



Decarbonising the transport sector

the role of biofuels

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Presentation overview

- ★ GHG emission reduction goals to 2050 and the transport sector
- ★ Biofuels in the EU legislative framework to 2020
- ★ Biofuels sustainability and indirect land use change
- ★ Summary

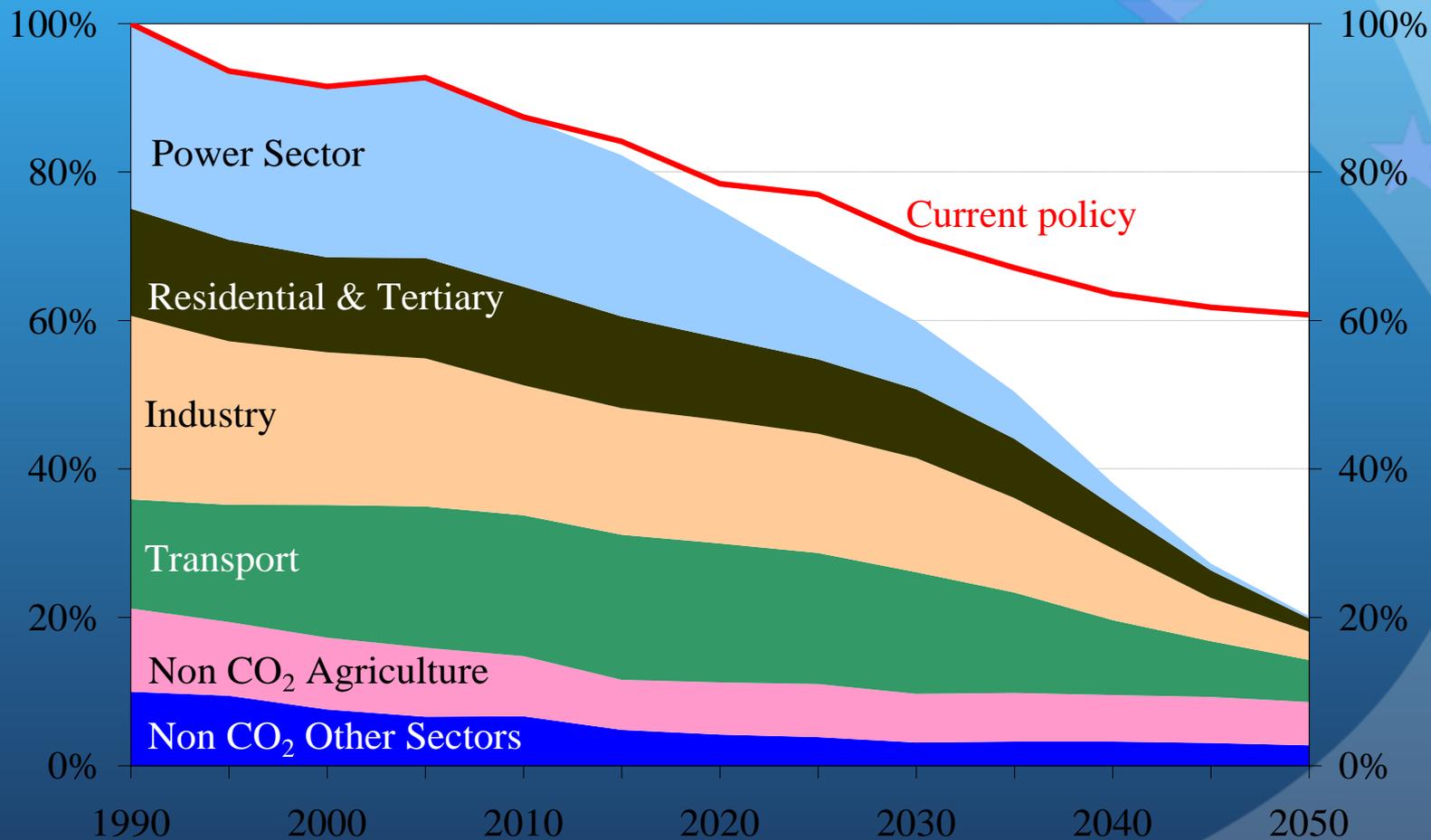
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GHG emission reduction goals to 2050 and the transport sector

