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## 2006 – successes and drawbacks

Introducing a new fuel throughout Europe is a big task. During 2006 the BEST project experienced both successes and drawbacks. Welcome to share our experiences in this first issue of BEST news. We will return to you with 1–2 newsletters a year during the lifetime of the BEST project.



Gustaf Landahl, Coordinator of the BEST project. (Photo: Helene Carlsson)

The European project Bioethanol for Sustainable Transport deals with the introduction and market penetration of bioethanol as a vehicle fuel.

This includes the establishment of infrastructure for supply and fuelling of bioethanol. It also includes the introduction and wider use of ethanol cars and flexible fuel vehicles on the European market.

The awareness of bioethanol as a vehicle fuel and of vehicles using bioethanol varies widely between countries. In general awareness is low, but increasing rapidly.

### MARKET BREAKTHROUGH IN SWEDEN

In Europe, Sweden is the forerunner with approximately 45 000 flexifuel vehicles at the end of 2006. During 2006 a real market breakthrough took place, partly due to the introduction of several new car makes and models in FFV-version.

Swedish national and local incentives also give economic benefits for clean vehicle buyers. Most benefits are received by people with a company car, while there is less economic incentive for private individuals to choose a clean vehicle.

Local and municipal players have been highly active for a long time to create a market, economic incentives and infrastructure for clean vehicles.

At the end of 2006 over 600 E85 fuelling stations were in operation in Sweden, and this is expected to increase fivefold during the next three years due to new legislation prescribing renewable fuels.

### EUROPEAN ROLL OUT STARTED 2006

In 2006, the introduction of FFV vehicles had a kick-start in the UK. At the starting point for the BEST-project in January 2005, Ford was already offering their Focus in FFV-version. Saab launched their Biopower model in March 2006.

During 2006 around 150 FFVs were sold in the UK. The first fuelling stations for E85 in the UK opened in March, within the framework of BEST and by the middle of 2007 there are more than 10 E85 fuelling stations.

BESTs recently included new partner country Germany also experienced a kick-start for E85 and FFVs during 2006 with the introduction of over 1000 FFVs and the opening of around 50 (smaller) E85 fuelling facilities.

In Spain sales of FFV vehicles also started to take off, mainly due to a decision by Ford to offer the Focus only as FFV, resulting in 650 FFVs on Spanish roads during 2006. In Spain the only bioethanol fuelling facilities as yet are the ones opened by BEST project partners.

The first introduction also started in the Netherlands with around 70 FFVs sold and two E85 pumps opened.

#### ETHANOL BUSES NOW IN SWEDEN, SPAIN AND ITALY

Ethanol buses have been introduced for the first time in Madrid (5) and La Spezia (3), and the ethanol bus fleet has expanded in Stockholm (127 buses introduced during 2006).

In the rest of Europe, as well as in China/Nanyang, ethanol vehicles are still a rare exception and when BEST started there were no fuelling facilities in place.

#### STILL MANY OBSTACLES TO REMOVE

During the first BEST year it has become very obvious that there are several issues to overcome regarding national legislation and/or regulations for handling and using the fuels.

This has to some extent delayed the introduction of vehicles and fuels. In an initial phase, tax reductions or other incentives may also be necessary to make the fuel competitive. Also, the pioneers need to be convinced and given support on the way.

*Gustaf Landabl, Coordinator of the BEST project*

## Roll-out of 10 000 bioethanol cars

Vehicles fuelled by bioethanol have been in use for many years in North and South America. Many major car manufacturers are today making these vehicles as part of their normal production lines.

Flexible Fuel Vehicles, FFVs, are capable of running on a blend of so-called E85 (85% bioethanol and 15% petrol), petrol only, or any mix of both in one fuel tank. This makes them truly flexible, both in terms of the choice/availability of fuel and customer operation. The use of bioethanol, in combination with FFV technology, can lead to a 70% reduction in overall CO<sub>2</sub> emissions compared to a traditional petrol engine.

Some cars also make use of bioethanol's higher octane rating, gaining brake horse power (bhp) and torque when the car runs on E85 compared to when running on regular petrol.

