

## Development of Mobility with CNG in Switzerland

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**Abstract:**

**Background:**

The use of natural gas as fuel has started in Switzerland in the late 1990ies by some natural gas providers. As the open topics of the different gas providers where the same, it was soon realised, that a dedicated organisation which coordinates and supports all aspects of natural gas as Fuel national wide is needed. Therefore 2002 gasmobil was founded.

**Aim:**

In Switzerland the growth of the net with filling stations for compressed natural gas (CNG) and the growth of the CNG car populations were in line.

It was also important that several cities started to use CNG and biogas as fuel for their public transport.

**Methods:**

The coordination of all stakeholders as car manufacturers, gas industry and users in the different segments brought the success

**Result:**

Within ten years the number of CNG filling stations in Switzerland developed from 0 to 132 public stations and the number of vehicles grew from very few to over 10'000 on the road.

**Summary/Conclusion:**

The cooperation of all stakeholders is crucial for a success by the introduction of CNG. As the market has developed and is still increasing, it becomes easier to find more partners and clients.

## World Gas Conference

## Welcome to Switzerland



natural gas   
biogas

### Introduction:

First of all a short overview about the worldwide importance of the mobility with compressed natural gas (CNG).

Actually are worldwide about 14'000'000 CNG powered vehicles on the road and the quantity is still growing. This figure makes CNG more and more important for car manufacturers  
In Europe is the population of CNG cars increasing and we have 1'400'000 vehicles on the road. In Switzerland are 10'000 CNG cars driving at the moment..

## Quantity of vehicles

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Vehicles on the road:

World:	14'000'000
Europe:	1'400'000
Switzerland:	10'000



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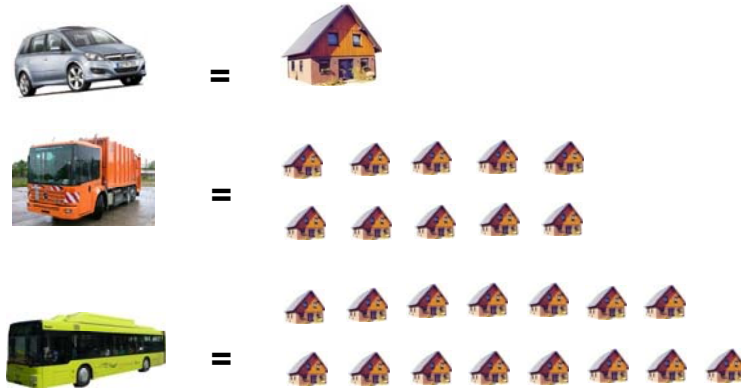
For us as gas provider is the first aim not to sell cars, but to sell gas. Therefore is the comparison between the consumption of natural gas for heating and as fuel interesting. As the slight below shows is the consumption of an average CNG car comparable with the consumption of a detached house for heating.

A garbage truck needs about 10times more than a house and a buss more than 15times the quantity of a house.

It is clear, that big efforts must be done in order to convince bus companies to switch to CNG.or biogas



## Consumption

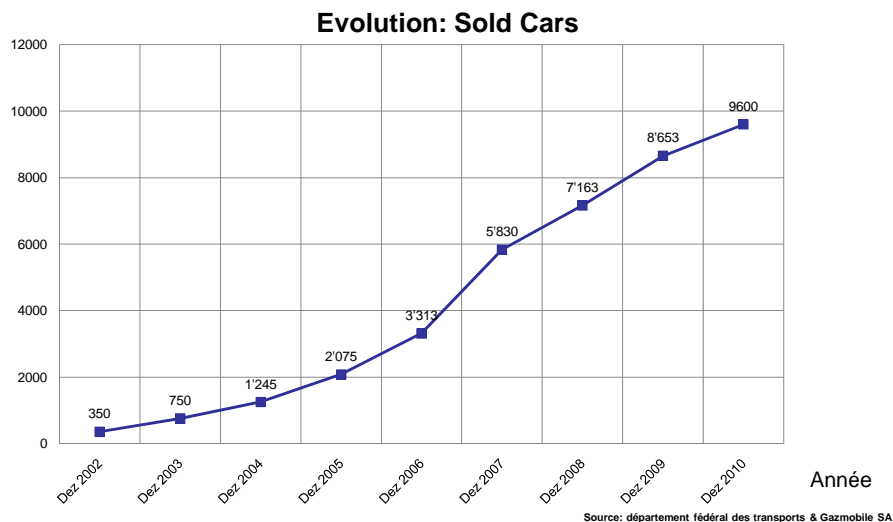


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In Switzerland we had quite at the beginning 2 public transport companies who switched to CNG respectively biogas. Simultaneously the natural gas industry started to build a net of CNG filling stations. As we see in the table below rised the number of CNG cars on the road really quickly and we had growth rates of up to 50% a year.

