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STATISTICAL OFFICE

WOOD FUEL CONSUMPTION IN 2011 IN MONTENEGRO

New energy balances for wood fuels

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PREFACE

The publication 'Wood Fuel Consumption for 2011 in Montenegro – New Energy Balances for Wood Fuels' represents the results of annual survey on wood fuel consumption carried out by Statistical Office of Montenegro in October 2012.

The purpose of survey on wood fuel consumption referred to the data collection on types, quantities, and values of wood fuels which are produced, imported, and used in Montenegro as well as exported from Montenegro. In addition to the above mentioned, the survey also collected the data on supply sources of wood fuels, and the data on appliances used for their combustion. The data were obtained from households, buildings of public importance, and industrial enterprises within the wood processing in Montenegro as well as from buildings of commercial importance.

In addition to the conducted survey, and on the basis of recommendations of statistical institutions within international organizations UNECE/FAO/EUROSTAT, there was defined the methodological concept for drafting the energy balance of wood fuels and created the energy balance of wood fuels of Montenegro for 2011.

Carrying out the survey on the consumption of wood fuels and creating the energy balance of wood fuels have been supported through the Forestry Development in Montenegro (FODEMO) project, whose implementation is done on the basis of bilateral agreement between the Government of Grand Duchy of Luxembourg and the Government of Montenegro with the aim of sustainable development of forestry sector in Montenegro.

In implementation of the statistical survey on wood fuel consumption, in addition to the Statistical Office of Montenegro, the following have also participated: representatives of the Ministry of Economy, Ministry of Agriculture and Rural development, Ministry of Education and Sports and the Ministry of Health. Expert support in developing the methodological concept for studying the consumption and preparation of new energy balances for wood fuels, in accordance with the UNECE/FAO/EUROSTAT, was also provided through the FODEMO Project, by the Consultants: PhD Branko Glavonjic from the Forestry faculty University in Belgrade and PhD Nike Krajnc from the Institute of Forestry from Ljubljana, whom we would like to express our special gratitude. We are also grateful to all other participants in the project, who have contributed to improvement of current methodology and develop the new statistical methodology for obtaining the data on production and consumption of wood fuel and wood-based energy in Montenegro.

D I R E C T O R

Gordana Radojevic, MSc

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Abbreviations

m^3	=	Cubic meter
Stacked m	=	Stacked meter
Bulked m^3	=	Bulk cubic meter
kWh	=	Kilowatt hour
t	=	Tonne
m^2	=	Square meter
HP	=	Heating plant
TPS	=	Thermo power station
TJ	=	Terajoule

Symbols

No occurrence	=	–
Not available data	=	…
Data is less than 0.5 of given unit of measurement	=	0
Average	=	Ø

I INTRODUCTION

Annual survey on the consumption of wood fuel was carried out in the overall territory of Montenegro in 2012 by Statistical Office of Montenegro – MONSTAT through the FODEMO project.

State bodies (Ministry of Education and Sport of Montenegro, Ministry of Health of Montenegro, Ministry of Agriculture and Rural Development of Montenegro and Forestry Administration) had certain obligations in preparation, organization, and conducting of the survey on the wood fuel consumption. Direct participants in survey were: FODEMO project (hereinafter referred to as the "Contractor"), Technical Working Group, instructors, and enumerators. All bodies and performers of survey were responsible for timely performing in advance defined activities. Every state body was obliged to perform tasks within its own responsibility pursuant to the signed Memorandum on Cooperation, i.e. Methodological Instructions of Statistical Office for Conducting Annual Survey on Wood Fuel Consumption.

According to the records, the number of engaged persons in preparation and carrying out the survey on the wood fuel consumption was approx. 100. In addition to 10 members that form the Technical Working Group and prepared all necessary instruments for carrying out this statistical survey, actively engaged were 7 instructors and 46 interviewers. There were prepared Dynamic Plan of Activities, budget, and other instruments, such as questionnaires, methodological and organizational instructions by relatively short deadline, from the moment of signing the Memorandum of Cooperation between Statistical Office and FODEMO project.

The draft instruments for carrying out the survey on wood fuel consumption, aimed at satisfying the national demand, were submitted for the consideration to working groups (consisted of representatives of relevant institutions in the area of forestry) whose suggestions and comments were basis for building the final instrumentarium. The methodology used, form and contents of energy balances are harmonised with the UNECE/FAO/EUROSTAT methodology, standards and recommendations.

The objective of carrying out the mentioned statistical survey was to obtain the data on: types and quantities of wood fuel that are used in production and consumption in Montenegro; sources of supply and systems or appliances used for their combustion. The purpose of carrying out the survey on wood fuel consumption reflects in the implementation of new methodological concept in function of data collection on production, consumption, turnover in foreign trade, and wood fuel balance in Montenegro. The total wood fuel consumption is the sublimate of several surveys carried out separately for the household sector, and then for buildings of public and commercial importance and industrial enterprises.

Annual survey on wood fuel consumption was carried out pursuant to the Law on Official Statistics and Official Statistical System (Official Gazette of Montenegro 18/12).

II METHODOLOGICAL EXPLANATIONS

Reporting units and data collection method

The survey on wood fuel consumption covers the following reporting units:

- Households;
- Buildings of public importance (kindergartens and schools);
- Buildings of commercial character (baker's shops, barbecue stalls, restaurants, and auto repair shops);
- Industrial enterprises; and
- Producers of wood fuel (producers of charcoal, briquettes).

Within the part of wood fuel consumption consisted of households, the survey was carried out by using the interview method on the representative sample of 5% from the total number of households who reported within the 2011 Population Census that they use the solid fuels for heating purposes. The total number of interviewed households was 6 551, of which there were 3 617 urban households and 2 934 rural households[1]. The interviews covered 652 enumeration areas in 21 municipalities in Montenegro.

The part related to wood fuel consumption in buildings of public importance – schools and kindergartens covers all pre-school and school buildings in Montenegro. The method used was reporting method.

Within the segment of wood fuel consumption in buildings of commercial character, the survey was carried out with the use of interview method in baker's shops, barbecue stalls, restaurants, and auto repair shops in all municipalities of Montenegro according to the address list of Statistical Business Register and actual state in the field. This segment is partly covered due to organizational and technical reasons.

Reporting units in the segment of wood fuel consumption for internal needs of industry were business organizations. Reporting units for production and turnover of wood fuel are business organizations and entrepreneurs engaged in their production and turnover. In both cases there was used the reporting method by filling appropriate questionnaires.

Method and time of data collection and submission

The periodicity of survey is annual for all reporting units (households, commercial buildings, buildings of public importance, industry and other). The data collection for households was done by the use of the interview form ŠUM BIO 1-13 for 2011 and it referred to the heating season 2011/2012). The interviewing of households and wood fuel consumption in commercial buildings was done in period from 15 October to 2 November 2012. The data submission on wood fuel consumption in buildings of public character (kindergartens and schools) was done in period from 12 September to 17 October 2012. The interviewing of industrial enterprises and entrepreneurs on production and consumption of wood biomass and wood fuel was done in period from 24 September to 24 October 2012.

[1] "Urban"settlements are considered to be settlements defined by appropriate legal acts as urban settlements. "Other" settlements are rural (Law on Territorial Organizations of Montenegro, Official Gazette of Montenegro 54/11, and 26/12).

Contents and instruments of statistical survey

The mentioned statistical survey was carried out by using the field survey in the most important segments of production and consumption of wood fuel in Montenegro. In this sense, appropriate questionnaires were firstly created, then all necessary training of staff and interviewers and contacts achieved with all participants relevant for this survey.

Appropriate questionnaires were used as the main instruments of survey.

The questionnaire ŠUM-BIO 1 collected the data on the wood fuel consumption in households in sense of quantity by individual types of wood fuel, prices, supply sources, heating systems in dwellings, their installation years and main purposes of wood fuel use (heating, food preparation, etc.).

The questionnaire ŠUM-BIO 2 collected the data on the wood fuel consumption in buildings of public importance (schools, kindergartens) in sense of quantity by individual wood fuels, unit prices and total expenses of wood fuel for one heating season. This questionnaire also collected the data on types and installation years of wood fuel combustion systems in buildings of public importance.

The questionnaire ŠUM-BIO 3 collected the data on the wood fuel consumption in buildings of commercial character - baker's shops, such as: annual consumption of individual types of wood fuels, average purchase price and total expenses of these fuels at the annual level, supply sources of wood fuel and characteristics of the system (type and installation years) possessed by these buildings.

The questionnaire ŠUM-BIO 4 collected the data on the wood fuel consumption in buildings of commercial character -barbecue stalls, such as: annual consumption of individual types of wood fuels, average purchase price and total expenses of fuel at the annual level, supply sources of wood fuel and characteristics of system (type and installation years) available in these buildings.

The questionnaire ŠUM-BIO 5 collected the data on wood fuel consumption in buildings of commercial character – restaurants, such as: annual consumption of individual types of wood fuels, average purchase price and total expenses of these fuels at the annual level, supply source of wood fuel and characteristics of system (type and installation years) available in these buildings.

The questionnaire ŠUM-BIO 6 collected the data on the wood fuel consumption in buildings of commercial character - auto repair services, such as: annual consumption of individual types of wood fuels, average purchase price and total expenses of these fuels at the annual level, supply sources of wood fuel and characteristics of system (type and installation years) available in these buildings.

The questionnaire ŠUM-BIO 7 collected the data on the annual consumption of wood fuel for energy needs of business organizations (industry) in sense of: type, quantity and energy values as well as types, quantity, annual number of hours of work, efficiency and installation years of the system (appliances) for energy production.

The questionnaire ŠUM-BIO 8-12 collected the data on: wood fuel consumption in business organizations and by entrepreneurs who are engaged in the production of wood fuel; and data on types of wood fuel which is produced, produced/spent annual quantities, calorific value, own consumption, sale, inventories at the beginning and at the end of year as well as data on wood fuel sale by individual categories of consumers.

The questionnaire ŠUM-BIO 13 collected the data on purchase and sale of wood fuel by trade business organizations and entrepreneurs in sense of: purchase, import, and export, own consumption, losses, stocks, and structure of sale by individual categories of consumers.

Use of collected data for production of wood fuel energy balances

The data obtained by previously described methodology are used for drafting the wood fuel energy balance for 2011. The data collected for individual wood fuel requested re-calculation in m^3 of solid wood volume, and this was not necessary for certain wood fuels. For those wood fuels for which the data are collected on production and consumption in stacked cubic metres or bulk cubic metres there was performed their recalculation in m^3 of solid wood volume. Those wood fuels for which the data were collected on production and consumption in m^3 or tonne were entered in the energy balance directly as cumulative data at the level of Montenegro.

To compare different types of wood products there is necessary one mutual unit of measurement. This is the reason why within the process of recalculating the volume of different types of wood products the mentioned are multiplied with certain coefficients for the conversation, and thus to receive an equivalent roundwood expressed in m3 of solid wood. The cubic meter of solid wood represents a unit of measurement that refers to the volume fully filled with wood (with no space), while the stacked cubic meter is used as the unit of measurement for wood sorted in layers with space (the most often for chopped wood).

For needs of recalculation of individual measurement units in which the wood fuels are produced or distributed in m^3 of solid wood volume, the following coefficients are used:

Assortments	Solid wood	Meter firewood	Firewood, chipped		Wood chips	
			Piled	Scattered	Dimension (quality) G30	Dimension (quality) G50
	m^3	Stacked m^3	Stacked m^3	Bulk m^3	Bulk m^3	Bulk m^3
1 m^3 of solid wood	1	1.43	1.2	2.0	2.43	3.03
1 stacked m^3 of firewood in meter	0.67 – 0.69	1	0.8	1.4	1.7	2.1
1 stacked m^3 of firewood chipped wood and piled	0,85	1.2	1	1.7	-	-
1 bulk m^3 (bulk cubic meter) of firewood chipped in bulk state	0.5	0.7	0.6	1	-	-
1 bulk m^3 of wood chips, quality G30	0.41	0.59	-	-	1	1.2
1 bulk m^3 of wood chips, quality G50	0.33	0.48	-	-	0.8	1

Source: Glavonjic B. 2011. Wood fuels: types, characteristics and benefits of heating, SNV, Podgorica, Montenegro.

For needs of calculating the wood energy consumption which is used for the heating of households, buildings of public and commercial importance, industry and other categories of consumers as well as its share in the total final energy consumption in the energy balance of Montenegro, the following starting elements are adopted which are based on the results of conducted surveys:

- In regards with the fact that households use wood fuel individually or in the combination with other fuels (electricity, coal, and light distillate oil), an average quantity of wood fuels, present in the interviews separately for urban and rural households at the level of municipality, was taken for every present combination. The received average quantity of wood fuel was multiplied with the weight of that household, and in this manner the total quantity was obtained for every type of wood fuel, for each municipality individually. Then, the summing up of the data by municipalities was done to obtain the total consumption at the level of Montenegro;

- The principle which was used for the consumption of wood and wood fuels in buildings of public and commercial importance was based on the summing up of individual consumption by buildings, with the aim to obtain the total consumption for these categories of consumers at the level of Montenegro. In regards with the fact that there was not performed a complete coverage of all commercial buildings according to the Statistical Business Register, an expert estimation of the wood fuel consumption was done on the basis of obtained results on the consumption of those commercial buildings which were interviewed. When other categories of consumers (construction, the rest of industry, agriculture, etc.) are in the focus, the data on their consumption are obtained on the basis of questionnaires from the regular annual surveys of Statistical Office;

- An appropriate energy value is adopted for every category of wood fuels, so called lower heating power expressed in kWh/unit of measurement for the appropriate level of their moisture and type of wood they are produced from.

III TABLES WITH COMMENTS MONTENEGRO

Consumption of wood fuels

Total consumption of particular types of wood fuels for the energy needs of Montenegro in 2011 was (Table 3.1):

Firewood	732 911	m^3
Large wood residues from industry (sawmill residues)	79 498	m^3
Small wood residues from industry (sawdust)	6 695	m^3
Arboricultural thinning	251	m^3
Wood briquettes	106	tonnes
Wood pellets	692	tonnes
Construction waste wood	5 254	m^3
Charcoal	1 039	tonnes

The firewood represents the most used wood bio fuel within the wood biomass consumption in Montenegro. The total consumption of firewood in 2011 was 732 911 m^3, of which there were 96% spent by households, and the rest of 4% was spent by all other categories of consumers, while the firewood was mostly used in baker's shops 1.48% and restaurants 1.23% (Chart 3.1).

Of the total 21.219 m^3 of firewood spent for the needs of commercial buildings, the share of baker's shops was 51%, and the share of restaurants was 42,4%. When observing the consumption of sawmill residue for the needs of commercial buildings, their consumption was 231 m^3 of which there was 155 m^3 in auto repair shops, and the rest of 76 m^3 was consumed in restaurants and cafes. The restaurants presented the most important consumers of wood briquettes and wood pellets in 2011.

The most important category of buildings of public importance by the wood consumption represents schools. Of the total of 479 school buildings in Montenegro (including schools and their regional departments), there were 327 buildings or 68% which used wood fuels in 2011 with the total consumption of: 5 357 m^3 of firewood; 4 tonnes of wood briquettes; and 99 m^3 of sawmill residues.

The largest quantities of wood biomass in Montenegro are used for the production of firewood, while there were spent 24 353 m^3 for the production of other wood fuels in 2011. Of that quantity, there were spent: 85% for the production of wood chips; and 3 779 m^3 for the production of charcoal and wood briquettes.

