Wood Energy in the UNECE region: Current Use and Potential

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Forests and Energy: close interaction

- Modern wood fuel burning technology makes wood energy suitable for energy efficiency measures
- Renewable energy policies and targets heavily influence the forest sector

- Forest sector policy should be shaped in cooperation with energy policy makers, and vice-versa, to help achieve a more renewable energy future, and shape an optimized climate change mitigation mix





Current Use of Wood Energy

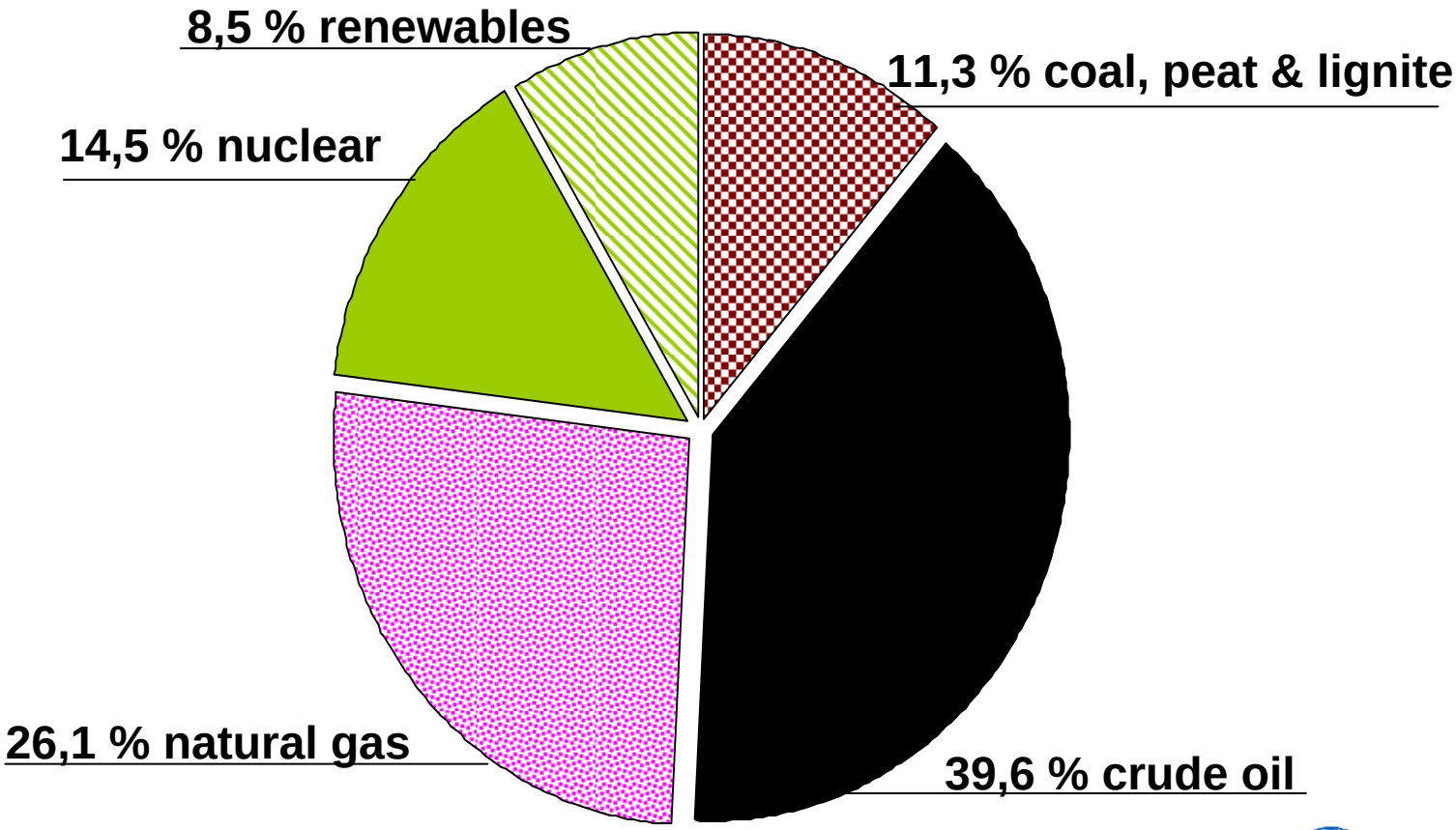




Gross Inland Energy Consumption

EU27 (2007)

