



EUROPEAN
COMMISSION

Community Research

Energy from biomass The EC research perspective

The European Forest-based Sector Research Forum

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Outline

- 1. EU energy background and policy targets**
- 2. Bioenergy and wood biomass**
- 3. Bioenergy RTD in FP6**
 - Sustainable Energy Systems
 - Bio fuels Technology Platform
- 4. Future prospects, FP7**

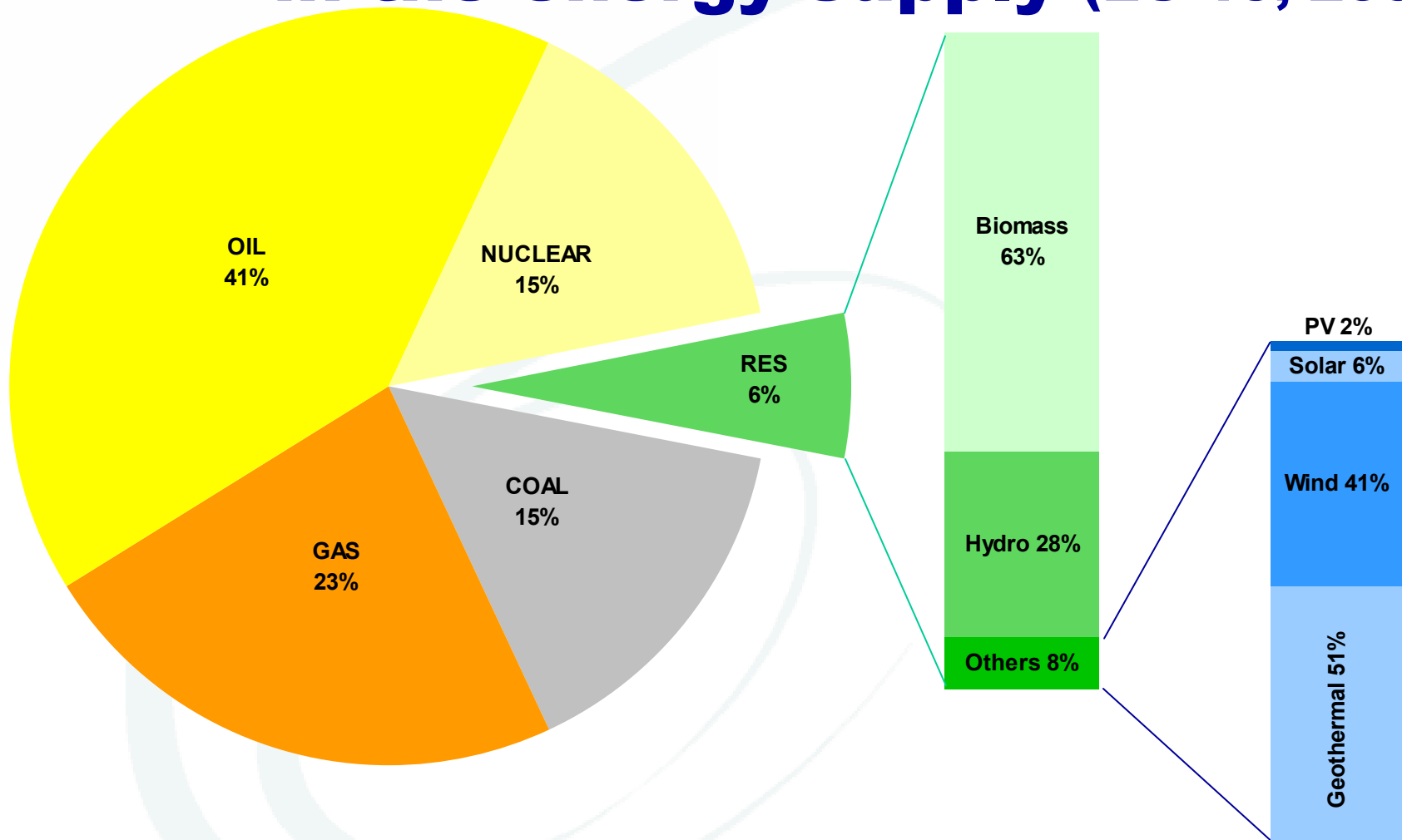
EU Energy Policy

EU Energy Policy aims at sustainable, secure and affordable energy supply.

