






Sources and Impacts of Climate Change

The 2007 Intergovernmental Panel on Climate Change report concluded that greenhouse gas emissions must be reduced by 50% to 85% by 2050 in order to limit global warming to just 4°F and avoid many of the worst impacts of climate change.

The planet has warmed roughly 1.8 degrees Fahrenheit (1 degree Celsius) since the late 1800s and will warm at least that much again by the end of the century without serious efforts to eliminate greenhouse gas emissions. Human activities are responsible for almost all of that temperature increase over the last 150 years, through a steady increase in release of greenhouse gases to the atmosphere. Human sources of GHGs include the combustion of carbon-based fuels such as gasoline, coal, and natural gas. [The United States is responsible for approximately 25% of all planet-warming emissions in the atmosphere.](#) These sources are: Transportation, Electricity production, Industry, Commercial/residential, and Agriculture. The Total Emissions in 2019 = 6,558 [Million Metric Tons of CO2 equivalent.](#)

Source	Percent of Total 2019 GHG Emissions	Notes
 Transportation	29	Cars, trucks, ships, trains and Planes - 90 percent of transportation fuel is petroleum based.
 Electricity Production	25	Approximately 62% of our electricity comes from burning fossil fuels, mostly coal and natural gas
 Industry	23	Burning of fossil fuels for production of energy and goods
 Commercial /Residential	13	Primarily from fossil fuels burned for heat
 Agriculture	10	Primarily from livestock, agricultural soils and rice production.

As transportation is the largest source of greenhouse gas emissions, efforts to achieve reductions will focus on cars, trucks, ships, buses, trains, and planes. In 2019, 1,902,000,000 metric tons of GHG were emitted from America’s highways and byways (the transportation system). Reducing GHG emissions from transportation will include several strategies such as reducing vehicle miles traveled. This includes public transportation.

National averages demonstrate that public transportation produces significantly lower greenhouse gas emissions per passenger mile than private vehicles (1 lb of CO2/mile traveled). Light rail systems produce

62% less and bus transit produces 33% less per passenger mile. The City of Ann Arbor is now considering both light rail and bus rapid transit.

But without a strategy to reduce source emissions, the impacts will only increase.