

The role of public transport to reduce Green House Gas emissions and improve energy efficiency

Position on the European Climate Change Programme and the Green Paper on Energy Efficiency

march 2006

Introduction

The UITP European Union Committee, which brings together the urban, suburban and regional public transport undertakings in the European Union, welcomes the European Climate Change Programme (ECCP II) and the Green Paper on Energy Efficiency COM (2005) 265.

The transport sector is responsible for 31% of energy consumption and 21% of EU greenhouse gas emissions (GHG) and is the sector where GHG emissions have increased constantly during the last years – contrary to other sectors. For this reason the European Climate Change Programme II has to focus much more on transport than the current European Climate Change Policy. Special attention has to be put on transport in urban areas where 80% of European citizens live and where most of the economic wealth is generated. In addition, 40% of all transport related GHG emissions are produced in European cities¹, meaning also that there is a large potential to reduce those emissions and increase energy efficiency. Pointing in the same direction, the EU-Commission identified in its communication on a “Thematic Strategy of the Urban Environment”², “transport and building” as priority areas for local authorities to decrease GHG emissions.

The following chapters outline the potential of public transport to reduce the GHG emissions and improve energy efficiency and give recommendations for actions on a European level.

Clear advantage for public transport

In public transport as well as in individual car traffic, average occupancy is 25%. On this basis, public transport consumes three times less primary energy (and emits three times less GHG) than private car traffic. In peak hours when most of transportation problems in urban areas occur, public transport has an advantage of even 10:1 over the private car³.

A UITP study in 50 cities worldwide has brought clear evidence that cities with a high density (population, jobs) and with a high share of public transport and other alternative modes are most energy efficient (see table and graph below).

Overview of energy consumption, density and proportion of alternative transport modes in cities worldwide (2001 data)

City	Annual energy consumption at source for passenger transport (in mega joules per inhabitant)	Density: population + jobs per hectare	Share of trips walking, cycling, or on public transport (%)
Houston *	86,000	13	4.5
Chicago	44,000	23.5	12.5
Melbourne*	32,000	21	26
Montreal*	29,500	45	25.5
Stuttgart	21,600	55	41,1
Dubai	18,100	54	22,7
London	16,100	90	50
Madrid	15,900	78	48,5
Clermont-Ferrand	14,700	67	39,3
Vienna	10,900	103	64
Moscow	10,700	231	73.5
Warsaw	9,900	82	71.5
Valencia	9,600	76	58.5

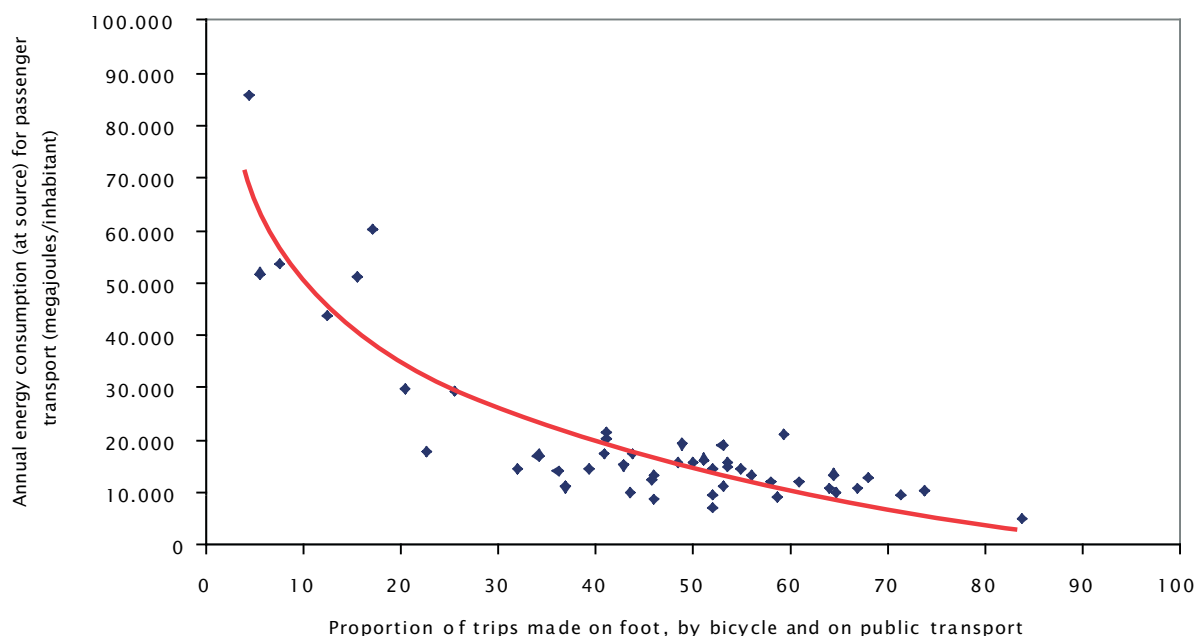
* 1995 data

¹ DG TREN Roadmap – 2006/TREN/029

² COM(2005) 718

³ IFEU (2005): average occupancy car: 1.2 persons, bus: 16 persons, see also the Joint Expert Group on Transport and Environment's report on “reduction of energy use in transport” (2006)

Energy efficient cities have a high proportion of trips walking, cycling or on public transport



Source : UITP (2006) Mobility in Cities Database

Energy savings of around 400 to 500 kg of fuel per inhabitant annually⁴ can be made in cities with a high modal share of public transport, compared with cities relying mainly on the private car. The study also proved that energy consumption was reduced in cities like Geneva, Vienna or Madrid where the share of trips by public transport increased during the observation period 1995-2001.

