

# Transport policy and climate

-time to change priorities?-

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# Outline

- Climate and Energy: too much emphasis
- Congestion & Health: more emphasis
- Future of fuel taxes for cars
- Future of fuel taxes for trucks
- Future of public transport subsidies
- What policies make sense?

# Climate & Energy issues 1

- Climate damage is real and requires action
- International action is needed
- BUT global agreement is highly unlikely because
  - public bad without world government leads to a non-cooperative equilibrium with insufficient action
  - EU takes unilaterally, strong action, not many will follow
  - Net result will be small
    - Only 15% of world takes strong action
    - results in “spatial” carbon leakage: carbon - intensive production relocates outside the EU

# Climate & Energy issues 2

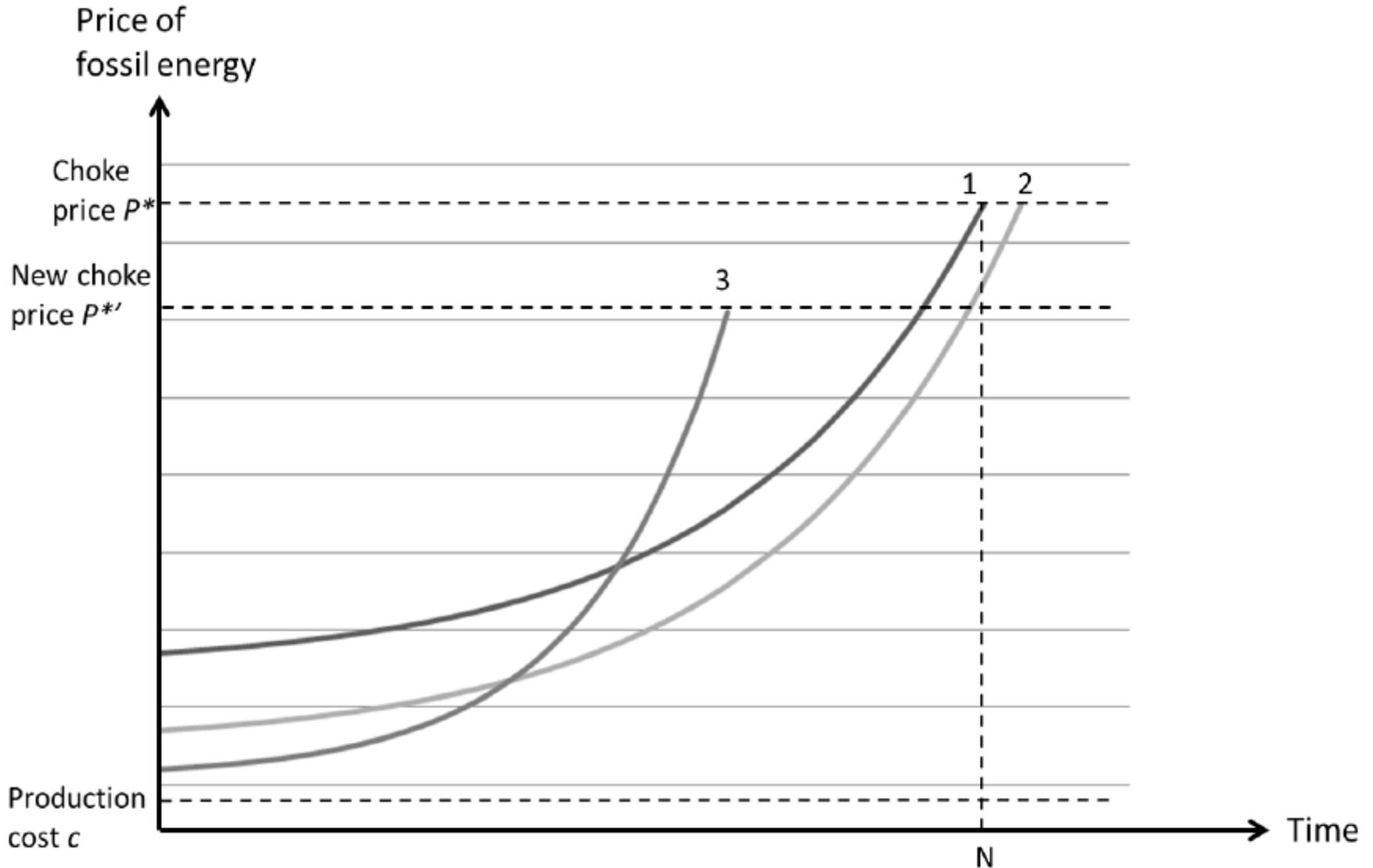
- There is a bigger problem associated to incomplete climate agreements: the GREEN PARADOX
  - Distinguish
    - low rent energy stocks (coal, non-conventional oil & gas) : world price close to extraction cost
    - High rent energy stocks (conventional oil and gas) : world price >>extraction cost
  - When EU decreases consumption of coal, the effect on the world coal price will be limited and so there will be a net reduction of world emissions of carbon

