



**MONITORING PROGRESS
TOWARDS A CLEAN ENERGY ECONOMY**

**Biofuels and
Biomass Power**

**EGRD Workshop,
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Biofuels and Biomass Power

– Content –

- Current status
- Promising developments
- Remaining problems
- Policy actions needed
- Bioenergy priority areas
- RD&D in IEA Bioenergy
- Products of Bioenergy

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– Current Status (1) –

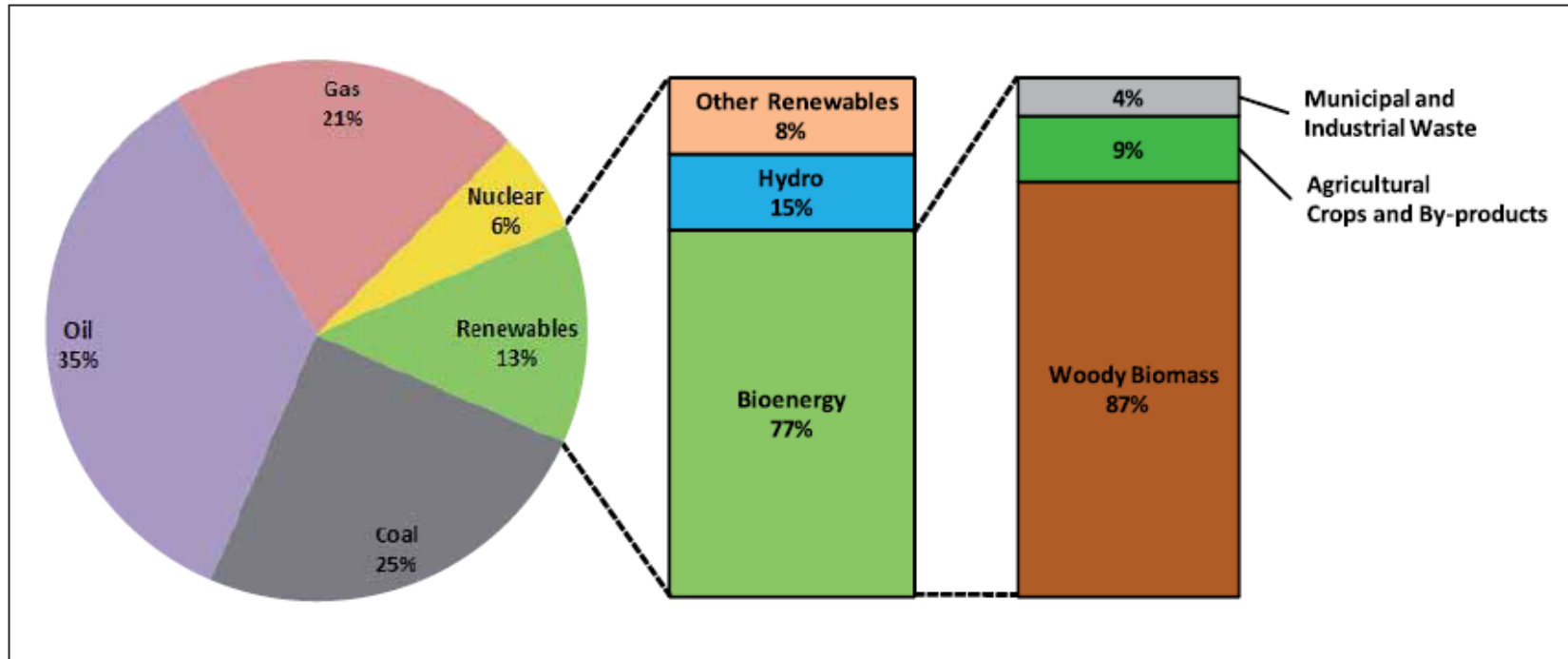


Figure 1. Share of bioenergy in the world primary energy mix. Source: based on IEA, 2006; and IPCC, 2007.