EU GHG reduction goals to 2050

- ★ Climate objective is to keep below 2⁰C increase
- ★ EU strategy “2050 low economy road map”
 - published 8 March 2011
 - aims to achieve GHG emission reductions of 80-95% (compared to 1990) across all sectors of economy to 2050

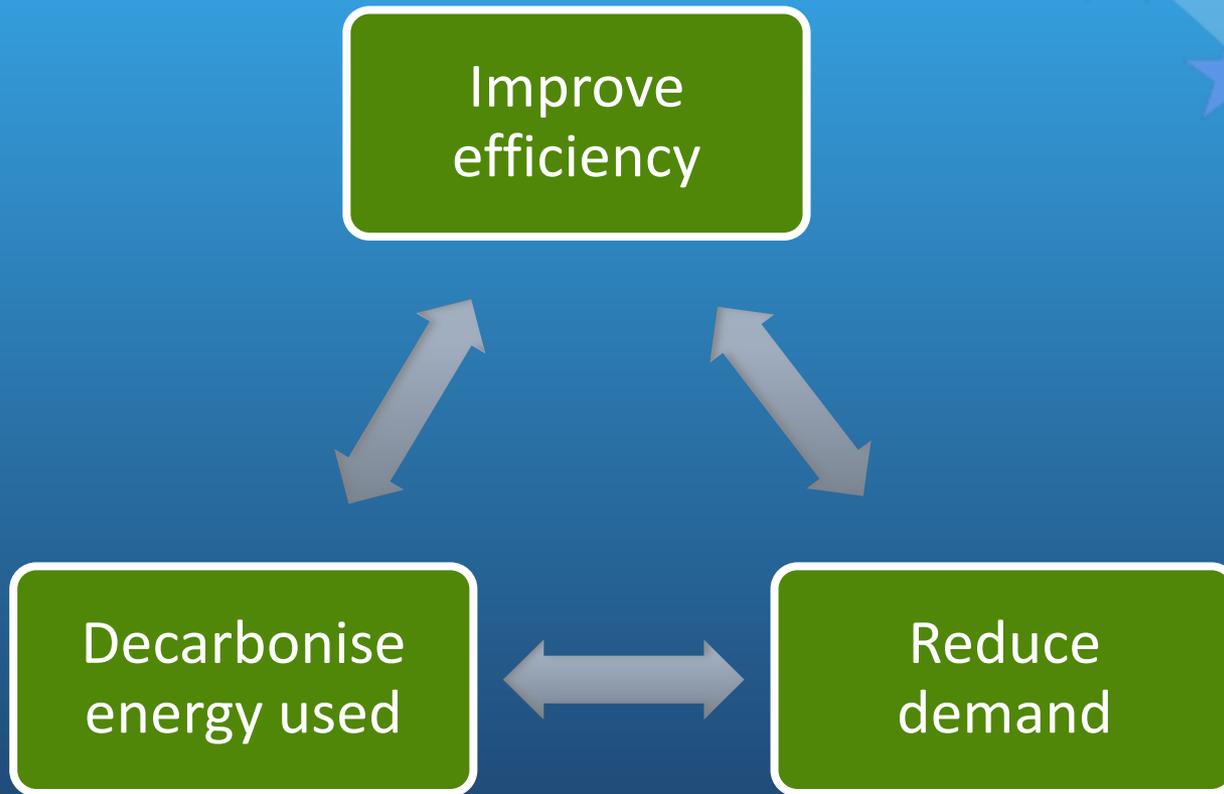
Low Carbon Road Map Trajectory



EU GHG reduction goals *Transport*

- ★ Currently represents about a third of EU energy use and a quarter of EU GHG emissions
- ★ Only major EU sector where emissions are increasing – 1.4% per year 1990-2004 (impact of growth is greater than that of technological improvements)
- ★ Transport White Paper
 - published 28 March 2011
 - general challenges of transport system
 - for transport, this means reductions between 50-70% are needed. Otherwise, other sectors would require an increased contribution. Climate change strategy objective of -60%

Ways to decarbonise transport



The background is a blue gradient with a pattern of light blue stars, reminiscent of the European Union flag. The stars are arranged in a curved line on the right side of the slide.

