

# Financial instruments to mitigate transport's GHG emissions in Flanders



ESD Workshop  
22 October 2014 - Madrid

**Mieke Cornelis**  
Climate unit  
Department of Environment, Nature and Energy  
Government of Flanders  
Belgium



## 1. General background

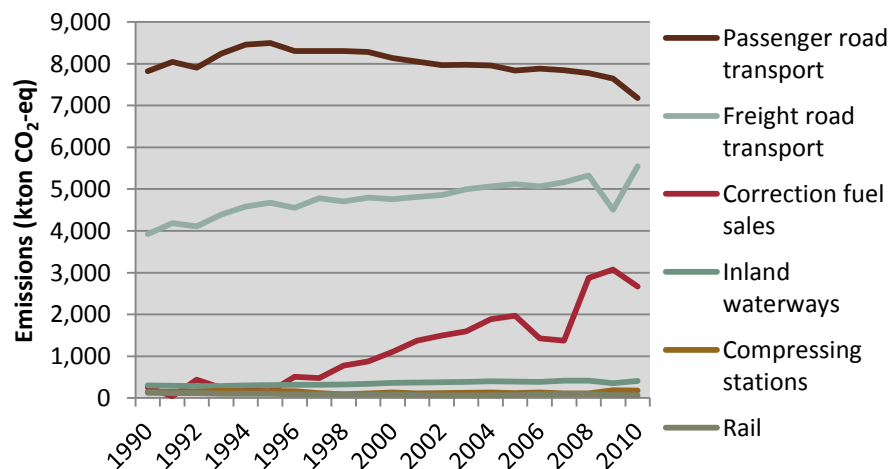
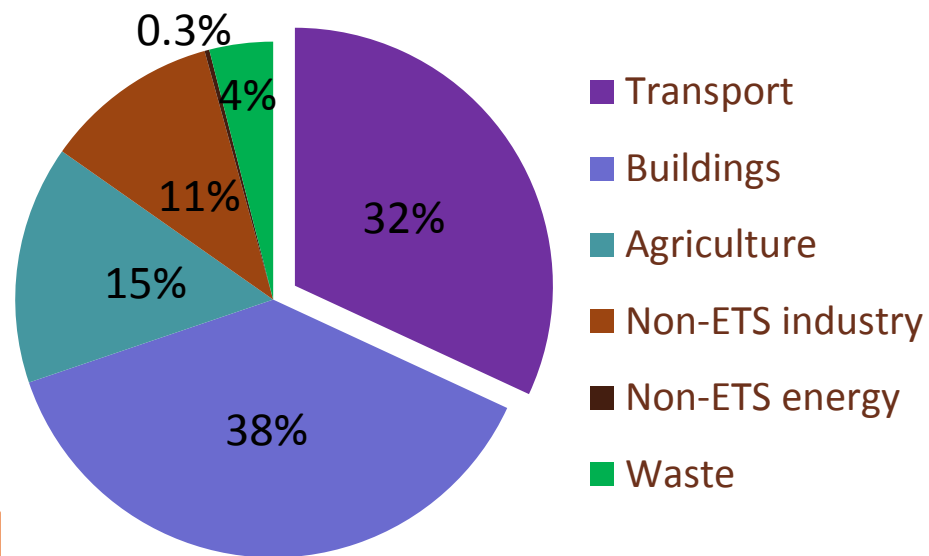
- 1) Flemish transport emissions in 2010
- 2) Measures to reduce emissions from road transport in Flanders

## 2. Road charging project

- 1) Cooperation between the 3 regions in Belgium
- 2) Heavy duty vehicles
  - Principles
  - Practical implementation
  - Important considerations
- 3) Light duty vehicles

# 1.1 Flemish transport emissions in 2010

Transport = 32% non-ETS  
 emissions 2010



Road transport = 97% transport  
 emissions 2010

## 1.2 Measures to reduce emissions from road transport in Flanders

### Improve environmental characteristics vehicle fleet + fuels

- European legislation
- Adequate taxation, financial instruments, infrastructure, own fleet, ...
- Flanders Land Logistics for freight transport

