

FACT SHEET NO.: 7 / 1

PERFORMED BY: PRO

A GENERAL INFORMATION		
A 1	Category	Research and Innovation
A 2	Subcategory	Technology - vehicle
A 3	Transport policy measure (TPM)	Electromobility road
A 4	Description of TPM	The TPM 'Electromobility - road' describes the fostering of electric road vehicles. This especially means the support of research and development leading to an increase of efficiency, safety and reliability of vehicles with electronic propulsion. An implementation of this measure is expected to increase the number of electric road vehicles, including passenger as well as freight vehicles. In this context passenger road vehicles include motorized private as well as public transport vehicles (buses and coaches). In contrast, within the electrification of road freight vehicles this assessment focuses only on light-duty vehicles (LDV) used in city logistics, hence long-haul trucks propulsions are expected to remain based on internal combustion engines (ICE) for the foreseeable future. [1] Electromobility encompasses semi- and full hybrid electric vehicles, plug-in hybrid electric vehicles and battery electric vehicles, while this TPM focuses the last two types of vehicles. The following assessment will not describe policies concerning the instalment of a charging infrastructure, whereas these are considered separately.
A 5	Implementation examples	- DIRECTIVE 2009/33/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 23 April 2009 on the promotion of clean and energy-efficient road transport vehicles (EU) [7] - European Green Cars Initiative (EGCI) Public-Private Partnership (EU) [1] - German Federal Government's National Electromobility Development Plan (DE) [3]
A 6	Objectives of TPM	The objective is to accelerated the market introduction of electric vehicles to achieve: - climate protection - reduction of local emissions and improve the air quality - noise reduction - decrease oil dependency - increase energy security - strengthening the motor-vehicle manufacturing industry, and thus the whole economy [3]
A 7	Key changes concerning:	
A 7.1	- Choice of transport mode / Multimodality:	No change
A 7.2	- Origin and/or destination of trip:	Likely smaller distances because of lower distance range.
A 7.3	- Trip frequency:	No change
A 7.4	- Choice of route:	Shortest route instead of fastest route.
A 7.5	- Timing (day, hour):	No change
A 7.6	- Occupancy rate / Loading factor:	No change
A 7.7	- Energy efficiency / Energy usage:	- Higher well-to-wheel energy efficiency of electrical propulsion (2010 30%) compared to a combustion engine (18-23%) [4] (Well-to-wheel: life-cycle assessment for transport fuels and vehicles, which includes fuel production and processing as well as the vehicle operation) - The energy efficiency depends on the type of electricity generation. [5] - For the tank-to-wheel efficiency a range from 60-80% is given. [9] (Tank-to-wheel: life-cycle assessment for transport fuels and vehicles for the vehicle operation)
A 8	Main source	[5] [9]

B IMPACTS																																																																																																																																																																																						
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B 2 TRAFFIC IMPACTS																		
B 2.1	Travel or transport time																	
B 2.2	Risk of congestion																	
B 2.3	Vehicle mileage																	
B 2.4	Service and comfort																	
B 2.I	Overall impacts on social groups																	
B 2.II	Implementation phase																	
B 2.III	Operation phase																	
B 2.IV	Summary / comments concerning the main impacts	- Electric vehicles have a considerable smaller driving range than combustion engines, additionally there are insufficient charging possibilities are at the moment. This could mean that closer destinations and shorter routes are chosen. - The transport time does not change, but the charging time has to be taken into account. This might, at least for private motorized traffic, have a negative effect on the user-friendliness/ service and comfort level of the vehicle.																
B 2.V	Quantification of impacts																	

B 3 ECONOMIC IMPACTS																		
B 3.1	Transport costs																	
B 3.2	Private income / commercial turn over																	
B 3.3	Revenues in the transport sector																	
B 3.4	Sectoral competitiveness																	
B 3.5	Spatial competitiveness																	
B 3.6	Housing expenditures																	
B 3.7	Insurance costs																	
B 3.8	Health service costs																	
B 3.9	Public authorities & adm. burdens on businesses																	
B 3.10	Public income (e.g.: taxes, charges)																	
B 3.11	Third countries and international relations																	
B 3.I	Overall impacts on social groups																	
B 3.II	Implementation phase	- High purchase costs: The costs for the acquisition of a electric vehicle are higher than of an alternative vehicle with a combustion engine. It is expected to remain higher even in the next two decades. [5] - The purchase costs differ however, depending for example on the exact type of vehicle and additionally on the type of battery used. [9]																
B 3.III	Operation phase	- The operation costs are lower for electric vehicles, but relatively high compared to the costs of acquisition. [5] - The support of R&D will result in expenses for the public bodies. - After implementation, when more and more electric cars are being produced, the prices of the EV will decline as their market increases. [11]																
B 3.IV	Summary / comments concerning the main impacts	- Operation costs are lower, but the overall costs increase with the use of a electric vehicle, for passengers as well as transport operators and service providers. For the latter this means a reduced revenue. [5] - Strengthening of the research and technology location of the country / the EU by the support of R&D in the automotive sector increases the competitiveness and strengthens the entire economy. [3] - Since regional competitiveness is motivated by the support R&D within the automotive sector, one would expect that also the sectoral competitiveness of this sector is improved. - 3rd level impact: Energy efficient vehicles will require less fuel. This will lead to reduced public income for public bodies because these receive excise taxes on petrol.																
B 3.V	Quantification of impacts	Purchase costs 2007: Conventional diesel car: 22,046 €, Hybrid car: 24,371, Electric car: 25,485; Conventional diesel bus: 216,320€, Hybrid bus: 248,768€, Electric bus: 367,744€ [8]																