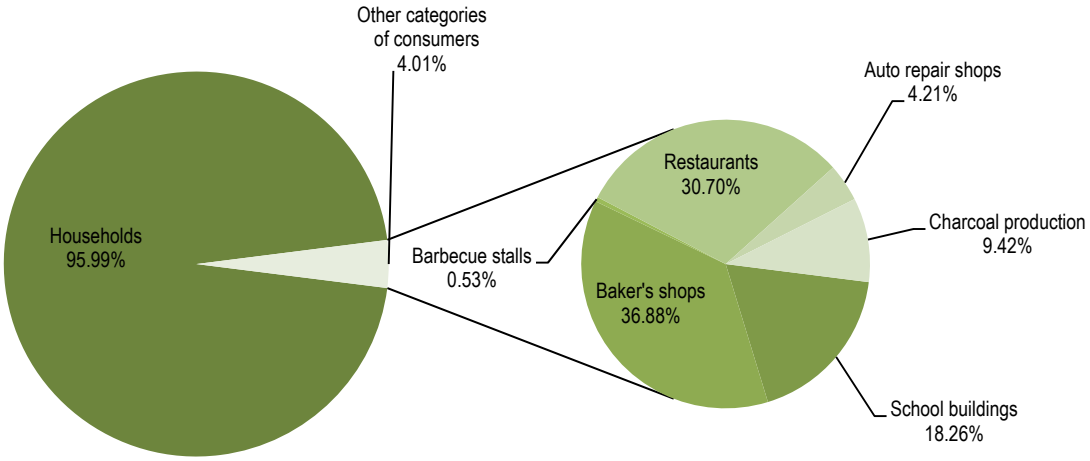
For own needs of enterprises in the wood processing there were spent 27 983 m^3 of wood biomass, of which there are 22 084 m^3 in the form of large wood residues (sawmill residues), and 5 899 m^3 in the form of small wood residues (sawdust).

Table 3.1 Share of individual categories of consumers in the wood fuels consumption in Montenegro

Wood biomass forms	Measu-rement unit	Main categories of consumers										Total Monte-negro
		House-holds	Baker's shops	Barbecue stalls	Restau-rants	Auto repair services	Producers of charcoal	Producers of wood briquettes	Production of wood chips	Schools	Enterprises for wood processing	
Firewood	m^3	703 571	10 821	154	9 007	1 236	2 765	-	-	5 357	-	732 911
Arboricultural thinning	m^3	-	-	-	-	-	251	-	-	-	-	251
Large wood residue from industrial wood processing (sawmill residues)	m^3	36 510	-	-	76	155	-	-	20 574	99	22 084	79 498
Small wood residues from industrial wood processing (sawmill dust)	m^3	-	-	-	-	-	-	763	-	33	5 899	6 695
Wood briquettes	Tonne	62	-	-	40	-	-	-	-	4	-	106
Wood pellets	Tonne	667	-	-	25	-	-	-	-	-	-	692
Construction waste wood	m^3	5 254	-	-	-	-	-	-	-	-	-	5 254
Charcoal	Tonne	939.2		26.5	73.3	-	-	-	-	-	-	1 039

Based on the data from Table 3.1, below is given the chart on the share of individual categories of consumers in the total consumption of firewood in Montenegro for 2011.

Chart 3.1. Share of individual categories of consumers in the total firewood consumption in Montenegro, 2011



IV OVERVIEW OF RESULTS FOR HOUSEHOLD SECTOR

The total number of recorded households that use solid fuels for the energy needs in Montenegro in 2011 is 131 004, of which there are 130 889 households with members permanently residing in those households during the whole year.

Table 4.1 Structure of households that use solid fuel for the heating needs (by number of members), 2011

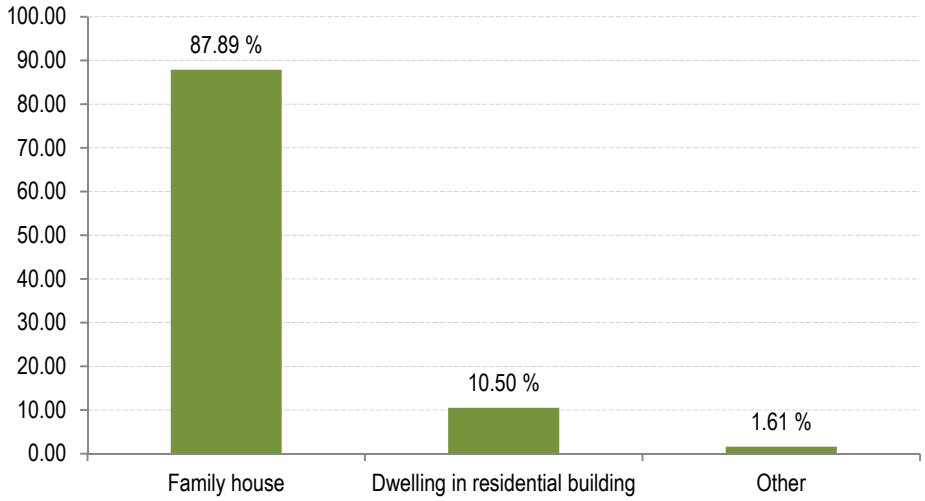
	Number of households with number of members in households						Number of households with number of mebers permanently residing in household					
	Total	1	2	3	4	5 and over	Total	1	2	3	4	5 and over
Montenegro	131 004	14 010	19 838	19 348	29 774	48 034	130 889	15 129	22 285	21 941	29 285	42 249
Urban	72 332	6 583	9 792	11 112	18 296	26 549	72 310	7 006	11 158	12 566	18 113	23 467
Other	58 672	7 427	10 046	8 236	11 478	21 485	58 579	8 123	11 127	9 375	11 172	18 782

Among 131 004 households that used solid fuels, there are: 115 144 those who resided in 2011 in family houses, i.e. 88.89%; 13 753 households resided in residential buildings, i.e. 10.50%; and 2 107 households, i.e. 1.61% in other types of buildings. The largest number of family buildings was built from the combination of brick and concrete, i.e. 10 709 or 78.8%.

Table 4.2 Type of building and material of building intended for living of households that used solid fuel

	Type of settlement	Type of building	Total	Number of buildings built from					
				Brick/ concrete	Stone	Wood	Brick/ stone	Wood/ stone	Other
MONTENEGRO	Total		131 004	104 192	10 948	3 082	7 449	4 160	1 173
		Family house	115 144	90 709	10 538	2 119	7 182	3 835	761
		Residential building	13 753	13 018	349	80	206	20	81
		Other	2 107	466	61	883	60	306	331
	Urban		72 332	62 743	3 838	1 134	2 850	1 142	625
		Family house	57 528	49 762	3 510	371	2 584	836	464
		Residential building	13 329	12 636	307	80	206	20	81
		Other	1 475	344	21	683	60	286	80
	Other		58 672	41 450	7 110	1 947	4 598	3 018	548
		Family house	57 616	40 947	7 028	1 748	4 598	2 998	297
		Residential building	424	382	42	-	-	-	-
		Other	632	121	40	200	-	20	251

Chart 4.1 Types of buildings for living of households that use solid fuels

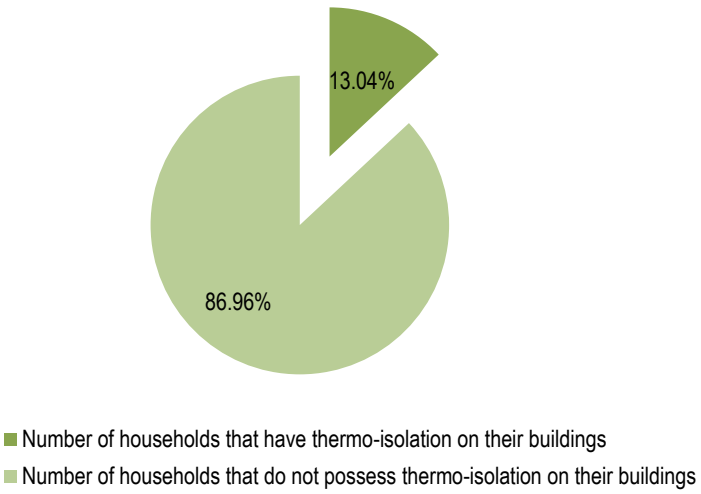


Among the total 131 004 households that used solid fuel in 2011, the number of households that possessed the thermo-isolation on their buildings is 17 082, i.e. 13%. The rest of 113 922 households did not possess any type of thermo-isolation on their buildings for living.

Table 4.3 Age and possession of thermo-isolation on buildings for living of households that used solid fuels

	Number of households with thermo-isolation on their buildings					Number of households with no thermo-isolation on their buildings				
	Age of building (years)					Age of building (years)				
	Total	do 5	6 - 10	11 - 20	Over 20	Total	do 5	6 - 10	11 - 20	Over 20
MONTENEGRO	17 082	2 078	2 737	3 415	8 851	113 922	2 616	5 277	11 964	94 066
Urban	10 439	1 417	1 433	2 010	5 579	61 893	1 112	2 393	6 359	52 030
Other	6 643	662	1 304	1 405	3 273	52 029	1 504	2 884	5 605	42 036

Chart 4.2 Age and possession of thermo-isolation on buildings for living of households that use solid fuel

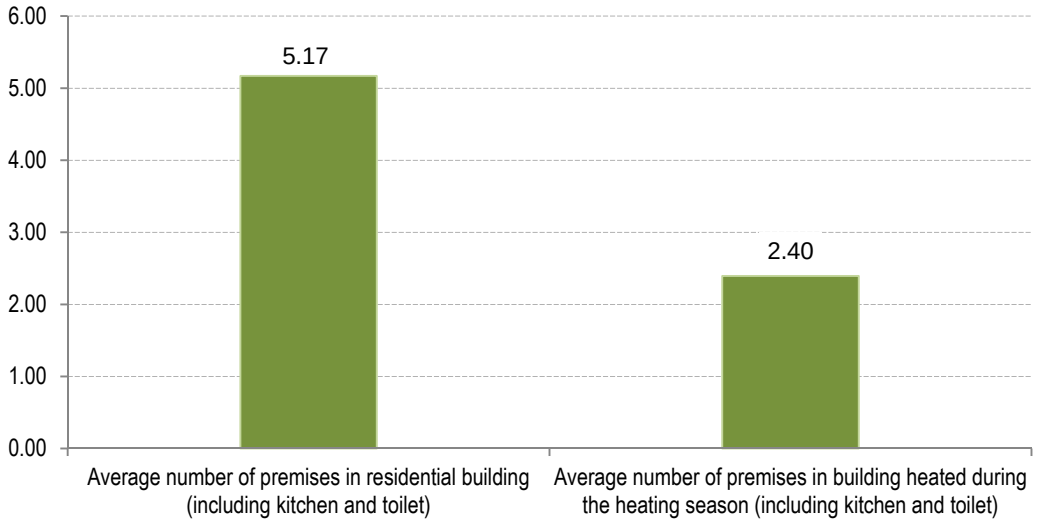


There was recorded that households in Montenegro using the solid fuels have in average 5 premises (including kitchen and toilet). Of this number, there are 2 premises heated during the heating season, which makes 46% of the average number of premises in buildings for living of households which use the solid fuels. An average heated area was 41 m^2 while the total average area of building for living was 85 m^2.

Table 4.4 Number of premises and area heated during heating season in building for living of households using solid fuels

	Average number of premises in residential building (including kitchen and toilet)	Average number of premises in building heated during the heating season (including kitchen and toilet)	Average area of residential building m^2	Average area heated within residential building duing heating season in m^2
MONTENEGRO	5.17	2.40	84.84	41.24
Urban	5.27	2.64	83.17	43.56
Other	5.05	2.10	86.89	38.37

Chart 4.3 Number of heated premises, 2011



The survey on the solid fuel consumption in households shows that of the total number of buildings used during the whole year by households (that use solid fuel) the largest number of buildings, i.e. 79 621 or 62%, have windows and doors over 20 years old.

Table 4.5 Number of buildings by manner of use and age of windows and doors in households that use solid fuels

	Number of buildings used during all year and age of windows and doors				Number of buildings used occasionally and age of windows and doors			
	ukupno	Age of windows and doors (years)			ukupno	Age of windows and doors (years)		
		0 - 10	11 - 20	Over 20		0 - 10	11 - 20	Over 20
Montenegro	128 283	32 296	16 368	79 621	2 721	625	440	1 656
Urban	71 442	18 358	9 048	44 036	890	241	123	526
Other	56 841	13 938	7 320	35 585	1 831	384	317	1 130

There are 61% of buildings which are used occasionally with windows and doors over 20 years old.

Chart 4.4 Age of windows and doors
In buildings used during all year

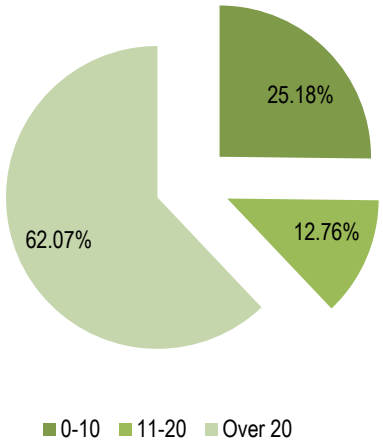
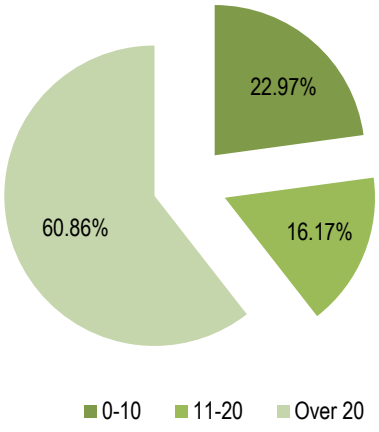


Chart 4.5 Age of windows and doors
in buildings periodicaly used



In Montenegro of total number of buildings in which there are households that use solid fuels, there are 66% of buildings with no isolation glass on windows, i.e. 86 431 households. This percentage is somewhat higher than among other households, i.e. approx. 70%, while there are 63% among urban households.

The total expenses of households for the purchase of firewood in Montenegro in 2011 were EUR 37 043 227.62. The average purchase value of firewood was EUR 53 per m^3, i.e. approx. EUR 37 per 1 stacked m^3. In average, urban households paid EUR 59 per m^3 for firewood, while other households purchased the firewood for EUR 45 per m^3. The price of firewood is much higher in the coastal towns, where, for example, in Kotor the average price for firewood was approx. EUR 87 per m^3. The cheapest firewood was purchased by households in Pljevlja and Pluzine in the amount of EUR 23 and 32 per m^3.

