






Wood potential and future demand and supply of wood in Europe.

Kit Prins

Outline

- How important is wood energy now?
- How much wood is needed to reach the wood energy targets?
- Outlook for future supply/demand balance for wood in Europe
- What response, from governments and stakeholders?

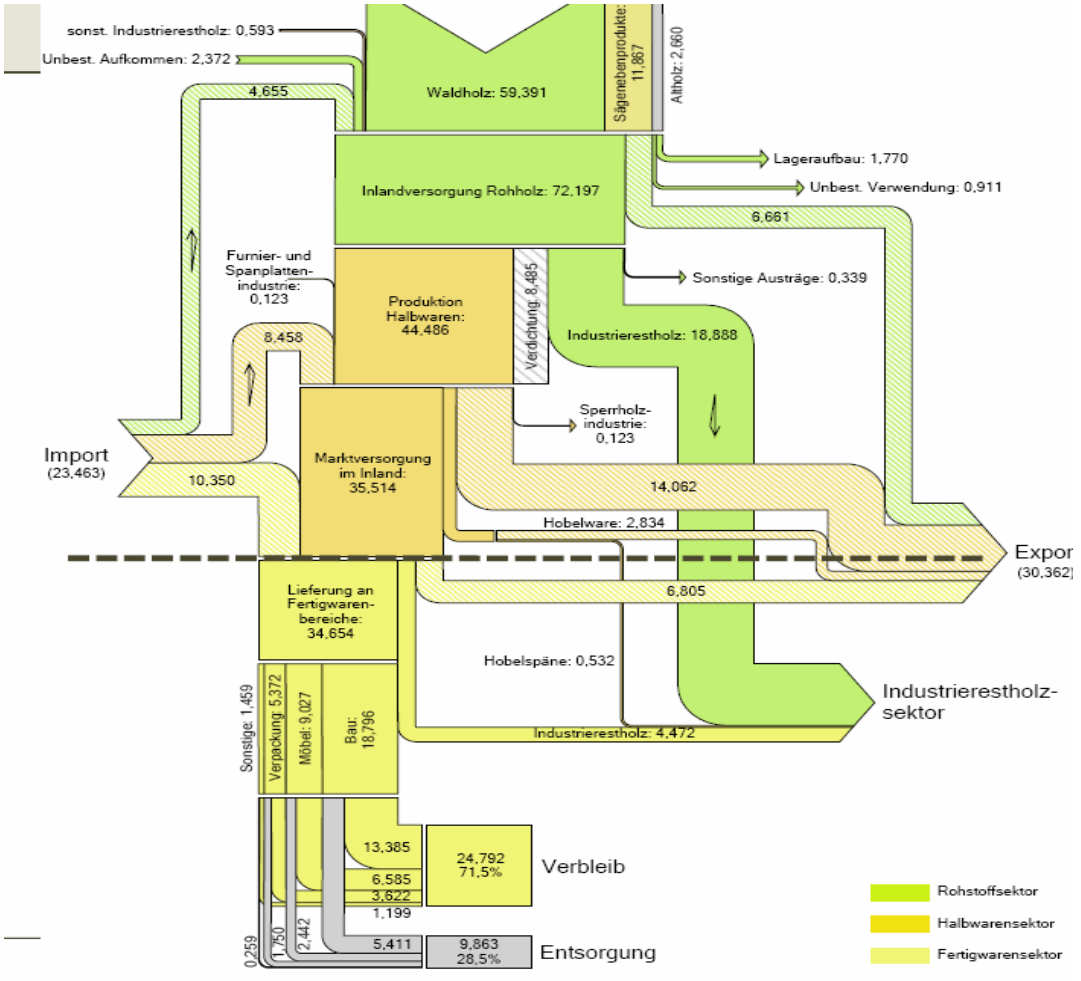
Background

- Targets for renewable energy
- Higher energy prices
- Concern from traditional industries about raw material
- Many studies ongoing, including "Euwood" for EU, to be issued this year
- I address "Europe" (EU27 or pan-Europe, as specified) but all data are at country level

Presentation based on EUwood

- Study for the EU (Energy DG) by a consortium (Uni Hamburg, EFI, Probos, UNECE/FAO)
- Aim: to assess "real sustainable potential wood supply"
- Draft submitted 30 July 2010, awaiting approval and final revision: workshop slides at http://ec.europa.eu/energy/renewables/events/index_en.htm
- Data subject to revision

Wood flows are complex



So we used the Wood Resource Balance method which takes a comprehensive approach (Mantau 2010)

The Wood Resource Balance approach

- Supply side
  - Removals (recorded or not), landscape care wood
  - Residues
  - Post consumer recovered wood
- Consumption side
  - Sawmills, panel and pulp
  - Energy

Some characteristics of the WRB

- Comprehensive on both sides
- Full coverage of energy supply and use
- Takes "cascade use" into account (use of residues etc.)
- Is a balance, not a model
- Produces different totals than other approaches, from same base data
- In EUwood, "supply" is potential

HOW IMPORTANT IS WOOD ENERGY NOW?

