



European Commission



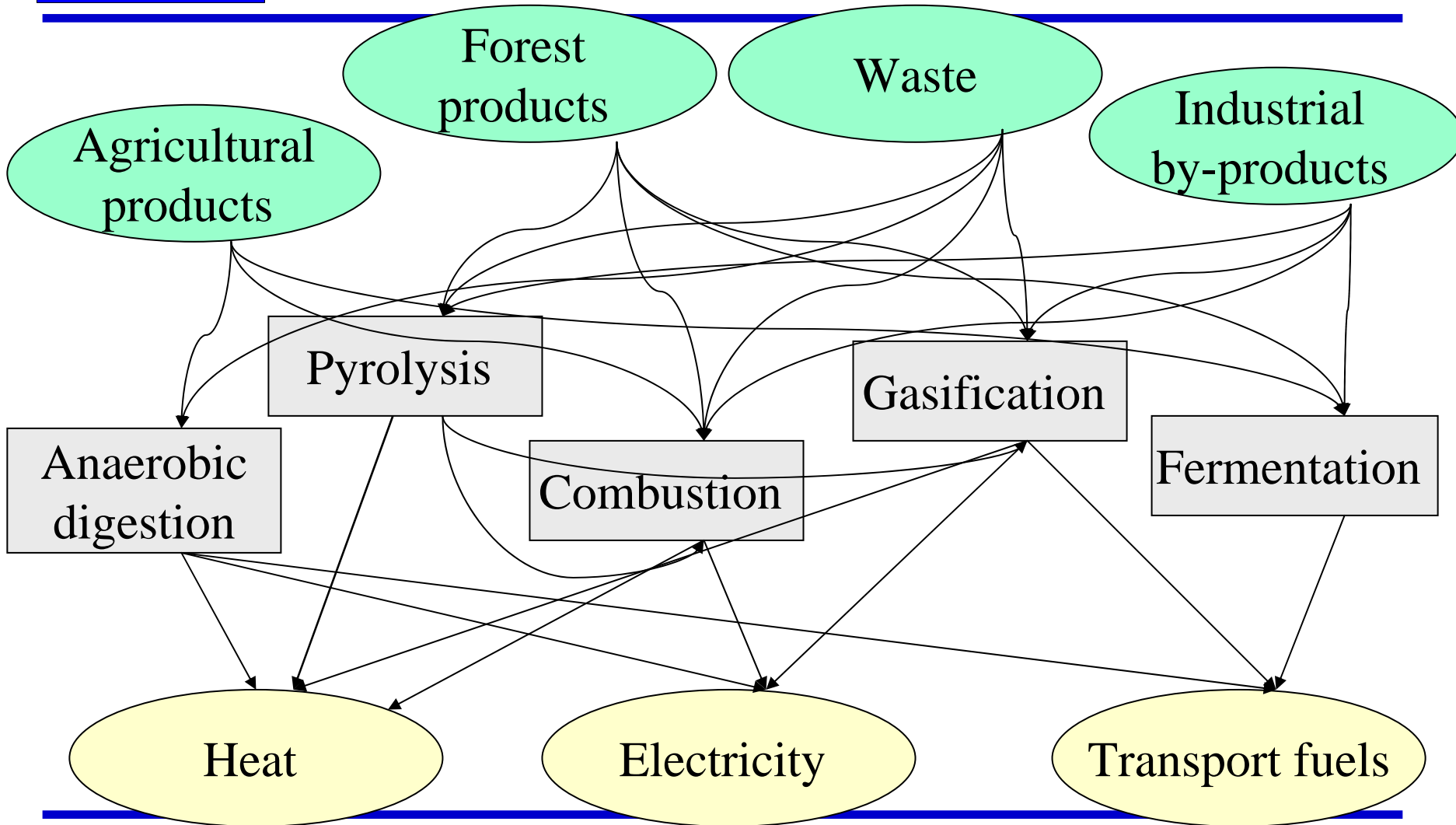
EU policies on Biomass and International Activities



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DG TREN
IEA Bioenergy Chairman



