Do we have Effective Energy Efficiency Policies for the Transport Sector? Results and Recommendations from an Analysis of the National and Sustainable Energy Action Plans

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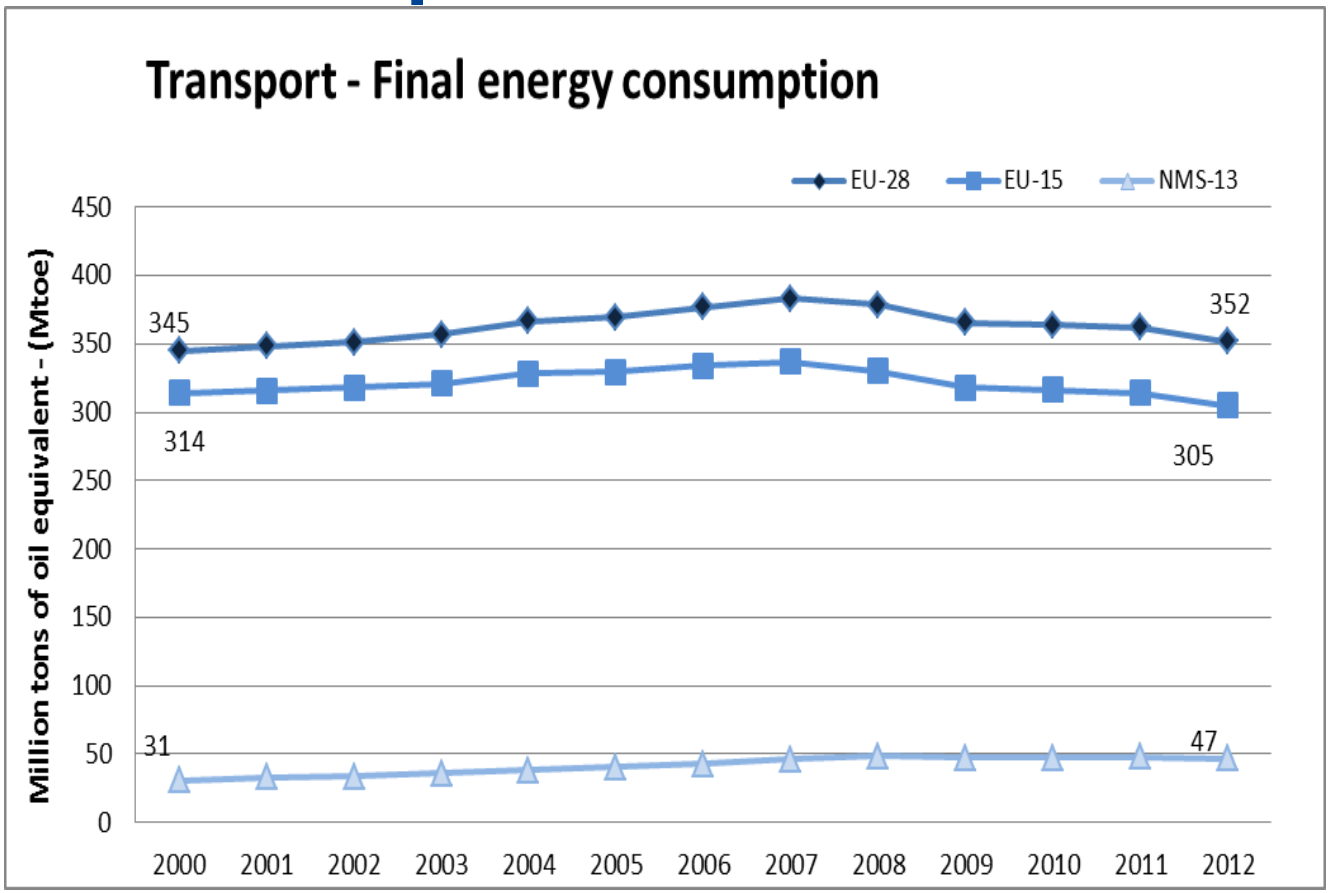
Introduction