11. Holzenergie-Symposium, Zürich, 17 September 2010

Wood Resource Balance 2010 EU27

662 M m³

331 M t o.d.

5.833 PJ

458 M m³

229 M t o.d.

4.037 PJ

332 M m³

166 M t o.d.

2.923 PJ

346 M m³

173 M t o.d.

3.052 PJ

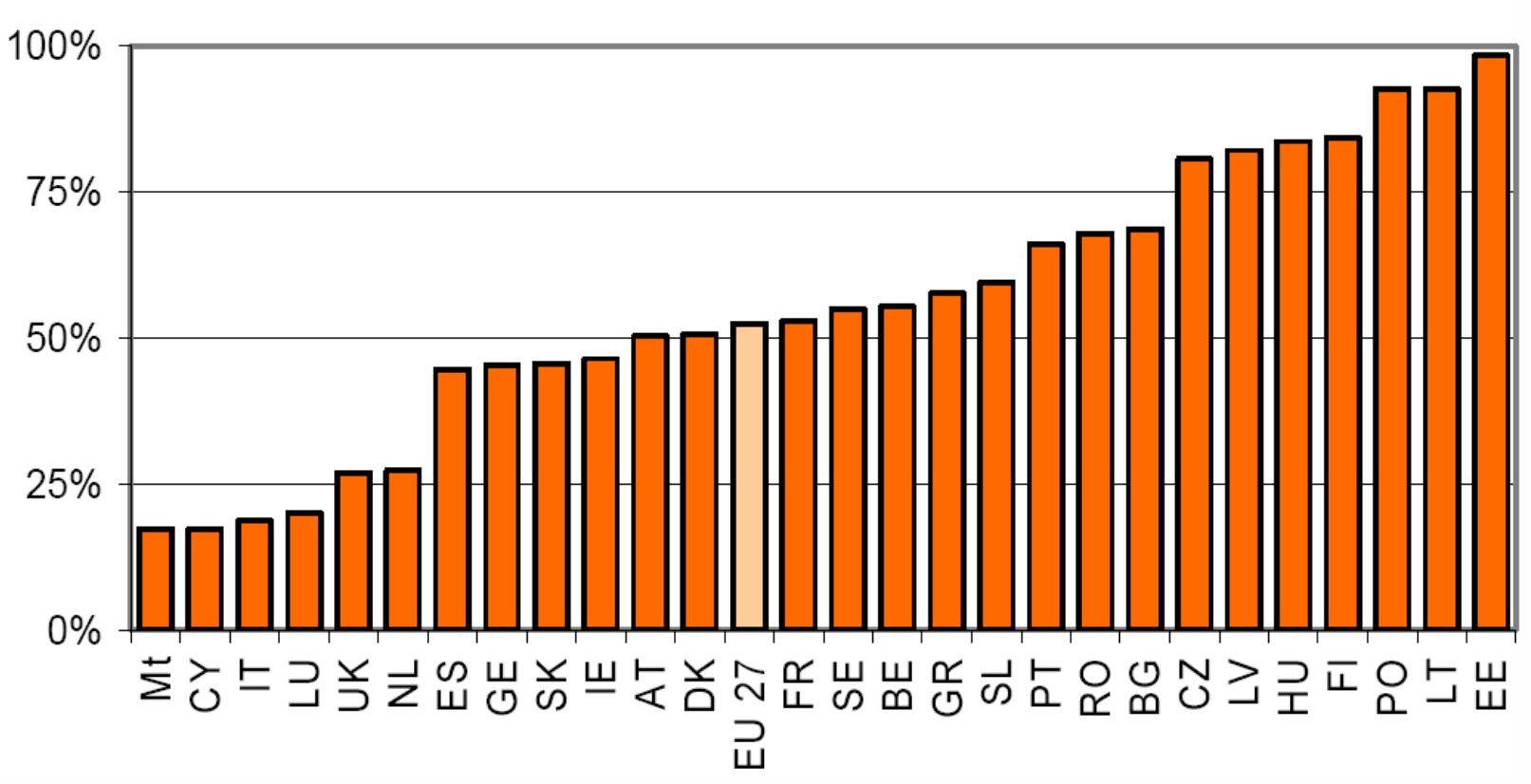
Source: MANTAU, Wood resource balance, EUwood – team 2010 (VERKERK/LINDNER/ANTILLA/ASSIKAINEN: EFISCEN forest resources and constraints; LEEK, N.: Post consumer wood; OLDENBURGER J.: Landscap care wood; SAAL, U.: industrial residues; MANTAU/SAAL: Wood industry; PRINS, K.: Policy options; JOHNSONS, R. EFSOS calculations)

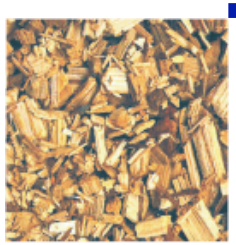
Wood Resource Balance 2010, EU27
Source: Mantau, 2010

potential 2010	in M m³	in M m³	demand 2010
stemwood C, ME	362	196	sawmill industry
stemwood NC, ME	182	11	veneer plywood ind.
forest residues, ME	118	143	pulp industry
bark	24	92	panel industry
landscape care w. (USE) ME	59	15	other material uses +)
short rotation plantation	-	21	producer solid wood fuels
sawmill by products	87	20	forest sector intern. use
other industrial residues	30	128	biomass power plants
black liquor	60	23	private households (pellets)
solid wood fuels	21	155	private households (other)
post consumer wood	52	0	liquid biofuels
total	994	805	total

Share of wood in renewable energy sources, 2007

Source: Euwood Steierer





HOW MUCH WOOD IS NEEDED TO MEET THE RENEWABLE ENERGY TARGETS?