Table 4.6 Types, consumption and expenses of purchase of wood fuel for heating households

		Number of households that use certain type of fuel, individually and in combination with other fuels	Unit of Measurement	Total consumption in households in unit of measurement	Total expenses of households for purchase of fuel (EUR)
MONTENEGRO					
	Firewood	128 136	m^3	703 570.97	37 043 227.62
	Sawmill residues	7 168	m^3	36 509.79	381 759.00
	Wood briquettes	82	tona	61.71	8 268.32
	Wood pellets	142	Tonne	666.53	121 343.01
	Other wood fuels/ sawmill dust	-	m^3	-	-
	Other wood fuels/ wood chips		m^3	-	-
	Other wood fuels	1 052	m^3	5 253 86	3 583.24
Urban					
	Firewood	70 417	m^3	377 559.87	22 367 579.58
	Sawmill residues	2 865	m^3	14 716.75	155 412.49
	Wood briquettes	61	Tonne	61.30	7 456.93
	Wood pellet	102	Tonne	467.02	82 689.97
	Other wood fuels/ sawmill dust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	263	m^3	1 455.41	0.00
Other					
	Firewood	57 719	m^3	326 011.10	14 675 648.03
	Sawmill residues	4 303	m^3	21 793.04	226 346.51
	Wood briquettes	20	Tonne	0.41	811.38
	Wood pellet	39	Tonne	199.52	38 653.04
	Other wood fuels/ sawmill dust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	789	m^3	3 798.45	3 583.24

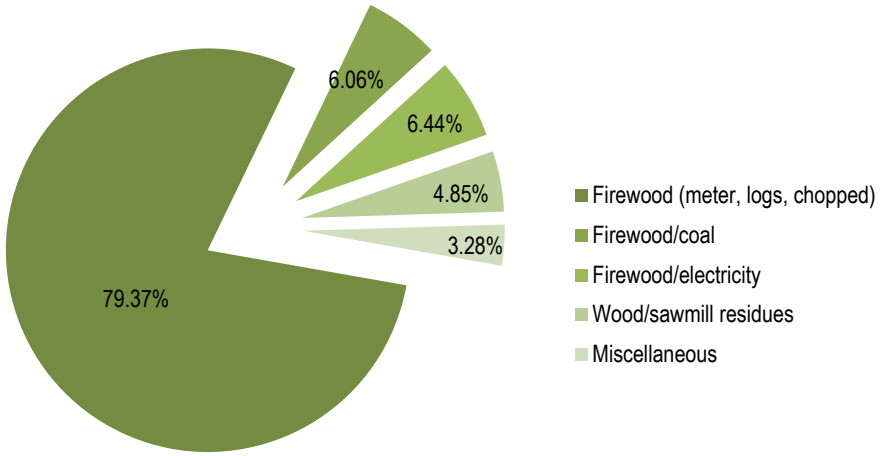
Note: the number of households that use a certain type of wood fuel covers the sum of household that use the mentioned wood fuel individually or combined with other fuels. Example: the number of households that use only firewood is 103 979, see table 4.7 + number of households that use firewood / residues 6 355 + firewood /electricity 8 435 and so on for all other combinations of firewood and wood fuels, what makes in the total sum 128 136 households that use firewood. The number of households using sawmill residues also covers the households that only use sawmill residues (527), as well as firewood/residues (6 355), residues/ coal (20) and so on, what makes in the total sum 7 168. Due to this, the total number of households in the sum for wood fuel is higher than compared with 131 004 – reported at the 2011 Population Census that use solid fuels, also confirmed with this survey. But, the total consumption of wood fuels covers only those types of fuels spent in households in the combination with other types of fuel, example: amount of 703 571 m^3 for firewood covers the consumption of firewood individually and in the combination with other fuels without the quantity of these other fuels.

Table 4.7 Combination of the most often used fuels for heating households

	Firewood (meter, logs, chopped)	Wood briquettes	Wood pellets	Firewood / coal	Firewood - electricity	Firewood coal/ electricity	Firewood/ briquettes	Wood briquettes/ coal	Coal	Wood/ sawmill residues	Electricity	Sawmill residues	Sawmill residues/ coal	Wood briquettes/ electricity	Gas	Firewood/ light destillate oil	Other combinations of wood fuel	Other combinations
Montenegro	**103 979**	**21**	**81**	**7 941**	**8 435**	**220**	**20**	**0**	**360**	**6 355**	**1 102**	**527**	**20**	**0**	**100**	**40**	**1 145**	**657**
Urban	57 114	21	81	5 767	4 531	e of0	0	0	339	2 236	785	383	20	0	40	40	509	244
Other	46 865	0	0	2 174	3 904	0	20	0	20	4 119	317	144	0	0	60	0	637	412

Of the total 131 004 households that used solid fuels in 2011, there are: over 79% or 103 979 households that used the firewood, followed by the households using the combination of firewood/electricity (6.4%) and firewood/ coal (6.1%). An important number makes the households that used firewood/ residues: 6 355 or approx. 5% of the total number of households that used solid fuels in 2011. Over 3% are households that used one of other combinations provided in Table 4.7.

Chart 4.6 Combinations of the most used fuels for heating households

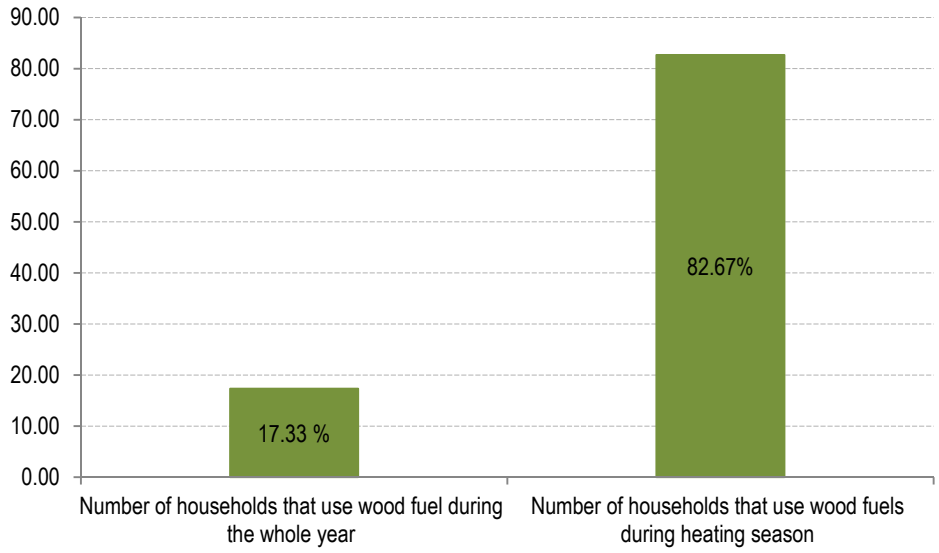


Of the total number of households that use wood fuels, there are 106 717 households in total, i.e. 83% that use wood fuel only during the heating season, while there are only 17% of households that use wood fuel during the whole year.

Table 4.8 Time period in which wood fuels are used for heating households

	Number of households that use wood fuel during all year	Number of households that use wood fuel during heating season
MONTENEGRO	22 365	106 717
Urban	4 931	65 915
Other	17 433	40 801

Chart 4.7 Wood fuel use during heating season and periodically

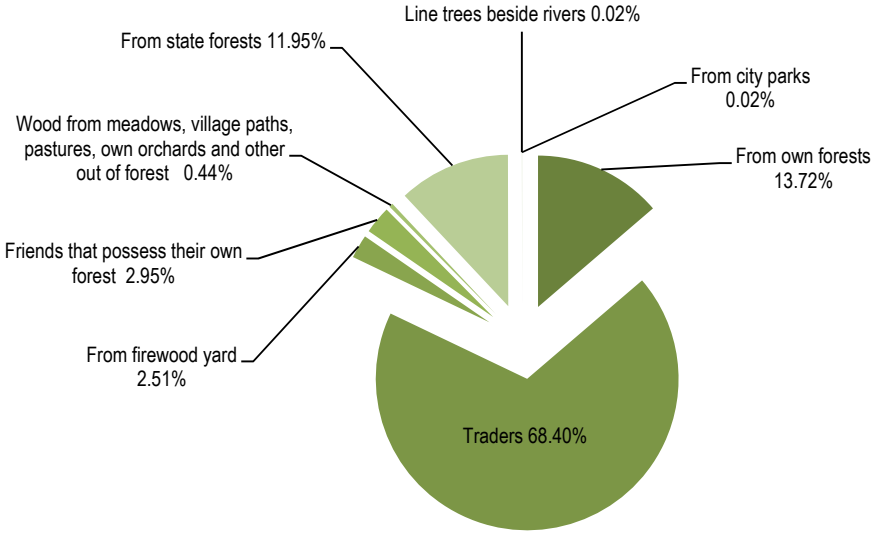


The survey provided that of the total quantity of firewood (703 571 m^3), there are provided by households: 481 236 m^3 or 68% households through traders; approx. 14% from own forest; and approx. 12% from state forests.

Table 4.9 Supply sources of wood fuel for households

Type of settlement, Type of fuel	Measurement unit	From own forests	Traders	From firewood yard	Friends that possess their own forest	Wood from meadows, village paths, pastures, own orchards and other out of forest	From state forests	Line trees beside rivers	From city parks	Sawmills	Wood briquette producers	Wood pellet producers
MONTENEGRO												
Firewood	m^3	96 533.73	481 236.48	17 657.34	20 724.48	3 079.69	84 065.79	106.58	166.88	0.00	0.00	0.00
Sawmill residues	m^3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	36 509.79	0.00	0.00
Wood briquettes	tona	0.00	61.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wood pellets	tona	0.00	467.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	199.52
Other wood fuels/ sawdust	m^3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other wood fuels/ wood chips	m^3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other fuels	prm	1 075.15	159.26	0.00	1 571.83	2 168.93	0.00	0.00	79.63	199.07	0.00	0.00
Urban												
Firewood	m^3	23 595.49	296 636.25	13 586.39	7 121.68	484.66	36 135.39	0.00	0.00	0.00	0.00	0.00
Sawmill residues	m^3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	14 716.75	0.00	0.00
Wood briquettes	tona	0.00	61.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wood pellets	tona	0.00	467.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other wood fuels/ sawdust	m^3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other wood fuels/ wood chips	m^3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other fuels	prm	59.57	0.00	0.00	63.30	1 332.55	0.00	0.00	0.00	0.00	0.00	0.00
Other												
Firewood	m^3	72 938.24	184 600.23	4 070.95	13 602.80	2 595.03	47 930.39	106.58	166.88	0.00	0.00	0.00
Sawmill residues	m^3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	21 793.04	0.00	0.00
Wood briquettes	tona	0.00	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wood pellets	tona	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	199.52
Other wood fuels/ sawdust	m^3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other wood fuels/ wood chips	0,00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other fuels		1 015.58	159.26	0.00	1 508.53	836.38	0.00	0.00	79.63	199.07	0.00	0.00

Chart 4.8 The most often supply sources of firewood



The survey on wood fuel consumption in 2011 confirms the general opinion that the most often appliance appliance for supply heating in households is wood-burning stove used by over 80% of households that use solid fuels. It follows wood stove with 9%, then approx. 6% wood-burning stove with central heating system set. Wood-burning stove is present as a dominant system for supply heating in 77% of urban households and in 84% of other households.

Table 4.10 Households by use of type of heating system

	Solid fuel boiler (wood, coal, briquettes)	Wood stove	Wood-burning stove	Wood-burning stove with central heating system built in	Wood pellet boiler	Wood pellet stove	Tile stove	Fireplace
MONTENEGRO	3 431	12 113	106 747	7 876	81	21	443	2 178
Urban	2 427	7 144	56 112	5 125	81	21	383	1 282
Other	1 004	4 969	50 635	2 751	0	0	60	896

Chart 4.9 Appliances for heating premises

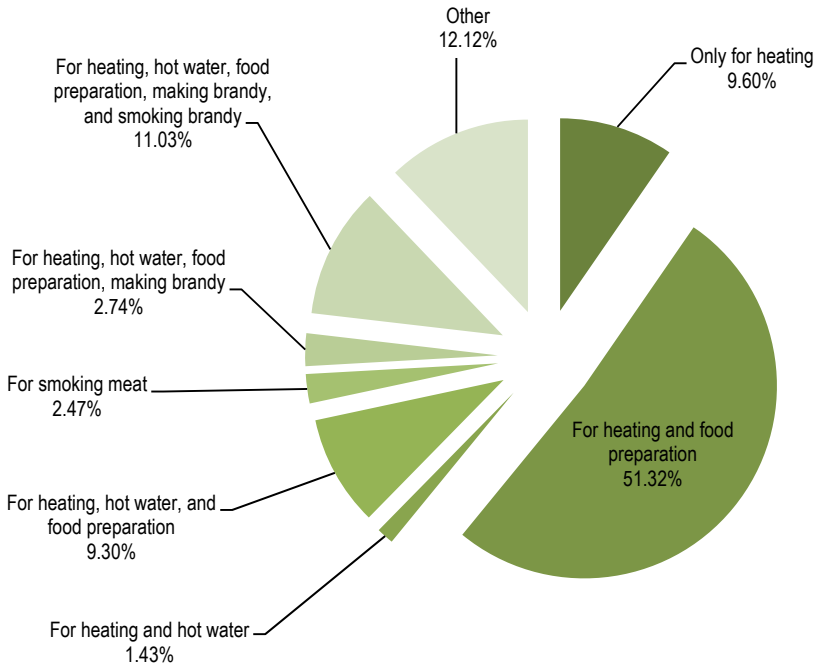
The largest number of wood-burning stove 69 269, i.e. approx. 65% compared with the total number is in the age group from 0 to 10 years.

Of the total number of combinations, the purpose for which the wood fuels are used in households, it is recorded that in 93 665 households or somewhat over 51%, the wood fuels are used for heating and preparing food. Small number of households, only 10%, uses wood fuels only for heating.

Table 4.11. Purpose of wood fuel use

	Only heating	For heating and food preparation	For heating and hot water	For heating, hot water and food preparation	For smoking meat	For heating , hot water, food preparation, making brandy	For heating, hot water, food preparation, making brandy and smoking meat	Other
MONTENEGRO	17 531	93 665	2 606	16 967	4 500	4 996	20 135	22 125
Urban	11 656	50 052	1 415	7 600	909	896	8 433	8 792
Other	5 875	43 613	1 191	9 367	3 591	4 100	11 702	13 333

Chart 4.10 Purpose of wood fuel use



V TABLE OVERVIEW BY MUNICIPALITIES FOR HOUSEHOLD SECTOR

Table 5.1. Types, consumption, and expenses of wood fuel purchases for heating households

Municipality Type of settlement	Type of fuel	Number of households that use certain type of fuel	Measurement unit	Total consumption in households in measurement unit	Total expenses of households for purchase of fuel (EUR)
MONTENEGRO					
	Firewood	128 136	m^3	703 570.97	37 043 227.62
	Sawmill residues	7 168	m^3	36 509.79	381 759.00
	Wood briquettes	82	tonne	61.71	8 268.32
	Wood pellet	142	tonne	666.53	121 343.01
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	1 052	m^3	5 253.86	3 583.24
Urban					
	Firewood	70 417	m^3	377 559.87	22 367 579.58
	Sawmill residues	2 865	m^3	14 716.75	155 412.49
	Wood briquettes	62	tonne	61.30	7 456.93
	Wood pellet	102	tonne	467.02	82 689.97
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	263	m^3	1 455.41	
other					
	Firewood	57 719	m^3	326 011.10	14 675 648.03
	Sawmill residues	4 303	m^3	21 793.04	226 346.51
	Wood briquettes	20	tonne	0.41	811.38
	Wood pellet	40	tonne	199.52	38 653.04
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	789	m^3	3 798.45	3 583.24
Andrijevica					
	Firewood	1 660	m^3	10 837.50	464 363.43
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Urban					
	Firewood				
	Sawmill residues	345	m^3	2 415.86	104 880.00
	Wood briquettes	-	m^3	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	tonne	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
other		-	m^3	-	-
	Firewood				
	Sawmill residues	1 315	m^3	8 421.64	359 483.43
	Wood briquettes	-	m^3	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	tonne	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-

Table 5.1. Types, consumption, and expenses of wood fuel purchases for heating households

/continued/

Municipality Type of settlement	Type of fuel	Number of households that use certain type of fuel	Measurement unit	Total consumption in households in measurement unit	Total expenses of households for purchase of fuel (EUR)
Bar					
	Firewood	6 769	m^3	26 323.33	1 883 243.57
	Sawmill residues	-	m^3	-	-
	Wood briquettes	21	tonne	21.10	2 532.00
	Wood pellet	21	tonne	21.10	3 587.00
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	580	m^3	3 007.92	3 583.24
Urban					
	Firewood	1 414	m^3	5 314.98	434 369.88
	Sawmill residues	-	m^3	-	-
	Wood briquettes	21	tonne	21.10	2 532.00
	Wood pellet	21	tonne	21.10	3 587.00
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	42	m^3	211.00	-
other					
	Firewood	5 355	m^3	21 008.35	1 448 873.70
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	537	m^3	2 796.92	3 583.24
Berane					
	Firewood	9 488	m^3	64 712.30	2 680 331.38
	Sawmill residues	2 253	m^3	13 528.24	133 569.28
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Urban					
	Firewood	3 260	m^3	25 597.60	1 067 883.82
	Sawmill residues	681	m^3	4 115.93	41 159.34
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
other					
	Firewood	6 228	m^3	39 114.70	1 612 447.56
	Sawmill residues	1 572	m^3	9 412.31	92 409.94
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-

