



European Commission



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**Policies & activities to enhance
the use of forest biomass in the
EU, including for energy.**

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Summary of presentation:

1. overview of EU (EC + MS) policies wrt wood
2. forest resources, wood supply, industries
3. challenges: climate change, energy security
4. EU policy responses – implications for wood
5. conflict zone? – wood products v. energy?
6. renewed EU policies, including actions to accommodate uses of wood
7. other initiatives needed

1. Overview of EU (EC + MS) policies affecting use of forest biomass

Activities	Sectorial policies	Horizontal policies
Wood procurement from forests and other wooded land	National forest policies <u>EU Forest Action Plan - FAP (CAP)</u> Rural Development	Regional Environmental Research & Technological Development + Innovation
Wood utilisation		
as raw material for processing into forest-based materials & products as building material as (in-)direct energy source	<u>Industrial policies</u> MS building regulations + Const. Prod. Dir. <u>Energy Policies</u>	Finance Competition Internal Market Trade

2. EU forest resources:

- EU-25 has 160 M ha. forests (5 % global FOWL), mostly small, private lots (16 M owners), yielding 315 M m³ (o.b.) of wood annually **(55% NAI)**
- EU-25 forests grow 574 M m³ wood each year (o.b. NAI)
- EU forest-based industries use only 55% (315 M m³)
- so, the EU forest standing wood volume is constantly increasing (+ 290 M m³/yr) and so is the area (+ 400 000 ha/yr)
- since 01/01/2007 EU enlargement to include Bulgaria and Romania adds 10.5 M ha forest and significant wood production and use

Wood supply - why not all available wood is used:

- logically, EU forest resources can be more intensively used (85 % NAI fellings + **173 Mm³?**) no negative ecological impacts (**EEA study: + 40 Mtoe = 200 Mm³**)
- large national, regional and local variations in supply & use
- not all wood of right species, age, dimension, quality at a distance, price & time suitable for markets (wood ≠ wood)
- forest & other infrastructures & logistics inadequate
- private forest owners not always “market” actors (UFOs)
- hence, EU is importing about 10 % (+/- 30 M m³) of the supply of wood for industries (in Finland +/- 25 % wood raw material is imported, currently most from Russia)

EU forest-based industries (woodworking, pulp & paper; printing):

- 340 Bn € turnover p.a. (8% of EU manufacturing added value),
- 2.5 M jobs (9 % of EU manufacturing jobs)
- growing export markets for paper and structural timbers
- 90 % of wood from sustainably managed EU forests (SFM)

NB roles of forest-based industries as:

- raw material operator and “co-ordinator” (i.e. « mobiliser »)
- as a large energy user of electricity & heat
- as producer of electricity & heat for “export” to grids
- as innovator and developer of new product and process technologies

BUT: mostly SMEs, so: low investment in R&D & education; high costs; risk of relocation outside EU & limited scope to singly improve wood supply

Therefore the **competitiveness** of the EU forest-based industries must be maintained and enhanced for: **products > jobs > wealth > growth**

3. Challenges:

- **mitigate climate change:** by reducing GHG emissions, CO₂ capture
- **increase EU energy security:** by diversifying energy types & sources

4. EU (EC + MS) response: energy policies especially for new & renewable energy sources (RES)

a) 1997 « White Paper » 12 % energy from renewable energy sources (RES) by 2010 (1997 = 6 % for EU-15):