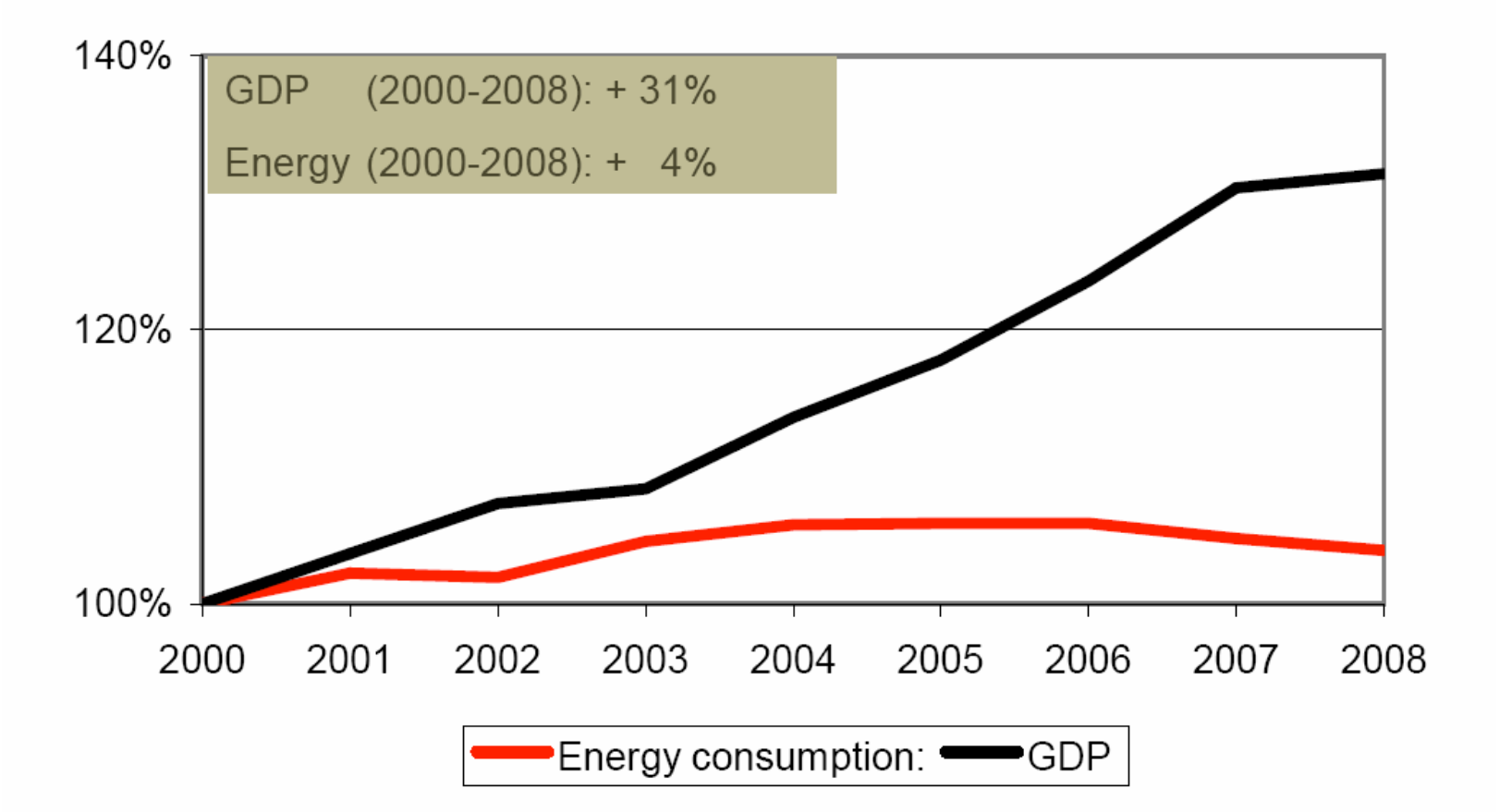
Assumptions made:

- Energy efficiency targets are met, so total energy consumption grows quite slowly.

- Other renewables grow faster than wood, whose share falls from 50% to 40% of renewables

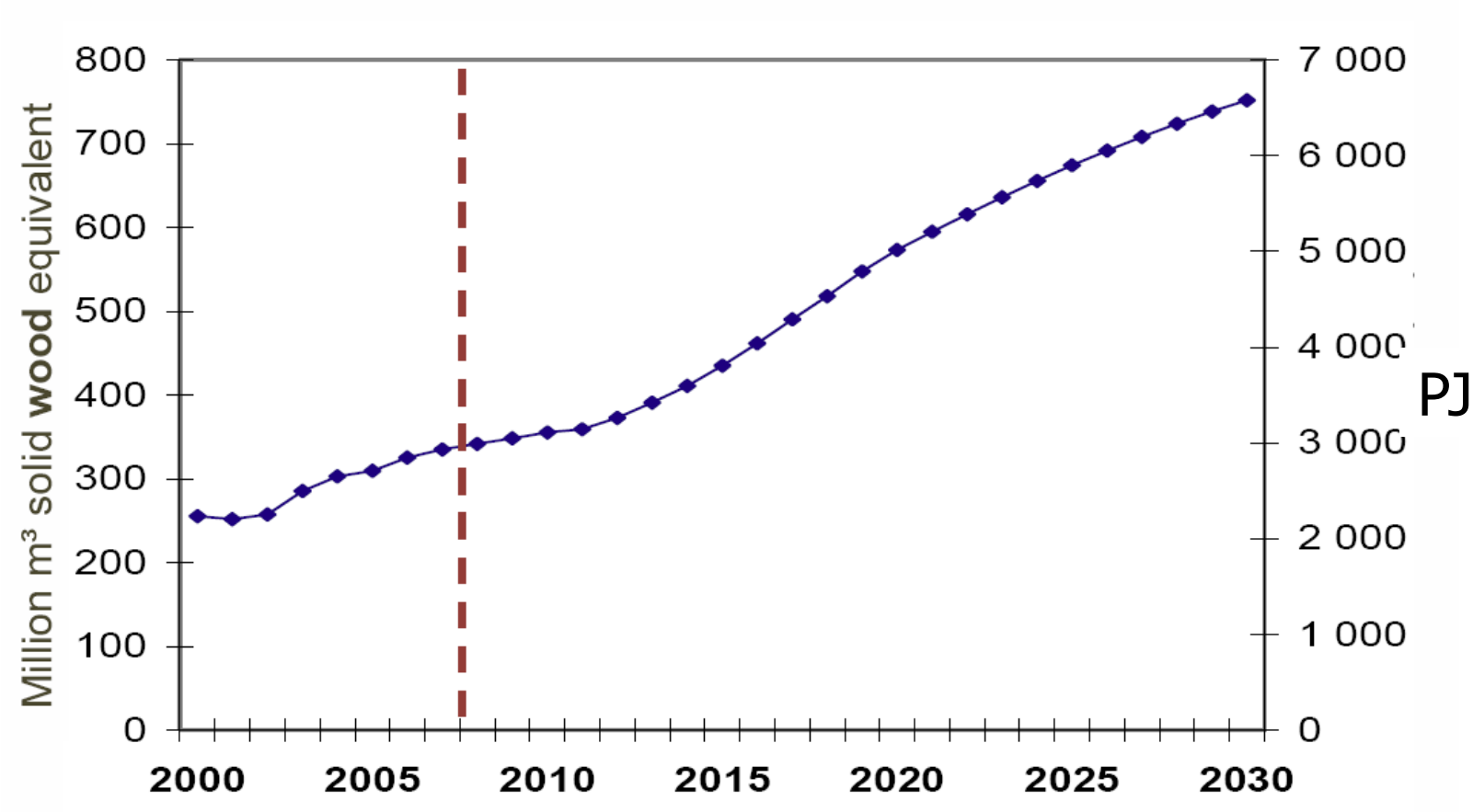
- No change in the efficiency of wood use for energy (e.g. Power generation instead of CHP)