#### AVAILABLE FFV MODELS

Ford Focus Flexi-Fuel and Focus C-Max Flexi-Fuel models are now on sale in Sweden, Germany, the UK, the Netherlands, Spain, Austria and Ireland, and are ready to be sold in France. Other countries are expected to follow.



Ford Focus, one of the first Flexifuel Cars to be launched throughout Europe. (Photo: Ford Motor Company)

Saab Biopower 2.5 was launched in summer 2005 in Sweden and is now available also in the UK, the Netherlands, Germany, France, Italy, Spain and Ireland. Launch of further models is foreseen: first out was Saab Biopower 2.3 in spring 2007.



Saab Biopower, also started European Roll out during 2006. (Photo: Saab)

Car manufacturers e.g. Volvo, Chevrolet, VW, Opel, Renault, Peugeot, Fiat and Citroën also produce FFV models. Most of these makes and models are available in Brazil and the US. Volvo C30, S40 and V50 have already been launched in some European countries and several other makes and models are expected to be launched in Europe during 2007. In Europe, Sweden currently has the biggest range of commercially available FFV models.



Flexifuel cars are capable on running on E85, petrol only, or any mix of both. (Photo: General Motors)

For more info about available FFV models, please refer to [www.best-europe.org](http://www.best-europe.org) – cars section.

## Nearly 400 bioethanol buses in operation

Ethanol buses are now in operation in three of the cities participating in the BEST project. La Spezia set three buses rolling in early 2007. Madrid's five ethanol buses are in regular use since spring 2007. Stockholm estimates that 380 ethanol buses will be in use in the city by summer 2007.



Bioethanolbus in Madrid. (Photo: City of Madrid)

### STOCKHOLM ALREADY REACHED 25% RENEWABLES

Since the start in the late 1980's, Stockholm Transport, SL, will this summer have reached almost 400 ethanol buses and continues to invest in various forms of environmentally friendly technology. Ethanol buses attract most attention internationally.



Maria Ljung, Stockholm Transport (Photo: Maria Johansson, Stockholm Transport)

– Our strategy is to gradually replace our diesel buses with a bus fleet run to 100% on renewable fuels such as ethanol and biogas. By the end of 2006 we had already reached the interim goal of 25%, says Maria Ljung, project leader for SL's clean buses. Today, SL operates around 2 000 buses. Of these, 380 are run on ethanol and 51 on biogas. Buses run on re-

newable fuels now operate in the entire inner city area. – Ethanol and biogas buses give most benefit in inner city and densely populated areas. In addition to cutting CO<sub>2</sub> emissions, other harmful particles from exhaust are also reduced, Maria Ljung explains.

### HAPPY DRIVERS IN LA SPEZIA

In La Spezia the first three buses run on bioethanol were put into operation in January 2007. At the same time the first E95 fuel station was opened.

The three Scania buses, presented by the local transport company ATC, represent an absolute novelty, not only for La Spezia but for the whole of Italy.

The buses and the fuelling station have raised high interest in the town. Bus passengers appreciate not only the comfort and design of the new buses, but also the fact that they are environment-friendly. The ATC bus drivers in La Spezia are happy to drive the clean buses, and also stress properties such as good driving and visibility.

– I'm very proud to drive it, says ATC bus driver Massimo Cherchi. The vehicle is excellent, with good driving, visibility and design. Passengers are highly satisfied and people in the street stop and stare in amazement. Many customers are curious and want to try it, even for one stop.

ATC had to work hard to get all the required permits, involving mainly the fire brigade for organizing safe handling of the fuel, environmental authorities at several levels for environmental safety precautions, as well as the customs office for the authorisation of technical licences and excise duty.

ATC, with the joint support of other BEST partners, has helped provide a deeper knowledge of the bioethanol buses. The Liguria Region helped finance the bioethanol buses from a special fund for innovative environment-friendly measures.

The cost of fuel is still a problem in Italy. The tax on bioethanol is currently the same as for diesel, which means it is not competitive. The Italian Parliament is working on a bill to introduce tax reductions for renewable fuels, which looks positive for the development of bioethanol in Italy.

