



Low carbon transport and the role of biofuels

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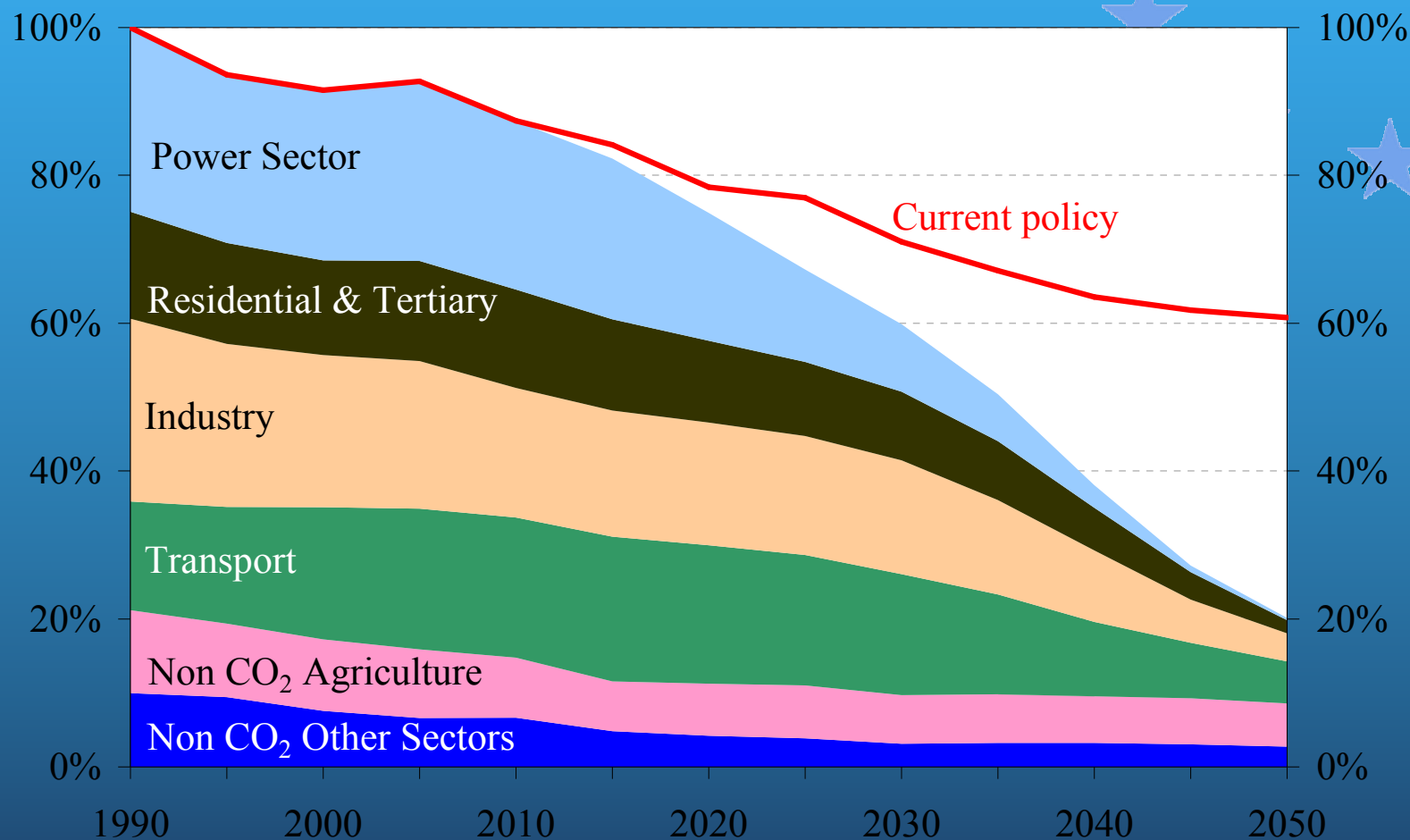
Presentation overview

- ★ GHG emission reduction goals to 2050
- ★ EU legislative framework to 2020
- ★ Biofuels and indirect land use change
- ★ Summary

