



TRANSPHORM

Transport related Air Pollution and Health impacts – Integrated Methodologies for Assessing Particulate Matter

Collaborative project, Large-scale Integrating Project

SEVENTH FRAMEWORK PROGRAMME

ENV.2009.1.2.2.1 Transport related air pollution and health impacts

Deliverable D5.1.3

Report on typology of mitigation measures and policies

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1. Introduction

In Deliverable 5.1.3, a typology is developed for the TRANSPHORM mitigation measures and policies. This helps in classifying the different policies and measures and is a helpful basis for analyzing and describing, where and how the different measures can be implemented. This will be the content of deliverable 5.2.1. It will also be helpful for deciding how to apply the available models in the analysis of measures, for which a protocol may be developed.

In total, Transphorm intends analysing 26 mitigation measures and policies. The typology starts with answering the question, for which **mode** (road, ship, air) the measures apply. Two measures affect air transport, three shipping and 21 road transport. 11 of the 21 measures have an influence on modal shift, i.e. one transport mode is replaced by one or several others (marked with an x in column 'modal split').

Next, the location of the implementation of road transport measures is analysed, distinguishing between **spatial application** in cities > 50 000 inhabitants (smallest city size considered, 9 measures), >100 000 inhabitants (1 measure) and >500 000 inhabitants (2 measures) and on all roads (6 measures) or non-urban roads (3 measures).

Furthermore a distinction is made about which **parameter** is affected and changed by the measure: the emission factors, the vehicle stock or the activity (km driven). If the emission factor is affected, the corresponding measure is called a technical measure (e.g. improving the efficiency of the particulate filter). A measure affecting activity and/or stock is usually called a non-technical measure, as it changes the behavior of people, i.e. the traffic demand and the choice of the transport mode used. Four of the measures for road transport and three measures for the non-road modes are technical measures, all the rest are non-technical measures.

Finally, the **impacts of implementing the measure on other sectors** than the (road) transport sector are noted (e.g. the generation of electricity).

Table 1 presents the distinctions made.

In the next chapters the typology is applied to the 26 mitigation policies and measures that are currently planned for analysis in Transphorm.

Table 1 Aspects of policies and measures relevant for the typology

Aspect	Distinction
Transport mode	Road; shipping; aviation
Spatial application	In cities; national/EU-wide
Spatial application: cities	> 50 000 inhabitants; > 100 000 inh.; > 500 000 inh.
Spatial application: roads	All roads; non-urban roads
Parameter affected	Emission factor; vehicle stock; activity (km driven)
Time scale of change	One decade; several decades

Impact on other sectors	Transport only; various other sectors
<i>Policy phase¹⁾</i>	<i>Exploratory; final decision</i>

¹⁾ Though the policy phase is not a property of the policy measure or policy, it is added in the table because of its relevance for the policy analysis: in the exploratory phase a crude scenario and simple models may suffice, while in final decision phase detailed scenarios and model calculations are needed.

2. Urban measures and policies

Table 2. Transporm mitigation measures and policies applicable in cities

No	Name	Is it affecting emission factors?	... stock	... activity (mileage)?	Modal shift?	Impact on other emission sectors	Applicable in city size
1	Enhanced use of bicycles in cities		x	x	x	Fuel supply (incl. refineries)	>50.000
2	Enhanced use of public transport		x	x	x	Electr. prod., Fuel supply	>50.000
3	Car pooling (car sharing)		x	x	x		>50.000
4	Low emission vehicles (E-cars)		x	x		Electr.prod., fuel supply	>50.000
5	Traffic management	x				Fuel supply	>50.000
6	Low emission zones		x	x	x	-	>500.000
7	Ban of through traffic of trucks			x		Fuel supply	>50.000
8	City toll			x	x	Electr. prod., fuel supply	>500.000
9	Parking management			x	x	Electr. prod., fuel supply	>50.000
10	Bus fuel (fuel cells, electr.)		x	x		Electr. Prod., H2 prod., fuel	>50.000
11	Freight consolidation center / E- logistics commercial vehicles			x		Electr. Prod., fuel supply	>100.000
12	E & I city transport concept		x	x		Electr. Prod., fuel supply	>500.000

3. Measures and policies on national/EU-wide level for road transport

Table 3. Transporm mitigation measures and policies applicable inside and outside of cities

No	Name	road types	Is it affecting emission factors?	... stock	... activity (mileage)?	Modal shift?	Impact on other emission sectors
13	Speed limit (motorways)	motorways	x				Fuel supply
14	Speed limit (rural)	non-urban roads except motorways	x				Fuel supply
15	Low emission cars	all		x	x	x	Electricity prod.
16	Enhanced use of biofuels	all		x	x		agriculture, fuel prod.
17	CargoCap	all		x	x	x	Electr. Prod., Fuel supply
18	Road pricing	non-urban		x	x	x	Fuel supply
19	Increased fuel tax	all		x	x	x	Fuel supply
20	EURO 7	all		x	x		
21	Tyres, brakes and road surfaces with minimized abrasion	all	x				

4. Measures and policies on national/EU-wide level for non-road transport

Table 4. Transphorm mitigation measures and policies applicable for non-road transport

No	Name	Transport mode	Is it affecting emission factors?	... stock	... activity (mileage)?	Modal shift?	Impact on other emission sectors
22	Tighter emission limits for inland shipping	Inland waterways	x				
23	Kerosene tax	Air			x	x	Electr. Prod., fuel supply
24	Shift from air to rail	Air			x	x	
25	Emission Control Areas (SECA/NECA)	Maritime	x				
26	Electric operation harbours	Maritime/Harbours	x				Electr. Prod., fuel supply