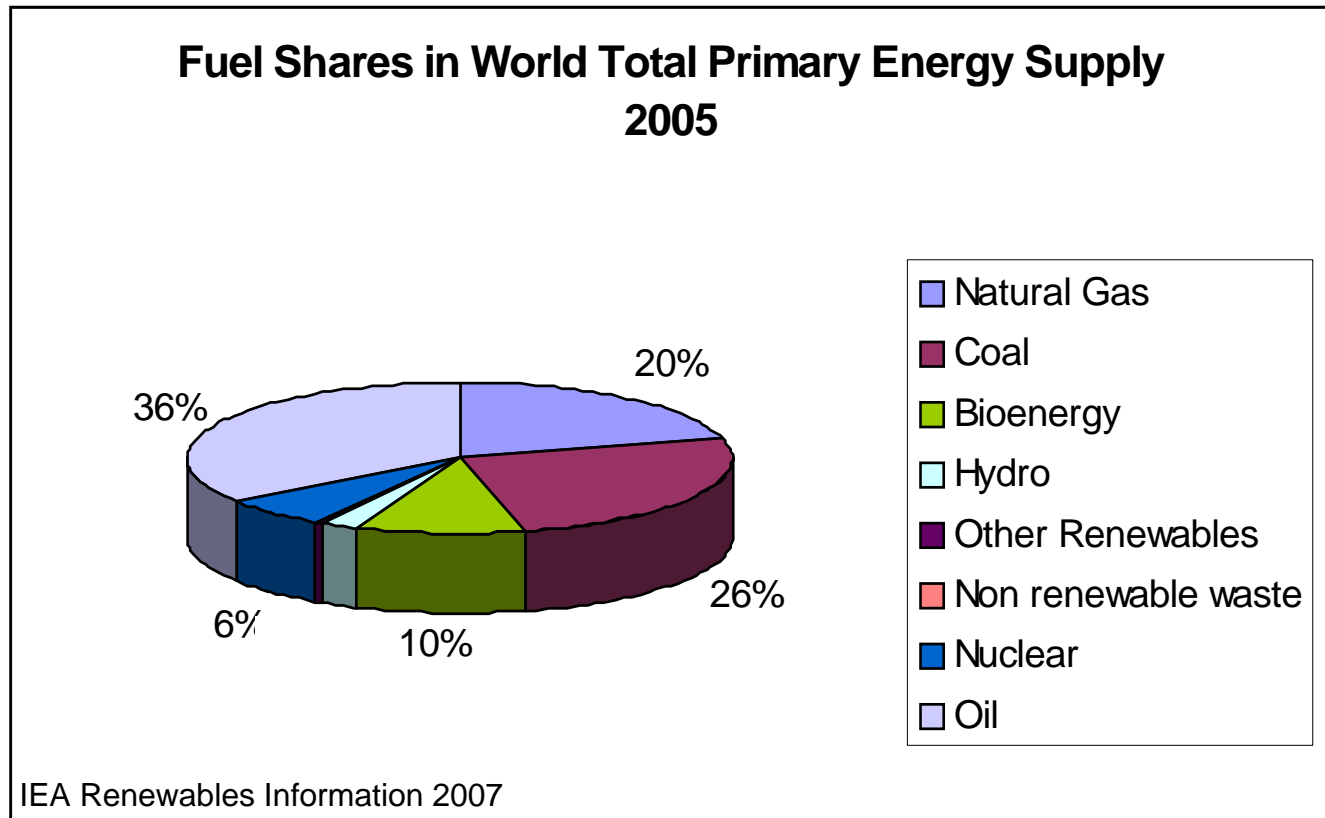
The Bioenergy Matrix





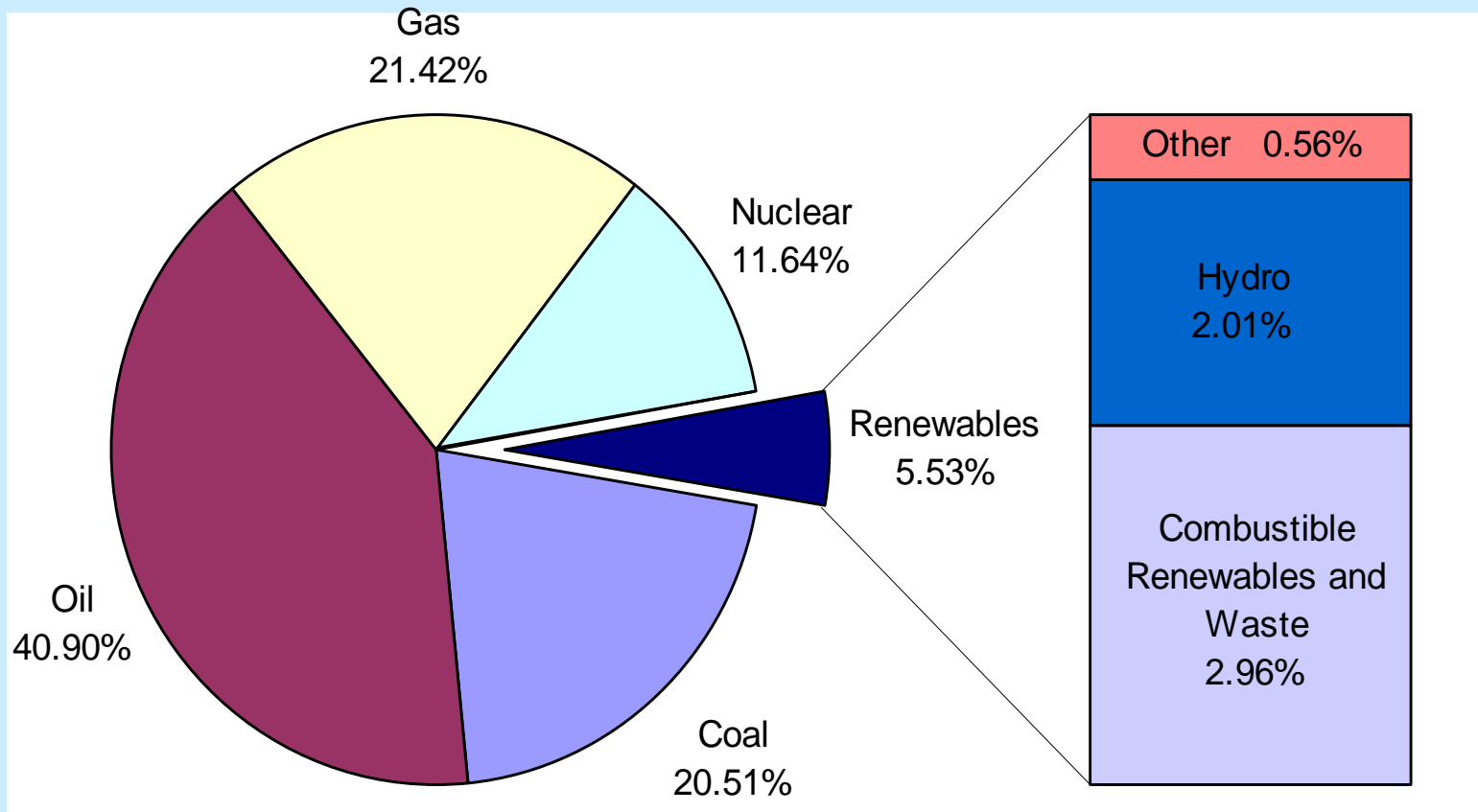
Bioenergy

already plays a major role