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LITHUANIAN BIOMASS ENERGY ASSOCIATION

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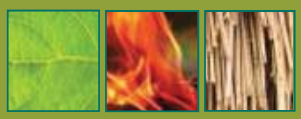
Biomass supply chain: Lithuanian experience



Symposium "Wood- energy: resources and supply"
Valence, France, 22 September 2009
Aleksas Jakštas ©

Presentation Content



- **Biomass use in Lithuania- key information**
- **Supply chain of biomass for heat and electricity**
- **Problematic issues- how to avoid risks**

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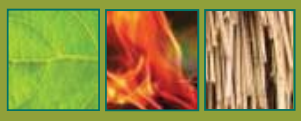
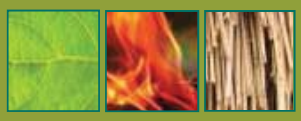
LITBIOMA today



- Association is currently comprised of 30 members:
  - 17 members in Biofuel producers and suppliers section
  - 7 members in Science and biomass resources section
  - 6 members in Equipment for energy production section

Mission and vision of LITBIOMA



Our mission

To promote wider utilization of renewable energy resources (first of all – biomass) in energy production, while following the principles of sustainability

Our vision

Lithuania, as a country where the major part of the consumed energy is produced from renewable energy sources

Demand for district heating

- **Total demand for district heating in Lithuania is ~ 10 TWh;**

- **Heat produced from biomass in year** 2008 **~ 1.81 TWh;**

- **More than** 200 **biomass boiler houses** (**360 boilers**), **biggest of which are:**
  - **Vilnius 60 MW** (44 **MWt** +**16 MWe**);
  - **Marijampolė 16 MW** (**13**,5 **MWt** + 2,5**MWt**);
  - **Tauragė** 20 **MW** (12 **MWt** +8 **MWe**).

- **Total installed capacity ~ 610 MW.**

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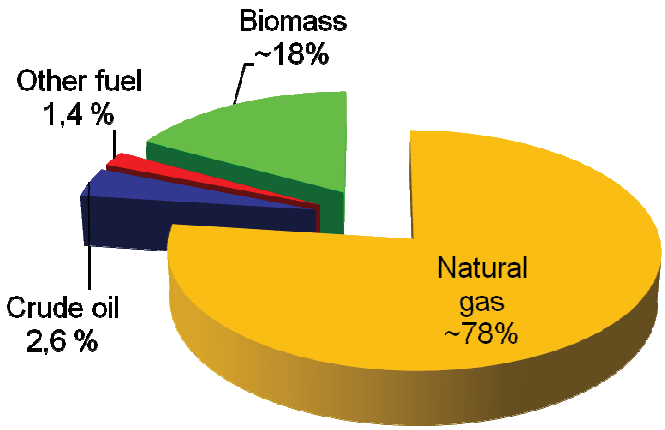
Current situation in district heating sector



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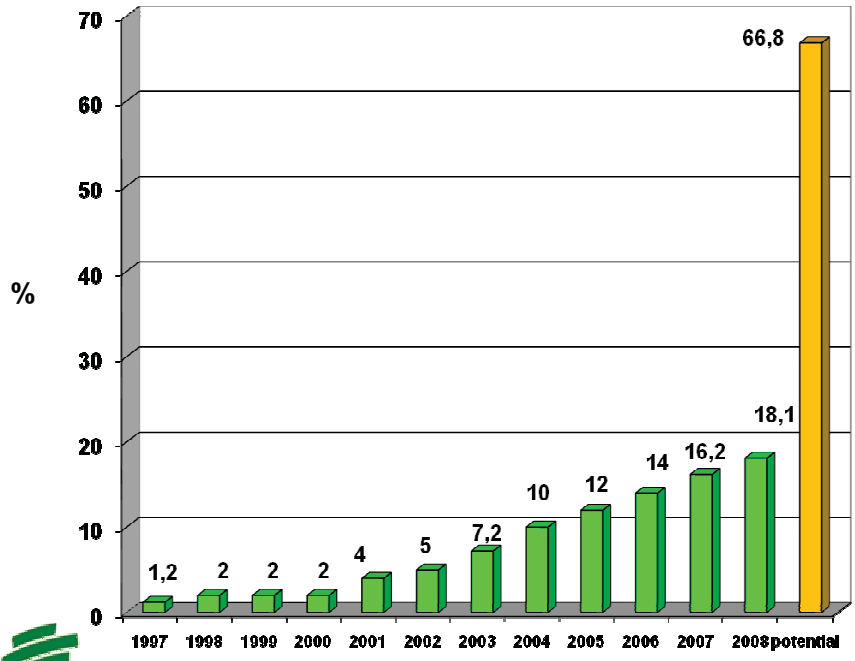
Biomass share in district heating



