New Non-polluting and Energy Efficient Vehicles

Policy Strategy for Clean Vehicles

Policy notes
What is it about?

Characteristics

Policy Strategies for Clean Vehicles aim at providing a long-term stability for the actors at the Alternatively Fuelled Vehicles (AFV) market and involvement of new consumer groups. This includes a clear vision of how an AFV society would look like, good understanding of market instruments, analysis of the obstacles and a systematic approach to overcome barriers. The basis is often a strong political commitment. A long term engagement in an AFV strategy also gives the vehicle and fuel companies a security when investing in new technology. The strategy will differ from city to city and country to country, depending on the type of fuel available, the type of vehicles, target groups etc. Gaseous fuels need expensive infrastructure and expensive vehicles, while the fuel is much cheaper than petrol and diesel. Ethanol vehicles and infrastructure are relatively cheap, but the fuel is normally more expensive than petrol. In order to succeed in getting private companies to choose AVFs the alternative has to be economically beneficial. This calls for a number of incentives and disincentives on fuel, vehicles, infrastructure etc. Examples of strategies are: Clean vehicles in Stockholm (SE) and Bremer Offensive – Das Erdgasfahrzeug (DE).

Key benefits

A Policy Strategy for Clean Vehicles...

- provides the market a long term stability for investments;
- contributes to the decreased emissions of greenhouse gases;
- contributes to the reduction of local emissions (amount depending on the kind of fuel);
- helps to reduced dependency on oil;
- tackles noise emissions.

Clean Vehicles in Stockholm

Starting in 1996 with electric vehicles in the city fleet, Stockholm has since then developed a long-term strategy aiming at a market break-through for clean vehicles (biogas, ethanol and electric/electric hybrids). This objective is met when these vehicles constitute about 5% of the market. Clean vehicles currently make out about 20% of all light vehicle sales in Stockholm, and 2.7% of the entire market. To reach the objective, the strategy has focused on private companies. The main activities have been:

- Support building of fuel stations;
- Perform large procurements of clean vehicles to introduce new technology at lower prices;
- Giving incentives as free parking and exemption from congestion charging;
- PR campaign towards car owners;
- Demonstration of new propulsion technologies as electric hybrid lorries and buses and fuel cell buses.
Is this something for us?

A Policy Strategy for Clean Vehicles can be introduced in any city. A strategy for clean vehicles can be implemented when:
- The political support is strong;
- The stakeholders are involved and committed;
- Economic and other incentives are used.

The time it takes to succeed will depend on the circumstances (taxes, available fuels etc).

Check list

| City size | No restriction, AFVs can be introduced in all cities. Cooperation between small cities creates a critical mass of demand. |
| Costs | Low – medium cost, depending on nature of incentives. |
| Implementation time | Short term (<3 years). The vehicles exist (biogas, ethanol, very energy efficient vehicles), as well as a broad knowledge and availability of fuels. |
| Key stakeholders involved | Politicians, National and local authorities, Private companies, Car producers, Fuel distributors |
| Undesirable secondary effects | Discouraging taxation/legislation and rules and regulations that counteract the use of alternative fuels. |

“130 out of 1,500 taxis in the Taxi Stockholm Fleet are clean vehicles. 50% are ethanol cars and 50% biogas cars. We are setting goals for CO₂ reduction. One of the ways to reach the goals will be an increased number of clean vehicles”.

Harald Nyström, environmental coordinator, Taxi Stockholm Sweden.

Bremer Offensive - Das Erdgasfahrzeug (Germany)

In 1996, the then responsible Minister (Senator) for Environmental Protection of Bremen initiated the city’s work on CNG vehicles (Compressed Natural Gas) and bought one of the first vehicles available. The main driving force was to improve air quality.

Bremen’s long term objective is to achieve a market breakthrough for CNG vehicles by increasing the demand and improving fuel supply. So far, Bremen has not targeted the mass market primarily, but has worked with selected target groups, such as vehicles with high inner-city mileage like taxis and delivery companies and “heavy smokers” – buses and lorries that are causing a relatively high share of the pollution. In addition, there is a focus on public awareness rising, both as public opinion can be a driver for companies to change to clean vehicles and as citizens will be the future buyers of clean vehicles.