- Transport is responsible for about **32%** of the final energy consumption in EU-28.
- The transport sector is also responsible for around 25% of EU CO2 emissions.
- In the period 1990-2007, emissions in the transport sector increased by **36%** for the same period.
- The Transport White Paper has established a new goal to further reduce the GHG emissions from the transport sector by 20% by 2030 and by 60% by 2050, compared to 1990. In order to achieve these goals, there is need for a gradual transformation of the entire transport system.
- The influence of high oil prices, a very long recession in most of the EU Member States and slower growth in mobility.

EU final energy consumption of the transport sector states



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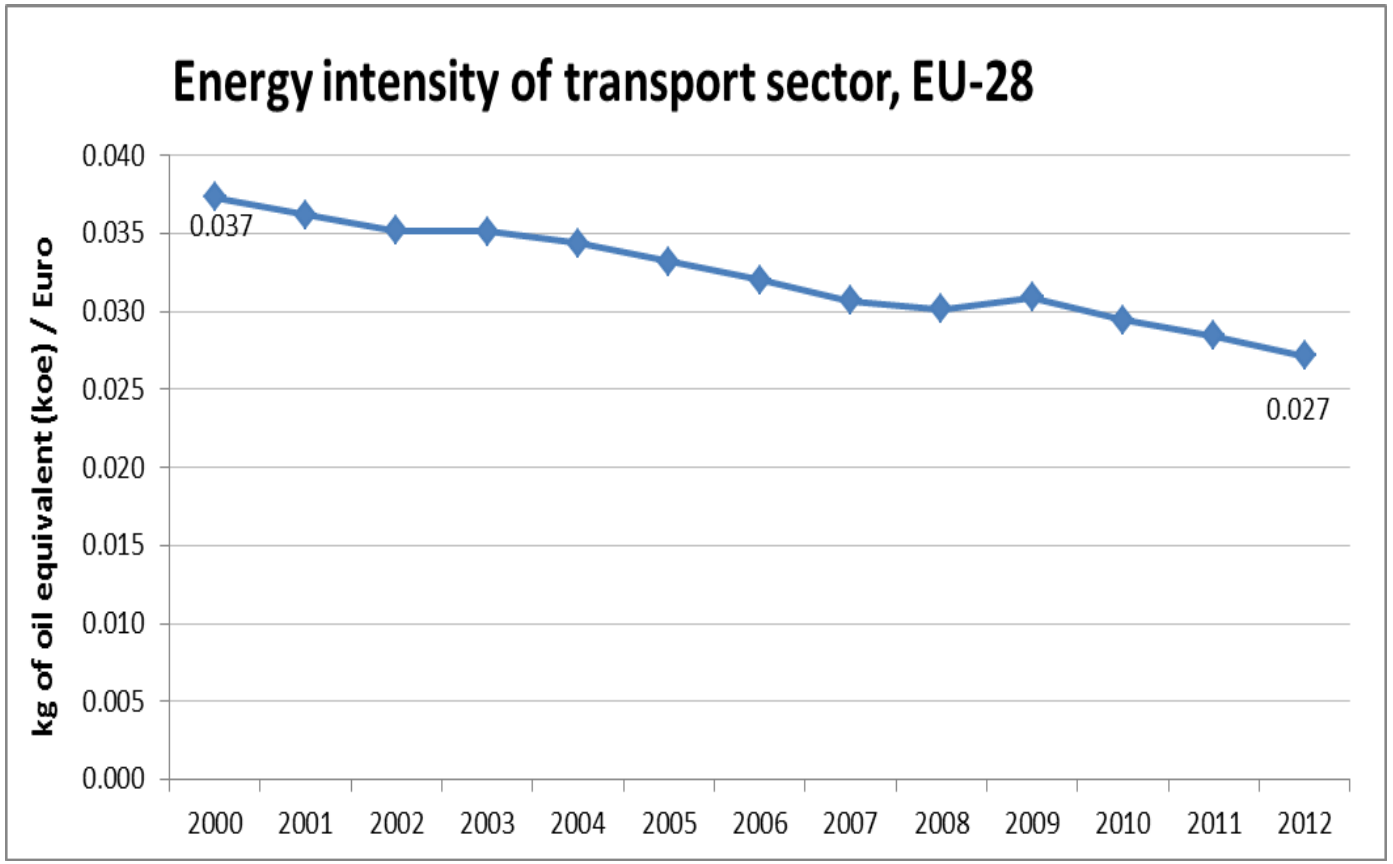
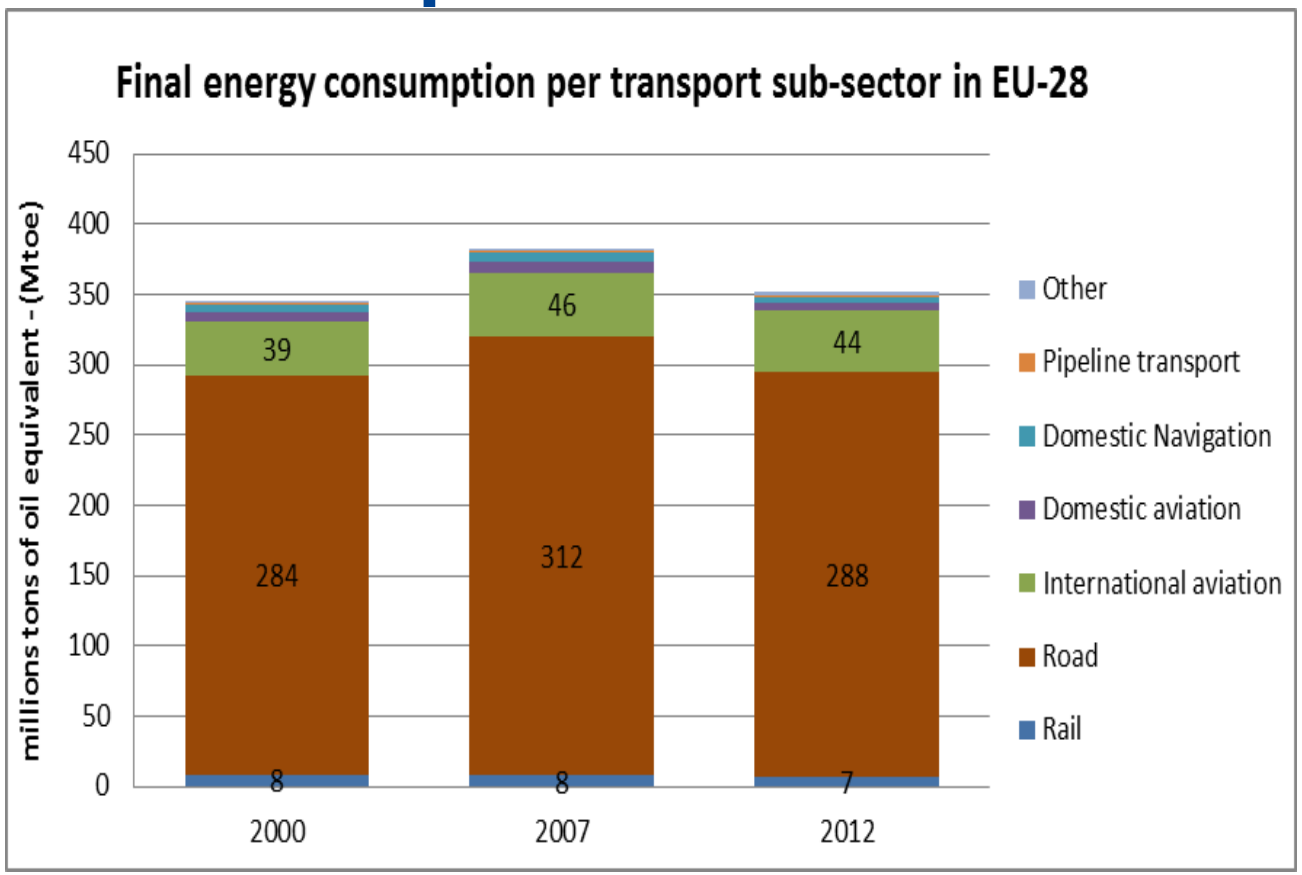
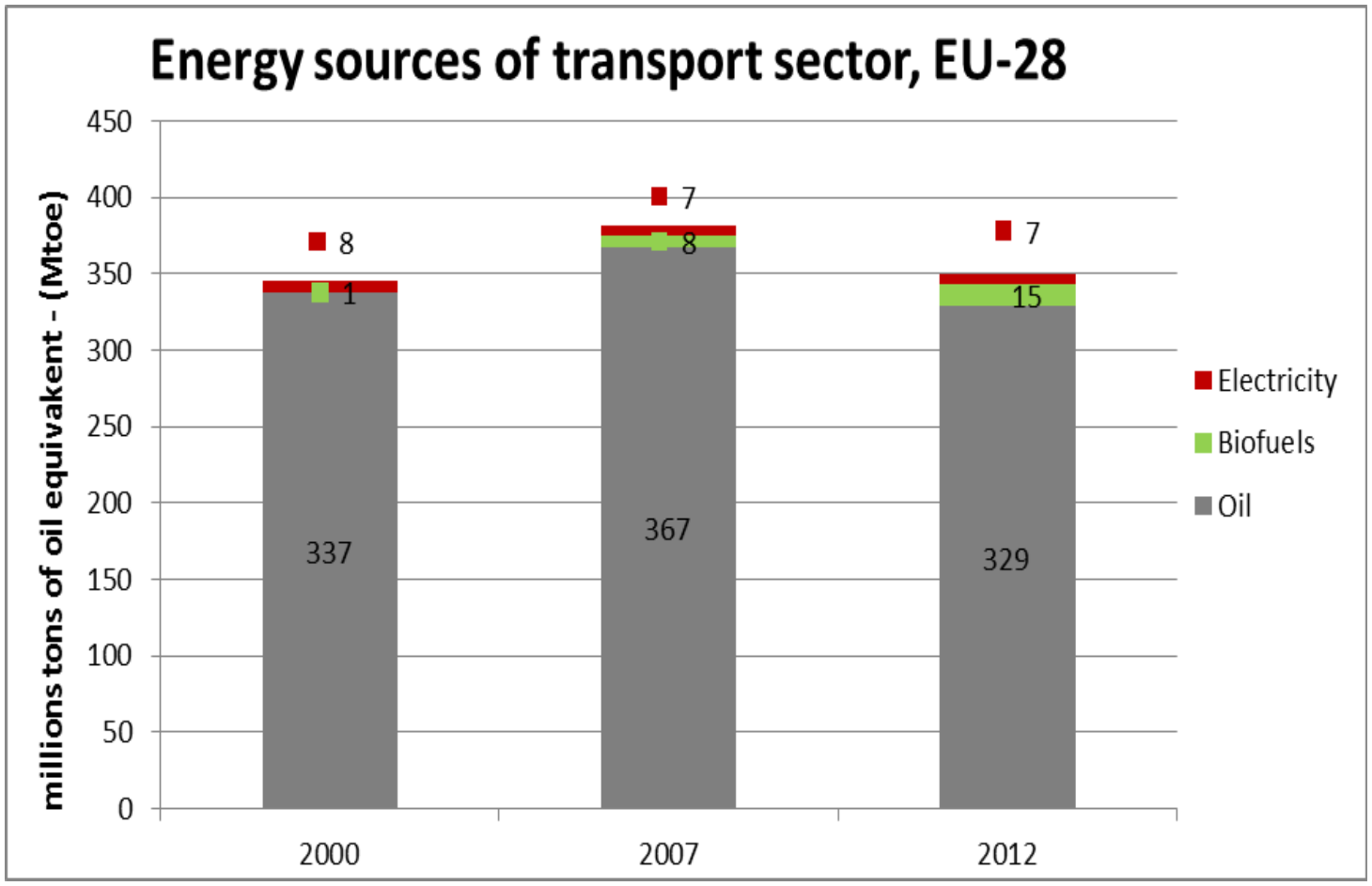
EU Energy intensity of the transport sector in the