Source: Eurostat 2009

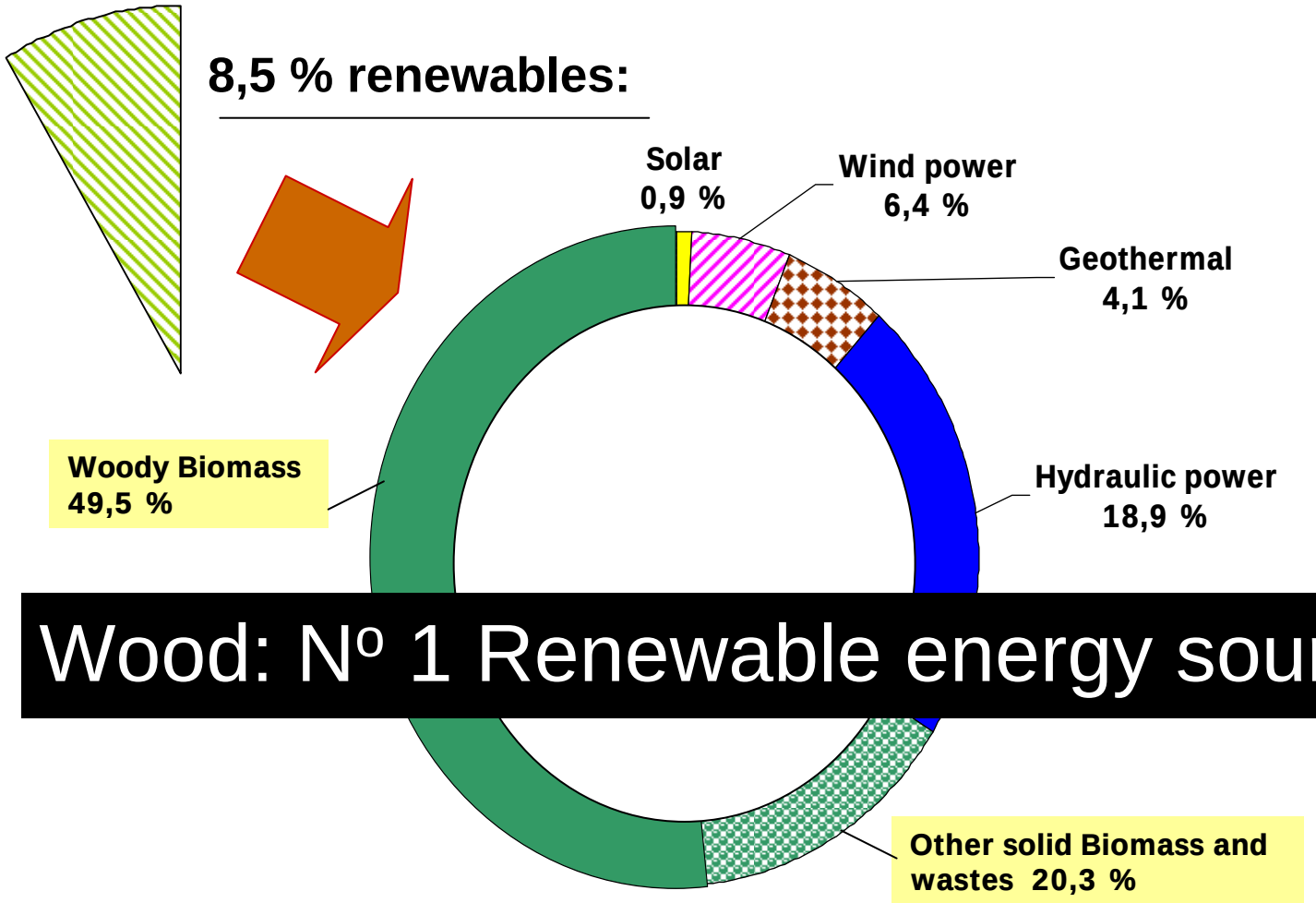






Gross Inland Energy Consumption

EU27 (2007)



