



## **Wood Energy Workshop:**

**Woody biomass – the fuel of choice for Serbia**



## **UNECE/FAO Timber Section:**

**European Wood Resource Balances & the role of accurate wood energy data**



- Belgrade 02/03 December 2008 -

# Outline



European Wood Resource Balances

Role of wood energy data

The Joint Wood Energy Enquiry

Conclusions



# Purposes

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## Wood Resource Balance:

- Understand wood fibers flow (energy & material purposes)
- Consistency check within timber and forests statistics (e.g. unrecorded removals?)
- Analyze current and future wood potentials

## Joint Wood Energy Enquiry:

- Assess supply & use pattern (woody biomass for energy)
- Improve cross-sectoral cooperation and communication
- Consistency check between energy and forest statistics
- Monitor wood energy development (2005/2007)



## Outline



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## Results – Balance 2005 (EU/EFTA)

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<b>Sources</b>		<b>Uses</b>	
	P+I-X [M.m <sup>3</sup> ]	P+I-X [M.m <sup>3</sup> ]	
Industrial Roundwood - JFSQ	381	217	Sawmill industry
Industrial Roundwood - other	16	88	Panel industry
Fuelwood - JFSQ	79	155	Pulp industry
Fuelwood - Maximum other	6	7	Pellets, briquetts, etc.
Bark	25	14	Other physical utilization
Used logging residues	23	49	Power and heat generation
Woody biomass outside forest	20	65	Industrial internal energy use
Chips, particles & co-products	118	92	Energy in private households
Pulp production co-products	70	135	Energy use unspecified
Recovered wood	29		
Processed wood fuel	7		
▲ Difference	47		
<b>Σ supply total:</b>	<b>822</b>	<b>822</b>	<b>Σ use</b>

# European Wood Resource Balances

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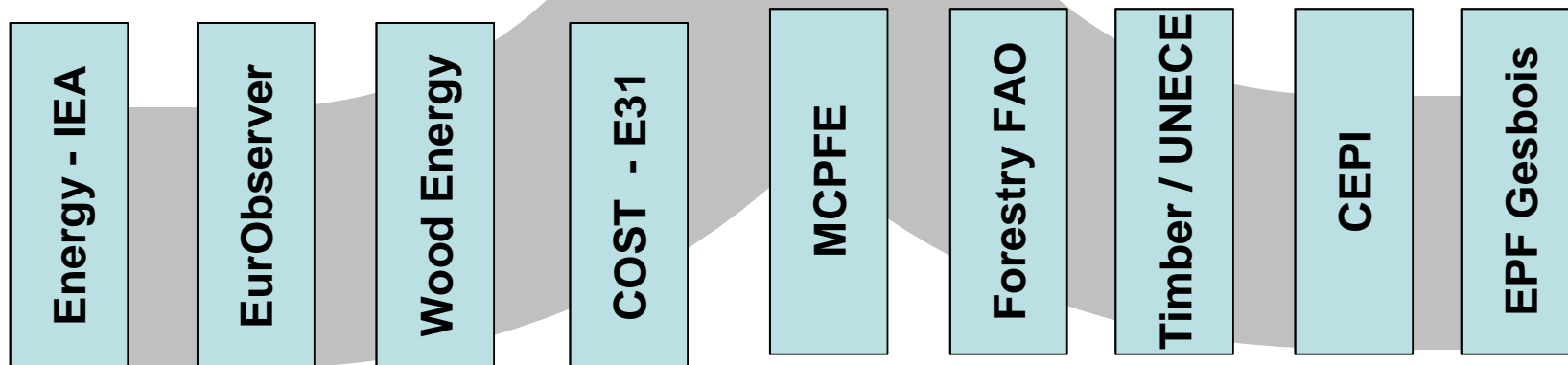


- **Publicly available databases**
  - Forestry & Timber
  - Energy
  - Waste
- **Consider any wood fibre flows**
  - Cascaded use
  - International trade
- **Create a balance**
  - Conversion factors
  - Efficiencies

