.5%	6.6%	13.5%	53.8%
Pennsylvania	4.9%	37.7%	8.5%	21.0%	27.9%
Rhode Island	8.8%	26.4%	18.6%	6.5%	39.7%
South Carolina	3.0%	38.4%	2.5%	10.6%	45.5%
South Dakota	4.9%	17.4%	6.3%	25.9%	45.5%
Tennessee	3.6%	34.8%	3.5%	15.7%	42.3%
Texas	1.9%	31.7%	1.7%	30.3%	34.4%
Utah	4.5%	46.7%	6.2%	12.5%	30.1%
Vermont	14.3%	0.0%	21.8%	7.1%	56.6%
Virginia	5.5%	32.2%	5.5%	11.2%	45.6%
Washington	5.5%	12.1%	6.4%	13.9%	62.0%
West Virginia	1.8%	72.8%	1.7%	10.8%	12.9%
Wisconsin	6.2%	40.3%	9.0%	13.6%	30.8%
Wyoming	1.8%	66.4%	1.4%	17.6%	12.8%
Average all states	4.5%	34.8%	5.8%	18.2%	36.7%

Note: The District of Columbia is included in the data tables but not in the analysis because it is not a state.
Source: EIA, State Energy Data System, and EIA calculations made for this analysis

Table 6. Per capita energy-related carbon dioxide emissions by state (2005–2016)

metric tons of carbon dioxide per person

State	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Change (2005–2016) Percent	Change (2005–2016) Absolute
Alabama	31.4	31.5	31.5	29.6	25.2	27.7	27.1	25.6	25.0	25.4	24.8	23.7	-24.5%	-7.7
Alaska	72.3	68.0	65.0	57.7	54.4	54.5	53.7	52.3	49.1	48.0	49.1	47.0	-34.9%	-25.2
Arizona	16.6	16.6	16.5	16.3	14.7	14.9	14.4	14.0	14.4	13.9	13.4	12.6	-23.9%	-4.0
Arkansas	21.6	22.0	22.2	22.3	21.2	22.5	22.9	22.4	23.1	23.3	19.9	20.9	-3.3%	-0.7
California	10.7	10.9	11.0	10.4	10.0	9.7	9.3	9.3	9.3	9.1	9.2	9.2	-14.1%	-1.5
Colorado	20.6	20.4	20.6	19.8	18.6	18.9	17.9	17.5	17.3	17.2	16.6	16.1	-21.7%	-4.5
Connecticut	12.6	11.7	11.4	10.6	10.1	10.1	9.7	9.5	9.7	9.8	10.2	9.6	-23.9%	-3.0
Delaware	19.9	18.3	19.0	17.7	13.4	12.5	13.5	14.6	14.2	13.6	13.6	14.0	-29.7%	-5.9
District of Columbia	6.9	5.6	5.9	5.3	5.4	5.3	5.0	4.2	4.3	4.6	4.4	4.0	-41.5%	-2.9
Florida	14.6	14.3	14.0	12.9	12.0	12.9	12.0	11.5	11.3	11.4	11.5	11.1	-23.8%	-3.5
Georgia	20.7	19.9	19.7	18.1	16.8	17.7	15.9	13.7	13.5	13.8	13.4	13.2	-36.0%	-7.4
Hawaii	17.7	17.7	18.2	14.5	14.0	13.9	14.1	13.6	13.1	12.9	13.0	12.9	-27.2%	-4.8
Idaho	11.1	10.8	10.9	10.1	9.8	10.2	10.0	9.8	10.7	10.2	10.9	10.9	-1.1%	-0.1
Illinois	19.2	18.5	19.0	18.8	17.6	17.9	17.8	16.8	17.8	18.0	16.7	15.9	-17.2%	-3.3
Indiana	37.2	36.5	36.2	35.3	31.6	33.3	32.1	29.7	30.4	31.1	28.1	27.4	-26.3%	-9.8
Iowa	26.5	26.8	28.4	29.5	27.7	29.0	27.9	25.8	26.2	26.3	24.3	23.4	-12.0%	-3.2
Kansas	26.1	26.0	28.6	26.4	25.6	25.3	24.5	22.7	24.0	24.0	22.0	21.3	-18.2%	-4.7
Kentucky	35.8	36.0	35.8	35.0	32.4	34.3	33.9	31.2	31.0	31.2	29.0	27.9	-21.9%	-7.8
Louisiana	44.9	50.6	50.8	50.9	46.5	48.7	49.0	46.0	44.0	43.3	43.6	44.6	-0.6%	-0.2
Maine	17.5	16.1	15.8	14.3	13.8	13.6	13.2	11.9	12.5	12.5	12.7	12.4	-29.4%	-5.2
Maryland	14.7	13.7	13.7	13.0	12.3	11.9	11.0	10.2	10.0	10.3	9.9	9.6	-34.9%	-5.1
Massachusetts	13.2	11.9	12.4	11.9	10.8	10.9	10.3	9.3	9.8	9.4	9.7	9.4	-28.7%	-3.8
Michigan	18.9	17.9	18.1	17.6	16.6	16.7	16.2	15.5	16.3	16.3	16.3	15.3	-19.4%	-3.7
Minnesota	19.8	19.1	19.3	19.0	17.4	17.3	17.1	16.1	16.5	17.4	16.0	16.2	-18.4%	-3.6
Mississippi	22.0	22.7	23.2	21.9	20.4	22.0	20.3	20.9	20.3	21.4	21.8	23.1	5.0%	1.1
Missouri	24.4	23.9	23.5	22.8	21.7	22.3	22.3	21.0	21.9	21.7	20.1	19.3	-20.8%	-5.1
Montana	37.1	36.8	37.8	36.7	32.9	34.6	31.5	30.0	31.1	31.3	31.0	29.3	-21.0%	-7.8
Nebraska	24.8	25.0	25.0	26.0	26.1	27.2	28.4	27.2	28.6	27.7	26.8	25.4	2.6%	0.6
Nevada	20.5	16.4	16.0	15.4	14.7	13.9	12.5	12.5	13.1	13.1	12.2	12.5	-39.2%	-8.0
New Hampshire	16.4	14.8	14.6	14.2	13.0	12.6	12.3	11.0	10.8	11.3	11.4	10.3	-37.1%	-6.1
New Jersey	14.8	14.0	14.9	14.5	12.5	12.9	12.9	11.7	12.0	12.7	12.5	12.3	-16.8%	-2.5
New Mexico	30.6	30.4	29.5	27.9	28.0	25.7	26.7	25.6	25.4	24.0	24.1	23.2	-24.0%	-7.3
New York	10.9	10.0	10.3	9.8	8.9	9.0	8.4	8.2	8.2	8.6	8.5	8.3	-24.6%	-2.7
North Carolina	17.7	16.7	16.9	16.0	14.1	14.9	13.3	12.4	12.7	12.8	12.1	11.9	-32.9%	-5.8
North Dakota	80.9	77.9	80.2	80.1	77.0	77.1	78.2	79.8	78.3	79.3	75.8	71.8	-11.2%	-9.1
Ohio	23.6	23.0	23.2	22.6	20.4	21.4	20.4	18.6	19.8	20.0	18.3	17.7	-24.9%	-5.9
Oklahoma	30.0	30.5	30.0	30.4	28.5	28.1	28.3	27.4	26.8	27.0	25.8	24.7	-17.5%	-5.2