Wood: Nº 1 Renewable energy source

Source: Eurostat 2009





Joint Wood Energy Enquiry

- UNECE/FAO/IEA/Eurostat collaboration
- Data on Wood Energy use in 2005 & 2007
- Confirmation of high wood use of energy
- First estimation of annual growth rate of wood fuel use between 2005 and 2007 (+3.5%)
- Improvement/establishment of communication between national energy and forestry bodies
- Improved country statistics
- Preparations are underway for JWEE 2009



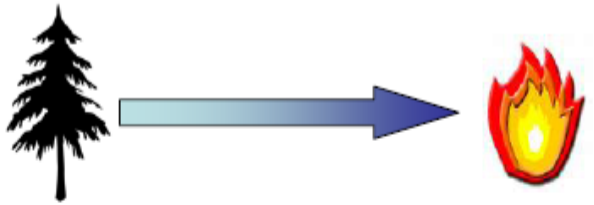


Joint Wood Energy Enquiry 2007

Wood Fuel Sources

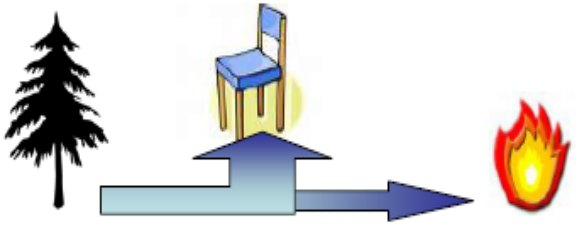
S1 Direct:

Logging residues, thinnings, clearings, short rotation coppice etc.



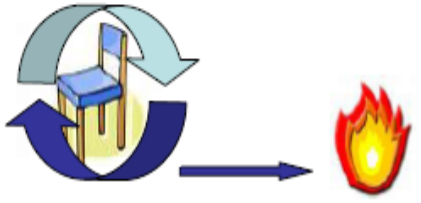
S2 Indirect:

Residues, enhanced/densified processed wood based fuels (pellets, charcoal, biofuels), etc.



S3 Recovered:

Post consumer recovered wood products (often contaminated), construction, demolition, waste etc.







Joint Wood Energy Enquiry

Wood Fuel Sources

1 000 m³	2005	2007	annual change
S1 Direct	59 860	63 081	+ 2.7%
S2 Indirect	73 337	77 668	+ 3.0%
S3 Recovered	4 324	4 920	+ 6.9%
S4 Unspecified	…	1 393	…
Total	137 521	147 062	+ 3.5%

* without Canada





Joint Wood Energy Enquiry

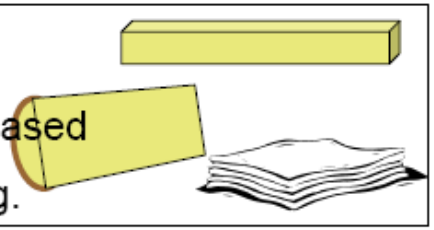
Wood Energy Use

U1 Power and heat:

Transformation of woody biomass for commercial power and heat production - “Main activity producer” (IEA).

U2 Industry internal use:

Heat and energy generated for internal use by the forest based industries (sawmills, pulp, panel) for processing and drying.



U3 Residential:

Wood energy generated by private households

U4 Other:

Wood energy generated by public and private services, agriculture, forestry and fishery






Joint Wood Energy Enquiry

Wood Energy Use

1 000 m³	2005	2007	annual change
U1 Power and heat	26 557	36 525	+ 18.8%
U2 Industrial	46 873	48 952	+ 2.2%
U3 Residential	64 091	58 326	- 4.5%
U4 Other	…	3 257	…
Total	137 521	147 060	+ 3.5%