# Climate & Energy issues 3

- incomplete climate agreements & the GREEN PARADOX
  - When EU reduces the consumption of oil (gas) that has high rents, there could be NO effect on total world emissions coming from oil because the owners of the oil will want to realize their profit and so the total stock of “cheap” oil will be used anyway
- EU (Belgian) Goodwill is not enough, reducing oil consumption will very likely only postpone carbon emissions rather than reduce emissions

# Use of exhaustible resource over time

1= reference 2= EU action 3=new technology announced



# Is there nothing the EU can do?

- Promote cheap automotive technologies (gasoline) that can be transferred to the rest of the world
- Don't promote the use of fancy hybrid or electric cars that are expensive (5 000 to 10 000 Euro more costly to produce and use) and are not interesting for the rest of the world – makes sense for R&D not for “use” subsidies
- Smart technology development allows to postpone the carbon emissions in the world
- Oil use in the world could be stopped by developing a magic “water” car
  - Has to be cheaper than a gasoline car that uses oil counted at extraction cost (25 ct/ liter)
  - Has to be available quickly as oil producers will dump their oil very quickly once this is known

**Table 2** Characteristics of new car technologies in OECD countries

Technology	GHG emissions index (well to wheel) per unit distance, OECD 2010 = 100	Major consumer disadvantages and costs
<b>OECD 2010</b>		
OECD	100	
Gasoline (United States)	115	
Gasoline (EU)	90	
Diesel (EU)	80	
<b>OECD 2020–2040</b>		
Gasoline	80–45	Extra cost of 0–\$2,000/vehicle
Diesel	80–45	Extra cost of 0–\$2,000/vehicle
Hybrid gasoline	60–34	Extra cost of \$2,000–\$4,000/vehicle
Hybrid diesel	50–34	Extra cost of \$2,000–\$4,000/vehicle
Plug-in hybrid	30–19	Extra cost of \$7,500/vehicle
Electric car	45–14	Smaller range, slower and more frequent refueling + extra cost of \$10,000–\$20,000/ vehicle and requires adaptation of electricity distribution
Compressed natural gas	Mid-range emissions	Requires compressed gas distribution

# Focus on Congestion and Health

- Major problems associated to car use are still congestion, health (and safety)
- Solutions are
  - Changing transport mode (bus, train, bike)
  - Cleaner vehicles
- Cleaner vehicles: promote gasoline rather than diesel
  - Compared to gasoline cars, diesel cars emit less CO2 emissions per mile and have a lower variable cost because they need 20% less liters
  - But this is not what we want
    - every liter is taxed less than a liter of gasoline
    - Every km is taxed less ( and encourages driving, congestion etc)
    - Diesel car emits in reality 5 times more particulates than in the test cycle and this makes them a dirty technology

# Future of motorfuel taxes for cars

- Reducing gasoline and diesel consumption is a very costly (200 to 300 Euro/ton CO<sub>2</sub>) and probably ineffective way to reduce carbon emissions
  - 5 l/100 km emits only 2 ton CO<sub>2</sub> per year, spending 1000 's of Euro for a more fuel efficient car makes saving CO<sub>2</sub> expensive
- Higher fuel efficiency of cars makes fuel taxes less and less efficient instrument to internalize the other externalities (congestion, accidents, ...)
- So there is a real need for other instruments

