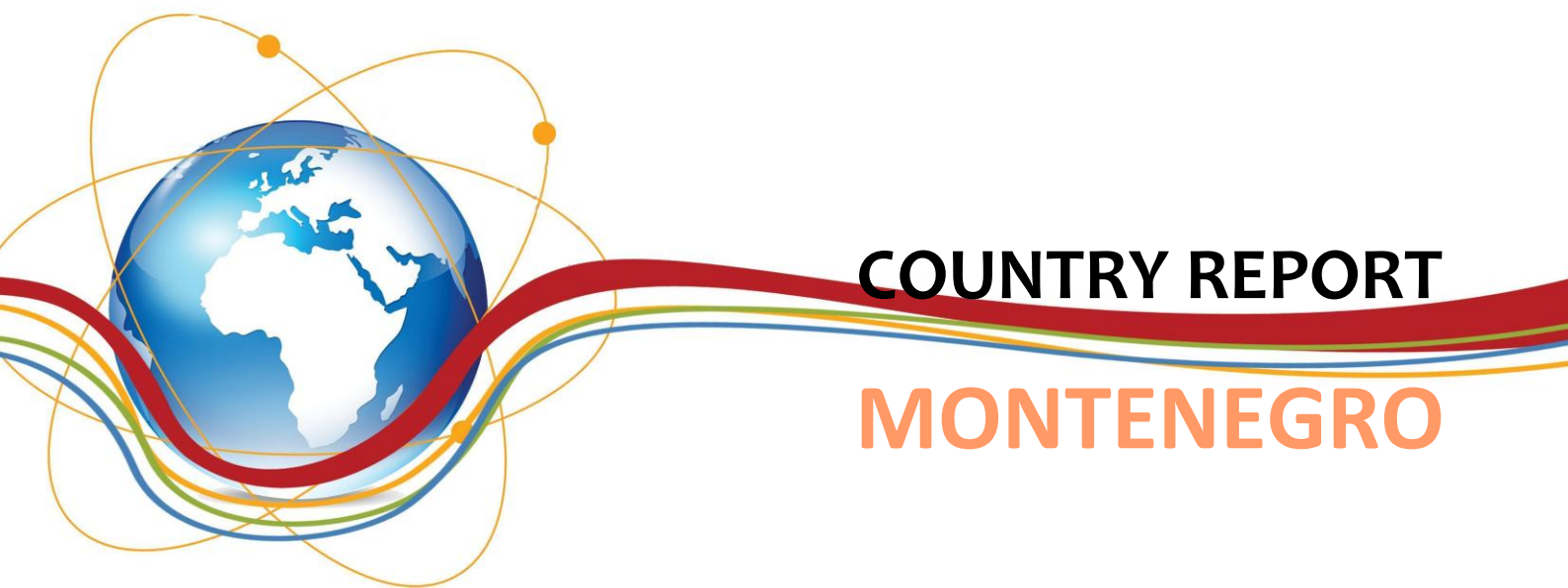


# EUbuild ENERGY EFFICIENCY

FINANCING ENERGY EFFICIENCY IN BUILDINGS WITHIN  
THE FRAME OF EU REGULATIONS AND LEGAL  
ARRANGEMENTS



## COUNTRY REPORT MONTENEGRO

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## **1. EUbuild EE Project Researcher's Introduction**

In line with the economic development of Montenegro, and also with the energy practices and relevant standards for candidate countries for EU accession, Energy Policy particularly outlines the need to establish adequate legal, institutional, financial and regulatory frameworks required for sustainable development of the energy sector. Together with the national energy strategy document, Energy Efficiency Law, Strategy for Energy Efficiency, reform process in the energy sector should be maintained in order to encourage both domestic and international investors to invest in all aspects of energy efficiency – energy market.

Furthermore decisive action should be taken towards further enhancement of institutional (both national and local), regulatory and financial framework within Montenegro with the vision and objective to achieve:

- Sustainable production and utilization of energy in relation with environmental protection, and international cooperation in this field, especially with respect to reduction of GHG emissions.
- Creation of conditions for higher utilization of renewable energy resources and combined power and heat generation (CHP).
- Provision of institutional and financial incentives with the purpose to improve energy efficiency and reduce energy intensity in all sectors, from generation to consumption of energy.
- Supporting research, development and promotion of new, clean and efficient energy technologies, as well as implementation of energy policy based on expert and scientific grounds.
- Increased awareness among the population (business and residential) in regard to end results of energy efficiency, reduced consumption - reduced cost – increased competitiveness, improved living – working conditions, less pollution – reduced negative impact to the environment.

## **2. Introductory information about the project**

Global consumption of primary energy for heating, cooling, lightening and other building related energy services has an average annual growth rate of 2.2 % per year. Energy demand in buildings is driven by population growth, new energy intensive equipment, building characteristics, climate conditions and behaviour factor. Overall 40% of all primary energy consumption, excluding traditional biomass, is used globally to supply energy services in buildings, and buildings account for 24% of world CO2 emission.

Despite the proven cost effective opportunities for reducing energy consumption through energy-efficient technologies, large portion of the potential in the existing residential building sector remains untapped.

Numerous barriers are responsible for this persistent energy efficiency gap. Market barriers take many forms, including low priority of energy issues, difficulties in accessing capital, the presence of information asymmetries, and principal-agent problems (or split incentives). Financial barriers are also decisive in inhibiting progress towards more energy efficient buildings. Such barriers encapsulate a wide range of obstacles, including the initial cost barrier, risk exposure, discount factor issues, and the inadequacy of traditional financing mechanisms for energy efficiency projects. No single policy category or policy measure can overcome the financial barriers alone. Policy packages that seek to address multiple financial barriers at the same time are likely to be more relevant, have greater impact, and be more sustainable. Increasing the energy efficiency of buildings in a sustainable manner requires the existence of a market for energy efficiency. This market is currently weak and perceived as too risky. It will require strengthening and increased certainty before private actors are willing to engage further. Private actors are pivotal to the market's development. This circular dynamic underlies the role played between public and private actors in market transformation. The EU aims to trigger such a market transformation, with a mix policies and regulations that need to be observed by member states, as well as by manufacturers in order to improve EE standards of equipment and appliances.

Such market transformation however will not take place without increased involvement from the private sector. Strong political will is required to trigger such increase in private participation. Furthermore governments need to create more favourable conditions for public-private partnerships by increasing certainty through risk-sharing instruments and the promotion of the systematic application of an international framework of measurement and verification protocol. It is needed to encourage public-private partnerships, private sector agreements and preferential loans.

Governments have a role in triggering creative energy efficiency financing and should focus on policies which facilitate private sector involvement and create an energy efficiency finance support market for a sustainable change. Much needed finances in the energy efficiency market are not fully realized because of: the split incentives, absence of clear responsibility, low priority of energy issues, high transaction costs, information failure in finance sector and incomplete market for energy efficiency.

There are different applications and legal requirements in energy efficient financing in project partner countries (Turkey, Serbia, Montenegro, Bosnia-Herzegovina, Albania, Macedonia and Belgium). Although governments try to make the necessary arrangements to adopt EU directives, implement fiscal incentives, launch awareness campaigns, and subsidies programmes, private actors, such as banks, Energy Companies, etc. haven't played their roles properly by offering tailored EE loans and other financial incentives to the public.

Different geographical regions and local building regulations in Europe make difficult adopting same applications and creating financial solutions for every country.

The European Energy Policy targets are:

- 20% reduction of greenhouse gases by 2020
- 20% savings in primary energy consumption through energy efficiency measures by 2020
- 20% share of renewable energy in final energy consumption by 2020

In order to reach these targets by 2020, it is quite important to share best practices of legal and financial applications in different European countries and create a common model in energy efficient financing. It is necessary to use efficient financial incentives and create a sustainability plan to reduce greenhouse emissions and promote resource efficiency and alternative energy installations. Public private partnerships must create incentive programs that promote the use of water conservation, sustainable construction materials, and energy efficiency in new and remodelled residential and commercial buildings. Innovative financial instruments such as, low interest 10-year term loans to install energy efficient applications in buildings will leverage mitigation of environmental problems and global warming.

Built on all these premises, **EUbuild EE Project** has set its general and specific objectives:

**General EUbuild EE objective** is to contribute development of the financial instruments and mechanisms in order to build up the market for energy efficient products and methods in the partner countries.

**Specific objectives are:**

1. To create a database/document about energy efficiency regulations, incentives and financial mechanisms in the partner countries and in the EU and provide regular flow of information and knowledge sharing between project partners.
2. To provide coordination and regular flow of information between public institutions, private sector and NGO's about developing financial instruments.
3. To develop recommendations for partner countries, European Commission and public institutions and make contributions for them to form strategic collaborations and action plans

### 3. Introduction

Maximizing energy efficiency of the buildings, new and existing ones, is a complex and for the economy of Montenegro an important undertaking. It requires in the first place strong government led initiatives and coordinated cooperation between private and public sector.

In case of individual buildings, very large energy savings are possible and have been demonstrated. Significant reduction in energy consumption can be achieved through implementation of various energy efficiency measures, such as: high insulation, passive solar design, low infiltration, greater use of solar and geothermal energies, measures to reduce heating and cooling loads, as well as efficient heating and cooling systems etc. Building designs that result in very low energy consumption are becoming the norm for new construction, with “passive houses” that rely on renewable energy sources and consume little or no outside energy. There has even been discussion of so-called “energy-plus houses” that could actually deliver power back to the grid. If these advances prove broadly transferable, they could create substantial new opportunities for promoting sustainability objectives, especially in settings where the building stock is expanding rapidly. Similarly, appliances are available that use 50% less energy than typical appliances. Achieving large energy reductions in residential buildings generally does not require special expertise; the more complex systems in large commercial buildings, by contrast, place greater demands on designers, engineers, and building operators.

The best results are generally achieved in new buildings where energy and ecological considerations can be incorporated from the ground up. In countries with a rapidly expanding building stock, it may therefore make sense to introduce differential policies specifically targeted to new construction. In many industrialized countries, on the other hand, the population of existing buildings is far larger than the number of new buildings added each year. Creative policies may be needed to capture cost-effective retrofit opportunities in these buildings given the different deployment hurdles and typically higher costs that apply. Achieving a broad transformation of the building stock in different contexts will require that the technologies, human-skills, financial incentives, and regulatory requirements needed to capture efficiency opportunities in new and existing structures are widely disseminated.

Towards fulfilling its obligation deriving from signing of Geneva Convention on Long-Range Trans boundary Air Pollution (1979), the Energy Community Treaty (2005), and ratification of Kyoto Protocol (2007), Government of Montenegro has taken some important steps and adopted several strategic documents such as: Energy development strategy by 2025, Energy Law, Energy Efficiency Law, Action Plan and indicative saving target and other documents, which will be the bases for further mechanisms that will help path its way towards much improved and much efficient use of available but at present inadequately used energies.

