

WP 6 Low carbon fuels and propulsion



Involved Project Partners

Responsible Beneficiary:

> Province of Fryslân

Partners involved:

> City of Gothenburg

> METRO – West Yorkshire

Integrated Transport Authority

Task or challenge of the specific theme of the WP: “why is it important?”

The use of bio fuels and electric propulsion can contribute to significant reductions of emissions of fossil CO₂.

Although larger scale transport (e.g. public transport) is already in a transition to bio fuels, a large amount of these are diesel powered, and will remain so for many years despite investment in alternative fuels.

It is therefore important not only to stimulate the use of bio fuels, but also to find ways to reduce CO₂ emission in traditional diesel material.

On the other hand, the biological origin of a fuel is no guarantee that real emission-reductions are achieved in a life-cycle perspective since some bio fuels create significant emissions in their production phase. Further, other sustainability criteria like the effect on biodiversity or social sustainability need to be considered when evaluating appropriate bio fuels to avoid an environmental and social backlash. The importance of these issues has been widely acknowledged on a European level, mainly in the discussions around a revision of the Renewable Energy and the Fuel Quality directives, but there is a lack of experience what criteria and what follow-up mechanisms can be used on a city-level.



Activities in Care-North?

Fryslân

Fryslân set up a Catalyst Centre to promote and stimulate the use of sustainable propulsion. The tasks of the centre are 5 fold:

- to provide the fleet owners (private and public) with suitable knowledge.
- to inform local public parties (municipalities).
- to provide distribution companies (e.g. filling station operators) with suitable economical and technical knowledge.
- to provide a technical back-office for the account managers.
- to communicate the ambitions of the Energy Valley and get into contact with companies and other players working in the field of sustainable mobility.

METRO

The activity involves the development of driver training and incentive packages, allied to on-bus equipment to monitor fuel consumption and provide 'real-time' feedback to drivers. The activity is build upon the UK SAFED (Safe And Fuel Efficient Driving) package, including approaches to ensure a wide take-up by transport operators – including the many SMEs who do not have the same access to technical support as large international groups

Gothenburg

- Implementation and testing of practically applicable sustainability criteria for the procurement of bio fuels.
- Development and testing of reliable reporting and control-methods to certify that the demanded criteria are met.
- Communication of findings and methods to other stakeholders as e.g. bio fuel-purchasers, industry and other cities.



Results

METRO

- 7 bus operators
- 271 bus drivers trained
- All West Yorkshire operators have trained their drivers

Fryslân

- 29 CNG buses
- 400 CNG vehicles on the road (of which 42 owned by Fryslân)
- 11 CNG filling stations
- First (bio-)LNG truck project



Gothenburg

- Appr. 5.000 CNG/CBG/electric/hybrid electric vehicles in city
- Successful fuel procurement with sustainability criteria
- Harmonised, nation-wide criteria on sustainable procurement



As we said before, since large amounts of buses and trucks are diesel powered, it is important to give attention to reduction of CO₂ in diesel powered vehicles. Training bus drivers in West Yorkshire leads to 3 important benefits: 7% fuel cost saving, which is €350 per trained driver per year; passengers claimed that they experienced a more comfortable drive after drivers have been trained; reduces CO₂ by approximately 3 tonnes per year per trained driver.

Meanwhile, it is also important to stimulate fleet owners to switch to sustainable fuels. As there are many different fuels or propulsion types, it's difficult for fleet owners to make the right choices. Also a wide variety of subsidy programmes with all their specifications started by national governments, makes it difficult to find the right funding. In Fryslân 4 account managers provided fleet owners with information on CNG/CBG, LNG/LBG (also known as bio-LNG), electric propulsion, technical background information and subsidy programmes. This led to a high amount of sustainable vehicles, in comparison to other provinces that put less effort in stimulating sustainable vehicles.

Furthermore, if an organization decides to use bio fuels, it is very practical to have criteria that can be used in procuring the fuel. Gothenburg set up, implemented and tested such sustainability criteria. The first procurement using these started September 2011 and was a success with 5 suppliers meeting the requirements. More important: these requirements did not negatively affect the offered fuel prices! In Sweden, sustainability criteria for fuels are harmonized. Gothenburg was a partner in the project that made this possible.

What are the costs (money-wise and CO₂-wise)

METRO,

- 7% fuel cost saving
- Reduced CO₂ appr. 3 tonnes p. year p. driver

What are the risks and requirements?

Chicken or egg: first a CNG/LBG station in order to get more vehicles or first vehicles to get more CNG/LNG stations?

High initial costs of CNG/LNG vehicles: how can these costs be lowered in cooperation between market and government?

Limited vehicle range: newer CNG vehicles already have more range on gas. For trucks the availability of LNG makes the difference.



Recommendations

There are a number of success factors:

- Stable political management with shared vision, concrete policy and follow-up
- An organisation that is committed to invest in and service for the fleet
- A good combination of workable strategies and hands-on operations

Effective lobby at central level needed

Put more effort in (bio-)LNG, as (bio-)CNG is not suitable for trucks

Heavy transport and public transport material travel long distances during the day. With CNG/CBG, these vehicles have a limited range. (bio-)LNG is more suitable for trucks and busses, because it has a much higher energy density than CNG, so vehicles can carry more and travel further. Bio-CNG can also be provided at such stations, produced on-site from the bio-LNG. A good network of tank stations for (bio-)LNG is needed if we want more of these vehicles.



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