Biofuels in the EU legislative framework to 2020

Climate and Energy 2020 targets

★ 2020 Climate and energy package

- adopted 2008
- 20% reduction on GHG from 1990 levels
- 20% energy consumption to come from renewable sources
- 20% reduction in primary energy use

Biofuels in context *2020 targets*

★ Renewable Energy Directive

- 20% renewable energy total
- 10% in transport; biofuels major contributor (close to 9%), electrification of road and rail also playing a part

★ Fuel Quality Directive

- 6% GHG reduction in road transport fuels
 - biofuels major contributor, reductions in fossil fuel intensity.
 - small contribution to reduced intensity also from improved processing at source (i.e. flaring and venting), and replacement of current fuels (electricity/natural gas).
- ★ Promotion of biofuels is aimed at decarbonising energy use. Other measures, i.e improved transport efficiency, in place.

The background is a gradient of blue, transitioning from a lighter shade at the top to a darker shade at the bottom. On the right side, there is a curved pattern of light blue stars, similar to the European Union flag, arranged in a diagonal line.

Biofuels sustainability and indirect land use change

Biofuels sustainability

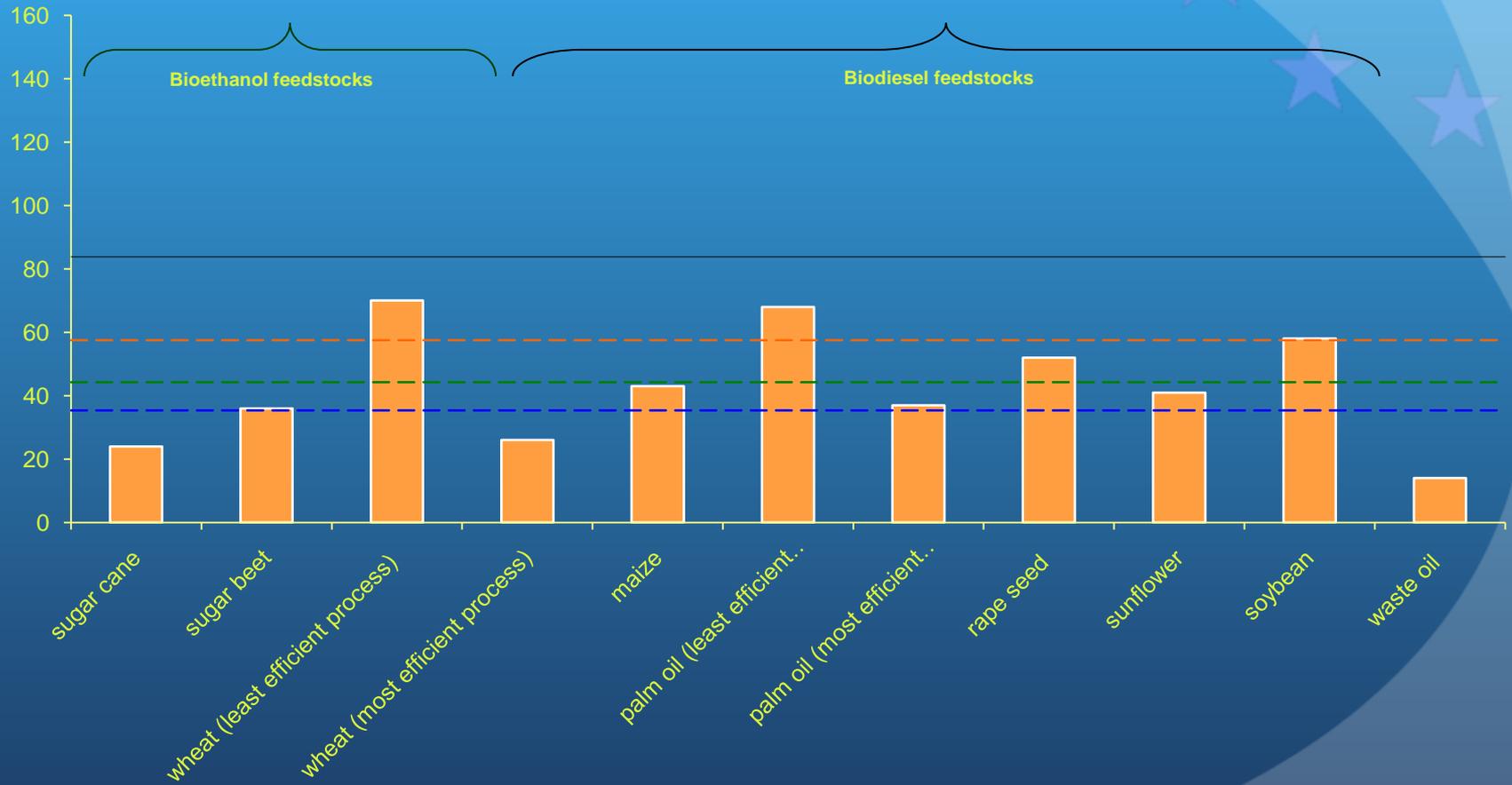
- ★ Biofuels ability to reduce emissions depends on how they are produced
- ★ Legislation contains criteria
 - preventing conversion of high carbon stock land and biodiversity loss (forests, grassland)
 - GHG minimum savings required compared to fossil fuels (35%, then 50-60%)
- ★ Biofuels can also lead to land use change indirectly-displacement of other agricultural demand
- ★ ILUC impacts on GHG emissions to be reviewed and addressed if needed

