



# Wood Energy in SERBIA

## Current Situation and tendency

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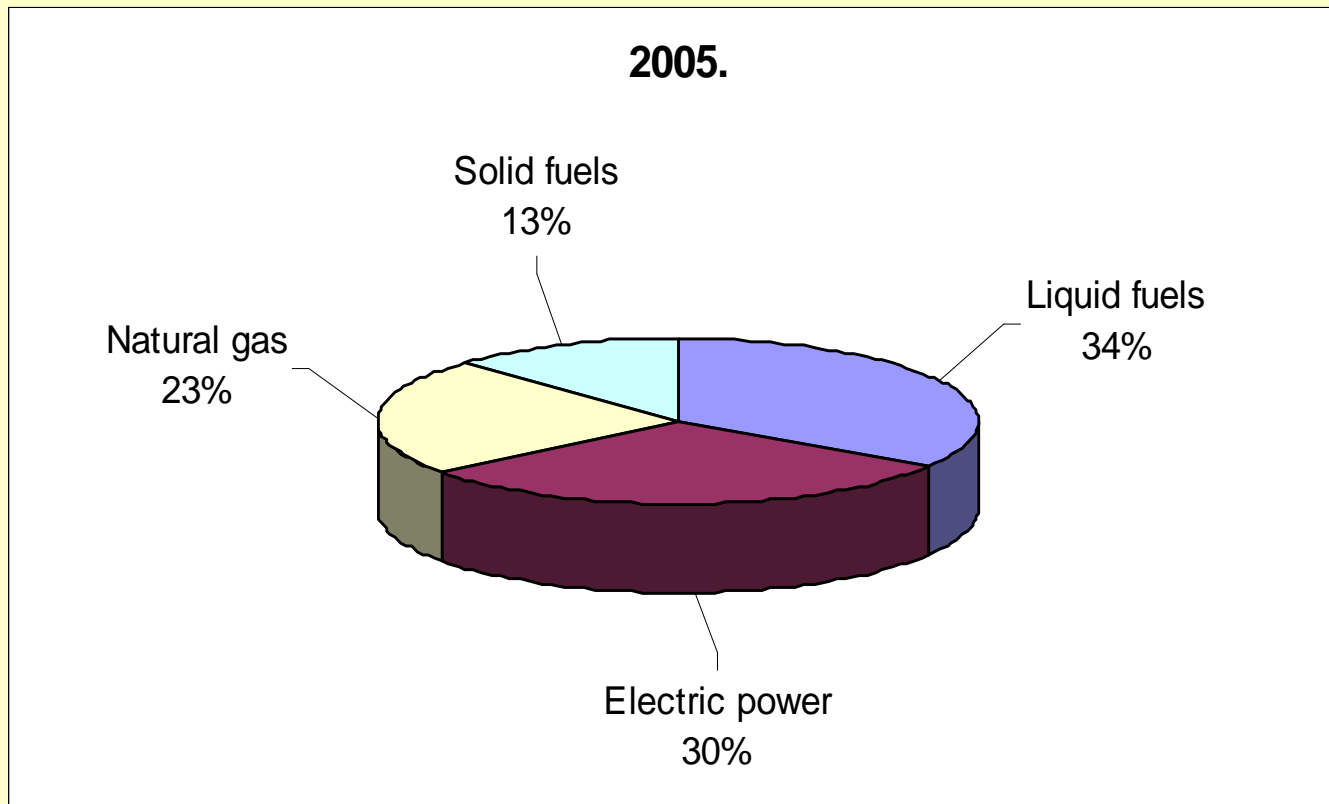
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*Sustainable Charcoal Production, Trade and Use in  
Europe, 5-6 June 2007, Zagreb*



# Current Situation in Serbia

Participation of certain energy substances in the overall energy consumption in Serbia (2005):





# Current Situation in Serbia

**Participation of renewable energy sources in 2002 was 1.5%.  
The objective is to reach the amount of 4.5% until 2010!!!**

**For the purpose of that the Government has adopted:**

**- New law on energetics which has enabled the introduction of energy from small hydroelectric power plants and energy based on renewable resources into the system of electric power production and distribution;**



# Current Situation in Serbia



- **Also the Energy Efficiency Agency was established for the purpose of encouraging development of energy production based on renewable resources. The second important task of this Agency is the increase of energy efficiency first of all in industry as the biggest energy consumer and then in households and other consumers.**
- **The Strategy of Forestry Development has also been adopted where big importance is given to the production of wood biomass.**



# Current Situation in Serbia

## **Forest resources in Serbia (second most important renewable resource in Serbia)- current situation**

- Growing stock: 235 million m<sup>3</sup>**
- Annual increment: 6.2 million m<sup>3</sup>**
- Annual harvesting: 3.5-4 million m<sup>3</sup>**
- 47% of forest areas is in private ownership**
- Number of private forest owners: around 500,000**
- Average forest area in private ownership : 0.3 ha**

