


# Market strategy for Vilnius, Kaunas, Klaipėda Lithuania

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| <b>Are there existing filling stations and natural gas and biogas driven cars already in the region?</b> | No                          |

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## Summary

According to the National Strategy of Sustainable Development ratified by Lithuanian government in 2003 predicts the decrease of consumption of energy and other natural resources as well as pollution and emissions of greenhouse-gases per GDP and reach the Europe's average value. One of the priorities of Lithuanian Sustainable Development Strategy is reduction of environmental impact of *transport* as one of the main economies. According to this strategy Lithuania commits to increase the usage of alternative fuels so that the usage of bio-fuels comprises not less than 15 % of all fuel used by road transport by 2020. The CNG and biogas is not included as alternative fuel.

In Lithuania practically there is no existing filling station for Compressed Natural Gas (CNG) for transport. But the environmental and economical advantages of compressed natural gas were understood in Lithuania and the first CNG filling stations and NGV's were commissioned for regular operation in 1984. Then in Lithuania was operates 5 CNG filling stations. Unfortunately there were installed no effective equipment and due the low different running cost between liquid fuel and natural gas, the CNG running was stopped. The country returned to the NGV concept only in 2005 -2007. However there is no respective infrastructure for such vehicles: there is no sense to purchase the NGV, because there are no CNG filling stations and otherwise – there is no matter to build filling stations while there no plenty of NGV's. In this case there are not favourable conditions for NGV's expansion in Lithuania. Only one best precondition for CNG development for transport in our country there are enough good natural gas supply network in all regions of Lithuania fig. 1.



**Fig. 1 Lithuanian Natural Gas Network**

Otherwise in Lithuanian region we have more like 658 with LPG filling stations. This impedes to expand of CNG use in region.

Also there is no legislation about biogas production for transport and there are no adequate documents about using the natural gas and biogas as a vehicles fuel. The biogas is use for heat and power production in cogeneration units. There are only 4 biogas plant in operate.

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## Introduction

In Lithuania there are no CNG users for transport market. The Lithuanian Government state institutions have support the liquid bio-fuels actions, but there are not enough positive actions for compressed natural gas or biogas expansion.

However two private companies in Lithuania start to develop CNG use action in country. For this purposes their action plan is to import NGV to Lithuania, to install first natural gas filling station and starting to more widely dissemination the world experience for market activity.

The more successful steps are made in Vilnius and Klaipėda municipality bus fleets. The one company is build the first CHG filling station in Lithuania and has imported about 30 buses from European countries. It is as successful action for start to introduce and development CNG use in region. It is seems, that this action will be solved one the obstacle for development of CHG market in Lithuania.

The second main obstacle for more successful development of CNG market in Lithuania is excise for CNG as fuel. In country at this time it is 0,30 LT per cubic meter of gas (0,087 EUR /m<sup>3</sup>). It is main disadvantage for development of CNG market in region.

## **Analysis of the different aspects of the gas market**

### **Analysis of the surroundings**

There are no real in the concrete juridical, technological and technical obstacles or restrictions (excepting several one) in relation to introduce of CNG for transport.

The different way is with biogas – there are produce not enough the total amount of biogas to use for bio-methane production. It is use as raw fuel in stationary engines for heat and power production. There are no negative surrounding juridical factors for distribution and use of methane gas in vehicles in a positive direction – the economical only, the bio-methane production from biogas activity is restricted by financial funding available.

In other hand there are political decisions to use LPG and development of liquid bio-fuel, as alternative fuels for transport. Following two aspects are as the main bottlenecks on the natural gas market.

### **Market inquiry**

There are very good opportunities for biogas production from liquid wastes at pig farms, wastes from food processing factories and waste water treatment sludge, however their development are limited by financial funding available and declining economical condition in country. The price of LPG and mineral fuels (petrol and diesel) is rather lowest as bio-methane.

The market condition for distribution and use of natural gas for vehicles is more attractive in nearest future in Lithuania, as a more ecologically clean fuel.

There are no any clear trends on the market. At this period there are only first step to increasing the numbers of CNG vehicles in region, in Vilnius town streets are running 7 second hand buses from Germany and Sweden. There is one CNG filling station.

There are 2-3 dual fuel light cars, which are running more often than not with petrol, but not natural gas. Some times for demonstration they are running with CHG.

There are no popular the vehicle conversion to CNG and there are no licensed companies to do it. Else it is difficult to make a prognoses concerning NGV market develop over a period 10 – 20 years.