# Data sources

3 — Regional wood resource balance (UNECE/FAO Policy Forum 2007) —

2 — Minimum / Maximum / Best estimate per item —



1 — Different databases —

# Wood fibre flows: sources and uses

## Woody biomass supply from ...



## Woody biomass consumption for ...

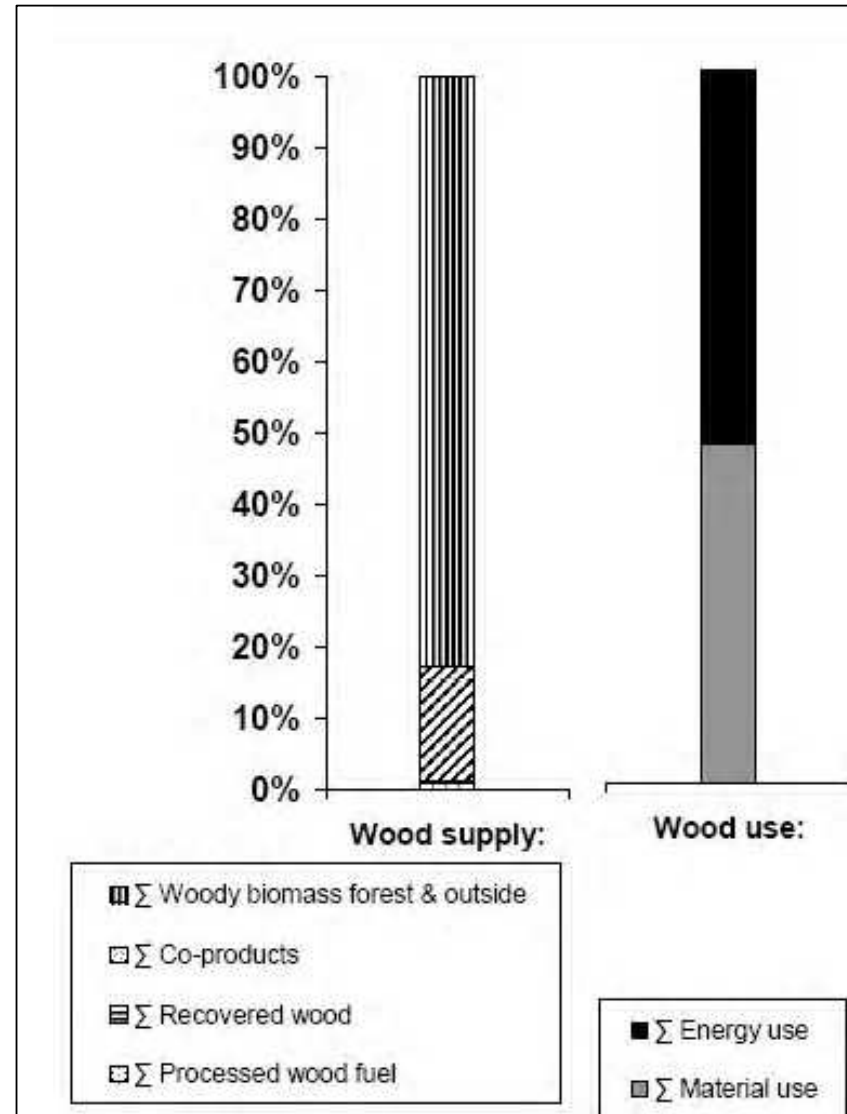
# Results – Balance 2005 (Serbia)



<u>Wood supply and use - Serbia (2005)</u>			
<b>Wood supply:</b>		<b>Wood use:</b>	
$\Sigma$ Woody biomass forest & outside	3,200	83%	48%
$\Sigma$ Co-products	618	16%	1,441
$\Sigma$ Recovered wood	10	0%	$\Sigma$ Material use
$\Sigma$ Processed wood fuel	29	1%	52%
			1,589
			$\Sigma$ Energy use



## Results – Balance 2005 (Serbia)



## Findings

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- Wood Resource Balance covers any wood fibers flow.
- Unrecorded removals (**not** illegal logging!!!)
- Accounts for national production and net trade
- Considers cascaded use of wood fibers in national economy