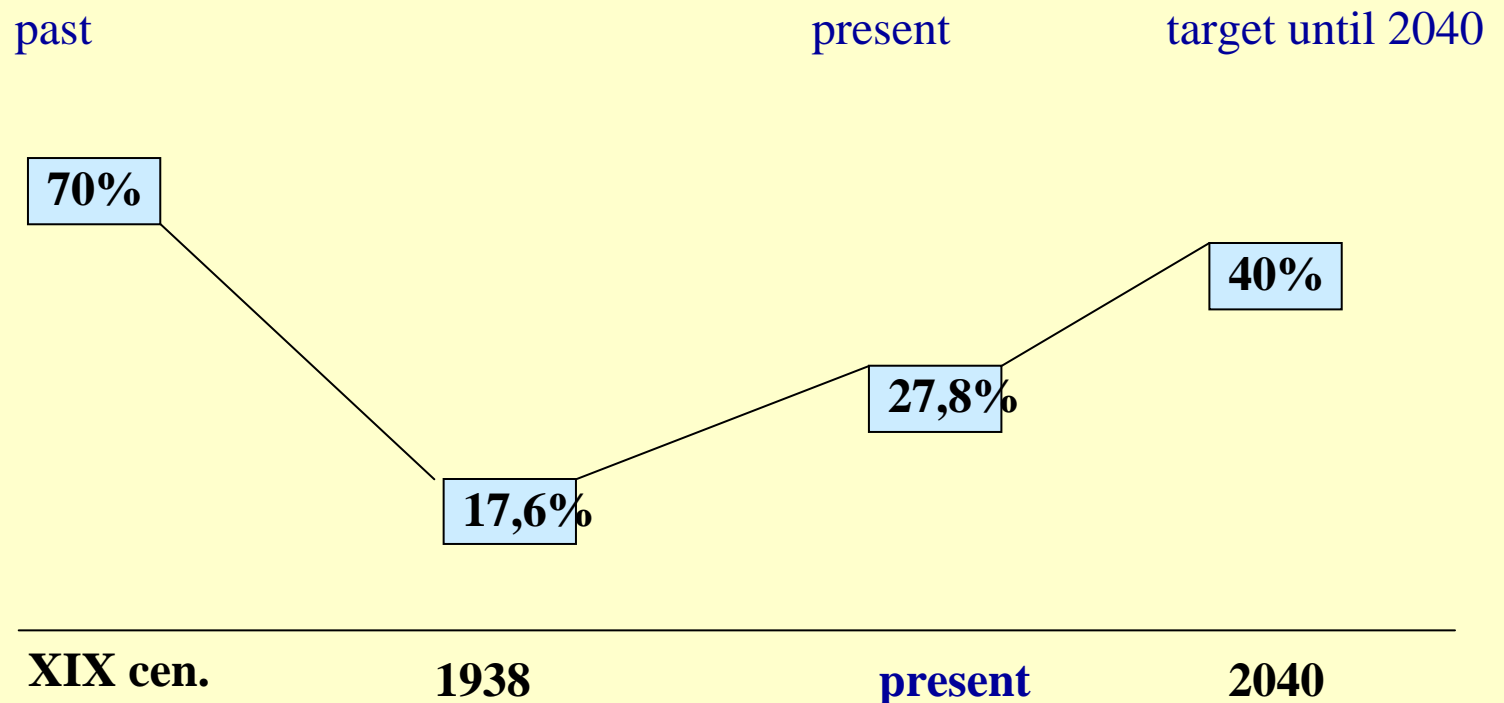


# Current Situation in Serbia



# Current Situation in Serbia

## Development of wooded state in Serbia



# Wood Residues

**In the continuation, structure and amount of wood remains will be shown**

**Originating  
in forest**



**Originating during the  
process of wood processing**



# Wood Residues

Structure of wood biomass in Serbian forests which could be used as fuel

Wood remains	Estimated amount	Note
	m <sup>3</sup>	
Leaves or needles		Ignored and left in forest
Stumps and roots		
Small branches	750,000	Partly used
Remains during forest assortment production	900,000	Partly used
Total	1,650,000	



# Wood Residues



**The main reasons for not using this biomass are:**

**-No wood chips production;**

**-There aren't any heating plants in cities yet which would use wood chips for the production of thermal energy;**

**- For private households, the purchase of boilers and wood biomass heating systems is still very expensive;**



# Wood Residues

## Continue....

**-The Government still doesn't have clear policy for stimulating households to use wood biomass for heating;**

**- Public Enterprises managing state owned forests and private forest owners do not have anyone to whom they could offer forest residues**