Energy consumption and GDP paths have diverged
Source: Euwood Steierer



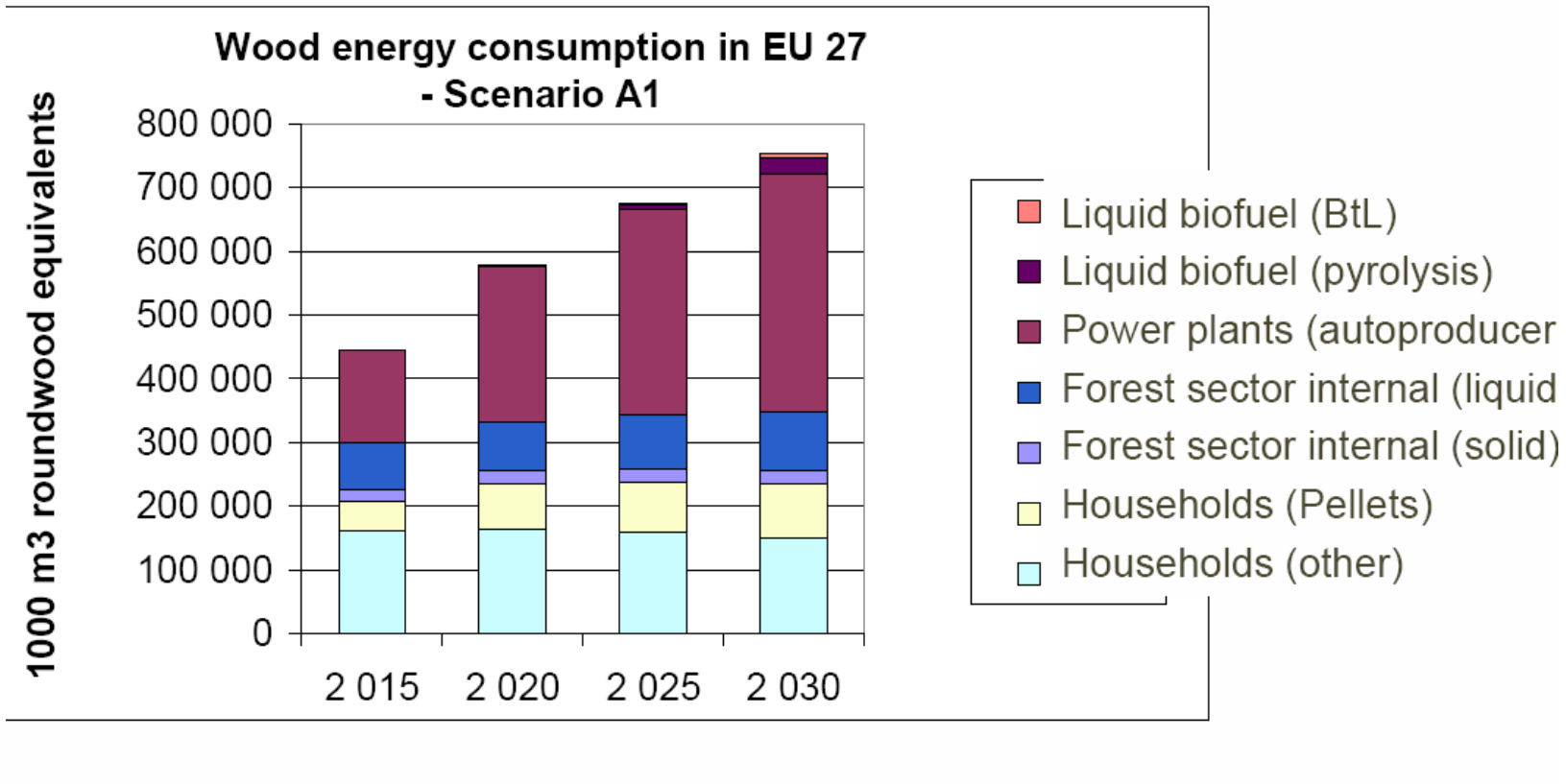
Wood energy: past trends and targets

Source EUwood Steierer



Breakdown of wood energy consumption outlook

Source: Euwood Steierer



OUTLOOK FOR SUPPLY/ DEMAND BALANCE IN THE EU

11. Holzenergie-Symposium, Zürich, 17 September 2010

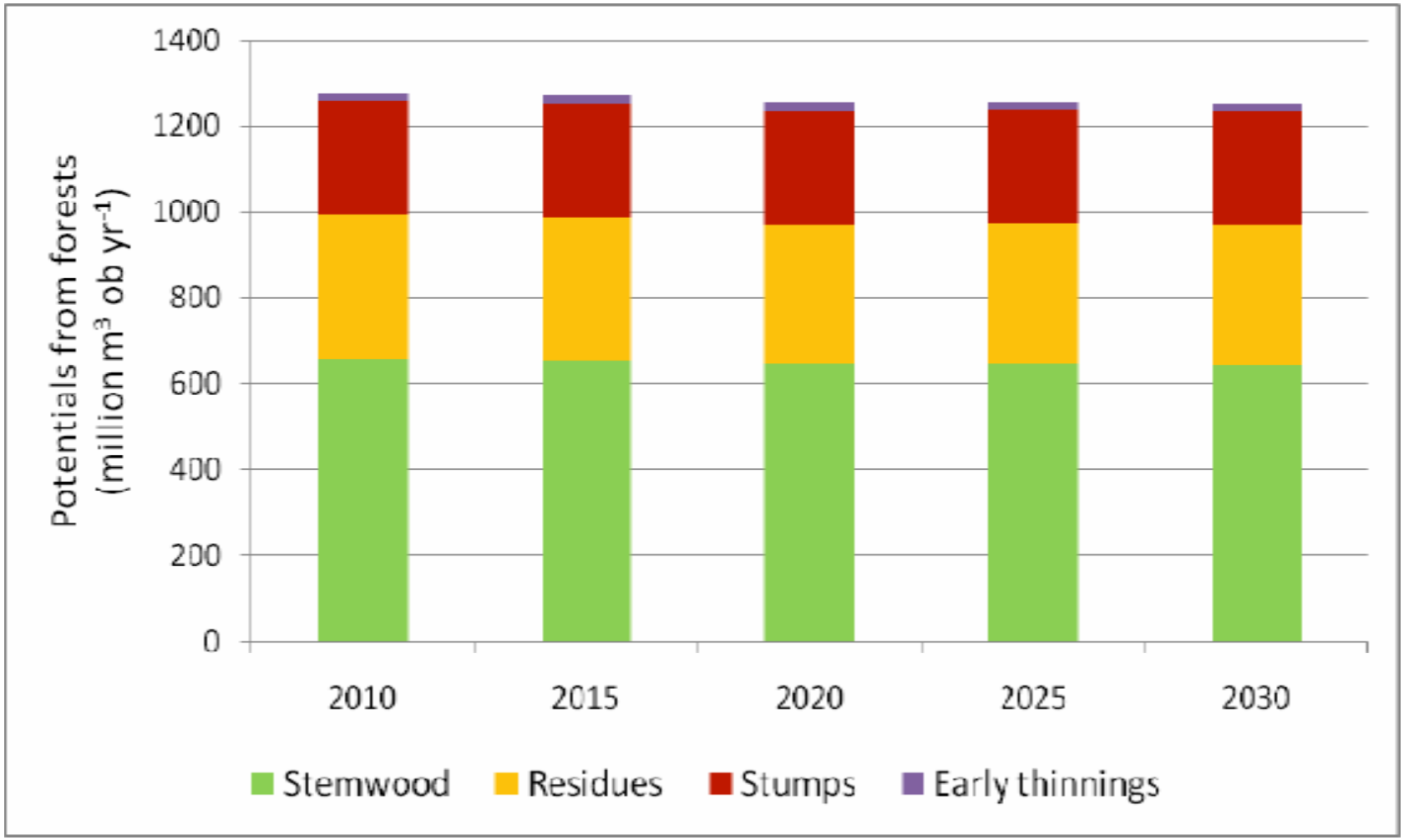
Construction of the EUwood balance projections

- Forest industries: econometric projections
- Wood energy; estimates based on renewables targets
- Forest biomass potential: 3 levels of mobilisation, based on EFISCEN model