### 3.1 MONTENEGRO

*Flag of Montenegro:*



*Map 1: Montenegro in Europe*

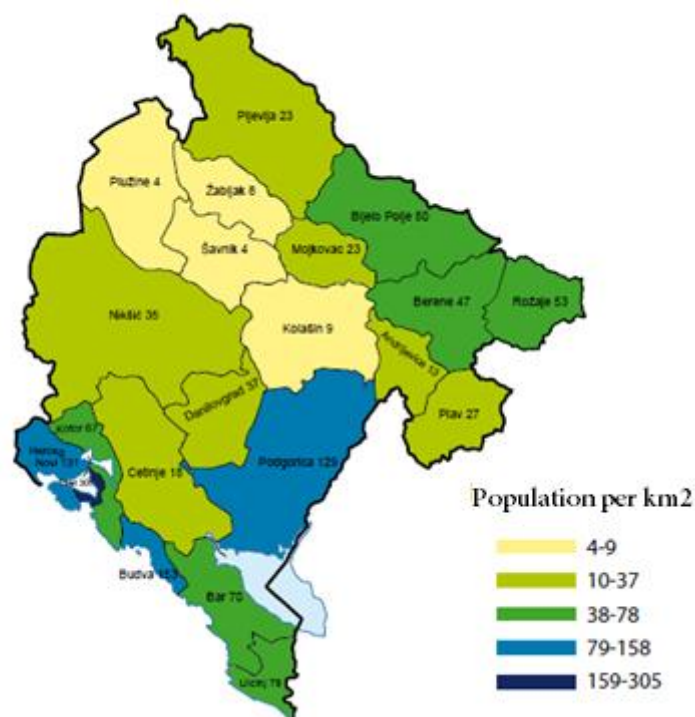




**Table 1: Distance between Podgorica and selected cities<sup>1</sup>**

From city	The distance of Podgorica (km)
Ankara	1798
Belgrade	422
Berlin	1662
Bratislava	986
Brussels	2057
Budapest	781
London	2418
Madrid	2799
Moscow	2615
Oslo	2838
Paris	2128
Prague	1309
Rome	515
Vienna	1135
Warsaw	1666

**Map 2: Map of Montenegro** (Source: MONSTAT)



<sup>1</sup> [www.travelmath.com](http://www.travelmath.com)

### 3.1.1 Facts about Montenegro

**Table 2: General information about Montenegro**

Official name	Crna Gora (Montenegro)
Surface area km <sup>2</sup>	13 812
Population <sup>2</sup>	620 029
Density of population	44,9
Capital city, Royal capital	Podgorica, Cetinje
Official language	Montenegrin
Currency	Euro - EUR
Political system	Parliamentary democracy
Electoral system	Proportional
Member of international organizations	UN, WHO, WTO, EBRD, WB, IFC, IBRD, IMF...
WB doing business 2011 (2010) rank	66 (65)
Bordering countries	Al, Kosovo, SRB, BiH, HR
Time zone	CET
Airports	Podgorica, Tivat
Sea ports	Bar, Tivat, Kotor
Geographic coordinates	42 30 N, 19 18 E
Corporate tax	Flat 9%
VAT (PDV)	17% and 7% tourism

Montenegro, Crna Gora, (MNE) is a Mediterranean country located in South-eastern Europe, on Balkan Peninsula.

Montenegro covers the area of 13 812 sq. km (land 13 452 sq. km, water 360 sq. km).

Bordering countries of Montenegro with the length of borders are: Albania 172 km, Kosovo 79km, Serbia 124 km, Bosnia and Herzegovina 225 km and Croatia 14 km, total land boundaries 614 km.

Length of the coastline is 293.5 km.

Capital and the largest city of Montenegro is Podgorica with the population of 185 937, or 30% of total population of Montenegro, while the Royal Capital is Cetinje (former seat of the throne) with the population of 16 657, or 2.7% of total population.

Currency in use in Montenegro is Euro. Euro has been in use in Montenegro ever since it was first introduced by the members of euro zone.

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<sup>2</sup> MONSTAT 2011

Montenegro was a part of Federal Republic of Yugoslavia, which regained its independence on the basis of a referendum held on 21<sup>st</sup> of May 2006.

Montenegro is an independent and sovereign state, with the republican form of Government.

President of Montenegro, Mr Filip Vujanovic

Prime Minister, Mr Igor Luksic

### 3.1.2 Population and population growth rate

Average age of the population in Montenegro is 37.2 years, and 63.23% of the total population lives in urban settlements while remaining 36.77% live in rural settlements.

**Table: 3 Population of Montenegro**

Population (male & female in %)	620 029 (49% & 51%)
Country comparison to the world (CIA)	167
Population growth rate	-0.705%
Nationality (noun)	Montenegrin(s)
Nationality (adjective)	Montenegrin
Languages	Montenegrin, Serbian, Croatian, Bosnian and Albanian

Results of the census of 2011 show, that the number of inhabitants in Montenegro have declined slightly (620029) since the last census in 2003 (620145).

**Chart 1: Population changes in Montenegro**

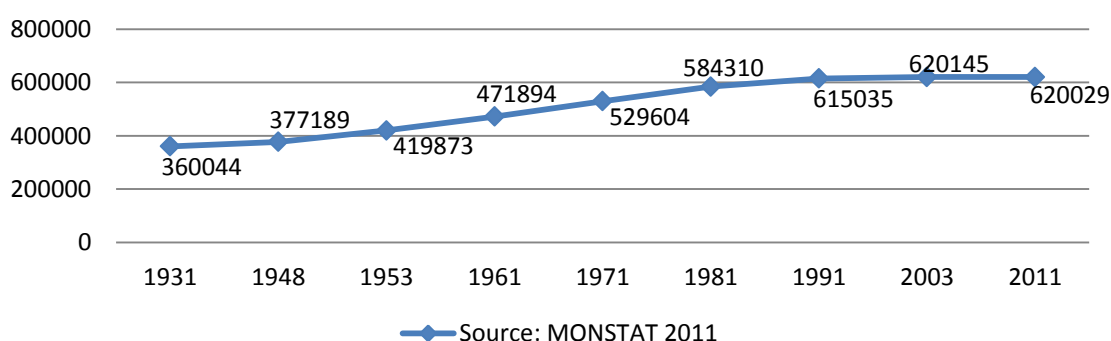
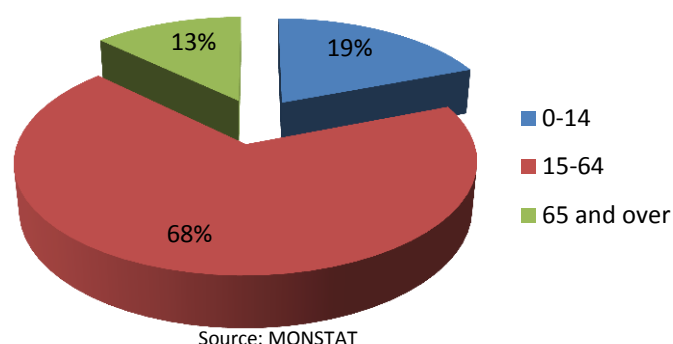


Chart 2: Population age structure in Montenegro



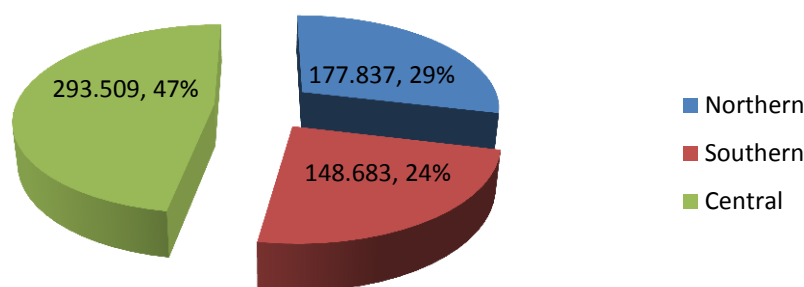
The most populated cities are Podgorica with 169 132 or 27.27%, and then Niksic and Bijelo Polje with the population of 75 282 (12.14%), and 50 284 (8.11%), respectively.

Table 4: Population of Towns in Montenegro (Source: Monstat)

Montenegro	620029	100%
Andrijevisa	5071	0.82%
Bar	42048	6.78%
Berane	33970	5.48%
Bijelo Polje	46051	7.43%
Budva	19218	3.10%
Cetinje	16657	2.69%
Danilovgrad	18472	2.98%
Herceg Novi	30864	4.98%
Kolasin	8380	1.35%
Kotor	22601	3.65%
Mojkovac	8622	1.39%
Niksic	72443	11.68%
Plav	13108	2.11%
Pljevlja	30786	4.97%
Pluzine	3246	0.52%
Podgorica	185937	29.99%
Rozaje	22964	3.70%
Savnik	2070	0.33%
Tivat	14031	2.26%
Ulcinj	19921	3.21%
Zabljak	3569	0.58%

According to the Chart 3., 29% of the population live in the northern region (Andrijevisa, Berane, Bijelo Polje, Kolasin, Mojkovac, Plav, Pljevlja, Pluzine, Rozaje, Savnik and Zabljak), 47% live in the central (Cetinje, Danilovgrad, Niksic and Podgorica) and 24% live in southern region (Bar, Budva, Herceg Novi, Kotor, Tivat and Ulcinj).

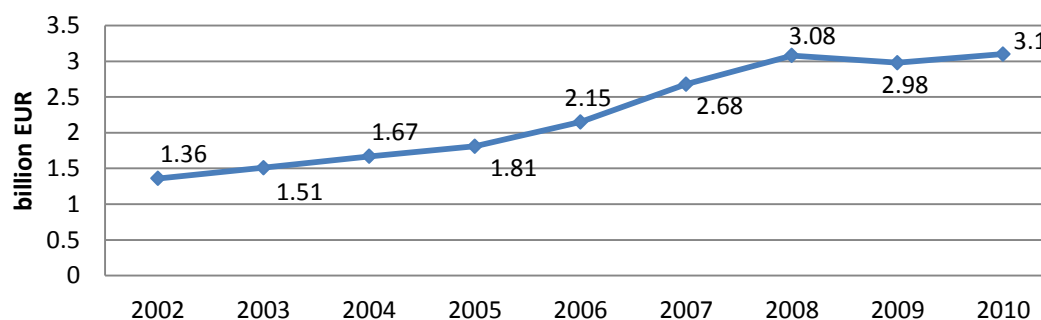
**Chart 3: Population according to the regions of Montenegro – (Source: Monstat)**



### 3.1.3 GDP and income in Montenegro

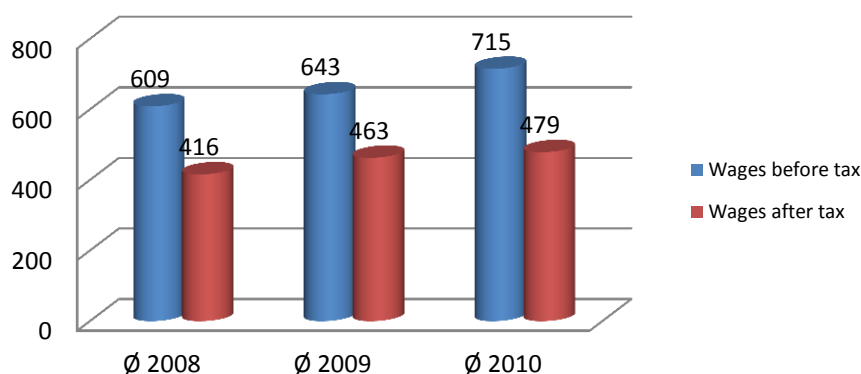
During the period 2002 – 2010 economy of Montenegro recorded constant rise except for 2009 when it slowed down due to the global crisis. In 2010 GDP of Montenegro was more than doubled in value compared to the situation in 2002. The highest increase was recorded in 2007 when GDP rose by over 10%. In 2009 Montenegro economy recorded GDP growth index of -5.7%, in 2010 it recovered slightly and scored the growth index of 1.1%. Forecasts for growth in this year are 2% according to IMF and 2.5% according to Ministry of Finance of MNE. GDP for Montenegro in current prices in year 2010 was EUR 3.1 billion Euros in current prices (expenditure approach), or just above 5000 EUR per capita, which makes economy of Montenegro 107<sup>th</sup> economy out of 226 countries analysed<sup>3</sup>.

**Chart 4: GDP rate at current prices (expenditure approach) – (Source: Monstat)**



<sup>3</sup> <http://www.indexmundi.com>

**Chart 5: Average wages in MNE in EUR (Source: Monstat)**



Average income is below the figure of 500 EUR, which defines the buying power of the citizens and is one of the main restraining factors when it comes to savings and investments in home improvements etc.

