

Natural Gas Vehicles

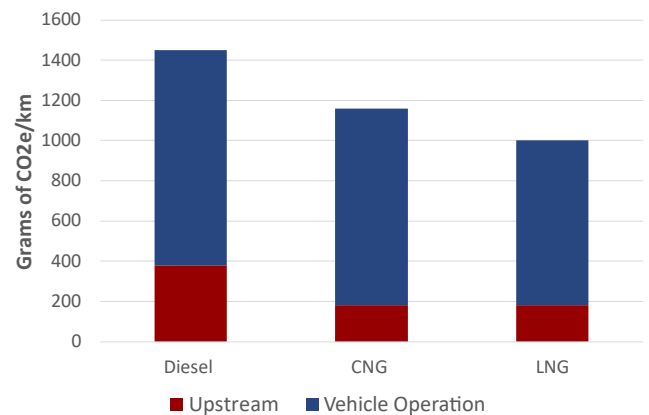
Natural gas vehicles can reduce emissions from the transportation sector, currently the largest source of emissions in the United States and second largest in Canada.

Compressed Natural Gas vs. Liquefied Natural Gas

Natural gas vehicles (NGV) can operate using either compressed natural gas (CNG) or liquefied natural gas (LNG). CNG is natural gas in gaseous form that has been stored under high pressures that can be transported to fueling stations or stored in highly pressurized tanks.¹ CNG takes up less space compared to conventional natural gas. LNG is cooled into a liquid and must be kept at very low temperatures for storage and shipping and takes up less volume than CNG.² Both CNG and LNG can be used in a range of on-road vehicles including cars, trucks, and buses as well as off road applications like marine and rail.

Emissions Benefits of Natural Gas Vehicles

One of the primary advantages of NGVs is that they produce significantly less tail pipe emissions than diesel vehicles, due to natural gas having a significantly lower carbon content than other fossil fuel resources. This is an especially important benefit considering the U.S. transportation sector is the largest source of emissions in the country, contributing to 33% of total U.S. greenhouse gas emissions.³ NGVs produce between 21% to 30% less CO₂ compared to diesel-fueled vehicles.⁴ The adoption of NGVs can be an effective strategy to reduce transportation-related emissions and comply with stricter clean air regulations.



Source: [Natural Gas Use in Transportation Roundtable, "Natural Gas Use in the Canadian Transportation Sector"](#)

Additional Benefits of Natural Gas Vehicles

CNG is estimated to cost 40% to 45% less than gasoline and diesel, and natural gas is less vulnerable to price shocks than gasoline and oil since natural gas is often sourced and pumped domestically.⁶ Natural gas vehicles can also incorporate renewable natural gas (RNG), which further enhances NGVs' environmental benefits. RNG use in NGVs is increasing substantially. In 2020, 53 percent of all on-road fuel used in NGVs was RNG.⁷ NGVs that use RNG have been certified as being carbon-negative.⁸ The ability for NGVs to be carbon negative, combined with their equivalent performance to diesel vehicles, means that they can be more effective than electric vehicles at reducing emissions, especially in areas with high power grid emissions. Converting waste haulers and semi-trucks to NGVs would significantly reduce greenhouse gas emissions in the transportation sector.

¹ [Energy Education, Compressed Natural Gas, 2018](#)

² [U.S. DOE, Liquefied Natural Gas](#)

³ [U.S. EPA, Overview of Greenhouse Gases, 2022](#)

⁴ [Natural Gas Use in Transportation Roundtable, Natural Gas Use in the Canadian Transportation Sector, 2010](#)

⁵ [Natural Gas Vehicles for America, Emissions and Environmental Benefits of Natural Gas Vehicles](#)

⁶ [U.S. DOE, Alternative Fuels Data Center, 2022](#)

⁷ [NGV America, Renewable Natural Gas Achieves Majority NGV Motor Fuel, 2021](#)

⁸ [NGV America, Start Now. RNG is How. 2022](#)