Table 5.1. Types, consumption, and expenses of wood fuel purchases for heating households

/continued/

Municipality Type of settlement	Type of fuel	Number of households that use certain type of fuel	Measurement unit	Total consumption in households in measurement unit	Total expenses of households for purchase of fuel (EUR)
Bijelo Polje					
	Firewood	12 364	m^3	83 009.14	4 078 395.02
	Sawmill residues	1 953	m^3	6 678.48	78 713.96
	Wood briquettes	20	tonne	20.12	2 514.58
	Wood pellet	60	tonne	402.65	70 467.71
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Urban					
	Firewood	5 914	m^3	44 709.37	2 509 916.27
	Sawmill residues	1 006	m^3	3 735.67	49 285.83
	Wood briquettes	20	tonne	20.12	2 514.58
	Wood pellet	40	tonne	241.40	40 233.33
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
other					
	Firewood	6 450	m^3	38 299.77	1 568 478.75
	Sawmill residues	947	m^3	2 942.81	29 428.13
	Wood briquettes	-	tonne	-	-
	Wood pellet	20	tonne	161.25	30 234.38
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Budva					
	Firewood	1 317	m^3	5 259.97	339 432
	Sawmill residues	22	m^3	45.54	0.00
	Wood briquettes	-	tonne	-	-
	Wood pellet	19	tonne	38.27	8 418.67
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	134	m^3	650.53	0
Urban					
	Firewood	858	m^3	3 643.20	252 758
	Sawmill residues	22	m^3	45.54	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
other					
	Firewood	459	m^3	1 616.77	86 674.00
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	19	tonne	38.27	8 418.67
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	134	m^3	650.53	-

Table 5.1. Types, consumption, and expenses of wood fuel purchases for heating households

/continued/

Municipality Type of settlement	Type of fuel	Number of households that use certain type of fuel	Measurement unit	Total consumption in households in measurement unit	Total expenses of households for purchase of fuel (EUR)
Danilovgrad		5 020	m^3	23 897.19	1 732 962.10
	Firewood	-	m^3	-	-
	Sawmill residues	-	tonne	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	m^3	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	5 020	m^3	23 897.19	1 732 962.10
Urban					
	Firewood	1 782	m^3	8 337.19	618 928.20
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
other					
	Firewood	3 238	m^3	15 560.01	1 114 033.90
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Zabljak					
	Firewood	1 206	m^3	10 859.87	399 470.97
	Sawmill residues	149	m^3	734.85	6 390.00
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Urban					
	Firewood	567	m^3	4 682.29	221 700.40
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
other					
	Firewood	639	m^3	6 177.59	177 770.57
	Sawmill residues	149	m^3	734.85	6 390.00
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-

Table 5.1. Types, consumption, and expenses of wood fuel purchase for heating of households

/continued/

Municipality Type of settlement	Type of fuel	Number of households that use certain type of fuel	Measurement unit	Total consumption in households in measurement unit	Total expenses of households for purchase of fuel (EUR)
Kolasin					
	Firewood	2 773	m^3	20 675.09	853 205.00
	Sawmill residues	239	m^3	1 155.50	12 705.69
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Urban					
	Firewood	848	m^3	6 890.59	283 020.00
	Sawmill residues	85	m^3	424.00	4 664.00
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Other					
	Firewood	1 925	m^3	13 784.50	570 185.00
	Sawmill residues	154	m^3	731.50	8 041.69
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Kotor					
	Firewood	2 936	m^3	9 144.09	798 556.35
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	78	m^3	425.66	0
Urban					
	Firewood	1 114	m^3	3 370.91	278 030.33
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	20	m^3	195.50	-
other					
	Firewood	1 822	m^3	5 773.18	520 526.02
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	58	m^3	230.16	-

Table 5.1. Types, consumption, and expenses of wood fuel purchase for heating of households

/continued/

Municipality Type of settlement	Type of fuel	Number of households that use certain type of fuel	Measurement unit	Total consumption in households in measurement unit	Total expenses of households for purchase of fuel (EUR)
Mojkovac					
	Firewood	2 653	m^3	17 128.93	664 932.35
	Sawmill residues	135	m^3	653.23	7 180.68
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Urban					
	Firewood	1 117	m^3	7 403.74	361 418.75
	Sawmill residues	39	m^3	163.63	1 799.88
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
other					
	Firewood	1 536	m^3	9 725.18	303 13.60
	Sawmill residues	96	m^3	489.60	5 380.80
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Niksic					
	Firewood	18 554	m^3	97 925.74	5 880 305.38
	Sawmill residues	461	m^3	2 172.19	25 568.64
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Urban					
	Firewood	13 973	m^3	72 319.94	4 650 665.39
	Sawmill residues	242	m^3	1 206.20	14 942.71
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
other					
	Firewood	4 581	m^3	25 605.80	1 229 639.99
	Sawmill residues	219	m^3	965.99	10 625.93
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-

Table 5.1. Types, consumption, and expenses of wood fuel purchase for heating of households

/continued/

Municipality Type of settlement	Type of fuel	Number of households that use certain type of fuel	Measurement unit	Total consumption in households in measurement unit	Total expenses of households for purchase of fuel (EUR)
Plav					
	Firewood	3 473	m^3	27 390.44	1 177 357.50
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Urban					
	Firewood	1 430	m^3	12 558.46	626 789.43
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
other					
	Firewood	2 043	m^3	14 831.98	550 568.07
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Pluzine					
	Firewood	1 088	m^3	7 828.55	251 443.13
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Urban					
	Firewood	402	m^3	2 507.48	104 319.00
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
other					
	Firewood	686	m^3	5 321.07	147 124.13
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-

Table 5.1 Types, consumption, and expenses of wood fuel purchase for heating of households

/continued/

Municipality Type of settlement	Type of fuel	Number of households that use certain type of fuel	Measurement unit	Total consumption in households in measurement unit	Total expenses of households for purchase of fuel (EUR)
Pljevlja					
	Firewood	9 440	m^3	48 789.66	1 125 367.54
	Sawmill residues	1 009	m^3	7 280.26	72 725.50
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Urban					
	Firewood	5 380	m^3	19 068.94	673 250.00
	Sawmill residues	400	m^3	3 040.00	30 400.00
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
other					
	Firewood	4 060	m^3	29 720.72	452 117.54
	Sawmill residues	609	m^3	4 240.26	42 325.50
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Podgorica					
	Firewood	29 463	m^3	142 685.56	9 020 361.23
	Sawmill residues	20	m^3	27.72	0.00
	Wood briquettes	40	tonne	20.49	3 221.73
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	100	m^3	502.16	0
Urban					
	Firewood	21 593	m^3	102 136.14	6 817 372.48
	Sawmill residues	20	m^3	27.72	-
	Wood briquettes	20	tonne	20.09	2 410.35
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	100	m^3	502.16	-
other					
	Firewood	7 870	m^3	40 549.41	2 202 988.75
	Sawmill residues	-	m^3	-	-
	Wood briquettes	20	tonne	0.41	811.38
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-

Table 5.1. Types, consumption, and expenses of wood fuel purchase for heating of households

/continued/

Municipality Type of settlement	Type of fuel	Number of households that use certain type of fuel	Measurement unit	Total consumption in households in measurement unit	Total expenses of households for purchase of fuel (EUR)
Rozaje					
	Firewood	5 107	m^3	40 248.30	1 836 724.38
	Sawmill residues	927	m^3	4 233.78	44 905.26
	Wood briquettes	-	tonne	-	-
	Wood pellet	21	tonne	102.82	20 563.64
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Urban					
	Firewood	2 139	m^3	19 414.64	940 745.24
	Sawmill residues	370	m^3	1 958.07	13 160.73
	Wood briquettes	-	tonne	-	-
	Wood pellet	21	tonne	102.82	20 563.64
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
other					
	Firewood	2 968	m^3	20 833.66	895 979.15
	Sawmill residues	557	m^3	2 275.71	31 744.53
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Tivat					
	Firewood	1 675	m^3	6 137.90	395 250.15
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Urban					
	Firewood	936	m^3	3 620.28	231 408.45
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
other					
	Firewood	739	m^3	2 517.62	163 841.70
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-

Table 5.1. Types, consumption, and expenses of wood fuel purchase for heating of households

/continued/

Municipality Type of settlement	Type of fuel	Number of households that use certain type of fuel	Measurement unit	Total consumption in households in measurement unit	Total expenses of households for purchase of fuel (EUR)
Ulcinj					
	Firewood	4 106	m^3	17 426.50	878 101.32
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	20	tonne	101.70	18 306.00
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	81	m^3	487.37	0
Urban					
	Firewood	1 932	m^3	7 360.03	547 166.34
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	20	tonne	101.7	18 306.00
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	61	m^3	447.48	-
other					
	Firewood	2 174	m^3	10 066.47	330 934.98
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	20	m^3	39.89	-
Herceg Novi					
	Firewood	3 832	m^3	13 980.77	1 006 719.37
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	80	m^3	180.22	0.00
Urban					
	Firewood	1 708	m^3	6 536.37	476 354.63
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	40	m^3	99.28	-
other					
	Firewood	2 125	m^3	7 444.40	530 364.74
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	40	m^3	80.95	-

Table 5.1. Types, consumption, and expenses of wood fuel purchase for heating of households

/continued/

Municipality Type of settlement	Type of fuel	Number of households that use certain type of fuel	Measurement unit	Total consumption in households in measurement unit	Total expenses of households for purchase of fuel (EUR)
Cetinje					
	Firewood	4 537	m^3	24 529.01	1 421 688.79
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Urban					
	Firewood	3 553	m^3	18 479.55	1 115 959.99
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
other					
	Firewood	984	m^3	6 049.46	305 728.80
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Savnik					
	Firewood	674	m^3	4 781.13	155 016.67
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
Urban					
	Firewood	153	m^3	1 192.30	50 643
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-
other					
	Firewood	521	m^3	3 588.82	104 373.67
	Sawmill residues	-	m^3	-	-
	Wood briquettes	-	tonne	-	-
	Wood pellet	-	tonne	-	-
	Other wood fuels/ sawdust	-	m^3	-	-
	Other wood fuels/ wood chips	-	m^3	-	-
	Other wood fuels	-	m^3	-	-

VI CONSUMPTION OF WOOD BIOMASS IN INDUSTRY

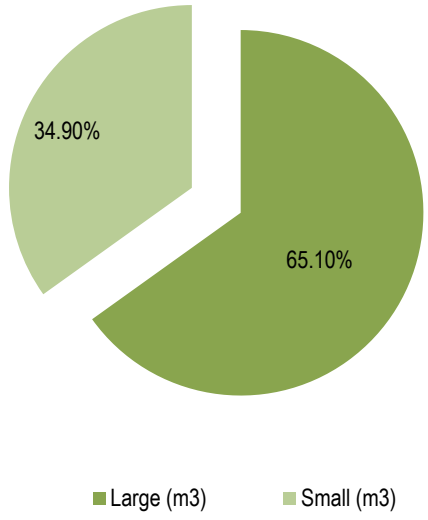
Within the primary wood processing in 2011 there were produced 119 453 m^3 of wood residues in total, of which there were 77 769 m^3 of large residues (sawmill residues), and 41 684 m^3 small wood residues (sawdust).

Table 6.1 Consumption of wood biomass in industry

	Processed quantity of logs in m^3	Produced quantity of wood residues		Spent quantity of wood residue for internal needs of industry	
		Large (m^3)	Small (m^3)	Large (m^3)	Small (m^3)
Primary wood processing	326 649	77 769	41 684	22 084	5 899

Compared with the total produced quantity of wood residues for internal needs of industry in 2011, there were spent 27 983 m^3, i.e. 23.4%. The rest of quantity represents export, quantity on domestic market for the purposes of heating households, or quantity deposited on landfills.

Chart 6.1 Produced quantity of wood residues



VII BALANCE OF PRODUCTION AND CONSUMPTION OF WOOD FUELS IN MONTENEGRO

The balance of production and consumption of wood fuels in Montenegro presents production and consumption of wood biomass in physical units of measurement as a result of survey carried out in 2012. Among wood energy commodities, the most used is firewood in households: 703 571 m^3.

Table 7.1 Balance of production and consumption of wood fuels, 2011

	Firewood and long-meter roundwood	Wood residue	Wood chips	Wood briquettes	Wood pellets	Charcoal
	m^3	m^3	t	t	t	t
Primary production	741 604	251	-	-	-	-
Import	-	-	-	48	948	599
Export	8 693	23 503	16 466	-	-	-
Stock changes	-	-	-	-	-	-
Bunkers	-	-	-	-	-	-
Statistical difference	-	-	-	-	-	-
Gross inland consumption	732 911	-23 166	-16 463	48	948	599
Transformation input	2 765	21 588	0	0	0	0
Thermal power plants	-	-	-	-	-	-
Thermal power plants - heating / CHP	-	-	-	-	-	-
Autoproducers	-	-	-	-	-	-
District heating plants	-	-	-	-	-	-
Charcoal kilns and retorts	2 765	251	-	-	-	-
Producers of wood pellets	-	-	-	-	-	-
Producers of wood briquettes	-	763	-	-	-	-
Producers of wood chips	-	20 574	-	-	-	-
Producers of wood residue	-	-	-	-	-	-
Other	-	-	-	-	-	-
Transformation output	0	115 115	16 466	375	0	440
Thermal power plants	-	-	-	-	-	-
Thermal power plants - heating / CHP	-	-	-	-	-	-
Autoproducers	-	-	-	-	-	-
District heating plants	-	-	-	-	-	-
Charcoal kilns and retotrs	-	-	-	-	-	440
Producers of wood pellets	-	-	-	-	-	-
Producers of wood briquettes	-	-	-	375	-	-
Producers of wood chips	-	-	16 466	-	-	-
Producers of wood residual	-	115 115		-	-	-
Other	-	-	-	-	-	-
Exchanges and transfers, returns	-	-	-	-	-	-
Consumption in the energy sector	-	-	-	-	-	-
Losses	-	-	-	-	-	-
Energy available for final consumption	730 146	70 361	3	423	948	1 039
Final consumption	730 146	70 361	3	423	948	1 039
Final Non-Energy consumption	0	-	0			
Of wich: Chemical industry	-	-	-	-	-	-
Final Energy consumption	730 146	70 361	3	423	948	1 039
Industry[1)]	-	28 234	3	-	-	-
Construction	-	-	-	-	-	-
Transport	-	-	-	-	-	-
Households	703 571	41 764	0	62	667	939
Agriculture	-	-	-	-	-	-
Other users	26 575	363	0	361	281	100

[1)] The total consumption of wood residues spent in the industry also covers the quantity of 251 m^3 spent on the charcoal production.