### Encourage economical driving

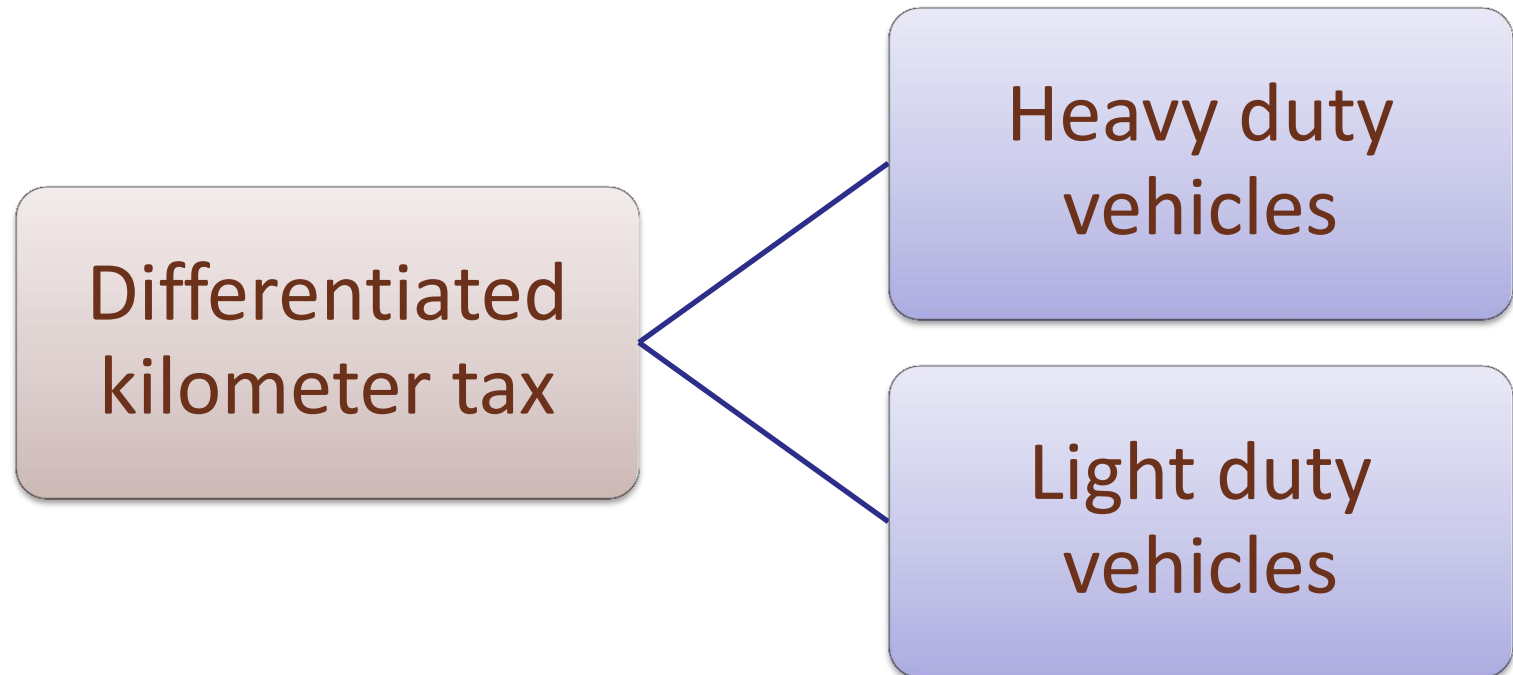
- Reform driving licence test, basic driver and refresher training
- Speed limit enforcement
- Infrastructure

### Limit number of vehicle kilometers by road

- Support alternatives to car possession/travel
- Flanders Land Logistics for freight transport
- **Greatest potential: tangible road pricing approaches**

## 2. Road charging project

Tangible road pricing → charge cost of usage and external cost to user





## 2.1 Cooperation between the regions

- Belgium = federated state
- Road charging = regional competence
- ⇒ Cooperation Agreement on kilometer charge needed!
- Political agreement between the 3 regions (Flanders, Wallonia and Brussels) in 2011 on implementation of road charging scheme for heavy duty vehicles and test case for light duty vehicles
- Joined research
- Cooperation Agreement 31/01/2014:
  - formal cooperation between the 3 regions
  - agreement about the principles + creation of “Viapass”
- Interregional Cooperation Entity “Viapass”: practical implementation