Source: Bioenergy – a Sustainable and Reliable Energy Source, IEA Bioenergy 2009

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– Current Status (2) –

- Conditions for deployment (completed R&D, proven practical operation, economic competitiveness) are fulfilled by only few applications (small scale heat, large scale co-firing)
- Broad spectrum of technologies under development, need for concentration
- Feedstock availability likely to be overestimated; competition with food, feed and fiber uses
- Feedstock competition, sustainability discussion and lacking competitiveness tend to block industrial engagement

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– Promising Developments –

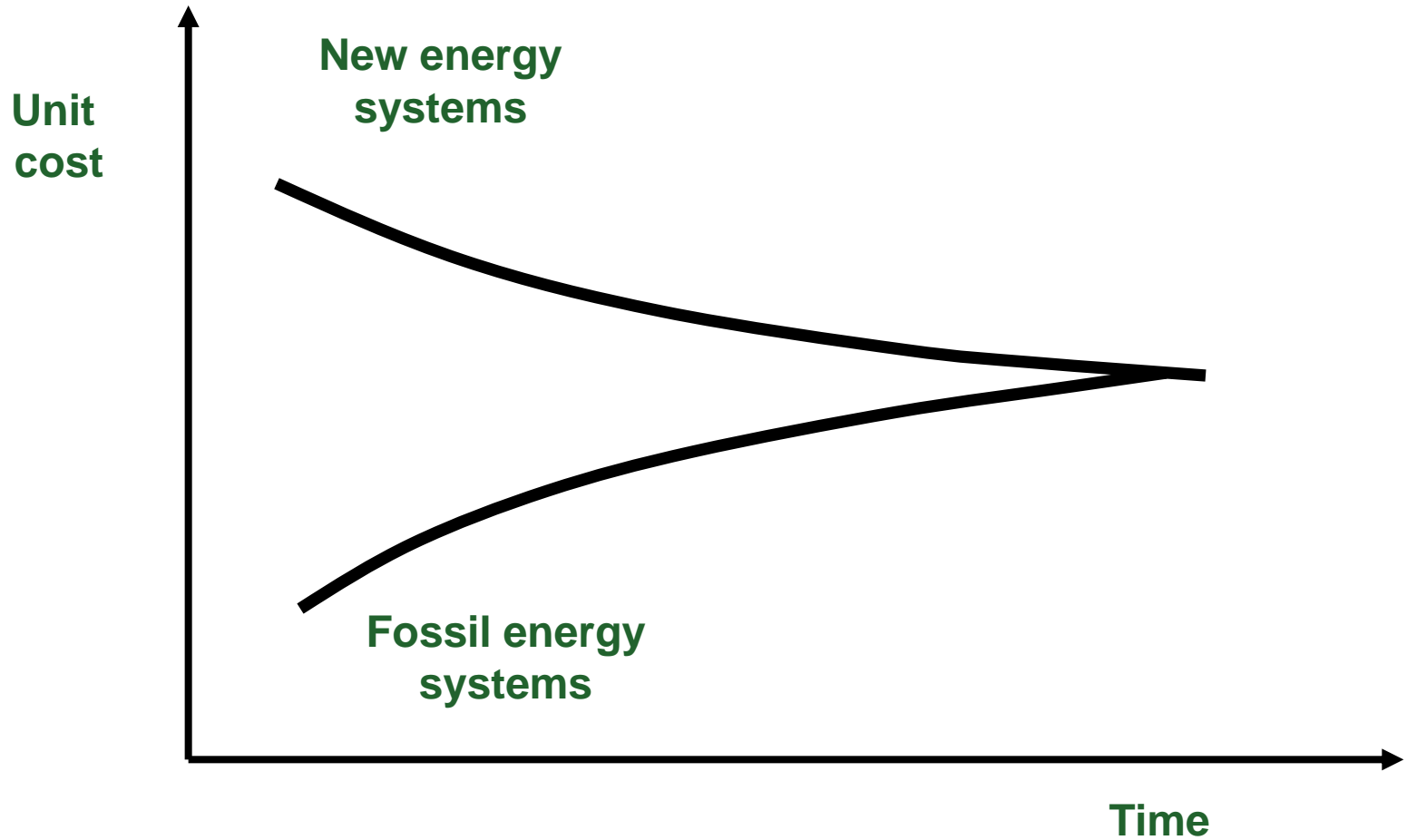
- Gasification as biomass pretreatment for heat, power and transport fuel production
- Improvements of components and systems for efficient conversion in an “integrated” approach
- Development of feedstock options not competing with other uses (waste biomass, degraded land)
- International cooperation on standardization and on defining and introducing “sustainability criteria”
- Development of realistic estimates of total global feedstock potential