# Future of truck taxes

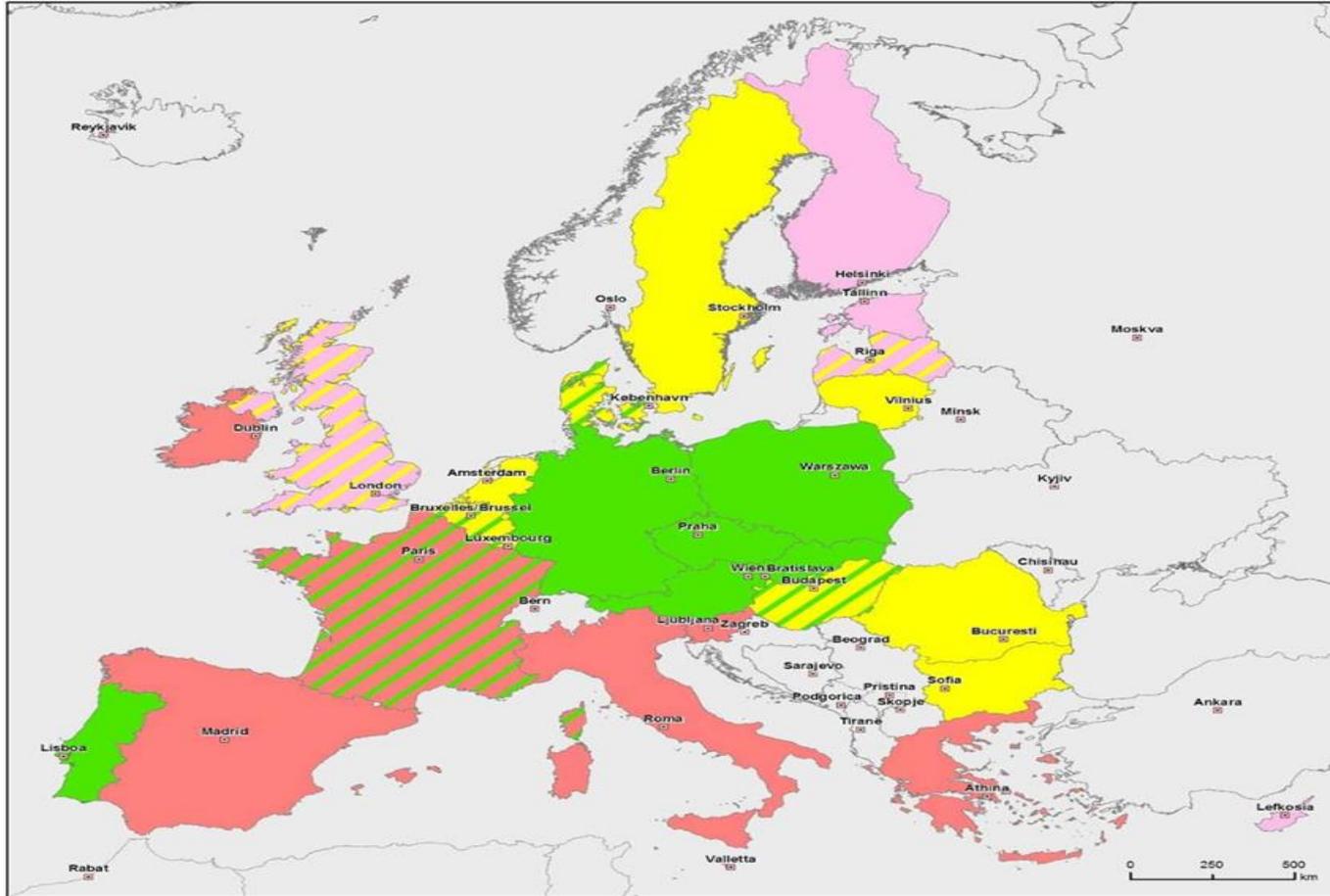
- Competition for international truck refuelling makes it difficult to tax trucks
- Smart countries switch to distance charges, and those countries can start to cut diesel taxes



