

# Internalisation of external cost at the Paris-Amsterdam corridor

Huib van Essen, CE Delft

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## ▶ Outline

- Context and scope of the study
- External cost and infrastructure cost estimates
- Baseline scenario and internalisation scenarios
- Impacts of the scenarios on:
  - Transport demand and modal split
  - Revenues
  - Emissions and external costs
- Strategic considerations
- Conclusions



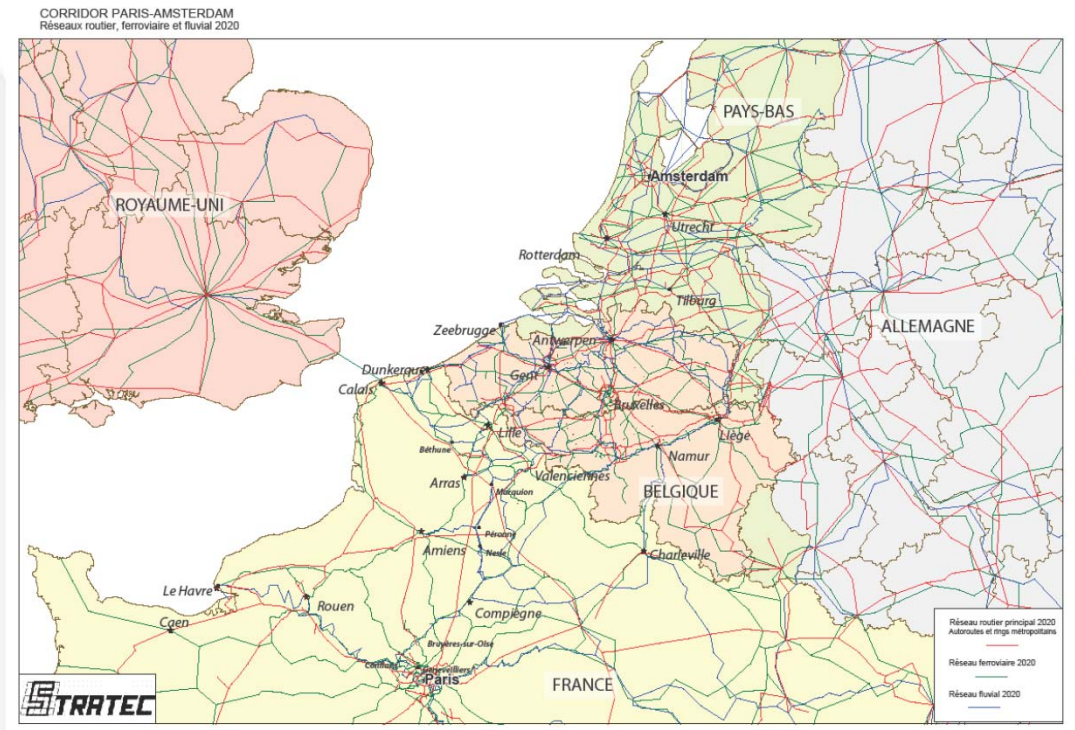
## ▶ Context

- TEN-T Priority Project 30: Canal Seine-Scheldt
- Eurovignette Directive revision allowing some internalisation
- White Paper on Transport:
  - 60% GHG reduction for transport in 2050
  - Specific targets for modal shift
  - Internalisation of external costs
- Objectives for reducing air pollution, noise and accidents

## ► Scope: Paris-Amsterdam corridor

Scope:

