



CLEARING THE AIR:

GHG EMISSIONS IN NEW JERSEY AND HOW TO REDUCE THEM

WHAT IS CLIMATE CHANGE?

Greenhouse gases like carbon dioxide and methane act as a blanket, preventing heat from escaping into space and causing the planet to warm. The more greenhouse gases, the thicker the blanket gets and the warmer the atmosphere becomes. An increasingly warming planet throws all natural systems off balance— in New Jersey, these impacts are showing up as more intense hurricanes, extreme heat waves, severe local flooding, an increase in droughts and wildfires, altered growing seasons that reduce farm productivity, and changes that put plant and animal species that live in NJ— including humans— at risk.

WHAT ARE GHGS?

Greenhouse gases (GHGs) are gases in the air that keep heat in the Earth's atmosphere. Common GHGs include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), and fluorinated gases. They help control the Earth's temperature, but when we produce too many of them by burning fossil fuels (like gasoline in our cars or natural gas in our heating equipment), they can cause global warming.

TRANSPORTATION GHGS

39%

Transportation emissions primarily come from the burning of fossil fuels in vehicles. This includes emissions from cars, trucks, buses, and other motor vehicles that rely on gasoline or diesel fuel.

Reducing emissions in this sector may look like:

- Switching to electric trucks and cars, and installing charging stations
- Expanding safe walking and biking routes
- Expanding NJ Transit service, reliability and access
- Carpooling, car sharing, ridesharing, ride-hailing, reducing and shortening car trips, and working from home
- Using bikeshares, scooter shares, eBikes



BUILDINGS GHGS

Building emissions mainly result from the combustion of natural gas for space and water heating in buildings. Equipment like water heaters, furnaces and boilers directly release air pollutants. **Reducing emissions in this sector may look like:**

- Replacing fossil-fueled heating systems and appliances with electric alternatives like heat pumps
- Making upgrades to buildings so they use less energy (improving insulation, replacing windows, smart thermostats, and higher efficiency appliances)

26%



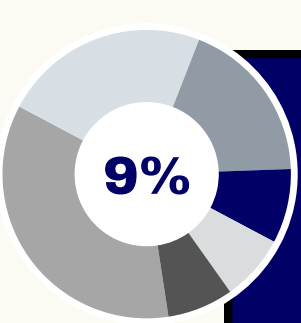
ELECTRIC GENERATION GHGS

19%

Electric generation emissions come from the burning of fossil fuels to produce electricity. In New Jersey, emissions are mainly produced by natural gas power plants. New Jersey also imports a portion of its electricity from other states, and this can contribute to emissions depending on how it is generated. **Reducing emissions in this sector may look like:**

- Transitioning from fossil fuel electric generation sources to renewable energy sources (such as solar and wind) or clean energy sources (such as nuclear)
- Reducing demand (how much electricity we use)

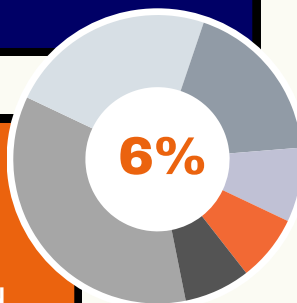




INDUSTRIAL GHGS

Industrial emissions come from manufacturing processes, where fossil fuels are burned onsite to generate energy. Emissions are also created by chemical reactions during production. In New Jersey industries such as petroleum refineries, glass and metal manufacturing and chemical and pharmaceutical production contribute to emissions. **Reducing emissions in this sector may look like:**

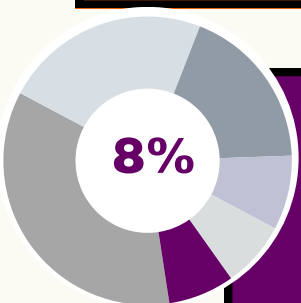
- Switching from fossil fuel on site power generation to zero-emission alternatives
- Increasing energy efficiency to use less energy for industrial processes
- Installing carbon capture systems



WASTE AND AGRICULTURE GHGS

The waste we create produces emissions. The food waste sent to landfills and sewage treated at wastewater treatment facilities are the main sources of emissions. Agricultural emissions come from the over-application of nitrogen-rich fertilizer, animal digestion of food, and animal waste. Specifically, less than 6% of emissions in NJ come from Waste and 0.4% comes from Agriculture. **Reducing emissions in this sector may look like:**

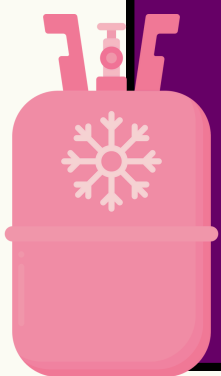
- Reducing and recovering food before it is wasted
- Capturing and using the gas that is generated at wastewater treatment facilities
- Improving soil management practices



SHORT LIVED CLIMATE POLLUTANTS GHGS

Short-lived climate pollutants are “super pollutants” that contribute to climate change. They have a relatively short lifespan in the atmosphere compared to carbon dioxide but have hundreds to thousands of times the heat trapping power. They include methane (2.8%), halogenated gases (5.1%), and SF6 (0.1%). Halogenated gases are mainly released from refrigeration and air conditioning systems, and chillers. Methane emissions come from leaks from natural gas pipelines, service lines, compressor stations, equipment and operations. **Reducing emissions in this sector may look like:**

- Replacing refrigeration equipment with climate-friendly alternatives
- Installing advanced leak detection systems and requiring reporting
- Phasing down and shifting away from using these highly warming gases



REDUCING GHGS THROUGH NATURAL CARBON SINKS

Forests and coastal wetlands naturally remove CO₂ from the atmosphere and store it in the soil. This percentage accounts for 1% of land clearing. **Reducing emissions in this sector may look like:**

- Creating new forests
- Restoring degraded forests
- Planting shade/street trees
- Restoring tidal wetlands
- Creating living shorelines