In particular, the goals for 2010 are:

- × Renewable share of 12% in gross energy consumption**
- × Renewable share of 21% in electricity consumption**
- × Biofuel share of 5.75% of gasoline and diesel used in transport**
- × Reduction of greenhouse gases emissions by 8%**

Renewable energy sources in the energy supply (EU-15, 2002)



EC White paper – RES target 12% by 2010

Biomass

- × Today covers 4% of EU energy needs
- × Used for heat and electricity as well as solid, liquid and gaseous fuels
- × The only renewable energy source able to provide liquid fuels for transport



Flexi-fuel car



Domestic stove
Courtesy: RIKA Herz, Austria

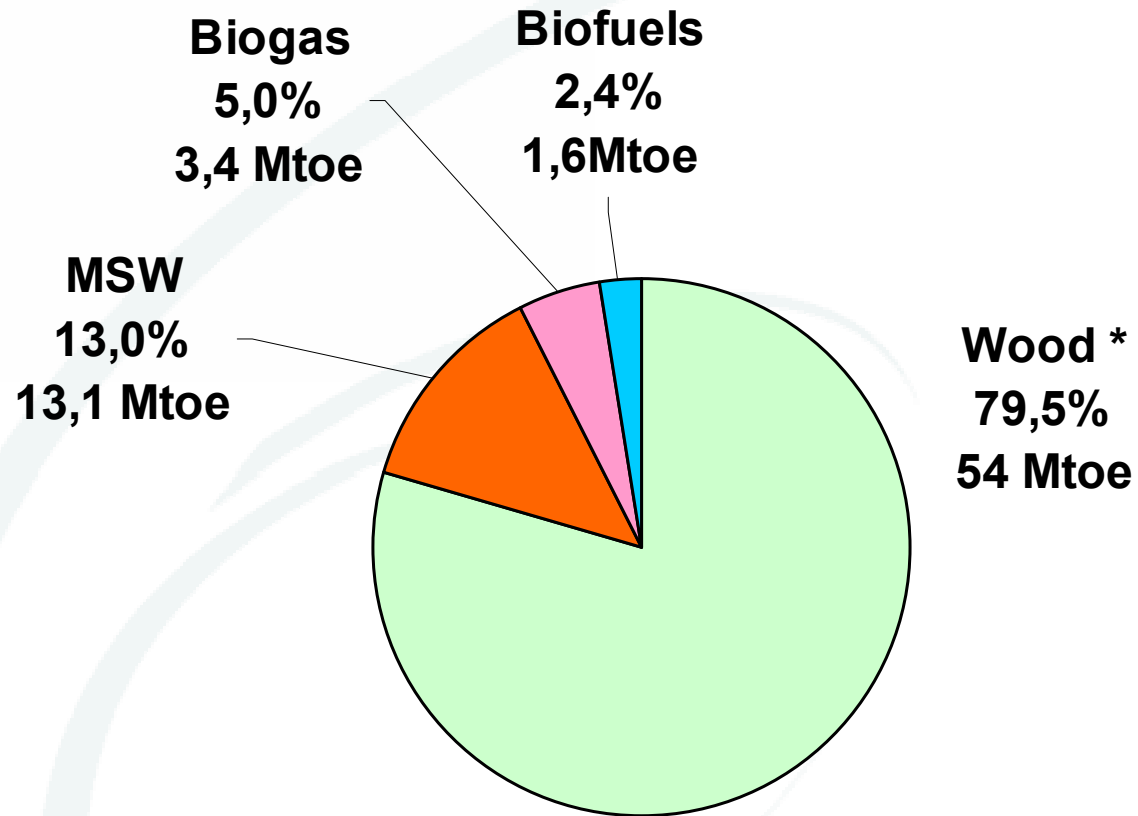


Värnamo, Sweden
Integrated Gasification Combined Cycle
6 MWe, 9MWth. CHRISGAS project



Alholmens Kraft, Finland
Combustion power plant, 240 MWe

Bioenergy 2003, EU-25



Total use of biomass and waste ~ 68 Mtoe
EC White paper: 135 Mtoe

Source: Eurostat

*Wood including wood waste, black liquors and solid waste from crop harvest

FP VI (2002-2006). Priority 6. Sustainable Development, Global Change and Ecosystems

Sustainable Energy Systems

Short and medium term actions (DG TREN - 445 M€)

Focus	Integrated demonstration actions
Impact	Accelerate market penetration with emphasis on 2010 energy policy objectives

Medium and long term actions (DG RTD - 445 M€)

Focus	Research, including prototypes and pilot plants
Impact	Technology development (wide exploitation beyond 2010)