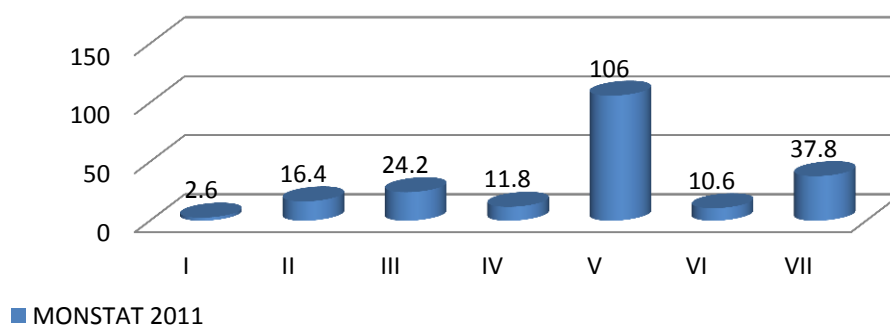
### 3.1.4 Education system, universities, rate of literacy

There are 3 universities in Montenegro, where study programs are organized in consistency with Bologna Declaration. The basic academic studies last for at least 3 years.

University of Montenegro comprises 23 different faculties, University Mediterranean 6 and University UDG, 5 different faculties, with the total capacity to educate 22 000 students per year. Every year just below 3000 students get to finish their studies and obtain certificates (in 2009, 2860).

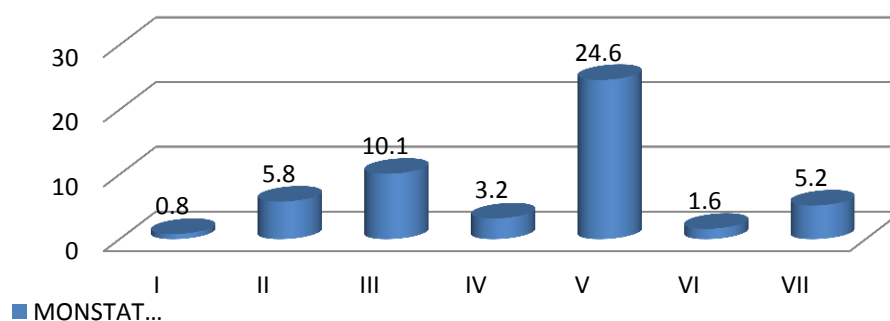
Charts 6 and 7 give us indication as to the education level of the population in Montenegro, including both populations, employed and unemployed.

**Chart 6: Education of the employed population in Montenegro in (000)**



I Less than primary; II primary education; III Vocational education after primary school; IV Secondary general education; V Secondary vocational education; VI First stage of tertiary education; VII Second stage of tertiary education, bachelors', masters, or doctors' degree

**Chart 7: Education of the unemployed population in Montenegro (in 000)**



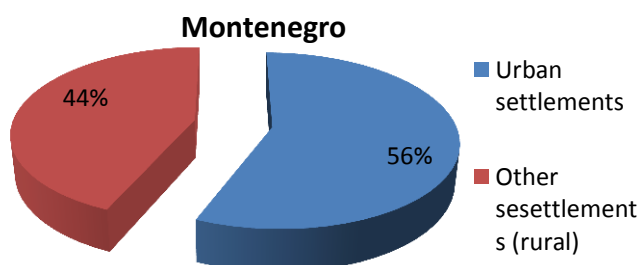
I Less than primary; II primary education; III Vocational education after primary school; IV Secondary general education; V Secondary vocational education; VI First stage of tertiary education; VII Second stage of tertiary education, bachelors', masters, or doctors' degree

It is indicative that there is a large percentage of unemployed population with vocational education, which is to say, persons likely to be very flexible and adoptable to accept new skills, should there be a real demand for.

### 3.1.5 Buildings allocation rate (Housing, industrial etc.)

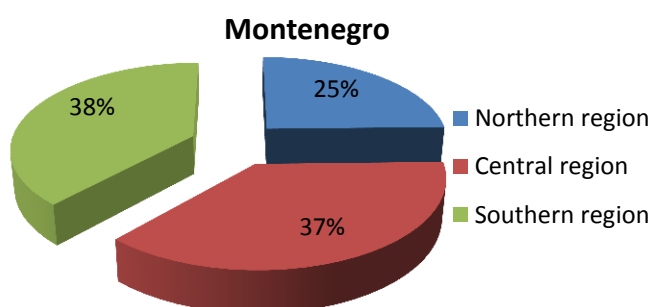
According to the Census of Population, Households and Dwellings in 2011 there are 314 704 dwellings. Out of the total number of dwellings 79% (247 354) are for housing, 20% (61 860) for seasonal use, 1% (3 755) for industry, while there is less than 1% (1735) with no data. Of the total number of dwellings for housing, 76.2% (188 376) are occupied dwellings, 21% (51 927) are temporarily vacant, and 2.9% (7 051) are abandoned dwellings (58 978).

**Chart 8: Allocation of the dwellings by the type of settlements (source: Monstat)**



According to MONSTAT there are 77 563 dwellings in the Northern region, 116 743 dwellings in the Central and 120 398 dwellings in the Southern region.

**Chart 9: Allocation of the dwellings by the region (Source: Monstat)**



Available dwellings in Montenegro cover an area of 15 353 116 m<sup>2</sup>, which is approximately 25m<sup>2</sup> of floor space per capita, compared to average for EU 27<sup>4</sup>, which is 34m<sup>2</sup> per capita. Average dwelling size in Montenegro is 66.2 m<sup>2</sup>.

There is no reliable data on size and allocation of industrial buildings, but large majority of the industry is situated in central region (Podgorica and Niksic).

Based on the information that non-residential buildings account for 25% of the total building stock in the EU 27 (Source: BPIE), it can be estimated that there are approximately 5.1 million m<sup>2</sup> of floor space belonging to non-residential building stock in Montenegro (wholesale and retail, offices, educational, hotels & restaurants, hospitals, sport facilities and other).

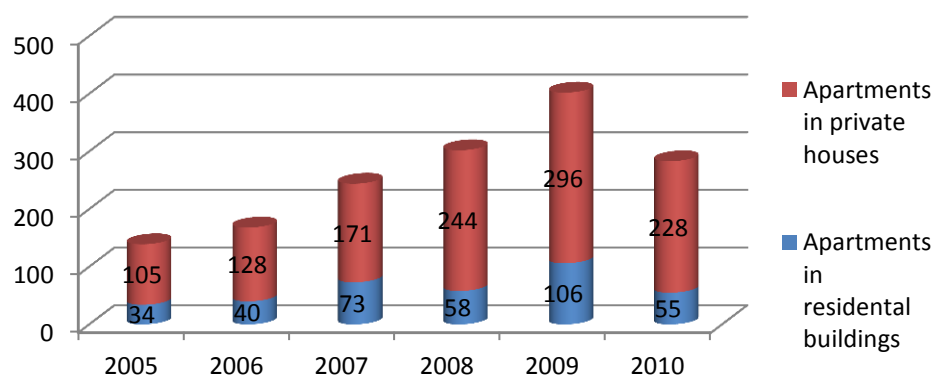
### 3.1.6 Illegal and restoration/renovation needed building rate

Rapid urbanization in the last several years, has had positive impact on GDP, but had its' negative side as well, including urban expansion along the Adriatic coast and surrounding area of Podgorica. This rapid unplanned urbanization has resulted in great number of non-formally built buildings. Non-formal, illegal, rate of buildings in Montenegro is estimated to be in range between 80 000 – 100 000 units, although there is no exact data.

### 3.1.7 New building need rate

Number of finished dwellings in Montenegro has recorded continuous and a steady rise in the period 2005-2009 despite the global financial crisis. In 2006 it rose by 21%, in 2007 it recorded rise of 45%, in 2008 23% and in 2009 rise was 33%, compared to the previous year.

**Chart 10: Finished dwellings in Montenegro in 000 square meters (Source: Monstat)**



Number of dwellings in 2010 has come to a sudden halt due to the global crisis and lack of investment capital; private houses have grown at a much greater pace than dwellings in residential buildings.

<sup>4</sup> BPIE



## 3.2 Energy information of Montenegro

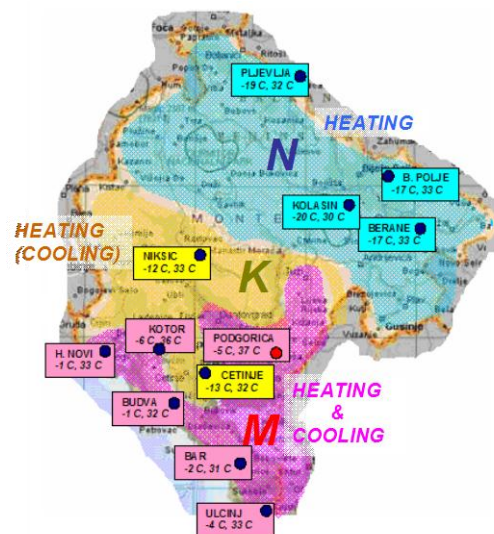
### 3.2.1 Coordinates of the country

Geographic coordinates of Montenegro are: 42 30 N, 19 18 E

### 3.2.2 Seasonal info, min-max open air temperature

Climate of Montenegro could be divided into three climate regions: Mediterranean M (pink), Continental Middle K (brown) and Continental Nord N (blue).

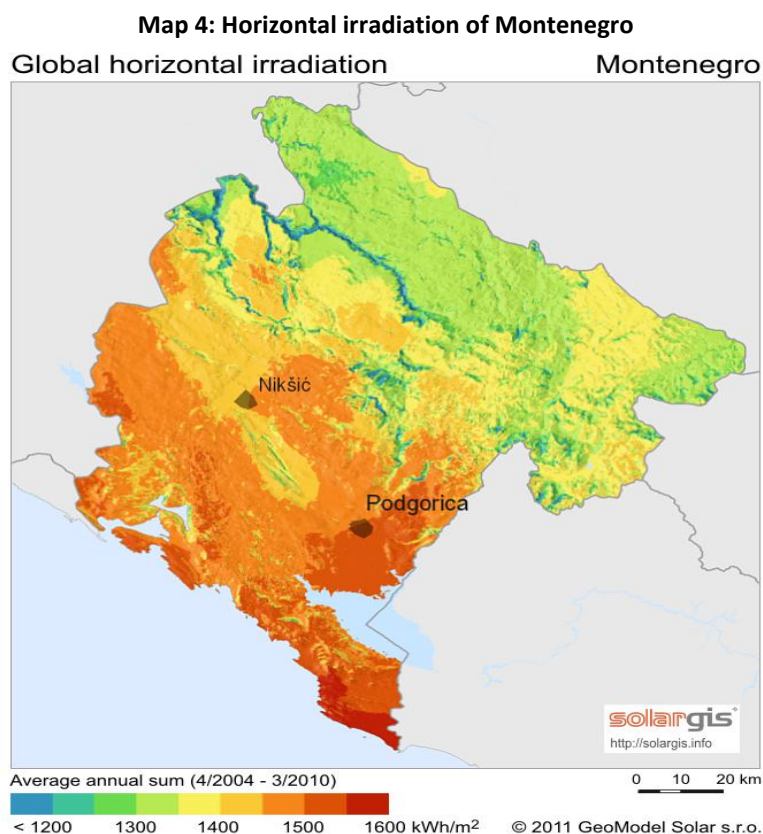
Map 3: Montenegro Climate conditions



According to the different climates different patterns for cooling and heating apply. Mediterranean climate region requires both, heating and cooling; in Continental Middle region heating is priority, although some cooling is required; and Continental Nord region requires heating as absolute priority.

### 3.2.3 Annual sunlight rate (regional and average)

Yearly solar energy potential is between 1500 and 2000 sunshine hours for the most parts of Montenegro and more than 2500 h along the coast. Podgorica the capitol of Montenegro has higher annual amount of solar energy (1600 kWh/m<sup>2</sup>/year) then some other major cities in the South-Eastern Europe (e.g. Roma or Athens). Solar radiation (solar flux) is estimated to be approximately 4 kWh/m<sup>2</sup>/day and has a range of maximum and minimum value of 2.6 – 4.67 kWh/m<sup>2</sup>/day.