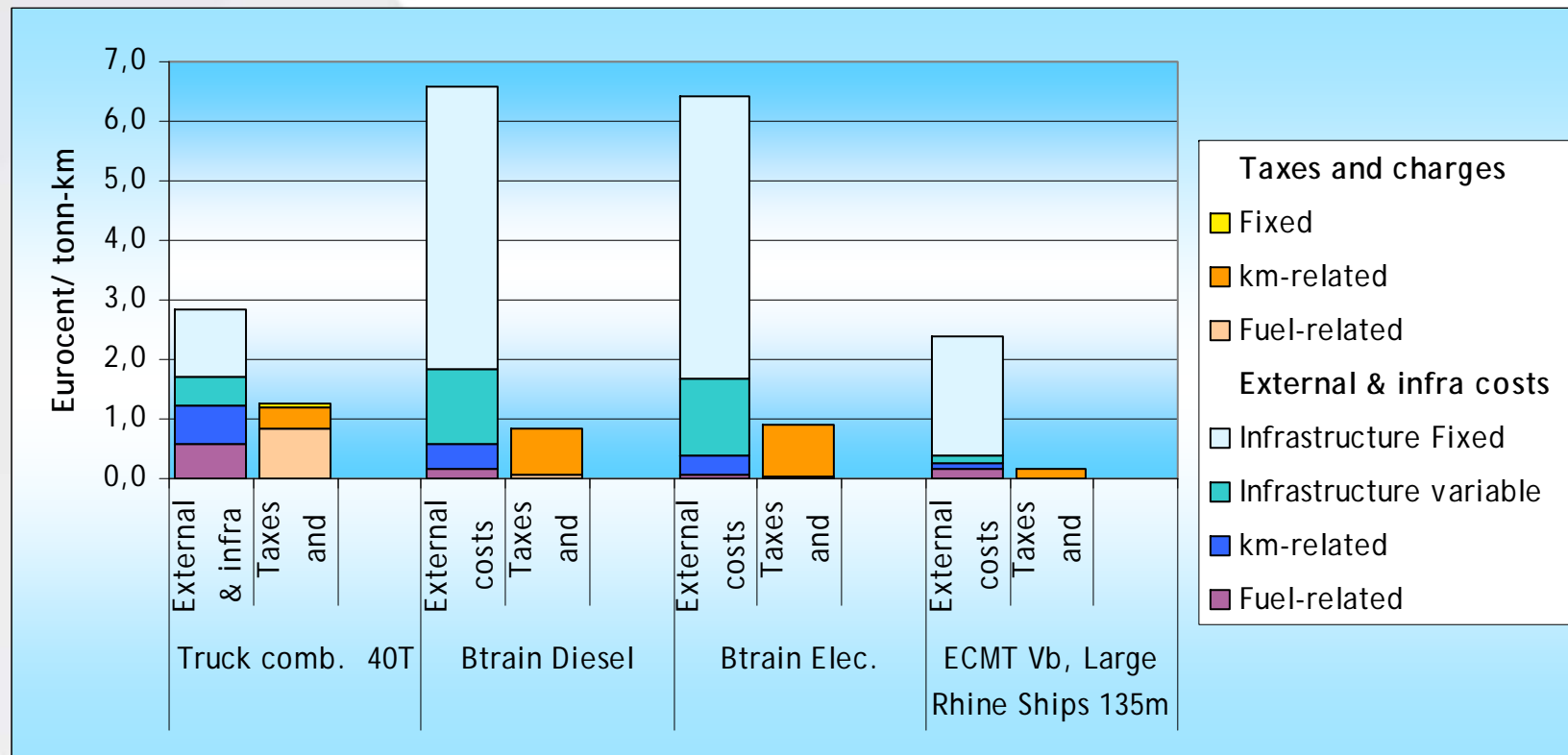
- Road, rail and inland waterway transport
- France, Belgium, the Netherlands
- Long distance traffic



## ▶ Methodology external & infrastructure costs

- Infrastructure cost data:
  - For all three modes
  - For all three countries made consistent
  - Validated by scientific committee
- External costs:
  - Climate, air pollution, noise, accidents, congestion and 'upstream'
  - Corridor values in line with IMPACT handbook (2008): marginal cost
  - Data on fuel consumption, emissions and load factors made consistent with the traffic model (improvements in 2020 and 2050)
- Existing taxes and charges:
  - On vehicle registration & owning, electricity, fuel taxes, infrastructure use (tolls), subsidies

## ▶ External & infrastructure costs in 2020



Note: - km-related external cost = air pollution, noise accidents, congestion  
 - fuel-related external cost = climate + upstream

## ▶ Scenario overview: BAU - Business as Usual and MSCP - marginal social cost pricing

### BAU- Reference scenario:

- Current taxes and charges
- Needed to see the full impacts of internalisation policies

### Scenario 1 -Pragmatic MSCP:

- Marginal infrastructure & external cost for all modes
- For road fuel taxes not lowered to level of CO<sub>2</sub> cost but left unchanged.
- Congestion charges based on model calculations
- Politically not very realistic and not in line with recommendations of Eurovignette Directive

## ▶ Scenario overview: Eurovignette

### Scenario 2 - Eurovignette proposal:

- Based on 2008 Commission proposal and in line with the 2011 amendment
- Focus on road: charging for total infra cost plus air pollution and noise
- Congestion charges based on IMPACT values
- No changes for IWT and rail
- Very realistic proposal for short term