Table 6. Per capita energy-related carbon dioxide emissions by state (2005–2016) (cont.)

metric tons of carbon dioxide per person

State	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Change (2005–2016) Percent	Change (2005–2016) Absolute
Oregon	11.4	11.0	11.8	11.3	10.7	10.6	9.6	9.5	10.0	9.6	9.5	9.3	-18.3%	-2.1
Pennsylvania	22.4	21.8	21.9	21.2	19.1	20.0	19.4	18.5	19.3	19.2	18.0	17.0	-24.0%	-5.4
Rhode Island	10.5	9.9	10.5	10.1	10.7	10.5	10.5	10.0	9.6	10.1	10.3	9.2	-12.2%	-1.3
South Carolina	20.1	19.8	19.5	18.7	17.2	18.0	17.0	15.5	14.7	15.4	14.8	14.5	-28.2%	-5.7
South Dakota	17.2	17.1	17.6	18.8	18.3	18.5	17.8	18.0	18.3	18.2	16.7	17.4	1.4%	0.2
Tennessee	20.9	20.9	20.5	19.3	16.2	17.2	16.6	15.4	15.1	15.8	15.2	15.5	-25.8%	-5.4
Texas	26.4	26.2	25.5	23.6	21.8	22.8	23.2	22.6	23.4	22.9	22.5	23.4	-11.3%	-3.0
Utah	27.2	26.9	26.9	26.0	23.6	22.9	22.8	21.5	23.0	22.2	21.3	19.3	-28.9%	-7.9
Vermont	11.0	10.7	10.5	9.5	9.9	9.4	9.3	8.7	9.2	9.4	9.9	9.6	-12.8%	-1.4
Virginia	17.0	16.0	16.5	14.9	13.3	13.5	12.3	11.9	12.7	12.5	12.3	12.4	-27.2%	-4.6
Washington	12.1	11.5	12.2	11.5	11.0	10.9	10.1	9.9	10.5	10.2	10.3	10.8	-10.5%	-1.3
West Virginia	61.5	61.4	62.4	59.9	48.4	54.1	52.7	49.6	50.9	54.1	50.0	51.7	-16.0%	-9.8
Wisconsin	19.9	18.4	18.6	18.6	16.9	17.3	17.1	15.8	17.6	17.6	17.3	16.6	-16.9%	-3.4
Wyoming	122.5	122.1	123.8	122.1	113.3	115.2	112.4	114.6	117.2	112.0	108.1	103.7	-15.4%	-18.8
Average all states	19.9	19.5	19.6	18.8	17.3	17.8	17.3	16.4	16.8	16.8	16.2	16.0	-20.0%	-4.0

Note: The District of Columbia is included in the data tables but not in the analysis because it is not a state.
Source: EIA, State Energy Data System, and EIA calculations made for this analysis

Table 7. Energy intensity by state (2005–2016)