Wind

Hydro

Geo-thermal

Photo-voltaic

Solar thermal

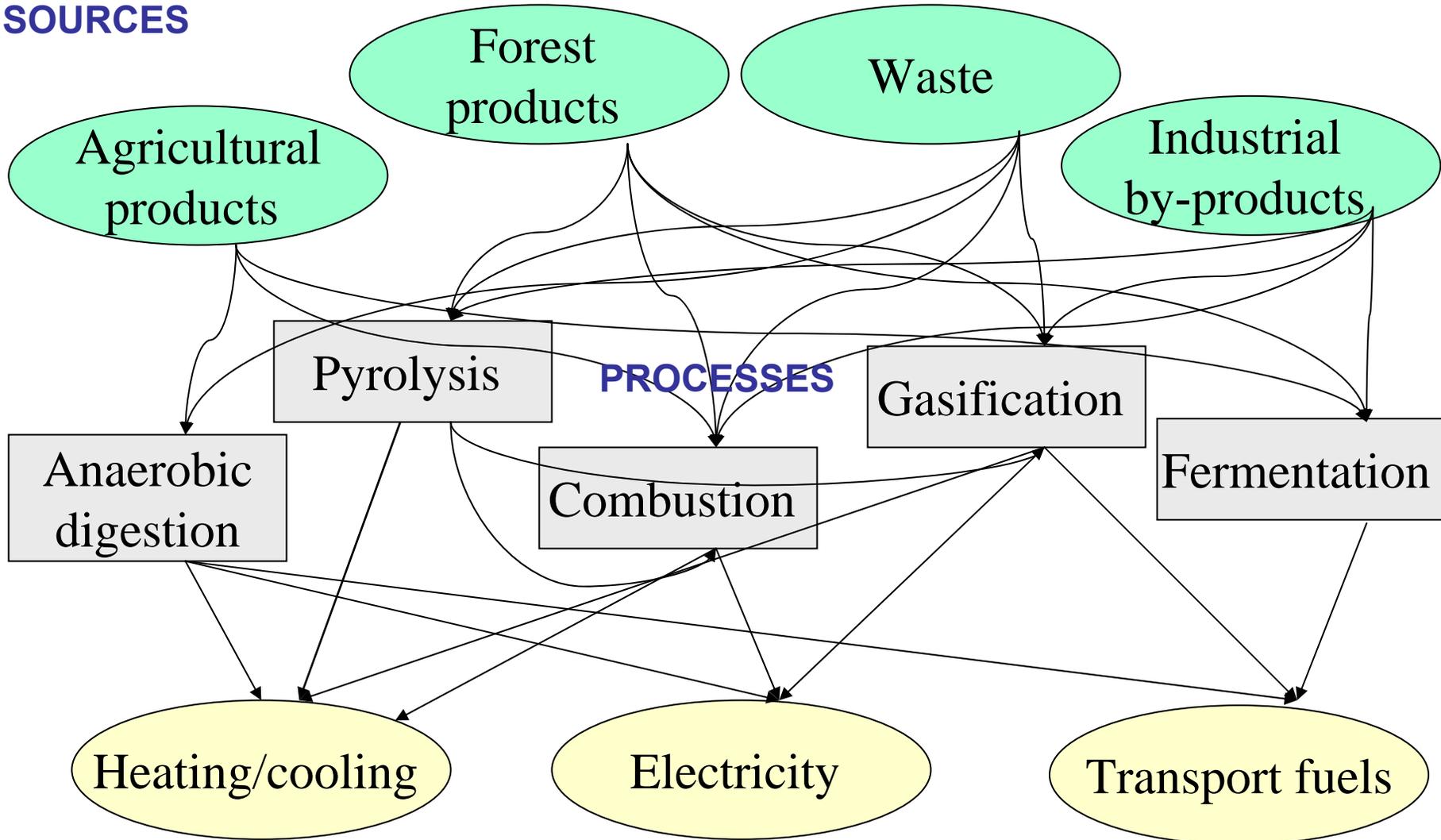
Biomass = agri + urban + wood (no « target », est. 27 Mtoe)

b) Papers on Energy Security: NB other technologies becoming available:
hydrogen & fuel cells; zero-emission fossil fuel plants; smart grids