- Other supply: based on estimates
- Analysis of "gap" between demand and potential

The mobilisation scenarios

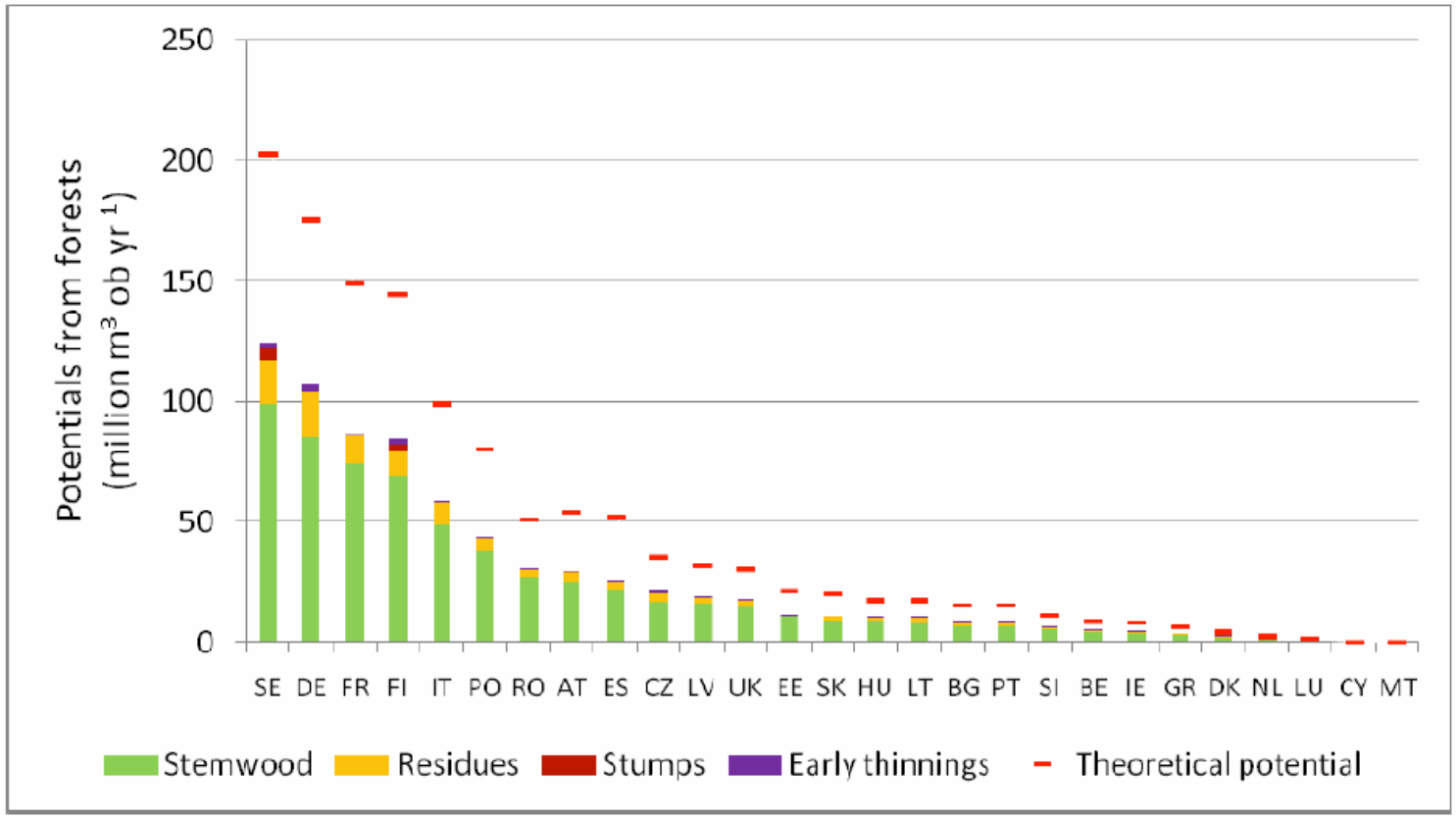
- All foresee harvest levels sustainable over 50 years, no shrinkage of conservation areas, no short rotation coppice, same trade patterns
- High mobilisation: high use of forest biomass & stumps, forest owners mobilised, some harvesting constraints removed, fertilising
- Medium mobilisation: incomplete mobilisation of forest owners, more harvesting constraints, no stumps
- Low mobilisation: strict biomass harvesting guidelines, more strict conservation