Final energy consumption in different transport sub-sectors



EU-Transport sector energy sources



European Policies for Road Vehicles - 1

Fuel Based Policy

DIRECTIVE 2009/30/EC - Fuel Quality Directive

- Fuel suppliers are obliged to report the life-cycle GHG emissions of their fuels
- Objective is to reduce GHG emissions by 10% by 2020 based on 2010 emissions levels
- The introduction of **biofuels** into the fuel mix represents the primary means of achieving this objective

European Policies for Road Vehicles - 2

Vehicle Based Policy

COMMISSION REGULATION (EU) No 397/2013 - Monitoring and Reporting Emissions

2012 - 2015 Emissions Target

Requiring the average CO_2 emissions from passenger cars sold by a manufacturer in the EU to be no greater than **130 grams of CO_2** per km.

- This means a fuel consumption of around 5.6 litres per 100 km (l/100 km) of petrol or 4.9 l/100 km of diesel.
- The average emissions level of a new car sold in 2014 was 123.4 g CO_2/km (provisional data), well below the 2015 target. Since monitoring started under current legislation in 2010, emissions have decreased by 17 g CO_2/km (12 %).

European Policies for Road Vehicles - 3

Vehicle Based Policy

COMMISSION REGULATION (EU) No 333/2014

2020 Emissions Target

Requiring the average CO_2 emissions from passenger cars sold by a manufacturer in the EU to be no greater than **95 grams** of CO_2 per km

- This means a fuel consumption of around 4.1 l/100 km of petrol or 3.6 l/100 km of diesel.
- The 2015 and 2021 targets represent reductions of 18% and 40% respectively compared with the 2007 fleet average of 158.7g/km

Supporting the Transition to Low-Carbon Vehicles

Transport White Paper- COM (2011) 144

Halve the use of conventionally fuelled vehicles in urban areas by 2030

Complete phase-out of conventionally fuelled vehicles in urban areas by 2050

European Green Car Initiative Established in 2008

Support the Research, Development and Demonstration of low-carbon vehicle technologies 5 billion euro budget

COM (2010) 186 - A European Strategy on Clean and Energy Efficient Vehicles

Covering three principle technology pathways:

- Advanced Internal Combustion Engines
- Battery Electric Vehicles
- Hydrogen Fuel Cell Vehicles

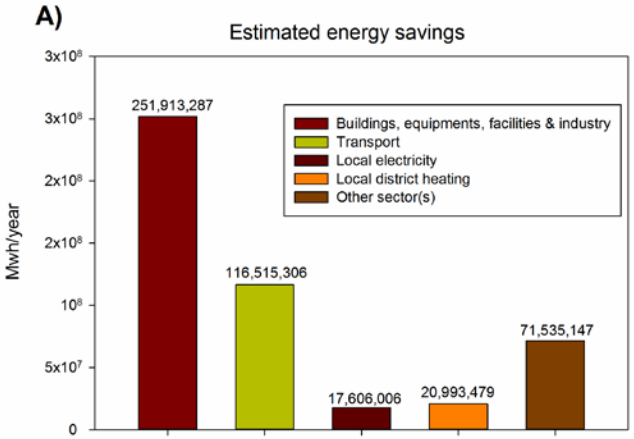
Transport sector in the Covenant of Mayors Initiative - 1