Biomass and bio-energy

Content of the MLT Work Programme (1)

- × **Clean biofuels for transport and fuel cells** – primarily from ligno-cellulosic feedstock

CHRISGAS, Clean hydrogen-rich synthesis gas
RENEW, Liquid bio-fuel production systems
NILE, lignocellulosic ethanol

- × **Gasification systems** – aimed at the efficient production of electricity and clean hydrogen-rich gas

Power. BIGPOWER, AERGAS II
Coupling with fuel cells: BIOCELLUS, GREENFUELCELLS
Non-thermal H₂ production: HYVOLUTION



Biomass and bio-energy

Content of the MLT Work Programme (2)

- × **Combustion technologies** – reduction of atmospheric pollutants. Large scale systems with multi-fuel resources. Self-running small scale systems with standardized feedstock.

Combustion: BIOASH, COPOWER, BIOPRO
Co-combustion: NETBIOCOF

- × **Energy from bio-residues and energy crops** – Low emission waste to energy and crop to energy concepts and technology development.

CROPGEN, BIOCARD

- × **Pre-normative research and standardisation**



Biomass and bio-energy

Content of the MLT Work Programme (3)

× Biomass fractionation processes – Biorefinery

**Wood, Crops, Grasses
Forestry or Agricultural Residues
Animal or Municipal Waste**

**Heat, Electricity, Fuels
Chemicals
Materials
Food, Feed, Fibre**

**Biochemical
or Thermo-chemical
Conversion**



Biomass and bioenergy

MLT budget

Funding (not including demonstration actions)	~75 M€
Clean bio-fuels for transport	37 %
Gasification and H ₂ -rich gas	25 %
Biorefineries	10 %
Combustion, co-firing	6 %
Bio-residues and energy crops	11 %
Others	11 %

Bioenergy horizontal projects

NoE Bioenergy

Overcoming barriers to bioenergy through technology development and implementation, policy actions and market strategies.

Austria, Finland, Germany, Sweden, The Netherlands, UK, Poland and France.

ERA-NET bioenergy

Cooperation and coordination of national and regional research programmes in the Member states.

Austria, Finland, Germany, Sweden, The Netherlands and UK.





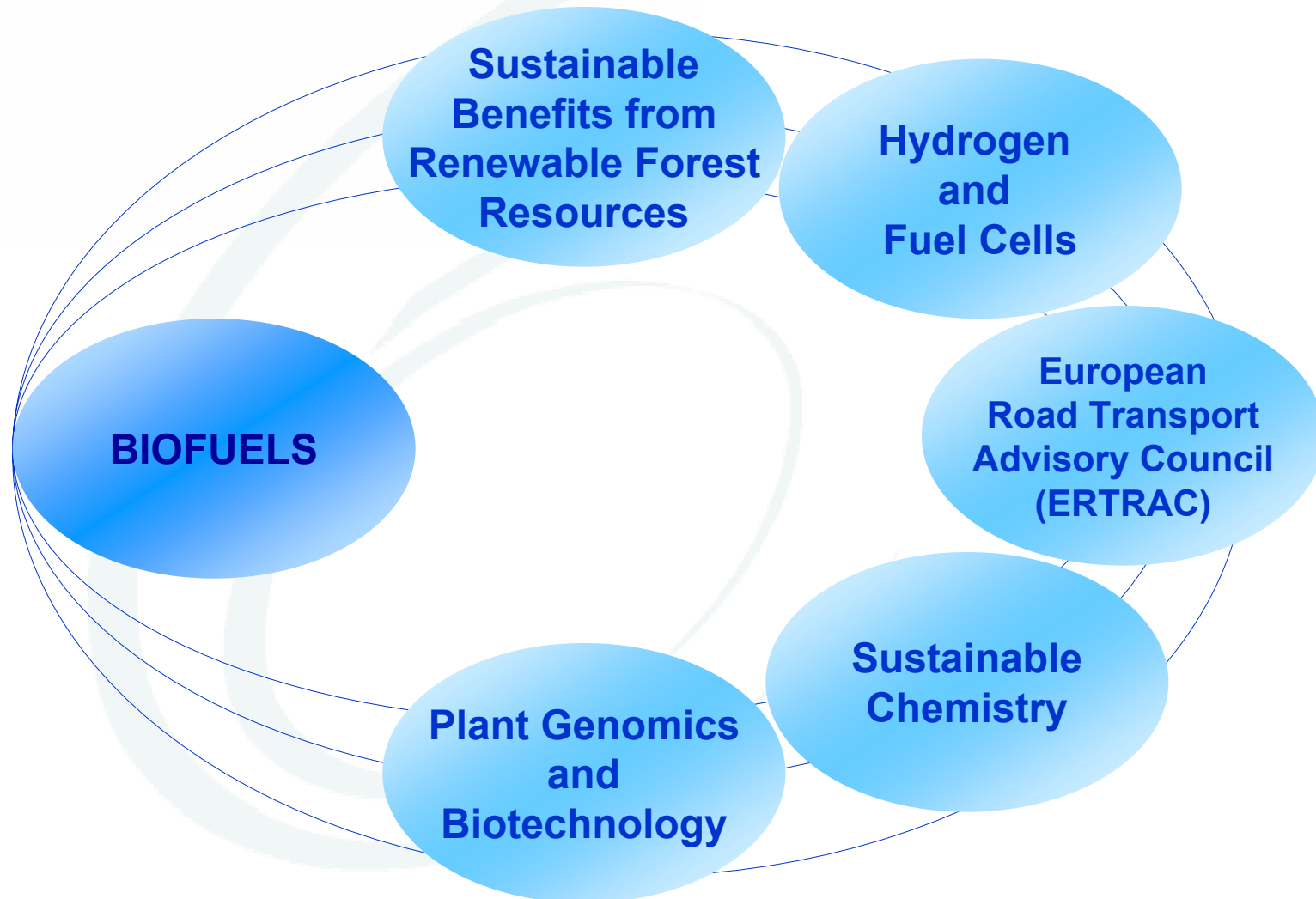
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Bio-fuels Technology Platform

