

## From waste to wheels – driving on biogas in Gothenburg

Gothenburg, Sweden

Anneli Hulthen

Gothenburg joined the Covenant of Mayors in February 2009 with the ambition of going beyond the EU's 2020 energy objectives. A remarkably successful measure outlined in the city's sustainable energy action plan is the use of alternative fuel as a means to reduce CO<sub>2</sub> emissions without compromising mobility. Thanks to biogas, produced from a sewage water-treatment plant, CO<sub>2</sub> emissions have dropped significantly in the city.

*“Gothenburg is at the heart of a growing business region and has a large industrial sector. Through cooperation between the private sector, universities and city-owned companies, we develop new technologies and methods to reduce our environmental impact. As a signatory to the Covenant of Mayors, we are determined to meet our objective: reducing CO<sub>2</sub> emissions from ten tonnes to less than two tonnes per person by 2050.” Anneli Hulthen, Mayor of Gothenburg*



Photo: [www.businessregiongoteborg.com](http://www.businessregiongoteborg.com)

Gothenburg's sewage water-treatment system produces 65 GWh of biogas, the equivalent of 11 liters of petrol per connected person – 650,000 people in total - to the sewage water system. Looking for ways to reduce CO<sub>2</sub> emissions, the city decided in 2007 to clean (removing CO<sub>2</sub>), upgrade and inject biogas into the natural gas grid. Via this grid, the biogas is then almost exclusively sold for use in cars and buses in the Gothenburg area as a blend of 50% biogas/natural gas or as 100% biogas.

Cooperation between the public and private sectors plays an important role in making this happen. Companies have been involved in different parts of the value chain, from the treatment of waste water to the set-up of filling stations for cars and buses. Today, there are 30 such filling stations operational in the Western part of Sweden. The city of Gothenburg encourages the use of alternative fuels by: making it a requirement in public procurement; allowing free parking for cars using biogas – the so called 'eco cars'; and by deploying a municipal car fleet made up of 90% 'eco cars'. By 2020 the entire Gothenburg bus fleet will use this alternative fuel.



This biogas was the first vehicle fuel to receive an eco label in 2008. Replacing diesel or petrol with biogas results in an annual CO<sub>2</sub> emission reduction of 18,000 tonnes. Moreover, Gothenburg shows how to involve not only employees, but also the citizen, in a joint effort to reduce the carbon footprint. Thanks to the tax exemption that biogas and renewable fuels enjoy in Sweden, their commercial value is competitive with other fuels. Government funding via climate saving programmes has also played an important role in building the filling stations.

Drawing further on this successful experience, the city of Gothenburg promotes the use of biogas as alternative fuel in Western Sweden, via a multi-stakeholder platform fostering similar public-private cooperation also in other towns and cities.

#### **Gothenburg – key facts\*:**

- Gothenburg has 506,100 inhabitants and a surface of 1,031km<sup>2</sup>
- Signed the Covenant of Mayors on February 2009
- Overall CO<sub>2</sub> emission reduction target of 30% by 2020 compared to 1990 levels
- Second biggest city in Sweden (measured by population), heavy concentration of industry.
- The district heating system supplies more than 80% of the heating demand of all buildings in Gothenburg. Centralized heat production is a large improvement over individual boilers as the number of polluting sources is dramatically reduced.
- Most of the heat supplied by the district heating system is recovered heat from industrial processes such as power generation, refineries and waste incineration.
- Changing fuels from oil in the 1970s to heat and bio-energy has been the most important factor responsible for reducing CO<sub>2</sub> emissions in Sweden since 1990.

\* Figures taken from the Sustainable Energy Action Plan of the city of Gothenburg [http://bit.ly/SEAP\\_Gothenburg](http://bit.ly/SEAP_Gothenburg), and from the Benchmarks of Excellence on Gothenburg's online city profile [http://bit.ly/Benchmark\\_Gothenburg](http://bit.ly/Benchmark_Gothenburg)

*As a signatory to the Covenant of Mayors, the city of Gothenburg voluntarily commits itself to have a sustainable and fair emission level for carbon dioxide by 2050.*

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