thousand Btu per chained 2009 dollar of GDP

State	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Change (2005–2016) Percent	Change (2005–2016) Absolute
Alabama	14.4	14.3	14.3	14.2	13.7	14.2	14.2	13.9	13.0	13.8	13.7	13.9	-3.7%	-0.5
Alaska	19.6	17.2	15.8	14.0	12.7	13.2	12.8	12.1	12.8	12.0	12.7	12.2	-37.5%	-7.3
Arizona	6.7	6.5	6.6	7.0	7.0	7.1	6.9	6.7	6.4	6.8	6.6	6.7	-0.4%	0.0
Arkansas	10.9	11.0	11.5	11.4	11.6	11.9	11.7	11.7	10.6	11.2	10.3	11.4	4.5%	0.5
California	3.8	3.8	3.7	3.6	3.6	3.6	3.5	3.3	3.0	3.3	3.1	3.1	-18.0%	-0.7
Colorado	5.8	5.8	5.9	5.8	5.7	5.8	5.6	5.4	4.9	5.4	5.0	5.2	-10.7%	-0.6
Connecticut	3.4	3.3	4.1	3.8	3.7	3.9	3.9	3.7	3.4	3.5	3.6	3.5	2.2%	0.1
Delaware	4.3	3.9	4.1	4.1	3.1	3.2	3.6	4.0	3.8	3.9	3.7	3.7	-12.2%	-0.5
District of Columbia	0.7	0.6	0.6	0.5	0.6	0.6	0.6	0.5	0.5	0.5	0.5	0.5	-21.6%	-0.1
Florida	5.3	5.2	5.1	5.2	5.3	5.5	5.4	5.2	5.0	5.2	5.1	5.1	-3.1%	-0.2
Georgia	7.1	6.9	6.9	6.7	6.8	7.2	6.6	6.1	5.7	6.0	5.9	6.0	-15.2%	-1.1
Hawaii	5.0	4.9	5.0	4.1	4.2	4.1	4.2	4.0	3.8	4.0	3.9	4.0	-20.7%	-1.0
Idaho	7.3	7.4	6.9	6.8	7.0	7.0	7.8	7.4	7.1	7.4	7.3	7.3	0.3%	0.0
Illinois	7.0	6.6	6.7	6.9	6.8	6.9	6.7	6.4	6.1	6.7	6.3	6.7	-3.9%	-0.3
Indiana	11.4	11.0	10.7	10.7	10.5	10.4	10.2	9.6	8.8	9.7	9.1	9.7	-14.6%	-1.7
Iowa	9.2	9.3	9.7	10.5	10.8	11.3	10.9	9.4	10.6	9.6	10.1	10.3	12.2%	1.1
Kansas	9.6	9.2	9.8	9.0	9.3	9.2	8.6	8.3	8.2	8.9	8.4	9.0	-5.8%	-0.6
Kentucky	12.5	12.3	12.4	12.2	12.0	12.0	11.7	10.9	9.9	10.8	10.4	10.9	-12.7%	-1.6
Louisiana	18.2	19.2	20.2	19.9	18.6	18.9	20.1	19.4	19.6	19.7	19.2	19.3	5.7%	1.0
Maine	9.8	9.1	9.2	9.2	8.7	8.7	8.8	8.3	7.8	8.8	8.3	8.5	-13.1%	-1.3
Maryland	4.6	4.2	4.3	4.1	4.0	3.8	3.6	3.4	3.2	3.4	3.3	3.4	-26.2%	-1.2
Massachusetts	3.6	3.3	3.3	3.3	3.1	3.1	3.0	2.7	2.6	2.8	2.7	2.7	-23.7%	-0.9
Michigan	7.4	6.9	7.2	7.4	7.4	7.2	7.1	6.7	6.5	7.0	6.8	7.0	-4.7%	-0.3
Minnesota	6.5	6.4	6.6	6.6	6.5	6.5	6.3	6.0	5.9	6.1	5.9	6.3	-3.5%	-0.2
Mississippi	12.4	12.5	12.6	11.4	11.6	12.5	12.1	12.1	12.9	11.8	13.1	12.3	-0.6%	-0.1
Missouri	8.0	7.9	7.9	7.6	7.5	7.5	7.6	7.2	6.6	7.3	6.9	7.3	-8.7%	-0.7
Montana	16.7	16.7	16.4	16.3	15.2	15.0	14.7	13.7	12.7	13.8	13.1	14.0	-16.6%	-2.8
Nebraska	8.9	8.8	9.2	9.4	9.4	10.0	9.6	9.2	8.7	9.5	9.2	9.5	6.4%	0.6
Nevada	5.6	4.9	4.9	5.1	5.5	5.3	4.9	5.1	5.3	5.4	5.2	5.3	-5.5%	-0.3
New Hampshire	7.2	6.5	6.7	6.7	6.3	6.4	6.0	5.6	5.5	6.0	5.8	6.0	-16.4%	-1.2
New Jersey	4.8	4.5	4.7	4.6	4.5	4.5	4.7	4.3	4.3	4.3	4.4	4.5	-5.3%	-0.3
New Mexico	10.3	10.4	10.4	9.8	9.8	9.3	9.7	9.5	8.7	9.5	8.8	8.9	-13.4%	-1.4
New York	3.6	3.3	3.4	3.4	3.1	3.0	3.0	2.8	2.8	2.9	2.9	3.0	-17.5%	-0.6
North Carolina	6.5	6.0	6.1	5.9	5.7	6.0	5.6	5.4	5.4	5.6	5.4	5.6	-14.6%	-1.0
North Dakota	26.1	24.2	23.7	24.2	22.7	22.6	21.0	20.6	16.5	16.4	16.1	16.1	-38.1%	-9.9
Ohio	7.5	7.4	7.5	7.6	7.2	7.3	6.8	6.4	5.9	6.6	6.1	6.6	-12.8%	-1.0
Oklahoma	12.1	11.8	11.8	11.8	11.5	11.6	11.1	10.6	10.1	10.2	9.5	9.8	-19.5%	-2.4

Table 7. Energy intensity by state (2005–2016) (cont.)