### Evolution in Switzerland

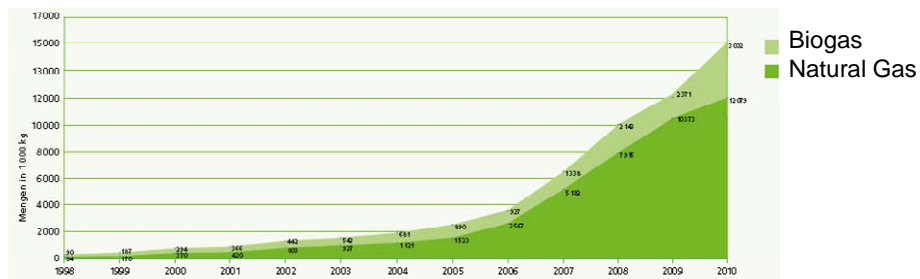


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Similar to the sold cars did also the gas consumption rise up. We see also in this table that biogas had always an important role. Especially for public transport is the low CO<sub>2</sub> emission of high importance.

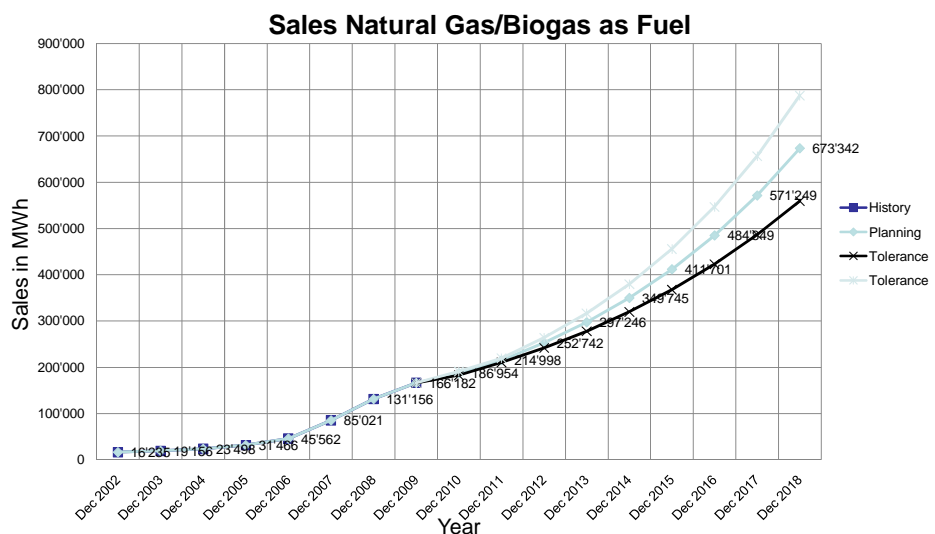
## Sales of Natural Gas & Biogas



Natural Gas: 157.5 GWh  
 Biogas: 39.1 GWh  
**Total: 196.6 GWh**

If we calculate a further growth of 15% every year, the curve goes up quite dramatically. We are very optimistic to reach such a fast rising curve as that. Car manufacturers have realised, that CNG is an excellent alternative which allows to lower CO<sub>2</sub> emissions.

## Evolution Sales until 2018



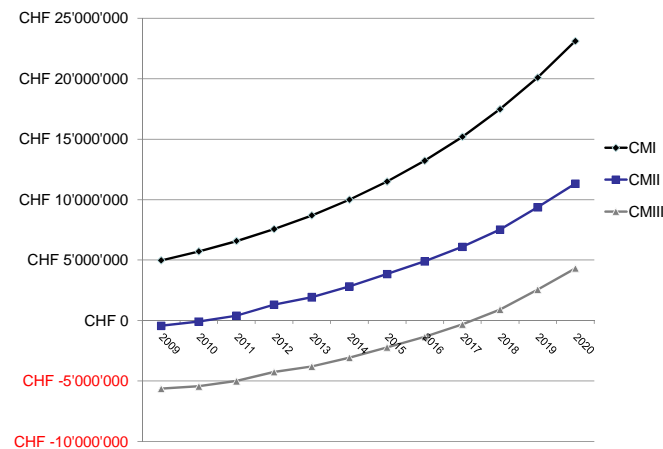
In order to fulfil these expectations a dense net of CNG filling stations is a must. As shown in this map is a belt of CNG filling stations ready in Switzerland. The white areas are mainly the mountains. There is not a big market as there are no big cities. .  
We concentrate in the areas where the biggest part of the population lives.

