



Pathways to Low Carbon Transport in the European Union: The Role of Biofuels

Dr Arno Behrens

Head of Energy and Research Fellow
Centre for European Policy Studies (CEPS)

Biofuel Policy for a Low Carbon Future

Bilbao, 19 September 2013

Overview

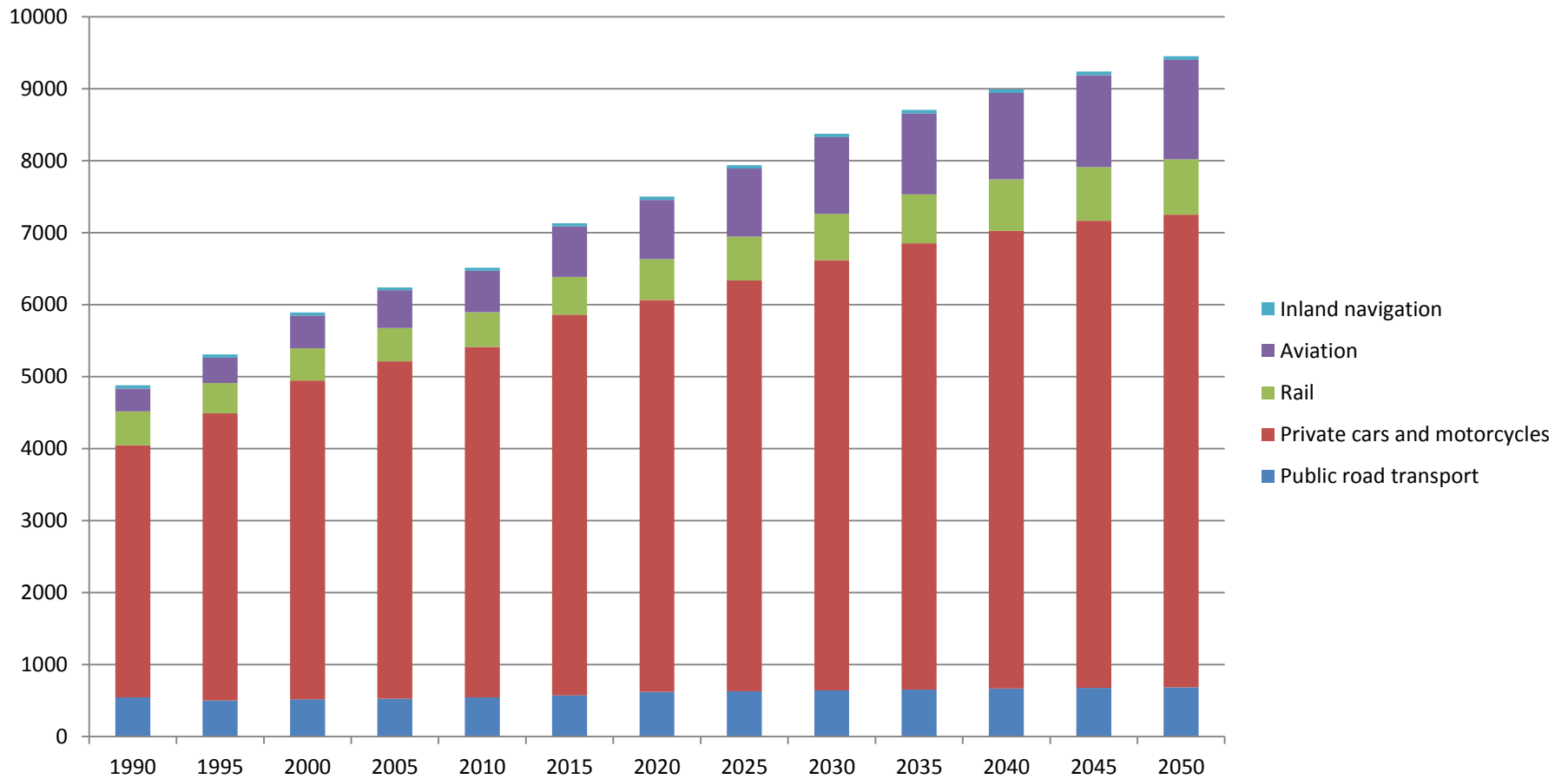
- Basics about EU transport sector
 - Historical developments
 - Key challenges
 - Political targets
- CEPS approach to decarbonising EU transport
 - Results from a CEPS Task Force on Transport and Climate Change
- Biofuels
 - Current debate
- Policy recommendations