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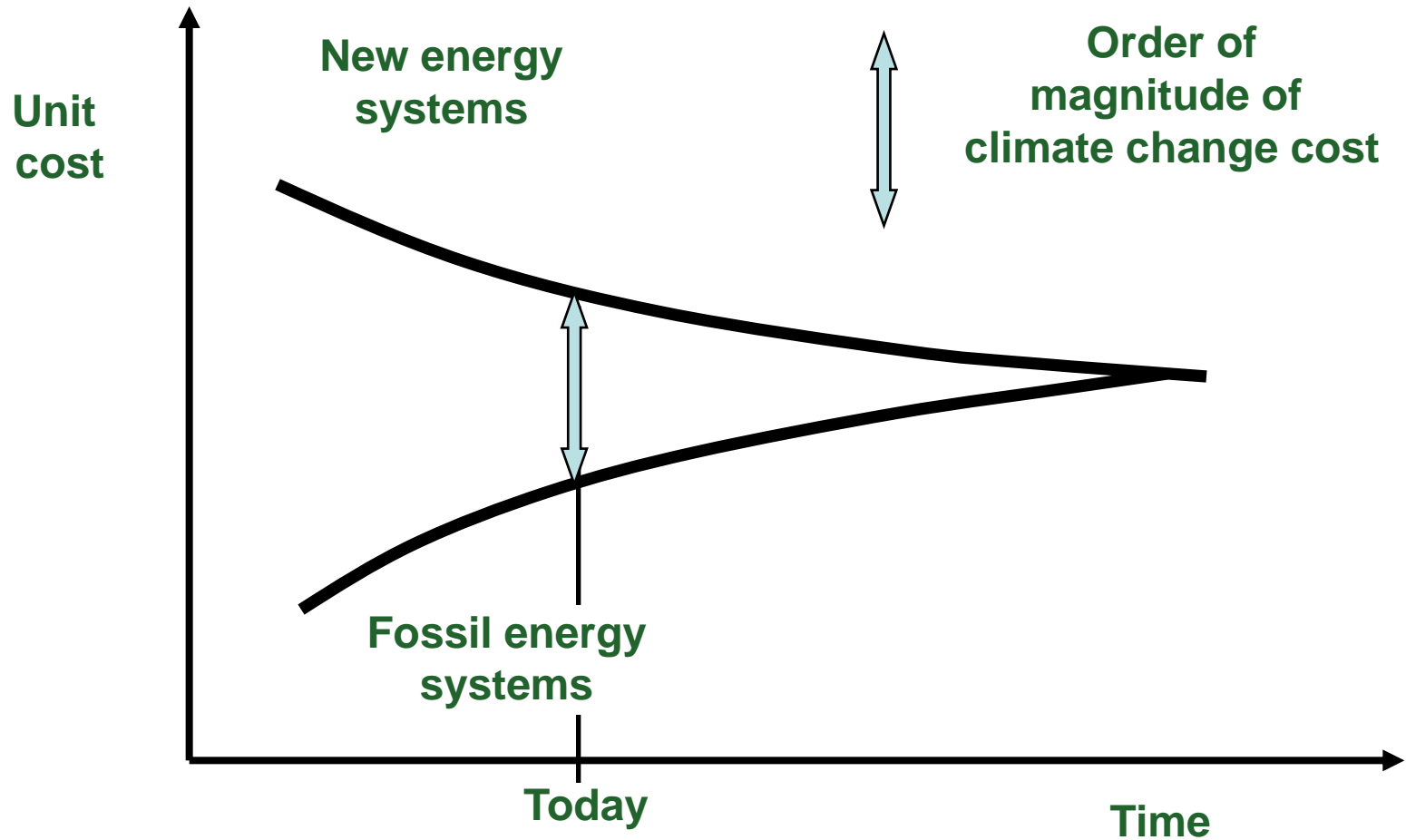
– Remaining Problems –