For more info please refer to [www.best-europe.org](http://www.best-europe.org) – buses section.



Bus driver Massimo Cherchi in La Spezia likes his bioethanol bus. (Photo: ATC)

# This is bioethanol

Bioethanol comes from plants and is a renewable resource. This means that in the making and use of bioethanol, the amount of carbon dioxide taken up by the growing plants corresponds to the amount produced when it is burnt.

Bioethanol is also biodegradable, less explosive, less poisonous and easier to extinguish if burning, compared to petrol and diesel. In addition, wherever crops can be grown, bioethanol can be made.

Europe, which is today completely dependent on foreign oil imports, could thus to some extent produce its own fuel.

Bioethanol can be used in different blends to fuel vehicles. In the BEST project we will use E85, ethanol bus fuel, lowblends of 5 and 10% bioethanol in petrol (E5 and E10) and in diesel (E-Diesel).

## E85

E85 is the ethanol fuel recommended for FFV vehicles. E85 is a fuel that consists of 85% ethanol and 12% petrol. It also contains MTBE (2%) and small quantities of isobutanol.

It is intended for flexifuel vehicles that can run on pure ethanol, pure petrol, or a blend of these. The petrol component is needed only to allow cold starts during the winter months. E85 can be fuelled in a rapidly increasing net of fuelling stations.

## ETHANOL BUS FUEL

The bioethanol bus fuel is a homogeneous and stable liquid fuel, developed for heavy-duty, ethanol compression-ignition engines. It is a commercial fuel and fulfils the ethanol fuel standard given by Scania.

The trade name of the fuel is Etamax D and the ethanol used originates from renewable sources only.

The fuel works excellently in a compression-ignition engine. This property of the fuel is given by the specially developed ignition enhancer.

The ethanol fuel for buses has been carefully developed and tested and has been used on a large scale in Swedish buses for over 15 years.

## E5 AND E10

In Sweden a low blend of 5% anhydrous bioethanol in standard 95 octane petrol, E5, was introduced in some areas already in 2000. From 2004, all standard 95 octane petrol contains 5% bioethanol.

Experience shows that a low blend of 5% bioethanol in petrol is fully compatible with all cars on the market without any problem.

The Swedish fuel company OKQ8 began selling petrol with 10% bioethanol content, E10, in 1997. When Sweden became an EU member in 2000, the Swedish regulations were changed and the ethanol content was lowered to today's 5%.

The experience from using E10 is that low blend of 10% ethanol in petrol does not affect performance or damage of the engine. However, so far not all manufacturers extend their warranty to cover E10 usage.

## E-DIESEL

E-diesel is a blend of diesel fuel containing up to 15 volume % ethanol and additive to maintain blend stability and certain fuel properties such as cetane number, corrosion inhibition and lubricity. The additives may comprise from 0.2% to 5.0% of the blend.

The most tested compositions of E-diesel are 7–10% ethanol and 1–2% additive. E-diesel is made by a splash blending of conventional diesel, fuel-grade ethanol, and additives.

E-diesel is so far in the early development phase. The engine and equipment manufacturers have not tested and evaluated the fuel, and they are also still concerned about the safety issues mainly regarding low flash point.



Various blends of bioethanol and petrol are used within the BEST project. (Photo: Helene Carlsson)

## Basque Country goes for flexipumps

In spring 2007, the first E85 pumps came into service in the Basque Country. The Basque strategy is clear and simple. 100% flexipumps for maximum flexibility.

The introduction of flexifuel cars must go hand in hand with the establishment of infrastructure for E85 distribution and refuelling.

This is clear for the BEST partners in the Basque Country, where E85 pumps are now operating in all cities.

The Basques are aiming for maximum flexibility. FFV vehicles allow for driving on any blend from pure E85 to pure petrol. But the Basques are also investing wholeheartedly in flexifuel pumps.

This means that drivers can fill up with several different fuel mixes directly from the pump at the fuelling station.



Enrique Monasterio demonstrates the flexible ethanol pumps in San Sebastian, Basque Country. (Photo: Helene Carlsson)

The bioethanol pumps in the Basque Country offer E85 as well as E5 and E10. So far bioethanol is available at three fuelling stations.