Theoretical biomass supply from EU forests
Source Verkerk et al.



Realisable biomass supply: medium mobilisation and theoretical potential

Source: Verkerk et al.

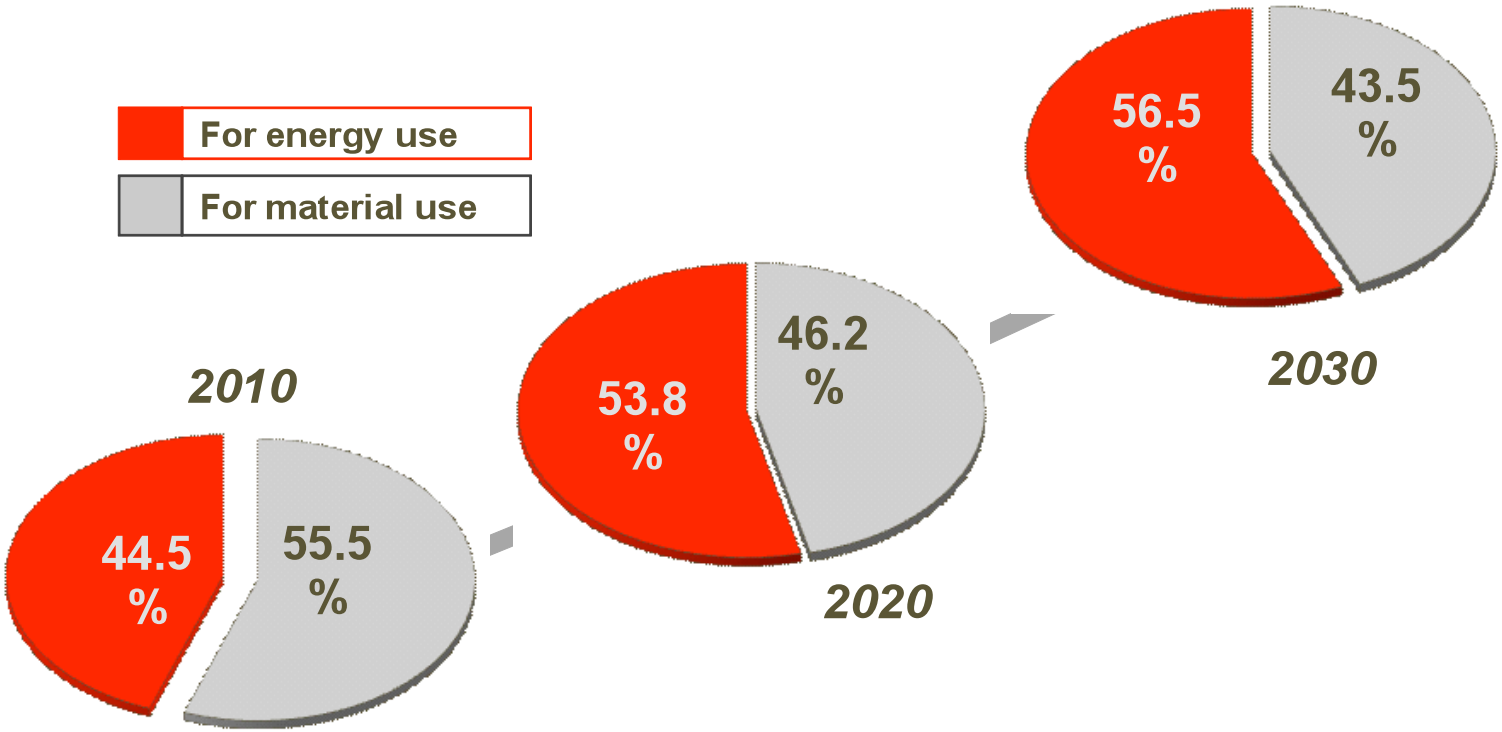


Wood Resource Balance 2010 and 2030 (medium scenario)