Basics about the EU transport sector

Importance of the EU transport sector

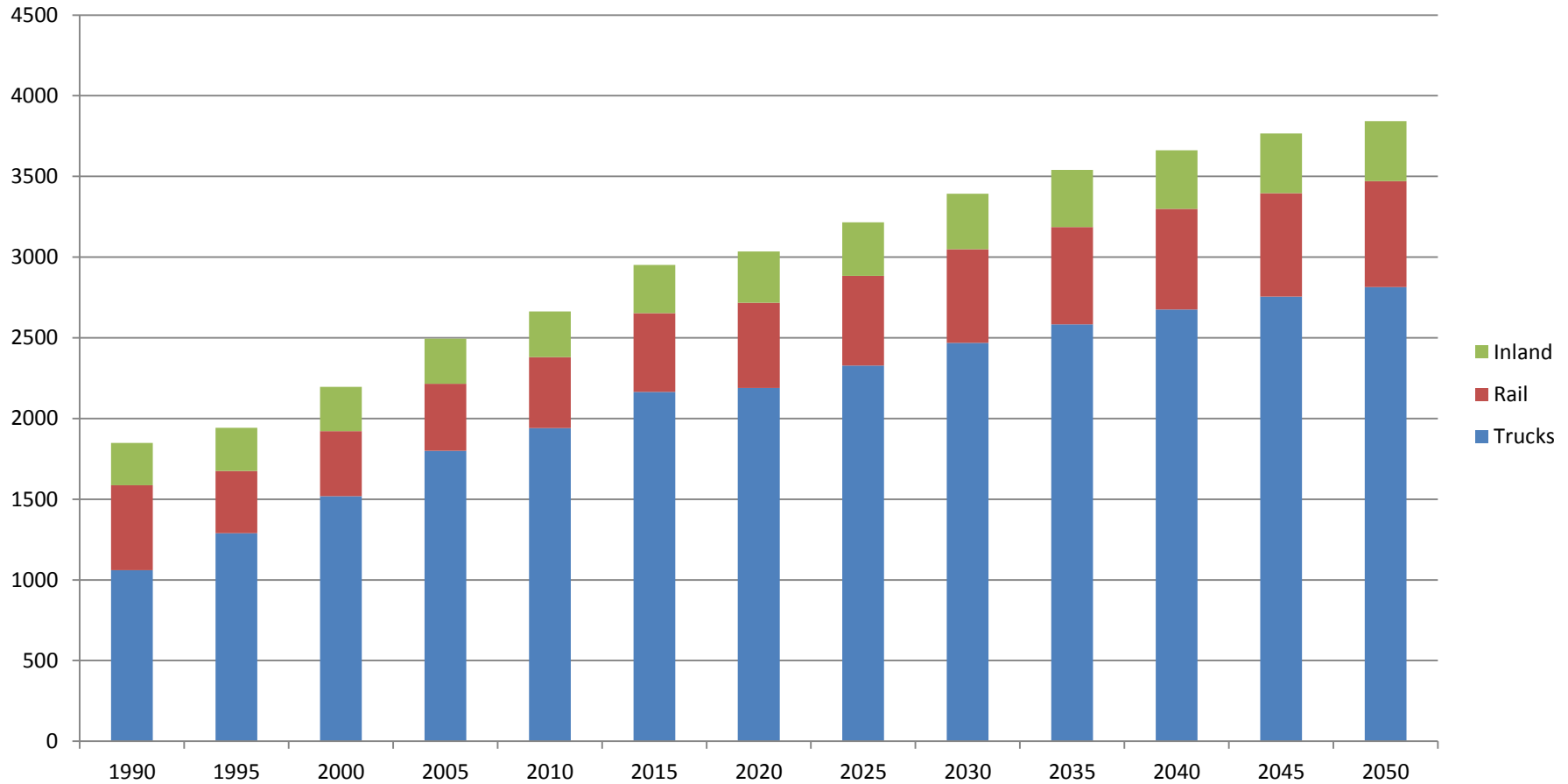
- Strategic sector
- Important component of European economy
 - 10 million jobs
 - 5-7% of EU GDP
- Cornerstone of European integration