thousand Btu per chained 2009 dollar of GDP

State	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Change (2005–2016) Percent	Change (2005–2016) Absolute
Oregon	6.4	6.3	6.0	5.9	5.4	5.5	5.6	8.3	5.2	5.7	5.2	5.7	-11.4%	-0.7
Pennsylvania	8.2	8.0	7.9	7.7	7.5	7.6	7.4	7.1	6.6	7.3	6.8	7.3	-11.6%	-1.0
Rhode Island	3.6	3.4	3.7	3.9	4.1	4.0	4.0	3.8	3.4	3.6	3.8	3.8	4.8%	0.2
South Carolina	11.4	11.0	10.8	10.6	10.9	11.1	10.6	10.1	9.5	10.0	9.7	9.9	-13.4%	-1.5
South Dakota	7.8	8.0	7.9	8.3	8.9	9.6	9.5	9.3	8.9	9.1	8.6	9.3	18.9%	1.5
Tennessee	8.5	8.2	8.3	7.9	7.4	7.7	7.4	6.8	6.6	6.9	6.5	6.9	-18.8%	-1.6
Texas	11.3	10.2	9.7	9.3	9.8	9.6	9.2	8.8	9.2	8.7	10.7	8.9	-21.2%	-2.4
Utah	8.6	8.2	8.0	8.1	7.7	7.6	7.5	7.2	6.3	7.5	6.7	7.1	-16.8%	-1.4
Vermont	6.7	7.2	6.7	6.7	7.5	6.9	6.7	7.6	5.5	8.0	6.0	8.0	20.0%	1.3
Virginia	5.5	5.2	5.3	5.0	4.7	4.7	4.4	4.4	4.7	4.7	4.6	4.7	-15.2%	-0.8
Washington	6.3	6.4	6.1	5.9	5.9	5.7	6.0	5.9	5.3	5.6	5.2	5.4	-13.4%	-0.8
West Virginia	22.0	21.7	22.0	20.9	17.3	18.6	17.9	17.3	18.0	17.8	17.5	18.7	-14.7%	-3.2
Wisconsin	7.1	6.7	6.8	6.9	6.6	6.7	6.5	6.2	6.0	6.6	6.3	6.5	-9.0%	-0.6
Wyoming	26.3	23.8	23.7	22.2	22.1	23.4	23.7	25.0	23.1	25.3	22.9	24.3	-7.6%	-2.0
Average all states	7.0	6.8	6.8	6.7	6.5	6.6	6.5	6.2	5.8	6.2	5.9	6.1	-12.7%	-0.9

Note: The District of Columbia is included in the data tables but not in the analysis because it is not a state.

Source: EIA, State Energy Data System, and EIA calculations made for this analysis

Table 8. Carbon intensity by state (2005–2016)

kilograms of energy-related carbon dioxide per million Btu

State	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Change (2005–2016) Percent	Change (2005–2016) Absolute
Alabama	58.0	58.3	58.7	56.5	52.1	54.3	52.5	50.7	49.4	50.4	49.2	48.9	-15.7%	-9.1
Alaska	60.4	61.5	61.2	60.9	59.4	59.5	59.2	58.8	58.5	58.4	58.6	58.2	-3.7%	-2.3
Arizona	57.1	57.9	56.9	55.9	54.7	55.4	54.5	53.8	54.8	53.7	52.1	50.4	-11.7%	-6.7
Arkansas	55.7	55.5	55.1	55.9	54.0	54.7	55.4	54.9	57.4	56.5	53.2	54.0	-3.2%	-1.8
California	52.3	52.5	53.4	53.5	53.2	52.4	50.5	52.5	52.1	52.2	52.4	51.4	-1.8%	-1.0
Colorado	68.5	68.6	67.4	66.4	65.2	65.7	64.9	65.1	64.0	63.2	63.1	61.6	-10.0%	-6.8
Connecticut	51.7	49.6	49.4	49.6	46.2	46.1	45.0	44.8	44.7	45.4	45.1	44.3	-14.3%	-7.4
Delaware	69.1	69.0	69.3	68.1	67.2	63.0	58.6	58.6	59.2	57.4	57.0	57.3	-17.2%	-11.9
District of Columbia	61.6	60.1	59.6	59.0	54.9	54.4	54.1	53.0	52.6	53.1	53.1	53.3	-13.4%	-8.3
Florida	63.6	62.4	62.4	60.2	58.7	60.1	59.1	58.6	57.6	57.9	57.1	56.6	-11.0%	-7.0
Georgia	61.5	61.4	61.7	61.4	59.0	58.7	57.3	53.6	52.7	53.3	51.7	51.4	-16.4%	-10.1
Hawaii	70.6	70.9	71.0	69.6	68.3	68.5	68.1	68.0	66.1	65.7	65.4	65.2	-7.6%	-5.4
Idaho	42.5	39.5	42.5	40.5	40.3	41.8	37.2	38.8	41.7	40.0	41.7	42.5	-0.1%	-0.1
Illinois	53.7	53.5	53.5	52.9	51.7	51.9	51.8	50.6	51.0	50.8	49.3	47.7	-11.1%	-6.0
Indiana	76.5	77.0	76.6	75.8	74.3	74.4	73.1	71.8	71.8	71.6	69.1	68.2	-10.8%	-8.3
Iowa	63.3	62.7	62.0	60.3	56.5	56.0	54.8	53.3	51.5	51.3	49.2	47.6	-24.8%	-15.7
Kansas	65.3	64.7	64.4	63.9	62.8	61.7	62.6	60.3	59.4	57.6	56.1	54.5	-16.6%	-10.8
Kentucky	74.8	75.6	75.8	76.0	74.4	75.9	76.2	75.0	75.1	74.4	72.9	72.5	-3.1%	-2.3
Louisiana	52.4	53.4	53.6	54.8	53.2	52.9	53.3	52.1	51.1	50.5	50.8	51.1	-2.5%	-1.3
Maine	45.9	44.9	44.1	40.3	41.9	40.7	39.7	38.3	38.0	38.5	39.7	40.6	-11.5%	-5.3
Maryland	60.9	61.4	60.7	59.8	58.8	58.6	57.0	55.9	55.1	55.5	54.3	53.8	-11.6%	-7.1
Massachusetts	62.3	60.5	61.3	59.9	57.9	57.2	55.9	55.1	56.5	54.9	55.4	54.8	-12.0%	-7.5
Michigan	60.0	60.9	60.4	59.7	61.0	59.4	57.5	57.4	57.2	55.9	56.3	53.9	-10.3%	-6.2
Minnesota	58.4	58.0	57.2	56.1	54.6	53.2	53.4	51.9	52.3	52.2	51.3	50.5	-13.4%	-7.8
Mississippi	57.5	57.4	57.5	58.0	55.7	55.6	53.7	54.1	53.7	54.8	52.5	55.4	-3.6%	-2.1
Missouri	70.9	70.7	70.2	69.3	68.9	69.9	70.4	69.6	70.6	69.7	68.2	68.1	-3.9%	-2.8
Montana	61.4	59.8	60.5	59.8	59.0	60.9	55.6	56.6	58.4	57.1	58.8	57.5	-6.3%	-3.9
Nebraska	60.6	60.1	57.2	57.5	57.9	54.7	57.6	58.6	58.4	55.2	53.9	53.3	-12.0%	-7.3
Nevada	66.6	61.4	61.8	61.2	59.7	59.1	57.4	56.2	56.4	57.5	53.7	53.1	-20.3%	-13.5
New Hampshire	47.2	46.9	44.8	44.6	43.2	40.6	42.2	40.4	36.8	38.0	38.7	36.1	-23.6%	-11.1
New Jersey	55.0	54.0	54.1	54.2	50.8	51.7	51.1	49.8	49.9	50.7	50.0	50.8	-7.6%	-4.2
New Mexico	71.9	70.9	69.5	68.9	70.1	68.3	68.4	67.7	67.4	65.8	66.0	64.2	-10.6%	-7.6
New York	52.2	50.1	50.5	48.9	47.7	48.3	46.4	46.2	45.4	46.0	45.5	45.5	-12.7%	-6.6
North Carolina	60.1	59.8	61.0	59.4	56.8	57.5	55.4	53.8	52.5	52.9	51.0	50.0	-16.8%	-10.1
North Dakota	80.9	80.4	80.1	78.9	76.5	73.0	70.3	71.3	70.4	69.4	69.6	67.8	-16.1%	-13.0
Ohio	70.3	70.0	69.7	68.5	68.4	68.8	67.8	65.3	66.0	65.2	63.5	63.3	-10.0%	-7.0
Oklahoma	65.6	65.7	64.2	64.4	64.0	62.9	63.6	61.5	60.4	60.8	58.3	55.3	-15.6%	-10.2