Enrique Monasterio, local BEST Manager in the Basque Country, explains that the strategy of providing low blends (E5 and E10) as well as higher ones is one way of ensure quick change-over of large volumes of petrol without requiring people to change cars.

– Drivers who are not in a position to buy a brand new car can still replace some of their fossil fuel with renewable bioethanol. Ultimately, though, the goal is to use as much E85 as possible, he says.

## Try a Flexifuel Vehicle

Try FFV and you'll like it... Take the opportunity to form your own opinion based on your own experiences.

Within the framework of BEST test fleets or single FFV cars are made available for test drives. This means that you can borrow the FFV car for free for a test ride.



MP Angela Smith goes for a test drive with Ford Focus FFV provided by Fords Graham Hoare. (Photo: Ford Motor Company)

If you want to try an FFV yourself you can contact either Ford or Saab, the automotive partners of BEST, see their contactpersons below,

Sometimes also the local BEST team organizes test driving, e.g. in connection to different events.

Please refer to [www.best-europe.org](http://www.best-europe.org) for contact details to the test-fleets.



## Seeing is believing – join our study visits

Visits from foreign delegations of politicians, civil servants and journalists have been frequent in the last year. Many want to see and hear about the trend for biofuels and clean cars in Sweden with their own eyes and ears – and on site.

The Swedish partners of the BEST project have received a great number of visitors from all over the world in the last year.

– We welcome delegations every week, comments Michael Jalmby, BEST local manager in the Biofuel Region, and organiser of many of the study tours.

– And our evaluations show that the visitors are very satisfied, he adds.

One visitor to BEST partners both in Stockholm and the Biofuel Region is Jesús Loza. He participated together with other members from the Basque Parliament on a tour in February.

During the three-day trip they met representatives from national government, Stockholm Transport (with long term experience of bioethanol buses), City of Stockholm (active in promoting clean vehicles), producers of bioethanol and researchers in the field in Örnsköldsvik and Umeå.



Anders Sjöblom at SEKAB explains the Bioethanol production from wood chips. (Photo: SEKAB)

### HANDS-ON EXPERIENCES

They also had hands-on experience of fuelling the cars at a filling station, riding in an ethanol bus and driving FFVs. The pilot plant for cellulosic bioethanol in Örnsköldsvik was also inspected. Local travel was, of course, in an ethanol bus. Representatives from several vehicle manufacturers were also took part.

– The BEST project gives us a lot of experience, both on the positive side, and of mistakes to avoid, says Jesús Loza. We have just adopted a long-term strategy

for new energy in the Basque Country. This is the first time we have reached consensus on such a topic. This



Stanley Forss, SEKAB, gathers bioethanol produced in a pilot plant in Örnsköldsvik. (Photo: SEKAB)

journey with the Commission of Industry, representing all parties in the Basque Parliament, has made us even more convinced. We will definitely also go for bioethanol, and we will aim to have the first E85 pumps in each city in 2007.

### JOIN AN OPEN LIGHT HOUSE TOUR

Until now, the study tours have been organised for groups. Now, the BEST project will also organise a “Light House Tour” as we call our study visits, for single participants. We give first priority to our BEST Friends. The first open Light House Tours will be organised in the autumn 2007.

For more info contact [barbro@esam.se](mailto:barbro@esam.se) or refer to [www.best-europe.org](http://www.best-europe.org) – BEST Friends section.



Jesús Loza, Basque Parliament, at an E85 pump in Stockholm. (Photo: Helene Carlsson)

## Minister opened first dutch E85 pump

The Minister of Environment, Pieter van Geel and Alderman Environment of Rotterdam, Roelf de Boer inaugurated the first pump in Rotterdam. The pump is operated by the company Argos, one of the larger independent oil companies in the Netherlands. Meanwhile there are eight E85 pumps in the Netherlands.

The first pump opened when there was six Flexifuel cars in operation in Rotterdam, Another 12 were by that time ordered.