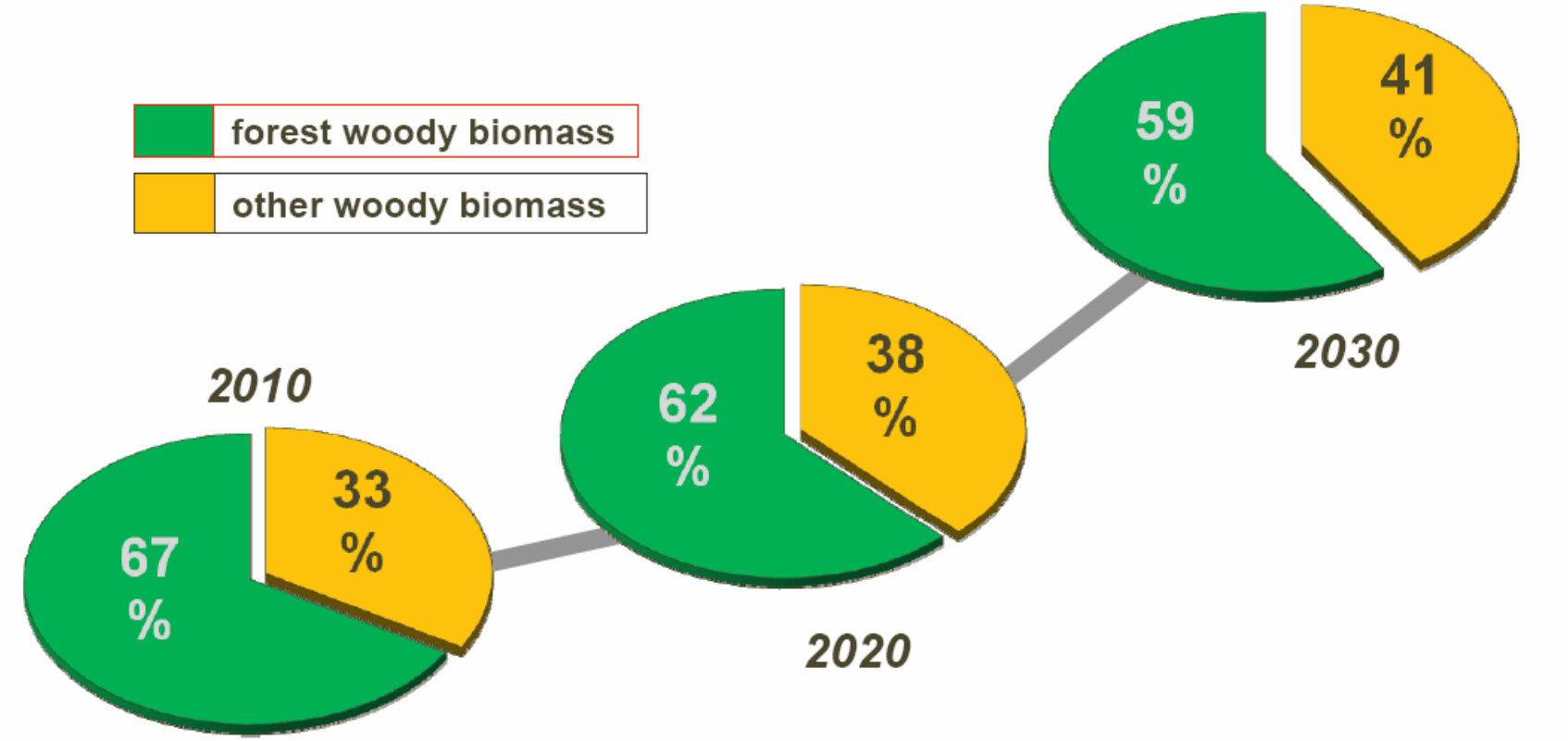
potential in Mio. m³	2010	2030	2010	2030	demand in Mio. m³
stemwood C, ME	362	356	196	247	sawmill industry
stemwood NC, ME	182	181	11	17	veneer plywood ind.
forest residues, ME	118	120	143	200	pulp industry
bark, ME	24	23	92	136	panel industry
landscape care w. ME	59	74	15	20	other material uses +)
short rotation plantation	-	-	21	54	pro. solid wood fuels
saw mill by products	87	108	20	22	forest sector intern. use
other industrial residues	30	42	128	393	biomass power plants
black liquor	60	85	23	82	households (pellets)
solid wood fuels	21	54	155	151	households (other)
post consumer wood	52	67	0	29	liquid biofuels
total	994	1109	805	1349	total

Source: MANTAU, Wood resource balance, EUwood – team 2010 (VERKERK/LINDNER/ANTILLA/ASSIKAINEN: EFISCEN forest resources and constraints; LEEK, N.: Post consumer wood; OLDENBURGER J.: Landscap care wood; SAAL, U.: industrial residues; MANTAU/SAAL: Wood industry; PRINS, K.: Policy options; JOHNSONS, R. EFSOS calculations)