Table 8. Carbon intensity by state (2005–2016) (cont.)

kilograms of energy-related carbon dioxide per million Btu

State	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Change (2005–2016) Percent	Change (2005–2016) Absolute
Oregon	40.4	37.5	40.3	39.2	38.5	39.4	33.9	34.1	36.3	35.1	36.4	35.5	-12.2%	-4.9
Pennsylvania	60.4	60.4	59.8	58.8	56.6	57.0	56.1	54.9	54.5	53.7	52.0	50.3	-16.7%	-10.1
Rhode Island	61.3	59.9	59.8	56.4	57.2	57.0	56.9	57.3	57.1	56.8	56.9	56.5	-7.8%	-4.8
South Carolina	47.3	48.1	47.8	47.7	45.2	46.2	44.9	43.2	41.2	43.0	41.6	40.7	-14.0%	-6.6
South Dakota	51.2	49.9	50.7	49.5	45.4	42.3	39.2	41.1	42.9	41.7	40.5	40.6	-20.8%	-10.7
Tennessee	58.4	60.5	60.3	59.3	55.7	56.9	55.9	55.4	52.7	54.5	54.3	54.1	-7.4%	-4.3
Texas	50.9	51.3	51.2	50.7	49.7	49.3	49.8	48.9	48.8	48.7	47.9	49.9	-1.9%	-1.0
Utah	76.0	75.1	74.8	74.3	73.6	73.0	71.9	71.5	72.3	71.8	71.5	68.5	-9.9%	-7.5
Vermont	39.3	35.9	37.7	34.0	32.1	32.4	32.2	26.8	26.7	27.1	37.4	39.0	-0.7%	-0.3
Virginia	58.8	58.4	58.8	57.4	55.0	55.5	54.4	52.3	53.3	52.4	51.8	51.2	-12.9%	-7.6
Washington	37.1	34.3	36.4	35.3	36.0	36.2	31.9	31.6	34.4	33.7	35.1	35.3	-4.7%	-1.7
West Virginia	83.3	83.0	83.5	82.8	80.9	82.1	81.5	80.6	79.9	80.1	79.1	79.3	-4.8%	-4.0
Wisconsin	61.9	60.5	60.3	60.2	59.0	58.3	58.5	56.1	58.4	58.3	58.4	57.2	-7.6%	-4.7
Wyoming	80.9	81.0	79.9	79.4	77.4	76.3	74.2	75.4	76.2	75.8	77.0	75.8	-6.4%	-5.2
Average all states	60.3	59.7	59.6	58.7	57.3	57.1	55.9	55.2	55.1	54.8	54.4	53.8	-10.7%	-6.4

Note: The District of Columbia is included in the data tables but not in the analysis because it is not a state.