VIII NEW ENERGY BALANCE

The energy balance of fuel wood in Montenegro in 2011, modified by the Eurostat form, expressed in TJ, is represented with the following table:

Table 8.1 Energy balance of fuel wood in TJ, 2011

Balance of fuel wood for Montenegro, 2011	Firewood and long-meter roundwood	Wood residue	Wood chips	Wood briquettes	Wood pellets	Charcoal	Total
	TJ	TJ	TJ	TJ	TJ	TJ	TJ
Primary production	6 805.3	1.9	-	-	-	-	6 807.2
Recovered products	-	-	-	-	-	-	
Imports	-	0.6	0.0	0.8	16.0	17.6	35.0
Stock change	-	-	-	-	-	-	-
Exports	79,8	174,2	206,4	-	-	-	460,4
International bunkers	-	-	-	-	-	-	-
Gross inland consumption	6 725,5	-171,7	- 206,4	0,8	16,0	17,6	6 381,8
Transformation input	-	-	-	-	-	-	-
Thermal power plants (Main producers)	-	-	-	-	-	-	-
Thermal power plants (Autoproducers)	-	-	-	-	-	-	-
Cogeneration (CHP) plants (Main producers)	-	-	-	-	-	-	-
Cogeneration (CHP) plants (Autoproducers)	-	-	-	-	-	-	-
Heat-only plants (Main producers)	-	-	-	-	-	-	-
Heat-only plants (Autoproducers)	-	-	-	-	-	-	-
Patent fuel. briquetting and coke-oven plants	-	-	-	-	-	-	-
Oil refineries	-	-	-	-	-	-	-
Transformation output	-	-	-	-	-	-	-
Thermal power plants (Main producers)	-	-	-	-	-	-	-
Thermal power plants (Autoproducers)	-	-	-	-	-	-	-
Cogeneration (CHP) plants (Main producers)	-	-	-	-	-	-	-
Cogeneration (CHP) plants (Autoproducers)	-	-	-	-	-	-	-
Heat-only plants (Main producers)	-	-	-	-	-	-	-
Heat-only plants (Autoproducers)	-	-	-	-	-	-	-
Patent fuel. briquetting and coke-oven plants	-	-	-	-	-	-	-
Oil refineries	-	-	-	-	-	-	-
Exchanges and transfers, returns	-	853.3	206.4	6.1	-	12.9	1 078.7
Interproduct transfers	-	853.3	206.4	6.1	-	12.9	1 078.7
Products transferred	-	-	-	-	-	-	-
Returns from petrochem. Industry	-	-	-	-	-	-	-

Table 8.1 Energy balance of fuel wood in TJ, 2011.

/continued/

Balance of fuel wood for Montenegro, 2011	Firewood and long-meter roundwood	Wood residue	Wood chips	Wood briquettes	Wood pellets	Charcoal	Total
	TJ	TJ	TJ	TJ	TJ	TJ	TJ
Consumption of the energy branch	-	-	-	-	-	-	-
Distribution losses	-	-	-	-	-	-	-
Available for final consumption	6 725.5	681.6	0.0	6.9	16.0	30.5	7 460.5
Final non-energy consumption	25.4	160.1	-	-	-	-	185.5
Chemical industry	-	-	-	-	-	-	-
Other sectors and industry	25.4	160.1	-	-	-	-	185.5
Final energy consumption	6 700.1	521.5	0.0	6.9	16.0	30.5	7 275.0
Industry	-	209.3	0.0	-	-	-	209.3
Iron & steel industry	-	-	-	-	-	-	-
Non-ferrous metal industry	-	-	-	-	-	-	-
Chemical industry	-	-	-	-	-	-	-
Glass, pottery & building mat. industry	-	-	-	-	-	-	-
Ore-extraction industry	-	-	-	-	-	-	-
Food, drink & tobacco industry	-	-	-	-	-	-	-
Textile, leather & clothing industry	-	-	-	-	-	-	-
Paper and printing	-	-	-	-	-	-	-
Engineering & other metal industry	-	-	-	-	-	-	-
Other industries	-	209.3	0.0	-	-	-	209.3
Transport	-	-	-	-	-	-	-
Railways	-	-	-	-	-	-	-
Road transport	-	-	-	-	-	-	-
Air transport	-	-	-	-	-	-	-
Inland navigation	-	-	-	-	-	-	-
Other transport	-	-	-	-	-	-	-
Households, commerce, pub. auth. etc.	6 700.1	312.3	-	6.9	15.9	30.4	7 065.6
Households	6 456.2	309.6	-	0.0	11.2	27.5	6 805.5
Agriculture	-	-	-	-	-	-	-
Other sectors	243.9	2.7	-	5.9	4.7	2.9	260.1
Statistical difference	-	-	-	-	-	-	-

According to the energy balance, the quantity of produced wood energy commodity supplied by other wood energy commodity consumption is represented in the line of transfers of products. The mentioned quantity of wood energy commodity spent for the production of other wood energy commodity is represented as a non-energy consumption of energy commodity in industry and other sectors. The total final consumption of wood energy that includes the consumption of all wood fuel categories in 2011 in Montenegro is 7 275 TJ. The most important category of wood fuel consumers is consisted of households with the consumption of 6 805.59 TJ or 93% of the total final consumption. Other sectors, also covering commercial and school buildings, participate with the consumption of 260.1 TJ, i.e. 4% of the total final consumption. The rest of wood fuel is spent in industry

Calorific values of individual wood energy commodities that were used for the re-calculation from the physical units are provided in the following table:

Tabela 8.2. Calorific values of wood energy commodities:

Energy commodity/ physical unit	t	m^3	TJ	kwh
Firewood	-	1	0.0091764	2 549
Wood residue	-	1	0.0074124	2 059
Wood chips:				
Softwood	1	-	0.0125352	3 482
Hardwood	1	-	0.0119736	3 326
Wood briquettes	1	-	0.01638	4 550
Wood pellets	1	-	0.016848	4 680
Charcoal	1	-	0.029302	8 139

Source: Glavonjic B. 2011. Wood fuels: types, characteristics and benefits of heating, SNV, Podgorica, Montenegro

IX ANNEX FORMS

MONTENEGRO

Statistical Office

MONSTAT

Podgorica, IV Proleterske no.2

www.monstat.org

Pilot form: ŠUM BIO - 1

Law on Official Statistics and Statistical System Off. Gazette of MNE 18/12

THE 2011 ANNUAL SURVEY OF WOOD FUELS CONSUMPTION IN HOUSEHOLDS

Date of survey …….. ☐☐ ☐☐ *2012* *Beginning of survey ……* ☐☐ ☐☐

1. HOUSEHOLD IDENTIFICATION DATA

☐☐☐☐☐	☐☐☐☐	☐☐☐	☐☐☐	☐☐
municipality	**spatial statistical unit**	**apartment**	**household**	**Ord. no. on list**

Name and surname: _____

Place (settlement) _____

Address: _____

2. HOUSEHOLD STRUCTURE

2.1. How many members does your household have ……. ☐☐

2.2. How many members do permanently reside in your household …… ☐☐

3. CHARACTERISTICS OF RESIDENTIAL BUILDING (HOUSE/APARTMENT)

3.1. What type of building do you use for living ***(circle one of the answers offered)***

1. *Family house*
2. *Apartment in an apartment building*
3. *Other (indicate what)* _____

Individual data will be used for statistical purposes exclusively and will be presented in aggregate form.
Please listen to the questions because you are obliged to give correct answers.

3.2. What kind of material was used for the construction of your residential building
(circle one of the answers offered)

1. *brick/concrete*
2. *stone*
3. *wood*
4. *combination brick/stone*
5. *combination wood/stone*
6. *other (indicate what)* _____

3.3. Does your residential building have thermal insulation (*demit and the alike*) *yes* *no*
(circle one of the answers offered) 1 0

3.4. What is the age of your residential building *(circle one of the answers offered)*

1. *up to 5 years*
2. *from 6 to 10 years*
3. *from 11 to 20 years*
4. *more than 20 years*

3.5. How many rooms does your residential building have *(including the kitchen and toilet)* | | |

3.6. How many rooms are heated during the heating season
(including the kitchen and toilet) | | |

3.7. What is the total surface area of your residential building (m^2) | | | |

3.8. How many m^2 of your building is heated during the heating season | | | |

3.9. What is the age of windows and doors on your residential building in years
(circle one of the answers offered)

1. *from 0 to 10 years*
2. *from 11 to 20 years*
3. *more than 20 years*

3.10. Do windows on your residential building *(circle one of the answers offered)*

1. have glasses with thermal insulation
2. do not have glasses with thermal insulation

3.11. Do you live in your residential building *(circle one of the answers offered)*

1. *during the entire year*
2. *occasionally*

4. FUEL CONSUMPTION IN A HOUSEHOLD

4.1. What kinds of fuel do you use for your household and what was their consumption in 2011

(Enter data for all types of fuel used in the specific household):

Ordinal number	Type of fuel	Unit	Quantity in a unit	Average price at which fuel was purchased (€ /unit)	Total household costs for that quantity of fuel (€)
			1	2	3
1	Firewood by the cubic metre	prm			
2	Chopped wood	prm			
3	Small logs	prm			
4	Sawmill residues	prm			
5	Wood briquettes	tons			
6	Wood pellets	tons			
7	Other wood fuels (e.g. woodchips, sawdust). Indicate what:	prm			
8	Coal	tons			
9	Electric energy (for heating)	kWh			
10	Fuel oil	litres			
11	Heavy fuel oil	tons			
12	Fuel gases (for heating)				
13	Other (indicate what):				

Note 1 Circle as many combinations of wood fuels as the specific household actually used in that heating season.
Note 2 State under item ' fuel gases' the unit indicated by the respondent and other data in columns 1-3.
Note 3 Indicate under item 'other' the type of fuel used, the unit, and other data in columns 1-3.
Note 4 If the respondent gives data on consumption of pellets in kilograms, they need to be converted into tonnes. The ratio is 1 ton = 1,000 kilograms. The same note relates to wood briquettes as well.

4.2. Do you spend the above quantity of wood fuels

(circle one of the answers offered)

1. *during the entire year*
2. *during the heating season only*

4.3. How did you procure fuels for your household's needs (state in quantities)

Ordinal number	Type of fuel	Unit	Supply source												
			From own forest	From traders	I purchase from a firewood yard	From an acquaintance/friend with his own forest	Wood from meadows, village paths, pastures, from own orchard and other wood outside forests	From state forests (forest management, national parks)	Other sources						
									From lines of trees alongside rivers	From city parks	From the sawmill	From the petrol station	From the vineyard	From a manufacturer of wood briquettes	From a manufacturer of wood pellets
			1	2	3	4	5	6	7	8	9	10	11	12	13
1.	Firewood by the cubic metre	prm													
2.	Chopped wood	prm													
3.	Small logs	prm													
4.	Sawmill residues	prm													
5.	Wood briquettes	tons													
6.	Wood pellets	tons													
7.	Other wood fuels (e.g. wood chips, sawdust). Indicate:	prm													
8.	Coal	tons													
9.	Electric energy	kWh													
10.	Fuel oil	litres													
11.	Heavy fuel oil	tons													
12.	Fuel gases														
13.	Other (indicate what):														

Note 1 *Enter data for all fuel supply sources for a particular household.*
Note 2 *Mark of unit prm = loose cubic meter*
Note 3 *If the respondent gives data on consumption of pellets in kilograms, they need to be converted into tonnes. The ratio is 1 ton = 1,000 kilograms. The same note relates to wood briquettes as well.*
Note 4 *When using a combination of solid and liquid fuels, data are to be entered in units. Example 1. Chopped wood 10 prm from trader and 200 litres of fuel oil from the petrol station.*

5. HEATING SYSTEMS

5.1. Which device (system) do you use for heating your household and what is the scope of its age?

(circle the number of devices – systems owned by the specific household)

Ordinal number	*Type of device*	*Scope of devices' age in years (circle one of the answers offered)*			
		1	2	3	4
1.	Solid fuel boiler (coal, wood, briquettes)	1. 0-10	2. 11-15	3. 16-20	4. 21 and more
2.	Wood-burning heater	1. 0-10	2. 11-15	3. 16-20	4. 21 and more
3.	Wood-burning stove	1. 0-10	2. 11-15	3. 16-20	4. 21 and more
4.	Wood-burning stove with central heating system built in	1. 0-10	2. 11-15	3. 16-20	4. 21 and more
5.	Wood pellet boiler	1. 0-2	2. 3-5	3. 6 and more	
6.	Wood pellet stove	1. 0-2	2. 3-5	3. 6 and more	
7.	Tile stove	1. 0-10	2. 11-15	3. 16-20	4. 21 and more
8.	Accumulation stove	1. 0-10	2. 11-15	3. 16-20	4. 21 and more
9.	Electric boiler	1. 0-10	2. 11-15	3. 16-20	4. 21 and more
10.	Air-conditioning device	1. 0-10	2. 11-15	3. 16-20	4. 21 and more
11.	Fuel oil heater	1. 0-10	2. 11-15	3. 16-20	4. 21 and more
12.	Heater	1. 0-10	2. 11-15	3. 16-20	4. 21 and more
13.	Fireplace	1. 0-10	2. 11-15	3. 16-20	4. 21 and more
14.	Fuel gases device	1. 0-10	2. 11-15	3. 16-20	4. 21 and more
15.	Other (indicate what):	1. 0-10	2. 11-15	3. 16-20	4. 21 and more

5.2. For what purposes do you use firewood and wood fuels (briquettes, pellets and others)

(circle the number of answers indicated by the specific household)

1. *Only for heating*
2. *For heating and cooking food*
3. *For heating and hot water*
4. *For heating, hot water and cooking food*
5. *For distilling brandy*
6. *For smoking meat*
7. *Other (indicate what):*
   .....

End of survey..... ☐☐ ☐☐ *Date of control .....* ☐☐ ☐☐

Surveyor's signature: _____ **Instructor's signature** _____

Respondent's signature: _____

MONTENEGRO
Statistical Office

MONSTAT

Podgorica, IV Proleterske no.2
www.monstat.org

Pilot form: ŠUM BIO - 2

Law on Official Statistics and Statistical System
Off. Gazette of MNE 18/12

THE 2011 ANNUAL SURVEY OF WOOD FUELS CONSUMPTION IN SCHOOLS AND KINDERGARTENS

1. IDENTIFICATION DATA

Type of educational institution: (one survey filled out for one educational institution)

1. *Kindergarten* 2. *Elementary school* 3. *High school*

(Circle the type of educational institution)

Name of educational institution _____

Municipality: _____

Settlement: _____

Address: _____ **Telephone:** _____

2. FUEL CONSUMPTION IN THE EDUCATIONAL INSTITUTION

2.1. How much individual types of fuel did your educational institution consume ***(Enter data for all types of fuel used in the specific educational institution for each branch school):***

Ordinal number	*Type of fuel*	*Unit*	*Quantity*
			1
1	*Firewood by the cubic metre*	prm	
2	*Chopped wood*	prm	
3	*Small logs*	prm	
4	*Sawmill residues*	prm	
5	*Wood briquettes*	tons	
6	*Wood pellets*	tons	
7	*Other wood fuels (e.g. woodchips, sawdust). Indicate what: ……..*	prm	
8	*Coal*	tons	
9	*Electric energy*	*kWh*	
10	*Fuel oil*	*liters*	
11	*Heavy fuel oil*	*tons*	
12	*Gas fuels (enter unit and quantity)*		
13	*Other (indicate what): ……*		

Note: Common units for fire wood are prm=loose cubic metre and m^3= cubic metre. This table requires data in prm. In case you require data in m^3, they need to be converted in prm, by multiplying that piece of data by the coefficient 1.43.

3. HEATING SYSTEMS

3.1. Which device(s) do you use for heating the building(s) of your educational institution, what is the scope of their age, their number in the building(s) and the total installed power?

