



# ECOTALE GUIDELINES

## 4. ROAD FREIGHT PRICING

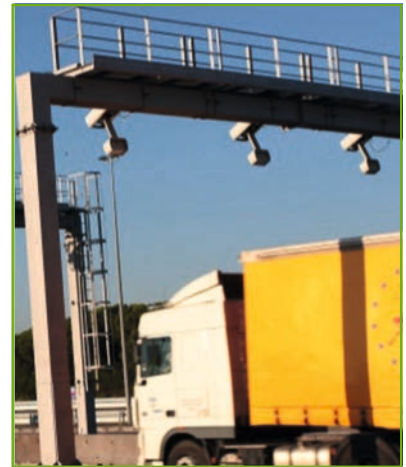
### Policy summary

Road freight pricing are charging schemes, generally distance - and time – related and applied to heavy goods vehicles (HGV) for the use of certain road infrastructures.

Common policy principle behind such pricing schemes is the fair coverage of external costs, when these are indubitably related to peculiar features of the HGVs and their traffic (i.e., weight, size, safety risks)

The application of the charge is intended to reduce the negative environmental impacts of HGV transport (favouring freight business optimizations and intermodality solutions) and the connected revenues can be devoted to infrastructure financing and road safety improvements.

Pricing differentiations related to the vehicles emission standards can promote fleet renewal for improvements on the pure environmental side of these policies.



### SWOT Analysis

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Reduction of environmental impact</li> <li>• Promotion of combined transport and intermodality</li> <li>• Revenues</li> <li>• Load factor optimization</li> <li>• Promotion of trucks fleet renewal</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Control and non compliance</li> <li>• Need of maintenance programs and dedicated staffs</li> <li>• Management and control system</li> <li>• Difficulty on establishing a correct pricing scheme</li> <li>• Negative economic impacts in the short term</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Improvement of road infrastructures</li> <li>• Targeted investment of revenues</li> <li>• Possibility to develop together with other modal re-equilibrium policies to maximize benefits</li> <li>• Availability of data useful for monitoring and before – after analysis of effectiveness</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Legislative framework</li> <li>• Stakeholders’ acceptance</li> <li>• Re-routing of heavy traffic flows on non-charged road sections</li> </ul>

### Policy topic

- Air pollution or GH gas
- Land-use/urban planning/ landscape
- Traffic noise
- Congestion
- Traditional fiscal instruments
- Accidents, transport safety
- Public transport subsidies/ support
- **Infrastructure investment**
- Users’ behaviour

### Level of application

- **National**
- **Regional**
- **Provincial/Metropolitan area**
- **Municipal**

### External costs

- Congestion and scarcity +
- Accidents
- Air pollution +  
(human health, material damages, nature)
- Noise
- Climate change +
- Urban space
- Nature and landscape





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## Methodological suggestions

Cost component	External cost	Cost elements	Cost function/ drivers	Suggested estimation techniques	Data needed	Critical valuation issues
Congestion and scarcity	Increase in travel time x value of time x traffic volume	travel time (mode and commodity type for freight trips)	type of infrastructure	WTP/WTA to estimate the value of time in case of congestion	relation speed/flow	speed/flow relation
		additional fuel costs	amount and composition of traffic flow			
		depreciation	kind of network (urban, interurban, metropolitan - n° lanes)	WTP to estimate costs due to scarcity	demand elasticity	value of time
		direct and induced delay				
		disamenity				
		environmental costs	capacity level over time	WTP to estimate costs due to scarcity	marginal social cost	opportunity cost
		opportunity cost				
safety	cost increases marginally with traffic and depending on the situation (time-place)		level of traffic			
				capacity		
Air pollution	Air pollution costs are caused by the emission of particulate matter (PM), NOx, SO <sub>2</sub> and VOC. Air pollution costs arise also from industry, agriculture and private households.	damages to buildings	traffic level	repair cost to estimate damages on building/materials	emission data per kind of pollutant	damages quantification
		damages to agriculture	location - exposure			
		damages to human health	population and settlement density	losses due to pollutants	vehicle mix	
		damages to ecosystems	kind of engine - alimentantion			
		driver characteristics	repair cost/WTP/WTA to estimate damages to human health	network data		
Climate change	Climate change is a long term and global risk. A differentiated approach (looking both at the damages and the avoidance strategy) is necessary. In addition long term risks should be included. Impacts of transport are mainly caused by emissions of the greenhouse gases CO <sub>2</sub> , N <sub>2</sub> O, CH <sub>4</sub> .	preventive measures	emission level dependent on traffic level and kind of propellant	avoidance cost approach or damage cost approach	emission data per kind of pollutant	damages quantification over time
			speed			
		type of vehicle and equipment in use				
		damages induced by climate change (rise of temperature, rainstorms, tornados...)	driving style			trend pollution/altitude

## Recommendations / Comments

Technical feasibility	Easy	Public acceptance	Medium	Equity	Partial
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The main positive effects of road freight pricing schemes might be summarized as follow: they help in accelerating truck fleets renewal process and they promote enhancement and efficiency of transport, reducing empty trips as well as increasing load factors. There is a big debate about the fact that road freight pricing is able to promote modal diversion from road to rail or to promote a better modal integration among land transportation systems. Up to the present, a lot of experiences have shown that, when road freight pricing schemes are applied, no significant modal diversion is observed. This may be due to an intrinsic competitiveness of road transport, to chronic inefficiencies of other transport modes or, finally, to the fact that these schemes are usually applied at a local scale: unless the whole road network is included within the scope of the road pricing scheme, part of the traffic will divert onto secondary roads in order to avoid paying the charge, thus causing an increasing congestion on secondary routes or a simple re-distribution of traffic flows.

## Related Good Practices

- Heavy vehicle charging system CH
- Pricing system for road freight transport Austria
- Germany's LKW-Maut (Lastkraftwagen-Maut) HGV tolling system