### Scenario 3 - Eurovignette proposal - extended:

- Same as scenario 2 with additional carbon tax on fuel for all modes
- External costs (air pollution and noise) charges for rail and IWT (like for road)
- Congestion charges based on model calculations
- More collaborative and realistic for medium term

## ▶ Scenario overview: Target oriented

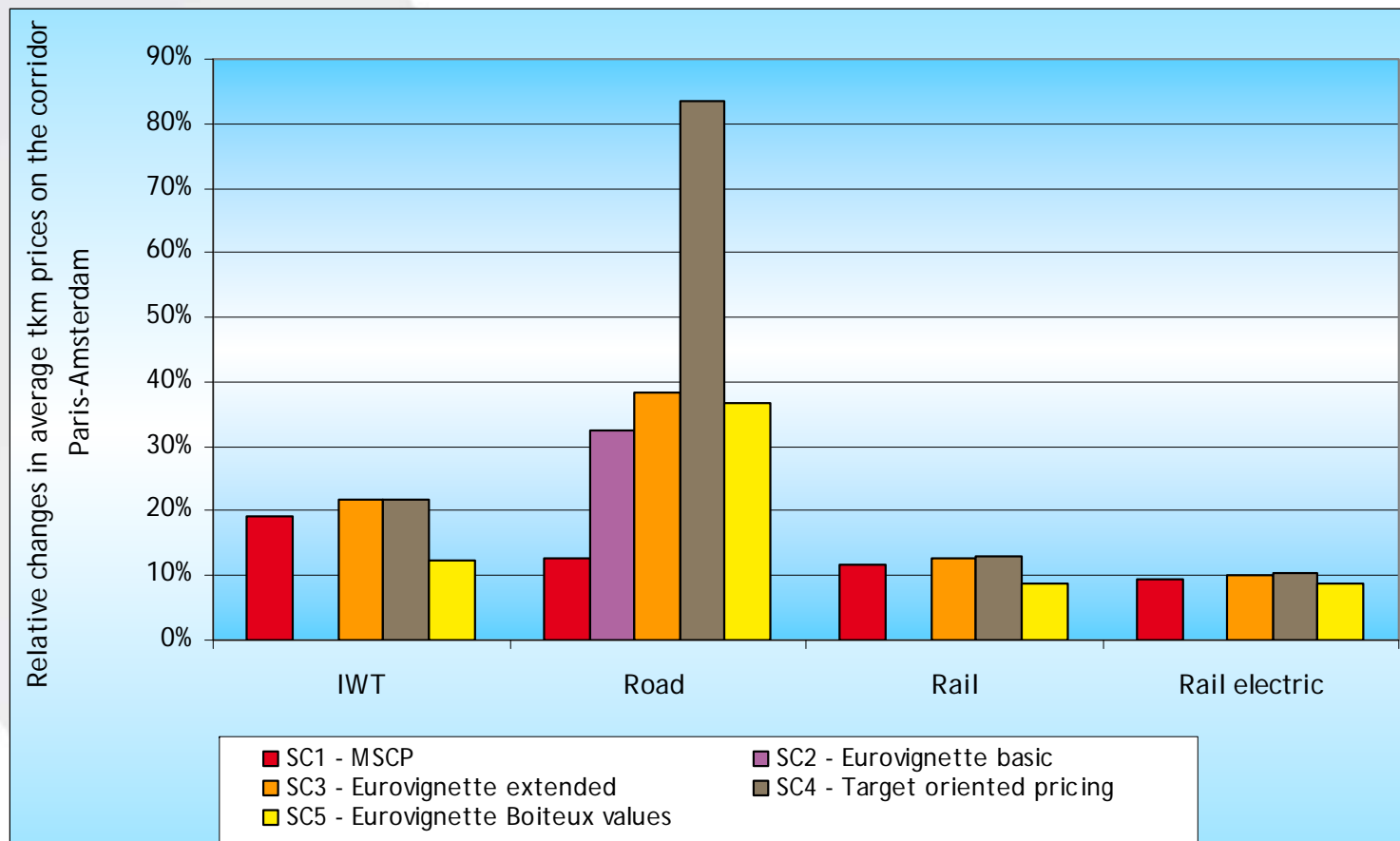
### Scenario 4 - Target oriented

- To test the maximum impact of pricing on modal shift and emissions
- Carbon tax of €40 (2020) and €85 (2050) per t of CO<sub>2</sub>; doubled for road
- Km-charges for road: twice all infrastructure and external costs (air pollution, noise and accidents)
- Marginal infrastructure and external costs for IWT and rail
- Congestion charges for road based on model calculations