European  
Commission

## CHARGING OF HEAVY GOODS VEHICLES IN THE EU

Directive 1999/62/EC as amended by Directive 2006/38/EC  
and Directive 2011/76/EU



### Legend

- Vignette (time-based charge)
- Electronic network-wide toll (distance-based charge)
- Toll with physical barriers (distance-based charge)
- Neither vignettes nor tolls
- Vignette (time-based charge) under preparation
- Electronic network-wide toll (distance-based charge) under preparation

# Focus on congestion

- Make car use at particular places (Brussels, Antwerp) and at particular times (peak) more expensive
- This requires congestion pricing for cars
  - Net welfare gain as one transforms queuing into tax revenues
  - Parking charges increased everywhere but they are less efficient to address congestion
- And for trucks
  - Trucks have a distance charge, this is good for tax revenues but is useless to address congestion

# Promotion of other modes

- Subsidies for the operation costs of public transport (PT) can be justified if a higher subsidy makes a car user on a congested route switch to PT
- Evidence is that a decrease of prices and increased frequency of PT generated much more users over the last 10 years: (x2 (rail) x 3 (bus+tram))
- BUT only a small fraction (<20 %?) are former car users – most of the new users are former bikers, car poolers or simply additional trips, then subsidies for PT are difficult to justify
- There are capacity problems in the peak period for train, tram and bus, solution is peak load pricing rather than capacity extension (BXL North-South)

# What policies make sense 1?

- No emphasis on fuel efficient cars: it is very costly and is not effective in terms of carbon emissions
- Make driving diesel cars much more expensive: very high registration tax (regions) and make diesel fuel more expensive than gasoline
- Address company cars loophole
- Fuel taxes have reached the limit, we need other instruments as increases lead to more fuel efficient cars and not to a reduction of mileage in places and at times where it is necessary
- Truck distance charges will replace diesel excises
- Take congestion pricing seriously, it is a cheaper, faster and more effective solution than to build new tunnels (Antwerp), or extra lanes (Brussels Ring) and is good for the government budget
- Increase prices in the peak for all PT use where there is congestion, stop offering free PT

# What policies make sense 2?

- Fuel taxes have reached the limit, we need other instruments
  - as increases lead to more fuel efficient cars and not to a reduction of mileage in places and at times where it is necessary
- Truck distance charges will replace diesel excises where tax competition drive them to the bottom
- Take congestion pricing seriously, it is a cheaper, faster and more effective solution than to build new tunnels (Antwerp), or extra lanes (Brussels Ring) and is good for the government budget
- Increase prices in the peak for all PT use where there is congestion, stop offering free PT

Thank you for listening

But i love people who disagree

# More reading

- Proost S., C.Tampère (eds), De verkeersknoop, Lannoo Campus
- Eliasson J., S.Proost, How sustainable is sustainable transport, Transport Policy 2014
- Mayeres, I., Proost, S. (2013). The taxation of diesel cars in Belgium - revisited. Energy Policy, 54, 33-41
- Barla, P., Proost, S. (2012). Energy efficiency policy in a non-cooperative world. Energy Economics, 34(6), 2209-2215.
- Proost, S., Van Dender, K. (2012). Energy and environment challenges in the transport sector. Economics of Transportation, 1, 77-87.
- Leuvense Economische Standpunten
  - 120 Economie voor een klimaatminister
  - 128+129 Oosterweel
  - XXX (te verschijnen) Hoe duurzaam is duurzaam transport
  - YYY (te verschijnen) Een taks shift voor transport

# The mistakes of NL and DK

- NL had high vehicle purchase and registration taxes
  - Transformed them into progressive CO2 taxes
  - Result was 0.5 % saving of CO2, more cars and a loss of tax revenues of close to 2 billion Euro
- DK had high purchase taxes for cars, in 2007 it switched to a bonus malus system with focus on CO2
  - Result was much more diesel cars
  - Loss of government revenues