(Circle the number of devices-systems owned by the specific educational institution)

Ordinal number	*Type of device*	*Scope of devices' age in years (choose one of the offered answers)*				*What is the installed power in kW*	*Number of devices in the building*
		1	*2*	*3*	*4*	*5*	*6*
1	Solid fuel boiler (coal, wood, briquettes)	**1.** 0-10	**2.** 11-15	**3.**16-20	**4.** 21 and more		
2	Wood-burning heater	**1.** 0-10	**2.** 11-15	**3.**16-20	**4.** 21 and more		
3	Wood-burning stove	**1.** 0-10	**2.** 11-15	**3.**16-20	**4.** 21 and more		
4	Wood-burning stove with central heating system built in	**1.** 0-10	**2.** 11-15	**3.**16-20	**4.** 21 and more		
5	Wood pellet boiler	**1.** 0-2	**2.** 3-5	**3.** 6 and more			
6	Wood pellet stove	**1.** 0-2	**2.** 3-5	**3.** 6 and more			
7	Tile stove	**1.** 0-10	**2.** 11-15	**3.**16-20	**4.** 21 and more		
8	Accumulation stove	**1.** 0-10	**2.** 11-15	**3.**16-20	**4.** 21 and more		
9	Electric boiler	**1.** 0-10	**2.** 11-15	**3.**16-20	**4.** 21 and more		
10	Air-conditioning device	**1.** 0-10	**2.** 11-15	**3.**16-20	**4.** 21 and more		
11	Fuel oil heater	**1.** 0-10	**2.** 11-15	**3.**16-20	**4.** 21 and more		
12	Heater	**1.** 0-10	**2.** 11-15	**3.**16-20	**4.** 21 and more		
13	Fireplace	**1.** 0-10	**2.** 11-15	**3.**16-20	**4.** 21 and more		
14	Fuel gases device	**1.** 0-10	**2.** 11-15	**3.**16-20	**4.** 21 and more		
15	Other (indicate what):	**1.** 0-10	**2.** 11-15	**3.**16-20	**4.** 21 and more		

3.2. What is the surface area in m^2 of the heated building:

3.3. What is the age of the building: (choose one of the offered answers)

1. up to 10 years
2. from 11 to 20 years
3. from 21 to 30 years
4. more than 30 years

3.4. Does your building have thermal insulation (demit and the alike) (choose one of the offered answers)

1. yes
2. no

3.5 Which material was used to construct the building(s):(circle one of the answers offered)

1. brick/concrete 2. stone 3. wood 4. wood/stone
4. prefabricated building 5. brick/stone 6.other

3.6. Do windows on the building:

1) have glasses with thermal insulation
2) do not have glasses with thermal insulation
(choose one of the offered answers)

3.7. What are the supply sources of wood fuels

a) from state forests
b) from private forests
c) other (indicate what) _____

Name and surname of the person who filled out the survey: _____

Authenticated by the Head/Director

Date: _____ **L.S.** _____

MONTENEGRO
Statistical Office
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Pilot form: ŠUM BIO - 3

Law on Official Statistics and Statistical System Off. Gazette of MNE 18/12

THE 2011 ANNUAL SURVEY OF WOOD FUELS CONSUMPTION IN BAKERIES

1. IDENTIFICATION DATA

Name of bakery: _____

Company registration number | | | | | | | | | for companies

PIN | | | | | | | | | | | | | for entrepreneurs

Municipality: _____

Address: _____ **Telephone:** _____

2. TYPES OF FUEL

2.1. What type of fuel do you use ***(Circle 1 for yes and 0 for no, it is possible to select several modalities offered)***

Ordinal number	*Type of fuel*	*for baking bread and pastries*		*for heating the buildings of your bakery*	
		yes	*no*	*yes*	*no*
		1	*2*	*3*	*4*
1.	*Firewood by the cubic metre*	*1*	*0*	*1*	*0*
2.	*Chopped firewood*	*1*	*0*	*1*	*0*
3.	*Small logs*	*1*	*0*	*1*	*0*
4.	*Sawmill residues*	*1*	*0*	*1*	*0*
5.	*Wood briquettes*	*1*	*0*	*1*	*0*
6.	*Wood pellets*	*1*	*0*	*1*	*0*
7.	*Other wood fuels (e.g. woodchips, sawdust). Indicate what: .....*	*1*	*0*	*1*	*0*
8.	*Coal*	*1*	*0*	*1*	*0*
9.	*Electric energy*	*1*	*0*	*1*	*0*
10.	*Fuel oil*	*1*	*0*	*1*	*0*
11.	*Heavy fuel oil*	*1*	*0*	*1*	*0*
12.	*Fuel gases*	*1*	*0*	*1*	*0*
13.	*Other (indicate what).....*	*1*	*0*	*1*	*0*

3. FUEL CONSUMPTION IN THE BAKERY

3.1. How much different fuels did you consume in your bakery in 2011

(Enter data for all types of fuel used in the specific household):

Ordinal number	*Type of fuel*	*Unit*	*Quantity in a unit*	*Average price at which fuel was purchased (€ /unit)*	*Total costs for that quantity of fuel (€)*
			1	*2*	*3*
1	*Firewood by the cubic metre*	*prm*			
2	*Chopped wood*	*prm*			
3	*Small logs*	*prm*			
4	*Sawmill residues*	*prm*			
5	*Wood briquettes*	*tons*			
6	*Wood pellets*	*tons*			
7	*Other wood fuels (e.g. woodchips, sawdust). Indicate what: .....*	*prm*			
8	*Coal*	*tons*			
9	*Electric energy (for heating)*	*kWh*			
10	*Fuel oil*	*litres*			
11	*Heavy fuel oil*	*tons*			
12	*Fuel gases (for heating)*				
13	*Other (indicate what): .....*				

Note 1: Indicate under item 'fuel gases' the unit stated by the respondent and other data in columns 1-3.

Note 2: Indicate under item 'other' the type of fuel used, the unit, and other data in columns 1-3.

Note 3: If the respondent gives data on consumption of pellets in kilograms, they need to be converted into tonnes. The ratio is 1 ton = 1,000 kilograms. The same note relates to wood briquettes as well.

3.2. How did you obtain the fuel for your needs (indicate in quantities)

Ordinal number	Type of fuel	Unit	Supply source												
			From own forest	From traders	I purchase from a firewood yard	From an acquaintance/friend with his own forest	Wood from meadows, village paths, pastures, from own orchard and other wood outside forests	From state forests (forest management, national parks)	From lines of trees alongside rivers	From city parks	From the sawmill	From the petrol station	From the vineyard	From a manufacturer of wood briquettes	From a manufacturer of wood pellets
			1	2	3	4	5	6	7	8	9	10	11	12	13
1.	Firewood by the cubic metre	prm													
2.	Chopped wood	prm													
3.	Small logs	prm													
4.	Sawmill residues	prm													
5.	Wood briquettes	tons													
6.	Wood pellets	tons													
7.	Other wood fuels (e.g. woodchips, sawdust). Indicate:	prm													
8.	Coal	tons													
9.	Electric energy	kWh													
10.	Fuel oil	litres													
11.	Heavy fuel oil	tons													
12.	Fuel gases														
13.	Other (indicate what):														

Note 1 *Enter data for all fuel supply sources for a particular household.*
Note 2 *Mark of unit prm = loose cubic meter*
Note 3 *If the respondent gives data on consumption of pellets in kilograms, they need to be converted into tonnes. The ratio is 1 ton = 1,000 kilograms. The same note relates to wood briquettes as well.*
Note 4 *When using a combination of solid and liquid fuels, data are to be entered in units. Example 1. Chopped wood 10 prm from trader and 200 litres of fuel oil from the petrol station.*

4. HEATING SYSTEMS

4.1. Which device (system) do you use for heating your bakery, what was the scope of its age and what is its installed power in kW?

(Circle the number of devices-systems owned by the specific bakery)

Ordinal number	*Type of device*	*Scope of age of devices in years (circle one of the answers offered)*				*Total installed power of device in kW*
		1	*2*	*3*	*4*	*5*
1	Solid fuel boiler (coal, wood, briquettes)	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
2	Wood-burning heater	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
3	Wood-burning stove	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
4	Wood-burning stove with central heating system built in	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
5	Wood pellet boiler	**1.** 0-2	**2.** 3-5	**3.** 6 and more		
6	Wood pellet stove	**1.** 0-2	**2.** 3-5	**3.** 6 and more		
7	Tile stove	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
8	Accumulation stove	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
9	Electric boiler	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
10	Air-conditioning device	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
11	Fuel oil heater	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
12	Heater	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
13	Fireplace	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
14	Fuel gases device	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
15	Other (indicate what):	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	

4.2. How many loaves of bread are baked with one loose cubic meter of wood in your bakery

(Enter data under 1 or circle answer under 2)

1. *Loaves of bread* | | | | | |
2. *Don't know*

Individual data will be used for statistical purposes exclusively and will be presented in aggregate form.
You are under an obligation to provide accurate and complete answers.

Surveyor's signature _____

Instructor's signature _____

Respondent's signature: _____

Date: _____

MONTENEGRO

Statistical Office

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Pilot form: ŠUM BIO - 4

Law on Official Statistics and Statistical System Off. Gazette of MNE 18/12

THE 2011 ANNUAL SURVEY OF WOOD FUELS CONSUMPTION IN GRILL HOUSES

1. IDENTIFICATION DATA

Company registration number: ☐☐☐☐☐☐☐☐ for companies

PIN ☐☐☐☐☐☐☐☐☐☐☐☐☐ for entrepreneurs

Name of the grill house _____

Municipality: _____

Address: _____ **Telephone:** _____

2. TYPES OF FUEL

2.1. What type of fuel do you use? ***(circle 1 for yes, 0 for no; it is possible to circle several offered modalities)***

Ordinal number	*Type of fuel*	*for baking meat*		*for heating the buildings of your grill house*	
		yes	*no*	*yes*	*no*
		1	*2*	*3*	*4*
1.	*Firewood by the cubic metre*	*1*	*0*	*1*	*0*
2.	*Chopped firewood*	*1*	*0*	*1*	*0*
3.	*Small logs*	*1*	*0*	*1*	*0*
4.	*Sawmill residues*	*1*	*0*	*1*	*0*
5.	*Wood briquettes*	*1*	*0*	*1*	*0*
6.	*Wood pellets*	*1*	*0*	*1*	*0*
7.	*Other wood fuels (e.g. woodchips, sawdust). Indicate what: ……..*	*1*	*0*	*1*	*0*
8.	*Wood coal (charcoal)*	*1*	*0*	*1*	*0*
9	*Coal*	*1*	*0*	*1*	*0*
10.	*Electric energy*	*1*	*0*	*1*	*0*
11.	*Fuel oil*	*1*	*0*	*1*	*0*
12.	*Heavy fuel oil*	*1*	*0*	*1*	*0*
13.	*Fuel gases*	*1*	*0*	*1*	*0*
14.	*Other (indicate what)……..*	*1*	*0*	*1*	*0*

3. FUEL CONSUMPTION IN THE GRILL HOUSE

3.1. How much different fuels did you consume in your grill house in 2011

(Enter data for all types of fuel used in the specific household):

Ordinal number	*Type of fuel*	*Unit*	*Quantity in a unit*	*Average price at which fuel was purchased* (€ /unit)	*Total costs for that quantity of fuel (€)*
			1	*2*	*3*
1	*Firewood by the cubic metre*	*prm*			
2	*Chopped wood*	*prm*			
3	*Small logs*	*prm*			
4	*Sawmill residues*	*prm*			
5	*Wood briquettes*	*tons*			
6	*Wood pellets*	*tons*			
7	*Other wood fuels* (e.g. woodchips, sawdust). *Indicate what:*	*prm*			
8	*Wood coal (charcoal)*	*kg*			
9	*Coal*	*tons*			
10	*Electric energy (for heating)*	*kWh*			
11	*Fuel oil*	*liters*			
12	*Heavy fuel oil*	*tons*			
13	*Fuel gases (for heating)*				
14	*Other (indicate what):*				

Note 1: Indicate under item 'fuel gases' the unit stated by the respondent and other data in columns 1-3.

Note 2: Indicate under item 'other' the type of fuel used, the unit, and other data in columns 1-3.

Note 3: If the respondent gives data on consumption of pellets in kilograms, they need to be converted into tonnes. The ratio is 1 ton = 1,000 kilograms. The same note relates to wood briquettes as well.

3.2. How did you obtain the fuel for your grill house (indicate in quantities)

Ordinal number	*Type of fuel*	Unit	Supply source												
			From own forest	From traders	I purchase on firewood yard	Wood from meadows, village paths, pastures, from own orchard and other wood outside forests	Wood from meadows, village paths	From state forests (forest management, national parks)	From lines of trees alongside rivers	From city parks	From the sawmill	From the petrol station	From the vinyard	From a manufacturer of wood briquetets	From a charcoal manufacturer
			1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
1	*Firewood by the cubic metre*	*prm*													
2	*Chopped wood*	*prm*													
3	*Small logs*	*prm*													
4	*Sawmill residues*	*prm*													
5	*Wood briquettes*	*tons*													
6	*Wood pellets*	*tons*													
7	*Other wood fuels (e.g. woodchips, sawdust). Indicate: .....*	*prm*													
8	*Wood coal (charcoal)*	*kg*													
9	*Coal*	*tons*													
10	*Electric energy*	*kWh*													
11	*Fuel oil*	*liters*													
12	*Heavy fuel oil*	*tons*													
13	*Fuel gases*														
14	*Other (indicate what):*														

Note 1 *Enter data for all fuel supply sources for a particular household.*
Note 2 *Mark of unit prm = loose cubic meter.*
Note 3 *If the respondent gives data on consumption of pellets in kilograms, they need to be converted into tonnes. The ratio is 1 ton = 1,000 kilograms. The same note relates to wood briquettes as well.*
Note 4 *When using a combination of solid and liquid fuels, data are to be entered in units. Example 1. Chopped wood 10 prm from trader and 200 liters of fuel oil from the petrol station.*

4. HEATING SYSTEMS

4.1. Which device (system) do you use for heating your grill house, what is the scope of its age and what is its installed power in kW?

(Circle the number of devices-systems possessed by the given grill house)

Ordinal number	*Type of device*	*Scope of age of devices in years (circle one of the answers offered)*				*Total installed power of device in kW*
		1	*2*	*3*	*4*	
1	Solid fuel boiler (coal, wood, briquettes)	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
2	Wood-burning heater	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
3	Wood-burning stove	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
4	Wood-burning stove with central heating system built in	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
5	Wood pellet boiler	**1.** 0-2	**2.** 3-5	**3.** 6 and more		
6	Wood pellet stove	**1.** 0-2	**2.** 3-5	**3.** 6 and more		
7	Tile stove	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
8	Accumulation stove	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
9	Electric boiler	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
10	Air-conditioning device	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
11	Fuel oil heater	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
12	Heater	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
13	Fireplace	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
14	Fuel gases device	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
15	Other (indicate what):	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	

4.2. How many kilograms of meat are baked with one loose cubic meter of wood in your grill house *Enter data under 1 or circle under 2.*

1. Kg of meat ☐☐☐ 2. Don't know

4.3. How many kilograms of meat are baked with one kg of wood coal in your grill house

Enter data under 1 or circle under 2.

1. Kg of meat ☐☐ 2. Don't know

Individual data will be used for statistical purposes exclusively and will be presented in aggregate form.
You are under an obligation to provide accurate and complete answers.