**- The habits of domestic population are such that it is mostly oriented towards the usage of fire wood**



# Wood Fuel Production in Serbia



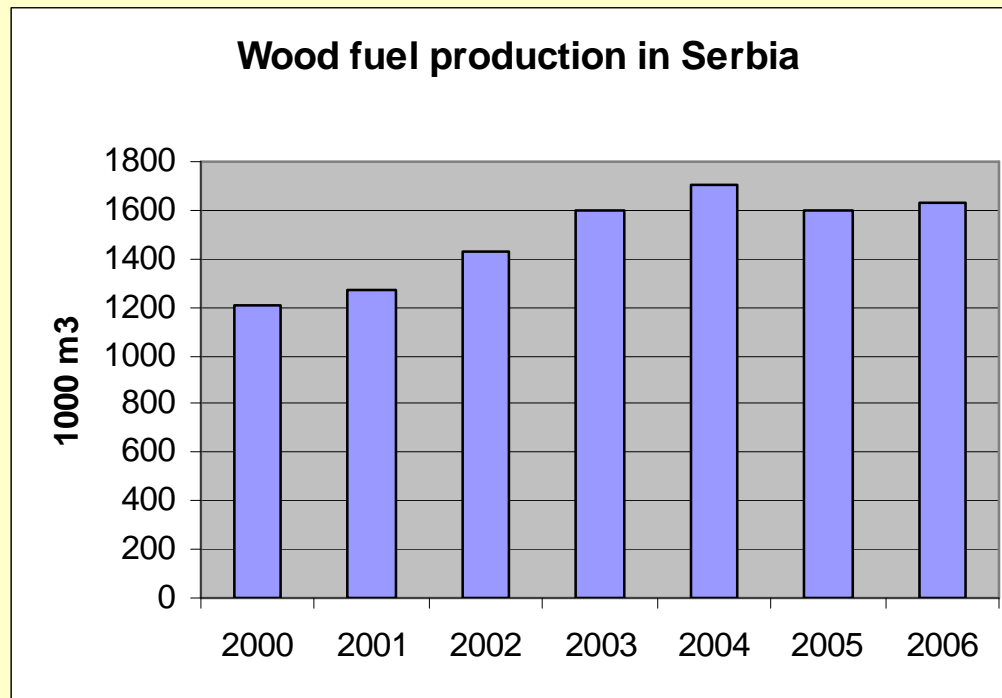
The needs of Serbian population for fire wood are fully satisfied through wood production in state and private sector.

Serbia does not import fire wood and relatively small amounts are exported so that the overall production is used to satisfy the needs of domestic population.

Firewood is an important energy source, first of all for heating the population in rural areas, as well as many households in towns.



# Wood Fuel Production in Serbia



With the exception of 2005, in all other years during the period 2000-2006. the production of firewood increased. The decrease of production in 2005 is the result of production decrease in state sector because of the transformation of Public Enterprises managing the state owned forests.



# Wood Fuel Production in Serbia

**Wood is mostly used by rural households. Firewood is burnt in open fireboxes or inadequate stoves with poor energy efficiency.**

**There are around 778,000 rural households in Serbia which mostly use wood as energy substance for heating during winter months.**

**The usage of wood biomass as fuel for small or middle-sized boilers for households or centralized heating comes down to individual examples only.**



# Wood Fuel Production in Serbia



**Public Enterprises for the management of state owned forests as well as private forest owners produce and sell firewood to consumers in the lengths of 1.0 m.**

**There is no production of chopped wood in dimensions of 25cm, 33 cm and 50 cm as it is the situation in the surrounding countries (for example, Bosnia and Herzegovina).**



# Wood Fuel Production in Serbia



**Consumers cannot buy chopped wood of the abovementioned dimensions in supermarkets or on petrol stations like in the developed countries in the West.**



# Briquette



Usage of briquettes in bigger cities (Belgrade, Novi Sad) is popular and constantly growing. Also, the price is rising, but because of limited amounts and absence of appropriate fireboxes they are not serious competition to fossil fuels or electric power.

The amount of briquette from wood processing will not rise a lot, regardless of the "good" price. Restrictive factors are scope of production and expected orientation of wood processing companies to fulfill own needs for thermal energy by, first of all, burning wood refuse.



# Pellets



Pellet production started only by the end of 2006 in Serbia. At the moment, only one company is engaged in pellet production, namely the company which produces and exports pellets to Italian market.

Annual capacity of this company is 50,000 t. Pellets are mostly produced from wood refuse from own production of beech sawn timber. The company also takes free of charge certain smaller amounts of sawdust from private sawmills located nearby.