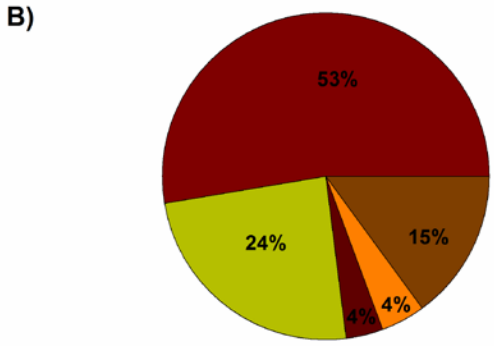
1. CoM is the major European Initiative for promoting sustainable energy at local level. Over **6000 cities** and local authorities have joined the CoM

2. Analysis of the **measures for the transport sector adopted** by cities and local authorities within the CoM Initiative, based on the Sustainable Energy Action Plans (sample of 2500 SEAPs)

3. Only **55% of the cities** that have submitted the SEAP, have considered energy efficiency measures linked to the transport sector to achieve the GHG reduction target by 2020. This is mostly due to the small population range of 88% of cities joining the CoM.

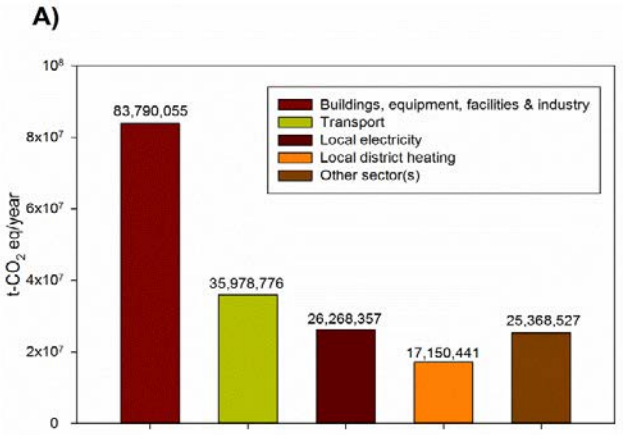
Transport sector in the Covenant of Mayors Initiative - 2

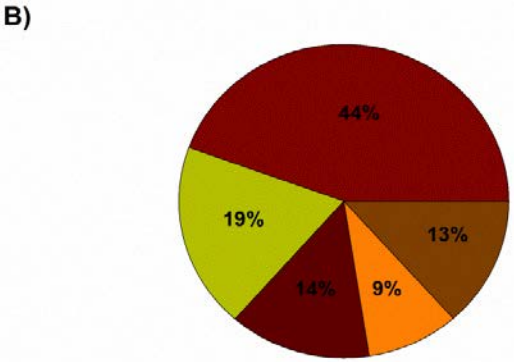




- However <u>24% of the total energy savings estimated</u> in the approved SEAPs is related to transport measures

- <u>19 % of the total GHG estimated reduction</u> is due to the measures included in the Transport sector





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Transport sector in the Covenant of Mayors Initiative - 3

Main Transport Sub-sectors

Table 1: Transport measures by sub-sector included in SEAPs (mid may2014)	
Municipal Fleet	2591
Public Transport	1636
Private and commercial Transport	3920
Not assigned	1098
TOTAL	9245