Netherlands' Minister of Environment inaugurated the first bioethanol pump in the country, in Rotterdam. (Photo: Argos Oil)

The price of the fuel will play an important role in making the drivers of these cars fuel E85 instead of petrol. Unfortunately the E85 price in the Netherlands still exceeds the price of conventional euro 95 petrol with the present excise regulation.

During the first year of the BEST project, Rotterdam thus gives a compensation on the extra excise levy which results in a bioethanol cost close to the cost of fuelling with euro 95. After this year government measures must make the price of renewables competitive compared to petrol.

## Fuel your FFV here

In order to draw benefit from your FFV car, you must tank it with renewable E85. This is getting easier as the network of E85 pumps is developed in Europe. We help you find fuelling stations in a number of countries.

### SWEDEN

[www.miljofordon.se](http://www.miljofordon.se)

Alternative Fuel Pumps in Sweden (E85 and other alternative fuels)

<http://www.baff.info/english/tankstallen.cfm>

E85 pumps in Sweden

### UK

<http://www.energysavingtrust.org.uk/fleet/Vehicles/Alternativefuels/Alternativefuelsrefuellingmap/>

Alternative Fuels UK (E85 and other alternative fuels)

### GERMANY

<http://bme.map24.com/E85>

E85 – route planner tool Germany (German only)



### BASQUE COUNTRY

[http://www.eve.es/ecomovil/mapa\\_biogasolineras/ing/mapaBioetanol.aspx](http://www.eve.es/ecomovil/mapa_biogasolineras/ing/mapaBioetanol.aspx)

Bioservice Station map Basque Country (E85 and other alternative fuels)

### FRANCE

<http://www.roulonspropre-roulonsnature.com/implantation/>

E85 pumps in France (French only)

### STATUS OVERVIEW EU

[http://www.roulonspropre-roulonsnature.com/carte\\_europe/](http://www.roulonspropre-roulonsnature.com/carte_europe/)

E85 pumps in EU

# Sustainable Bioethanol for the future

Sustainability of bioethanol is generally, but not always, good, says Dr Jeremy Woods at Imperial College London. A rapid expansion thus calls for sustainability assurance schemes. Dr Wood is head of a group of researchers deeply involved in the assessment of renewable transport fuels both in Europe and Africa, and develops greenhouse gas, environmental and social assurance/certification systems for biofuels. Dr Woods is also in charge of evaluation in the European bioethanol project BEST.



Dr Jeremy Woods (Photo: Lennart Johansson)

## First of all – how sustainable are biofuels?

– Biofuels for transport can both be good and bad from a sustainability perspective. Generally their good aspects outweigh the bad ones and technological developments are improving the situation all the time.

## So what criteria would you like to set to for a sustainable biofuel production?

– Reduction of greenhouse gas emissions should be at least 50% compared to the conventional fossil fuel being replaced on a full life-cycle basis. In addition, the biofuel produced should contain at least double the energy consumed when producing it. The ultimate goal is of course much higher greenhouse gas reductions, and we see processes that can/could deliver substantial improvements in both advanced conventional biofuel supply chains and in emerging novel chains.

## Does today's biofuel production fulfil these criteria?

– Sugarcane based bioethanol production performs very well, as do highly efficient modern cereal-based ones. Promising for the future are the emerging 'next generation' of biofuels produced from existing and new lingo-cellulosic feed stocks. On the other hand some of the older US maize based plants for ethanol production are poor environmental performers from a greenhouse gas perspective.



Promising for the future are biofuels produced from ligno-cellulosic feedstocks. Pilotplant for bioethanol from wood in Örnsköldsvik. (Photo: SEKAB)

– Personally I have been involved in several bioenergy projects in Africa and the potential availability of land and people for biofuel production there is huge. Firstly, for domestic use but also for 'fair' export using the investment to generate highly productive and beneficial systems.

– So much new biofuel production capacity is being built right now. The important thing is to only reward sustainable production. This is a choice for the investors. It is also a task for society only to encourage sustainable technology and sustainable plants. This needs to be done with caution though as too rapid an increase in demand is likely to cause unsustainable supply options and possibly the competition for food in the short term.