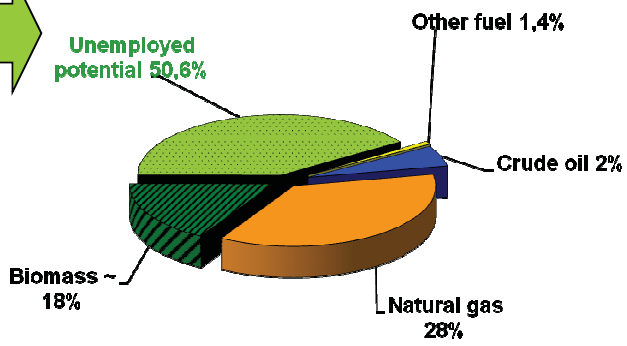
Fuel consumption

Fuel Consumption Structure for District Heating Production in Lithuania having Evaluated Reserves of Biomass

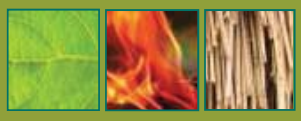
Reserves of local biomass available for use (based on *National Energy Strategy, 2007*):

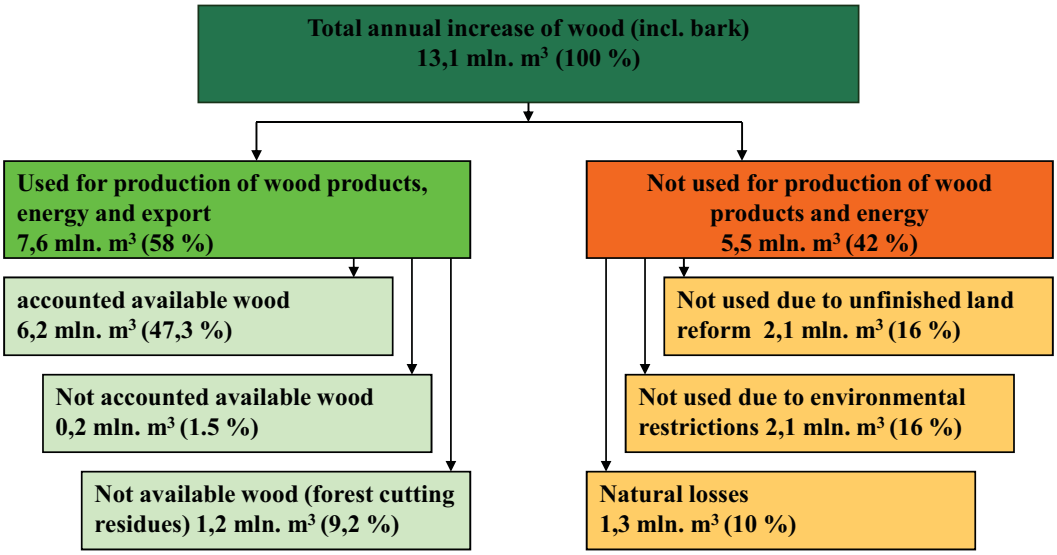
Timber	100 000 t.o.e. (500 000 t)
Straw	100 000 t.o.e. (500 000 t)
municipal waste	200 000 t.o.e. (1 000 000 t)
Willow	90 000 t.o.e. (450 000 t)
Total	~490 000 t.o.e