Passenger transport activity (Gpkm)



Source: European Commission, 2011 (Energy Roadmap 2050)

Freight transport activity (GTkm)



Source: European Commission, 2011 (Energy Roadmap 2050)

Growing security and environmental concerns

- 96% dependence on oil and oil products
- Greenhouse gas emissions increasing
 - Total: +27% between 1990 and 2009
 - Share in total GHG emissions: about 25%
- Increasing congestion

How to achieve -80% GHG emissions by 2050

GHG reductions compared to 1990	2005	2030	2050
Total	-7%	-40 to -44%	-79 to -82%
Sectors			
Power (CO ₂)	-7%	-54 to -68%	-93 to -99%
Industry (CO ₂)	-20%	-34 to -40%	-83 to -87%
Transport (incl. CO ₂ aviation, excl. maritime)	+30%	+20 to -9%	-54 to -67%
Residential and services (CO ₂)	-12%	-37 to -53%	-88 to -91%
Agriculture (non-CO ₂)	-20%	-36 to -37%	-42 to -49%
Other non-CO ₂ emissions	-30%	-72 to -73%	-70 to -78%

Source: European Commission, 2011 (Low Carbon Roadmap 2050)

EC White Paper on Transport 2011: Targets

- By 2050, reduction of at least 60% of GHGs with respect to 1990 (=70% compared to 2008)
- By 2030, reduction of 20% with respect to 2008

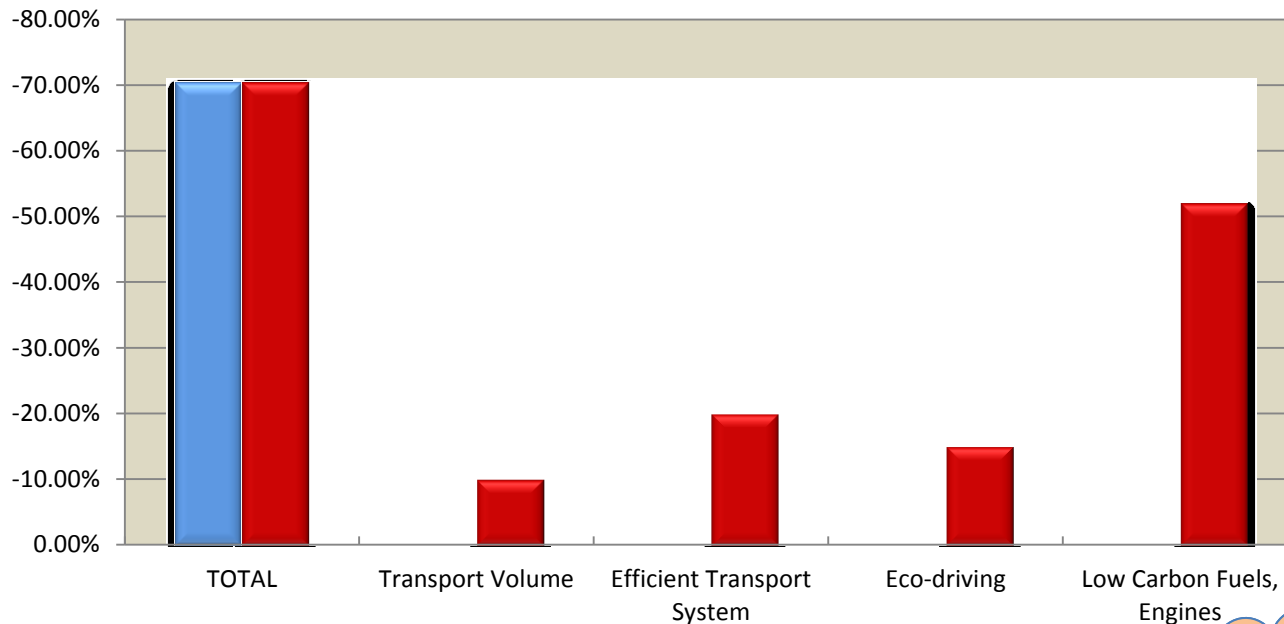
EC White Paper on Transport 2011: Vision