Transport sector in the Covenant of Mayors Initiative - 4

Table 6: Innovative transport measures included in the SEAPs		
City	**Country**	**Measure**
Genk	BE	Research on congestion charge on highways
Stuttgart	DE	Toll/congestion charge (like London) rise in cost: 0.1 € per km
Helsinki	FI	Congestion charges
Stockholm	SE	Congestion tax in Stockholm
Zagreb	HR	Implementation of congestion pricing charging fee for driving private vehicle in Zagreb town centre
Funchal	PT	Implementation of school transport services for schools with major traffic congestion problems during entry and exit hours of pupils
Turku	FI	An introduction of biogas buses in public transport
Gateshead	GB	Electric vehicles. Gateshead is a partner in a regional programme to provide infrastructure and subsidy for electric vehicles with aim to get 10% of all road vehicles electric by 2010
Hartlepool	GB	Electric vehicle fuel displacement One North East has carried out a study to forecast the EV (Electric Vehicles) and HEV (Hybrid Electric Vehicles) within the North East region by 2020. The region has an aspiration to have 10% of vehicles as either EV's or HEV's by 2020, which is between the High-Range and Extreme-Range scenarios.
Sète	FR	200 euro grants for private individuals for the purchase of electric bicycles
Roskilde	DK	Roskilde Bicycle Year 2011: Electric bikes is tested as a substitute for lending cars
		Test an electric car - citizens lend a car for two months
Helsingør	DK	Electric car for transport of employees between local administrative addresses

Transport sector in the Covenant of Mayors Initiative - 5

Example: London

London has a Low Carbon strategy for the transport sector. Some innovative policies included in London's SEAP are:

- Introducing automatic train control across the tube network.
- Providing training on energy efficient driving styles to drivers of non-automatic railways and to London's bus drivers.
- Reaching the milestone of 100,000 electric vehicles on London's roads by 2020. Introducing 1,000 electric vehicles into the Greater London Authority group fleet by 2015, encouraging London boroughs and private fleet operators to do the same.
- Delivering 25,000 electric vehicle charging points by 2015 and another one of 100,000 point by 2020.
- Supporting the hydrogen market through the support for transport and stationary fuel cell applications
- All new buses introduced to the London bus fleet to be hybrid vehicles from 2012.
- The following incentives are also described:
- Exemption of low emission vehicles from the central London Congestion Charge zone.
- To switch to lower carbon vehicles, the Mayor is working with different boroughs to encourage the implementation of pricing differentials based on vehicle emissions for resident parking permits and parking charges

NEEAP transport related measures - 1

	AT	BE	BG	HR	CY	DK	EE	FI	FR	DE	GR	IT	IE	LV	LT	LU	MT	NL	PT	ES	SE	UK
Regulatory			X	X		X	X	X	X			X	X		X				X	X	X	X
Financial & fiscal	X	X		X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X
Information, motivation and advice	X			X		X		X	X				X		X				X	X		
Qualification, training, quality assurance				X				X										X		X	X	X
Market-based	X					X	X	X	X			X				X			X	X		
Voluntary agreements									X									X				X
Infrastructure investments			X	X	X	X	X	X	X		X	X	X	X	X				X	X	X	X
Other	X	X				X			X	X			X	X	X				X			

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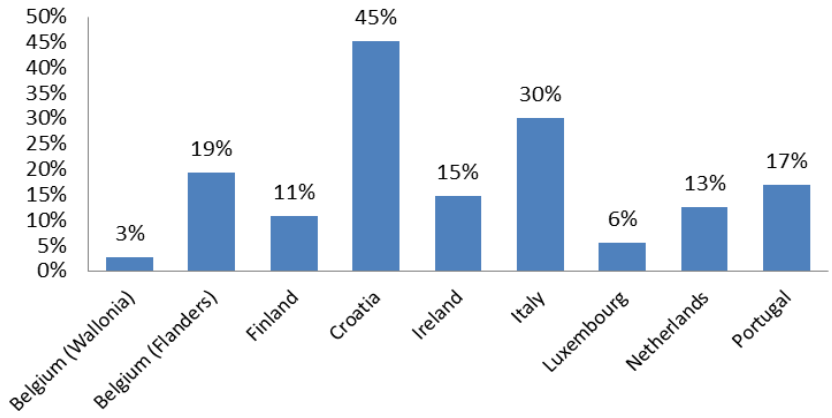
NEEAP transport related measures - 2