supplying ~10% of world primary energy supplies





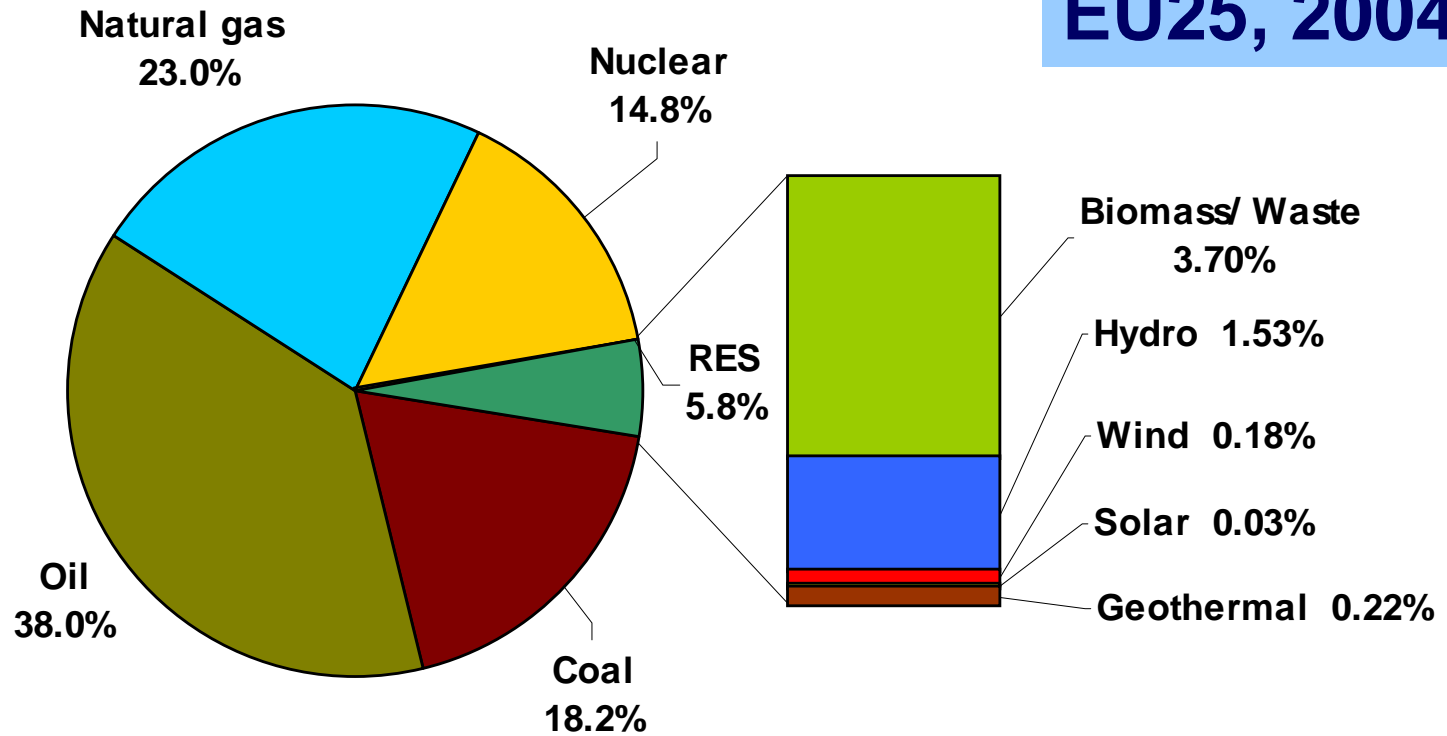
OECD 2004 Fuel Shares of Total Primary Energy Supply