## Outline



European Wood Resource Balances

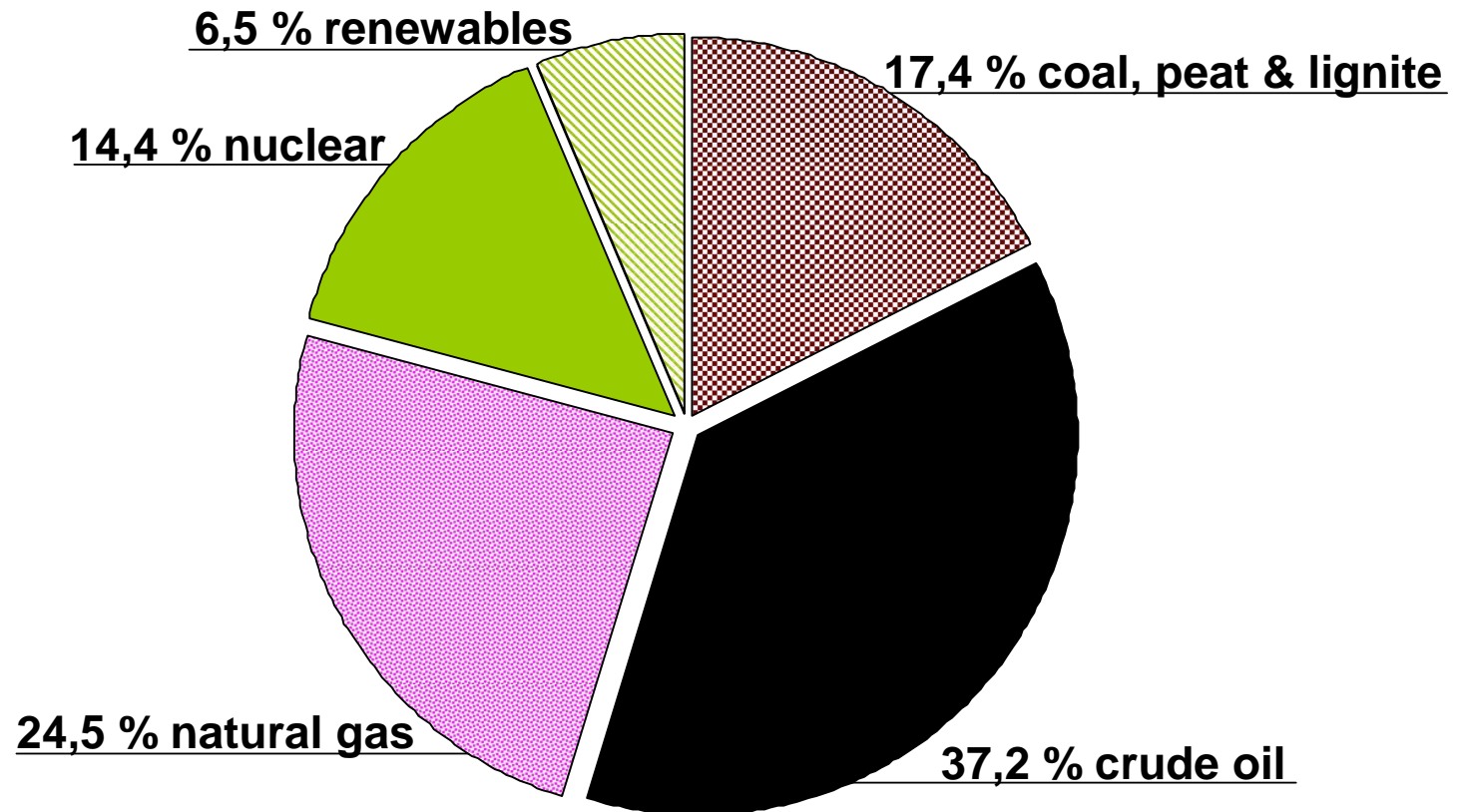
**Role of wood energy data**

The Joint Wood Energy Enquiry

Conclusions

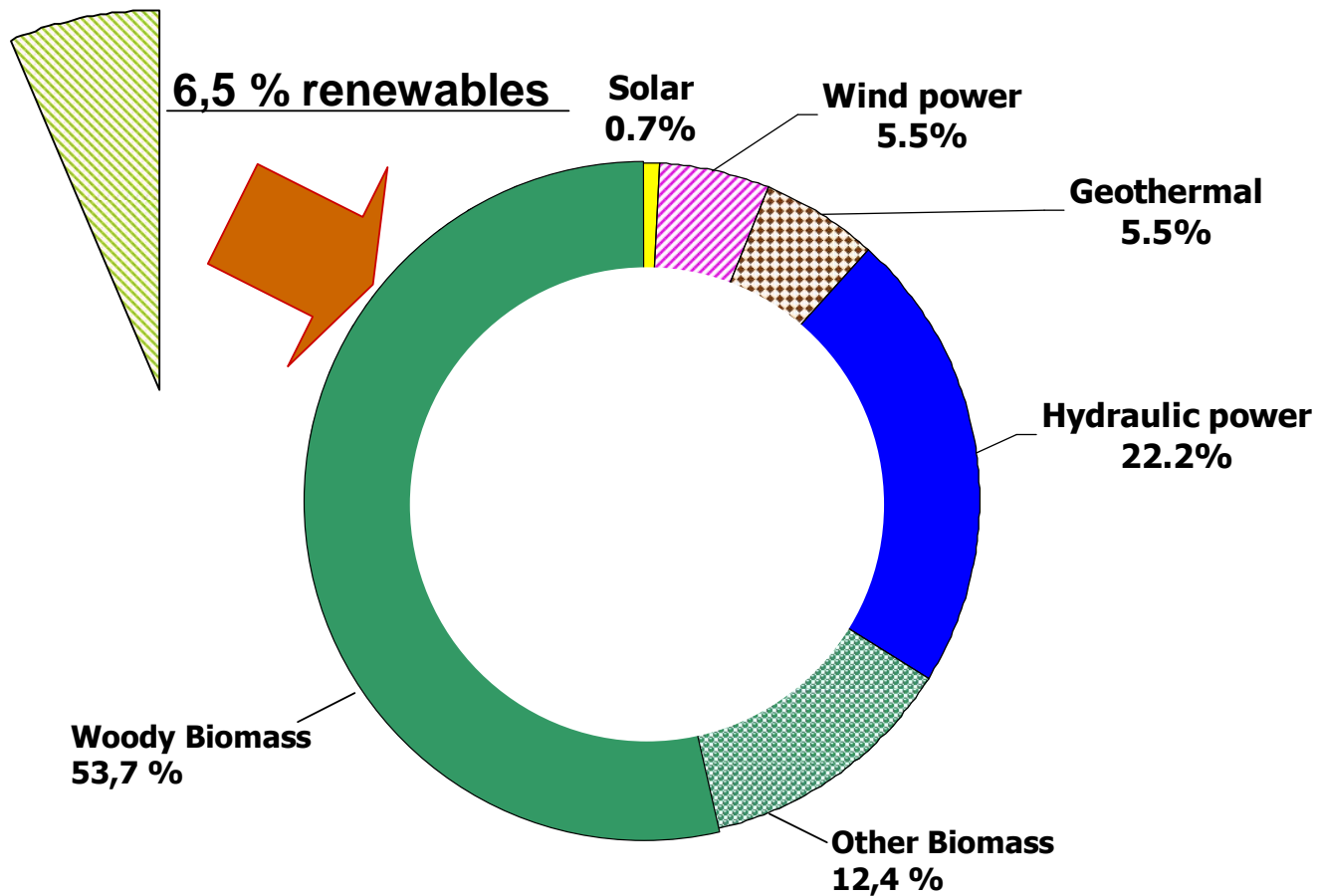
**Wood Energy**

# Gross inland energy consumption (EU27)



Source: Eurostat (2007): Yearly statistics 2005

# Renewable Energy Sources 2005 (EU 27)



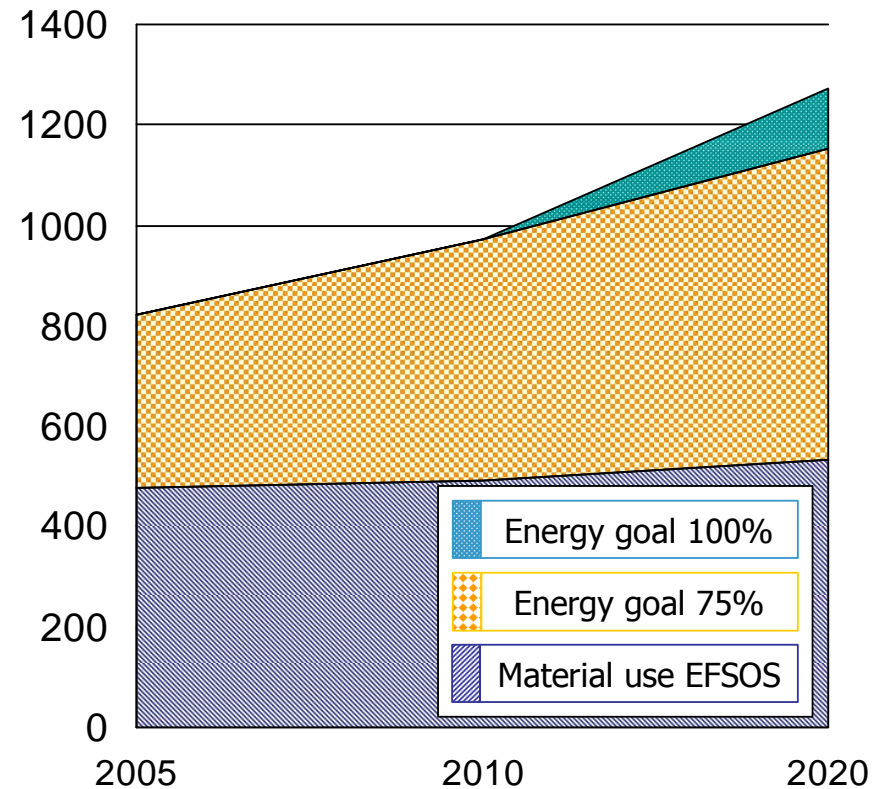