Montenegro has great solar irradiation values; however the use of solar energy has not expanded due to the absence of a feed in tariff and other instruments and mechanisms to support investments in EE and RE projects.

It should be mentioned that solar energy was much more used in the past (1980) in many public objects and hotels. The total sum of installed solar collectors was about 11,000m<sup>2</sup> with approximately installed power around 5,500 kW. Due to the poor maintenance in the period of mid 1990 current usage is far below this level.

### 3.2.4 Energy Expenditure

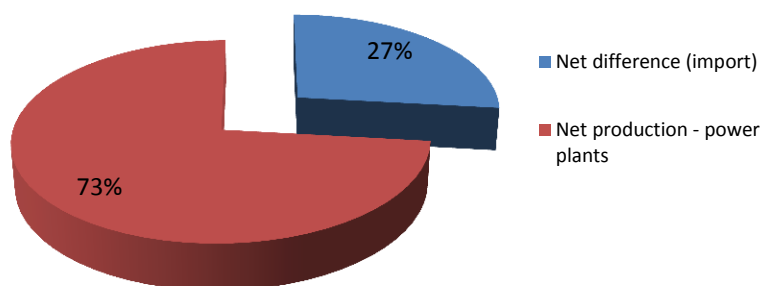
#### 3.2.4.1 Total Energy Expenditure

In the period before 1990 relation between end-supply energy and GDP had recorded growing trend up to 45% until 1991. From 1991 through 1994, this index of energy inefficiency falls down to 15% and after 1995 has permanent increase, so for the year 2003 it gets higher for 67% in compare to basic year, 1989. That means that energy consumption per unit of the gross product has been decreased for 67% in the recorded period of time. We had completely opposite process in developed countries, which illustrates very disturbing situation in this field and risk that energy sector in Montenegro becomes unsustainable.

### 3.2.4.2 General Approach about Energy Efficiency and Energy Expenditures

Despite of favourable geographical position and mild temperature in the most parts of Montenegro, almost 1/3 of the electric energy used in the 2009 was imported. Significant savings could be made, and therefore need for electric energy import could be amply reduced, if use of solar energy is increased and adequate energy efficiency measures are implemented.

Chart 11: Electric Energy delivered to Consumers according to the source



Source: MONSTAT

On 4<sup>th</sup> of June 2007, Montenegro has signed and ratified the Kyoto Protocol to the United Nations Framework Convention on Climate Change aimed at combating global warming becoming 174<sup>th</sup> country to do so. According to the assumed responsibilities Government of Montenegro has taken certain steps (adopted: law on energy efficiency, indicative target, action plan) towards achieving its goals, consequently providing new opportunities for development of a wide range of businesses and hampering the outpour of pricey energy. Original plans have not materialized in full, in a way that it stood short from establishing an Agency for energy efficiency and the energy efficiency fund that would follow, but it is reasonable to expect that these should be for the Sector for EE the most desirable steps in the near future.

### 3.2.4.3 Previsions of potential savings by Energy Efficiency Actions

#### Existing building stock

Most of the existing stock of the multi-storey buildings used for collective living was built during 60's and 70's of the last century. These building characterize negligence and dilapidation of the outside constructions, facade, flat roofs and the installations.

#### Public buildings – commercial sector

Main driving force in the implementation of energy efficiency measures in the sector of commercial public buildings is connected to the commercial aspect itself: reduced consumption of energy – reduced cost. Based on this assumption, tourism sector – hotels are the most important segment, having in mind that most of the hotels are situated in the

southern region – along the coastal line. In these buildings maximum consumption rate is during summer time dominantly related to the air cooling and water heating. It is also evident from that this sector has encountered rapid growth rate and consequently increased energy consumption.

However there is significant potential for implementation of energy efficiency measures: since these buildings must be cooled during the summer time, heat released by cooling equipment could be used for water heating. This way cooling system becomes heat pump “type 2” (cold cogeneration). Similar method could be used in supermarkets, using the heat released by different numerous coolers.

### **Public buildings – non-commercial sector**

Unlike the commercial sector, which typically characterize clearly defined owners, non-commercial sector of public buildings: schools, hospitals, administrative buildings as well as government buildings the ownerships are not as clearly differentiated.

According to general opinion, the dominant note in the initial phase of implementation of the EE project should be focused on this sector, since the results achieved on the buildings in this sector, could serve as a good practice examples, which should be replicated. Important effects are achieved in much improved conditions for the building occupants – schools, hospitals etc.

In connection with the state administrative buildings it should be emphasized that Energy Efficiency Strategy clearly promotes the view, that the Government shall demonstrate its commitment to developing policy in this area through buildings in the public sector managed by them. This can be achieved through programmed activities of the demonstration projects in the domain of energy efficiency in terms of energy rehabilitation of these buildings. In support of the above statement is the fact that Directive 2006/32/EC insists on the practice of this kind, with the idea that it becomes a new standardized concept.

### **New buildings**

New buildings should be designed in accordance with European regulations relating to energy efficiency, encompassing all elements of the impact on energy requirements: (a) climatic factors - impacts of the location, complex of architectural-building factors: external structures - facade (windows and full parts) and roofs, along with building materials, and installation of complex systems and devices for heating, cooling, air conditioning and lighting. Each building should receive official certificate ("Certificate") on energy consumption that would be placed on visible location inside the building. Issuing of energy certificates should be linked to the Building Use Permit, as conditional, and information about the class of buildings in terms of EE, communicated in the certificate, which should have significant impact on its market value.

#### **3.2.4.4      *Energy Production / Consumption Rates***

Total primary energy consumption in 2010<sup>5</sup> amounted to 0,717 Mtoe (100%). The main share in the consumption structure is petroleum products – 32,3%, followed by coal – 30,1% and hydro-energy –19,6% and firewood – 10%.

Final energy consumption in 2010 amounted to 0,714 Mtoe. The main share was of petroleum products - 43%, electricity - 40% and heating energy - 9%. The remaining (2%) was coal and firewood.

Consumption of petroleum products was on an increase of 6.3% due to a substantial consumption increase of diesel oil and gasoline. Share of firewood oscillated over the years, while the annual increase of this energy source amounted to 4.2%. The role of brown coal is totally negligible, while lignite consumption is on a downtrend.

Energy consumption in Montenegro in 2010 was around 0,717 Mtoe, or 0,009% of overall world consumption in primary energy (PE), while the population of country is 0, 01%.

Montenegro exploits brown coal, lignite, wood for heating, hydro energy and wood industrial waste, which results in about 54% of energy independence.

Electric energy in Montenegro is produced in following:

- HE Piva & Perucica 1.7 TWh
- TE Pljevlja 1.2 TWh
- Small hydro power plants 20 GWh

In 2010 Montenegro imported around 0, 35 Mten of oil, and more than one third of electric energy (1, 7 TWh), while export of energy on the other side was negligible.

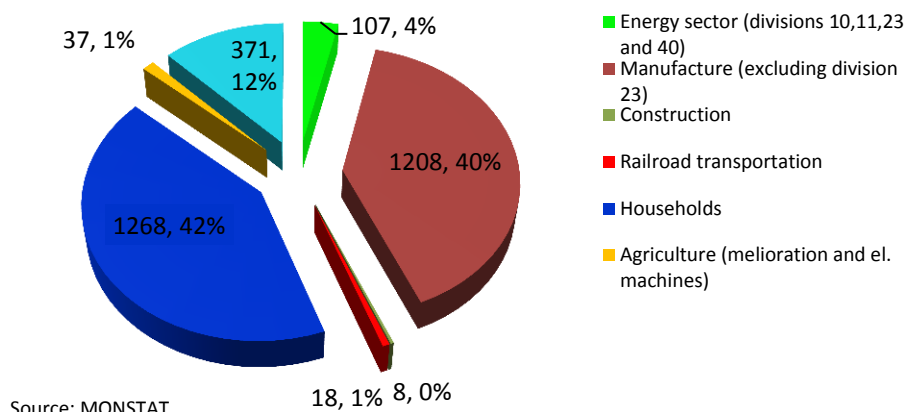
Consumption of final energy (FE) in 2010 was around 0,714 Mtoe, with highest ration of oil derivatives (43%), and electric energy (40%).

Chart 12 shows the structure of energy consumption in Montenegro, and provides the information where energy efficiency measures should have the highest impact. In case of Montenegro, it matches the world average, households (building sector) which represent 42% and manufacture – industry sector with 40% of total energy consumption.

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<sup>5</sup> ENERGY DEVELOPMENT STRATEGY OF MONTENEGRO BY 2025

**Chart 12: Energy consumption in Montenegro (in GWh)**



Consumption of electric energy in 2008 was 4,6 TWh, divided between distributive consumers (1,9 TWh or 41,5%) and direct consumers (1,955 TWh 42,6%) as aluminium industry (KAP), steel industry (Zeljezara Niksic) and state railway (Zeljeznica CG);

Liquid petrol gas (LPG) is present in Montenegro in form of small bottle packages for the industrial purposes mostly, service sector and households as well.

### **3.2.4.5 Previsions for Energy Consumption**

Energy sector, both from the aspect of production and from energy consumption aspect is of essential importance for sustainable development of Montenegro. This is due to the fact that supply of sufficient energy on one hand, represents a precondition for economic development and satisfactory living standard, while on the other hand, it is required to minimize impacts on the environment.

As a part of the process of harmonization of national legislation with EU legislation will be necessary to adopt new regulations and standards in the area of energy efficiency. Considering significant stagnation in the area of rational use of energy and its importance for economic and social development of Montenegro, special Law on Energy Efficiency has been adopted. EE Law defines terminology in the area of energy efficiency, goals, priority areas and administrative functional responsibility of the institutions of the authority as well as obligations of other participants, generators, supplies and users of energy, in terms of implementation of the Energy Efficiency Strategy.

## **3.2.5 Esco's (Energy Service Companies)**

### **3.2.5.1 Are there ESCO's in the country?**

Although recognized and defined by Energy Efficiency Law, there still exists no ESCO's in Montenegro. The fact that there is no enabling environment, in which they would be able to operate, is the main reason for their non-existence.

### **3.2.5.2 Do they have responsibilities in EE projects?**

At this point, ESCO's responsibilities and their role in EE projects in Montenegro is hard to analyse since there are no Energy service companies, popularly known as ESCO, operating in Montenegro. It can only be emphasised that there is a great need and potential, for the broad range of comprehensive energy solutions and services they provide.

## **4. Background of the country about EE Financing in Buildings**

In time when it is evident that due to the market failure EE holds significant potential to help much needed economic reforms, by providing competitive advantages to the SME sector, potential to relive significant financial funds currently being spent on energy bills, it is right to say that the government should take a leading role in providing the initial push.

Financial sector in Montenegro cannot praise itself for being innovative or/and inventive when it comes to financing EE, very often using, lack of demand for EE projects, as the key factor (excuse) for not having competitive loans.

Need for establishment of Agency for EE in Montenegro has been recognized in Action Plan for realization of the Strategy of EE for 2008-2012, adopted by GoM which stipulated: *"The most effective and functional option is establishment of Agency for Energy Efficiency. Its establishment, mission, objectives, functions and organization shall be closely defined by Law on EE. Establishment of the Agency should be supported by the Budget and international donations. Agency should be established in a sustainable manner maintaining its position as a central institution for EE, without competing with private sector"*.

Furthermore, Action Plan for implementation of Strategy for Energy development until 2025, for the period 2008 – 2012 anticipated establishment of Central Institution for EE - Agency (CIEE).

CIEE in Montenegro has not been established according to the Action Plans, and there are no signs that sufficient support for achievement of this strategic goal will be reached. Same verdict goes for establishment of EE fond, which again has not been established.

Low level of buying power of population in Montenegro, on one side, and usually quite expensive EE equipment and materials on the other, pose another obstacle that prevents people from making serious demand for greater implementation of EE measures.

### **Institutional Support for EE**

Sector for Energy Efficiency within Ministry of Economy is a responsible sector for creating and implementing energy efficiency policy. Sector for Energy Efficiency was established in November 2009.

