

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.



Biogas refuelling

Photo: Per Westergård

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.



The Police in Somerset County is driving FFV

Photo: Alain Lockyer

Lower interest rates for clean vehicles

As Alternatively Fuelled Vehicles get more common, new companies see business opportunities. The Swedish bank SEB offers lower interest rates to buyers of clean vehicles. The offer is 1% lower interest rate, 5.17% instead of 6.17% for a conventional car. The cars have to be defined as clean vehicles by the Swedish Road Administration.

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 Alternately 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 Alternately 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.

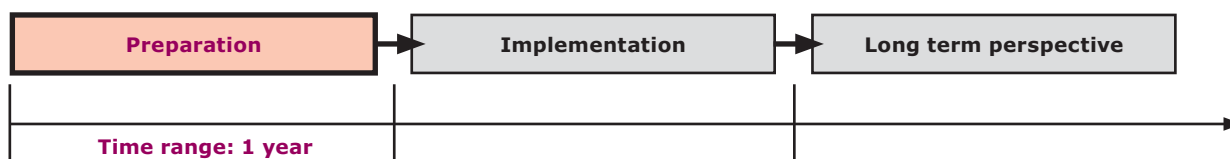


A flexi Fuel Vehicle (Ford Focus FFV)

Photo: Kristina Birath

From concept to reality

Preparation



The main driving force for introduction of Alternatively Fuelled Vehicles for transport are problems with air quality and local action plans for reduction of greenhouse gases.

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.



Choice at the pump

Photo: Kristina Birath

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?



Political support

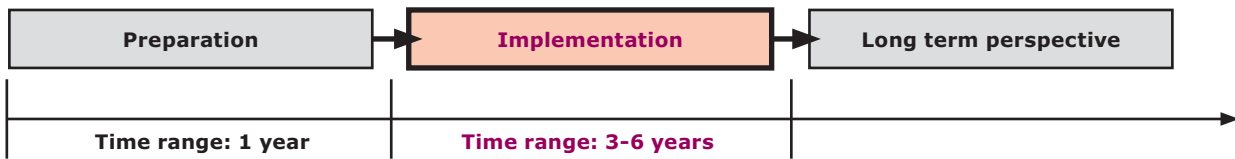
Stakeholder network

Existing incentives gives enough economic incentives for target groups

Available vehicles and fuels are adequate for target groups

Largest fleet operators are willing to start

Implementation



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.

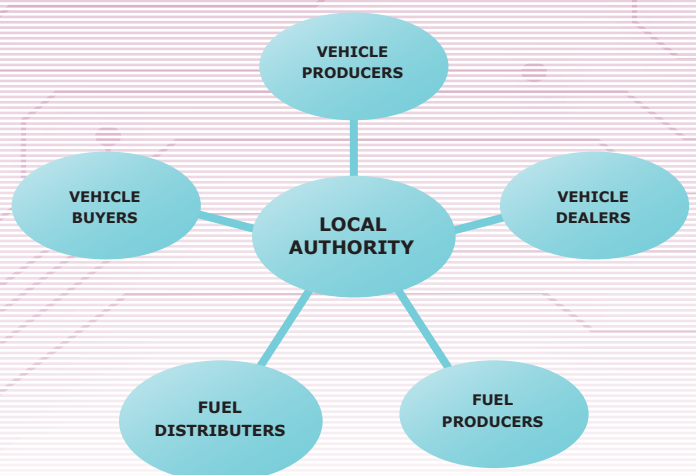
Address all stakeholders

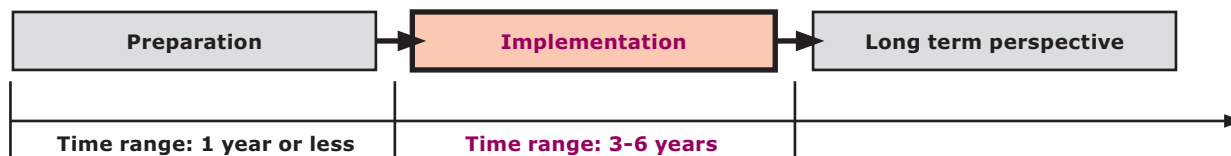
The local or regional authority is a neutral partner in the work for implementation of an AFV strategy. For a successful implementation of this strategy it is important to address all the key stakeholders at the same time. This includes fuel producers and distributors, vehicle producers and car dealers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



Refuelling of biogas

Photo: Sven Alexanderson





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.



World record of clean vehicles?

Photo: Magnus Röhr

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

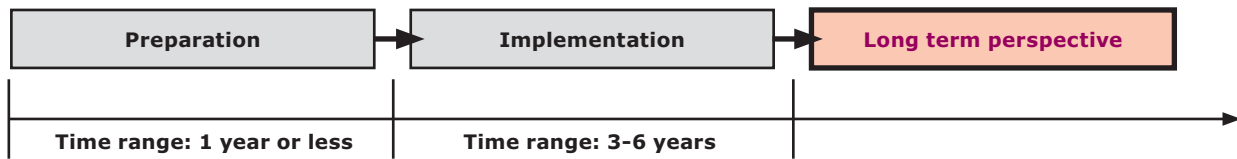
PR campaigns can be a useful tool to inform companies and the public. Grants that cover a part of the additional cost for the vehicle can help to increase the sales.

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 Alternately Fuelled Vehicles in their regular motor supplements.

Long term perspective



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.



Biogas bus at Arlanda airport, Stockholm
Photo: Jan Sundström

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.

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 CO₂ 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.

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)

NICHES - further documents with more details

Reports on the state of the art, analysis of success factors and barriers for implementation, transferability potential and integrated strategies are available on the NICHES websites (English):

www.niches-transport.org

www.osmose-os.org

Contacts

Jonas Ericson

Working with clean vehicles in the City of Stockholm.

E-Mail: jonas.ericson@miljo.stockholm.se

Gerard Ablasser

Working with biodiesel vehicles in the City of Graz.

E-mail: Gerhard.Ablasser@stadt.graz.at

Michael Glotz-Richter

Working with CNG vehicles strategy in the City of Bremen.

E-mail: Michael.Glotz-Richter@umwelt.bremen.de

Nils Lekeber

Working with ethanol cars at Ford Sweden.

E-mail: nlekeber@ford.com

For **more information** on the NICHES project, contact the NICHES Coordination at:

POLIS

Leire Iriarte

E-Mail: liriarte@polis-online.org

Phone: +32 2 500 56 74

Acknowledgments

The NICHES Consortium would especially like to thank Michael Glotz-Richter for reviewing a draft version of this document, as well as all experts that participated in NICHES Working Group meetings and interviews (see www.osmose-os.org for expert database).

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).



CITY OF STOCKHOLM
ENVIRONMENT AND HEALTH ADMINISTRATION

*For more information on the project,
contact the NICHES Coordination at:*

POLIS
Leire Iriarte
Phone: +32 2 5005674
Fax: +32 2 5005680
liriarte@polis-online.org

or visit the project websites:

www.niches-transport.org
www.osmose-os.org

Author:

*Kristina Birath, Inregia AB, (kristina.birath@inregia.se),
working for the City of Stockholm*

Cover photo: Per Westergård

This document has been prepared by the authors in the framework of a project funded by the European Commission, DG Research. It does however not necessarily reflect the views of the European Commission.