- Transformation of Europe's transport system
 - No more conventionally-fueled cars in cities
 - 50% shift of medium distance transport to rail and waterborne transport
 - 40% low carbon fuels in aviation
 - At least 40% cut in shipping emissions
- Fully integrated Single European Transport Area
- Para. 18: “Curbing mobility is not an option”

Results of the CEPS Task Force on Transport and Climate Change

The ambitious 60% GHG reduction objective is possible but requires cost-effective and step-wise immediate action!

Illustrative Pathways for Achieving the Required CO2 Reductions from Transport



■ Pathway A: Strong contribution from low-carbon technologies
■ Pathway B: Weaker contribution from low-carbon technologies

60% CO₂ emissions reduction in 2050/1990 levels equals about 70% reduction/2005 levels

Volume:
 Changes in demand
Efficiency:
 Higher occupancy rates/load factors, modal swift to more efficient transport, more efficient logistics
Eco-driving:
 Better traffic flow
Low Carbon Fuels, Engines:
 Energy & Carbon efficiency improvements

Where policy should focus on (I)

2/3 of required emissions reductions through

- Technological improvements
 - Energy efficiency of vehicles
 - Low carbon fuels
 - New engine technologies

Where policy should focus on (II)

1/3 of required emissions reductions through

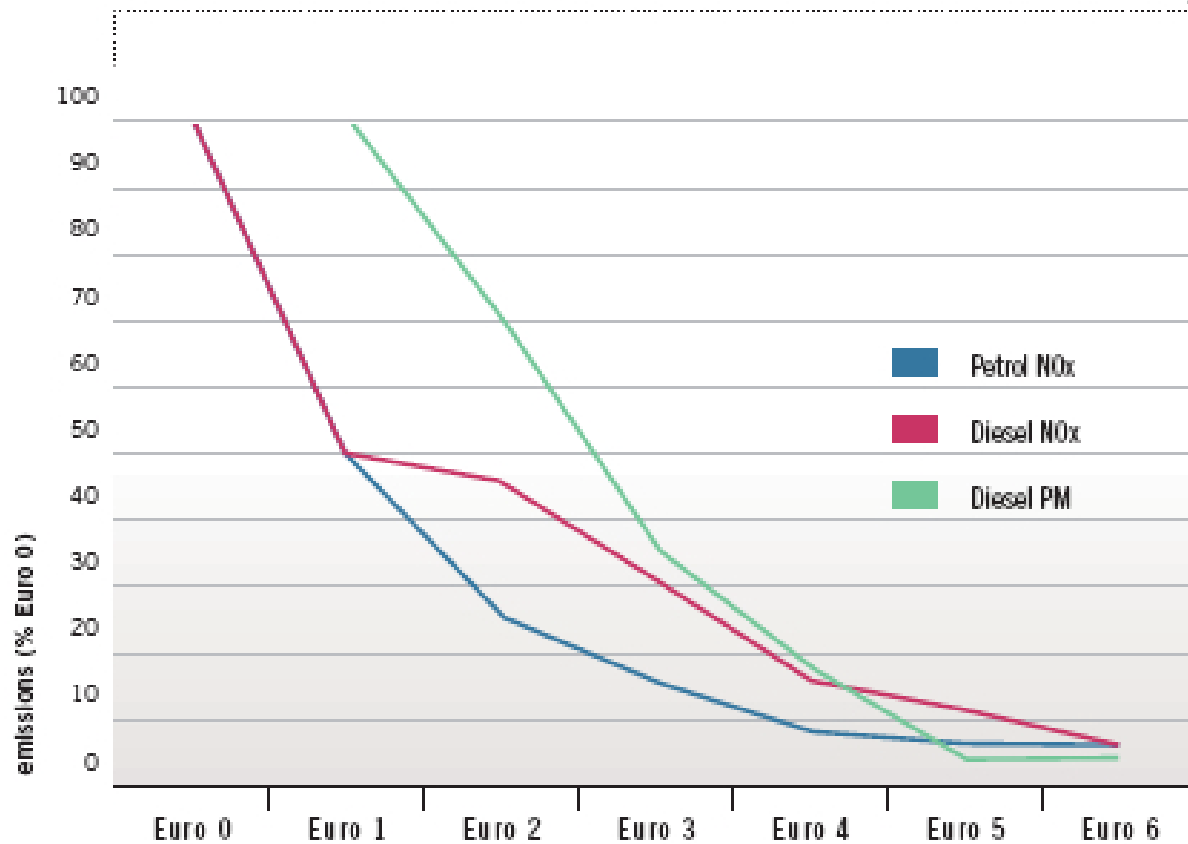
- Efficiency of transport system
 - Modal shift
 - Higher occupancy and load factors
 - Green Logistics
- Eco-driving
- Small reduction of transport volume