Member States obliged to fulfil indicative « targets » at national level

THE BIO-ENERGY MATRIX

SOURCES



END USES

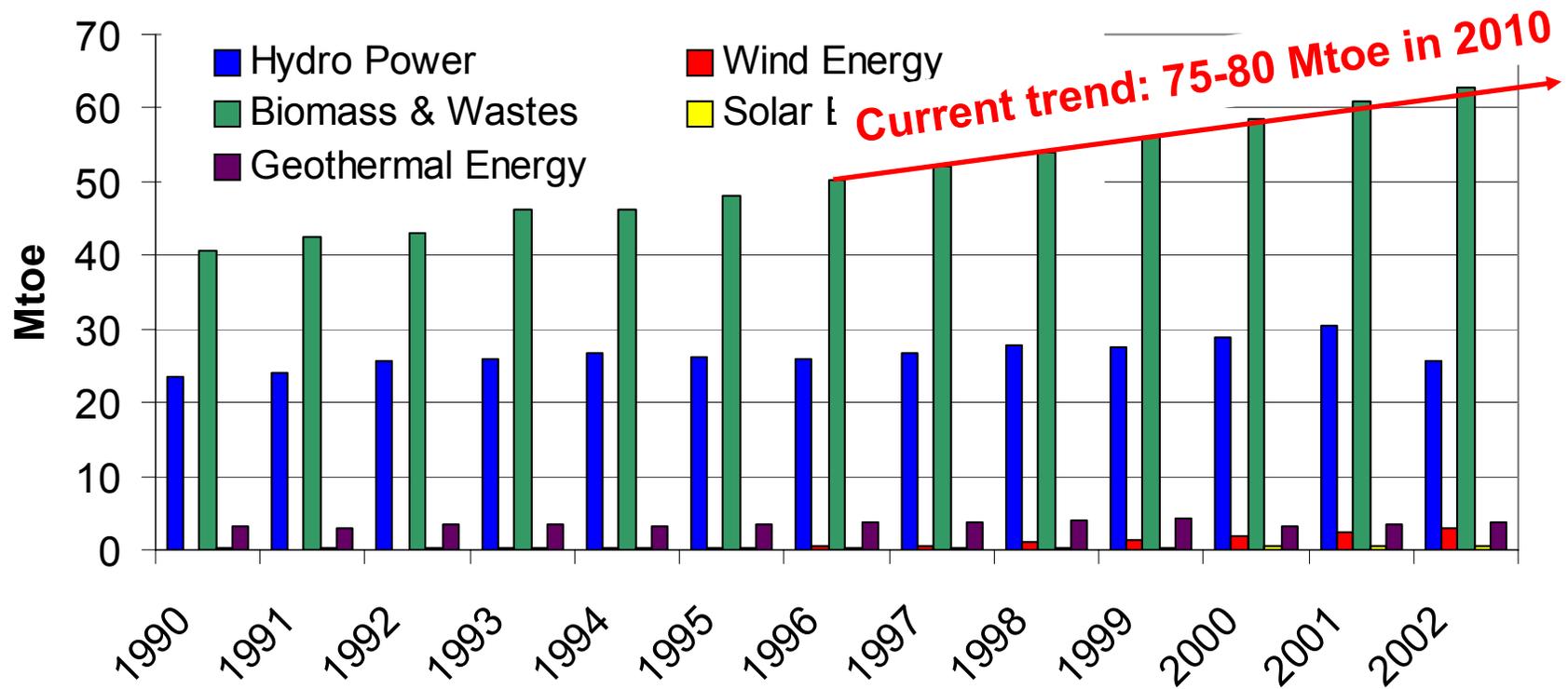
A comprehensive but complex framework for RES and EE (energy efficiency) is already in place

	Sector		Supply	Demand		
	RES	EE		Build ing	Tran sport	Indu stry
Political and legislative instruments:						
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 Allowance 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
2007 Energy & Climate Pkg (To be continued....)	X	X	X	X	X	X