**Wood: N° 1 Renewable energy**

Source: Eurostat (modified)

# Energy use vs. material use today – and tomorrow ?



Combined wood use [mio m<sup>3</sup>]  
– 2005, 2010, 2020



Source: UNECE / Hamburg University (2007)



## Role of wood energy data

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- Wood energy plays an important role in the energy sector
- Wood energy will play an important role in achieving the 2020 goals on RES.



## Outline



European Wood Resource Balances

Role of wood energy data

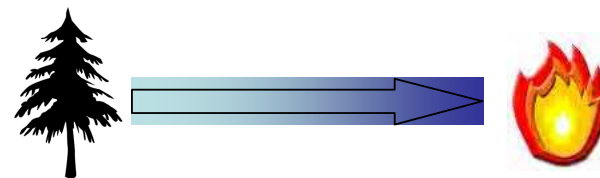
**The Joint Wood Energy Enquiry**

Conclusions

# Structure

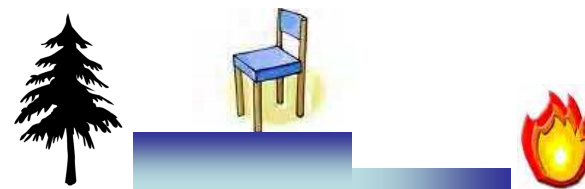
## Direct:

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



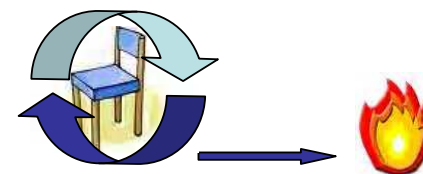
## Indirect:

Co-products, enhanced/densified processed  
wood fuels (pellets, charcoal, biofuels), etc.