Surveyor's signature _____ **Instructor's signature** _____

Respondent's signature

Date: _____ _____

MONTENEGRO

Statistical Office

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Pilot form: ŠUM BIO - 5

Law on Official Statistics and Statistical System Off. Gazette of MNE 18/12

THE 2011 ANNUAL SURVEY OF WOOD FUELS CONSUMPTION IN RESTAURANTS

1. IDENTIFICATION DATA

Name of restaurant _____

Company registration number | | | | | | | | | for companies

PIN | | | | | | | | | | | | | for entrepreneurs

Municipality: _____

Address: _____ **Telephone:** _____

2. TYPES OF FUEL

2.1. What type of fuel do you use (***Circle 1 for yes and 0 for no; it is possible to select several modalities offered***)

Ordinal number	*Type of fuel*	*For the needs of the grill house within the restaurant*		*for heating the buildings of your restaurant*	
		yes	*no*	*yes*	*no*
		1	*2*	*3*	*4*
1.	*Firewood by the cubic metre*	*1*	*0*	*1*	*0*
2.	*Chopped firewood*	*1*	*0*	*1*	*0*
3.	*Small logs*	*1*	*0*	*1*	*0*
4.	*Sawmill residues*	*1*	*0*	*1*	*0*
5.	*Wood briquettes*	*1*	*0*	*1*	*0*
6.	*Wood pellets*	*1*	*0*	*1*	*0*
7.	*Other wood fuels (e.g. woodchips, sawdust). Indicate what: ……..*	*1*	*0*	*1*	*0*
8.	*Wood coal (charcoal)*	*1*	*0*	*1*	*0*
9.	*Coal*	*1*	*0*	*1*	*0*
10.	*Electric energy*	*1*	*0*	*1*	*0*
11.	*Fuel oil*	*1*	*0*	*1*	*0*
12.	*Heavy fuel oil*	*1*	*0*	*1*	*0*
13.	*Fuel gases*	*1*	*0*	*1*	*0*
14.	*Other (indicate what)……..*	*1*	*0*	*1*	*0*

3. FUEL CONSUMPTION IN THE RESTAURANT

3.1. How much different fuels did you consume in your restaurant in 2011

(Enter data for all types of fuel used in the specific household):

Ordinal number	*Type of fuel*	*Unit*	*Quantity in a unit*	*Average price at which fuel was purchased (€ /unit)*	*Total costs for that quantity of fuel (€)*
			1	*2*	*3*
1	*Firewood by the cubic metre*	*prm*			
2	*Chopped wood*	*prm*			
3	*Small logs*	*prm*			
4	*Sawmill residues*	*prm*			
5	*Wood briquettes*	*tons*			
6	*Wood pellets*	*tons*			
7	*Other wood fuels (e.g. woodchips, sawdust). Indicate what:*	*prm*			
8	*Wood coal (charcoal)*	*kg*			
9	*Coal*	*tons*			
10	*Electric energy (for heating)*	*kWh*			
11	*Fuel oil*	*litres*			
12	*Heavy fuel oil*	*tons*			
13	*Fuel gases (for heating)*				
14	*Other (indicate what): .....*				

Note 1: Indicate under item 'fuel gases' the unit stated by the respondent and other data in columns 1-3.

Note 2: Indicate under item 'other' the type of fuel used, the unit, and other data in columns 1-3.

Note 3: If the respondent gives data on consumption of pellets in kilograms, they need to be converted into tonnes. The ratio is 1 ton = 1,000 kilograms. The same note relates to wood briquettes as well.

3.2. How did you obtain the fuel for the needs of your restaurant (indicate in quantities)

Ordinal number	Type of fuel	Unit	Supply source												
			From own forest	From traders	I purchase on firewood yard	From an acquaintance/friend with his own forest	Wood from meadows, village paths, pastures, from own orchard and other wood outside forests	From state forests (forest management, national parks)	From lines of trees alongside rivers	From city parks	From the sawmill	From the petrol station	From the vineyard	From a manufacturer of wood briquettes	From a charcoal manufacturer
			1	2	3	4	5	6	7	8	9	10	11	12	13
1	Firewood by the cubic metre	prm													
2	Chopped wood	prm													
3	Small logs	prm													
4	Sawmill residues	prm													
5	Wood briquettes	tons													
6	Wood pellets	tons													
7	Other wood fuels (e.g. woodchips, sawdust). Indicate:	prm													
8	Wood coal (charcoal)	kg													
9	Coal	tons													
10	Electric energy	kWh													
11	Fuel oil	litres													
12	Heavy fuel oil	tons													
13	Fuel gases														
14	Other (indicate what):														

Note 1: *Enter data for all fuel supply sources for a particular household.*
Note 2: *Mark of unit prm = loose cubic meter.*
Note 3: *If the respondent gives data on consumption of pellets in kilograms, they need to be converted into tonnes. The ratio is 1 ton = 1,000 kilograms. The same note relates to wood briquettes as well.*
Note 4: *When using a combination of solid and liquid fuels, data are to be entered in units. Example 1. Chopped wood 10 prm from trader and 200 litres of fuel oil from the petrol station.*

4. HEATING SYSTEMS

4.1. Which device (system) do you use for heating your restaurant, what was the scope of its age and what is its installed power in kW?

(circle the number of devices – systems possessed by the specific restaurant)

Ord. number	*Type of device*	*Scope of age of devices in years (circle one of the answers offered)*				*Total installed power of device in kW*
		1	*2*	*3*	*4*	*5*
1	Solid fuel boiler (coal, wood, briquettes)	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
2	Wood-burning heater	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
3	Wood-burning stove	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
4	Wood-burning stove with central heating system built in	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
5	Wood pellet boiler	**1.** 0-2	**2.** 3-5	**3.** 6 and more		
6	Wood pellet stove	**1.** 0-2	**2.** 3-5	**3.** 6 and more		
7	Tile stove	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
8	Accumulation stove	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
9	Electric boiler	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
10	Air-conditioning device	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
11	Fuel oil heater	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
12	Heater	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
13	Fireplace	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
14	Fuel gases device	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
15	Other (indicate what):	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	

Individual data will be used for statistical purposes exclusively and will be presented in aggregate form.
You are under an obligation to provide accurate and complete answers.

Surveyor's signature _____ **Instructor's signature** _____

Respondent's signature

Date:

_____ _____

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Statistical Office

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Pilot form: ŠUM BIO - 6

Law on Official Statistics and Statistical System Off. Gazette of MNE 18/12

THE 2011 ANNUAL SURVEY OF WOOD FUELS CONSUMPTION IN CAR REPAIR SHOPS

1. IDENTIFICATION DATA

Name of car repair shop _____

Company registration number | | | | | | | | | for companies

PIN | | | | | | | | | | | | | for entrepreneurs

Municipality: _____

Address: _____ **Telephone:** _____

2. TYPES OF FUEL

2.1. What type of fuel do you use for heating the building of your car repair shop?
(circle the names of all fuels used in the specific car repair shop)

1. *Firewood by the cubic metre*
2. *Chopped firewood*
3. *Small logs*
4. *Sawmill residues*
5. *Wood briquettes*
6. *Wood pellets*
7. *Other wood fuels (e.g. woodchips, sawdust). Indicate what: ……..*
8. *Coal*
9. *Electric energy*
10. *Fuel oil*
11. *Heavy fuel oil*
12. *Fuel gases*
13. *Other (indicate what)……..*

3. FUEL CONSUMPTION IN THE CAR SERVICE SHOP

3.1. How much different fuels did you consume in your car repair shop in 2011

(Enter data for all types of fuel used in the specific household)

Ordinal number	Type of fuel	Unit	Quantity in a unit	Average price at which fuel was purchased (€ /unit)	Total costs for that quantity of fuel (€)
			1	2	3
1	Firewood by the cubic metre	prm			
2	Chopped wood	prm			
3	Small logs	prm			
4	Sawmill residues	prm			
5	Wood briquettes	tons			
6	Wood pellets	tons			
7	Other wood fuels (e.g. woodchips, sawdust). Indicate what:	prm			
8	Coal	tons			
9	Electric energy (for heating)	kWh			
10	Fuel oil	prm			
11	Heavy fuel oil	tons			
12	Fuel gases (for heating)				
13	Other (indicate what):				

Note 1: Indicate under item 'fuel gases' the unit stated by the respondent and other data in columns 1-3.

Note 2: Indicate under item 'other' the type of fuel used, the unit, and other data in columns 1-3.

Note 3: If the respondent gives data on consumption of pellets in kilograms, they need to be converted into tonnes. The ratio is 1 ton = 1,000 kilograms. The same note relates to wood briquettes as well.

3.2. How did you obtain the fuel for the needs of your car repair shop (indicate in quantities)

Ordinal number	*Type of fuel*	Unit	Supply source												
			From own forest	From traders	I purchase from a firewood yard	From an acquaintance/friend with his own forest	Wood from meadows, village paths, pastures, from own orchard and other wood outside forests	From state forests (forest management, national parks)	From lines of trees alongside rivers	From city parks	From the sawmill	From the petrol station	From the vinyard	From a manufacturer of wood briquetets	From a manufacturer of wood pellets
			1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*
1	*Firewood by the cubic metre*	*prm*													
2	*Chopped wood*	*prm*													
3	*Small logs*	*prm*													
4	*Sawmill residues*	*prm*													
5	*Wood briquettes*	*tons*													
6	*Wood pellets*	*tons*													
7	*Other wood fuels (e.g. woodchips, sawdust). Indicate: .....*	*prm*													
8	*Coal*	*tons*													
9	*Electric energy*	*kWh*													
10	*Fuel oil*	*liters*													
11	*Heavy fuel oil*	*tons*													
12	*Fuel gases*														
13	*Other (indicate what):*														

Note 1: *Enter data for all fuel supply sources for a particular household.*
Note 2: *Mark of unit prm = loose cubic meter.*
Note 3: *If the respondent gives data on consumption of pellets in kilograms, they need to be converted into tonnes. The ratio is 1 ton = 1,000 kilograms. The same note relates to wood briquettes as well.*
Note 4: *When using a combination of solid and liquid fuels, data are to be entered in units. Example 1. Chopped wood 10 prm from trader and 200 liters of fuel oil from the petrol station.*

4. HEATING SYSTEMS

4.1. Which device (system) do you use for heating your car repair shop, what is the scope of its age and what is its installed power in kW?

(circle the number of devices – systems possessed by the specific car repair shop)

Ordinal number	*Type of device*	*Scope of age of devices in years (circle one of the answers offered)*				*Total installed power of device in kW*
		1	*2*	*3*	*4*	*5*
1	Solid fuel boiler (coal, wood, briquettes)	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
2	Wood-burning heater	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
3	Wood-burning stove	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
4	Wood-burning stove with central heating system built in	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
5	Wood pellet boiler	**1.** 0-2	**2.** 3-5	**3.** 6 and more		
6	Wood pellet stove	**1.** 0-2	**2.** 3-5	**3.** 6 and more		
7	Tile stove	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
8	Accumulation stove	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
9	Electric boiler	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
10	Air-conditioning device	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
11	Fuel oil heater	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
12	Heater	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
13	Fireplace	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
14	Fuel gases device	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	
15	Other (indicate what):	**1.** 0-10	**2.** 11-15	**3.** 16-20	**4.** 21 and more	

Individual data will be used for statistical purposes exclusively and will be presented in aggregate form.
You are under an obligation to provide accurate and complete answers.

Surveyor's signature _____ **Instructor's signature** _____

Date: _____ **Respondent's signature** _____

MONTENEGRO

Pilot form: ŠUM BIO - 7

Statistical Office

MONSTAT

Law on Official Statistics and Statistical System

Off. Gazette of MNE 18/12

Podgorica, IV Proleterske no.2

www.monstat.org

THE 2011 ANNUAL SURVEY OF WOOD BIOMASS CONSUMPTION IN PRIMARY WOOD PROCESSING

Company name:
Company registration number:
Name and surname of the respondent:
Date:
Telephone:
Fax:
Web:
E-mail:
Address:
Type of manufacture of products of wood:

1. How much industrial roundwood and technical wood was consumed in your company in 2011? (enter data for all types of wood used in the specific company)

Ordinal number	Types of wood	Quantity in m^3
1.1.	Beech	
1.2.	Oak	
1.3.	Other deciduous (hardwood) trees	
1.4.	Deciduous (softwood) trees	
1.5.	Fir and spruce	
1.6.	Other conifers	

2. What were the supply sources of industrial roundwood and technical wood that was consumed in your company in 2011? (enter data for all types of supply sources that existed for the specific company)

Ordinal number	Supply source	Quantity in m^3
2.1.	From state forests (concession, contract)	
2.2	From private forests	
2.3.	Import	
2.4.	Other (indicate what):	

3. What was the quantity of wood waste produced by processing industrial roundwood and technical wood in your company in 2011? (enter data for all types of wood processed in the specific company)

Ordinal number	Types of wood	Coarse waste (residues, side trimmings...) in m^3	Sawdust in m^3
3.1.	Beech		
3.2.	Oak		
3.3.	Other deciduous (hardwood) trees		
3.4.	Deciduous (softwood) trees		
3.5.	Fir and spruce		
3.6.	Other conifers		
3.7.	Other (indicate what):		

4. How much additional quantity of wood was used for the production of energy or production of wood fuels (pellets, briquettes, chips) in your company and procured from the market in 2011? (If the company does not procure additional quantities of wood, go directly to question number 6).

Ordinal number	Type of biomass	Quantity (m^3/year)
4.1.	Firewood	
4.2.	Other wood from forestry	
4.3.	Coarse waste from forestry (branches, tree crown branches...)	
4.4.	Coarse sawmill waste (residues, side trimmings...)	
4.5.	Small sawmill waste (sawdust)	
4.6.	Other (indicate what)	

5. What are the sources of supply for the additional quantity of wood that was used for production of energy or manufacture of wood fuels (pellets, briquettes, chips) in your company in 2011?

Ordinal number	Supply source	Quantity in m^3	Average purchase price in EUR/m^3
5.1.	From state forests (concession, contract)		
5.2	From private forests		
5.3.	Import		
5.4.	Other (indicate what):		

6. Wood waste from manufacture in your company is:

1. used entirely for own needs of the company (production of energy, production of wood fuels)

2. used partly for own needs of company (energy production, production of wood fuels), and the rest is sold to other companies and customers (local population, bakeries, restaurants....)

3. sold entirely to other companies and users (local population, bakeries, restaurants...)

4. other (indicate what) _____

Circle one of the answers offered.

7. If firewood and wood waste from its own production are used for your company, for what purposes are they used?

1. for energy production for the company's own needs

2. for manufacture of wood briquettes

3. for manufacture of wood pellets

4. for manufacture of wood chips

5. for other needs (indicate which): _____

Circle as many answers as there are purposes of use in the specific company.

8. How much was the installed power of the energy producing plant and consumption of wood and wood waste in your company in 2011? (circle or enter data for all combinations existing in the specific company)

Ord. number		Thermal energy	Electric energy	CHP (combined heat and power)
8.1.	Type of installed plants	a) Hot water boiler b) Steam boiler c) Wood-burning heater d) Wood-fired boiler for heating e) Other:_____ _____		
8.2.	Number of installed plants	Circle the correct number		
	a) Hot water boiler	1; 2; 3; 4 and more		
	b) Steam boiler	1; 2; 3; 4 and more		
	c) Wood-burning heater	1; 2; 3; 4 and more		
	d) Wood-fired boiler for heating	1; 2; 3; 4 and more		
	e)Other (indicate what):_____	1; 2; 3; 4 and more		
8.3.	Total installed capacity of all plants in kW			
8.4.	Degree of plant's efficiency of operation in %	Circle the correct scope		
	a) Hot water boiler	**1**.0-40; **2**.41-70; **3**.over 70		
	b) Steam boiler	**1**.0-40; **2**.41-70; **3**.over 70		
	c) Wood-burning heater	**1**.0-40; **2**.41-70; **3**.over 70		
	d) Wood-fired boiler for heating	**1**.0-40; **2**.41-70; **3**.over 70		
	e)Other:_____	**1**.0-40; **2**.41-70; **3**.over 70		
8.5.	Scope of age of installed plants in years	Circle the correct scope		
	a) Hot water boiler	**1**.0-10; **2**.11-20; **3**.over 20		
	b) Steam boiler	**1**.0-10; **2**.11-20; **3**.over 20		
	c) Wood-burning heater	**1**.0-10; **2**.11-20; **3**.over 20		
	d) Wood-fired boiler for heating	**1**.0-10; **2**.11-20; **3**.over 20		
	e)Other:_____	**1**.0-10; **2**.11-20; **3**.over 20		
8.6.	Annual number of hours of plant's operation	Enter the correct number of hours		
	a) Hot water boiler			

	b) Steam boiler			
	c) Wood-burning heater			
	d) Wood-fired boiler for heating			
	e)Other:_____			
8.7.	Type of wood biomass used for energy (circle all types used in the specific company)	a) Firewood		
		b) Coarse woody residue		
		c) Coarse residue from manufacturing of wood		
		d)Fine residue from manufacturing of wood		
8.8.	Annual consumption of wood biomass per certain types in m^3	Enter data for all types used in the specific company in m^3		
	a)Firewood			
	b) Coarse woody residue			
	c) Coarse residue from manufacturing of wood			
	d)Fine residue from manufacturing of wood			
8.9.	Total produced quantity of energy in kWh/year			
8.10.	Energy consumption for own needs (circle one of the answers offered)	a) for heating premises		
		b)for steaming wood		
		c) for drying wood		
		d)for heating premises, steaming and drying wood		
		e)Other:		

9. Which quantity of wood biomass did you use for manufacture of wood fuels in 2011? (Indicate data for all types of wood fuels for which wood biomass is used in the specific company).