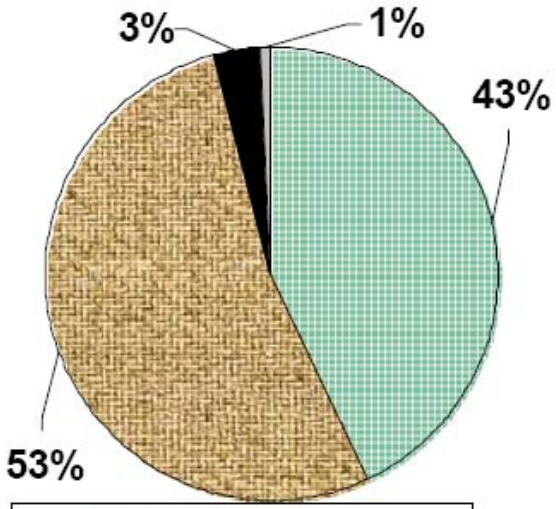
* without Canada



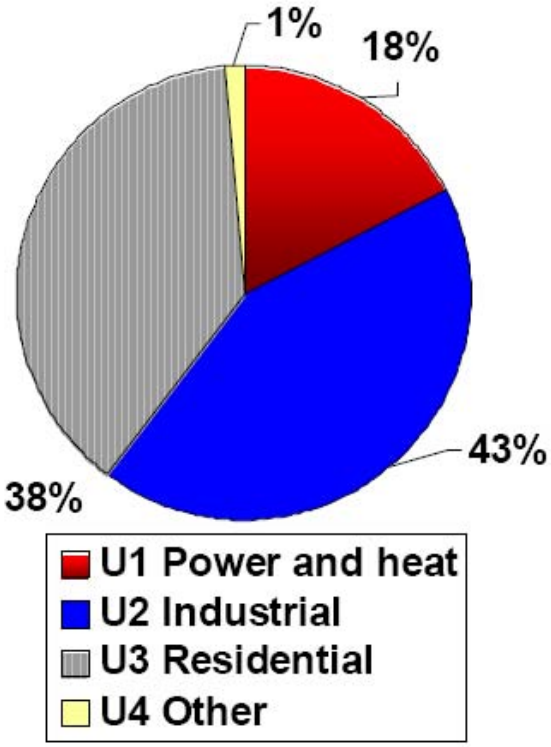


Joint Wood Energy Enquiry

Sources*:



User**:



* without Canada & Russian Federation

**all responses





Types of Wood Fuel

Per m³	Invest-ment costs	Produc-tion cost	Trans-port cost	Labour intensity	Local money flow	Incineration technology cost
Pellets	+++	++	+	+	-	+++
Briquettes	++	++	++	+	+/-	+
Chips dry	+	+	++/+++	++	++	++
Chips green	+	+	+++	++	++	++
Fuelwood split	-	+-	+++	+++	+++	+