On the contrary, in cities where the proportion of public transport declined such as Eastern European cities, Glasgow or Brussels, energy consumption increased.

Contribution of the public transport sector

The public transport sector already contributes to the improvement of energy efficiency and reduction of GHG emissions through various voluntary actions. The most important is the development of high quality public transport to offer a real alternative to the private car. Further efforts are:

- Breaking energy recuperation in electric-driven rail vehicles (up to 30% in urban rail vehicles depending on topography, etc.) is common standard since many years,
- Most public transport undertakings train their staff in energy efficient driving. This has not only clear environmental but also economic benefits. Results show an average reduction of 10% in energy consumption,
- Very active participation of the sector in testing alternative fuels (e.g. biofuels) and other sustainable technologies,
- Use of light weight materials in vehicle construction/purchase to reduce energy consumption,
- UITP Sustainable Development Charter, which has been signed by more than 100 UITP members. Signatories pledge to monitor and measure their environmental performance including measures to reduce GHG emissions and to improve energy efficiency. The charter signatories collect statistics on energy use and reduction strategies for GHG on a national and regional level;

⁴ UITP (2005): Mobility in Cities Database project, 120 urban mobility indicators in 50 cities worldwide

Proposed actions:

The UITP-EU Committee strongly recommends addressing specifically the issue of urban mobility in the European climate change and energy efficiency policies, by the following actions:

1. Strategy for modal shift and promotion of high quality public transport systems

Purely technology driven actions to improve energy efficiency and to reduce GHG emissions as proposed by some stakeholders are very important at EU level but will not be sufficient. A strategy for shifting towards transport modes producing less GHG emissions and consuming less energy will therefore be crucial to ensure the success of the European Climate Change Programme as well as energy efficiency targets. As shown above, public transport has an advantage of up to 10:1 compared to individual car transport. The promotion of high quality public transport systems is therefore very effective at reducing GHG emissions and energy consumption.

Investments in public transport contribute moreover to the goals set out in the Lisbon Agenda⁵. From a study in 13 European cities a multiplier effect of public transport investments of 2 to 2.5 on local and regional economies could be seen⁶. In Switzerland, the economy as a whole benefits from added value of EUR 4.6 for every EUR 1 spent on public transport⁷.

Finally as urban transport relies almost completely on fossil fuels, the promotion of public transport will even help to stabilise oil prices by slowing down consumption - a crucial factor in price development.

2. European wide tax measures and road charging schemes

The European Environmental Agency (EEA) states that passenger fares in rail and bus services are increasing faster than the cost of private car use⁸.

Environmental tax measures and/or road charges in urban areas are therefore necessary to rebalance costs and achieve a more sustainable transport system. This would lead according to the EEA to a shift to public transport, more car sharing, less car use, a shift to more fuel efficient cars and eventually reduce commuting distances due to relocation closer to work. This would even be reinforced if the income of such taxes/charges were used in the transport sector to improve alternative modes such as public transport, cycling and walking. A very impressive example is London where the revenues of the congestion charging scheme were mainly used to invest in the urban bus system. This led to a considerable improvement of public transport as well as a clear reduction of GHG emissions (-19%), energy consumption (-20%) and NOx and PM10 emissions (-16 %) ⁹.

In this context, the UITP EU-Committee recommends a European policy initiative addressing passenger transport to better internalise external costs. This would set an example for a European generalised approach such as that outlined in the Green Paper on Energy Efficiency.

3. European-wide mandatory sustainable urban transport plans

Sustainable Urban Transport Plans such as mentioned in the "Thematic Strategy for the Urban Environment"¹⁰, including mandatory targets for a shift towards environmentally friendly modes of transport (public transport, cycling, walking), should become mandatory for cities with > 100,000 inhabitants. This could be realised with a European Directive on sustainable urban transport plans.

⁵ UITP (2005): Public Transport, the Lisbon Strategy and Sustainable Development

⁶ European Commission Fifth Framework Programme (2003): Transecon study

⁷ Volkswirtschaftliche Bedeutung des öffentlichen Verkehrs in der Schweiz. VÖV 10/2004

⁸ EEA report 3/2004: Ten key transport environment issues for policy-makers

⁹ TfL congestion charging – impacts monitoring report 2005

¹⁰ COM(2004)60 and COM(2005)718

4. European benchmarks to measure local and regional performance

Methods should be developed to calculate GHG emissions on regional and local basis. It would be important to be able to investigate the connection between local urban transport policy and GHG emissions in order to be able to compare different performances.

Benchmarking on regional and local entity level to make comparisons and measure improvements in reducing GHG emissions is also in line with the Lisbon Strategy:

“...establishing, where appropriate, quantitative and qualitative indicators and benchmarks against the best in the world and tailored to the needs of different Member States and sectors as a means of comparing best practice;

...translating European guidelines into national and regional policies by setting specific targets and adopting measures, taking into account national and regional differences...”.

5. European public awareness actions for behavioural change

Increased public awareness on the consequences of daily travel behaviour and the choice of transport modes on climate change and energy consumption is necessary. Therefore, the UITP EU-Committee requests to launch an EU-wide awareness campaign on travel behaviour as mentioned in the Communication “Winning the Battle against global climate change”¹¹.

6. Investments in transport with priority in high energy efficiency and low GHG emissions

European Cohesion funds, infrastructure funds and investments of the European Investment Bank (EIB) and European Bank for Reconstruction and Development (EBRD) should be used as a priority for investments in transport projects focusing on high energy efficiency and low GHG emissions, such as investments in public transport systems.

¹¹ COM(2005)35

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