EU GHG reduction goals to 2050

- ★ Climate objective is to keep below 2° C 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
 - For transport, this means reductions between 50-70% are needed

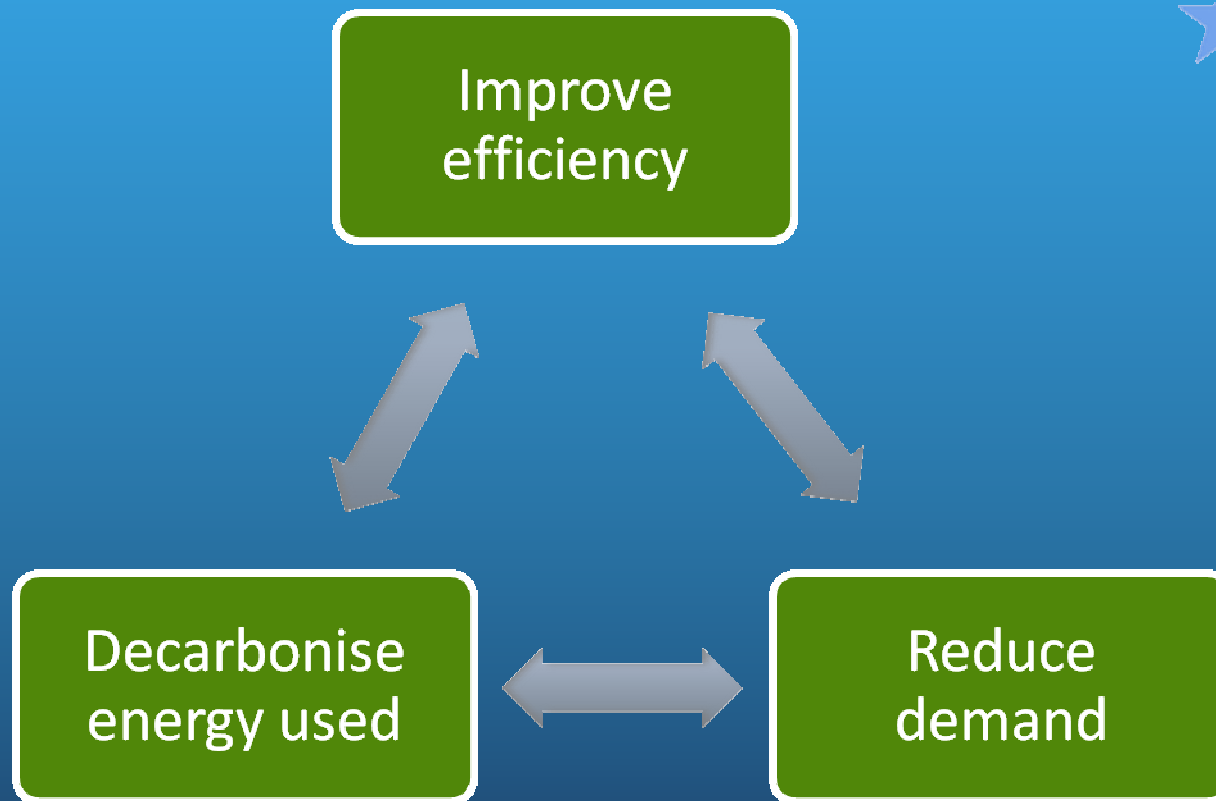
Low Carbon Road Map Trajectory



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
 - Climate change strategy objective of -60%

Ways to decarbonise transport



Transport 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 processed at source (i.e. flaring and venting), and replacement of current fuels (electricity/natural gas).