Indirect land use change (ILUC)

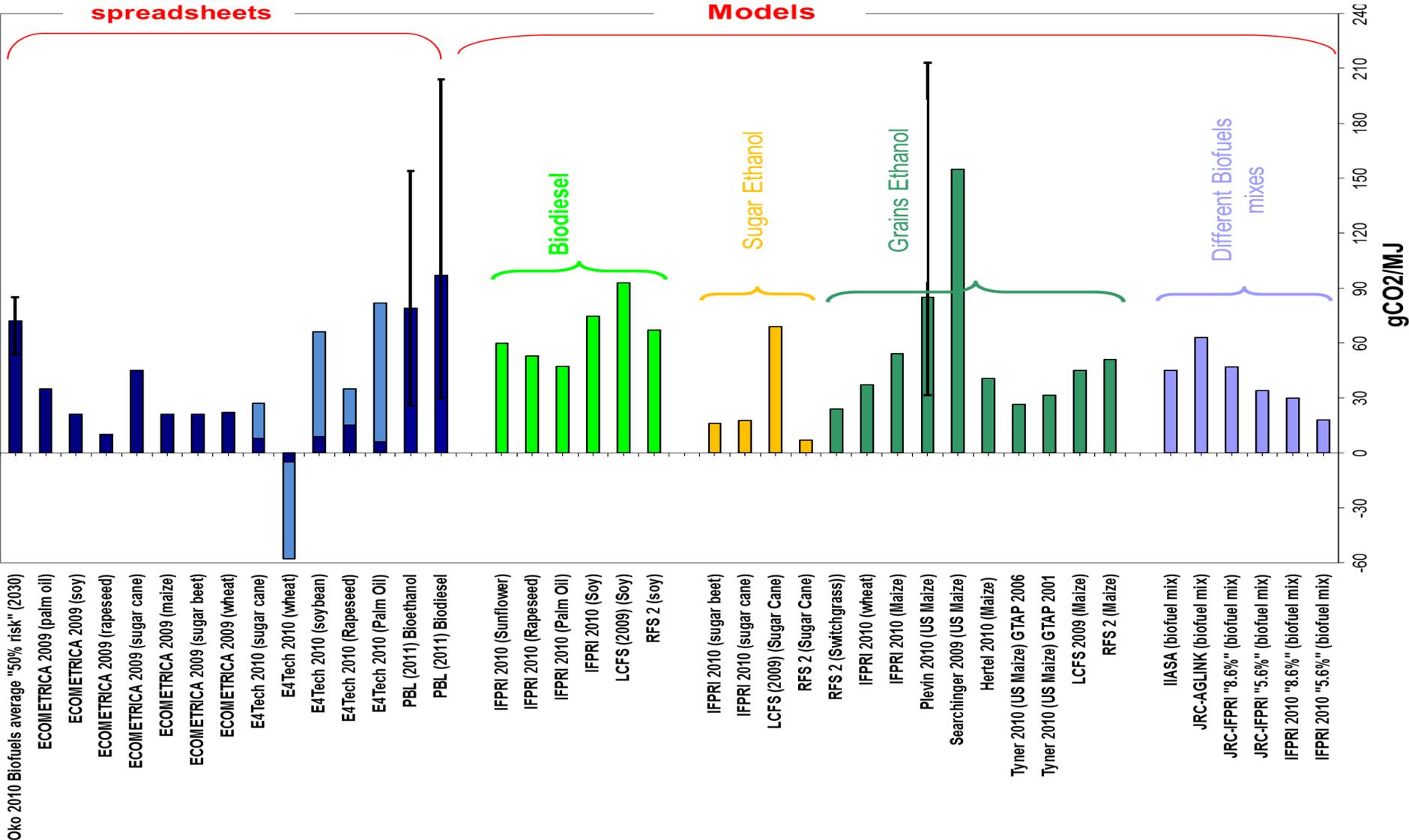
- ★ Report adopted December 2010
- ★ Summary of work to date including modelling
- ★ Preliminary conclusions
 - significant uncertainties and limitations associated with models
 - ILUC can reduce the contribution of biofuels
 - if appropriate action based on precautionary principle
- ★ Finalising IA with options + legislative proposal if appropriate by July 2011