- The challenge is to recognize that we have a cost problem and not so much a technology problem.
- Some Technology Roadmaps identify policy actions (taxation, quotas) as necessary for creating a “level playing field“ at the consumer level. See also “Clean Energy Progress Report”, IEA 2011. Yet, most of the actions are of technological and institutional nature.
- As soon as competitiveness is achieved, industry will step in and respond to the market pull

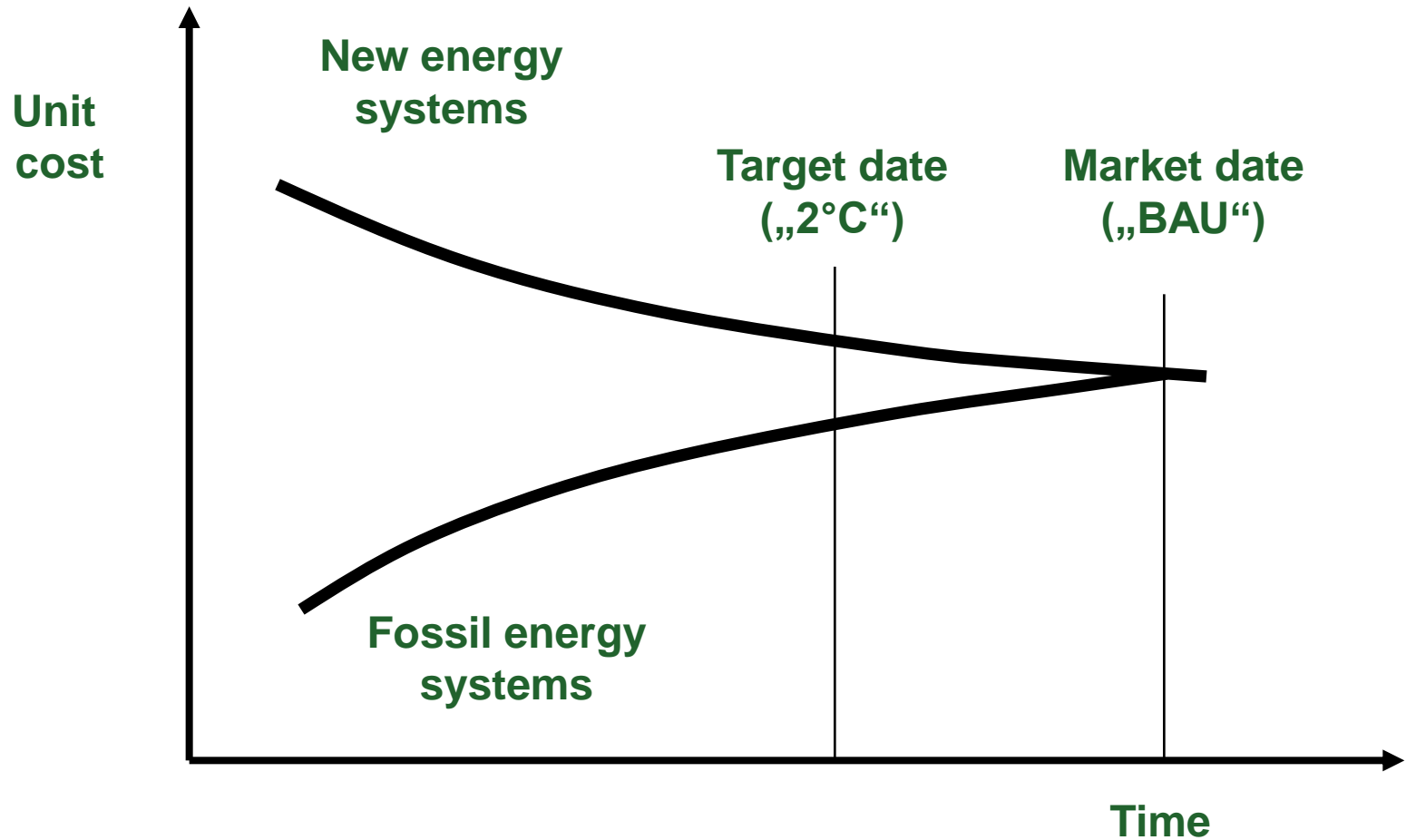
Example for Policy Action (1)