Danger of missing EU targets for 2010

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

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



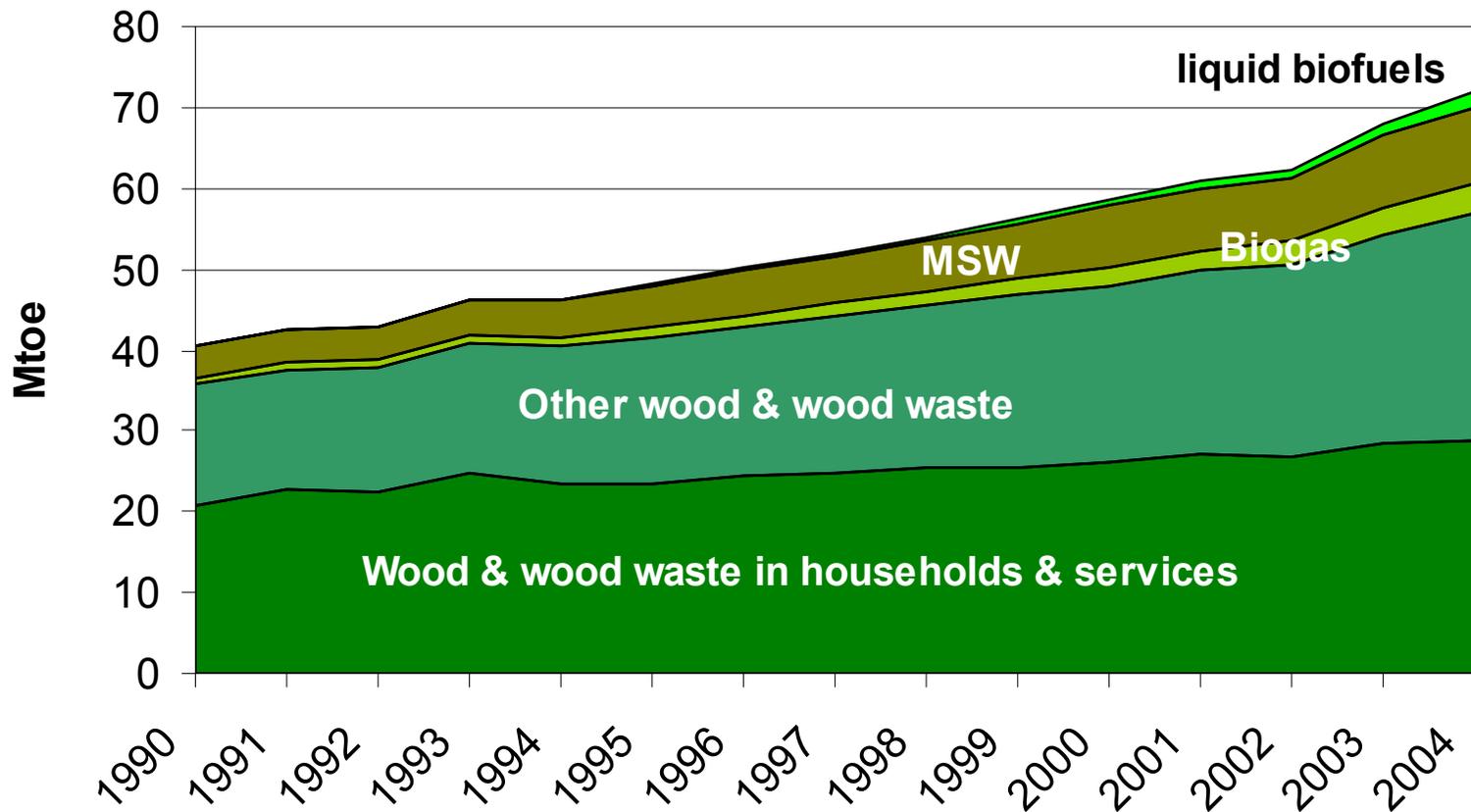
Source: EUROSTAT

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

Impacts of EU RES policy measures on forest-based industries

(1997 White Paper estimated: + 27 M toe wood by 2010)

EU25 1990-2002: biomass & waste only as RES – real



2010 “targets” for EU BAP & Bio-fuels Strategy:

scale of biomass energy use scenario “**if all biomass = wood**”
 (NB not all will biomass foreseen to come from wood, but also agri-residues, waste and liquid bio-fuels should play a significant role).

(M toe)/Mm ³	(2003)	(2010)	Difference
Green Electricity	110 Mm ³	303 Mm ³	(35 Mtoe) +193 Mm3
Heating & cooling	264 Mm ³	413 Mm ³	(27 M toe) +149 Mm3
Transport Bio-fuels	6 Mm ³	105 Mm ³	(18 M toe) +99 Mm3
TOTAL	380 Mm ³	820 Mm ³	+440 Mm3

Ex. “The share of renewable energy” COM 366/2004 (For EU-25)

5. Conflict zone? Wood for products v. energy?

Sectorial issues: forests & forest-based industries (F-BI):

1. There are both **opportunities and risks**, especially for the forest-based industries
2. EU-level figures hide: **complex market structures; national & regional variations** in: extent, intensity & location of forest resources, population density, financial & fiscal régimes giving rise to several identifiable regions within Europe (NB cross-border effects in central Europe)
3. Need to safeguard (“urban”) forest **resources and access** to them at competitive prices for both industry and energy production, whilst respecting ecological and social amenity functions of forests
4. **Scale and costs** need to be assessed, especially in context of **national planning**