- Measures reported as individual measures or as part of an overall transport package or a strategy plan
- Coverage: vehicle efficiency (e.g. EU legislation or incentives promoting low emission vehicles), shift towards more environmental friendly means of transport (e.g. public transport), dissemination of consumer information and promotion of behavioural change



Contribution of transport sector to energy savings reported for the year 2020 in the NEEAPs

NEEAP public transport measures

- Improvements in rail infrastructure, electrification of railways and increase in the usage of passenger railway systems: BG, CZ, DK, FR, IT, LV, PT, SE and UK
- Extensions of metro transport: BG, CZ, DK, GR and IT
- Promotion of modal shift/encouragement to use public transport: IE, PT, BE and DK

NEEAP private transport measures

- Financial incentives for the purchase of energy efficient and electric vehicles: HR, ES, LU, NL, DK, PT
- Old vehicle scrapping and replacement scheme: CY, MT
- Training courses for the transport sector drivers: UK, FI, FR, NL, ES

Freight transport measures:

- FR: investments to promote shift of freight transport towards more environmentally friendly modes
- Wallonia: incentives to transport freight through waterways
- FI: Promoting fuel economy among lorry drivers, measure to increase the mass and dimensions of heavy goods vehicles

Conclusions - 1

- The transport sector represents a key source of energy consumption in the EU. Consumption is only slightly decreasing. High oil prices and a long lasting recession in most of the EU MSs may be partly or entirely responsible for the energy reduction so far observed.
- Policies and programmes for reducing energy consumption in the transport sector have been introduced at EU, national and local level as described in the paper.
- The EU measures are mainly limited to improving the efficiency of the vehicles, in particular private cars, without affecting the mode of transport (modal shift) or the amount of vehicle miles travelled (reduce usage of road vehicles).
- The sudden drop in the oil price, predicted by some market analyst to continue for some time, could stop or revert this trend.

Conclusions - 2

- From the NEEAPs it emerges that the transport sector is not the highest priority sector for national policies on energy efficiency.
- This is mainly due to the difficulties of introducing effective transport policies and the high cost of these policies.
- Most of the MSs have transport strategies and policies in place around the following measures: improvement of vehicle efficiency based on the EU policy (e.g. labelling, incentives, old car scrappage, annual car/road tax), shift towards more environmental friendly means of transport (e.g. reinforcement of the rail and/or public transport), consumer information and behaviour (professional drivers awareness of eco-driving) and incentives.
- There are policies to reduce the number of kilometres driven, for example through congestion charges, higher CO_2 taxes on fuels, car and other charges (e.g. insurance) based on kilometres driven.

Conclusions - 3

- From the SEAP analysis: transport polices are adopted mainly in large cities; some innovative policies are introduced in order to improve air quality, reduce CO_2 emission and increase citizens' well-being.
- Municipal fleet efficiency and improvement of public transport are the most common policies in CoM cities. Congestion charges (adopted in a few cities only), restricted access zones, increasing parking costs, promotion of cycling are among the most innovative measures to reduce private vehicle usage in cities.
- The governance of energy efficiency policy actions: some measures are better implemented at the local level, e.g. public transport or local congestion charges. However this must be well integrated with provincial, regional and national policies, to avoid shifting the problems from inside the cities to the outskirt. In addition, transport policies are also linked to other policies such as urban planning, information society, etc.

Conclusions - 4

- The EU and national energy saving and CO_2 targets as well as other non-energy policy target (e.g. air quality) would need additional efforts in the **transport sector**.
- This presentation offers a snapshot of what is going on in the EU, national and local level.
- Additional efforts are needed to analyse the environmental and economic efficiency of the proposed policies as well as the social impact, and to explore additional policy options.
- It is recommended to strengthen the research on energy efficiency policy in the transport sector, including the socio-economic and behaviour dimensions and to create a European platform for the exchange of data and information as well as establishing an expert network in a fashion to what is available for the building sector.

THANK YOU FOR YOU ATTENTION!

For more information

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