The main actions in cooperation with the energy provider and the local energy agency are:
- An economic incentive programme that pays part of the extra cost for the buyers. The payment obliges the receiver to put a sticker on the vehicle, showing it is a CNG vehicle, and to be part of an evaluation during two years. This raises awareness among other potential users;
- Cooperation with local car dealers to provide a fleet of test vehicles, so that companies may try and this way get hands-on experience before buying;
- Improving the fuelling infrastructure with strong support from the local energy provider;
- Targeted information for potential corporate customers, private households and car dealers.

There are now about 350 CNG vehicles running in Bremen.
**Benefits & Costs**

**Benefits**
A Policy Strategy for Clean Vehicles that is implemented means:

- **Reduced oil dependency** in the transport sector, today almost totally dependent on oil.
- Use of alternative fuels reduces the emissions of greenhouse gases and noise. The emissions of NOx and particles can also be considerably lower for alternative fuels.
- If there is an existing natural gas grid and vehicles running on natural gas biogas can be introduced in the same grid as “green gas”.
- Clean vehicles can be an important part of a local climate action strategy as well as the BioFuels Directive.

**Costs**
The cost for introduction of a strategy for clean vehicles is connected to the following aspects:

- **A management team** is needed to run the project.
- In an initial phase the vehicles can be more expensive than the conventional vehicles. The fuel can also be more expensive than petrol and diesel in an early stage.
- **Production** of for example biogas requires investments.
- **National incentives**, for example lower tax for alternative fuels.
- **Local incentives** like free parking implies loss of revenue. Other examples of incentives are grants to fuel stations to introduce an alternative fuel. The incentives need to be a long term commitment, until the market for AFVs develops by itself.
- Companies and the public can, on the other hand, save money by choosing an AFV, depending on fuel price and different incentives.
Users & Stakeholders

Users and target groups
- **Local and regional authority** fleets;
- Companies delivering **transport services** to the municipality;
- **Companies** that want to improve their environmental image, i.e. environmentally certified companies;
- The **public transport authority**, which can create a strong market demand (both fuel and vehicles) by procuring Alternatively Fuelled Vehicles;
- Large **fleet owners** as taxi or companies with large company car fleet;
- **Leasing** companies;
- The **public**.

Key stakeholders for implementation
A range of actors are involved in an Alternatively Fuelled Vehicle introduction scheme.
- **Local authorities**: The **local and regional government** needs to initiate the Policy Strategy for Clean Vehicles.
- **Political support**: Politicians at the local level must support the strategy. Political support at the national level is also important because of the need for tax incentives for alternative fuels.
- **Distribution**: Fuel distributors must be involved, at first for the municipal fleet and later for the companies and the public.
- **Vehicles**: Vehicle producers need to be involved in order to get a range of different vehicle models. **Car dealers** need to offer the AFV models and also have a good knowledge about the advantages with AFVs.

Avis offers alternatively fuelled cars
Today 20% of Avis car fleet in Sweden consists of clean vehicles (ethanol, biogas and electric-hybrid). The management expects that 50% of the 5,000 cars in the fleet will be clean by 2010. The reasons to focus on clean vehicles are:
- Customers’ demand;
- Environmental certification and environmental goals (internal);
- Costs.

*A flexi Fuel Vehicle (Ford Focus FFV)*
Photo: Kristina Birath
From concept to reality

Key aspects at this stage

**Political support:** The first thing to do is to gather broad and firm political support for the idea of large scale introduction of Alternatively Fuelled Vehicles. The politicians will have to make decisions along the line of implementation that can cost money (local incentives).

**Identify the local stakeholders:** What are the large fleet owners, what are the available vehicle models (maybe at other markets), which are the possible fuels to focus on and who can produce and distribute these fuels?

**Map the local/regional market:** Make a survey of the vehicle markets (number of cars sold); type of buyers (companies, public), the most common size of vehicles etc.

**Make a survey of incentives:** The economy of the Alternatively Fuelled Vehicles is vital for the success of the policy. If it is much more expensive than for conventional vehicles incentives are needed.