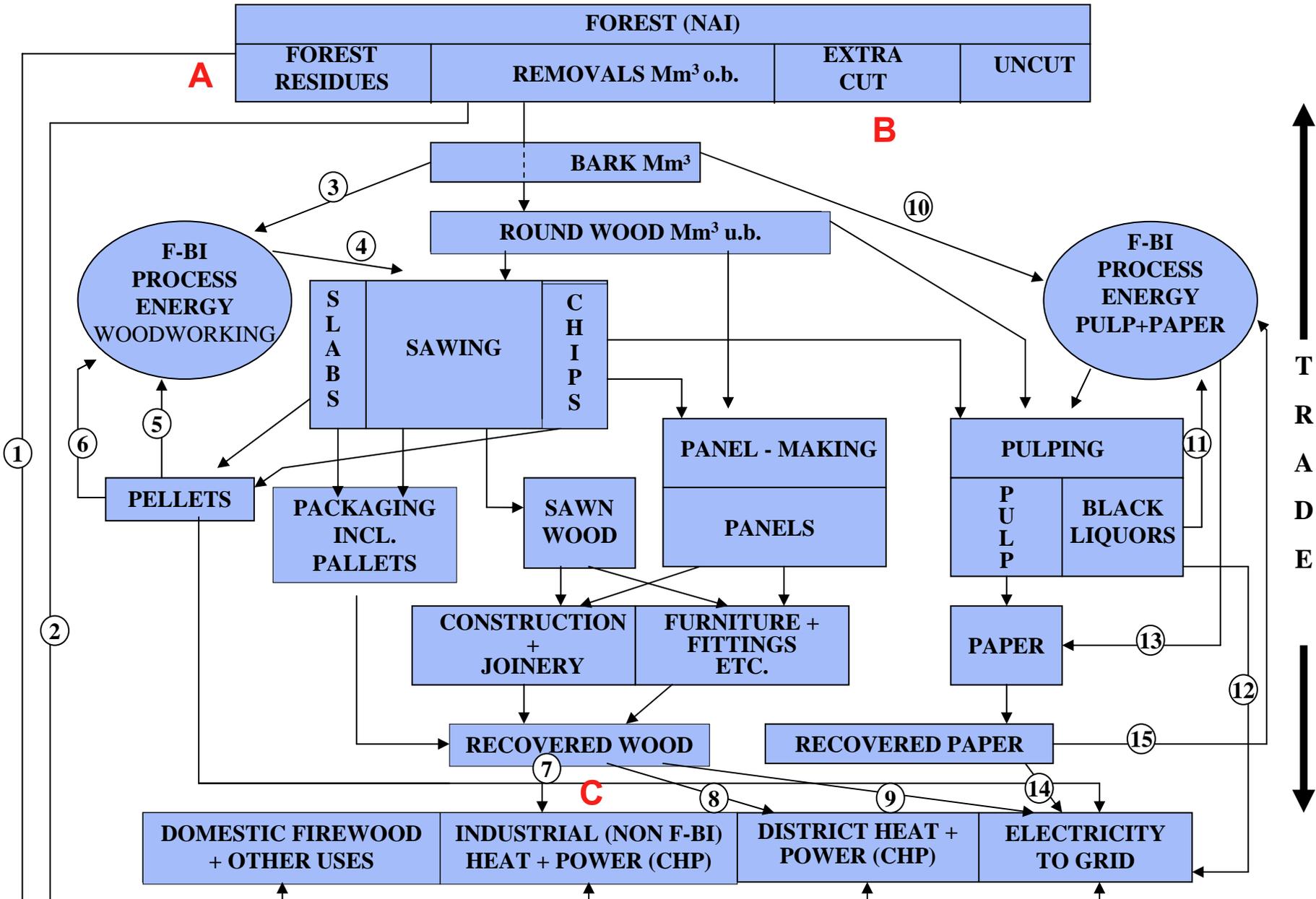
Opportunities:

- forest owners can have **more markets** for using more wood, incl. residues. (More revenue available for forest management?);
- sawmills benefit from increased **demand for their by-products** like wood chips and sawdust, especially for e.g. pellets;
- pulp industry can use e.g. black liquors not only for CHP, but as “**bio-refineries**”, using current & new technologies, also new opportunities (bio-fuels: (m)ethanol from black liquors or directly from cellulose)
- **wood is an energy-efficient building material in mfg. and use**

Risks:

- policy changes require (better and more) wood mobilisation, but existing market, institutional and fiscal frameworks may inhibit it
- unfocused demand for wood, unmatched by supply, can create bottlenecks and high prices to the detriment of both the energy & forest-based industries
- end-use subsidies, e.g. the use of high feed-in tariffs for the production of “green electricity”, may not pull previously unused biomass from the forests or gather post-consumer residues, but compete with F-BI
- **energy efficiency** may not be optimised and/or
- optimal use/full **added value** may not be derived from wood
- Wood-based products may be priced out of market by less sustainable

COMPLEXITY: WOOD & WOOD ENERGY FLOW DIAGRAM



STRATEGIC CONSIDERATIONS FOR MOBILISING MORE WOOD

1. How much (more) wood could/should be used and how can that best be managed? i.e. at national, regional & local (+ company) levels
2. Which points in the forest/wood flow system should be addressed? (A? B? C? Others?)
3. Logistics and harvesting costs are crucial. How can such costs be overcome without unduly distorting markets?
4. Which specific (new) measures are needed?
5. Added value of F-BI value chain is substantially higher than that of energy sector and wood products can be recycled. But what about F-BI profitability, capital intensity and returns on investments?
6. How to get better statistical and other information?
7. How can EU policies & actions mobilise wood?

What has happened recently in the wood biomass market?

- roundwood prices have risen sharply, in some cases eased, (e.g. wooden pellets), but:
- supply remains tight in many regions, esp. Central Europe
- supply difficulties and costs have reduced competitiveness of wood-processing industries, esp. panels and pulp (closures)
- heightened concern by EU forest-based industries (F-BI) that trend will continue

6. Renewed EU policies facing up to new & renewed challenges :

- **High and volatile prices** for oil and gas will stay
- **Global energy demand** is predicted to increase by 60% over the next 30 years (So, CO₂ emissions will also rise)
- By 2030 the **EU energy dependency** could rise from 50% to 70%, mostly from regions threatened by insecurity
- According to the **Kyoto Protocol**, EU has to reduce its GHG emissions from 1990 until 2008/2012 by 8 %
- Stern Report (Climate Change more rapid)
- Thus, January 2007: **“Energy Package”**, including Renewable Energy Road Map 20% RES by 2020
- EU Council conclusions 09/03/2007 (- 20 % CO₂, etc.)

Integrated & mutually supportive approach to climate and energy policy

Three goals:

- **increasing security of energy supply**
- **ensuring the competitiveness of European economies and the availability of affordable energy**
- **promoting environmental sustainability and combating climate change**

Energy Policy for Europe, incl. Energy Action Plan (2007-9)

In addition to RES, the EAP seeks to complete EU internal energy market and develop a European Strategic Energy Technology Plan, including safe carbon capture.

EAP will be target of Strategic Energy Review in 2009

European Energy action Plan includes, inter alia:

- review of state-aid guidelines for environment
- energy efficiency: reduce consumption 20 % by 2020

For RES:

- binding 20 % target RES by 2020 (burden sharing)
- comprehensive “implementing” directive on use of all RES (electricity, heating & cooling, bio-fuels), including:
 - member states’ overall national targets
 - national action plans with sectorial targets and measures
 - sustainability criteria for bi-energy
 - provisions to avoid conflicts between diff. uses of biomass

RES “targets” and progress

	2006	2010	2020
All renewables:	7%	12%	20%
	(indicative)		(binding)
Bio-fuels:	1%	5.75%	10%
Green electricity:	15%	21%	(MS sectoral targets)
Heating/ cooling:	9%	none	
Biomass:		150 Mtoe	195 Mtoe
Wood “share”			
(?27→35? Mtoe)		108-149 Mm3	→ 140-194Mm3

Renewables Directive 2007

Energy from biomass (incl. organic waste) is expected to make a significant contribution to a future sustainable energy system in Europe in all 3 sectors: **electricity, transport, heating and cooling**

A predictable, long-term policy framework needed: **National Biomass Action Plans** to feed into national RES action Plans! Biomass supply and use to be assessed at national level across three sectors

Supplementary action on national, regional and local levels with close involvement of all relevant stakeholders is essential and equally important

Challenges exist: competition for raw material and increasing imports to ensure sustainability criteria met for the production of biomass/biofuels

Bio-fuel increase: sustainability? Second generation support?