## So what constitutes sustainable technology for biofuel production?

– This is a big issue, but some general recommendations are to encourage efficient combined production of food, biofuels, electricity and heat where energy surplus from the production is used to substitute other energy production. It is also very important that the plants are fuelled by biomass residues where possible.

## How about biodiversity?

– Biodiversity for sure is an important factor. There is a huge potential for increased biofuel production. We have to make sure that we use land in a sustainable way, have efficient and sustainable agriculture and of course don't exploit important biodiversity hot spots such as those found in tropical rainforests in a irreversible and non sustainable way.



Bioethanol from sugarcane can reduce climate gas emissions with 90 % compared to petrol. (Photo: Anton M Hofer)

### **But isn't this exactly what is happening in Brazil right now?**

– The deforestation is a big problem both in South America and in Asia. But the main cause for this is not biofuel production. It is our high and ever growing meat consumption: we exploit the land to grow animal feed and vegetable oils ultimately for human consumption.

### **There is also a debate that we take food from poor people to produce fuel for our cars?**

– The Tortilla crisis in Mexico was such an example. The demand grew too fast. Corn prices rose so high that the Mexicans couldn't afford their tortillas any more. If many countries expand their targets for biofuels and don't take care to control the market and ensure that sustainable supplies are developed there will be problems. But in the long term, new biofuel markets will also give farmers options and generally raised incomes with which to reinvest in improved productivity. High demand and stable world markets foster efficient production which could increase yields.

### **So how do you make sure that the use of biofuels does not ruin our planet?**

– First of all, with today's production methods it is not sustainable, or even possible, to produce all the energy we consume from bioenergy. We have to be much more efficient. Both in our energy use and in our biomass

production. We must also encourage the other forms of renewable energy. If we manage that, there will not be any scarcity of biomass and no competition between energy use and fuel production. But a simple exploitation of biomass is likely to damage the environment, so we really have to be careful at the moment.

– We need to establish a framework for ensuring sustainable and efficient production, complying with local and internationally agreed standards. But this is worthless unless we can introduce monitoring schemes that guarantee that the production is compliant. There are several initiatives now underway moving in this direction, e.g. the Better Sugar Initiative which is being developed by WWF, the Round Table On Sustainable Palm Oil is another. The UK, Netherland and German governments are cooperating right now to combine existing schemes to try to ensure that only one global standard emerges which is universally acceptable.

### **So, finally, is it a sustainable step to go for biofuelled vehicles?**

– Yes, certainly. I do recommend both private persons and companies to take that step when substituting old cars. And remember, if you buy a flexible car like an FFV (bioethanol AND petrol) or a bi-fuel (biomethane and petrol) you always have the choice – giving you more flexibility for the future.

For more info refer to [www.best-europe.org](http://www.best-europe.org) – the environment section or contact [jeremy.woods@imperial.ac.uk](mailto:jeremy.woods@imperial.ac.uk)

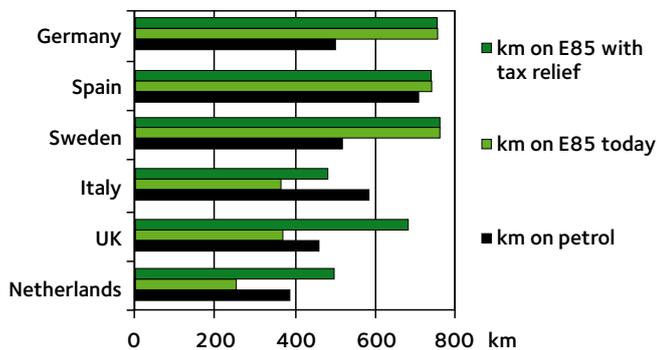
## Call on MEPs – taxes must favour biofuels

Where tax reductions on biofuels are in place, clean cars and fuels take market shares much faster than countries without. Tax incentives play an important role in the shift from fossil fuels. This was the message when the BEST project organized a seminar in the European Parliament.

Experience from countries like Sweden tells that tax reductions are one of the keys to the market breakthrough of clean vehicles. The same pattern is becoming discernible in other countries with tax incentives.