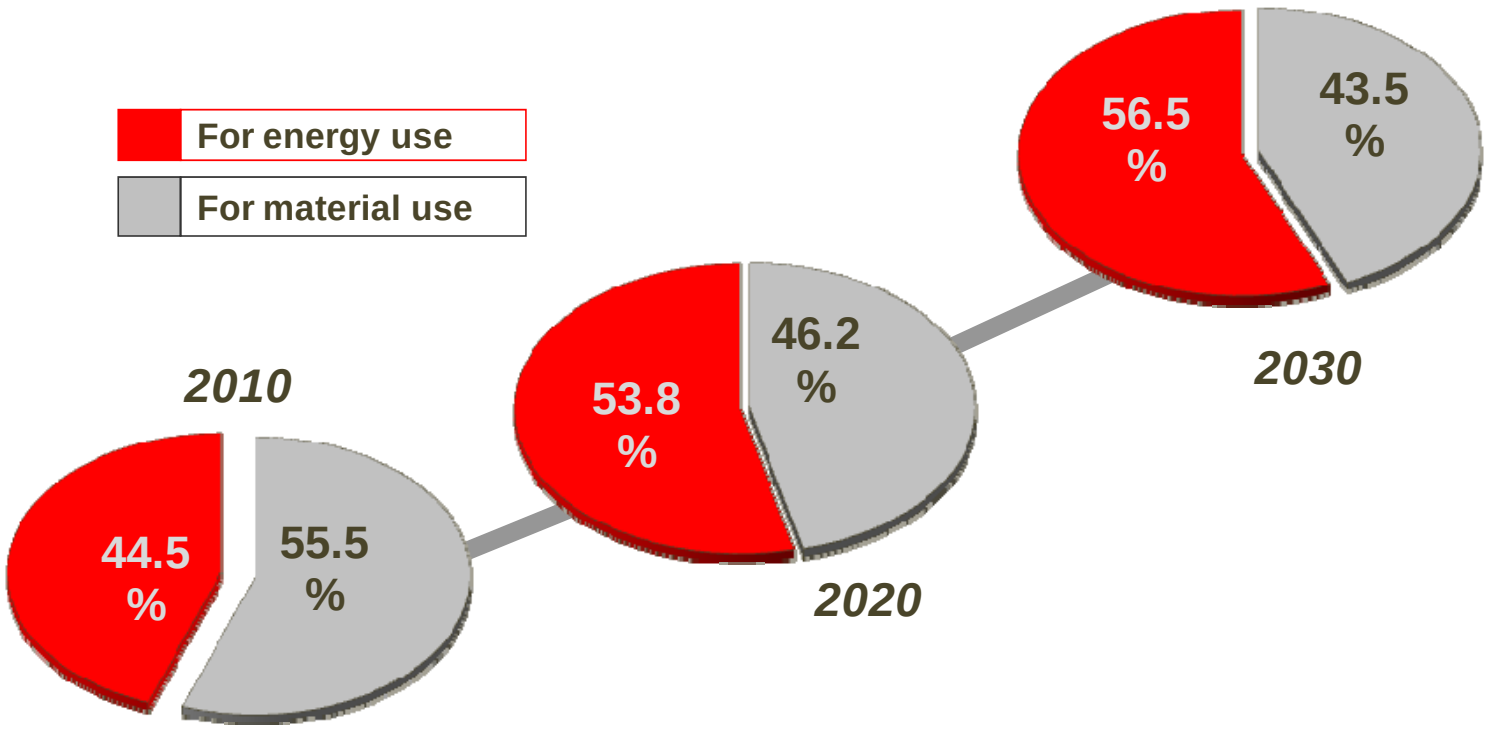
Future Potential





Energy vs. Material Use

EUWood

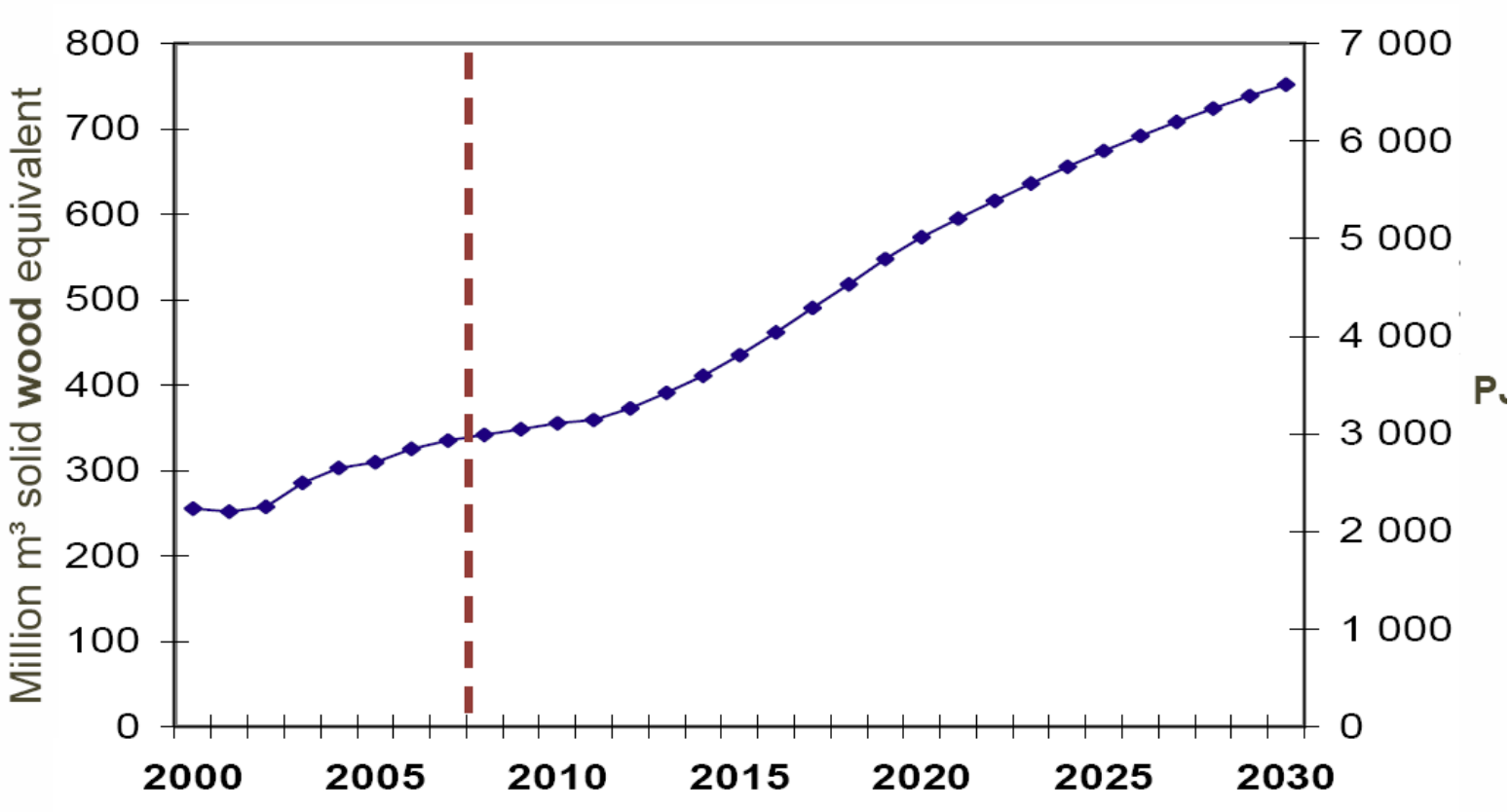






Past trends & Targets

EUWood



- EU27 energy efficiency targets are met, such that total energy consumption grows slowly
- Wood energy maintains its current role among RES
- No change in the efficiency of wood use for energy





Wood Resource Balance

EUWood Scenarios

- Low mobilisation (strict biomass harvesting guidelines): Not possible to meet raw material demand and energy targets
- Medium mobilisation (constrained harvesting, no stumps): demand overtakes supply for energy and industry before 2020
- High mobilisation (high use of forest biomass and stumps): difficult to supply, on a sustainable basis, enough wood to meet industry and energy needs