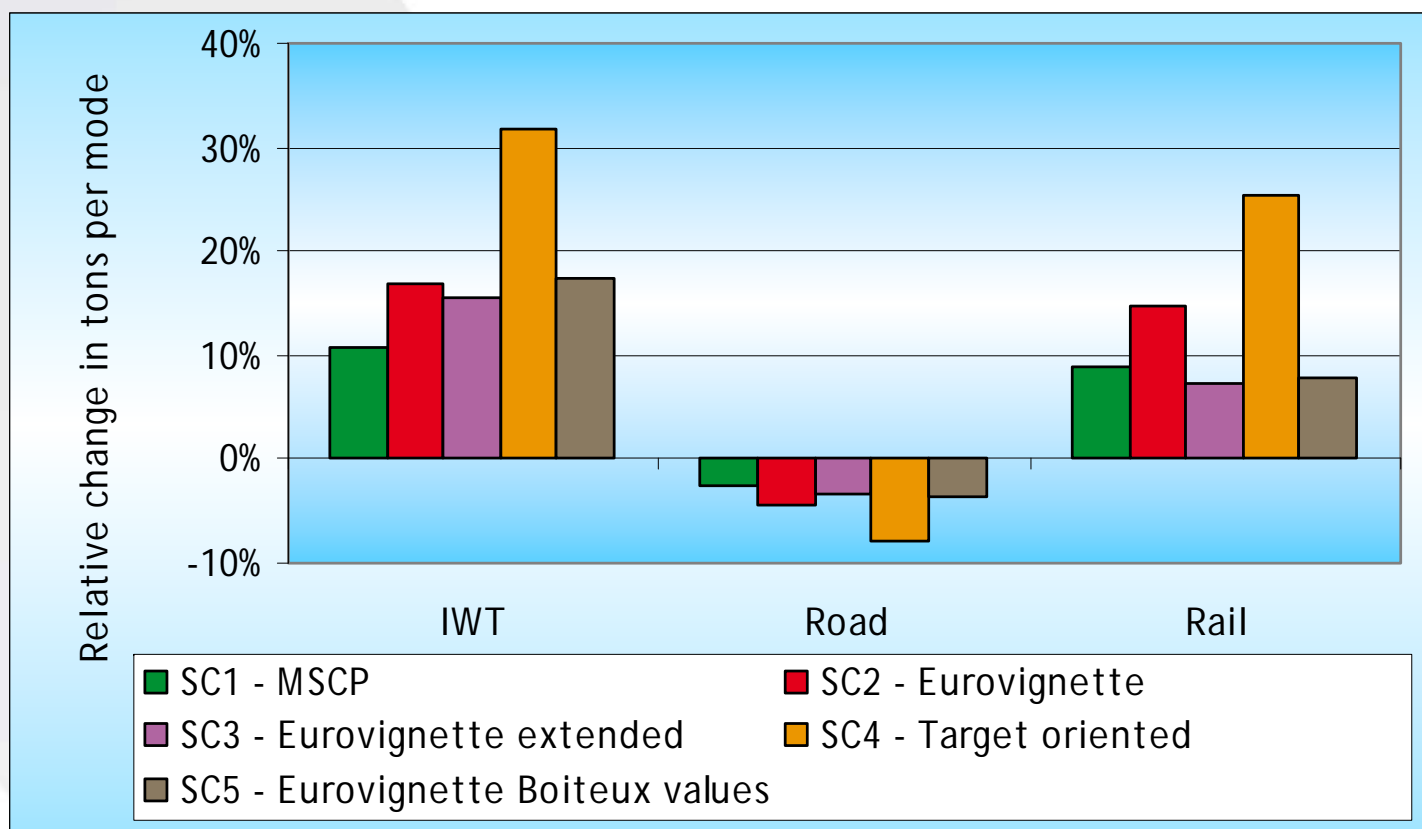
### Scenario 5 - Eurovignette proposal - Boiteux values

- Same as scenario 3, but with French external cost values from Boiteux methodology (different from IMPACT)