The main objectives and mission of Sector for Energy Efficiency result from the competences of the Ministry of Economy related to the EE and according to the best EU practice. The main objectives include:



- Identification, analysis and proposition of technically possible and cost effective policies and measures for EE improvement related to the energy consumption side.
- Encouraging and promoting activities directed to savings and other EE activities, as well as reducing negative environmental impacts caused by energy conversions in energy consumption processes.
- Promotion of RE use and use of other non-traditional sources with low environmental impact.
- Promotion and participation in sharing knowledge and information with similar authorities of other countries and with international institutions and associations active in the EE field.

## 5. Laws, Legislations, Strategy Documents and Action Plans of the country about EE and/or EE Financing in Buildings

### 5.1 laws about EE in Buildings

#### 5.1.1 Number of Laws, date and purpose in short

- **Law on Energy Efficiency – EE Law** has been adopted on 22 of April 2010, by the Parliament of Montenegro.
- **Energy Law** - promulgated on 22nd of April 2010, by Parliament of Montenegro

Main purpose of EE Law is to govern the method for efficient use of energy, measures to improve energy efficiency and other issues important for energy efficiency.

It was considered as significant step towards enhancing EE in Montenegro; however the Law is still not enforced.

This Law specifies energy activities and regulates terms and conditions for carrying out of those activities in order to ensure quality and secure energy supply to final customers; public services and other activities in the energy sector of public interest for Montenegro; procedure for organization and functioning of the electricity and gas market; manner and conditions for use of renewable energy sources and cogeneration; energy efficiency in the sector of energy generation, transmission and distribution, as well as other matters of relevance for the energy sector.

The text of the Law on Energy Efficiency is compliant with main EU directives in the field of energy efficiency, as follows:

- Directive 2006/32/EC on energy end-use efficiency and energy services;
- Directive 2002/91/EC on the energy performance of buildings now amended to 2010/31/EU;
- Directive 2005/32/EC on establishing a framework for the setting of eco-design requirements for energy-using products, amended to 2010/129/EC



- Directive 92/75/EEC on the indication by labelling and standard product information of the consumption of energy and other resources by household appliances<sup>6</sup>, amended to 2010/30/EU.

Law is adopted by Parliament of Montenegro on April 22<sup>nd</sup> 2010. Law is published in O.G. of Montenegro, no. 29/10 from 20/05/2010.

Preparation and adoption of relevant bylaws is in progress with aim of completion of framework for the successful implementation of the Law. This process is now long overdue, as it was original planned for the adoption of relevant bylaws to be completed by May 2011. Without the adoptions of the bylaws the Law on EE is practically inapplicable!

- **Decision on Determining Indicative Energy Savings Target (regulation)**, has been adopted 14 of April 2011 by Government of Montenegro

Main purpose is to set measurable energy savings target, which is determined in the amount of 58, 9 ktoe (kilo tons of oil equivalent), i.e. 9% of final production of primary energy in Montenegro. Indicative energy savings target is determined by the end of 2018.

Main advantage is that the clear target has been set.

### 5.1.2 Legal requirements about EE, like Energy certificates for buildings

Law on EE does prescribe Building certificates and it does recognize ESCO's as important instruments for EE, but as it was mentioned above the Law has not been enforced as yet.

## 5.2 Strategy Documents

- 1) Energy Policy of Montenegro by 2030, adopted by Ministry of Economy in February of 2011 with the main purpose to establish energy development goals and the method and measures for their achievement.
- 2) Energy Development Strategy of Montenegro by 2025 – White book, adopted by Ministry of Economy in December of 2007, is a document that sets out specific objectives and defines mechanisms for shifting from classical understanding of supplying consumers with energy to a safe, competitive and environmentally acceptable supply of energy services
- 3) Energy Efficiency Strategy of Montenegro adopted in December of 2005  
The Energy Efficiency Strategy is underlining that efficient use of energy contributes to a more reliable energy supply, market competitiveness and environmental protection. It also confirms the significant role that energy efficiency has in creating new business opportunities and increasing employment, as well as other benefits at the local and global level.
- 4) Energy Efficiency Action Plan for the Period 2010 – 2012, adopted by Ministry of Economy in December of 2010, the overall objectives of the 1st EEAP are:
  - To implement the Law on Energy efficiency (LoEE) by completing the regulatory framework and straightening the institutional structures,

<sup>6</sup> <http://www.energetska-efikasnost.me>

- To increase awareness of the general public and substantially increase understanding, knowledge and capacity about the new legal requirements and good practices among institutions of the public sector, local authorities, big consumers, professional organizations and other stakeholders,
- To improve significantly the EE statistics system,
- To implement measures with tangible energy saving results.

### 5.3 Action Plan

Energy Efficiency Action Plan (EEAP) for 2008-2012 was adopted by the Government of Montenegro on May 29 of 2008. This version of the EEAP of Montenegro is substantially updated, taking into account the requirements of relevant directives, Law on Energy Efficiency, as well as initial remarks and comments from the Energy Community Secretariat and remarks from other participants relevant for implementation of EEAP.

Based on the priorities of the LoEE, the overall objectives of the 1st EEAP are:

- To implement the LoEE by completing the regulatory framework and strengthening significantly the institutional framework,
- To increase awareness of the general public and substantially increase understanding, knowledge and capacity about the new legal requirements and good practices among institutions of the public sector, local authorities, big consumers, professional organizations and other stakeholders,
- To improve significantly the EE statistics system,
- To implement measures with tangible energy saving results.

Second EEAP will be adopted not later than 30 June 2013; and the third EEAP not later than 30 June 2016.

#### 5.3.1 Existing Mechanisms for implementing Action Plans

In order to achieve the indicative target, significant financial resources must be mobilized. The State, Ministries, Municipalities and other stakeholders must commit the necessary human and financial resources, the energy market must be further liberalized, especially on the supply of energy services, as well as public-private partnerships in the field of energy efficiency must be developed.

Donors' and IFIs' assistance (both, financial and technical) have proven to have great importance for the implementation of the Plan. It is clear that from the day that the LoEE is adopted and the 1st EEAP prepared, all efforts, funds, resources and activities of Donors must be effectively co-ordinated with the ME/SEE and directed towards the two **strategic goals**:

- **Completion of the legislative framework and implementation of the LoEE** including development of secondary legislation, setting up implementation mechanisms in public sector organisations and Local Self-Governments, setting up monitoring and EE statistics mechanisms, etc. (primary legislative act - LoEE has not been put in force yet, mechanisms in public sector organisations and local governments are not in place, monitoring and EE statistics – not in place)
- **Implementation of the EEAP Actions** including demonstration projects, incentives for EE, targeted information campaigns, etc. (demonstration projects in public buildings

have been implemented - will be described later, some incentive mechanisms have been introduced but have proven to be inadequate, targeted campaigns have been implemented, but due to the scarcity of EE loans have not proven as effective as it was expected).

## **6. Financial and fiscal Instruments (project) present in Montenegro**

### **6.1 Preferential loans, subventions (subsidies), grants...**

- a) Montenegrin Energy Efficiency Project MEEP
- b) MONTESOL
- c) Technical Assistance for the Implementation of the Energy Community Treaty TA-EnCT (finished)
- d) Enhancement of Energy Efficiency in Montenegro (GIZ-ASE)
- e) Energy Efficiency Program in Public Buildings in Montenegro (EEPPB)
- f) Renewable Energies and Energy Efficiency in Montenegro RE-EE (finished)
- g) Incentives for installation of solar collector provided by Municipality of Podgorica and Budva

**“Technical assistance for the implementation of the Energy Community Treaty” - TA-EnCT** - is a project financed by EU in the frame of IPA programme and managed by the Delegation of the European Union to Montenegro. Project is implemented by Exergia S.A. (GR) in consortium with KANTOR S.A. (GR) and Mercados (ES) under a service contract signed with the Delegation of the EU to Montenegro.

The overall objective of the project is to assist in developing and implementing energy sector policies that will ensure the implementation of commitments of Montenegro under the Energy Community Treaty, including the implementation of the liberalized regional energy market.

The Direct Beneficiaries of the project are:

- Transmission System Operator and the Market Operator (A.D. Prenos)
- Energy Regulatory Agency, and
- Energy Efficiency Sector at the Ministry for Economy.

Project started on February 1<sup>st</sup> 2010 and planned duration was 18 months (finished end of 2011).

The project component related to EE consisted out of fourth tasks:

- Establishing standards, guidelines and models of EE, which includes harmonization of the existing and development of new regulations and other EE related documents in accordance with EU requirements;
- Development of Energy Efficiency Action Plan in accordance with requirements of Energy Community;

- Establishing of EE statistical and informational system, primarily for monitoring and verification of Energy Efficiency Action Plan, as well as for supporting of energy management;
- Preparation and implementation of capacity building, spreading of information and campaigning for awareness rising.

**Energy Efficiency Enhancement in Montenegro (GIZ-ASE)** - The GTZ ASE project started with its implementation in April 2008 based on the Agreement on Technical Cooperation between the Government of the Federal Republic of Germany and the Government of Montenegro. Initially, it was planned that the German Federal Ministry for Economic Cooperation and Development (BMZ) would support and assist the Government of Montenegro in its efforts in the area of energy efficiency. The German Government initiated the project “Advisory Services to Energy Efficiency” (ASE) through its implementation agency – German Technical Cooperation (GTZ) and provided the amount of 1.5 million € required for the first phase of the project.

In the meantime, as the project was developing and justified its existence, additional funds were provided, which extended the time of duration of the project and intensified the activities in this area. Namely, first of all the Norwegian Royal Ministry of Foreign Affairs participated in co-financing the project with an additional amount of 1.5 million € and the German Federal Ministry for Economic Cooperation and Development provided another 2 million €. Altogether, this represents the significant amount of 5 million € of funds in the form of a grant, with which the project will participate and support several different groups of activities until March 2013.

As a result of certain corporative changes and integrations of several organizations, German Technical Cooperation has changed its name, from January 2011, into Organization for International Cooperation (GIZ - Gesellschaft für Internationale Zusammenarbeit), continuing its activities in Montenegro.

Together with its strategic partner, the Ministry of Economy of Montenegro and Directorate for Development of Small and Medium Sized Enterprises GIZ ASE is implementing a series of activities that can be ranged in several categories:

- establishing and enhancing the legislative and institutional framework in the area of energy efficiency
- education of pupils in all elementary schools on the territory of Montenegro within the special project: “Energy Tour”
- campaign of awareness-raising about the proper meaning, importance and opportunities of energy efficiency
- education of the local engineers, certification of energy auditors as well as the very implementation of energy audits
- organizing conferences, fairs and other significant events with the aim to raise the level of awareness, dissemination of information, exchange of experiences as well as interconnecting relevant entities in the country, region and wider.

**Energy Efficiency Program in Public Buildings in Montenegro (EEPPB)** - The Program envisages to improve learning conditions for the pupils in Montenegro and to contribute to improved energy efficiency performance in targeted educational buildings.

The financing of the Program will be funded by the Government of the Federal Republic of Germany through KfW Entwicklungsbank as well as KfW own funds. The consulting services will also be financed by the German Government through KfW, total budget for the project is 12.5 mil EUR.

The Ministry of Economy (MoE) with its newly founded Sector for Energy Efficiency has the lead in the implementation of all energy efficiency projects under the new Law on Energy Efficiency and will be the Executing Agency for the program.

The works shall be divided into three clusters of buildings according to the three climatic zones, each with around 5 buildings. These 15 buildings will serve as pilot buildings and identified improvements on these 15 objects will be concluded in one year. Further 15 objects will be covered in the second phase/year. Potentially, 30 objects envisaged for the Program under consideration may be completed in this way in about 2 years.

The Program envisages to improve learning conditions for the pupils in Montenegro and to contribute to improved energy efficiency performance in targeted educational buildings. Accompanying Consulting Services are a vital component for ensuring the successful implementation of the Program through assisting the Montenegrin Government in meeting its obligations from the recently adopted Law on Energy Efficiency.