## 2.2 Road charging heavy duty vehicles: principles



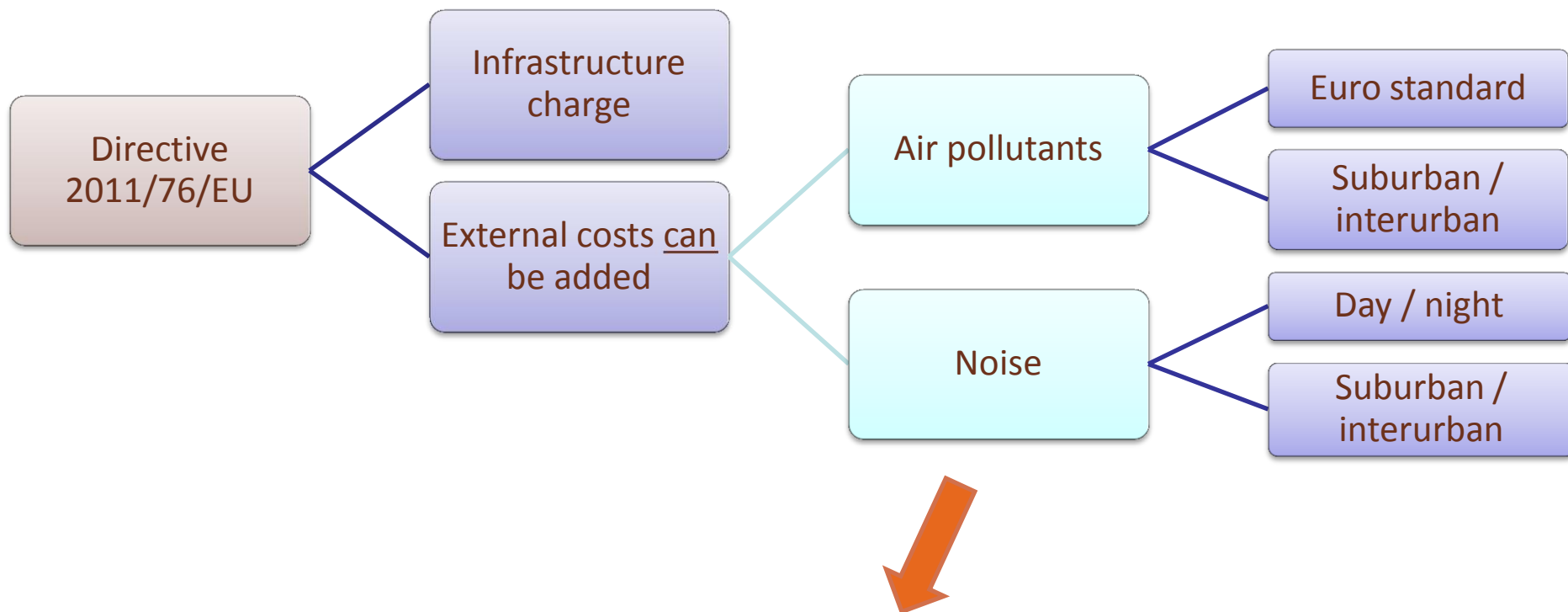
- Heavy duty vehicles: MTM > 3.5 ton
- Kilometer charge replaces Eurovignet
- **Timing:** simultaneous implementation in the 3 regions from January 2016 onwards (at the earliest)
  - January 2016 = target date
  - Currently more or less on schedule, but still a lot of work to be done for practical implementation system + political decisions needed on tariff
- **Roads included in scheme:** **ALL** roads are covered, but
  - Many roads have a fee of €0
  - Fee > €0 for TEN-T + other roads Eurovignet

## 2.2 Road charging heavy duty vehicles: principles

- **Tariff:**
  - Each region can set its own tariff
  - Each region must inform the other regions 4 months prior to changes in tariff
  - Tariff is based on kilometers driven, and differentiated based on:
    - Road type → highway or other road
    - Vehicle characteristics → MTM (3,5-12, 12-32, >12), Euro standard
    - Time → peak / off-peak, night / day
  - Calculations based on directive 2011/76/EU (charging of heavy duty vehicles for the use of certain infrastructure)



## 2.2 Road charging heavy duty vehicles: principles



Directive 2011/76/EU does NOT list CO<sub>2</sub>-emissions as possible external cost  
⇒ No additional fee may be included in scheme for heavy duty vehicles  
based on CO<sub>2</sub>-emissions!