Examples of incentives are:

- **National level:**
  - Low or no tax on alternative fuels;
  - Lower vehicle tax;
  - Lower company car tax;
  - Grants for fuel stations for alternative fuels.

- **Local level:**
  - Free parking;
  - Green procurement;
  - Grants for AFVs and fuel stations.

### Ready for implementation?

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<th>Category</th>
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<tr>
<td>Political support</td>
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<td>Stakeholder network</td>
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<td><strong>Existing incentives gives enough economic incentives for target groups</strong></td>
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<td><strong>Available vehicles and fuels are adequate for target groups</strong></td>
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<td><strong>Largest fleet operators are willing to start</strong></td>
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The first step of the implementation is to prove that the technology works. If people get a chance to see that an alternatively fuelled car is just like a normal vehicle and that no sacrifices have to be made compared to a conventional vehicle it is easier to accept the new technology.

**National stakeholders**
A dialogue with the national stakeholders and politicians is important. National incentives make the introduction of AFVs easier.

**Other cities**
Working together with other cities can be a way to show both the fuel and vehicle producers the broad demand and interest of AFVs. It can also be a measure to get a closer dialogue with national authorities and politicians.

**Address all stakeholders**
The local or regional authority is a neutral partner in the work for implementation of an AFV strategy. For a successful implementation of this strategy it is important to address all the key stakeholders at the same time. This includes fuel producers and distributors, vehicle producers and car dealers as well as vehicle buyers.
Key aspects at this stage

1. **Start with the local authority fleet**
   The first step is to introduce AFVs in the own fleet. If no suitable vehicles are available a joint procurement could be a way to introduce them (see NICHES brochure on “Joint Procurement of Clean Vehicles”).
   A procurement of vehicles will give the car manufacturers the chance for offers with reasonable prices.

   If the municipal fleet is large it can be easier to open a non public fuel station, only for the municipal fleet. If that is the chosen solution it is important to also have a strategy for opening of public fuel stations.
   An alternative can be to make a tender for an alternative fuel for the local authority fleet.

2. **Increase the number of fuel stations**
   It can be difficult to get the fuel companies to introduce alternative fuels to public fuel stations.
   Besides using green procurement as a tool, subsidies to fuel stations that can offer an alternative fuel should be considered.

3. **Local incentives**
   Introduction of different kinds of local incentives is important to get a broader interest for AFVs. Examples of local incentives are:
   - Free parking;
   - Test fleet (companies can borrow an AFV for a week to try out the new technology, the efficiency, the refuelling etc);
   - Special taxi lanes for AFVs;
   - Access to lanes only open for public transport;
   - Access to city zones with restrictions for cars, i.e. cultural city centres, environmental zones;
   - No congestion charges;
   - Some examples of national incentives are tax reductions on fuel, on vehicles and regulations that favour the use of AFVs in companies;
   - “Environmental Loading Points” adjacent to pedestrian areas only open for AFVs.
4. **Transport services on alternative fuels**
   The next step is to introduce requirements on alternative fuels in the transport services procured by the local authorities. Within the framework of public procurement it is possible to require increasing use of alternative fuels among the tenders.

5. **Next step – large fleet owners**
   When the municipal fleet is in place the next step is to start discussing AFVs with large fleet owners. Address the companies that have shown interest in environmental issues first. Companies with captive fleets that can refuel at a depot, for example the local postal service, can also be interested.

6. **Companies in general and the public**
   PR campaigns can be a useful tool to inform companies and the public. Grants that cover a part of the additional cost for the vehicle can help to increase the sales.

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**Success factors in the City of Stockholm**

By the end of 2006 almost 20% of all new cars sold in Stockholm were clean vehicles. Some of the factors behind this success are:

- **Strong, cross-political support has been important to keep the initiative alive, regardless of the political majority.** This support has made it possible to discuss with the national level and introduce incentives at national level. European Commissions’ financial support and, more important, EC contract have been key to keep the political support high;

- **The close co-operation with other cities and NGOs has been crucial to show vehicle sellers, fuel providers and national government that there is a true and large demand for AFVs;**

- **The co-operation with fuel providers and car dealers has been important to gain interest and credibility among the potential buyers of AFVs. In this co-operation there has been a clear distinction between neutral information and the industry’s marketing;**