LCA biofuels

Lifecycle emissions including cultivation, processing and transport (gCO₂/MJ)



Estimated ILUC emissions (gCO₂/MJ)



Summary

- ★ Significant GHG reductions in transport are needed
- ★ Biofuels can contribute to decarbonising energy used in transport
- ★ ILUC could reduce the GHG savings of biofuels significantly
- ★ Any shortfalls in emission savings will need to be met through additional reductions in efficiency or reduced consumption
- ★ Total life cycle emissions matter. The way the energy is produced can be more important than what form of energy it is!

Thank you for your attention

**YOU CONTROL
CLIMATE CHANGE.**



European Commission, DG Climate Action, Brussels, Belgium

Other EU Transport climate legislation

- ★ Car Labelling Directive
- ★ CO2 and cars Regulation & CO2 and vans Regulation
- ★ Inclusion of aviation in EU-ETS
- ★ Tyre labelling and rolling resistance
- ★ Gear Shift indicators and Tyre pressure monitors
- ★ Future steps required (Maritime Transport & Heavy Duty Vehicles)

CO2 and cars - Regulation 443/2009

- ★ Average new car fleet emission target 130g CO₂/km phase in 2012–15
- ★ Utility curve (slope 60%) with mass as utility parameter
- ★ Separate targets for small volume manufacturers (below 10 000 sales/year) and 25% reduction target for niche manufacturers (between 10 000 and 300 000 sales/year)
- ★ Cars emitting less than 50 g/km will benefit from a multiplication factor: 3.5 in 2012–13, 2.5 in 2014, 1.5 in 2015 and 1.0 2016 onward)
- ★ Special procedure for “eco-innovations” not captured by current type approval (until test procedure revised - due by 2014)
- ★ A long-term target of 95 g CO₂/km by 2020 (modalities of meeting the target to be determined by 2013)
- ★ Excess emissions premium for non-compliance of 95 € for each g/km exceeded; until 2018 included, lower penalties for the first 3 grams (5 € for the first g/km, 15 € for the second g/km, and 25 € for the third g/km)

EU Low Carbon Fuel Standard Directive 2009/30

- ★ Mandatory reduction requirement of 6% of 2010 GHG intensity by 2020 for road transport and NRMM fuel.
- ★ Possibility for a Member State to include suppliers of electricity to road transport.
- ★ GHG calculation methodology for biofuel contained in Directives 2009/28 and 2009/30.
- ★ Further 2% mandatory reduction to be assessed by Commission by 2012 depending on developments in use of electricity for road transport and technological development including CCS for refineries.
- ★ Commission to assess whether an additional 2% reduction should be required based upon reductions of flaring and venting globally.
- ★ Implementing measure to be adopted setting methodology for non-biofuels.