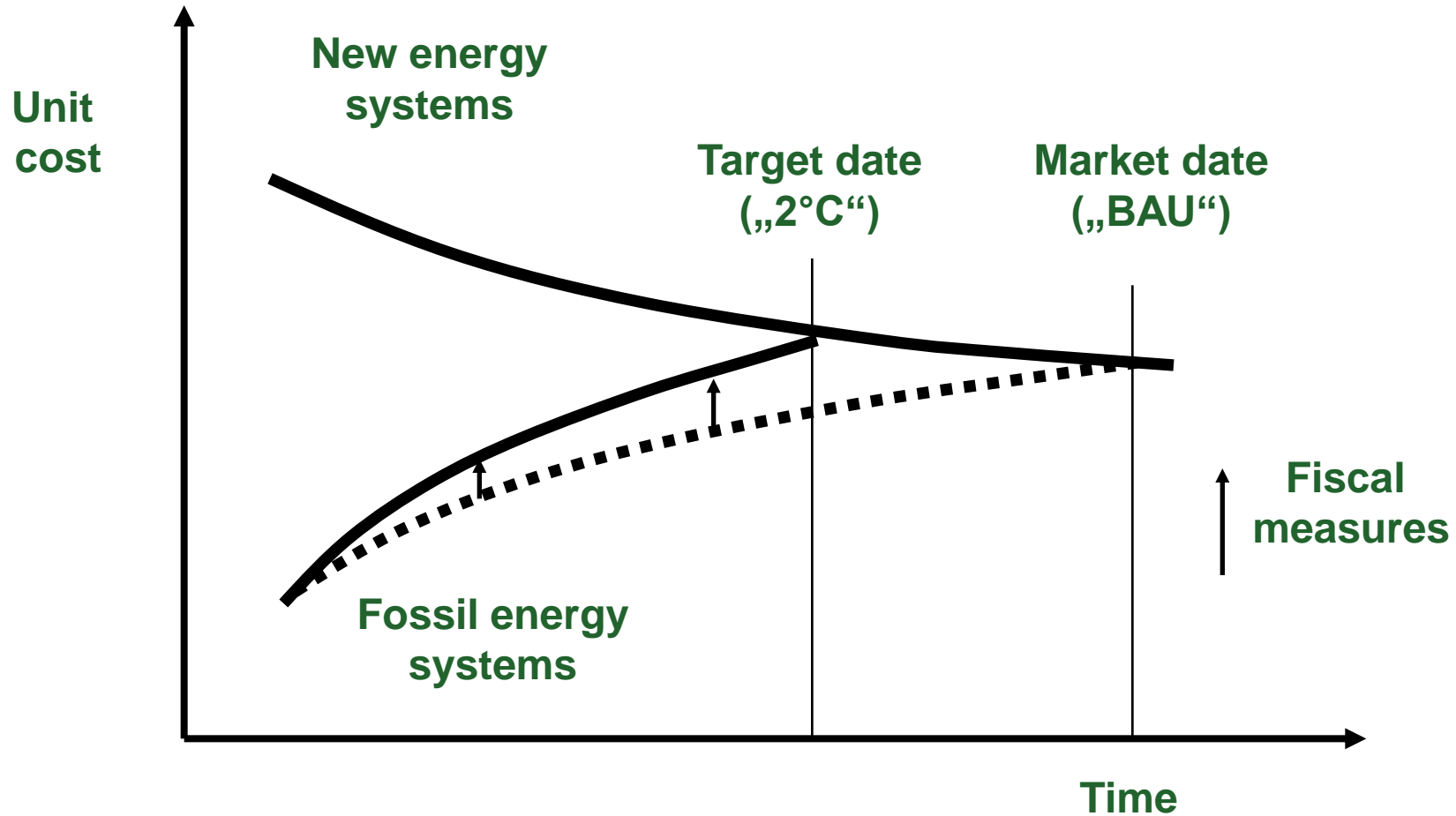
Example for Policy Action (2)