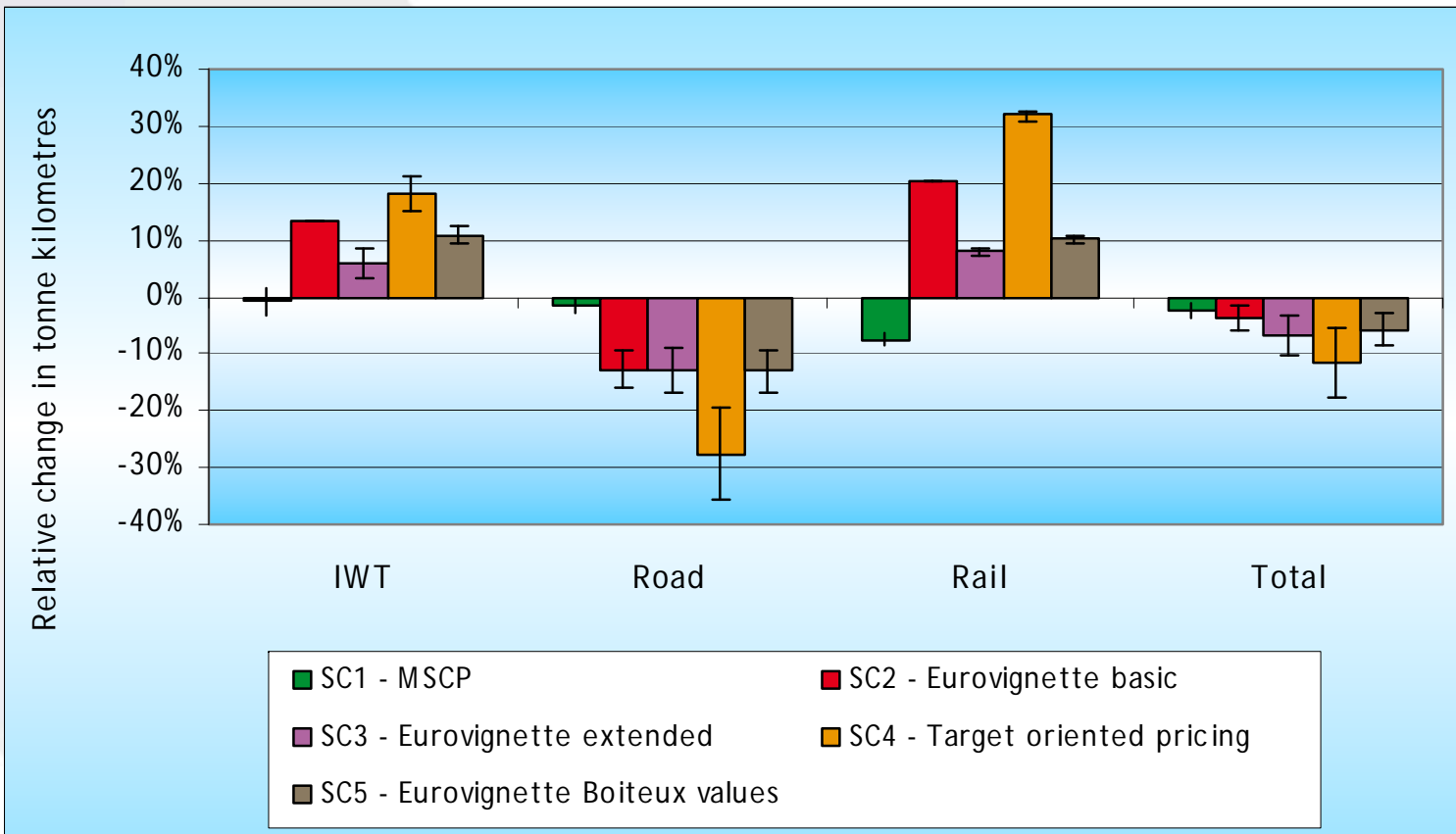
## ▶ Initial impacts on price levels



