3.6 Use of renewable energy sources in households

Use of renewable energy sources for covering energy consumption of dwelling (including equipment) was surveyed separately by questionnaire B. There was processed altogether 39 completed questionnaires.

Utilization of surroundings heat - heat pumps operation

In the sample measured there was ascertained 13 dwellings where for heating or DHW preparation was used heat pumps of various types. Their basic characteristics are presented in table 3.6.1.

Basic Characteristics of operated heat pumps

Table 3.6.1

Locality DISTRICT	Code	type of heat pump/capacity (kW)					No. of heat pumps	Note
		Air / water	Air / air	water/water	Antifreeze/water	water / air		
Praha 5	115			1/10			1	
Praha 5	115	1/6					1	
Praha 12	11c				1/7		1	
Praha-východ	219	1/8					1	
Praha-západ	21a		1/15				1	
Klatovy	322			1/1			1	Operated together with solar panels
Cheb	411		1/11				1	
Karlovy Vary	412	1/13					1	
Ústí n/Orlicí	534	1/16					1	
Uherské Hradiště	722			1/15			1	Operated together with solar panels
Zlín	724		1/5				1	
Zlín	724	1/20					1	
Karviná	813			1/27			1	
	Total	**5**	**3**	**4**	**1**		**13**	

Use of solar energy - solar panels

Thirty dwellings used solar energy through solar panels, but the data were incomplete in six cases. Hence, the characteristics listed in the table 3.6.2 apply to a group of 24 dwellings or pieces of equipment. Data measured in three dwellings, where solar energy was used to produce electricity, are incomplete and call for verification. For this reason no characteristics of electricity producing solar equipment is given. The average area of the solar panel was 7.7 m^2 and their corresponding installed capacity (heat output) 4.4 kW. The solar panels were mostly used for water heating and, to a lesser extent, for space and/or pool heating.

Basic characteristics of solar panels - operated to produce heat

Table 3.6.2

Locality DISTRICT	Code	Solar panel		Used for			No. of panels	Note
		Area, m^2	installed capacity, kW	DHW preparation	Dwelling space heating	Heating of pool		
Praha 5	115	6	2	•		•	1	
Kladno	213	8	5	•	•	•	1	
Praha-západ	21a	10	2	•			1	
Příbram	21b	7,5	12	•			1	
Č.Budějovice	311	6	3	•			1	

Č. Krumlov	312	7,2	2	•			1	
Písek	314	8	2	•	•		1	
Klatovy	322	4	2	•			1	Operated together with solar panels
Plzeň-jih	324	9	3			•	1	
Litoměřice	423	4	3	•			1	
Semily	514	8	4	•			1	
Semily	514	6	5	•			1	
Semily	514	5	3	•			1	
Semily	514	4	2	•			1	
Jičín	521	6	2	•			1	
Náchod	523	4	1			•	1	
Trutnov	525	4	2	•			1	
Olomouc	712	12	12	•	•		1	
Kroměříž	721	16	16	•	•		1	
Uherské Hradiště	722	5	3	•			1	Operated together with heat pumps
Zlín	724	12	12			•	1	
Frýdek-Místek	812	4	1	•	•	•	1	
Frýdek-Místek	812	24	4	•			1	
Nový Jičín	814	4	2	•			1	
	Total / Average	**183,7/7,7**	**105/4,4**	**x**	**x**	**x**	**24**	

Use of hydro energy potential - small hydroelectric power plants

In the surveyed sample there were ascertained two small hydroelectric power plants in operation with installed capacity of 270 and 30 kW, respectively.

Despite growing trend of heat pumps and solar energy use at present, main renewable source used in household remains solid biomass, mostly wood and wood waste. On the basis of specified estimation from the survey it is possible to state, that wood and biomass consumption in households in 2003 equals approximately 19.5 PJ, which is almost double value of up to now used estimates at CR energy balance processing. Nevertheless this higher ascertained and corrected (recomputed) value seems to be quite real, as it was checked by its comparison with trends from the CHMU REZZO 2 and 3 survey on biomass consumption in 2003 and from the MoIT survey on renewable energy sources consumption in 2003.