Gross Energy Consumption

EU25, 2004





EC Coherent Energy Actions for RES

EU Policies and Targets
Directives and Legislation

**Research, Development, and
Demonstration of Technology**

Integrated projects, Specific Targeted Research Projects,
Co-ordination Actions, Specific Support Actions

**Market development, Certification,
Standardization, Financing, Promotion**



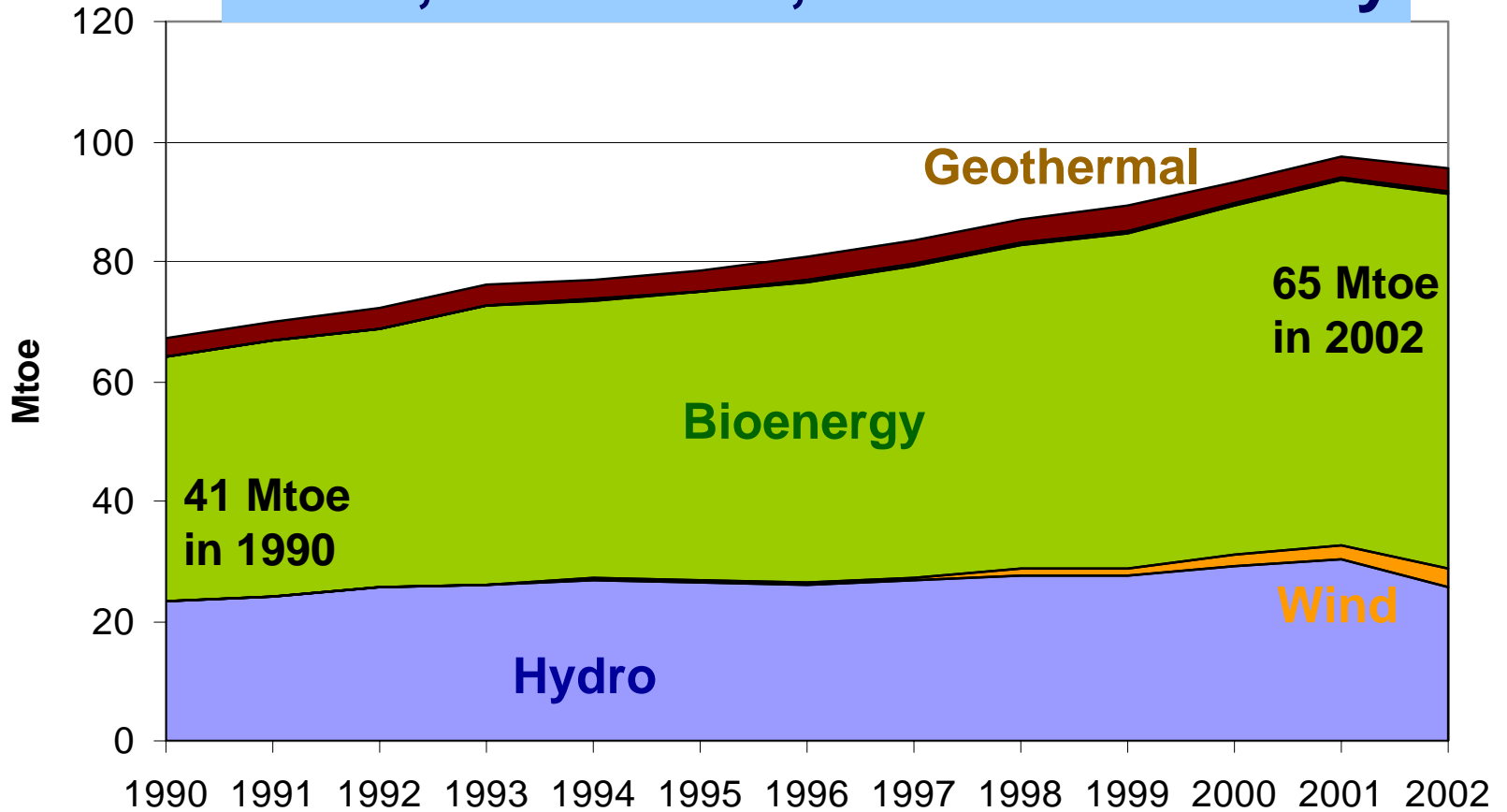
A comprehensive framework for EE and RES is already in place