Technological improvements through standard setting

- Various technological routes to low carbon transport
- Technology neutral incentives needed, with focused and temporary support measures
- Key element of policy mix: emissions standards

Emissions standards work

Passenger cars – Euro 0 to Euro 6



Source: ACEA

Key recommendation of the CEPS Task Force

- Progressively tightened CO2 emissions standards on EU level
- On MS level: differentiation of sales, vehicle and company car taxes according to CO2 emissions
- “Getting prices right”
- Labeling based on EU wide test cycle

EU biofuels policy – an example of why technology-neutral interventions are better?

Initial support for Biofuels

- Reduce GHG emissions
- Reduce import dependence of oil
- Create income and jobs (in rural areas)

- No additional investment in engine technology/infrastructure required

Mandatory Targets in EU legislation

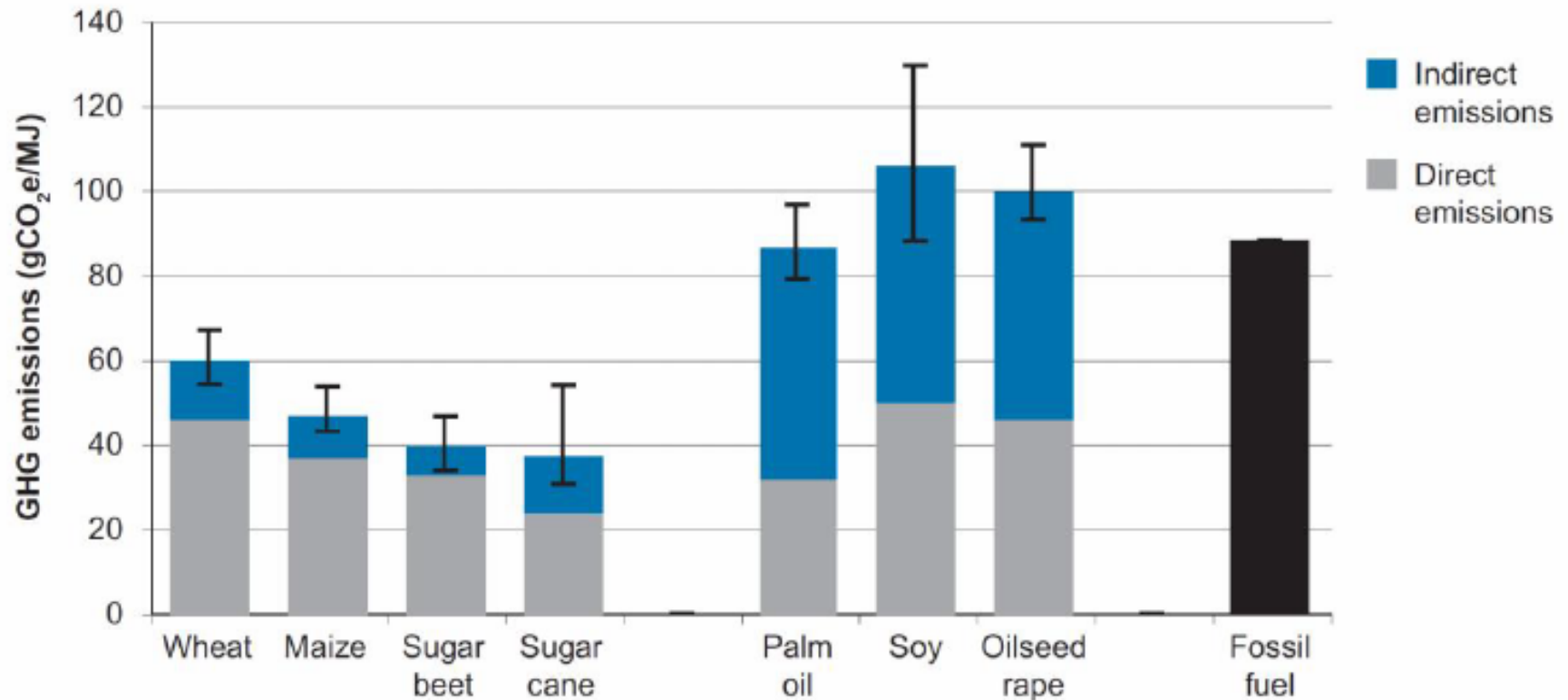
- Renewable Energy Directive (2009)
 - 10% share for renewable energy in transport by 2020
- Fuel Quality Directive (1998)
 - 6% reduction in GHG intensity of fuels used in road transport
- Demand for biofuels likely to increase strongly
- Sustainability criteria included

Current fierce debate and criticism

- Environmental aspect (LUC & ILUC, biodiversity, deforestation, water use, pollution etc.)
- Development aspect (food vs fuel, land grabbing, working conditions, social conflicts, human rights)