# Pellets



Households in Serbia do not use pellets for heating at the moment. The reasons are multifold:

-Inadequate promotion of this product and effects achieved by using pellets;

-Stoves and installations using pellets are still very expensive for most of the population

-There are no strong companies offering adequate boilers and heating systems that use pellets



# Wood chips



Only several small companies are engaged in the production of wood chips and only occasionally depending on the orders from Croatia where the wood chips is exported.

There is no organized production in bigger amounts because there is only one factory for producing chipboard in Serbia which is supplied with wood from the Public Enterprise Serbia Forests and it is not so interested in wood chips.



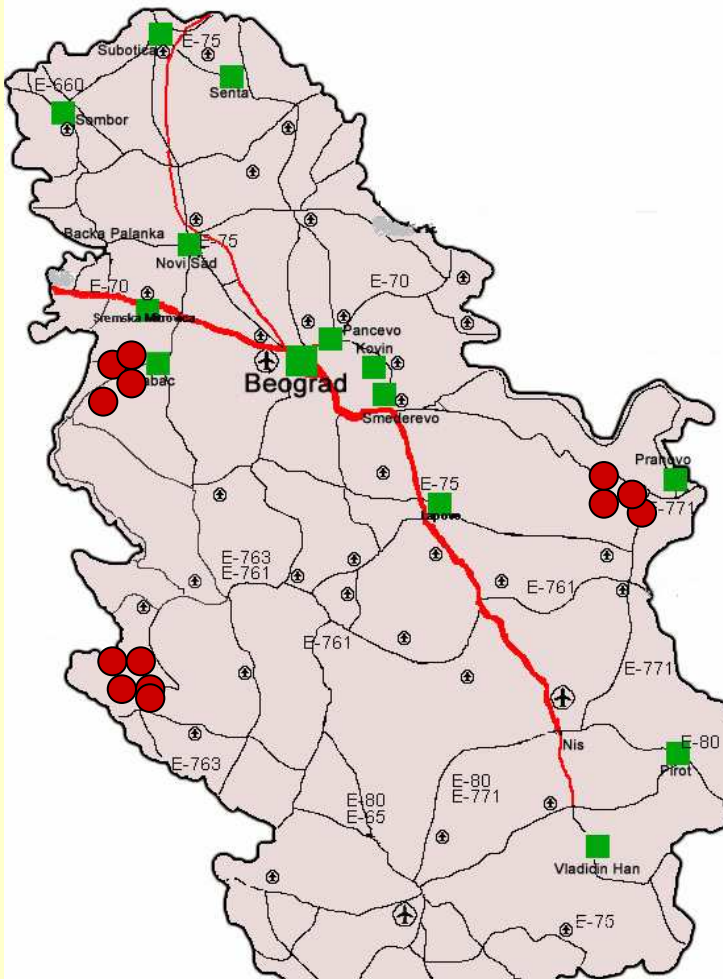
# Wood chips



Since there are no heating plants that use wood biomass, the production of wood chips is not developed yet although there are significant amounts of forest remains.



# Charcoal



The production of charcoal is most common in west and south west parts of Serbia.

There is also some production in east Serbia.

Mostly large refuse from saw-mills is used for the production of charcoal.

Production productivity differs from producer to producer. On average, out of 15 m<sup>3</sup> of large refuse 1.9 t of charcoal is obtained.



# Charcoal



So called Swedish way of charcoal present with most producers, according to which the total cycle (filling, carbonization and cooling) lasts for 7 days.

The producers distribute charcoal mostly to restaurants, and smaller quantities are exported to Cyprus and Greece.



# Charcoal



The price of 1 kg of charcoal produced in Serbia is 0.55 EUR in supermarkets in Belgrade.

The price of 1 kg of charcoal imported from Austria is 0.72 EUR in supermarkets in Belgrade.



Because of the low selling price and relatively high price of large refuse from saw-mills and wood, the producers have small profit which is the reason why the number of producers is decreasing.



# Heating Plants and the Production of Electric Power



At the moment, there are no heating plants using wood biomass or the production of electric power based. There are discussions of local authorities in certain towns with the Government representatives concerning projects dealing with that subject, but so far, there are no serious prospects that they are going to be realized in near future.

During that time, the process of town gasification in Serbia continues as the Government priority, offering the households natural gas imported from Russia instead of developing the production of energy based on wood biomass.



**The prices of energy from various energy sources for the needs of one household in the annual amount of 20,000 kWh in Serbia**

Types of energy sources	Natural gas	Firewood	Heating oil	Electric power
Measurement unit	m <sup>3</sup>	m <sup>3</sup>	L	kWh
Price/measurement unit in €	0.18	40	0.526	0.061
Annual needs	1950	9.0	1720	20,000
Annual costs €	351	405	904.72	1,220
Average price in €/kWh	<b>0.0175</b>	<b>0.021</b>	0.045	0.061



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**Thank you !**