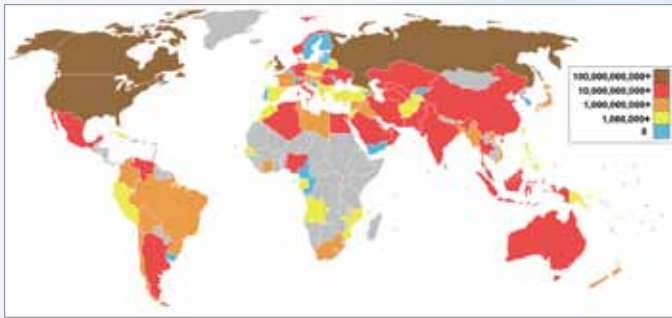


# Natural Gas the Alternative to Conventional Fuels

Natural gas is a clear, odorless, and non-corrosive gaseous mixture of hydro-carbons. Natural Gas is available as an alternative fuel in two different forms: Compressed natural gas (CNG) and Liquefied natural gas (LNG). CNG is produced by compressing natural gas in tanks at 3,600 pressure per square inch, and LNG by cooling it at  $-260^{\circ}$  Fahrenheit. Primarily made of methane, natural gas is drawn from domestically drilled gas wells or in combination with crude oil production.

Where does Natural Gas come from?



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About 99% of the natural gas used in the U.S. is of domestic origin or other North American sources; it is distributed nationwide through an extensive network of pipelines. According to U.S. Environmental Protection Agency (EPA) most of the domestic natural gas is extracted from gas and oil wells, but smaller amounts are derived from supplemental sources such as synthetic gas, landfill gas and other biogas resources, and coal-derived gas. However, the Energy Information Administration (EIA) has predicted that, by 2025, more

than 15% of our natural gas supplies would come from countries other than Canada and Mexico.

## Natural Gas Production in the World

### Local Action:

- As of 2010, South Florida has the only public access CNG station in the state of Florida. Additional stations are underway.
- Since 2009, Florida is one of only a few states in the nation to have EPA-certified bi-fuel (CNG and Gasoline) Ford Focuses available for its residents.
- Broward County fleet currently manages 47 bi-fuel compressed natural gas/gasoline (CNG) vehicles, 13 CNG vehicles and five CNG refueling sites, 8 liquefied petroleum gas vehicles (LPG) and one LPG refueling site.

## Advantages of Using Natural Gas

- Longer engine service life
- Lower engine maintenance costs
- 30% less greenhouse gas emissions than gasoline
- Least expensive fuel, about 40% less than gasoline
- Reduce exhaust emissions of:
  - Carbon Monoxide (CO) by 70%
  - Non-methane organic gas (NMOG) by 87%
  - Nitrogen oxides (NO<sub>x</sub>) by 87%
  - Carbon dioxide (CO<sub>2</sub>) by almost 20% below those of gasoline vehicles



Broward County Natural Gas Vehicle

- Most effective reducing emissions in an internal combustion engine
- Nearly 87% of U.S. Natural gas used is domestically produced
- Natural Gas is not toxic and will not contaminate groundwater

### Safe to Use:

When used in automobiles, CNG needs to be stored on the vehicles in sealed tanks that meet stringent safety requirements; they are stronger than gasoline fuel tanks. Unlike gasoline, CNG is able to dissipate in the air in case an accident occurs. It also has a high ignition temperature of about 1,200° Fahrenheit, compared with about 600° Fahrenheit for gasoline; making it less likely to burn.

### What Vehicles use Natural Gas?

Light-duty trucks, sedans, medium-duty trucks such as delivery vans and postal vehicles, and heavy-duty vehicles such as transit buses, school buses, and street sweepers.

### Natural Gas Vehicles: (NGV)

- Two types of NGVs: dedicated and bi-fuel
  - Dedicated NGVs are fueled exclusively with CNG or LNG
  - Bi-fuel NGVs can operate on CNG, LNG, or conventional gasoline or diesel
- There are more than 120,000 NGVs on U.S. roads and more than 8.7 million worldwide.
- More than 40 different manufacturers produce 180 models of light, medium and heavy-duty natural gas vehicles and engines. (U.S Department of Energy)
- Maintenance and operating cost is equal or lower than conventional cars because emissions are cleaner.



Onboard CNG Tank

### How much does Natural Gas cost?

Natural gas cost has always been lower than the price of gasoline and diesel; the prices do not fluctuate as much as conventional fuels.

### Natural Gas Fueling Stations

According to the EPA, in the United States there are 836 CNG and 38 LNG fueling stations.

The Gold Coast Clean Cities Coalition is managed by the South Florida Regional Planning Council (SFRPC). The SFRPC is a regional planning and public agency whose mission is to work with South Florida's public, private, non-profit, and civic leadership to create a better future for south Florida. The SFRPC is one of 11 Regional Planning Councils in Florida and serves three counties: Miami-Dade, Broward, and Monroe; 71 municipalities; and almost 4.3 million residents. For additional information about the SFRPC please visit [www.sfrpc.com](http://www.sfrpc.com)

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For more information about incentives, alternative fuels and alternative fuel vehicles please visit [www.floridagoldcoastcleancities.com](http://www.floridagoldcoastcleancities.com)