**Renewable Energies and Energy Efficiency in Montenegro RE-EE** – Programme implemented in Montenegro in the period 2006 – 2009 by the programme-Executing Agency - Directorate for Development of Small and Medium Sized Enterprises of Montenegro (SMEDA). Programme was financed through a financial contribution of the German Government, administered by KfW German Development Bank and KfW banks' own fund. The Programme measures comprise of the establishment of the Renewable Energies and Energy Efficiency Facility Montenegro in order to finance investments aimed at the implementation of energy efficiency measures and use of renewable energy in Montenegro, through selected partner banks. Total fund of the programme amounted to 3 million EUR. Main objective of RE-EE facility was to assure in a sustainable manner that an efficient and environmentally sound energy supply in Montenegro is provided, and to provide the opportunity to the SME sector to increase its competitiveness by reducing consumption of energy, and to increase the demand side for energy efficiency measures and use of renewable energies. Main component of the project was creation of Fund, under which loans were offered via local bank, to finance investments in energy efficient technologies and technologies for use of renewable energies.

**Subvention for installation of solar collectors provided by Municipalities of Podgorica and Budva** - For every square meter of solar collectors installed on the building, the investor is exempted from paying 120 EUR of communal taxes. This mechanism is aimed at the new buildings.

## 6.2 Target of these Mechanisms

a) **Montenegrin Energy Efficiency Project MEEP** - The Government of Montenegro has received a loan from the International Bank for Reconstruction and Development in the amount of EUR 6.5 million in order to finance the project entitled "Energy Efficiency in Montenegro" (hereinafter MEEP) which is mandated to improve energy efficiency in educational and healthcare facilities, as well as improving public awareness on measures of energy efficiency. Fifteen facilities were selected (8 schools, 1 student dorm and 6 hospitals). The project is being implemented since February 2009, and its implementation will last three years.

Measures relate primarily to: 1) improvement of system for heating and preparation of sanitary water, 2) improvement of energy performance of building envelope, and 3) improvement of interior lightning.

b) **MONTESOL** - Ministry of Economy of Montenegro, in cooperation with United Nations Environmental Programme (UNEP) and Italian Ministry for Environment, Land and Sea (IMELS), implements the project MONTESOL, aimed at offering an attractive and sustainable financial mechanism for obtaining a retail loan to install Solar Water Heating (SWH) systems. For the MONTESOL project, funds in the amount of 1 million USD were envisaged for project implementation and management and specifically to subsidize the interest rate of commercial banks. Objectives of this project are to lower the charged interest rates to the customers, to ensure financial institutions' participation by reducing the risk in entering a new market segment, to support the development of partnerships between commercial banks and suppliers of solar water heating equipment (SWH), as well as to increase the total emissions reduction by having SWH installations. As for the final consumer, that is the user of the loan, the objective of the project is to offer households in Montenegro an opportunity to generate economic and energy savings by using solar collectors to heat sanitary water, which would be purchased via a consumer loan. The project funds will be used to subsidize the interest rate of commercial banks.

## 6.3 Contracting parties

a) MEEP – Ministry of Education and Sports is responsible for implementation of energy efficiency project in educational facilities. Ministry of Health is responsible for implementation of the project in healthcare facilities, while Sector for Energy Efficiency of the Ministry of Economy is responsible for the implementation of the whole MEEP and for providing support for the Ministry of Health and Ministry of Education and Sports. Implementation of measures of energy efficiency is financed by MEEP

b) MONTESOL - The Ministry of Economy transfers funds in advance to banks, partners in the project (NLB Montenegrobanka and Hypo Alpe Adria bank). Funds are designated for interest rate subsidy up to 0%. Bank transfers the approved amount of the loan on the account of the dealer/installer based on submitted invoice/bill. Selected eligible dealers/installers of solar systems install and maintain solar systems for customers. Customer repays to the Bank the interest free loan in equal monthly instalments.

## 6.4 ToR

a) MEEP - Implementation of MEEP is defined in terms of reference. Work on the building begins with preparation of detailed energy audits that should indicate potential opportunities for energy saving. On the basis of the results from detailed energy audit, project documentation is prepared, representing a basis for preparation of tender document for procurement of goods and execution of works. Tender document is published and the most suitable contractor is selected, in accordance with procedures of the World Bank. The contractor procures the material and equipment and executes works on the facility. Technical and social monitoring as well as evaluation is conducted before and after the works, in order to show energy consumption and level of comfort before and after the investment, in order to justify invested funds and to use the results from the research for promotion and education of the public on measures of energy efficiency.

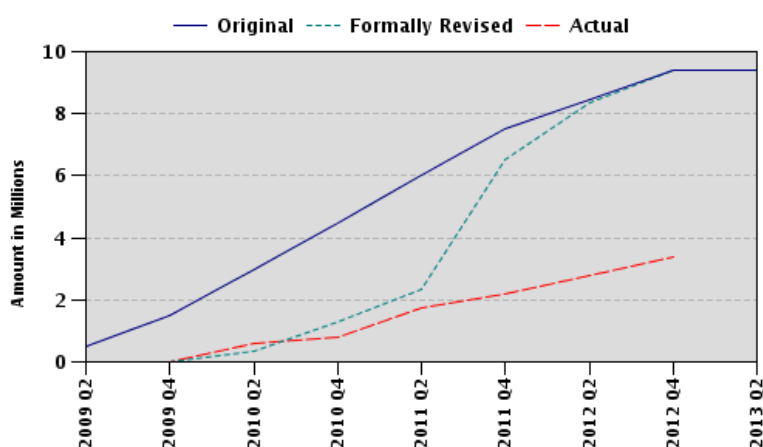
### b) MONTESOL

- Individual loans will be for a 3, 5 and 7 years duration in the amount of 1,350€, 1,800€ and 2250€, and will be paid out in monthly annuities that are interest-free.
- An interest rate and fee subsidy from ME/SEE to reduce the financing cost of these loans is aimed at bringing the interest rate to 0%.
- Simplification of all procedures and administrative channels in order to facilitate quick and efficient approval and disbursement of the SWH loan, including the reduced loan processing fees.
- The Eligible dealers / installers shall provide 7 (seven) year warranty period (except for guarantees of 5 (five) years on the tank and 10 (ten) years on the collector) for any complete or partial failure (except in improper working conditions). Dealers/installers are responsible for maintenance services of the installed system during the warranty and after warranty period.

## 6.5 Period of the Mechanism

### a) MEEP

Chart 13: Disbursement of the MEEP fund (source The World Bank public disclosure copy)





### **Current Status of the Project<sup>7</sup>:**

So far 3 schools and 2 hospitals have been retrofitted out of 15 objects (8 schools, 5 hospitals, 1 Clinic Centre, 1 Student Dorm). Civil works contract signed for the remaining 5 schools and work started, thermo-technical works contract signed for 4 schools and work started. Bidding for the remaining 3 hospitals is underway. CW technical Design consultant contract for the Student Dorm is signed.

So far 36% (3.4 mil USD) of the originally agreed amount (9.4 mil USD) has been disbursed.

**b) MONTESOL - Until the available funds in amount of 1 mil. EUR are spent.**

### **6.6 Which is the most used and Why?**

MEEP project has been implemented and has been coordinated by the WB and relevant Ministries and despite of the fact that it is running behind the schedule, it should be said that it is a project that will have significant impact from the aspect of the improved working/staying conditions, energy savings, reduction of GHG emission, as well as project that will serve as a good practices example that other sectors will want to follow.

### **6.7 Which is the least used**

It has been noted that despite of the obvious benefits, clients could get from the Montesol project, (credit with no interest), there has been no serious demand for installation of the solar collectors in Montenegro. For that reason Ministry of economy has reconsidered the ToR and have increased the maximum loan amount to 5000,00 €. General opinion is that the cost of the equipment, topped up with the installation cost, are still too high and potential customers are finding it hard to find economic reasoning behind the investment. When we are talking about an extra investment for potential investors (households), we need to consider available budget in relation with average household income!

### **6.8 Key findings about the end user sector support**

End user sector, companies or households, have not many options when it comes to EE to choose from, since there is very limited offer on the financial market for implementation of EE measures.

Energy efficient equipment and materials are still highly priced, which makes initial investment in EE very high. In addition to this, market still does not clearly differentiate energy efficient from the energy inefficient building, therefore when it comes to the new buildings, building companies decide for the cheaper – less energy efficient buildings.

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<sup>7</sup> The World Bank, Public Disclosure Copy



## **7. Activities done during the project period**

Within the project activities 2 study visits and 2 conferences were organised.

- Macedonia – visit was organised during the Energy Week, Macedonia 2011, where the project partners attended Regional Conference on EE. Also, we had the opportunity to visit demonstration Passive house in Macedonian town of Strumica. Study visit was a good opportunity to meet professionals from other countries from the region and EU, and exchange the experiences.
- Turkey – EUbuild EE project partners attended two days International Quality in Construction summit “Global Competition and Sustainability” – energy efficiency in buildings, during which they signed the Declaration, setting up the goals for further activities in the partner countries. Turkish Government representatives and representatives from private sector presented current situation and their targets for the future in the building sector in Turkey, within the lights of energy efficiency.
- Germany – Berlin, On 25th and 26th of April 2012 EUbuild project partners had a very productive set of meetings with German companies’ representative, KfW bank as well as German Government representatives.
- Belgium – Brussels, project partner were provided unique opportunity and meet with EU policymakers and high profile consultants, operating in the field of energy and energy efficiency. Researchers from all Balkan countries had the opportunity to present the SWOT analyses of their own country, on one of the workshops during the Brussels study visit.

### **7.1 RT meetings**

- 1<sup>st</sup> RT for the financial sector “Financial instruments for financing EE in Building Sector in MNE” was held on 19<sup>th</sup> of September 2011, in Podgorica, for financial sector.
- 2<sup>nd</sup> RT for the business sector “The best practices and perspective in the energy efficiency financing in building sector in Montenegro” was held on 23<sup>rd</sup> of September 2011, in Budva, for building sector.
- 3<sup>rd</sup> RT for the NGO sector “The best practices and perspective in the energy efficiency financing in building sector in Montenegro” was held on 26<sup>th</sup> of January 2012 in Podgorica, for NGO sector
- 4<sup>th</sup> RT was held for the mixed audience, including representatives from Government institutions – policymakers on 12<sup>th</sup> of April 2012, in Podgorica

### 7.1.1 Summary

Four Round Tables have been held with the focus on financial and other instrument to support EE in building sector, present in Montenegro and the perspectives for enhancing support for EE.

Attendance of the RT could be defined as fair, but it has been noted that the number of participants increased in each successive RT, so did the will to actively participate with their comments.

Project “EUbuild Energy Efficiency” and projects of similar nature are having positive impact on local stakeholders, decision makers, research community etc. and is considered as an important step and provides them with the insight on the current EE market condition in MNE, EU experience in the field of energy efficiency as well as necessity for further improvement of Energy Efficiency in Montenegro. EE projects greatly contribute towards awareness rising among the population in general, in the field of EE.

### 7.1.2 General findings

Despite the fact that Montenegro has solid legal framework, it needs to invest more towards implementing existing laws. Following the fact that Government of Montenegro has recognised importance of energy and potentials of EE it should work on establishing Agency for energy efficiency, as the main driving force for all EE issues in Montenegro.

EE Law does not only prescribe obligations and further burden for the society, but it defines set of very important mechanisms and instruments necessary for EE in all. Therefore, in order to avoid the situation where the Law becomes further barrier, it is essential that the Law and other strategic documents are implemented in full thus providing the frame for incentives and other support mechanisms necessary at this stage.

Mitigation of current situation: inefficient use of energies, high energy deficit, low level of awareness, etc. cannot be achieved only by the Government activities; there need to be much improved and much stronger cooperation among all stakeholders in the country; Local Authorities, Union of Municipalities, Energy companies, financial institutions, Public companies, NGO-s, private companies and the population in whole must all take their role and responsibilities. Strengthening the dialog among the stakeholders is a **must**.