## Recovered:

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



# Structure

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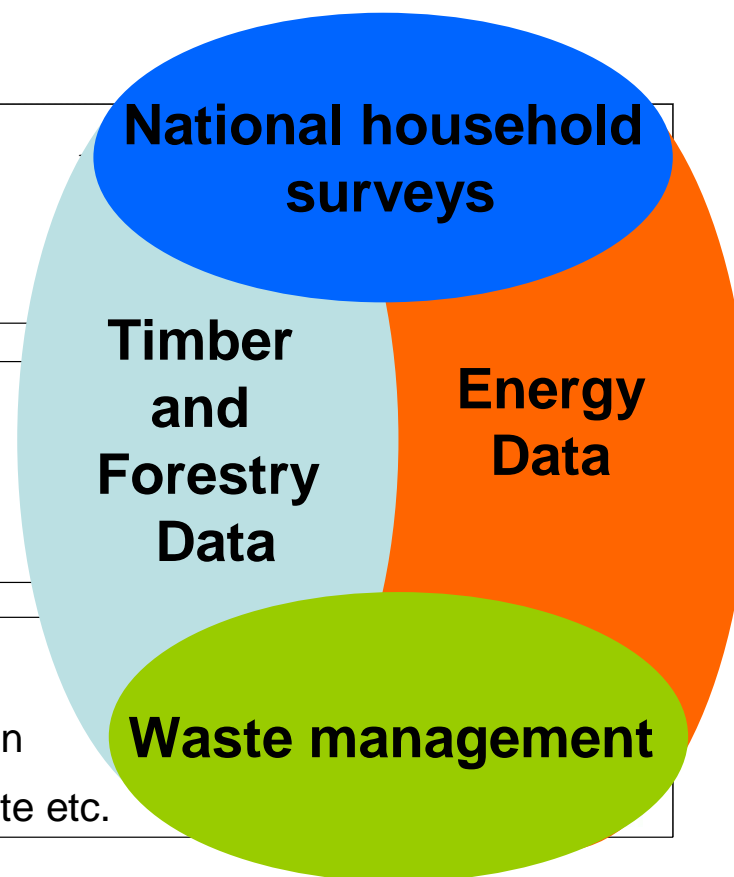