Inclusion of aviation in the EU ETS (Directive 2008/101/EC)

- ★ Legislation covers all flights to and from EU airports
- ★ Airlines will be fully included in the scheme from 2012
- ★ Emissions cap based on historic average annual emissions between 2004 and 2006
 - ★ 2012 cap set at 97% of historic emissions
 - ★ 2013 - 2020 set at 95% of historic emissions
- ★ 15% of allowances to be auctioned in 2012
- ★ 3% of allowances reserved for new or fast-growing operators
- ★ Tonne-kilometre data monitoring and reporting for application of free allowances
- ★ Emissions monitoring and reporting for surrendering allowances

Tyre labelling Regulation (EC) No 1222/2009

- ★ Regulation on the labelling of tyres with respect to fuel efficiency and other essential parameters.
- ★ Mandatory labelling from 2012 of:
 - ★ fuel efficiency (A-G scale);
 - ★ wet grip (A-G scale);
 - ★ external rolling noise (low noise mark and grading)
- ★ EU tyre labelling website (efficiency calculator)
- ★ In addition the info will be included in promotional literature, explanatory leaflets and posters at points of sale.
- ★ The combined impact of the Regulation, together with the type-approval legislation on tyres (setting tyre rolling resistance standards), should bring around 5% fuel savings on the total EU fleet by 2020.

CO2 and vans Regulation

- ★ Reducing CO2 emissions from light-commercial vehicles (LCVs) is part of the EU strategy to reduce CO2 emissions from light-duty vehicles COM (2007)19.
- ★ The main objective of the Regulation is to cut CO2 emissions from vans to 175gCO2/km by 2017, phasing in the reduction from 2014, and to reach 147g CO2/km by 2020.
- ★ These targets represent reductions of 14% and 28% respectively compared with the 2007 average of 203 g/km.
- ★ Regulation agreed in December 2010.

Car labelling Directive (1999/94/EC)

- ★ The purpose of the Directive is: "to ensure that information relating to the fuel economy and CO2 emissions of new passenger cars offered for sale or lease in the Community is made available to consumers in order to enable consumers to make an informed choice."
- ★ Four main elements.
 - Label at the point of sale
 - Guide on fuel economy and CO2 emissions
 - Poster or display, for all car models at point of sale
 - Promotional literature to contain fuel and CO2 data for models to which it refers

General Safety Regulation (661/2009/EC)

Tyre pressure monitoring systems

★ The General Safety Regulation (661/2009/EC), which came into effect in 2009, requires cars to be fitted with TPMS to alert drivers when tyre pressure drops by 20% below normal. The requirement will apply to all new car models by November 2012 and to all new cars by November 2014.

Lower rolling-resistance tyres

★ The General Safety Regulation contains a rolling resistance requirement which all new car models must meet by November 2013 and all new cars by November 2014, with a second, more stringent phase coming into effect in November 2017 and November 2018 respectively.