## Natural Gas Filling Stations



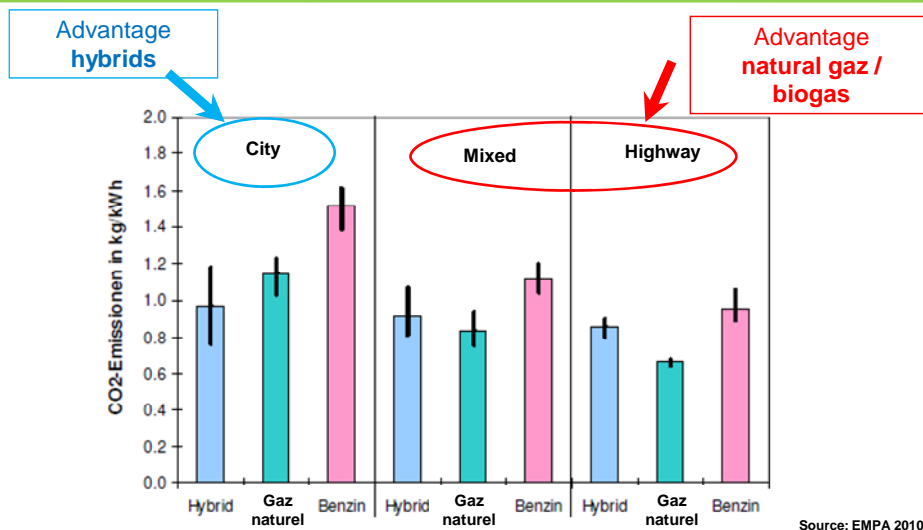
As you surely know is it quite expensive to build up an entire network of filling stations. We must still see the actual situation as an investment in a new business field. It will take some more years to earn money with the use of natural gas and biogas as fuel.

## Contribution Margins



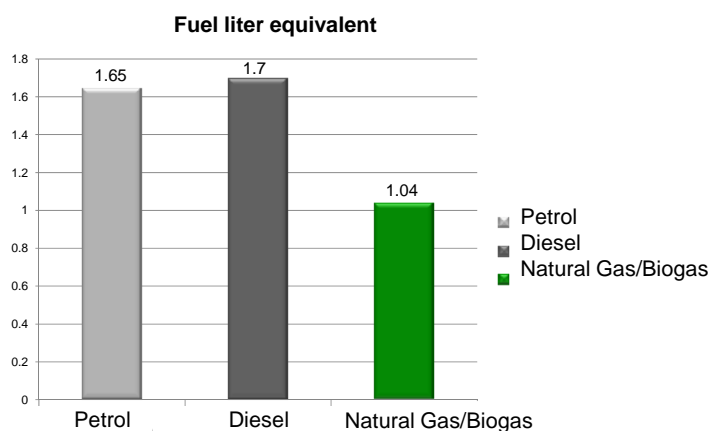
In Switzerland we do the marketing with to main messages:  
 The first message is the environmental friendliness. There is no doubt, that CNG is by far cleaner than petrol or diesel. The figure below shows a comparison of Hybrid cars with CNG driven cars. As a matter of fact emits the hybrid (petrol/electricity) a bit less CO<sub>2</sub> in the city centre. Already in mixed use and clearly in long distance use is the CNG car clearly environmental friendlier.

### Environmental advantages of CNG Comparison CNG versus Hybrids



The second message is the price. CNG is in average 30% less expensive then petrol.

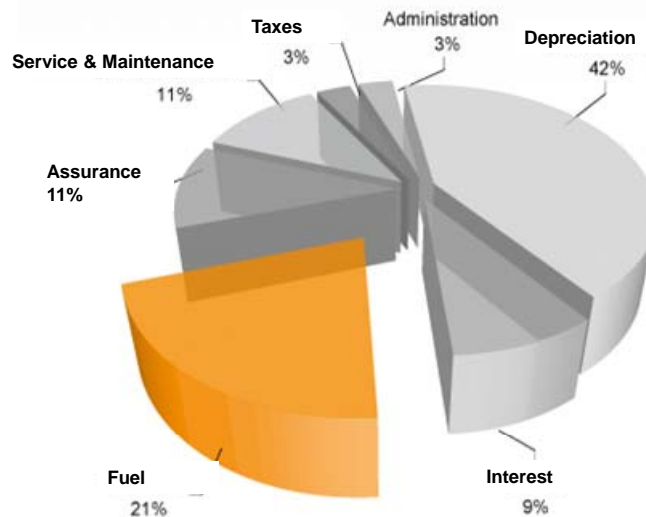
### Price Comparison





Especially for professional fleet operators is the fuel cost of high interest. The biggest cost is the depreciation. But already the second important cost is the fuel. As we can offer a cheaper alternative is it very attractive for professional operators.

## Fleet Costs



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A big potential for future growth is to convince the cities to use CNG as fuel for their public transport. Biogas has a very important role in this context as it is locally produced, and locally used. This is for politicians a key advantage. In the production of biogas are jobs created and the added value remains locally.

Locally produced Biogas used for public transport produces no CO<sub>2</sub> ....



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Especially for city authorities is also the environmental friendliness of high importance. It is not just the low CO<sub>2</sub> emission, the absence of fine particles, the low NO<sub>x</sub> but also the reasonably lower noise emission.

### ... and is less noisy



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### Conclusion:

There are several big advantages for natural gas and biogas as fuel. In the past has a good basic been laid. As car manufacturers have improved the CNG engines and are now broadening the range of available models we look confident into the future.

# Thank you