Currently used resources



Annual increase of wood





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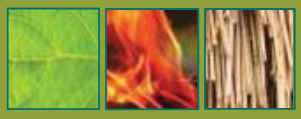
Facts



In Year 2008:

- **~1,81 TWh of district heating from biomass (woodchips);**
- **~3 mln. loose m3 of wood chips used;**
- **~70 wood chippers (mobile and stationary) + import of wood chips;**
- **~20 % wood from sawmils;**
- **~80 % wood from forests.**

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Establishing the supply chain of biomass

Main issues:

- **Resources**
- **Collection and processing**
- **Storage**
- **Delivery**

Identification and evaluation of resources

What are the resources in general?

- **Fire wood**
- **Wood processing residues**
- **Wood logging residues**
- **Sawdust**
- **Straw**
- **Peat** *(local fuel, but not biomass)*
- **Grass** (*future resource*)
- **Municipal waste** (*future resource*)
- **Short rotation coppices** (*future resource*)

Problems related to resources

Competition – wood processing and board production plants, export;

Political / social – "There will be not enough firewood for people";

Technological – not all sorts of biomass suitable for every boiler. Different boilers have their own "character".

Collection and production

Suppliers of raw materials:

- State forest enterprises;
- Private forest owners;
- Wood processing companies;
- Other biomass companies.

Balance must be kept between consumption, stops of consumption and obligation to buy the material

Collection and production (cont.)

Different systems of biomass production:

- **Mobile chippers;**
- **Transportation of raw materials and stationary chippers;**
- **Direct chipping of wood logging residues;**
- **Bundling of wood logging residues and chipping afterwards.**

Storage

Storage (cont.)

- **Seasonal problems – consumption of biomass is much lower in summer; production of raw material – opposite;**

- **Hard climate conditions – in winter 2008 - 2009 most of Lithuanian forest roads were closed for ~1,5 month;**

- **Contracts with raw material suppliers – they work when there is no consumption as well (stops of boilers etc.).**

However, storage can not be avoided

- **Only minimally required quantities;**

- **If possible- only in solid wood;**

- **In case of wood logging residues – only in high piles, covered or bundled;**

Losses of energy from biomass in piles of chips – 1 % per month, in first and second months – up to 5 %

Transportation

- **In general- not a problem;**
- **Specific truck / machinery for specific job:**
  - **container trucks;**
  - **self unloading trucks;**
  - **trucks with "sliding floor" system;**
  - **trucks with "sawdust collectors"**
- **Logistic system / GPS system;**
- **Spare trucks and fuel for emergencies.**

Misunderstandings between biomass suppliers and energy production companies

- **Biofuel producer buys raw material in loose cubic meters, solid cubic meters, tons, rolls of straw etc.;**
- **Energy company buys fuel / energy;**
- **In case of payment for MWh / boiler output, there can occur a discussion of such type:**

"Your boiler's efficiency is low. You consume to much fuel per MWh"!

"Your fuel quality is really bad. Bring me white chips"!

How to avoid misunderstandings

- **Common understanding of the problems is necessary;**
- **Payment per tons of dry material is the most objective;**
- **Common understanding is required, that biomass should be cheaper than other fuel (including positive sold CO_2 impact);**
- **Common investments into research of different problems are necessary;**

Understanding: bigger bio-boiler – higher price per ton, MWh or m³

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Future for biomass in Lithuania is bright

- New **European RES directive;**
- **National law on promotion of RES** *(in progress);*
- **Expansion of short rotation coppices' plantations;**
- New **resources (municipal waste, better consumption of wood logging residues etc.);**
- **Good image in society.**

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Thank you!

Lithuanian biomass energy association "Litbioma"
Konstitucijos ave. 7, LT-09308 Vilnius, Lithuania
asociacija@biokuras.lt , www.biokuras.lt