Source: EIA, State Energy Data System, and EIA calculations made for this analysis

Table 9. Carbon intensity of the economy by state (2005–2016)

metric tons of energy-related carbon dioxide per million chained 2009 dollars of GDP

State	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Change (2005–2016) Percent	Change (2005–2016) Absolute
Alabama	834.7	834.6	840.9	800.3	713.5	772.5	747.8	702.3	682.9	697.7	672.7	637.2	-23.7%	-197.4
Alaska	1,182.7	1,057.0	967.0	853.8	753.1	783.6	760.6	711.8	704.4	714.0	744.2	743.7	-37.1%	-439.0
Arizona	384.9	375.9	374.0	389.5	385.1	392.1	377.4	361.8	375.1	360.5	344.7	323.4	-16.0%	-61.5
Arkansas	606.0	613.3	631.1	638.3	627.2	649.6	651.0	639.8	644.9	641.8	548.6	572.2	-5.6%	-33.8
California	200.9	198.6	198.7	191.4	192.5	187.3	177.6	175.4	172.4	164.1	160.4	155.9	-22.4%	-45.0
Colorado	399.3	395.6	394.9	383.6	375.0	383.2	363.2	351.3	342.8	329.5	313.6	304.6	-23.7%	-94.8
Connecticut	190.3	172.9	162.8	154.5	153.8	156.1	152.7	149.6	155.1	157.4	161.7	152.4	-19.9%	-37.9
Delaware	294.0	269.7	286.0	282.6	208.9	199.4	211.5	234.6	233.3	214.5	210.0	219.7	-25.3%	-74.3
District of Columbia	42.4	33.9	35.1	31.1	32.3	31.6	29.8	25.5	27.3	28.7	27.8	25.4	-40.1%	-17.0
Florida	337.2	324.7	321.4	312.2	310.7	333.0	316.9	305.6	298.2	297.5	291.2	281.2	-16.6%	-56.0
Georgia	433.8	422.4	425.4	408.7	400.6	420.3	378.1	325.5	317.1	318.5	303.6	292.0	-32.7%	-141.8
Hawaii	353.6	349.6	355.9	284.4	288.4	281.8	286.0	274.1	264.3	261.2	254.4	248.4	-29.7%	-105.1
Idaho	308.3	292.0	292.9	276.5	281.9	294.1	291.2	288.1	306.4	291.0	305.1	301.8	-2.1%	-6.5
Illinois	374.6	352.4	360.0	366.3	352.4	355.9	347.5	321.7	343.0	340.5	311.3	292.7	-21.8%	-81.8
Indiana	868.4	844.1	820.9	811.1	778.0	775.0	744.9	690.3	693.9	694.8	629.2	599.6	-31.0%	-268.8
Iowa	582.5	584.1	598.2	636.0	612.7	631.4	599.4	537.6	545.4	530.1	473.4	447.1	-23.2%	-135.4
Kansas	624.8	596.6	631.4	574.1	584.3	570.8	539.5	499.7	527.4	519.1	470.2	448.9	-28.1%	-175.9
Kentucky	936.0	927.1	938.8	923.9	894.0	912.4	893.4	819.1	809.1	813.5	754.6	721.1	-23.0%	-214.9
Louisiana	954.8	1,028.3	1,084.2	1,091.8	990.2	1,002.4	1,071.8	1,011.7	1,006.2	973.0	975.2	1,004.2	5.2%	49.4
Maine	450.1	408.9	405.5	372.6	365.0	355.3	349.8	316.0	333.3	328.4	330.5	316.3	-29.7%	-133.8
Maryland	282.2	260.2	260.5	245.4	234.2	222.5	203.4	188.2	185.5	190.0	181.3	171.3	-39.3%	-111.0
Massachusetts	224.4	199.9	203.8	195.3	182.2	179.9	166.6	148.5	158.1	150.9	149.4	144.4	-35.7%	-80.1
Michigan	441.5	423.2	432.6	441.4	451.6	430.3	406.3	381.8	398.2	392.0	382.7	352.6	-20.1%	-88.9
Minnesota	379.0	370.6	375.3	371.4	356.7	345.0	336.6	314.1	317.9	327.3	300.6	297.5	-21.5%	-81.5
Mississippi	713.5	719.9	724.8	661.0	645.7	694.0	651.7	657.0	634.9	675.8	688.5	713.9	0.1%	0.5
Missouri	569.5	557.4	552.7	529.2	517.3	527.8	536.7	500.5	514.2	510.9	470.9	452.1	-20.6%	-117.5
Montana	1,027.8	1,000.9	994.6	973.8	896.5	916.8	816.6	778.0	807.6	797.2	773.1	732.4	-28.7%	-295.4
Nebraska	538.3	530.9	526.6	543.4	544.0	549.2	552.2	537.7	555.1	522.3	495.3	465.7	-13.5%	-72.7
Nevada	374.2	300.1	303.4	312.6	327.7	311.6	279.5	289.1	303.2	305.1	277.6	282.5	-24.5%	-91.7
New Hampshire	338.7	303.2	300.5	297.7	274.3	260.4	253.8	226.5	221.4	227.6	224.0	198.8	-41.3%	-139.9
New Jersey	261.4	242.8	256.7	251.6	227.3	235.1	237.8	211.7	216.4	227.9	221.6	218.8	-16.3%	-42.6
New Mexico	741.6	737.0	725.9	678.3	688.9	637.5	664.6	639.5	641.3	588.4	580.3	561.3	-24.3%	-180.3
New York	187.1	166.7	172.1	167.0	149.8	146.2	137.4	130.2	131.9	135.9	131.6	127.9	-31.6%	-59.2
North Carolina	392.8	359.1	372.8	351.7	326.1	346.8	308.3	291.8	295.9	295.2	272.9	268.6	-31.6%	-124.2