Example for Policy Action (3)



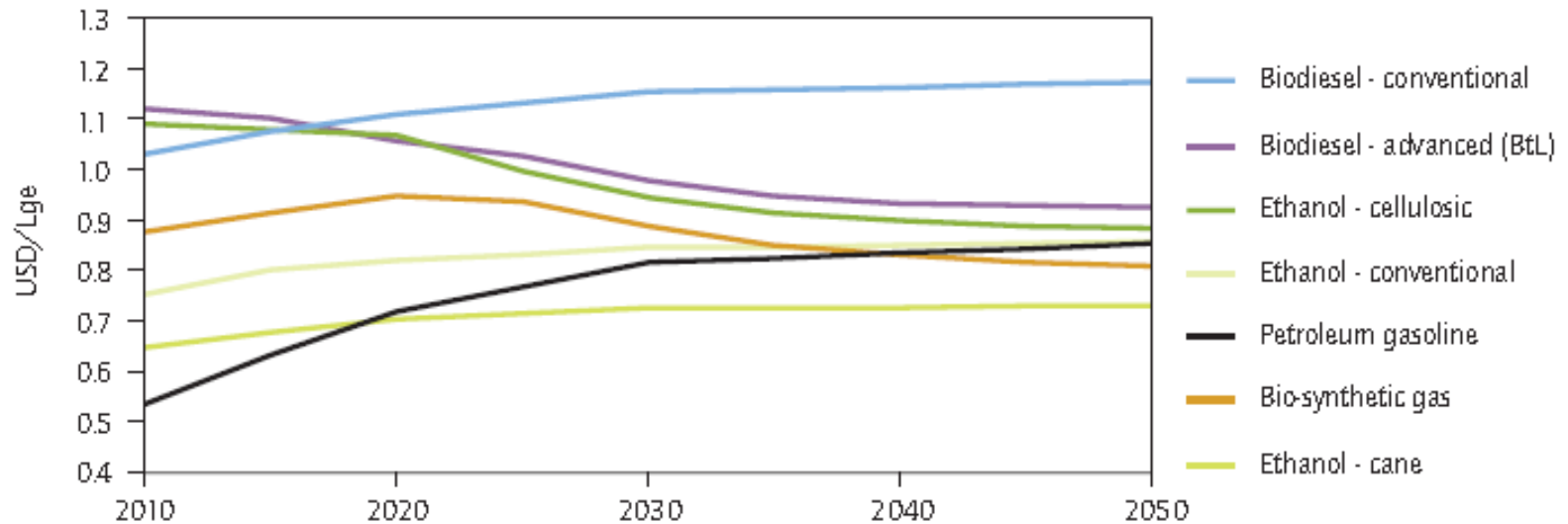
Example for Policy Action (4)



Example for Policy Action (5)

Costs of different biofuels compared to gasoline (BLUE Map Scenario)

High-cost scenario



Note: costs reflect global average retail price without taxation. Regional differences can occur depending on feedstock prices and other cost factors.

