

# Heavy Vehicles for Sustainable City Transport - HECTOR

## International coordinated procurement of ethanol buses

### Background

According to European Commission White Paper *European transport policy for 2010: time to decide*, emissions of fossil carbon dioxide in Europe will increase by 50% between 1990 and 2010. Other emissions from road transport, nitrogen oxide (NOx) and particles (PM), also have negative effects on the environment, citizen's health and on the quality of life in European cities. Transportation is the major source of these emissions and in particular road transport, which accounts for 84% of emissions from the transport sector. Reducing pollutant and "greenhouse gas" emissions from vehicles is thus a major goal of global sustainability strategies. Promoting the increased use of biofuels is one way to help meet goals and commitments such as the Kyoto protocol.

On May 8<sup>th</sup> 2003, the European Parliament and the Council of Europe adopted a directive on the promotion of biofuels and other renewable fuels for transport (2003/30/EG). The directive states that the Member States should ensure the market availability of biofuels and replace 5.75% of all petrol and diesel for transport purposes with biofuels by 2010. To help achieve this goal Member States will be allowed to reduce taxes on biofuels, as has already been done in Sweden and in Germany.

The directive also notes the importance of demonstrating biofuels technologies in large-scale early applications such as the public transport sector:

*"Captive fleets offer potential of using a higher concentration of biofuels. In some cities captive fleets are already operating on pure biofuels and, in some cases, this has helped to improve air quality in urban areas. Member States could therefore further promote the use of biofuels in public transport modes"*

One type of biofuels currently in use for buses is ethanol. Ethanol has a large volume potential and is well established worldwide. Experiences from the operation of ethanol buses in Sweden are very positive. Stockholm Public Transport has operated over 250 buses over the past 20 years. Pure ethanol is used in a slightly modified diesel engine. The challenge is to get a minimum of two new vehicle manufacturers of ethanol buses.

## A coordinated procurement of ethanol buses

### Project objective

The objective of the HECTOR project is to achieve a well-functioning market for ethanol buses in Europe. The goal is that by the end of the project period at least two established vehicle manufacturers will offer standardised city buses and regional buses that can be operated using ethanol.

### Project organisation

A project management group is comprised of a Swedish ethanol distributor Svensk Etanolkemi AB (SEKAB), the BioAlcohol Fuel Foundation (BAFF), Stockholm Public Transport Authority, the Stockholm County Council and the City of Stockholm's Environmental and Health Administration. New European partners will also be included. The first issue for the project team is to find interested individual regional Public Transport Authorities and other potential buyers of ethanol buses in Europe.

### Specification of requirements

Specific requirements for function and performance, as well as evaluation criteria, will be developed for the ethanol buses. These include reliability, operating economy (competitive with conventional buses) and emissions level (at least Euro 5 or in level with EU EEV).

### Emission test

An emission test has been carried out by STT Emtec on existing ethanol engines with the best available emission control. The report "A Clean Ethanol Fuelled Compression Ignition Bus Engine" can be obtained from SL or BAFF, see contact information.

### Procurement consortium

Interested entrepreneurs and Public Transport Authorities from European countries will form a buyer consortium for the procurement of ethanol buses. The consortium goal is to encourage at least two vehicle manufacturers to offer ethanol buses on the European market. At least 1000-2000 vehicles will be procured over a 3-5 year period.

### Other issues

In order to achieve a well-functioning European market for ethanol buses several issues must be addressed:

- The long term supply and price of ethanol are important for the success of the HECTOR project. A mapping of the preconditions and prerequisites for ethanol will be produced within the project. Production solutions will also be discussed at the country level.
- The extensive Swedish experience with ethanol will be used to demonstrate efficient solutions for distribution, fuel stations, bus depots etc.
- The functional and environmental performance of the buses will be evaluated.

### Financing

The financing of the initial phases of the project is provided by Stockholm Public Transport Authority, the Stockholm County Council and SEKAB. The project will also apply for national and EU funding.

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