- x To develop cost-competitive, world class biofuel technology**
- x To contribute to the creation of a European biofuels industry**
- x To accelerate the deployment of biofuels for transport applications, compatible with the present day infrastructure.**

Interaction with other Technology Platforms



Energy-4 call

22nd September 2005 – 10th January 2006

Budget: 20 M€

Bioenergy topics

- × Integrated production of energy and other products through the concept of biorefinery (IP)
- × Pre-normative research and standardization on solid biofuels (STREP)
- × Support the establishment and running of the European biofuel technology platform (SSA)

http://fp6.cordis.lu/index.cfm?fuseaction=UserSite.FP6DetailsCallPage&call_id=236

FP VII (2007-2013)

- × *Biomass for electricity, heating and cooling.* Research aims at increasing overall conversion efficiency, achieving cost reductions, further reducing the environmental impact and optimising the technologies in different regional conditions.
- × *Biofuel production.* To develop and demonstrate improved conversion technologies for the sustainable production of solid, liquid and gaseous fuels from biomass, in particular biofuels for transport. Emphasis should be on **second generation biofuels** and the integrated production of energy and other added-value products through **biorefineries**.

Staying informed

CORDIS:

<http://www.cordis.lu/fp6/>

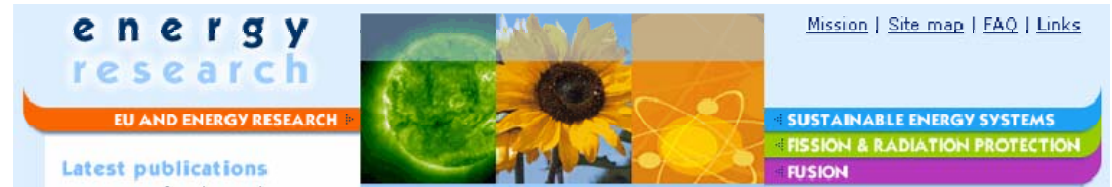


EUROPA:

http://europa.eu.int/comm/dgs/research/index_en.html

http://europa.eu.int/comm/research/energy/index_en.html

http://europa.eu.int/comm/energy/index_en.html



INCO and Marie Curie

<http://www.cordis.lu/inco/home.html>

http://europa.eu.int/comm/research/fp6/mariecurie-actions/indexhtm_en.html



Renews

<http://europa.eu.int/comm/research/energy/pdf/renews3.pdf>



Information days and similar events, conferences

http://europa.eu.int/comm/research/energy/gp/gp_events/action/article_2790_en.htm

European Commission, Charlemagne Building

21-22 November 2005

http://europa.eu.int/comm/research/energy/gp/gp_events/action/article_2790_en.htm



**RENEWABLE ENERGIES FOR EUROPE
RESEARCH IN ACTION**