## 2.2 Road charging heavy duty vehicles: practical implementation

### Viapass

- Cooperation between the regions
- Contract with single service provider (SSP)
- Registration service providers (EETS)
- Communication, administration (such as exemptions), ...

### Single Service Provider (SSP)

- Roll out of entire system → DFBMO contract (Design, Build, Finance, Maintain, Operate)
- Provides fixed and mobile enforcement devices to the 3 regions
- Acts as service provider to requesting vehicle owners
- July 2014: contract assigned to Sky-ways (T-systems International/Strabag AG)

### Service providers

- On board units (OBUs)
- Agreement with vehicle owner
- Collects payments
- Pays tariffs to region depending on location of vehicle

## 2.2 Road charging heavy duty vehicles: practical implementation

- OBU in all heavy duty vehicles driving on Belgian roads, owner can choose service provider
- No details yet on tariff
- Each region receives payments from service provider for vehicles driving on its territory
- Vehicles not registered pay forfait
- Tariffs based on forfeits are distributed between the regions based on a distribution key
- Regions responsible for enforcement, revenues go to region responsible for the enforcement

## 2.2 Road charging heavy duty vehicles: important considerations

- Effectiveness/efficiency: **everything will depend on the concrete tariff!!**



**Example:** study 2009

→ Kilometer charge from 2012 onwards,  
consequences calculated for Flanders in 2020