### **Analysis of the concept “methane gas as vehicle fuel”**

There is some experience of Biogas production from different sorts of wastes, but we have no experience for biogas treatment. As was mentioned before, all biogas in region is use for heat energy and electric power production and there is not enough goodwill for biogas production as fuel for transport.

There are no financial incentives for conversion private cars to use CNG as fuel because the price of LPG is above 80 % law as petrol. Else in Lithuania there are above 80 licensed companies for convert and use LPG instead of petrol. The price for it is available, because the pay back period for investment for LPG equipment is about 1.5 – 2 years. But there are no experience and licensed company to convert cars for CNG and equipment for conversion to CNG is more expensive.

The natural gas is imported from a single source, Russian company “*Gasprom*” and distributed by two main Lithuanian suppliers: AB “Lietuvos dujos” and UAB “Dujotekana”. Besides there are several suppliers as AB “Achema” and power plant “UAB “Kauno

termofikacinè elektriné” (UAB KTE) purchased natural gas for their own needs. However under the necessity all of following companies has a possibility to supply the natural gas for CNG filling stations.

## **Analysis of competitive products**

All type vehicle users in country have wide range of fuels available: LPG, unleaded petrol, diesel, petrol, with 5% of bio-ethanol and diesel with 5% of RME. The LPG is main fuel for old cars. The ethanol E85 is no used in region.

As fuel for transport, CNG, specifically bio-methane, there are not in strong competition with traditional liquid fuels. Main competition for CNG (and biogas) in region (apart liquid fuels) is LPG.

The competitive products strengths:

- Widespread infrastructure;
- Inexpensive equipment for conversion in to LPG;
- Large choice saleable cars with LPG equipment in local market;
- Environmental aspects (CO<sub>2</sub>, NO<sub>x</sub>, PM), (LPG in compare with liquid fuels);
- Simple to use;

The competitive products weakness:

- No possibility to parking cars with LPG in underground garage;
- No possibility to lay up in store in own garage;
- There are some problems with LPG engines in winter times;
- Effectiveness of engines (LPG in compare with liquid fuels);
- Lack of knowledge;
- Awareness of consumers.

## **Analysis of costumers/consumers**

The bio-methane as fuels for vehicles is virtually impossible at this time in region.

There is source information concerning natural gas as fuel for transport. There are some negative preconceptions on the market, but several local municipalities are interested to use CNG for public transport. There are some particular obscurities, which are as follows:

- How much will be cost CNG as fuel for vehicles?
- How much does it cost to by second hand or new gas vehicles?
- How much does it cost to convert private car to CNG?
- Are there any financial encourages for use ecological fuel (CNG)?
- Are the warranties for vehicle safe?
- When will be adequate number of CNG filling stations in region?
- How will be solved difficulties with fuelling stations?
- Are any warranties for price stable for CNG?

- etc.

The main customer's knowledge of biogas is as strong opinion: "The biogas is very useful for environment, but is drastically expensive for transport. It can be used for reducing prices for environmental technologies only.

### **Short and long term threats and possibilities**

The main positive argument for biogas production from organic wastes is *Benefits for environment*. Today, however, it looks that this idea in region is fade away: some years ago in Lithuania was 6 biogas plants, today are in operate 4 and there are no prognosis for new plants build in future. The existing biogas plant produced biogas for electricity and heat production. The crucial factor is the financial problem of use the new cars or conversion second hand cars to run on CNG or finally LNG.