Table 9. Carbon intensity of the economy by state (2005–2016) (cont.)

metric tons of energy-related carbon dioxide per million chained 2009 dollars of GDP

State	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Change (2005–2016) Percent	Change (2005–2016) Absolute
North Dakota	1,959.6	1,821.1	1,807.2	1,657.7	1,576.5	1,478.6	1,369.3	1,169.8	1,156.4	1,119.4	1,121.1	1,118.1	-42.9%	-841.5
Ohio	528.6	515.5	523.6	518.3	490.2	501.1	460.8	414.9	438.2	427.6	389.0	374.3	-29.2%	-154.3
Oklahoma	795.5	774.4	754.2	759.2	736.8	732.8	708.8	653.6	619.2	593.9	556.0	556.4	-30.1%	-239.0
Oregon	267.4	240.0	252.7	233.9	225.7	213.9	187.8	191.7	207.4	199.5	190.9	183.1	-31.5%	-84.3
Pennsylvania	497.0	484.5	473.7	452.7	422.5	431.4	413.8	389.4	399.1	390.6	355.8	333.5	-32.9%	-163.5
Rhode Island	222.4	205.1	222.1	221.1	235.7	225.7	228.1	216.8	207.9	216.3	217.2	193.4	-13.0%	-29.0
South Carolina	538.6	530.8	518.0	507.0	493.2	512.0	477.8	437.3	411.2	423.5	401.7	387.9	-28.0%	-150.7
South Dakota	401.1	399.3	399.1	412.4	402.5	405.7	370.2	382.9	390.4	387.7	347.9	360.3	-10.2%	-40.8
Tennessee	498.9	495.2	499.1	470.7	413.6	437.8	412.5	375.7	364.7	378.6	353.5	354.6	-28.9%	-144.4
Texas	574.6	549.8	521.6	489.8	463.9	481.4	479.9	450.3	450.2	433.6	415.7	441.2	-23.2%	-133.3
Utah	652.0	612.3	595.0	598.7	568.7	552.5	542.1	512.9	544.3	512.1	479.0	429.4	-34.1%	-222.6
Vermont	263.6	257.0	251.8	228.0	241.9	223.3	215.4	202.7	214.0	218.2	226.3	215.4	-18.3%	-48.2
Virginia	325.3	301.9	312.9	286.2	258.9	260.6	237.8	231.6	248.8	246.1	239.6	240.8	-26.0%	-84.5
Washington	233.0	217.7	220.5	209.5	210.6	206.7	191.4	185.3	193.7	183.4	181.3	187.4	-19.6%	-45.6
West Virginia	1,829.2	1,804.0	1,840.0	1,726.7	1,399.3	1,530.7	1,460.1	1,396.4	1,423.6	1,502.1	1,381.3	1,430.1	-21.8%	-399.1
Wisconsin	441.4	404.3	409.2	416.3	391.2	391.2	379.8	347.1	382.9	378.2	366.7	344.6	-21.9%	-96.8
Wyoming	2,125.0	1,926.2	1,890.9	1,764.5	1,709.0	1,782.3	1,757.4	1,885.9	1,926.9	1,840.1	1,763.8	1,748.5	-17.7%	-376.6
Average all states	414.0	398.4	398.0	386.1	368.5	373.0	358.3	336.2	339.6	334.1	316.1	308.7	-25.4%	-105.3

Note: The District of Columbia is included in the data tables but not in the analysis because it is not a state.
Source: EIA, State Energy Data System, and EIA calculations made for this analysis

Table 10. Net electricity trade index and primary electricity source for states with the least and the most energy-related carbon dioxide emissions per capita (2005–2016)

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	Primary source
Most CO2 per capita													
Wyoming	2.9	2.7	2.6	2.4	2.5	2.5	2.4	2.6	2.7	2.5	2.5	2.5	Coal
North Dakota	2.7	2.4	2.5	2.4	2.5	2.5	2.4	2.3	2.1	1.9	2.0	2.0	Coal
West Virginia	2.8	2.6	2.5	2.4	2.2	2.3	2.3	2.2	2.2	2.3	2.1	2.2	Coal
Alaska	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	Natural gas
Louisiana	1.1	1.1	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	0.9	Coal
Montana	1.9	1.8	1.7	1.7	1.7	2.0	2.0	1.8	1.8	1.9	1.9	1.9	Coal
Kentucky	1.1	1.1	1.0	1.1	1.0	1.0	1.0	0.9	1.0	1.1	0.9	0.9	Coal
Indiana	1.1	1.1	1.0	1.1	1.0	1.0	1.0	1.0	0.9	1.0	0.9	0.9	Coal
Nebraska	1.1	1.0	1.1	1.0	1.1	1.1	1.1	1.0	1.1	1.2	1.3	1.1	Coal
Oklahoma	1.2	1.2	1.2	1.2	1.3	1.2	1.2	1.2	1.1	1.1	1.1	1.2	Natural gas
Least CO2 per capita													
Idaho	0.5	0.5	0.4	0.5	0.5	0.5	0.7	0.6	0.6	0.6	0.6	0.6	Hydroelectric
Washington	1.1	1.1	1.1	1.1	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.2	Hydroelectric
Connecticut	0.9	1.0	0.9	1.0	1.0	1.1	1.1	1.1	1.1	1.1	1.2	1.2	Natural gas
Vermont	1.2	1.5	1.3	1.5	1.7	1.5	1.6	3.0	3.2	3.1	2.2	1.9	Hydroelectric
Maryland	0.7	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.5	0.6	0.6	0.6	Nuclear
Massachusetts	0.8	0.7	0.8	0.8	0.7	0.8	0.7	0.6	0.6	0.6	0.6	0.6	Natural gas
Oregon	1.0	1.0	1.0	1.1	1.1	1.1	1.2	1.2	1.2	1.2	1.2	1.2	Hydroelectric
Rhode Island	0.7	0.7	0.9	0.9	1.0	1.0	1.1	1.0	0.8	0.8	0.9	0.8	Natural gas
California	0.7	0.8	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.7	Natural gas
New York	0.9	1.0	1.0	1.0	0.9	0.9	1.0	1.0	1.0	1.0	1.0	1.0	Natural gas