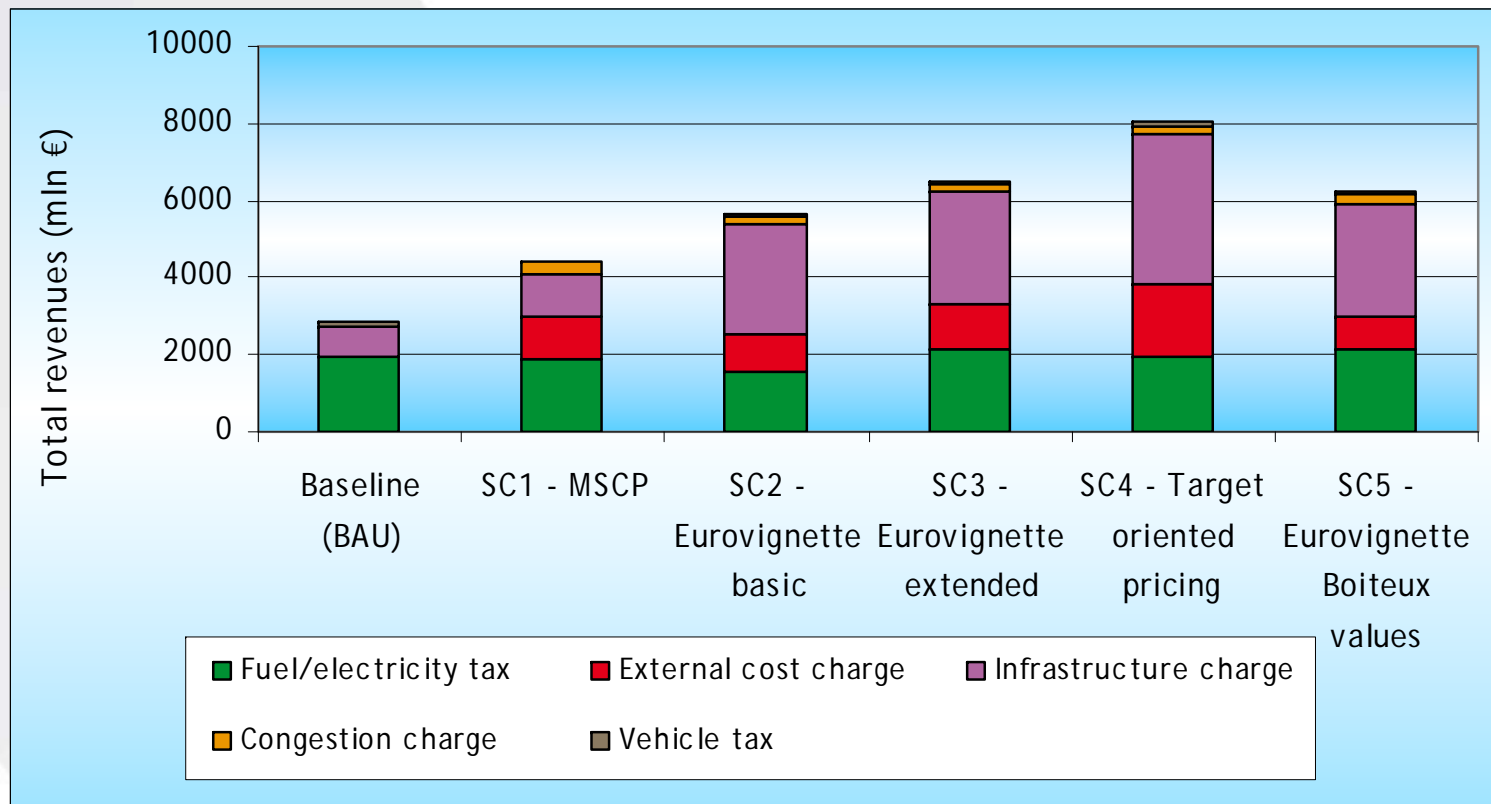
► Impacts on tonnes for the corridor in 2020