Biofuels sustainability

★ 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/GHG indirectly-additional commodity demand

★ ILUC impacts on GHG emissions to be reviewed and addressed if needed

Indirect land use change (ILUC)

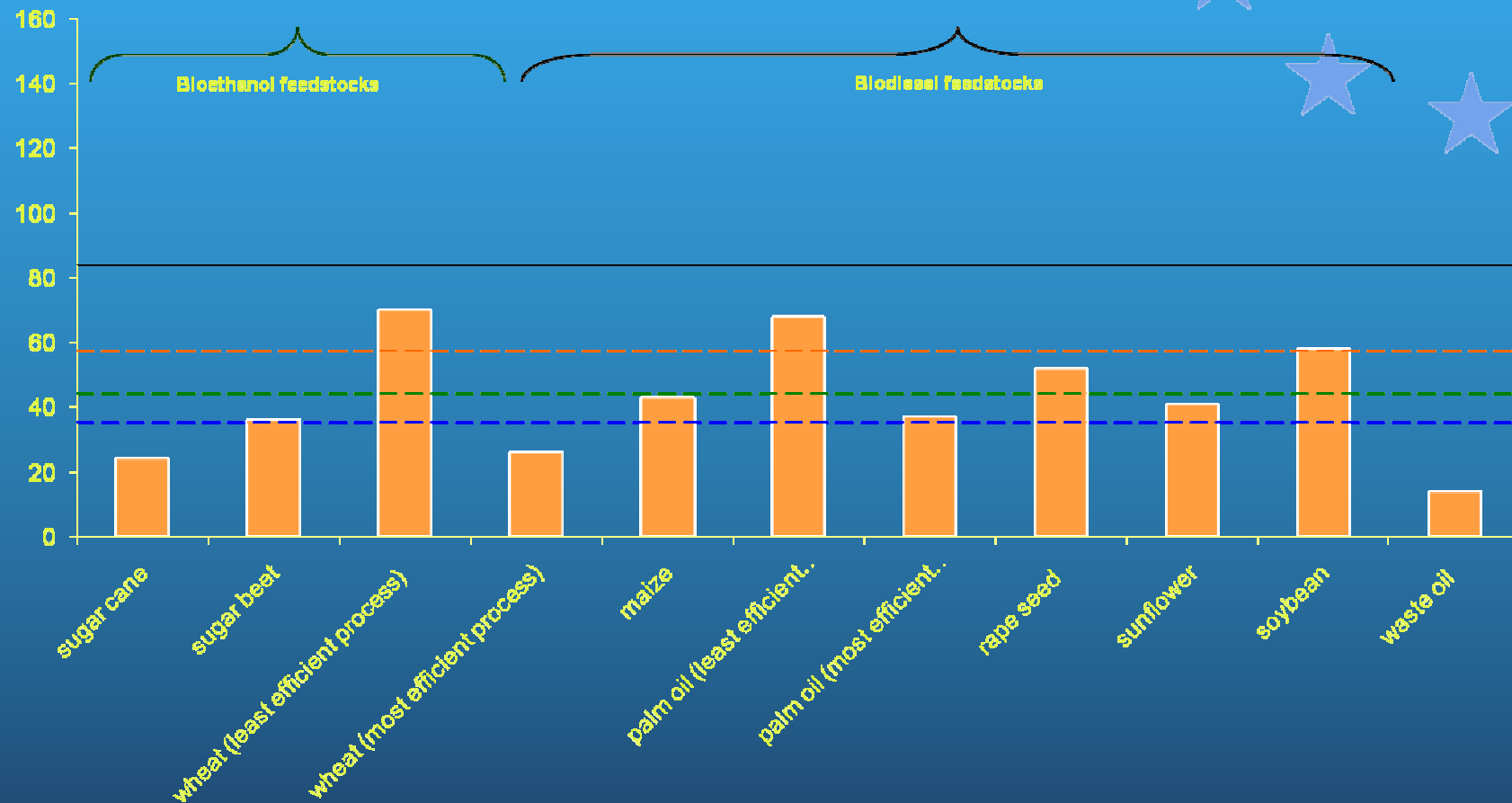
- ★ Report adopted December 2010
- ★ Summary of work to date including modelling
- ★ Preliminary conclusion
 - ILUC can reduce the contribution of biofuels
 - If appropriate action based on precautionary principle
 - Significant uncertainties and limitations associated with models
- ★ Preparing IA with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



Why is ILUC important?