Note: The District of Columbia is included in the data tables but not in the analysis because it is not a state.
Greater than 1.0 indicates a net interstate exporter of electricity.
Less than 1.0 indicates a net interstate importer of electricity.
Equal to 1 indicates self-sufficient electricity generation on a statewide basis.
Source: EIA, State Electricity Profiles, Supply and Disposition of Electricity, 1990 through 2016, http://www.eia.gov/electricity/state/

Appendix A. Comparison of fuel detail in the State Energy Data System and the annual series appearing in the *Monthly Energy Review* data system

Consumption sector	Energy source category	State Energy Data System fuel detail	*Monthly Energy Review* fuel detail
Residential	Coal	Coal	Coal
Residential	Natural gas	Natural gas	Natural gas
Residential	Petroleum	Distillate fuel	Distillate fuel
Residential	Petroleum	Kerosene	Kerosene
Residential	Petroleum	LPG[5]	LPG
Commercial	Coal	Coal	Coal
Commercial	Natural gas	Natural gas	Natural gas
Commercial	Petroleum	Distillate fuel	Distillate fuel
Commercial	Petroleum	Kerosene	Kerosene
Commercial	Petroleum	LPG	LPG
Commercial	Petroleum	Motor gasoline	Motor gasoline
Commercial	Petroleum	Residual fuel	Residual fuel
Commercial	Petroleum	Not available	Pet coke
Industrial	Coal	Total coal	Total coal
Industrial	Coal/coke	Not available	Coking coal
Industrial	Coal	Not available	Other coal
Industrial	Coal/coke	Not available	Net coke imports
Industrial	Natural gas	Natural gas	Natural gas
Industrial	Petroleum	Asphalt and road oil	Asphalt and road oil
Industrial	Petroleum	Distillate fuel	Distillate fuel
Industrial	Petroleum	Kerosene	Kerosene
Industrial	Petroleum	Total LPG (HGL)	Total LPG (HGL)
Industrial	Petroleum	Not available	Normal butane/butylene
Industrial	Petroleum	Not available	Ethane/ethylene
Industrial	Petroleum	Not available	Isobutane/isobutylene
Industrial	Petroleum	Not available	Propane/propylene
Industrial	Petroleum	Not available	Butane/propane mix
Industrial	Petroleum	Not available	Ethane/propane mix
Industrial	Petroleum	Lubricants	Lubricants
Industrial	Petroleum	Motor gasoline	Motor gasoline
Industrial	Petroleum	Residual fuel	Residual fuel
Industrial	Petroleum	Petroleum products (other)	Details on following page

[5] Liquefied petroleum gases (LPG): A group of hydrocarbon gases, primarily propane, normal butane, and isobutane, derived from crude oil refining or natural gas processing. These gases may be marketed individually or mixed. They can be liquefied through pressurization (without requiring cryogenic refrigeration) for convenience of transportation or storage. Excludes ethane and olefins. Hydrocarbon gas liquids (HGL) include ethane and olefins.

Consumption sector	Energy source category	State Energy Data System fuel detail	*Annual/Monthly Energy Review* fuel detail
Industrial	Petroleum	Not available	Petroleum coke
Industrial	Petroleum	Not available	Aviation gas blending components
Industrial	Petroleum	Not available	Motor gasoline blending components
Industrial	Petroleum	Not available	Pentanes plus
Industrial	Petroleum	Not available	Petrochemical feedstocks
Industrial	Petroleum	Not available	Special naphthas
Industrial	Petroleum	Not available	Still gas
Industrial	Petroleum	Not available	Unfinished oils
Industrial	Petroleum	Not available	Waxes

Appendix B. Other state-related links

The underlying energy data used to calculate the state-level CO2 values can be found in the State Energy Data System (SEDS). SEDS is the main repository for all of EIA's state-based energy data.

The state CO2 data used for this analysis can be found on EIA's website. These data contain CO2 emissions data for each state by sector and fuel based on information from SEDS.

EIA's State Energy Profiles contain narratives and rankings for each state as well as electricity data and analysis.

EIA also has two fuel-specific profiles: the State Renewable Energy Profiles and the state nuclear profiles.

EIA's interactive energy map shows the major energy facilities and infrastructure in the United States.

EIA also collects data on state emissions for the electric power industry for SO2 and NOx as well as CO2. The electric power industry includes electricity generated in the electric power, industrial, and commercial sectors. You can download the spreadsheet from the site. It includes U. S. electric power industry estimated emissions by state from 1990 (EIA-767 and EIA-906).