



# Energetic utilization of wood in Hungary

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# Legislation in Hungary

- Hungary was joined to European Union on the 1. May 2004.
  - we had to apply and harmonize the current legislations:
    - law XLIII. 2000. about the waste handling;
    - the Hungarian regulation took over the European Waste Catalogue, and other current orders, directives and recommendations.
  - Also an important law: CX. 2001 about electric energy, together with governmental order of 180/2002 (VIII. 23.), which contains important regulations about energy cogeneration.

# Possibilities of energetic utilization of wood in Hungary

## ■ Facts:

- Hungary is poor in primer energy source
- highly depending on import
- Hungary's electric network is overloaded
- the local power generators can relieve the electric network

## ■ Solution?

- The energy cogeneration could be used well in such situations.

# Energy cogeneration

- Cogeneration means that with the same device more energy needs (e.g. electric energy, heat energy) can be fulfilled in the same time.
- The wood – after oil – has the best calorific value among biomass resources.

	Calorific value [MJ/kg]
Black coal	27-29
Ethanol	26,9
Wood	17,5-19,9
Methanol	19,5
Miscanthus	17,4
Wheat straw	17,3
Brown coal	14-15

# Possibilities of energetic utilization of wood in Hungary (cont.)

- In Hungary, like in the EU, the agricultural overproduction should be solved.
  - One possibility for this is to plant *energy forests*, by which lower quality lands could be utilized.
- The energy forest plantations may help other aims too:
  - By increase of biomass utilization the in *Oslo agreement* taken decrease of SO<sub>2</sub> emission could be fulfilled in Hungary (by the agreement Hungary undertook to decrease the SO<sub>2</sub> emission until 2005 by 50% and until 2010 by 60%).
  - By forest plantations the area of forest can be increased and so the possibility of the CO<sub>2</sub> bond.
  - Utilization of renewable energy resources in a higher volume. (In Hungary the potential of biomass utilization is higher then that of others like water, wind, sun or geothermal energy. For example yearly 60% of straw remains on the fields.)

# Recent situation of burning of wood

- The 40% of lumbered wood is used for energy production yearly:
  - 60% of this in households,
  - 30% in energy centers of wood working companies
  - 10% in public power stations.
- The wood based energy production is the 2.1% of Europe's energy needs.
- Eg. in Finland this value was 46.6% in 1991.
- Around 1991 in Hungary it was about 1.8%, which was increased continually to 3% by now.
- By surveys the rate of biomass energy sources could be increased to 7-8% in Hungary by some structural changes.

# Recent situation and possibilities of burning of wood (cont.)

- The about 2.7 million m<sup>3</sup> firewood represents about 600-630 kt oil equivalent.
- The amount of recently not yet utilized lumbering byproducts suits about 1.5 million m<sup>3</sup>, which is 290-330 kt oil equivalent.
- By energetic utilization of wood both *economical* (direct economical profit, replacement of expensive energy resources, decrease of imported resources) and *ecological* (decrease of clinker, decrease of SO<sub>2</sub>, NO<sub>x</sub>, CO and CO<sub>2</sub> emission) advantages can be achieved.
- Based on last years' average lumber equivalent (which is 8-9 million m<sup>3</sup> annually) this means 2.5-3.5 million m<sup>3</sup> wastes annually, which could be utilized.
- This also means a further processing and recycling, until it is profitable for the producer.

# Problems and contradictions

- The large problem in Hungary that the experts, who were charged to prepare the incentive scheme of energetic utilization of wood, didn't examine the situation in its complexity.
- In consequence of this the incentive scheme fulfills only one expectation: it is encouraging the energetic utilization of wood.
- In the same time this system is causing such uncorrectable or only hardly correctable distortion in sectors of wood working industry, which means setting to drawback of much more important aims like carbon binding, decreasing of greenhouse effect, industry structure, employment, etc.
- The added value by wood working is much higher than in case of energetic utilization of wood. This means that the forced energetic utilization of wood is faulty also in national economical considerations.



# Problems and contradictions (cont.)

- At recent efficiency of power stations (30%) from 1.1 tons of wood only 1 MWh electric energy can be produced.
- 1 MWh electric energy's price is 70 Euros - the added value by the power station is only 20 Euros (1.1 tons of wood costs ~50 Euros).
- The added value without governmental support would be only 10 Euros.
- Against this, if the same amount of wood is utilized by a particleboard producing company, the added value is more than 200 Euros. By further utilization (for furniture e.g.) this value still increases.
- In the same time the number of employees in the wood working sector is higher than in the energetic sector.

# „Climate trade”

- There is a new sector of economy for producing companies: the climate trade.
- This means that those companies, which can not fulfill the taken decrease of CO<sub>2</sub> by the Kyoto pact, those can buy quotes from other companies, which can perform under the taken values.
- So some Hungarian power stations, which were switched from hydrocarbon fuel to biomass fuel, are selling their quotes to other Western European companies.
- This trade is encouraged by our EU membership, because since the beginning of 2004 a EU directive describes the amount of pollutants emission for the largest pollutants companies of the EU.
- The companies can trade their quotes.



**Thank you for your attention!**