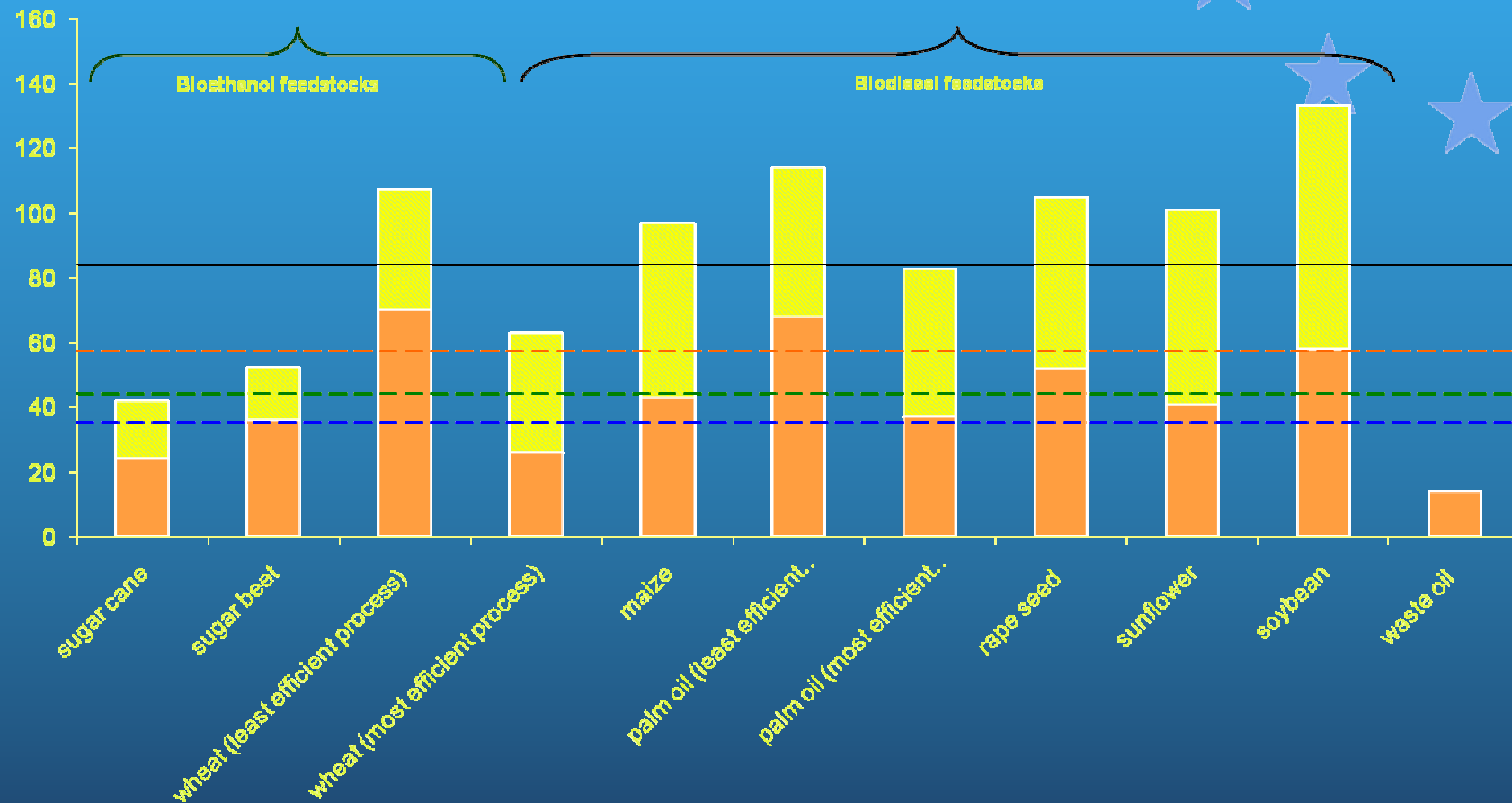
LCA biofuels

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



LCA biofuels (with ILUC)

Possible lifecycle emissions including estimated indirect land use change (gCO₂/MJ)



Summary

- ★ Significant GHG reductions in transport needed
- ★ Biofuels 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

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CLIMATE CHANGE.**



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