

LNG for Transport

LNG is growing as an alternative to diesel for fueling heavy-duty vehicles in many industries, from mining and shipping, to railroads and ground transport

Using LNG for commercial and heavy goods vehicles, off-road trucks, marine vessels, trains, and buses can mean fuel savings of up to 50%, with lower particulate and carbon emissions, compared to diesel.

LNG-fueled vehicles can have smaller, simpler engines that still generate the high horsepower requirements of heavy-duty vehicles while using less fuel.

LNG has the greatest amount of energy per unit of mass of all conventional fuels. It packs the best punch for its weight.

With LNG less fuel is needed to cover greater distances, making LNG a good option for long-haul journeys.

Mining is a key sector where natural gas is used to fuel high horsepower vehicles. Some of the largest mining trucks in the world can have more than 100-ton capacity, and use between 150,000 and 400,000 gallons of fuel a year.

The switch to gas powered vehicles can bring major fuel and emissions savings across multiple mining operations.

The marine sector is increasingly turning to LNG as a bunker fuel for different sectors ranging from cargo vessels and tugboats, to cruise ships, tankers, and ferries. As a marine fuel, LNG is cleaner than conventional fuel alternatives: it meets or exceeds the current MARPOL* emission regulations for sulfur oxide (SO_x) and carbon dioxide (CO₂) as well as black particulate matter. Depending on the vessel's engine type and design, nitrogen oxide (NO_x) emissions are not just a function of fuel but also the engine cycle that is being operated. LNG helps reduce NO_x emissions and meets the IMO Tier III regulations.

Railroad operators can gain similar benefits. The cost of switching to LNG locomotives or retrofitting existing units can be repaid swiftly due to the lower fuel costs for trains which use large amounts of fuel and can remain in service for many years.

In trials by a USA railway the LNG locomotive cost approximately 23% less to fuel on an energy-equivalent basis compared to diesel fuel. The LNG switcher locomotive established an estimated 92% reduction nitrogen oxides (NO_x) and 76% less particulate matter (PM) compared to the baseline (uncontrolled) diesel locomotives. (Report by Patrick Couch Jon Leonard Helena Chiang, April 2010.)

Technical Data

Long-haul trucks can travel up to **750 miles** between fill-ups, while pulling heavy loads.

Fuel cost savings can recoup the higher investment costs for an LNG truck (**US\$70,000 to \$90,000** compared to diesel) within about **three years**.



*The International Convention for the Prevention of Pollution from Ships' Marine Pollution

Why ExxonMobil?

Our long-standing, global experience in every aspect of the world of LNG, means we can help our customers get maximum benefit from using LNG and natural gas.

We work with the world's best LNG technology and engineering providers to identify and help develop everything our customers need to get the most out of using LNG.

Building a long-term relationship with our customer helps us to understand your needs better, working with you to deliver a clean, reliable source of energy for communities, businesses, and industry.

We at **ExxonMobil** have the depth of **LNG experience** to power your progress.

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Attention:

LNG Senior Global Advisor
E: LNGMarketDevelopment@
exxonmobil.com
www.exxonmobil.com