## 2.2 Road charging heavy duty vehicles: important considerations

### Average €/vkm in 2020:



BC = base case → €1,18/vkm

SCEN A = flat tax

→ €1,18/vkm → includes kilometer charge of €0,02/vkm

SCEN B = full internalisation external cost

→ €1,45/vkm → includes kilometer charge of €0,29/vkm

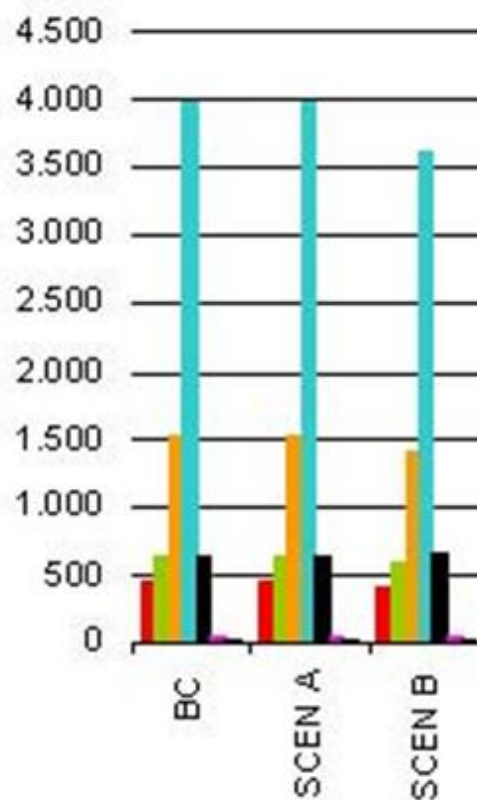
→ = + 22,88% in €/vkm





## 2.2 Road charging heavy duty vehicles: important considerations

### Vehicle kilometers in 2020 (million vkm):



#### SCEN A

→ no effect on vkm

#### SCEN B

→ vkm decrease with 8,68%

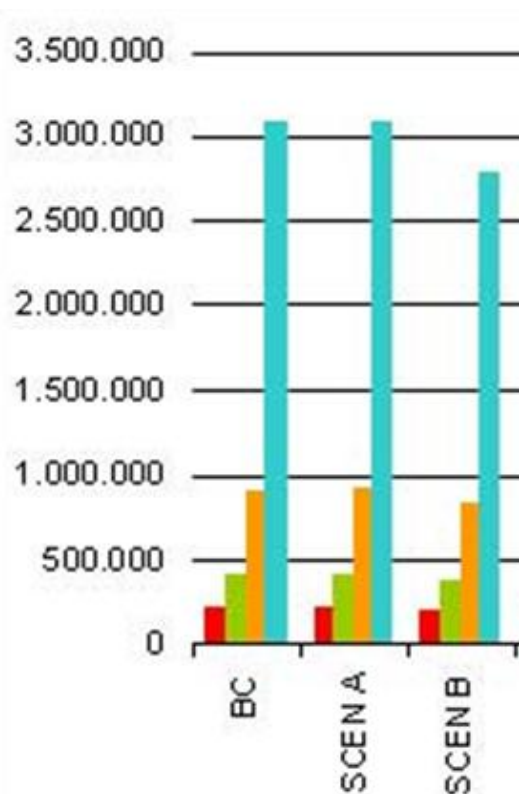
→ tonkm decrease with 9,26%

→ Modal shift limited

→ Very limited increase of vkm light duty vehicles with 0.12%

## 2.2 Road charging heavy duty vehicles: important considerations

### CO<sub>2</sub>-emissions in 2020:



#### SCEN A

→ No effect on CO<sub>2</sub>-emissions

#### SCEN B

→ CO<sub>2</sub>-emissions decrease with 9.23%

→ PM-emissions decrease with 8.83%

→ NOx-emissions decrease with 8.89%

## 2.2 Road charging heavy duty vehicles: important considerations

- Acceptability:
  - Political: positive atmosphere, however this may become more difficult when deciding on the concrete tariff
  - Sector:
    - For the moment mostly concerned with user friendly technical / practical implementation
    - Will depend on concrete tariff
- Implementation:
  - Technically feasible, but requires adequate attention
  - Legal aspects:
    - Took a lot of time to sort out, but Belgian case is more difficult than average because of complicated institutional structure
    - Get help from your legal unit early on!

## 2.2 Road charging heavy duty vehicles: important considerations

- Impact on the economy: can be positive or negative depending on how revenues kilometer charge are used by government
- Positive effect on air quality and congestion
- Dealing with unanticipated impacts:
  - fee > €0 for TEN-T + other roads Eurovignet
    - may cause unwanted effects on roads without fee (traffic shifts)
    - ⇒ revision of system may be necessary
    - ⇒ ALL roads included in system, but many roads (= all roads not TEN-T or Eurovignet) have a fee of €0
    - ⇒ easier to revise system
      - + detailed monitoring data (anonymous) available to determine impact

## 2.3 Road charging light duty vehicles

- Goal: charge costs of usage and external cost to users
- Method:
  - Not yet decided
  - Under investigation: differentiated kilometer tax for passenger vehicles





## 2.3 Road charging light duty vehicles

### Pilot study

#### Field test

- 1187 participants = 900 families with 1 or more cars living in zone + 1 member working in zone, no self-selection allowed
- After selection process 820 OBUs installed
- Trial period (4 weeks) → driving behaviour ⇒ budget for test (8 weeks)
- Remaining budget visible on OBU during test
- Surplus budget awarded after test

#### Surveys

- Characteristics participants
- Choice experiment: what if survey
- Experiences field test
- Stated opinion survey: acceptability

## 2.3 Road charging light duty vehicles

- Results pilot study not yet validated, but already clear that:
  - Differentiated kilometer charge has a substantial positive result on reduction vkm and CO<sub>2</sub>-emissions
  - Social acceptability = problem!!  
⇒ political negotiations = problematic
- Effectiveness/efficiency: everything will depend on the concrete tariff!!

- More information concerning the Belgian road pricing project: [www.viapass.be](http://www.viapass.be)
- More information concerning Flemish climate policy: [www.lne.be/en/about/publications/flemish-climate-policy-plan-2013-2020-summary.pdf](http://www.lne.be/en/about/publications/flemish-climate-policy-plan-2013-2020-summary.pdf)
- Mieke Cornelis  
[mieke.cornelis@lne.vlaanderen.be](mailto:mieke.cornelis@lne.vlaanderen.be)  
0032 2 553 11 32