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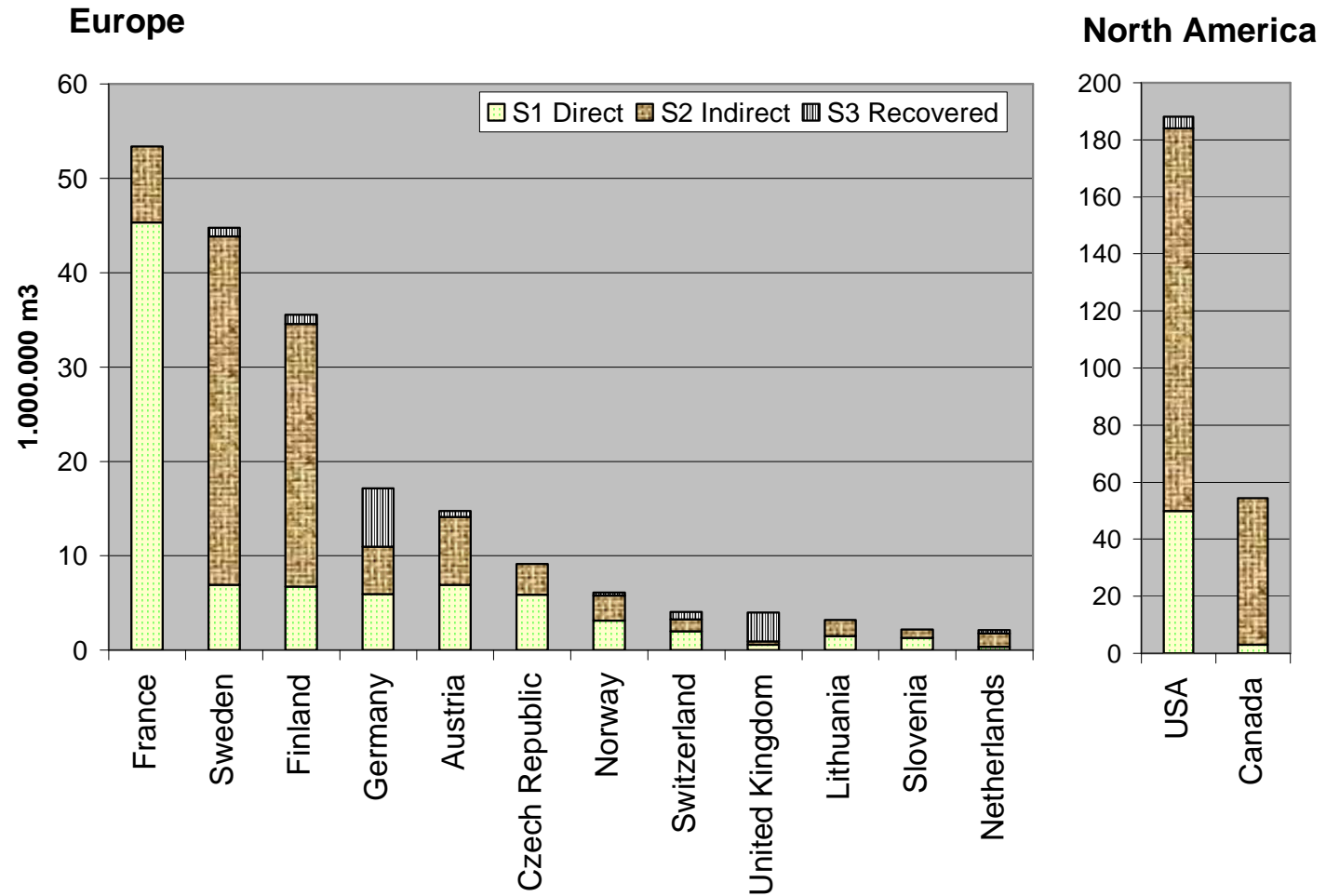
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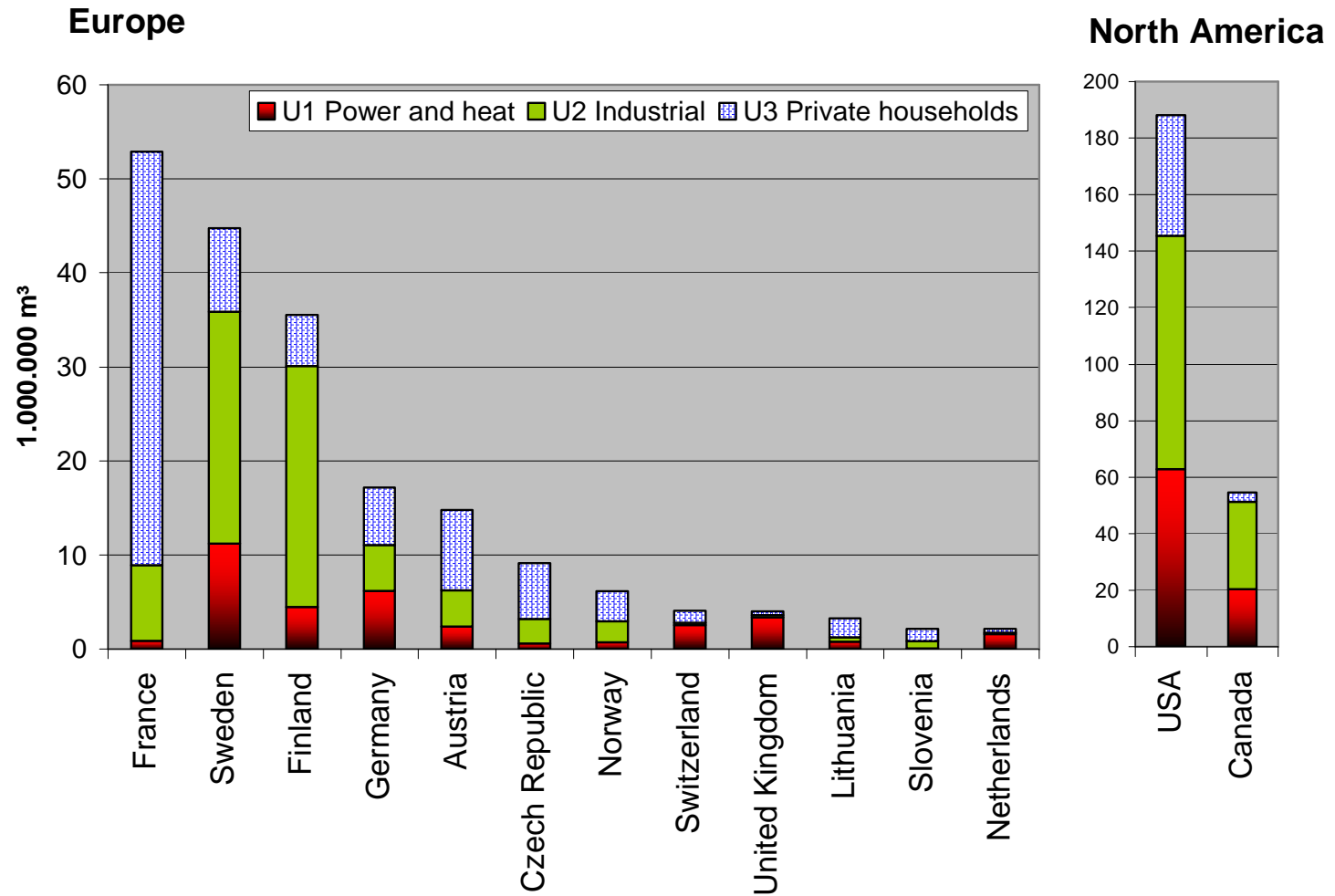
# Sources of wood energy (2005)