Development of competitive information system, and introduction of smart meters, would help to build data base that would enable better insight and monitoring on one side, and will help on the future – long term decision making process.

## 7.2 Other activities

During the last twelve months period Project researcher and Project coordinator have participated in number of round tables, debates, panels etc., in the country. We had several dialogs with local

policymakers' representatives and representatives from the financial sector which served as good opportunities to exchange the views about financial market for EE in the country. It should be mentioned that we have attended and participated in one of the main international events, that was 2<sup>nd</sup> Energy Conference, held in Maastricht in April of 2012, where we had the opportunity to present regional (Western Balkan Countries) cross cutting issues on energy and energy efficiency.

## **8. Recommendations about EE financing in building sector**

### **8.1 Possible financial instruments**

Establishing closer cooperation between the main stakeholders, and engaging financial sector to actively participate could lead to establishment of much needed financial mechanisms and instruments:

- Green fund - preferential, project orientated
- Loans for improvement of EE (SME sector and households) - project orientated finance, risk sharing mechanisms
- Third party financing (ESCO)

### **8.2 Possible fiscal instruments**

In the process of market development fiscal instruments would provide an extra push to the development of EE scene in Montenegro. However we have to be realistic and have in mind current economic situation in the country and globally, where National budgets are being exposed under great pressure due to the poor countries' economy performances.

Tax reduction on all EE equipment would certainly contribute towards reduction of the cost of Energy Efficient investments; hence significantly increase implementation of EE projects.

### **8.3 Possible legal instruments**

Establishing proper framework for implementation of Law on EE that was adopted in 2010 would be a significant step in the right direction.

### **8.4 ESCO's**

As we have already mentioned, ESCO-s are non-existent at the moment, but crucial and essential mechanism for development of EE market in Montenegro.

In order to make possible: long time planning, projects implementation monitoring, evaluation of the projects results etc. reliable and comprehensive data base on National level should be established.

### **8.5 Recommendation for future EU support**

Continuous support provided by EU funds through financial and technical support (raising awareness projects, demonstration projects, capacity building, knowledge mobility,

innovation capacity building, etc.) has had important role in supporting development of Energy Efficiency in Montenegro. Greater inclusion of NGO sector, which has proved to be efficient partner when it comes to EU project implementation and making it easier for them to participate in EU funded projects (relaxation of financial guarantees and reduction of financial participation) would further contribute towards enhancement of the activities in the field of Energy Efficiency.

## 9. References

- Energy Policy of Montenegro by 2030
- Law on Energy Efficiency 2009
- Energy Development Strategy of Montenegro by 2025
- Energy Efficiency Strategy of Montenegro adopted in December of 2005
- Energy Efficiency Action Plan for the Period 2010 – 2012
- [www.energetska-efikasnost.me](http://www.energetska-efikasnost.me)
- <http://www.oie-cg.me/>
- <http://www.bpie.eu/>
- MONSTAT <http://www.monstat.org/cg/>
- SolarGIS © GeoModel Solar s.r.o.
- [www.travelmath.com](http://www.travelmath.com)

## 10 Appendixes

### 10.1 Curriculum Vitae – Nikola Vujosevic

#### **Personal Information**

**Name:** Nikola Vujosevic  
**Sex:** Male  
**Date of Birth:** 15.06.1963.  
**Nationality:** British / Montenegrin  
**Marital Status:** Married (two children)  
**Address:** Piperska b.b., 81000 Podgorica  
**Country:** Montenegro  
**Phone:** +382 67 214 554  
**E-mail:** v.nikola@t-com.me

#### **Work experience**

**Jun 2011 –**

##### **EUbuild – Project funded by European Union**

Employed as a local consultant – researcher in EU financed project EUbuild Energy Efficiency.

##### **Directorate for Development of Small and Medium Sized Enterprises – DDSME Podgorica Montenegro**

**Jan 2006 - Now**

##### **Senior Financial advisor (current full time employment)**

DDSME is a Governmental institution providing necessary assistance to the Montenegrin enterprises – SME-s. Head of energy efficiency department in DDSME

##### **Logico Investment ltd London UK, Project Manager**

**1999 - 2006**

Logico is a consulting company, established and main activities performed within the UK. I worked as a consultant on various projects, mainly with newly established companies, provided clients with expert advice on different aspects such as: finance, economics, management, marketing, human resources, technology, etc.

##### **Montenegro Financial Research - MFR Podgorica, Montenegro Director**

**1996 - 1999**

MFR was an off-shore company established under the special conditions prescribed by the Government of Montenegro. The core business was development of pre-feasibility and investment studies, analysis of local economy, collection and distribution of data necessary for foreign investors willing to start their business operation in Montenegro.

**Barbican Centre**  
**SAS Service and Partners** 1989 – 1995  
**London, UK**  
**Event Manager**

Barbican Centre is one of Europe's largest multi-arts and conference venue, owned, funded and managed by the City of London.

**Podgorica, Montenegro**  
**Junior Export Officer** 1987 - 1988

Industriaimport was the largest Montenegrin export/import company.

After graduation my first employment was at the position of Junior Export Officer where I gained first hand experience in international trade and business, customs and legal issues associated with doing business on the international market.

## **Education**

**Center for Development of Non-Governmental Organizations** 2009  
Management of EU funded projects, PCM

**ENSI-Energy Saving International AS Montenegro** 2008  
Financial engineering for energy Efficiency Projects

**Westminster Adult Education Centre, London UK** 1995 – 1996

**University of Montenegro, Faculty of Economics** 1982 - 1987  
**Podgorica**

Graduated Economist - Diploma – specialization in Tourism and catering

## 10.2 EE Law

Pursuant to article 82 paragraph 1 clause 2 and article 91 paragraph 1 of the Constitution of Montenegro, the Parliament of Montenegro during its 24th electoral term, on the fifth sitting in the first regular parliamentary session in 2010, on the day of 22nd of April 2010, promulgated

### **LAW ON ENERGY EFFICIENCY** **I GENERAL PROVISIONS**

#### **Scope of Law**

##### **Article 1**

This Law shall govern the method for efficient use of energy, measures to improve energy efficiency and other issues important for energy efficiency.

This Law shall not apply to energy efficiency of the facilities for production, transmission and distribution of energy.

#### **Interpretation of Definitions**

##### **Article 2**

Definitions used in the present Law shall have the following meaning:

1. "*energy*" is commercially available electrical energy and energy-generating products, natural gas (including liquefied natural gas), liquefied petroleum gas, heating and cooling fuels (including district heating and cooling), coal, transportation fuels (excluding fuels for aviation and maritime vessels) and biomass;
2. "*energy efficiency*" is a ratio between the energy consumption and realized output from performance in services, goods or energy;
3. "*energy efficiency improvement*" is the increase in efficient use of energy in final consumption as a result of technological changes, changes in management or in behaviour of energy consumers;
4. "*energy savings*" is the reduction in energy consumption determined by measuring and estimating consumption before and after implementation of one or more measures for improving energy efficiency, whilst ensuring adjustment to external conditions that affect energy consumption;
5. "*energy management*" is monitoring and analysis of energy consumption, performing energy audits, energy certification of buildings, implementation of energy efficiency measures, establishment and management of the
6. energy efficiency information system;
7. "*Energy Service Company (hereinafter referred to as: ESCO)*" is a legal person that delivers energy services with the purpose of improving energy efficiency in a user's facility or premises, and accepts some degree of financial risk, from the aspect of the payment of the services based on the achievement of energy efficiency improvements;
8. "*energy performance contract*" is a contractual agreement for provision of energy services between beneficiary and, usually, an ESCO, according to which the implementation of measures is paid relative to a contractually agreed level of energy efficiency improvement;
9. "*third party financing*" is a contractual arrangement involving a third party (ESCO or another legal entity) in addition to the energy supplier and the beneficiary of the energy efficiency improvement measures, that provides financial resources for implementation of measures and charges the beneficiary a fee equivalent to a part of the energy savings achieved as a result of the energy efficiency improvement measures;
10. "*energy audit*" is a procedure to determine the status of the energy consumption of built structures, identify energy efficiency measures and their cost-effectiveness;
11. "*energy entity*" is an enterprise, legal entity or entrepreneur performing activities of production, transmission, distribution or supply of energy;
12. "*final consumer*" is a natural or legal entity, big consumer, institution of the public



administration or local authority, as well as any other institution or organization, that purchases energy for its own end-use;

13. *"energy-generating product distributor"* is an energy entity performing the activity of distribution (trade and transport) of energy-generating products to final consumers and to facilities for distribution of energy-generating products;

14. *"heat distributor"* is an energy entity performing distribution of heat for district heating and/or cooling;

15. *"distribution system operator"* is an energy entity performing distribution of electricity or natural gas;

16. *"energy supplier"* is an energy entity that sells electricity, gas (liquefied natural gas and liquefied petroleum gas) or heating to the end users;

17. *"big energy consumer"* is a final energy consumer, whose overall annual energy consumption exceeds the prescribed limits of energy consumption values;

18. *"building"* is a structure consisting of construction, installations, built-in equipment and premises where energy is used in accordance with the purpose of the building;

19. *"air-conditioning system"* is a system that provides humidity, temperature and air-quality control, in order to create desirable indoor comfort in the building;

20. *"heating boiler"* is a device wherein water is warmed by the heat energy released in the process of combustion of the energy-generating products or by transformation of electricity into the heat energy;

21. *"household appliances distributor"* is an retail seller or another legal or natural person that sells, leases or displays for sale household appliances to end users;

22. *"household appliances supplier"* is a manufacturer, its authorised representative registered in Montenegro, importer or another legal or natural person that places household appliances on Montenegrin market;

23. *"eco-design"* is a collection of requirements that an energy-using product must fulfil in relation to environmental protection, within the lifetime of the product;

24. *"household appliances"* means refrigerators and freezers, washing machines, driers, ovens, dishwashers, air-conditioning appliances, network-supplied electrical light sources, water heaters, boilers, and the like.

25. *"local self-government unit"* implies the Administrative Capital, the Historical Capital and municipalities;

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25. *"small distribution system operator and small energy supplier"* shall signify a legal person that annually distributes or sells less than 75GWh or equivalent amount of energy, or employs fewer than 10 persons or with the annual revenues not greater than 2.000.000,00 EUR.

## **II ENERGY EFFICIENCY DOCUMENTS**

### **Documents**

#### **Article 3**

Energy efficiency documents shall include:

- Energy Efficiency Strategy;
- Energy Efficiency Action Plan;
- Annual operational plan for energy efficiency improvement in public administration institutions and
- Energy Efficiency Programmes and Plans of the Local Self-Government Units.

### **Energy Efficiency Strategy**

#### **Article 4**

Energy Efficiency Strategy (hereinafter referred to as: the Strategy) shall set forth the policy of energy efficiency, lay out activities on improving energy efficiency, particularly:

- An overall energy efficiency development concept;

- National indicative energy saving targets;
- Guidelines to achieve indicative targets and
- Institutions in charge and implementation timeframe of the specific activities.

The Government of Montenegro (hereinafter referred to as: the Government) shall adopt the Strategy for the period of 10 years.

## **Energy Efficiency Action Plan**

### **Article 5**

The Strategy is implemented by means of Energy Efficiency Action Plan (hereinafter referred to as: Action Plan), which is adopted by the Government for the period of three years.

Action Plan shall comprise:

- national indicative energy savings target for the period of three years, pursuant to the indicative targets set forth in the Strategy;
- energy efficiency measures to achieve the indicative target and methodology of their implementation;
- timeframe dynamics for implementation of measures to achieve the indicative target;
- assessment of the progress made in achieving targets in the period prior to Action Plan and
- estimation of the resources needed for implementation of the Action plan, as well as the sources and methods for their securing.

Energy efficiency improvement measures, in terms of this law, shall signify concrete actions and activities that lead to a verifiable, measurable or estimable energy efficiency improvement.