	Political and legislative instruments:	Sector		Supply	Demand		
		RES	EE		BU	TR	IND
1997	White Paper on RES	X		X	X		X
	Green Paper on Security of Energy Supply	X	X		X	X	X
	Directive on RES-electricity	X		X	X		X
	Directive on Energy Performance of Buildings	X	X		X		
	Directive on Biofuels	X		X		X	
	Directive on a Scheme for GHG Trading	X	X	X			X
	Directive on the Taxation of Energy Products	X	X	X	X	X	X
	Directive on Co-generation	X	X	X	X		X
	Green Paper on Energy Efficiency		X		X	X	X
	Green Paper on Energy	X	X	X	X	X	X
2006	Energy Package	X	X	X	X	X	X
2007							



Gross Energy Consumption

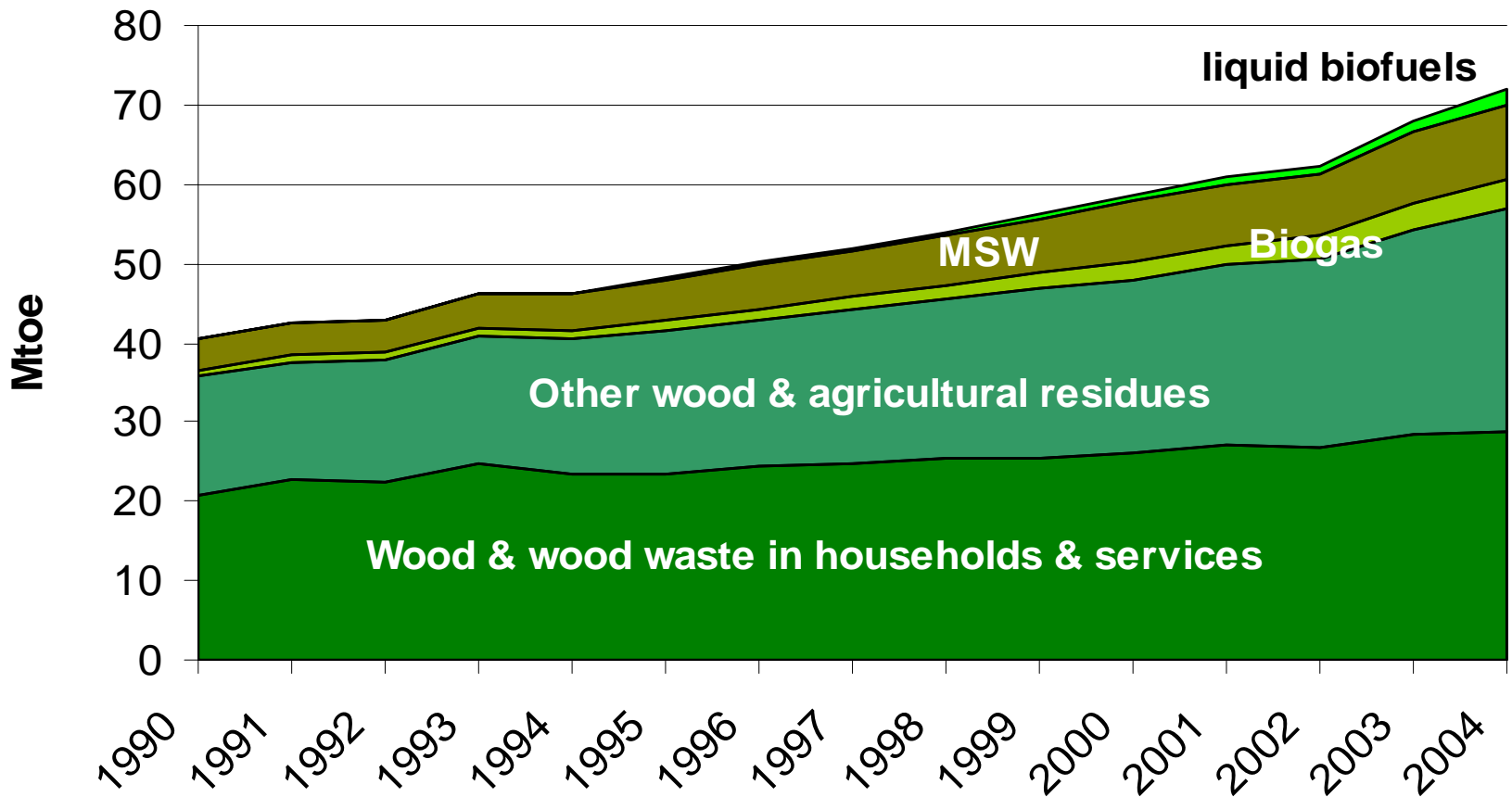
EU25, 1990-2002, Renewables only





EU Bioenergy market development in the past

EU25, 1990-2004, biomass & waste only



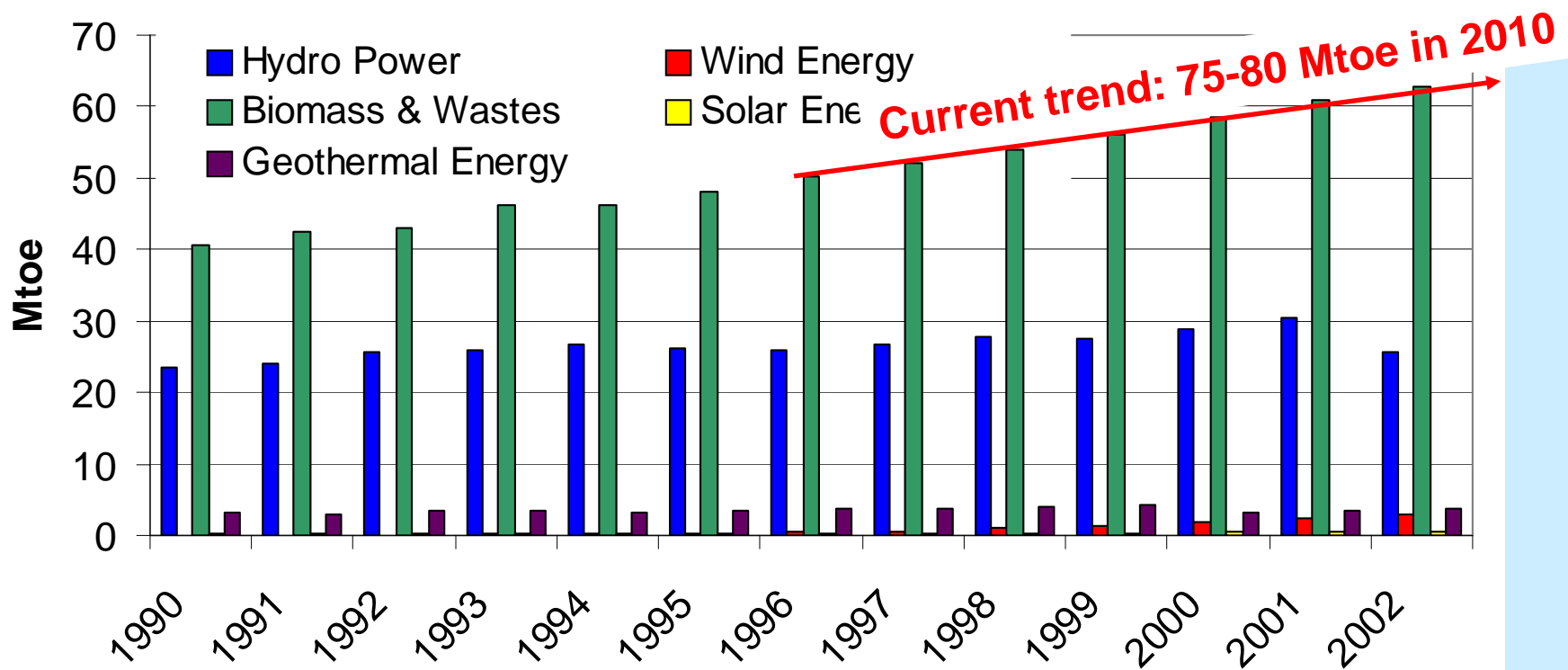
Source: EUROSTAT



Danger of missing the 2010 EU targets

White Paper target for EU-15: 135 Mtoe biomass use in 2010

Adjusted targets for EU-25: 150 Mtoe biomass use in 2010



Source: EUROSTAT

COM(2004)366 final: « biomass is lagging behind »



EU Biomass Action Plan (BAP)

Communication COM(2005)628 final

Recommending EC and MS level action in the areas

- incl. CHP !**
- Biomass heating (+ 27 Mtoe/yr until 2010)
 - Electricity from biomass (+ 35 Mtoe/yr until 2010)
 - Transport biofuels (+ 18 Mtoe/yr until 2010)
 - Cross cutting issues
 - Research

This additional 80 Mtoe/yr will achieve the target of 150 Mtoe/yr for the EU 25



Biofuels and sustainability issues

- **Most biofuels bring environmental benefits ...**
- **... but a system is needed to tackle problems like:**
 - ***deforestation,***
 - ***high-GHG production techniques***
- **... and to promote**
 - ***high carbon balance biofuels***



Perspectives: Biofuels Potential

Commission communication, 2001: perhaps **8%** in 2020

Öko-Institut, 2005: up to **10%** EU share possible from domestic production with sustainable agriculture (→ conservative estimate)

