

Barriers of biomass market development and RES utilization and effective measures to promote them

State of the art of 2006 applied to CZ and AT

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STRUCTURE OF THE PAPER

- **Overview and analysis currently existing promotion schemes (state of the art 2006) in the Czech Republic and in Austria – RH, JK, LK**
- **Impact of current legislation on biomass utilization for electricity and/or heat production and identification of its strength and weaknesses – RH, JK, LK**
- **Identification of the most important barriers (obstacles) for development of RES utilization and biomass market development and proposal of possible effective measures how to reduce their influence – JK, JW, RH, LK**
- **Proposal of changes in promotion schemes and legislation for RES and biomass utilization –JK, RH**

The Czech Republic – current situation

Electricity generation:

- Act no. 180/2005 Col. on support of RES utilization for electricity generation (only) – 8/2005
- Provisions – definition of biomass type, etc.
- Preference of intentionally planted biomass
- CO2 allowances not taken into account
- Efficiency of support scheme – tariffs and other arrangements

Heat production

- no specific support applied for heat generation
- support is for SRC plantation foundation, energy plants production, permanent grasslands management

Barriers for RES utilization

Legislative and institutional:

- Problems in case of heat production
- Missing cooperation between agriculture and energy policies

Support scheme:

- Primary orientation on electricity generation
- Forest residuals not covered by any (direct scheme)

Open question

- Impact of ecological tax reform
- Efficiency of support
- EU funds

Expectations

	2001	2004	2005	2006	2010
	[MWh]	[MWh]	[MWh]	[MWh]	[MWh]
Small hydro (<10 MW)	826228	842840	914000	930000	1121000
Photovoltaic	0	19	0	111	15000
Wind energy	591	9901	76000	180000	930000
Geothermal energy	0	0	0	0	15000
Biomass incl. co-combustion	117	355207	665000	660000	2100000
Biogas	5824	90497	99000	160000	250000
TOTAL	832760	1298464	1754000	1930111	4431000

	Heat production (GJ)	Gross electricity generation (GJ)	Produced energy (GJ)	Share on PES	Share on energy production from RES
Biomass*/	29 625 688	1 342 701	30 968 389	1,7462 %	73,97 %
Biodegradable part of waste	2 047 484	34 519	2 082 003	0,1174 %	4,97 %
Biogas	780 639	388 282	1 168 921	0,0659 %	2,79 %
Hydro power	0	4 980 481	4 980 481	0,2808 %	11,89 %
Wind power	0	14 040	14 040	0,0008 %	0,03 %
Liquid fuels **/	2 660 000	0	2 660 000	0,1500 %	6,35 %
Total***	35 113 811	6 760 023	41 873 835	2,3611 %	100,00 %

Expectations

Type of biomass	Number of installations	Installed capacity [MW]	Electricity generation [MWh]	Own consump. [MWh]	Delivery		Biomass consump. [t]
					to grid [MWh]	other [MWh]	
Chips, waste	32	1081	272949	41472	201275	30202	243834
Pulp extr.	5	133	296297	156855	0	139442	157203
Plant mat.	8	180	20840	1169	19671	0	11590
Pellets	2	94	2620	483	1882	255	1227
Total	47	1488/*	592706	199979	222828	169899	413854

Role of biomass in 2004

	Gross production [TJ]	Own consump./ [*] [TJ]	Delivery [TJ]	Share on heat from RES [%]
Solid biomass total	36480	34561	1614	90.89%
Biomass industrial/**	16980	15061	1614	42.30%
Firewood	387	375	12	0.96%
Wooden chips, sawdust, etc.	8044	6202	1538	20.04%
Pulp extracts	8409	8409	0	20.95%
Plant materials	109	46	62	0.27%
Briquettes and pellets	31	30	2	0.08%
Biomass households	19500	19500	-	48.58%
Biogas total	968	881	88	2.41%
Municipal sewage	723	723	0	1.80%
Industrial sewage	74	71	4	0.19%
Biogas from agriculture	68	68	0	0.17%
Landfill gas	104	19	84	0.26%
Solid municipal wastes	2052	570	1481	5.11%
Heat pumps	580	580	NA	1.45%
Solar thermal collectors	57	57	NA	0.14%
Total	40138	36649	3183	100.00%

Expectations - EDR

Ecological tax reform - MoE suggestion

Kč/kWh	2007	2011	2015
electricity from coal	0,2	0,7	1,3
electricity from nuclear	0,05	0,15	0,3
cE/kWh			
electricity from coal	0,69	2,41	4,48
electricity from nuclear	0,17	0,52	1,03
heat Kč/GJ			
brown coal	15	50	100
hard coal	10	40	70
n. gas	10	10	20
Eur/GJ			
brown coal	0,52	1,72	3,45
hard coal	0,34	1,38	2,41
n. gas	0,34	0,34	0,69

Expectations – EDR 2

Income from ecological taxes - bil. Kč

	2007	2011	2015
Electricity	6,40	18,50	27,30
Brown coal	3,00	7,10	8,80
Hard coal	1,10	1,10	1,80
Natural gas	1,80	1,60	2,90
Cars	21,70	18,10	14,70
Total	34,00	46,20	55,60
households	40%	35%	33%
power sector and indus	60%	65%	67%

Expectations – EDR 3

Impact of EDR to prices - increas in %

CH	now	2007	2009	2011	2013	2015
brown coal	320 Kč/GJ	11	24	38	54	68
hard coal	320 Kč/GJ	7	17	26	34	41
n. gas	380 Kč/GJ	4	5	5	7	8
individual						
brown coal	190 Kč/GJ	20	37	59	83	106
hard coal	250 Kč/GJ	8	20	30	40	48
n. gas	380 Kč/GJ	4	4	4	6	7
electricity for household	3 Kč/kWh	5	9	14	19	24