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## Could liquefied natural gas be a reliable option for European road freight transport?



**A recent study has analyzed the use of liquefied natural gas as a viable option in European road freight transport. It estimates that a fuel switch in long-haul trucks could reduce greenhouse gas emissions by as much as 12% and reduce fuel consumption by 42% in the long-term.**

Natural gas transport is a mature technology and has been extended through the use of the compressed form in urban light vehicles. The introduction of liquefied natural gas (LNG) could broaden the use of natural gas for longer distances due to its higher energy density. In addition, the use of LNG in heavy-duty vehicles reduces the greenhouse gas (GHG) emissions per kilometre by up to 20 per cent and eliminates almost 100% of the sulphur oxides and particulate matter while reducing the urban noise compared with the use of diesel trucks.

The study reviewed the key environmental, technical and socio-economic aspects of LNG deployment as an alternative fuel for road freight transport. LNG for road freight transport has undeniable strengths compared with diesel oil such as lower fuel costs, acceptable autonomy, lower emissions (in terms of sulphur oxides, particulate matter and nitrogen oxides, without requiring after-treatment exhaust equipment), lower noise and mature application technology.

Nevertheless, the main weaknesses are the medium to high cost of the technology, especially in the case of dual fuel engines, and the modest GHG emissions reduction due to the leakage of methane and the extra energy required during the LNG life cycle.

In addition, the introduction of LNG faces challenges to its widespread commercial introduction. These include the absence of regulations for the installation of service stations, restrictions in some countries on LNG use in vehicles, the diesel price decline and the risk of shortages of imported natural gas that would immediately increase the LNG price in Europe.

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## TRIMIS

The Transport and Research and Innovation Monitoring and Information System (TRIMIS) supports the implementation and monitoring of the Strategic Transport Research and Innovation Agenda (STRIA) and its seven roadmaps.

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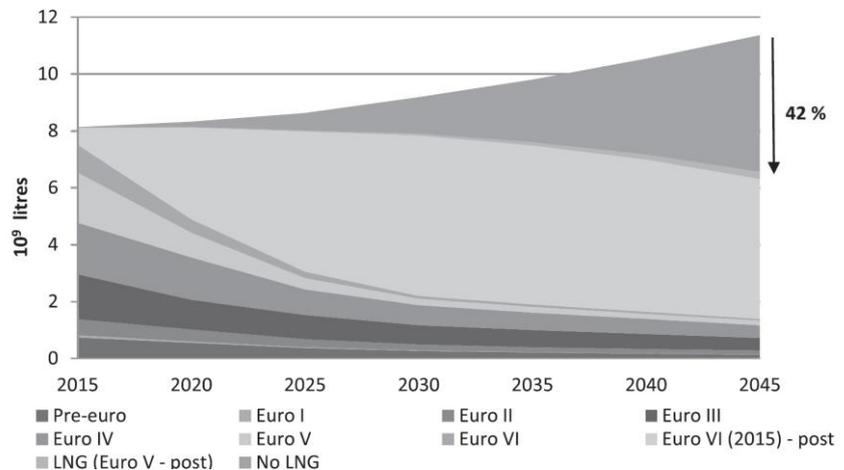
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## Could liquefied natural gas be a reliable option for European road freight transport?

While there have been isolated and quite recent LNG demonstration tests on performance and emissions in private fleets in the EU, there has been no comprehensive analysis to facilitate their mass introduction. Although it is necessary to continue research to develop a reliable database to estimate the actual environmental impact of LNG, it is argued that the main difficulties for the deployment of LNG-fuelled trucks are market-related.

The study analyses the prospects of introducing LNG in the European market and identifies price stability and uncertainty as key investment issues. Although action is being taken to develop an open and transparent international natural gas market, the installation of new LNG terminals could significantly contribute to the security of supply and meeting diversification targets.

The study assesses the impact of introducing LNG in the Spanish road freight transport. It finds a fuel switch in long-haul trucks could reduce GHG emissions by 12 per cent and diesel fuel co



Tank-to-Wheels diesel fuel consumption by Spanish long-haul trucks

It concludes LNG use in heavy-duty trucks for freight transport is possible due to the mature technology and energy resource availability. In the case of long-haul road transport, where renewable fuels are not currently a feasible option, using LNG instead of diesel is the preferred option.

Governments should promote LNG technology adoption directly to customers through tax reduction, benefits in tolls, reduced import tariffs for conversion kits and new vehicles, and funding for the local development and manufacture of these technologies.

In addition, governments alongside manufacturers and natural gas traders must intervene to avoid the market failures through awareness campaigns to the general public and fleet owners.

These measures would allow stakeholders to evaluate the actual impact of LNG use in companies and countries, enabling the introduction of a potential alternative to replace traditional fuels in road freight transport in the EU.