Alternative fuels contact group: **15%** EU potential for 2020

IEA, 2004: a **20%** biofuels share worldwide is possible for 2030

Technology Platform for biofuels: **>20%** EU potential by 2030

Trade-offs: **arable land vs other land uses**
 food vs energy production
 electricity/heat vs biofuels
 imports allow higher shares



Challenges and questions

Sustainable provision of feedstocks, considering

- potential of European agriculture and forestry
- impacts on food and material markets - EU and globally
- other possible uses of biomass

Research and technological development

- optimised production and mix of raw materials
- advanced, more cost-effective conversion technologies
- more diverse feedstocks – not only wood/crops

Stable environment for the industry to develop



Biomass Availability

Global current use & future potential

- Current use of bioenergy: 50 EJ/a of 406 EJ/a total world energy consumption
 - Future potential of bioenergy: up to 200 - 300 EJ/a
- EEA Study: How much biomass can Europe use without harming the environment?

Scenario	2025	2050	2100
Shell (1998)	85	100-120	140
IPCC (1996)	72	280	320
Greenpeace (1995)	114	181	—
Johansson et al. (1993)	145	206	—
WEC (1993)	59	94-157	132-215
Dessus et al. (1992)	135	—	—
Lashof and Tirpak (1991)	130	215	—
Faaij (2006)		40-1100	



On going work

The Commission is currently working on the renewable energy legislative proposal, to be adopted on 5 December, coordinated & presented as a package with the GHG burden sharing and ETS review.

It would create the EU biofuels sustainability regime.

Our current view is that such a scheme should include minimum levels of greenhouse gas performance, criteria on biodiversity and some type of reward for the use of non food feedstock such as lignocellulosic material for the production of second generation biofuels.



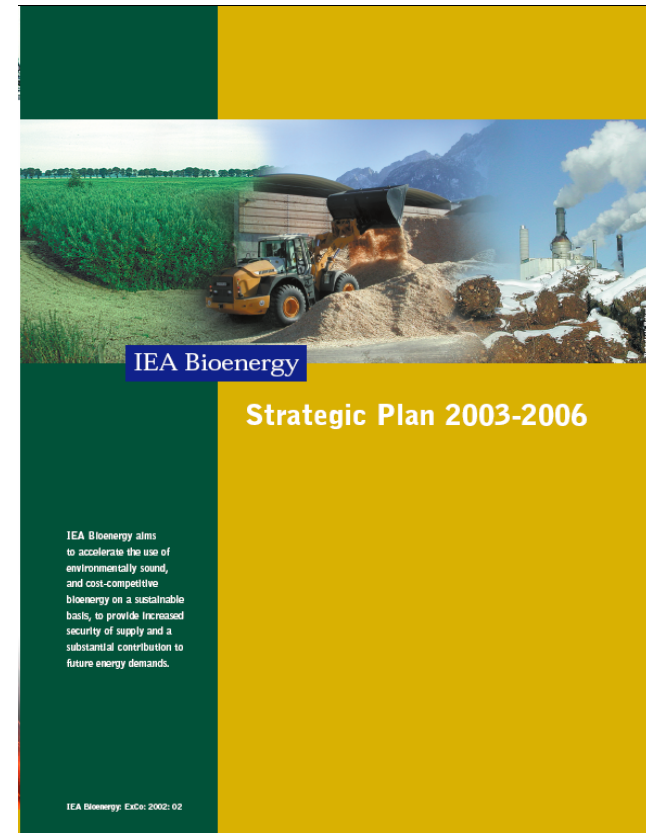
Vision and Mission

Vision:

To accelerate the use of environmentally sound and cost-competitive bioenergy on a sustainable basis, to provide increased security of supply and a substantial contribution to future energy demands.

Mission:

To facilitate commercialisation and market deployment of environmentally sound, sustainable and cost-competitive bioenergy technologies.



Tasks



- **Feedstock**
Forest and agricultural products, MSW and recovered fuels
- **Conversion**
Combustion, gasification, pyrolysis, anaerobic digestion, fermentation, biorefineries
- **Integrating Research Issues**
GHG balances, socioeconomic drivers, international trade, systems analysis



21 Contracting Parties

- Australia
- Austria
- **Belgium**
- Brazil
- Canada
- Croatia
- Denmark
- **European Commission**
- Finland
- France
- Germany
- Ireland
- Japan
- Netherlands
- New Zealand
- Norway
- South Africa
- Sweden
- Switzerland
- United Kingdom
- United States



Task 31: Biomass from Sustainable Forestry

Focus on:

Sustainable production of an energy product as well as traditional lumber or pulpwood from forestry.

Aims to:

Promote the market deployment of technologies and systems for *sustainable biomass production for energy*.

Analyse and disseminate scientific knowledge leading to economically and environmentally sustainable production of biomass for energy from integrated forestry systems.





