



Photo: Rovio

## Helsinki Region Public Transport (HSL)

# Aiming for a low-emission bus fleet

**The range of vehicle and fuel technology is growing, which makes it increasingly difficult for decision-makers in both the public and private sector to make the right choices. Helsinki Region Public Transport has achieved emission reductions through the environmental bonus competition.**

City buses form a significant part of the transport system. Until now, traditional diesel buses and diesel fuel have dominated the market. Gas buses have been in use to a certain extent. There are now more low-emission vehicles, including hybrids, on the market. Various biofuels are also available. Natural gas and biogas produce fewer local emissions than diesel. Ethanol that contains additives can also be used in city buses, and dimethyl ether is in its driving test stage. Hydrogen buses are not yet ready to be taken on the road, but they are in their testing stage, too.

### **Rapid emission reductions with environmental bonus competition**

Helsinki Region Public Transport (HSL) has a history of long co-operation with VTT Technical Research Centre of Finland. Emissions from buses have been reduced in two ways. Firstly, by giving the exhaust gas emissions of the fleet substantial weight as award criteria in tendering processes. As the contracts concluded with bus companies are also usually fairly long (7 + 3 years), the possible impact on the emissions from buses is long-term. Secondly, by adopting an environmental bonus, used for purchasing emission reductions for existing contracts. This is suitable for approaching short-term impacts on emissions.

- The first environmental bonus competition was arranged in autumn 2012, offering a total of 600,000 EUR. The bids were ranked according to their environmental benefits and the bid price. In



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- HSL has already decided on the next environmental bonus competition. Our objective is to continue achieving emission reductions as cost-effectively as possible, Reijo Mäkinen explains.

2013, the environmental bonus competition resulted in the reduction of 2.7 per cent (19.8 tonnes) of nitrogen oxides, 6 per cent (0.7 tonnes) of particles, and 7 per cent (7,372.5 tonnes) of carbon dioxide in the bus transport ordered by HSL, explains Director **Reijo Mäkinen** of HSL.

In order to succeed in the competition, the bus companies utilised biofuels, such as NExBTL diesel and biogas, and exhaust gas emission control systems in older vehicles, and replaced vehicles with newer and cleaner ones.

### Reference data on bus transport emissions is needed

- Public tendering in public transport is extending to the entire country. In this situation, the public purchasing bodies and transport service providers need an increasing amount of information on the performance and possibilities of various technologies. Electrification will also bring new challenges, ponders Research Professor **Nils-Olof Nylund** of VTT.

In 2009–2011, a four-part international research project (Trans-Eco) was implemented in co-operation with several institutes in Finland. The emissions and costs of alternative fuels and bioenergy throughout their life cycle were studied in great detail. The objective was to produce reliable information to support decision-making.

### Getting smart

The four-year TransSmart research programme continues in the footsteps of its predecessor TransEco (2009–2013). New themes in addition to energy efficiency and renewable energy include smart transport, smart transport services, co-operative systems and system-level optimisation. The programme develops a fluent, cost-effective and environmentally sound transport system.

The transport system in its entirety will be directed onto a sustainable development path through the introduction of low-carbon energy, energy-efficient vehicles, efficient ICT solutions and smart transport services, as well as a socio-technological change in support of these solutions.

Launched and co-ordinated by VTT, the research programme focuses on two of VTT's strategic research areas, sustainable development and the digital world. Motiva manages the external communications.

[www.transmart.fi](http://www.transmart.fi)

- VTT's measurements revealed that the most significant factor having an impact on regulated emissions is the vehicle itself. In any case, replacing old vehicles with new ones crucially reduces local emissions, whether the energy source used is diesel or an alternative fuel, Nylund points out.

### The sustainable public procurer competition

Helsinki Region Public Transport HSL was awarded winner in the category of strategic procurement in the national sustainable public procurer competition in 2014.

The competition for a sustainable public procurer for frontrunners highlights and awards particularly successful procurement projects and forward-looking sustainable procurement activities.

With these good examples, others are also inspired to develop their own procurement activities.

Further information about the competition: [www.motivanhankintapalvelu.fi](http://www.motivanhankintapalvelu.fi)



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