

## Natural Gas

Natural gas is an odourless, colourless gas that is made of 90% methane. It is also non-toxic, lighter than air and disperses quickly which minimizes the ignition risk compared to gasoline. For transportation use, natural gas is compressed and stored in cylinders at between 3,000 and 3,600 pounds per square inch (psi). It is referred to as compressed natural gas or CNG.

Currently, natural gas at the CNG retail network in BC is 30-40% cheaper than gasoline.

Natural Gas Vehicles (NGVs) create 20% to 25% fewer GHG's on a life cycle basis.

### Environmental Performance

Natural Gas Vehicles (NGVs) create 20% to 25% fewer GHG's and smog related emissions are substantially lower, especially compared with diesel engine vehicles.

### Natural Gas in Fleet Operations

The major difference between a gasoline vehicle and a natural gas vehicle (NGV) is the fuel system. Light to medium duty NGV's can be 'dedicated fuel', meaning they operate only on natural gas, or 'bi-fuel', which can operate on either natural gas or gasoline. Medium to heavy duty diesel equivalent NGV's are all dedicated fuel. Some medium to heavy duty vehicles use LNG (the liquefied form of CNG) with technology supplied by Westport, a BC company. Fleets switching to natural gas would need to install a new fuelling infrastructure in order to fuel their vehicles on site. This infrastructure would include pressurized tanks and pumps.

A prime market for natural gas has been high fuel usage fleets such as TransLink, which operates a fleet of 75 dedicated natural gas buses in Metro Vancouver. A demonstration program with two buses is also underway that uses a blend of natural gas and 20% hydrogen resulting in even lower greenhouse gas emissions.

Few auto manufacturers are making new light duty gasoline equivalent NGV's for the North American market. This market is currently being serviced through conversions of existing gasoline vehicles. While the initial capital cost is higher, operating cost savings may produce net savings to the vehicle owner over the life of the NGV depending on the cost of natural gas compared to other fuels. Lordco, the largest aftermarket auto parts supply firm in BC, uses a fleet of 51 aftermarket converted dedicated NGV vehicles to deliver parts across Vancouver.

A network of 21 CNG stations is operated by Clean Energy fueling hundreds of vehicles daily. Aftermarket conversions are a typical way for fleets to introduce natural gas. As an added incentive to switch to natural gas vehicles, Terasen Gas offers grants worth up to \$10,000.

The Canadian Natural Gas Vehicle Alliance lists companies that provide aftermarket conversions.

### Canada Is A Technology Leader

Many BC companies are leaders in every segment of the NGV industry including manufacturers of components, fuelling systems, engines, and vehicles; manufacturers of refuelling equipment (compressors, high pressure storage cylinders, dispensers and associated equipment) and builders and operators of refueling stations. Such companies are actively exporting their products and technology.