- Industrial/economic aspect (investment & employment)
- “Bioenergy is not automatically low carbon, renewable or sustainable” (UK Bioenergy Strategy, 2012)

GHG savings overstated?

Figure 17: Estimates of the life cycle emissions from biofuels when ILUC emissions are included



Source: DfT analysis based on IFPR⁷⁵

Revision of RED and FQD: key components

- Cap use of traditional biofuels to 5-6% by 2020 (i.e. about half of 10% target)
- New sub-target for advanced biofuels (2.5% by 2020)
- Multiple counting for 2nd and 3rd generation biofuels
- Increase required GHG emissions savings from 35% to 60% compared to conventional alternative
- Introduce ILUC factors to improve accounting transparency

What's at stake?

- Potential blow to biofuels industry in EU
 - Some MS more affected than others (e.g. DE, FR, ES)
- Reduction of market due to multiple counting
- Investment security
- Revise 10% target?
- Fierce MS resistance/delay to be expected

Conclusions

- Biofuels one of many alternatives to reduce GHG emissions from transport
- Deliver genuine carbon reductions (ILUC)
- Other factors (social, food, biodiversity) need to be accounted for
- Mode-specific application (aviation, shipping)
- May even prolong existence of conventional combustion engine and oil dependence
- Benefits need to be assessed on a case by case basis
- Investment security is important (past/future)