Some Regional Examples

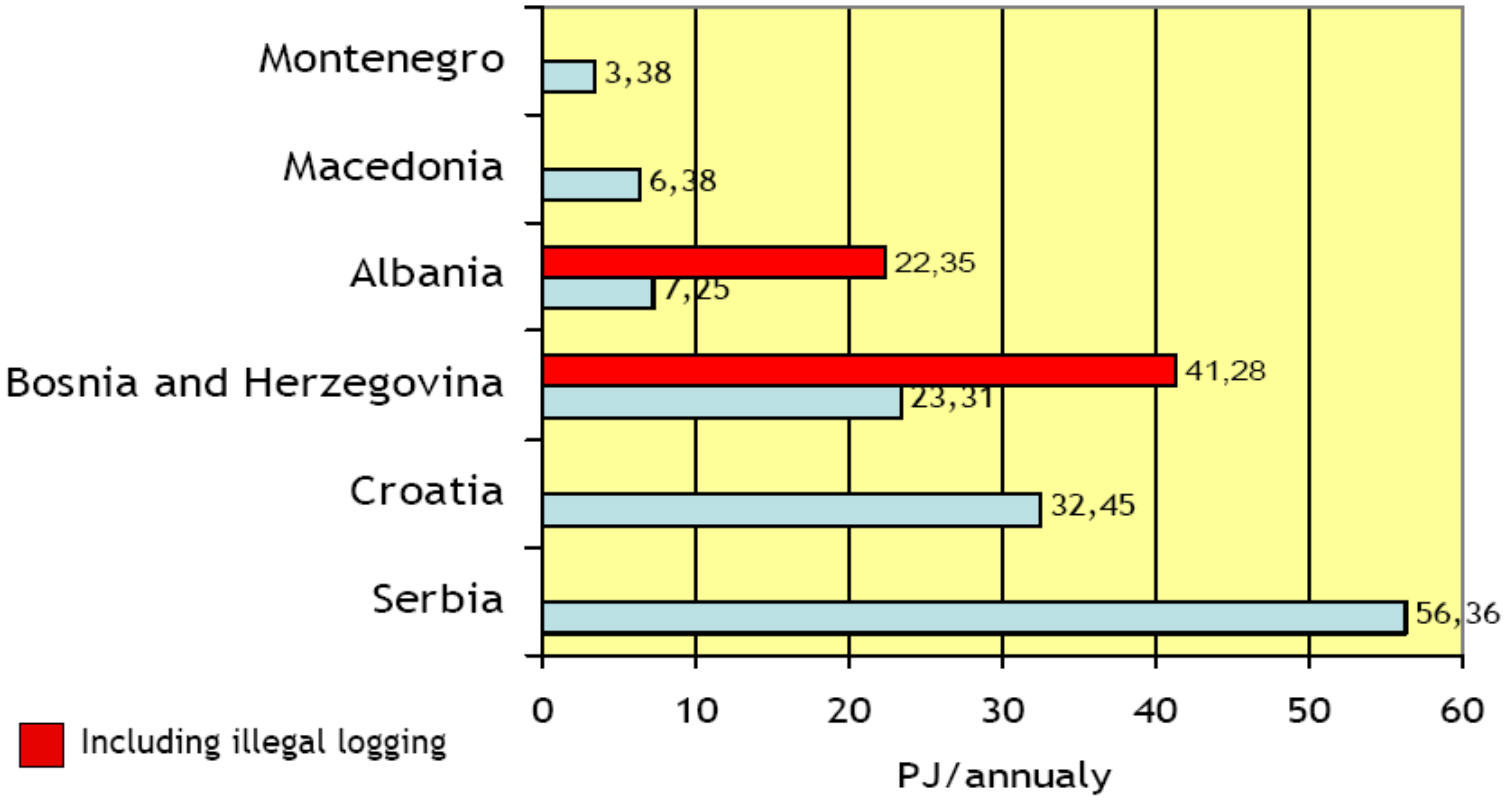
- Belarus has 33 wood energy facilities, which are producing over 500,000 tonnes of woodchips every year. This output is expected to double by 2020.
- Bosnia and Herzegovina has an estimated unused wood potential of 1 million m^3 wood residue annually, which could be used to heat 130000 flats (300 000 citizens).
- In FYR Macedonia, wood waste from forests could substitute approximately 58000 tons of heavy fuel oil.
- In Serbia wood based energy consumption in 2008 (13.7% of total) decreased natural gas imports by USD 650 million.





Potential in SEE

(Glavonjic)







Policy Aspects





Challenges

- To meet raw material and energy needs while maintaining sustainability and fulfilling the many functions and services of the forest
- Trade-offs between wood mobilisation and biodiversity, and between wood mobilisation and the role of forests in climate change mitigation and adaptation
- Solutions must be comprehensive addressing both supply and demand, as well as developments in other sectors





A comprehensive approach

- SUPPLY
  - Mobilise more wood from existing forests
    - Raise harvest levels
    - Use more parts of the tree (above and below ground biomass)
  - Increase supply of wood from outside the forest
    - Industry residues
    - Landscape care wood
    - Post consumer recovered wood
  - Expand Forest area
  - Increase imports from other regions

- DEMAND
  - Promote energy efficiency
  - Promote use of other renewables
  - Use wood more efficiently





Sustainable Wood Mobilisation

from existing forests

- EC/MCPFE/UNECE/FAO Good practice guidance
  - Land tenure, management, coordination and planning
  - Transport and logistics
  - Markets and marketing
  - Improved recovery channels
  - Education, training and skills
  - Sources of and mechanisms for financing
  - Legal and fiscal measures
  - Silvicultural measures





Sustainable Wood Mobilisation

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 directives
  - Put in place recovery circuits and markets
- Expand forest area
  - Coordinated land use strategies
  - Refer to MCPFE guidelines
- Imports from other regions





Conclusion

Modern wood energy

- Needs policy and political support at all levels
- Does not compete with food
- Could substitute imported fossil fuels and stimulate economic development, particularly in rural areas
- Needs to be promoted as a convenient and cost-effective source of energy





THANK YOU

for your attention

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