National Biomass Plans (nBAPs)

Council June 2006 endorsed EU Biomass Action Plan & « invited MS to develop or up-date nBAPs, concentrating on national bottlenecks »

- Follow-up: nBAPs WG set up in July 2006 (EC + MS)
- nBAPS Information Matrix established
- By 2nd meeting (13/03/2007):
 - - only 6 matrices completed, but significant N° of MS preparing nBAP or biomass part of national energy plan (linked to their draft Operational Programmes for Structural & Cohesion Funds).
 - - biomass supply is key element of nBAPs, but still
 - - no uniform MS understanding of nBAPs
 - - MS requests to exchange information & experiences
 - - possibility of « guidelines » from Commission?
- Follow-up: web-site established:
http://ec.europa.eu/energy/res/biomass_action_plan/national_biomass_action_plan_en.htm
- - matrix questionnaire launched - due 15/05/07

BAP State of Play

Other on-going actions:

- Review buildings directive to incentivise use of RES**
- Study on performance of household biomass boilers and possibly set eco-design requirements**
- Review the impact of the energy use of wood and wood residues on forest-based industries**
- CEN standards on quality of biomass fuels**
- Development and trade policies to promote sustainable biomass/ bio-fuels production
(NB major international bio-fuels conferences)**

EU Forest Action Plan (FAP) – DG AGRI

The **overall objective** of the Action Plan is to enhance sustainable forest management and the multi-functional role of forests. Its **four operational objectives** are to:

- **improve** long-term competitiveness of the forest sector
- **maintain** & enhance biodiversity, carbon sequestration, integrity, health and resilience of forest ecosystems
- **contribute** to life quality by preserving and improving the social & cultural dimensions of forests & forestry
- To **improve coherence**, co-operation and communication in forest related matters

This is to be achieved through **four groups of « Key Actions »**:

Competitiveness

Environment

Quality of life

Co-ordination and communication

EU Forest Action Plan - Key Action 4

Promote forest biomass use for energy generation through:

- Assessment of the availability and possibilities for increased mobilisation of small/low-value timber and harvesting residues for energy; disseminate good practices
- Assessment of the feasibility of using forest residues and tree biomass for energy in the context of sustainable forest management; examination of environmental limits
- Examination of possibilities for co-operation between forest owners in energy projects
- Support for R&D for heating and cooling, green electricity and fuels from forest resources
- **NB Working group set up (06/03/2007) to examine mobilisation of wood resources for energy use.**

Support from Common Agricultural Policy

CAP reform (2003)

- ▶ De-coupled income support
- ▶ Non-food (energy) crops on set-aside areas
- ▶ Energy crop premium
- ▶ Reduced scope for steering production

Rural Development Policy (2007-2013)

- ▶ Menu of measures in support of renewable energy, e.g. biomass supply chains, processing capacity, bio-energy installations, including energy use of forest material)

What has DG Enterprise done?

- **major contribution to developing the « Lisbon Agenda »**
- **contributed to inter-service co-operation, incl. Energy & Climate Package, and with Member States**
- **developed new communication on innovative and sustainable forest-based industries**
- **reconvened RES Working Group of the EU F-BI Advisory Committee: working document**
- **co-operated with international organisations (FAO/IEA/UNECE)**

The Lisbon Agenda - matching sustainability with competitiveness

The **Lisbon Agenda**: was re-launched Feb 2005. Recalling the three components of sustainability (environmental, social, economic), as well as competitiveness, it seeks:

« To preserve the EU sustainable development model for the future, the Union's competitiveness must be strengthened; its economy dynamised »:

Other EU policies: Internal Mkt., Industry, Employment, R&D (EC + MS)

- EU + attractive for investment & work (Single Mkt., less & better regulation)
- 2010: R&D 3% GDP - knowledge & innovation for sustainable growth
- 2010 create 6 M new and better jobs

(Essentially: growth & jobs)

EU Forest-based industries:

New communication document foreseen mid 2007):

« Innovative & sustainable forest-based industries in the EU »

(This is in follow-up to the 1999 communication: « The State of the Competitiveness of the EU Forest-based & Related Industries »)

The new communication will address **sectorial challenges:**

- **Increased Global Competition**
- **Wood Raw Material**
- **Secondary Raw Material**
- **Energy**
- **Demand for wood and paper products**
- **Structural Change**

NB three of these relate to wood mobilisation

F-BI communication - principles & objectives

→ To enhance the competitiveness by taking care of the advanced know-how and competences that the EU forest-based industries possess while also taking into consideration related competences in the chemical industry and the machinery industry.