The share of energy use of wood will rise
Source EUwood Steierer



The share of (direct) forest biomass will fall



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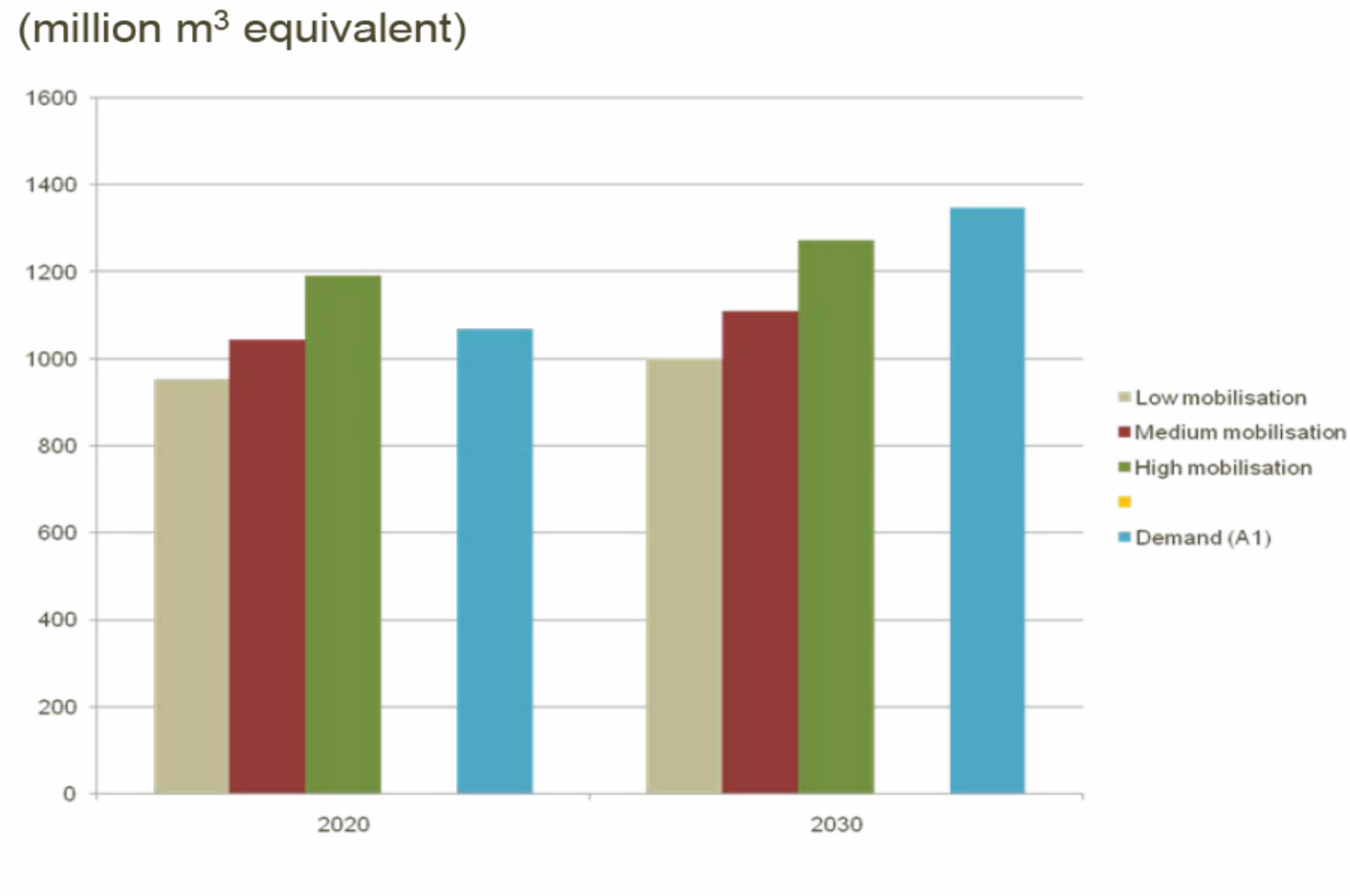
Wood Resource Balance 2020 and 2030
Source EUwood Mantau



Outlook for the balance

- On a medium mobilisation scenario, demand for raw material, and renewable energy targets overtakes sustainable potential before 2020
- On a high mobilisation scenario, it is difficult, but not impossible, to supply, on a sustainable basis, almost enough wood to satisfy the needs of the industry and to meet the targets for renewable energy.
- On a low mobilisation scenario, it is not possible to meet raw material demand and energy targets, on a sustainable basis with wood supply from the EU in 2020 or 2030.

WHAT RESPONSE IS NEEDED FROM GOVERNMENTS AND STAKEHOLDERS?

Challenges

To meet raw material and energy needs, while maintaining sustainability and fulfilling the many other functions and services of the forest

Solutions must be comprehensive, addressing both supply and demand, as well as developments for other sectors

A comprehensive approach

- **SUPPLY**
  - Mobilise more wood from existing forests
    - Raise harvest levels
    - Use more parts of the tree (above ground and below ground biomass)
  - Increase supply of wood from outside the forest
    - Industry residues
    - Landscape care wood, trees outside the forest
    - Post consumer recovered wood
  - Expand forest area (short rotation coppice)
  - Increase imports from other regions
- **DEMAND**
  - Promote energy efficiency
  - Promote use of renewables other than wood
  - Use wood more efficiently, in industry and for energy

Mobilising wood from existing forests

See EC/MCPFE/UNECE/FAO Good Practice Guidance, 2010

- Land tenure, management, co-ordination and planning
- Transport and logistics

- Markets and marketing: organisation and transparency
- Improved recovery channels

- Sources of and mechanisms for financing
- Legal and fiscal measures

- Silvicultural measures

Mobilising wood from outside the forest

- **Industry residues, landscape care wood, trees outside the forest**
  - **Comprehensive inventory**
  - **Coordinated strategies**
  - **Partnership approaches**
  - **Link to forest fire policy**
- **Post consumer recovered wood**
  - **Standardise classifications**
  - **Implement Landfill Directive**
  - **Put in place recovery circuits and markets**
- **Expand forest area**
  - **Coordinated land use strategies, combining all policy objectives**
  - **Refer to MCPFE Guidelines**
- **Imports from other regions**
  - **Should also be sustainable (if needed)**

Framework conditions

- Full implementation of energy efficiency policies
- Non-wood renewables grow faster than wood energy
- Prices are stable at an adequate level
- Financial support for forest sector maintained or increased
- No structural shift in overseas trade pattern
- Insistence on (non-distorting) sustainability provisions in public procurement and green building
- Adequate research and development in the forest sector
- POLITICAL WILL

Areas where trade-offs will be necessary for wood supply

- Wood mobilisation and biodiversity
- Forests' many roles in mitigating (and adapting to) climate change

Conclusion

- The need to meet renewable energy targets and thus contribute to overall sustainable development will test to the limit the wood supply capacity of Europe.

THANK YOU FOR YOUR ATTENTION

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