Source: Technology Roadmap – Biofuels for Transport; IEA 2011

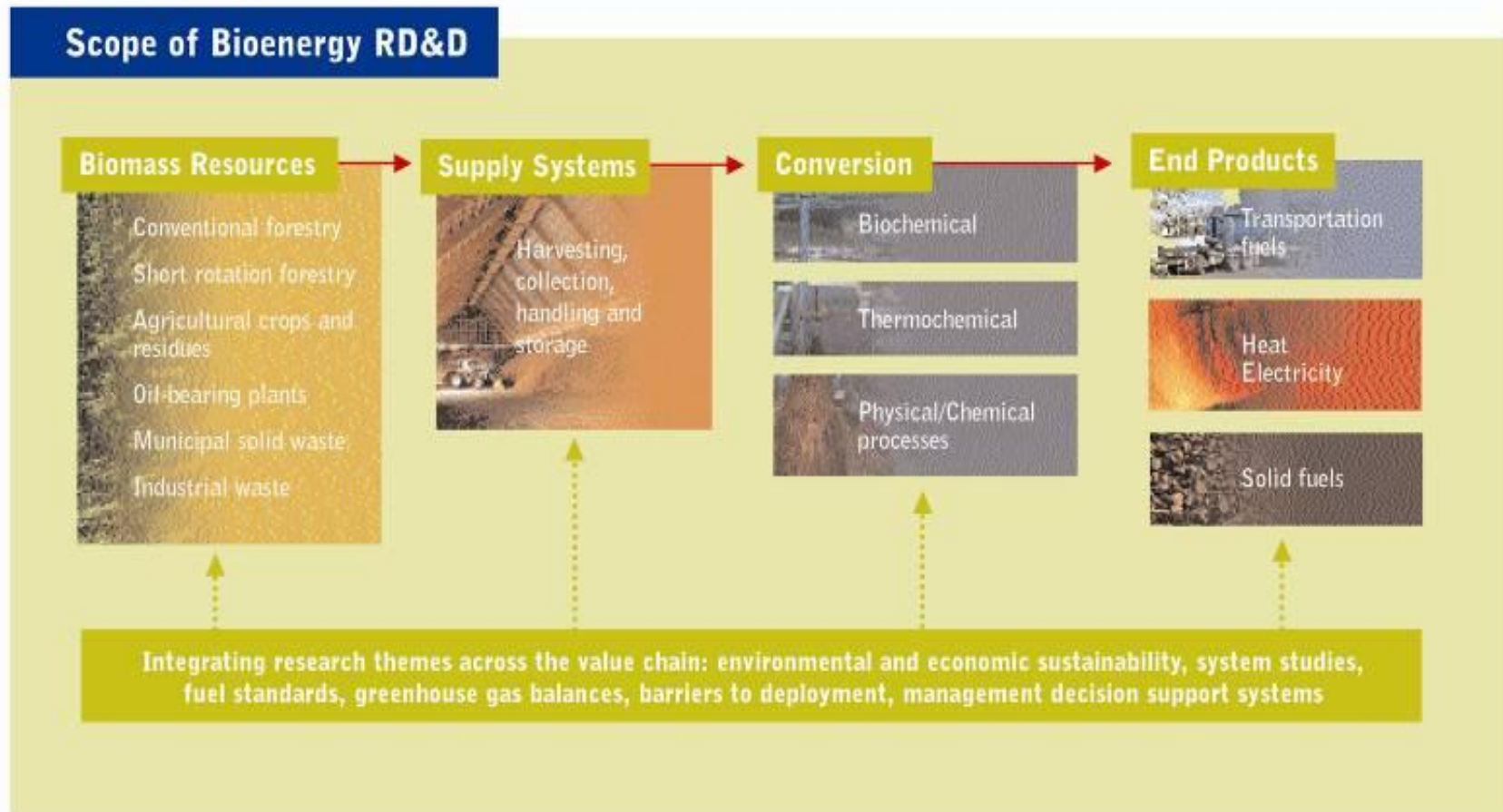
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– Bioenergy Priority Areas –

- Feedstock supply
 - Competition with food/feed/fibre uses
 - Realistic regional and global resources
 - Sustainable production of biomass
 - International trade and transport
 - Biomass pre-treatment
- Conversion to end-use energy
 - Selection of conversion technology options
 - Component and plant optimization
 - Cost reduction

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– RD&D in IEA Bioenergy –



24 Contracting parties, 12 Annexes/Tasks
www.ieabioenergy.com

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– Products of IEA Bioenergy –

Recent Publications

- Using a LCA Approach to Estimate the Net GHG Emissions of Bioenergy (Strategic Report 2011)
- Thermal Pre-Treatment of Biomass for Large-scale Applications (Workshop Report 2011)
- Developing Sustainable Trade in Bioenergy (Workshop Report 2011)
- Bioenergy, Land-use Change and Climate Change Mitigation (Strategic Report 2010)
- Bioenergy – a Sustainable and Reliable Energy Source (Strategic Report 2009)