On the other hand, in countries that disfavour renewable fuels by applying higher taxes on E85 than on conventional fuels, the development is very moderate. The Netherlands, UK and Italy have taxes that disfavour E85 users. The reason is that the tax is related to volume, and a driver using E85 consumes a higher volume of fuel, thus paying a higher tax per km driven.

### Range (km): Ford Focus FFV with 50 € for fuel



Today it costs more/km to drive on E85 than on petrol in Italy, UK and the Netherlands. In Germany, Sweden and Spain the taxes favour E85.

– No matter how good the vehicles are and how many environmentally friendly solutions we present, these alternatives must also be cheaper, or at least not more expensive, in the initial phase, says Gustaf Landahl, coordinator in the BEST project. We cannot rely on private individuals, consumers and companies volunteering to bear the extra cost for fuelling bioethanol and other renewables.

This prompted BEST partners from the UK, Italy and the Netherlands to organise a seminar in the European Parliament. The message was clear: With taxation that favours fossil fuels biofuels will continue to be marginalised. This regardless of how many alternative



Audience at the seminar in Brussels.

fuels cars there are available and whether or not the EU promotes information campaigns on alternative fuels.

– We try to make people to behave in a sustainable way, and at the same time we tax them out, observes Swedish MEP Lena Ek, hosting the meeting. Naturally, this is stupid. In order for biofuels to become a realistic and competitive alternative, disfavoured taxes have to be eliminated.

– We can reduce CO<sub>2</sub> emissions and achieve a market breakthrough for E85. But – in order to succeed we need governmental help. Reduce taxes on E85 to make it competitive with petrol says John Akkerhuis, local manager in the BEST project in Rotterdam.

For more info contact [j.akkerhuis@gw.rotterdam.nl](mailto:j.akkerhuis@gw.rotterdam.nl)



Swedish MEP Lena Ek in the middle together with BEST partners Ian Bright Somerset, Gustaf Landahl, Stockholm, John Akkerhuis Rotterdam and Ingvar Junden, Swedish EPA. (Photo: Linda Persson)



Bioethanol bus. (Photo: Lennart Johansson)

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## About BEST

The project Bioethanol for Sustainable Transport deals with the introduction and market penetration of bioethanol as a vehicle fuel, the establishment of infrastructure for supply and fuelling of bioethanol, the introduction and wider use of ethanol cars and flexible fuel vehicles on the market.

During the project

- more than 10 000 ethanol cars and 160 ethanol buses will be put in operation,
- E85 and E95 fuel stations will be opened,
- low blends with petrol and diesel will be developed and tested.

Through this the participating cities and regions aim to prepare a market breakthrough for ethanol vehicles and for bioethanol and also to inspire and obtain followers. Participating cities/regions are:

- Biofuel Region (SE)
- Brandenburg (DE)
- Somerset (UK)
- Rotterdam (NL)
- Basque Country and Madrid (ES)
- La Spezia (IT)
- Nanyang (China)
- Sao Paulo (Brazil)
- Co-ordinating City: Stockholm (SE)



The project is co-financed within the 6th framework; Sustainable Energy Systems/Alternative Motor Fuels: Biofuel Cities.

### LOCAL/NATIONAL INFORMATION ABOUT BEST, BIOETHANOL AND BIOETHANOL VEHICLES:

Spain [www.bioetanolmadrid.es/](http://www.bioetanolmadrid.es/)

Basque [www.eve.es/ecomovil/bioetanol/ing/bioetanolEuskadi.aspx](http://www.eve.es/ecomovil/bioetanol/ing/bioetanolEuskadi.aspx)

Rotterdam [www.stadsregio.info/default.asp?ID=23854](http://www.stadsregio.info/default.asp?ID=23854)

Italy [www.etaflorence.it/best-italia/](http://www.etaflorence.it/best-italia/)

China [www.chinabestproject.com/](http://www.chinabestproject.com/)

Stockholm [www.miljobilar.stockholm.se](http://www.miljobilar.stockholm.se)

Biofuelregion [www.biofuelregion.se](http://www.biofuelregion.se)

Sweden [www.miljofordon.se](http://www.miljofordon.se)