### **Bottlenecks on the gas market**

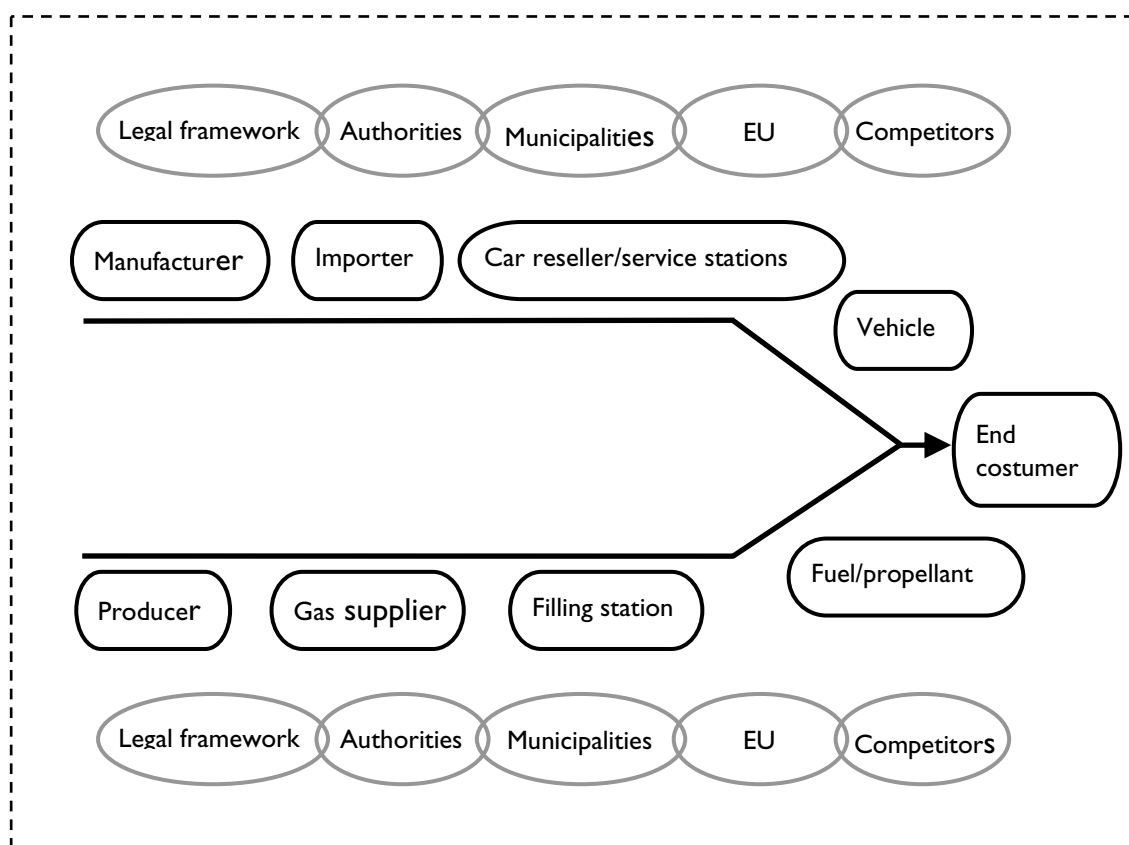
There is no any bottleneck in the natural gas supply in the region, apart two problems:

- The gas is supply from single source - from Russia;
- Difficult to forecast the price for imported raw gas and CNG.

The natural gas network is developed suitably well in the region and gas distribution is increasing till now.

The main bottlenecks are as follows:

- There will be some political obstacles to the development of CNG market;
- There is no licensed company for national verification of NGV tanks;
- Representative (consumer) of traditional liquid fuels and LPG are the suppressing the gas market development/expansion. It is difficult to involve them in the Madagascar project.



**Figure 1.** An overview of the gas market and its actors. From producers of gas and vehicles to the end costumer.

*How has the concept and the market developed in your region, which phase has it reached?*

In Lithuania there are two private companies which are interested in CNG use as fuel for vehicle and they are as adequate cars importer in country. They are interested to take part in the project.

## Market Strategy

The natural gas we are promoting as price and incomes policy. The several target groups for the market strategy are attempts to include:

1. Local private cars dealers companies;
2. Public customers i.e. municipalities intra-urban transport;
3. Agriculture waste management companies and waste water treatment plant with possibility to produce biogas from liquid waste;

## Message

- Natural gas - an alternative fuel with ecological characteristic (although it is a fossil fuel) when it comes to environmental effects and health aspects;
- NGV – efficient, low emission, safe and smooth vehicles;
- Natural gas – an alternative fuel with positive quality;
- An alternative fuel that can be delivered at a low cost;

- Biogas - an alternative and renewable vehicle fuel with market leading features when it comes to climate protection, environment and health aspects.
- Etc.

## **Choice of target group and distribution strategy**

### **Vehicle expansion**

- Geographically - information will be propagate mainly over the selected municipalities and particularly – widely ;
- Target groups:
  - Municipality vehicles;
  - Public transport, taxi service, etc.
  - Private car dealers companies.
  - Environment, Economy and Agriculture Committees;
  - The information will be spread to those who already have started to consider buying gas driven vehicles and to those who have not yet shown any interest.

### **Biogas supply**

Biogas as fuel for vehicles is no used in region and there is no any grid expansion. There are some ideas for biogas production, but it planed for heat and electricity production.

### **Gas grid expansion**

There is no need the gas grid expansion for CNG as fuel for vehicle, because it is enough good developed in region.

### **Filling station expansion**

There is no need the gas filling station expansion for CNG at this period. In September in Vilnius municipality was open first CNG filling station.