CARE-North plus

Electric and low carbon mobility

Fuelling the market and inspiring the public

As local and regional authorities, governments and other public bodies, we have a responsibility to set good examples and provide incentives to others. We must work locally and regionally; through our respective contributions, we can create a larger movement. We can inspire our citizens, our fellow policy-makers and the politicians. We can set best practices for others to follow and build upon existing experiences to push traditional planning boundaries. With networking, dissemination and communication, we can reach out to others and inspire each other.

Meanwhile, we must remember that alternative fuels are just one part of the solution to the problems of present-day transport systems. Building a sustainable society from social, ecological and economic perspectives dictate an approach in which one can mix the best parts of every available technology and mobility concept.

Looking beyond electric cars

Electric cars are often perceived as the key to sustainable personal transportation. However, the emergence of a market for electric vehicles has proven to be quite slow. Electric cars do not solve problems in our cities that road-based transport generates: congestion, inefficient land use, noise pollution and traffic safety issues.

An electric car is currently still an inefficient tool for improving urban sustainability. The private car, which is only in use for an average of 1 hour per day, consumes much space in our cities. Furthermore, the majority of the cars on our roads, especially in cities, only transport one passenger at a time. There is a risk that the rising popularity of electric cars will bring more cars to our roads; for example, due to subsidies for electric cars, households could consider purchasing an electric car for short trips and maintain a conventional one for longer trips. Smarter approaches are required to bring together solutions that meet the mobility needs of all citizens and which are a more efficient use of resources.

CARE-North plus
The Interreg IVB North Sea Region Programme

›››Road based transport will not disappear completely with new travel habits, however, it should complement public transport, regional and interregional rail traffic, cycling and walking, not compete with it.

We need to look beyond the promises of electric cars and alternative fuels: How and in which areas can we think wider to reduce car dependence? How can an efficient transport system co-exist with an attractive city?

The potential of public transport

An average city bus runs around 10–16 hours per day. Busses have a lot of room for passengers – larger buses can transport over 100 people. Therefore, the environmental impact of minimising the emissions from a bus can have a far better and more efficient outcome than focusing solely on minimising emissions from privately owned cars.

In Malmö and in the whole of Skåne (the southern region of Sweden), all buses run on a mix of biogas and natural gas. While still having an environmental impact through the natural gas, the vision is to run the future bus fleet in Skåne on biogas and electricity only. An embodiment of this vision is the Malmö Express bus – the 24 metre long electric and gas hybrid bus will strengthen the current bus fleet in heavily travelled public transport routes, starting in 2014.

Other CARE-North plus project partners are also taking advantage of alternative fuels for public transport. The City of Aberdeen in Scotland has begun using a hydrogen-based fuel cell bus, whereas the City of Bergen in Norway has an existing trolleybus-network which complements its (electric) tram system. Leeds in England is implementing a modern trolleybus network – a very efficient solution that avoids the needs for large batteries. The City of Bremen in Germany is testing full-electric battery buses and is considering the implementation of a trolley-battery hybrid bus that can be recharged conductively during operation.

The Malmö Express is a 24 meter long gas- and electric hybrid bus and is twice the size of a normal city bus in Malmö.

Electric bus with overhead wire charging (Siemens/Rampini-Bus from Vienna), borrowed by Bremen for a touristic route in December 2013.

A comparison of the space required to transport the same amount of people via three different types of transportation: Cars, buses and bicycles.

Freight Transport

Heavy diesel trucks represent a smaller share of traffic in cities but are one of the largest emitters of NOx. Although the emissions of diesel trucks have been significantly reduced, especially in the new Euro VI engines, there is still a dependence on fossil fuel and a lack of a breakthrough with alternative fuels. At this time, the electrification of freight transport is limited due to battery capacity and weight limitations. Electric vehicles for freight transport and other heavy loads are currently only suitable for short, inner city distances. Pilot tests for vehicles running on more realistically deployable alternative fuels for freight vehicles, such as liquid natural gas (LNG), can offer more efficient emissions reductions, drive decisions and set good examples.

Bremen's Minister for the Environment, Construction and Transportation, Dr. Joachim Lohse test-driving an electrically assisted cargo bike (2013).

Electrically assisted bicycles

Electrically assisted bicycles are ideal personal vehicles. An electric bicycle functions just as a normal bicycle but is aided by a small electrical engine which gives the bicycle a small but firm push when you want it to. Electric bicycles are strong contenders to cars for trips in urban areas or over somewhat longer distances: they do not require as much physical effort to pedal than a conventional bicycle but are better for your health than taking the car; they are cheaper, smaller, more flexible and easier to use than a car, do not require a driver's license and are better for the environment. New target groups for cycling can be won through the availability of electric bicycles, such as the elderly or even moderately physically disabled. Electrical (or non-electrical) cargo bikes are also a useful alternative for longer distances and can be combined with trailers (e.g. when transporting children or heavy items from shopping).

Good cargo and electrically assisted bikes, however, are very valuable and require safe parking facilities. If a municipality wants to support the spread of electric bikes, safe parking facilities need to be an even higher priority than charging stations for e-bikes.

Factors that contribute to the success of local measures

- Visionary goals – The goals of the local/regional authorities should place a high priority on sustainability in transport. Quantifiable goals and a related action plan can help identify successes and support development. If the regional and national objectives and incentives are in alignment with the local goals, it can ease and excel the local implementation.

- Highlight the alternatives to car travel – Alternative fuels alone will not solve the various problems of today's transport system. The goals and visions for alternative fuels must be seen in a broader sense and should be connected to mobility management and other holistic concepts.

- Involvement of the public – The citizens are the real catalysts for change. Good channels of communication are imperative to the dialogue between all involved parties. The public creativity can spark various successful grassroots measures.

- Stakeholder coordination – Ensuring good contact and cooperation with local stakeholders is essential for launching joint measures.

- Be careful with incentives – There are a number of incentives for electric cars in the public debate that may have counterproductive impacts on the overall transport system, for example, opening bus lanes for electric cars can create obstacles for fast and attractive public transport. Free parking may increase the transport volume. Incentives and their potential (negative) impacts need to be considered very carefully.

- Maintain an open mind – There are interesting projects on low carbon mobility all over the world – we need to keep our eyes open and learn from best practices and pilot projects. Dissemination and knowledge transfer are key concepts in the process towards transport sustainability.

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