If the company does not produce wood fuels go directly to question number 10.

Ordinal number	Type of wood fuel	Manufactured quantity in tons	Quantity of wood biomass consumed in m^3
9.1.	Wood briquettes		
9.2.	Wood chips		
9.3.	Wood pellets		

10. What quantity of wood waste did your company sell to other users in 2011? (Indicate data for all the users to which wood waste of the specific company was sold)

Ordinal number	Buyers of wood waste	Quantities sold in m^3	
		Coarse residue (residues, side trimmings...)	Fine residue (sawdust)
10.1.	Other companies or entrepreneurs		
10.2.	Local population		
10.3.	Bakeries, grill shops, restaurants and other commercial facilities		
10.4.	Schools and kindergardens		
10.5.	Clinics, medical centers and other institutions in the health care system		
10.6.	Municipal administration		
10.7.	Other users (indicate which): export,...		

11. What is the quantity of wood waste from your company in 2011 disposed in siloses or in a sawdust dump? (enter data for both or only for one type of wood waste depending on the situation in the specific company)

Ord. number	Buyers of wood waste	Unit	Quantity
11.1.	Coarse residue	m^3	
11.2.	Fine residue (sawdust)	m^3	

SUMMARY of production, consumption and sale of wood biomass from industry

Type of sortiment	Unit	Production	Procurement from others from MNE	Import	Export	Own consumption	Stocks at the beginning of the year	Stocks at the end of the year	Sale in MNE
1	2	3	4	5	6	7	8	9	10
Firewood									
Coarse woody residue									
Fine woody residue									
Other (indicate what)									

Name and surname of the person who filled out the survey: _____

Authenticated by the Head/Director

Date:_____ **L.S.** _____

MONTENEGRO
Statistical Office

MONSTAT

Pilot form: ŠUM BIO - 8

Law on Official Statistics and Statistical System Off. Gazette of MNE18/12

The 2011 annual survey of production and sale of firewood, round timber in quantities of several meters and wood waste

Podgorica, IV Proleterske no.2

1. IDENTIFICATION DATA

Company registration number ☐☐☐☐☐☐☐☐ for companies

PIN ☐☐☐☐☐☐☐☐☐☐☐☐☐ for entrepreneurs

Name of company/entrepreneur: _____

Municipality: _____

Address: _____ **tel** _____

Table 1. PRODUCTION

Source		Name of sortiment	Unit	Production					Procurement from others in MNE	Import	Export	Own consumption	Losses	Stocks at the beginning of the year	Stocks in the end of the year	Sale in Montenegro[1),2)]
				Beech	Oaks	Other deciduous (hardwood) trees	Deciduous (softwood) trees	Conifer trees	2	3	4	5	6	7	8	9
From the forest	1.	Firewood (in split logs, round logs, chopped wood, small logs) and round timber in quantities of several meters	m^3													
	2.	Firewood from short rotation coppice forests	m^3													
	3.	Wood waste[3)]	m^3													
Outside the forest[4)]	4.	Firewood (in split logs, round logs, chopped wood, small logs) and round timber in quantities of several meters	m^3													
	5.	Firewood from short rotation coppice forests	m^3													
	6.	Wood waste[3)]	m^3													

1) Column 9 in Table 1 should be equal to Column 1 in Table 2;
2) In Table 1 column 9 = col.1 + col.2 + col.3 - col.4 - col.5 - col.6 + col.7 - col.8.;
3) Wood waste consists of: waste from the process of harvest and sortiments making in forestry and waste from industrial wood processing
4) The term off forest includes trees outside the forest and forest land – from surface areas less than 0.5 hectares – e.g. wood from agricultural land, home gardens, orchards, village paths, wood in urban areas (mostly city parks), trees alongside roads and rivers.

Table 2. SALE

	Name	Unit	Sale in Montenegro[1),2)]					Trade	Industry	Civil engineering	Transport	Households	Agriculture	Other consumers[3)]
			Beech	Oaks	Other deciduous (hardwood) trees	Deciduous (softwood) trees	Conifer trees	2	3	4	5	6	7	8
1.	Firewood (in split logs, round logs, chopped wood, small logs) and round timber in quantities of several meters	m^3												
2.	Wood waste	m^3												

1) Column 1 in Table 2 should be equal to Column 9 in Table 1.

2) In Table 2 column 1 = col.2 + col.3 + col.4 + col.5 + col.6 + col.7 + col.8.

3) Other consumers are: health and educational institutions, administrative and commercial buildings, cultural institutions and others.

Name and surname of the person who filled out the survey _____

Authenticated by the Head/Director

Date _____ **L. S.** _____

MONTENEGRO
Statistical Office

MONSTAT
Podgorica, IV Proleterske no.2
www.monstat.org

Pilot form: ŠUM BIO - 9

Law on Official Statistics and Statistical System Off. Gazette of MNE 18/12

The 2011 annual survey of production and sale of wood chips

1. IDENTIFICATION DATA

Company registration number | | | | | | | | | for companies

PIN | | | | | | | | | | | | | for entrepreneurs

Name of company/entrepreneur _____

Municipality: _____

Address: _____ **tel** _____

Table 1. CONSUMPTION OF WOOD IN THE ROUGH

	NAME	Unit	Consumed for producing wood chips			Stocks at the beginning of the year	Stocks at the end of the year
			Decidous (hardwood) trees	Deciduous (softwood) trees	Conifer trees	2	3
1.	Firewood (in split logs, round logs), peel and several meters of round timber	m^3					
2.	Wood waste from nature (twigs, tree crown branches, stumps, etc.)	m^3					
3.	Wood waste from wood processing industry	m^3					

Table 2. PRODUCTION

Name		Unit	Production			Procurement from others in Montenegro	Import	Export	Own consumption	Losses	Stocks at the beginning of the year	Stocks at the end of the year	Sale in Montenegro 1),2)
			Decidous (hardwood) trees	Decidous (softwood) trees	Conifer trees	2	3	4	5	6	7	8	9
1.	Wood chips	tons											

1) Column 9 in Table 2 should be equal to Column 1 in Table 3.
2) In Table 2 column 9 = col.1 + col.2 + col.3 - col.4 - col.5 - col.6 + col.7 - col.8.;

Table 3. SALE

Name		Unit	Sale in Montenegro[1),2)]			Trade	Industry	Construction industry	Transport	Households	Agriculture	Other consumers[3]
			Decidous (hardwood) trees	Decidous (softwood) trees	Conifer trees	2	3	4	5	6	7	8
1.	Wood chips	tons										

1) Column 1 in Table 3 should be equal to Column 9 in Table 2.
2) In Table 3 column 1 = col.2 + col.3 + col.4 + col.5 + col.6 + col.7 + col.8.
3) Other consumers are: health and educational institutions, administrative and commercial buildings, culture institutions and others.

Name and surname of the person who filled out the survey _____

Authenticated by the Head/Director

Date _____ **L. S.** _____

MONTENEGRO
Statistical Office

MONSTAT

Podgorica, IV Proleterske no.2
www.monstat.org

Pilot form: ŠUM BIO - 10

Law on Official Statistics and Statistical System Off. Gazette of MNE 18/12

The 2011 annual survey of production and sale of wood briquettes

1. IDENTIFICATION DATA

Company registration number | | | | | | | | |
for companies

PIN | | | | | | | | | | | | | |
for entrepreneurs

Name of company/entrepreneur _____

Municipality: _____

Address: _____ **tel** _____

Table 1. CONSUMPTION OF WOOD IN THE ROUGH

	NAME	Unit	Consumed for manufacture of wood briquettes	Stocks at the beginning of the year	Stocks at the end of the year
			1	2	3
1.	Wood waste from nature	m^3			
2.	Wood waste from wood processing industry	m^3			

Table 2. MANUFACTURE AND CALORIFIC VALUE

NAME		Unit	Production	Procurement from others in Montenegro	Import	Export	Own consumption	Losses	Stocks at the beginning of the year	Stocks at the end of the year	Sale in Montenegro[1),2)]	Calorific value kJ/kg
			1	2	3	4	5	6	7	8	9	10
1.	Wood briquettes	tons										

1) Column 9 in Table 2 should be equal to Column 1 in Table 3.
2) In Table 2 column 9 = col.1 + col.2 + col.3 - col.4 - col.5 - col.6 + col.7 - col.8.

Table 3. SALE

NAME		Unit	Sale in Montenegro[1),2)]	Trade	Industry	Construction industry	Transport	Households	Agriculture	Other consumers[3)]
			1	2	3	4	5	6	7	8
1.	Wood briquettes	tons								

1) Column 1 in Table 3 should be equal to Column 9 in Table 2.

2) In Table 3 column 1 = col.2 + col.3 + col.4 + col.5 + col.6 + col.7 + col.8.

3) Other consumers are: health and educational institutions, administrative and commercial buildings, culture institutions and others.

Name and surname of the person who filled out the survey _____

Authenticated by the Head/Director

Date _____ **L. S.** _____

MONTENEGRO
Statistical Office

MONSTAT

Podgorica, IV Proleterske no.2
www.monstat.org

Pilot form: ŠUM BIO - 11

Law on Official Statistics and Statistical System Off. Gazette of MNE 18/12

The 2011 annual survey of production and sale of wood pellets

1. IDENTIFICATION DATA

Company registration number | | | | | | | | |
for companies

PIN | | | | | | | | | | | | |
for entrepreneurs

Name of company/entrepreneur _____

Municipality: _____

Address: _____ **tel** _____

Table 1. CONSUMPTION OF WOOD IN THE ROUGH

	NAME	Unit	Consumed for manufacture of wood pellets	Stocks at the beginning of the year	Stocks at the end of the year
			1	2	3
1.	Firewood (in split logs and round logs) and several meters of round timber	m^3			
2.	Wood waste from nature (thick branches, tree crown branches etc.)	m^3			
3.	Wood waste from wood processing industry	m^3			
4.	Wood chips	m^3			

Table 2. MANUFACTURE AND CALORIFIC VALUE

	NAME	Unit	Production	Procurement from others in Montenegro	Import	Export	Own consumption	Losses	Stocks at the beginning of the year	Stocks at the end of the year	Sale in Montenegro[1),2)]	Calorific value kJ/kg
			1	2	3	4	5	6	7	8	9	10
1.	Wood pellets	tons										

1) Column 9 in Table 2 should be equal to Column 1 in Table 3.

2) In Table 2 column 9 = col.1 + col.2 + col.3 - col.4 - col.5 - col.6 + col.7 - col.8.

Table 3. SALE

	NAME	Unit	Sale in Montenegro[1),2)]	Trade	Industry	Construction industry	Transport	Households	Agriculture	Other consumers[3)]
			1	2	3	4	5	6	7	8
1.	Wood pellets	tons								

1) Column 1 in Table 3 should be equal to Column 9 in Table 2.

2) In Table 3 column 1 = col.2 + col.3 + col.4 + col.5 + col.6 + col.7 + col.8.

3) Other consumers are: health and educational institutions, administrative and commercial buildings, culture institutions and others.

Name and surname of the person who filled out the survey _____

Authenticated by the Head/Director

Date _____ **L. S.** _____

MONTENEGRO
Statistical Office

Pilot form: ŠUM BIO - 12

Law on Official Statistics and Statistical System Off. Gazette of MNE 18/12

MONSTAT

Podgorica, IV Proleterske no.2
www.monstat.org

The 2011 annual survey of production and sale of wood coal

1. IDENTIFICATION DATA

Company registration number | | | | | | | | |
for companies

PIN | | | | | | | | | | | | |
for entrepreneurs

Name of company/entrepreneur _____

Municipality: _____

Address: _____ **tel** _____

Table 1. CONSUMPTION OF WOOD IN THE ROUGH

	NAME	Unit	Spent for the production of wood coal (charcoal)			Stocks at the beginning of the year	Stocks at the end of the year
			Deciduous (hardwood) trees	Deciduous (softwood) trees	mixed	2	3
1.	Firewood (in split logs, round logs, chopped)	m^3					
2.	Wood waste[3)]	m^3					

Table 2. MANUFACTURE AND CALORIFIC VALUE

Name		Unit	Production			Procurement from others in Montenegro	Import	Export	Own consumption	Losses	Stocks at the beginning of the year	Stocks at the end of the year	Sale in Montenegro[1), 2)]	Calorific value kJ/kg
			Deciduous (hardwood) trees	Deciduous (softwood) trees	mixed	2	3	4	5	6	7	8	9	10
1.	Wood coal (charcoal)	tons												

1) Column 9 in Table 2 should be equal to Column 1 in Table 3.

2) In Table 2 column 9 = col.1 + col.2 + col.3 - col.4 - col.5 - col.6 + col.7 - col.8.

Table 3. SALE

Name		Unit	Sale in Montenegro[1),2)]	Trade	Industry	Construction industry	Transport	Households	Agriculture	Other consumers[3)]
			1	2	3	4	5	6	7	8
1.	Wood coal (charcoal)	tons								

1) Column 1 in Table 3 should be equal to Column 9 in Table 2.

2) In Table 3 column 1 = col.2 + col.3 + col.4 + col.5 + col.6 + col.7 + col.8.

3) Other consumers are: health and educational institutions, administrative and commercial buildings, culture institutions and others.

Name and surname of the person who filled out the survey _____

Authenticated by the Head/Director

Date _____ **L. S.** _____

MONTENEGRO
Statistical Office

MONSTAT

Podgorica, IV Proleterske no.2
www.monstat.org

Pilot form: ŠUM BIO - 13

Law on Official Statistics and Statistical System Off. Gazette of MNE 18/12

The 2011 annual survey of trade in wood fuels

1. IDENTIFICATION DATA

Company registration number | | | | | | | | |
for companies

PIN | | | | | | | | | | | | | |
for entrepreneurs

Name of company/entrepreneur _____

Municipality: _____

Address: _____ **tel** _____

Table 1. PROCUREMENT

	NAME	Unit	Stocks at the beginning of the year	Procurement from others in Montenegro	Import	Export	Own consumption	Losses	Stocks at the end of the year	Sale in Montenegro [1),2)]
			1	2	3	4	5	6	7	8
1.	Firewood (in split logs, round logs, chopped)	m^3								
2.	Wood waste[3)]	m^3								
3.	Wood chips	tons								
4.	Wood briquettes	tons								
5.	Wood pellets	tons								
6.	Wood coal (charcoal)	tons								

1) Column 8 in Table 1 should be equal to Column 1 in Table 2.

2) In Table 1 column 8 = col.1 + col.2 + col.3 - col.4 - col.5 - col.6 + col.7.

3) Wood waste consists of: waste from nature and waste from industrial wood processing.

Table 2. SALE

NAME		Unit	Sale in Montenegro [1),2)]	Trade	Industry	Construction industry	Transport	Households	Agriculture	Other consumers [3)]
			1	2	3	4	5	6	7	8
1.	Firewood (in split logs, round logs, chopped)	m^3								
2.	Wood waste [3)]	m^3								
3.	Wood chips	tons								
4.	Wood briquettes	tons								
5.	Wood pellets	tons								
6.	Wood coal (charcoal)	tons								

1) Column 1 in Table 2 should be equal to Column 8 in Table 1.

2) In Table 2 column 1 = col.2 + col.3 + col.4 + col.5 + col.6 + col.7 + col.8.

3) Other consumers are: health and educational institutions, administrative and commercial buildings, culture institutions and others.

Name and surname of the person who filled out the survey _____

Authenticated by the Head/Director

Date _____ **L. S.** _____