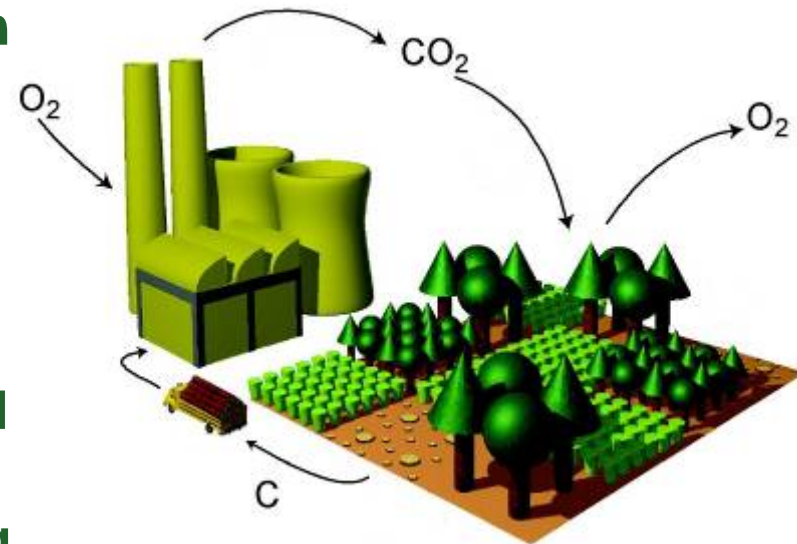
Task 38: GHG of Bioenergy Systems

Focus on:

Investigation of all processes involved in the use of biomass and bioenergy systems on a full fuel-cycle basis to establish overall GHG balances.

Aims to:

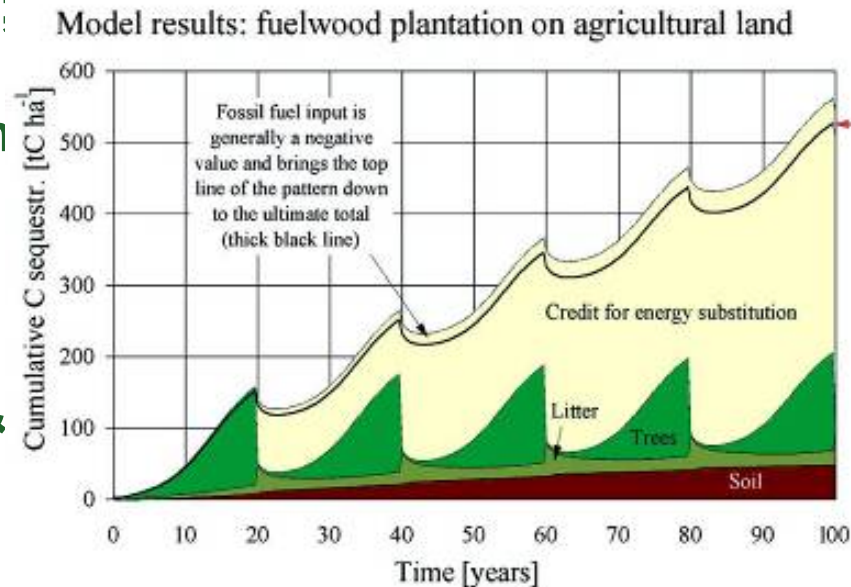
Improve understanding of bioenergy and GHG issues.
Develop and improve tools for assessing GHG balances.
Disseminate best practice in biomass GHG reduction and aid decision makers in defining optimal mitigation strategies





Task 38: Key Activities and Achievements

- Development of methodologies for optimisation of GHG reduction strategies, e.g. carbon sequestration; and to 'mainstream' GHG benefits of biomass and bioenergy systems with other externalities
- Provide standards for GHG performance in bioenergy policies
- Linking Emission Trading Systems & bioenergy/land-based offset projects
- Case studies on novel biomass and bioenergy systems (e.g. biorefinery)
- Contributions to the work of IPCC/OECD/IEA.





Task 40: Sustainable International Bioenergy Trade

Focus on:

Supporting development of a sustainable international bioenergy trading system while recognising the diversity of resources and applications.

Aims to:

Review the development of biomass markets in various parts of the world and existing trade experiences.

Review the barriers hampering development of a global commodity market and identify strategies to overcome them.

Identify sustainability criteria and their local influence on the biomass market.





Conclusions

The European Commission strongly supports Bioenergy & biofuels with legislative actions & various programmes for technological advances & market penetration

High oil prices = high profile for bioenergy

Bioenergy's progress is solid but not fast enough to meet objectives

Plenty more work to be done at all levels



Staying informed

- **CORDIS:**
<http://www.cordis.lu/rtd2002/>
- **EUROPA:**
http://www.europa.eu.int/comm/dgs/research/index_en.html
- **Energy research web site:**
http://europa.eu.int/comm/research/energy/index_en.html
- **DG Energy and Transport web site:**
http://europa.eu.int/comm/energy/index_en.html

www.ieabioenergy.com