★ Gear-shift indicators

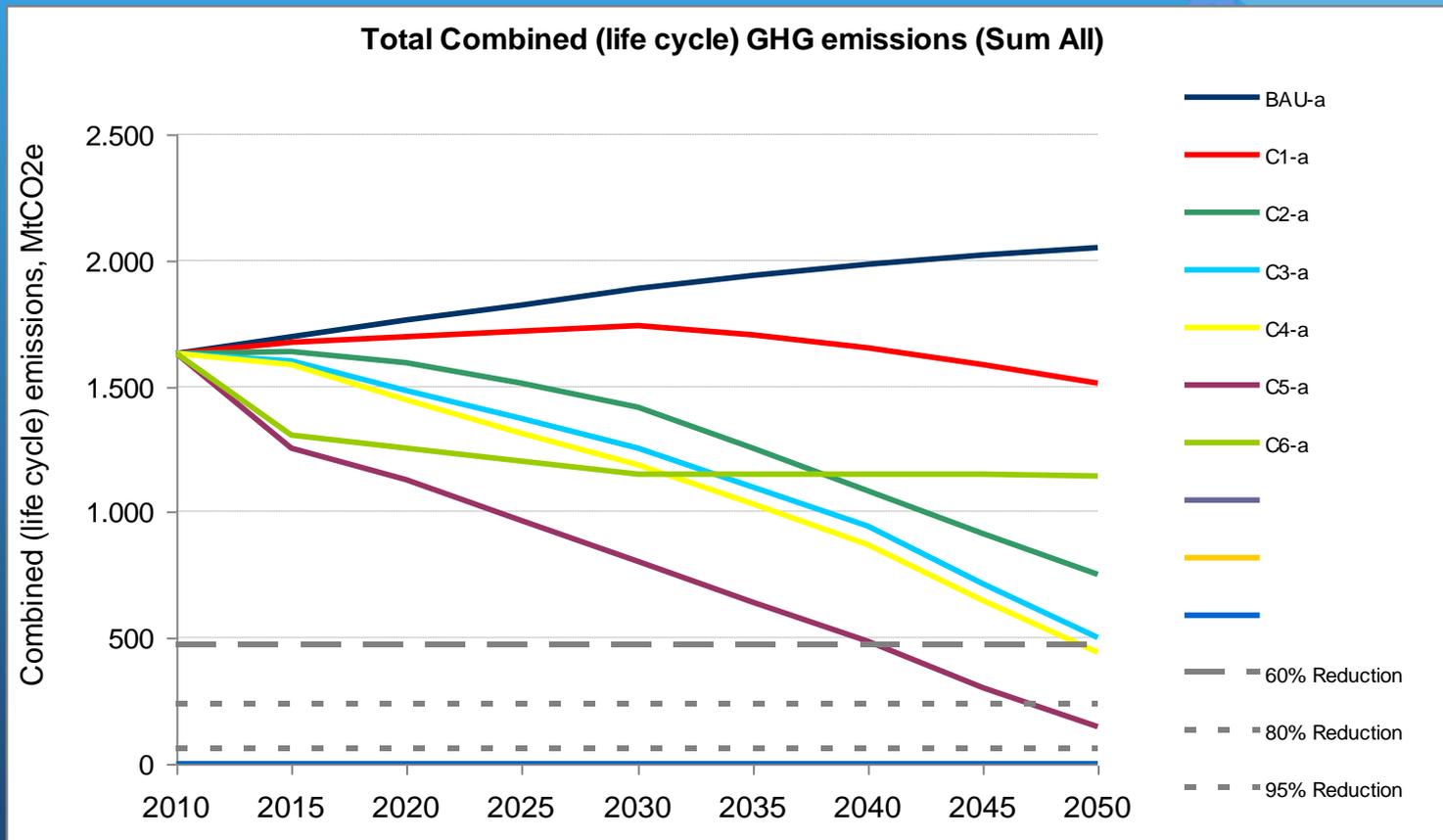
★ The Regulation requires all new passenger car models to be equipped with Gear Shift Indicators by 2012 and all new cars by 2014.

Next steps: GHG emissions from Heavy Duty Vehicles

- ★ 2007 Study
- ★ Options:
 - ★ Best practice programme
 - ★ Weights and dimensions of vehicles
 - ★ Labelling and certification
 - ★ Engines
 - ★ Entire vehicles – industry interest in standard certification
 - ★ Vehicle components
 - ★ CO2 measurement and reporting as part of EURO VI - done
 - ★ Truck tyres
 - ★ Better logistics
- ★ Ongoing work on measurement procedures
- ★ Later options: Regulating CO2 from trucks

“Transport GHG: routes to 2050?”

Indicative reductions



“EU transport GHG: Routes to 2050” project

Illustrative rate of energy decarbonisation