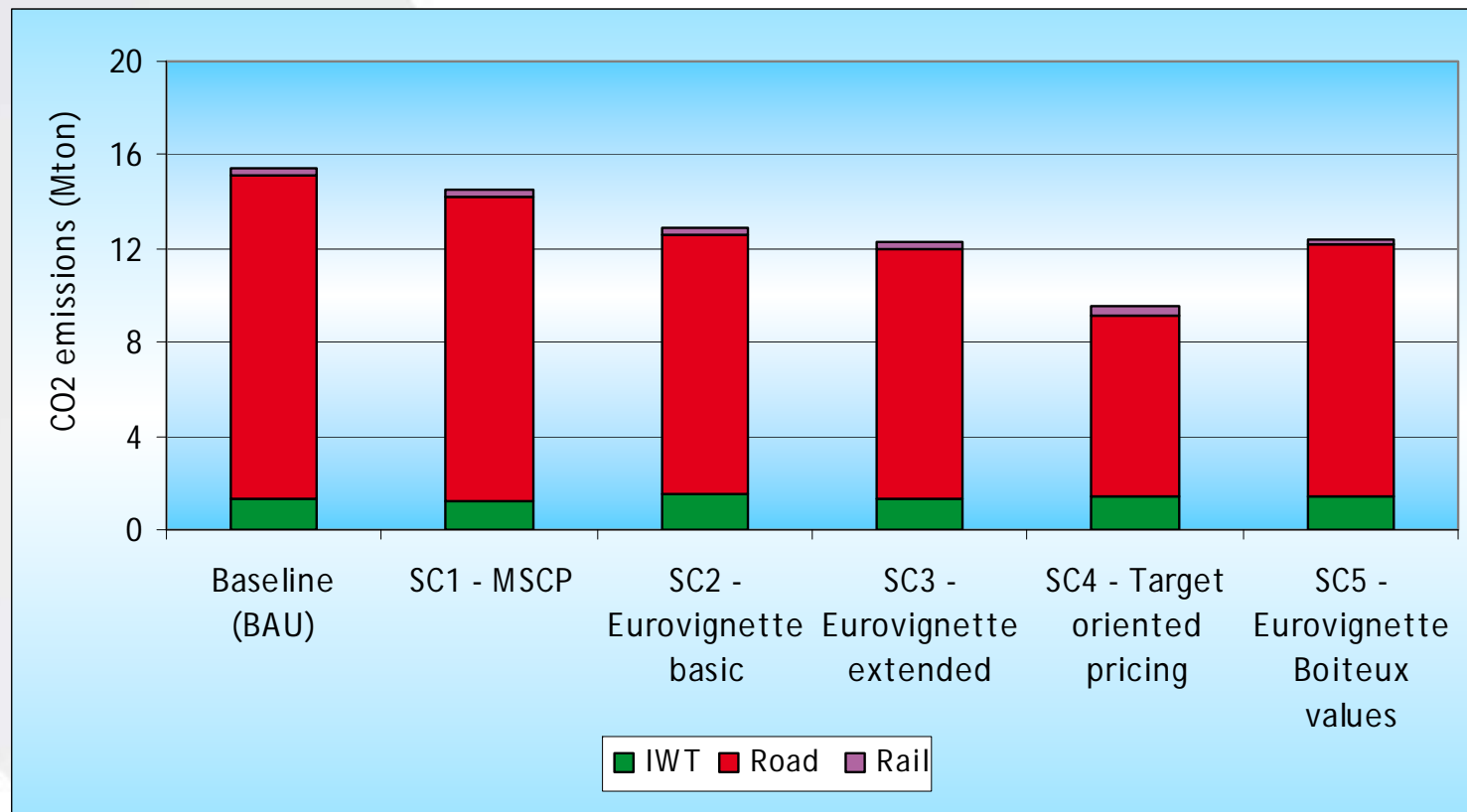
## Impacts on tonne-kilometres for the corridor in 2020