→ To recognise the forest-based industries strategic role in mitigating climate change, enhancing a sustainable energy supply, promoting sustainable forest management and in supporting generally a sustainable development.

→ To support an enhanced level of innovation and research and technological development.

→ To facilitate the forest-based industries' access to a sufficient raw material supply, both new fibres and recovered, at reasonable costs.

→ To facilitate an energy supply at competitive prices.

NB challenges will be addressed through 24 action areas

Conclusions of report by RES WG (DG ENTR) identified:

- **factors influencing the availability of wood and its increased use for energy**
- **more woody biomass can be mobilised**
- **economic instruments**
- **forest and agri-energy resources can better be developed by using a package of co-ordinated measures**

7. Other initiatives needed:

Opinion of the European Economic & Social Committee:

Wood as an energy source in the enlarging Europe » (Kallio)

http://eesc.europa.eu/activities/press/registry/index_en.asp

Co-operation with international organisations:

a) Joint (EC/IEA/UNECE) Wood-energy Enquiry (07-10/2006)

- based on recent co-operation, esp. with the FAO/UNECE JWPFES, the three agencies drew up a survey sent to both forestry statistics and energy use correspondents in the network countries (26 IEA + 56 UNECE (EU))

- only 19 replies, but from key wood-producing & –using countries;

- results surprisingly showed a much higher level of energy-wood production and use than had even been estimated
 - much production and use not officially recorded
 - how to follow up? Meeting Geneva 19/03/2007, experts will refer to:
 - Joint FAO/UNECE Working Party on Forest Economics & Statistics
- Further info: <http://www.unece.org/trade/timber/Welcome.html>

b) International Seminar on Energy and the Forest Products Industry,
Rome, 30 – 31/10/2006 in collaboration with UNECE, ITTO and WBCSD
(<http://www.fao.org/forestry/site/34867/en/>)

c) Mobilising wood resources » Geneva 11-12/01/2007
(FAO/UNECE/MCPFE/EFI/CEPI)

<http://www.unece.org/trade/timber/workshops/2007/wmw/mobilisingwood.htm>

Follow-up meetings: **Task Force** (Geneva, 19/03/2007; Rome 25/05/2007)

Wood Availability & Mobilisation Potentials (WAMPs)

- 1. Need for common understanding of challenge, scope & issues**
- 2. Backed up by empirical research to enhance data and reporting (coefficients, deductions, conversion factors etc.)**
- 3. Dynamics & qualitative issues / conditions**
- 4. Input to key fora (EU, FAO/UNECE, MCPFE, etc.)**
- 5. Need for active involvement by all partners (governments, industry, others)**
- 6. McKinsey study – CEPI (May)
present to UNECE TC/ISCPolicy Forum (October)**
- 7. MCPFE (Declaration on energy)**
- 8. EU national Biomass Action Plans (nBAPs)**
- 9. Other projects?**

Energy policy & finance

EC, DG TREN: EU Biomass Action Plan

- http://ec.europa.eu/energy/res/biomass_action_plan/green_electricity_en.htm
- nBAPs:
http://ec.europa.eu/energy/res/biomass_action_plan/national_bap_en.htm

EC, REGIO: Structural and Cohesion funds

- http://ec.europa.eu/regional_policy/index_en.htm

EC, DG AGRI: EAFRD

- http://ec.europa.eu/agriculture/rurdev/index_en.htm

European Investment Bank (EIB)

- <http://www.eib.org/>

European Sustainable Energy Week 29/01- 02/02

- <http://www.eusew.eu/>

General information on FP7 EU research

- <http://ec.europa.eu/comm/research>
- **Seventh Framework Programme** http://ec.europa.eu/comm/research/future/index_en.cfm
- **Information on research programmes and projects**
<http://cordis.europa.eu/>
- **RTD info magazine** <http://ec.europa.eu/comm/research/rtdinfo/>
- **Information requests**
research@ec.europa.eu
- **DG Enterprise & Industry - Forest-based Industries:**
http://ec.europa.eu/comm/enterprise/forest_based/index_en.html