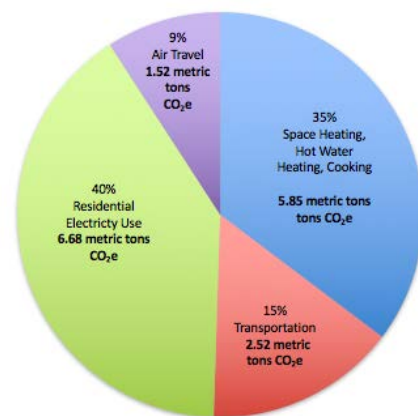


## Carbon Footprint Calculations for an Average American

The average American's energy-related carbon footprint is **16.6 metric tons of carbon dioxide (tCO<sub>2</sub>e)** annually according to the latest information from the U.S. Department of Energy.<sup>i</sup> General assumptions include:

1. Per capita emissions are the total U.S. emissions divided by the U.S. population.<sup>ii</sup>
2. The average energy-related emissions are 31.1% from coal, 41.9% from petroleum, and 26.7% from natural gas.<sup>iii</sup>
3. 740 million passenger trips on airlines crossed 72.8 billion miles on commercial airlines.<sup>iv</sup> The average American travels 7,500 miles annually, with 50% of mileage on one long haul round trip flight, 25% on one medium haul round trip flight, and 25% on 2 round trip short haul flights.<sup>v</sup>
4. The average American owning a car travels 11,224 miles annually<sup>vi</sup> in a car averaging 23.4 miles per gallon.<sup>vii</sup>
5. The average electricity in the U.S. emits 0.59 kg CO<sub>2</sub>e per kWh.
6. The average home in the U.S is 1,850 square feet.
7. An average American spends 7 nights in an average hotel

**Average American Carbon Footprint**



Greenhouse Gas (GHG) Emissions are categorized as Scope 1, 2 or 3:

**Scope 1 CO<sub>2</sub> Emissions – Space Heating, Hot Water Heating, Cooking** **5.85 tCO<sub>2</sub>e**

*Scope 1 emissions are all direct GHG emissions. An average American home may combust fuel on site for cooking and space- and/or water-heating. Cooking and heating make up 34.6% of an average American household's energy use. Because cooking, space- and water-heating energy services are also done with electricity, the carbon footprint from stationary sources can vary by household.*

**Scope 1 Emissions – Transportation** **2.52 tCO<sub>2</sub>e**

*Mobile combustion sources include fuel consumed by 11,224 miles of travel via an automobile averaging 23.4 miles per gallon, operated by the household.*

**Scope 2 Emissions – Electricity Consumption** **6.68 tCO<sub>2</sub>e**

*Scope 2 emissions are all indirect GHG emissions from the consumption of purchased electricity, heat, or steam. The American household consumes 11,320 kilowatt-hours (kWh) of electricity.<sup>viii</sup> The precise mix of electricity varies by region. On average the emissions are 0.59 kg CO<sub>2</sub>e per kWh of electricity.*

### Scope 3 Emissions – Air Travel

1.52 tCO<sub>2</sub>e

*Scope 3 carbon footprint emissions include those associated with an average American traveling by commercial airline economy class. In 2015, air travel made up 11% of U.S annual CO<sub>2</sub>e emissions.*

### Endnotes

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<sup>i</sup> Energy Information Agency. 2017. Energy-Related Carbon Dioxide Emissions at the State Level, 2000-2014. January 2017, U.S. Department of Energy.

<sup>ii</sup> Geography can vary the carbon footprint because of the different mixes of electricity, heating fuels and demand, and transportation patterns.

<sup>iii</sup> Energy Information Agency. 2017. Energy-Related Carbon Dioxide Emissions at the State Level, 2000-2014. January 2017, U.S. Department of Energy. June 2015.

<sup>iv</sup> U.S. Department of Transportation, Bureau of Transportation Statistics, Office of Airline Information, T-100 Market Data, available at [www.transtats.bts.gov](http://www.transtats.bts.gov)

<sup>v</sup> Greenhouse gas Emissions factor data comes from the U.S. Environmental Protection Agency's Center for Corporate Climate Leadership. EPA uses three categories of air travel—short (<300 miles), medium (>300 miles, < 2,300 miles), and long haul (>2,300 miles). EPA estimates emissions factors for CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O per passenger-mile. For short haul the emissions factors are 0.251 kg CO<sub>2</sub>/passenger-mile, 0.0039 kg C<sub>4</sub>/passenger-mile, 0.0083 kg N<sub>2</sub>O/passenger-mile for short haul flights, 0.143 kg CO<sub>2</sub>/passenger-mile, 0.0000 kg C<sub>4</sub>/passenger-mile, 0.0047 kg N<sub>2</sub>O/passenger-mile for medium haul flights, and 0.167 kg CO<sub>2</sub>/passenger-mile, 0.0006 kg C<sub>4</sub>/passenger-mile, 0.0056 kg N<sub>2</sub>O/passenger-mile for long haul flights. The 100-year global warming potential of CH<sub>4</sub> is 25 and N<sub>2</sub>O is 298.

<sup>vi</sup> Department of Energy. 2016. Average Annual Vehicle Miles Traveled by Major Vehicle Categories. Alternative Fuels Data Center.

<sup>vii</sup> Department of Energy. 2016. Average Fuel Economy of Major Vehicle Categories. June 2015. Alternative Fuels Data Center.

<sup>viii</sup> EIA. 2013. Heating and cooling no longer majority of U.S. home energy use. Residential Energy Consumption Survey, U.S. Department of Energy.