Source: UNECE Joint Wood Energy Enquiry 2006



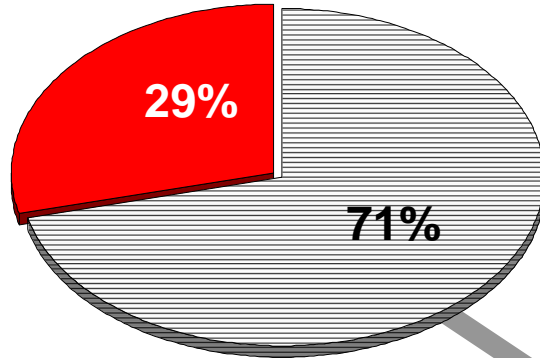
# User of wood energy (2005)



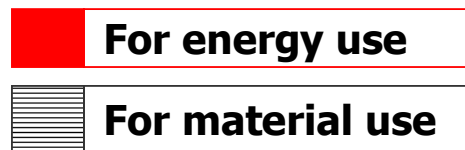
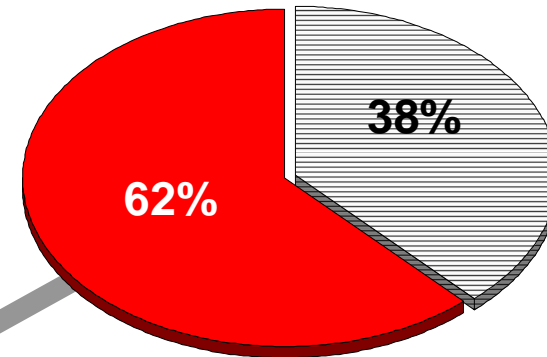
Source: UNECE Joint Wood Energy Enquiry 2006

# Energy use vs. material use

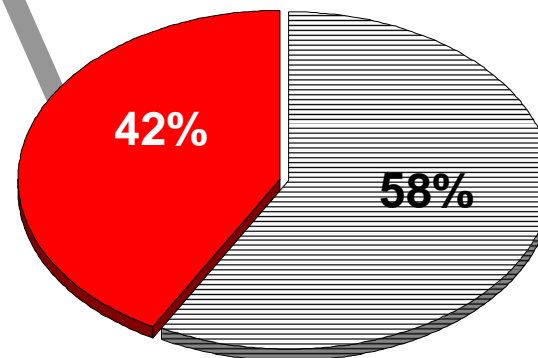
Wood removals 2005  
from forest and woody biomass  
outside forests



Wood co-products, residues  
& recovered wood



Total supply



Source: UNECE / Hamburg University (2007)



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## Conclusions



- Missing wood biomass flows in current accounting
- Wood for energy more important than reflected by international databases
- WISDOM is an excellent initiative and its results are compatible with the JWEE.





# Wood Energy Workshop: Woody biomass – the fuel of choice for Serbia



## Thank you for your attention !



### Contact:



UNECE/FAO Timber Section  
Palais des Nations  
CH - 1211 GENEVA 10



Tel.: +41-22-917 1286  
Fax: +41-22-917 0041

E-mail: [woodenergy.timber@unece.org](mailto:woodenergy.timber@unece.org)