- **The municipal fleet has given the city hands-on experience of driving, fuelling and service of alternative vehicles which is crucial to have to be trustworthy when discussing with private companies. Setting a good example is also of importance when requiring transport providers to change to AFVs.** Bad performance by a vehicle model may be disastrous for the reputation of all AFVs. It is therefore good to test out new models and technologies in a municipal fleet before promoting them widely to private companies;

- **A big push came when the national television company formed a network of ambitious companies and the biggest national newspaper, Dagens Nyheter, changed to clean vehicles.** Even more articles started to appear in the media, which further increased the interest. Today all large Swedish newspapers report on Alternatively Fuelled Vehicles in their regular motor supplements.
The strategy is fully implemented when a market breakthrough is reached. This is when at least 5% of the cars on the market are AFVs, the refuelling system is well developed and there are many models of AFVs available on the market.

Energy saving trust, UK

In 1996, the UK government instructed the government funded independent body the Energy Saving Trust (EST) to set up a grant scheme in order to increase the uptake of and conversion to Alternatively Fuelled Vehicles to improve air quality and reduce CO$_2$ emissions from vehicles. The PowerShift scheme was joined in 2000, as a part of a bigger programme, by CleanUp involving other means to improve air quality, e.g. a grant scheme for diesel particle filters and New Vehicle Technology Fund - a funding programme for the development of cleaner and low-carbon vehicles. PowerShift operates across all UK.

Within PowerShift, a grant was given to cover part of the costs when converting an ordinary vehicle to operate on Natural Gas or LPG or part of the extra purchase cost for natural gas vehicles, hybrid or electric vehicles. All kinds of vehicles were eligible, though cars and to some extent buses were dominating. To qualify, a vehicle producer or converter had to have its vehicle emissions tested on an EU drive cycle by an independent testing facility and meet the standards laid down by the EST.

Grants were also given to some fuel distributors to cover parts of the extra costs for setting up new infrastructure, mainly Natural gas or Electric recharging points.

The programme did support between 4,000 and 7,000 converted and new vehicles each year, mostly LPG conversions and hybrids, and very few electric vehicles.

Key aspects at this stage

It is wise to keep incentives at least until 5% of the market is reached. The attractiveness of AFVs can change if the costs increase. The price of conventional fuels (oil dependent) can change in a way that makes alternative fuels less attractive. Such a situation might require new kinds of incentives.

An example is how the low price on petrol in Sweden has lead to a relative increase of costs for driving on E85. Many car owners are therefore choosing petrol instead.

It is important to continue the dialogue with the stakeholders, identify other vehicle segments where no or little AVFs are available, and work for increased use of alternative fuels.
Further information & contacts

Further information

**Clean vehicles in Sweden**
AFVs in Sweden, with information on AFVs on the market, news, local incentives.
www.miljofordon.se (Swedish)

**BEST**
EU funded project on ethanol fuelled cars and buses in the UK, The Netherlands, Spain, Italy, Sweden, Brazil and China.
www.best-europe.org (English)

**Bremer Erdgasfahrzeug**
AFVs in Bremen, incentives, news and supply of CNG cars on the German market.
www.bremer-erdgasfahrzeug.info (German)

**Energy Savings Trust**
UK based organisation that supplies tools for decreasing emissions from transport.
www.est.org.uk (English)

**Sustainable Green Fleets**
EU project that focuses on encouraging the use of AFVs in company fleets, municipal fleets and driving to schools. Information on refuelling of alternative fuels in Europe.
www.sugre.info (English)

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The mission of NICHES is:

to stimulate a wide debate on innovative urban transport and mobility between relevant stakeholders from different sectors and disciplines across Europe.
NICHES promotes the most promising new concepts, initiatives and projects, to move them from their current ‘niche’ position to a ‘mainstream’ urban transport policy application.

NICHES team

The NICHES consortium is composed of a variety of experts in the field of urban transport, ensuring the knowledge of the academic sector (Warsaw University of Technology), the experience of cities (Stockholm), the expertise of consultants (Rupprecht Consult, PTV Planung Transport Verkehr AG) and the multiplier effect of the networks (POLIS, EUROCITIES, CEMR).

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