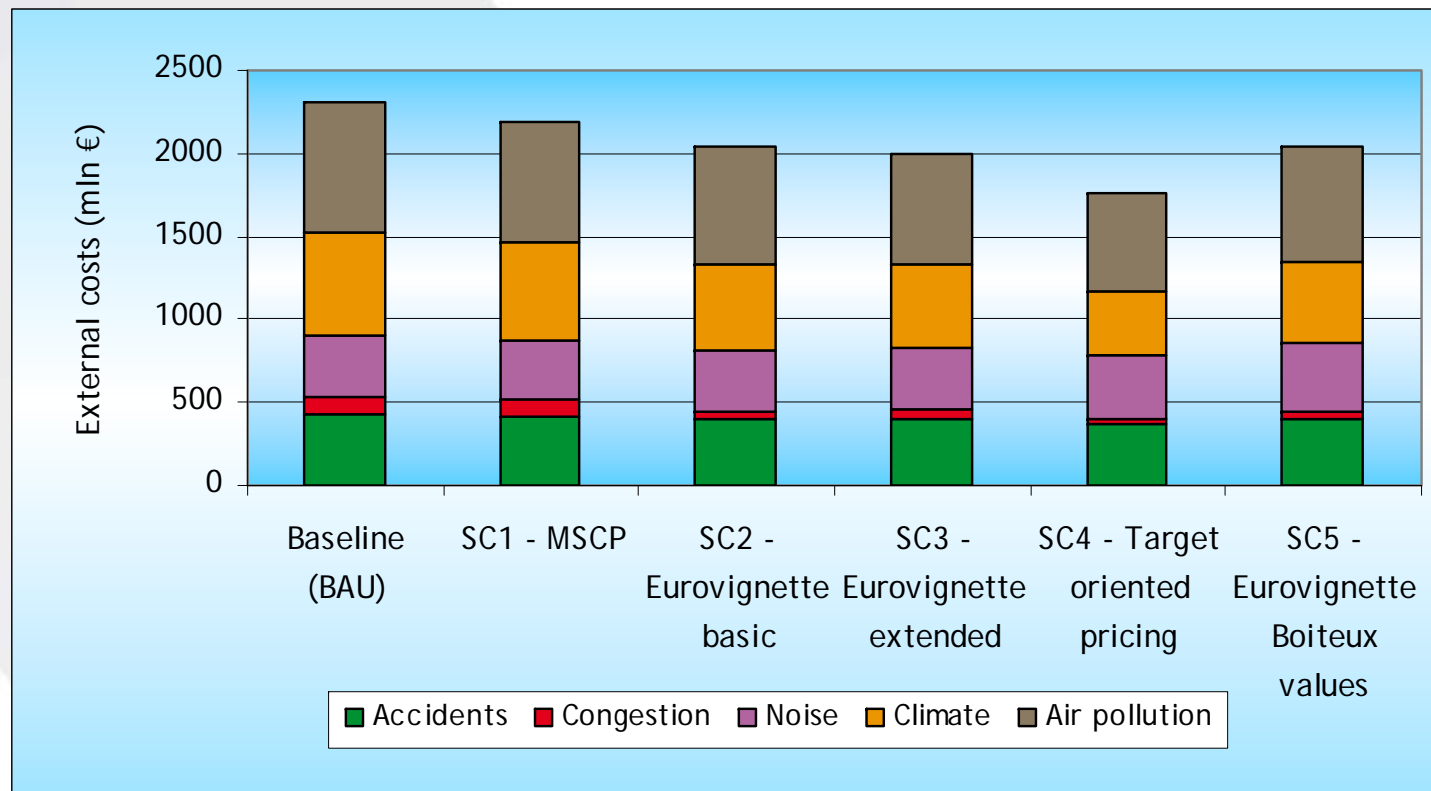
## ▶ Impacts on revenues on 2020



## ▶ Impacts on CO<sub>2</sub> emissions in 2020



## ▶ Impacts on external costs in 2020



## ▶ Main conclusions on scenario analysis (2020)

- Significant modal shift (up to +30% tonnes by IWT and 25% by rail; 7% to 17% in Eurovignette scenarios)
- Higher revenues (doubled in Eurovignette scenarios)
- Related impacts:
  - Higher vehicle loads (11% in Eurovignette scenarios)
  - High reduction of congestion (50%)
  - Lower CO<sub>2</sub> emissions (20% in Eurovignette scenarios)
  - Lower pollutant emissions (up to 30% in Eurovignette scenarios)
  - Strong reduction of external costs (up to 14% in Eurovignette)

## ▶ Strategic considerations

- Short term: charging full road infrastructure, air pollution and noise costs:
  - Technically feasible
  - No legal barriers
- Medium term: charging for all external costs for all modes and marginal infra costs for rail and IWT
- Strong and smart pricing policy fits well in long term strategy for decarbonising transport (e.g. carbon taxation)
- Key evidence of the study: multimodal and international tolling is rational, efficient in terms of competitiveness of rail and IWT
- Important revenues generated
- Next phase in IWT emission standards recommended

## ▶ Thank you for your attention

- Leaflet summarising the study available in three languages (ENG / F / NL) on website [www.seine-nord-europe.com](http://www.seine-nord-europe.com)
- Study itself available in two languages (ENG / NL) at: [www.cedelft.eu](http://www.cedelft.eu)



**Gabriel Mialocq**  
**+33(0)1 71 93 61 22**  
**[gabriel.mialocq@vnf.fr](mailto:gabriel.mialocq@vnf.fr)**



Julien BRUNEL  
[julien.brunel@rff.fr](mailto:julien.brunel@rff.fr)



Wallonie

Damien Borsu  
[damien.borsu@spw.wallonie.be](mailto:damien.borsu@spw.wallonie.be)



Ministerie van Infrastructuur  
en Milieu

Thierry de Wit  
[thierry.de.wit@minvenw.nl](mailto:thierry.de.wit@minvenw.nl)



Waterwegen en Zeekanaal NV

Ellen Maes  
[ellen.maes@wenz.be](mailto:ellen.maes@wenz.be)

- CE Delft: Huib van Essen - e-mail: [essen@ce.nl](mailto:essen@ce.nl)