Public administration institution, responsible for the field of energy efficiency (hereinafter referred to as: the Ministry) shall monitor the implementation of the Action Plan referred to in

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paragraph 1 of this Article, as well as submit the report on its implementation to the Government the latest on March 31 of the current year for the previous year.

## **Annual Operational Plan for Energy Efficiency Improvements in Public Administration Institutions**

### **Article 6**

Annual operational plan for energy efficiency improvements in public administration institutions shall set forth:

- measures to be implemented where the public administration institutions operate;
- dynamics and methodology of implementation of measures and
- resources required to implement the measures, as well as the sources and methods for their securing.

The Government shall adopt the operational plan referred to in paragraph 1 of this Article, in accordance with the Action Plan.

Sources required to implement the operational plan referred to in paragraph 1 of this Article shall be provided from the public budget of Montenegro.

## **Energy Efficiency Improvement Programme of Local Self-Government Unit**

### **Article 7**

Local self-government unit shall adopt the Energy Efficiency Improvement Programme in compliance with the Strategy and the Action Plan.

Programme referred to in paragraph 1 of this Article shall be adopted for the period of three years and shall comprise of:

1. proposal of the energy efficiency measures within the jurisdiction of the local selfgovernment unit, especially including:
  - o plans for refurbishment and maintenance of buildings, used by the local selfgovernment units and authorities, public offices and public companies founded by the local self-governing authority, in order to improve energy efficiency;

- plans for improvement of public utility services (public lighting, water supply, waste management and the like) and transportation, aimed at improving energy efficiency;
  - specific energy efficiency measures in buildings protected as cultural heritage and the like;
  - other energy efficiency measures to be implemented on the territory of that local self-government unit.
2. timeframe and methodology for implementation of the given measures and
  3. resources needed for implementation of the Programme, as well as the sources and methods for their securing.

### **Compliance of the Energy Efficiency Improvement Programme with the Action Plan**

#### **Article 8**

Local Self-government Unit shall submit the Energy Efficiency Improvement Programme, to the Ministry, with the purpose of assessing its compliance with the Action plan.

### **Financing Energy Efficiency Projects of Local Self-Governing Units**

#### **Article 9**

Energy efficiency stimulus for the local self-government unit may be provided out of the public budget of Montenegro, only if based on the Energy Efficiency Programme, which is in compliance with Action Plan.

The local self-government unit may, out of its own resources, finance certain energy efficiency projects even if they have not been defined by the Energy Efficiency Programmes provided that they are not contrary to the Action Plan.

### **Energy Efficiency Improvement Plan of Local Self-governing Unit**

#### **Article 10**

The local self-government unit shall implement Energy Efficiency Programme referred to in Article 7 of this law with the annual Energy Efficiency Improvement Plan.

The Energy Efficiency Improvement Plan referred to in paragraph 1 of this Article shall contain:

- implementation measures that are planned;
- timeframe and methodology for implementation of the defined measures and
- resources needed for implementation of measures, as well as the sources and methods for their securing.

The Energy Efficiency Improvement Plan referred to in paragraph 1 of this Article shall constitute an integral part of the Budget of local self-government unit.

### **Report on Implementation of the Energy Efficiency Improvement Plan**

#### **Article 11**

The local self-government unit shall submit to the Ministry the Report on Implementation of the Energy Efficiency Improvement Plan.

The Report on Implementation of the Energy Efficiency Improvement Plan referred to in paragraph 1 of this Article shall be submitted the latest on the March 1<sup>st</sup> of the current year, for the previous year.

Detailed content of the Report referred to in paragraph 1 of this Article shall be determined in the legal act enacted by the Ministry.

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## **III INDICATIVE ENERGY SAVINGS TARGET**

### **Indicative Energy Savings Target**

#### **Article 12**

National indicative energy savings target shall mean planned savings in the final energy consumption in Montenegro, expressed as an absolute amount in GWh or in an equivalent unit,

as well as the percentage of the final average energy consumption.

Indicative energy savings target referred to in paragraph 1 of this Article shall be calculated on the basis of available data for the last five years.

The Government shall determine the national indicative energy savings target referred to paragraph 1 of this Article.

Methodology for calculating indicative energy savings target shall be in the legal act enacted by the Ministry.

## **IV COMPETENCE FOR IMPLEMENTATION OF THE ENERGY EFFICIENCY POLICY**

### **Competence of the Ministry**

#### **Article 13**

The Ministry shall, in terms of implementation of this law:

- monitor implementation of the Strategy and the Action Plan and submit to the Government the Annual Report on implementation of the Action Plan;
- cooperate with international institutions with respect to implementation of the energy efficiency programmes;
- provide expertise to local self-government units for development of energy efficiency improvement programmes so as to harmonize them with the Action Plan;
- establish and manage information system for monitoring of energy consumption in Montenegro;
- collect data on the consumption of all forms of energy as well as on factors affecting the given consumption;
- issue authorisations for performing energy audits and certification of buildings;
- keep the record of persons authorised to perform energy audits and certification of buildings;
- promote implementation of energy efficiency measures and publish information with the purpose of informing and raising awareness of consumers regarding significance and effects of energy efficiency;
- organise training programmes with the purpose of implementation of energy efficiency measures and
- carry out other activities in accordance with this law.

### **Competences of Local Self-government Unit**

#### **Article 14**

A local self - government unit shall:

- perform energy management of buildings, or of built structures, used by the local selfgoverning unit, public offices and public companies founded by the local authority;
- inform citizens on the possibilities for improving energy efficiency and benefits and effects of the implementation of the energy efficiency measures;
- determine simulative measures for improving energy efficiency within its jurisdiction and
- establish and manage information system for monitoring of the energy consumption within its own premises in accordance with item 1 of this Article.

### **Cooperation between Distribution System Operator, Energy Supplier and Energygenerating Product Distributor and Ministry**

#### **Article 15**

Distribution system operator, energy supplier and energy-generating product distributor is required to submit data on energy and energy-generating product consumption at least once a year to the Ministry.

Data from paragraph 1 of this Article shall contain:

- an overview of the energy and energy-generating product consumption, according to the structure, buyer categories and types of consumption;

- geographical location of buyers;
- evaluation of the energy efficiency state;
- proposals for energy efficiency improvement measures and
- other data relevant to the energy efficiency;

Further content of the data referred to in paragraph 2 of this Article, as well as the submission method shall be determined by the legal act enacted by the Ministry.

## **Obligations of the Distribution System Operator and Energy Supplier**

### **Article 16**

A distribution system operator or a supplier of electrical or heating energy, or of natural gas, are required to provide the final consumer with the individual energy consumption metering devices, so as to determine data on actual energy consumption and the actual time of use.

Billing on the basis of actual energy consumption shall be performed in accordance with the contract on energy delivery.

The supplier of electrical or heating energy, or of natural gas, from paragraph 1 of this Article, is required to display in the bill to the final consumer the data on:

- the current costs for consumed energy;
- the price and the actual energy consumption;
- the comparison of energy consumption for which the account has been issued with the energy consumption in a same period previous year, if possible in graphic form;
- the comparison of energy consumption with the average energy consumption values of the consumer from the same consumer group and
- ways to obtain information on available energy efficiency measures, as well as specifications of equipment and devices used to acquire a greater level of energy efficiency.

## **V ENERGY EFFICIENCY MEASURES**

### **Obligations of a Public Sector**

#### **Article 17**

Public administration bodies, organizations, regulatory bodies, agencies, local self – governing units and public companies are required to perform energy management at the premises in which they operate.

Energy efficiency measures of persons referred to in paragraph 1 of this Article, aside from the activities to improve energy efficiency measures, shall encompass introduction of the employees to the energy efficiency measures and of their implementation, as well as all establishing and implementing energy efficiency criteria in relation to procurement of goods and services.

The Ministry shall determine the list of energy efficiency measures referred to in paragraph 2 of this Article, as well as guidelines for their implementation.

### **Public Procurement of Goods and Services**

#### **Article 18**

Upon deciding on the choice of supplier within the procedure of public procurement, energy efficiency of goods and services shall be evaluated and priority shall be given, under equal conditions, to the procurement of the equipment and services, allowing for a greater level of energy efficiency.

The energy efficiency level shall be evaluated based on the analysis of the costs of total energy consumption and maintenance within the usual usage lifetime.

The evaluation of energy efficiency from paragraph 1 and 2 of this Article shall be performed based on methodology for the determination of the level of energy efficiency, which, based on types of goods and equipment, shall be determined by the Ministry.

### **Purchase or Lease of Buildings**

#### **Article 19**

Upon purchase or lease of buildings, built structures or parts of the building for persons referred to in Article 17 paragraph 1 of this law, the priority must be given, under equal conditions, to buildings with higher level of energy efficiency level.

### **Obligations of Big Energy Consumer**

#### **Article 20**

Big energy consumer is required to adopt and submit to the Ministry an annual plan for energy efficiency improvement the latest on December 15<sup>th</sup> of the current year, for the following year, to implement energy efficiency measures, and specifically to:

- establish an adequate organization structure for energy management and appoint a person responsible for energy management;
- provide regular performance of energy audits and implement cost-effective energy efficiency measures determined and
- provide monitoring records of energy consumption, that is, establish an adequate information system within premises.

The Ministry shall enact the legal act determining limits for energy consumption to define a big consumer.

Big energy consumer shall submit to the Ministry the annual report on implementation of the plan referred to in paragraph 1 of this Article, not later than March 1<sup>st</sup> of the current year for the previous year.

Detailed content of the annual plan referred to in paragraph 1 of this Article and of the annual report referred to in paragraph 2 of this Article shall be determined in the legal act enacted by the Ministry.

### **Energy Efficiency of Buildings**

#### **Article 21**

Each new building or building that undergoes major renovation, depending on the type and purpose, must be designed, built or renovated and maintained in such a way that during the usage it possesses designated energy performance.

Energy performance of a building referred to in paragraph 1 of this Article is actual or estimated amount of energy which is consumed to meet the different needs of the building depending on the type and purpose of the building, and it includes heating, hot water preparation, cooling, ventilation and lighting.

The amount of energy referred to in paragraph 2 of this Article shall be expressed through indicators, which are calculated by taking into account thermal insulation, performance of technical systems of a building, design and location of the building, climate conditions, influence of adjacent structures, its own energy production, and all other factors influencing the energy consumption.

Permitted values of the annual specific energy consumption according to the type and purpose of the building, characteristics of the building envelope from the thermal insulation aspect, energy consumption for the preparation of hot water and other minimum requirements regarding energy efficiency, as well as the methodology for calculating energy performance of buildings, shall be determined by the Ministry, with the approval from the Ministry responsible for the building sector.

### **Energy Audits**

#### **Article 22**

Person referred to in Article 17 paragraph 1 of this law is required to allow the energy audits of buildings to be performed within the premises they make use of, and whose useful floor area is more than 1000 m<sup>2</sup>.

Energy audits of buildings or built structures must be also performed for buildings or built structures, which according to the type and the purpose shall be determined by the Ministry. Methodology and deadlines of performing of energy audits from paragraph 1 and 2 of this



Article shall be determined by the legal act enacted by the Ministry.

### **Method of Performing of Energy Audit**

#### **Article 23**

Energy audit of buildings or built structures may be performed by an enterprise, entrepreneur or legal entity authorized for energy audit (hereinafter referred to as: the authorized person).

Energy audit of buildings or built structures shall consist of data gathering, measuring premises' final energy consumption of the structure or building, estimation of energy efficiency, and identifying measures which need to be undertaken for energy saving.

Commissioner of the energy audit is required to make accessible to the authorized person referred to in paragraph 1 available data for energy audit, technical documentation of the building or built structure for the energy audit and environment for the unobstructed energy audit of the structure.

After energy audit referred to in paragraph 1 of this Article is performed, the authorized person that performed the energy audit shall prepare the audit report, which shall particularly contain:

- data on energy consumption with the indicators of consumption of the building or built structure;
- data on harmonization of performance of the building or built structure, with technical regulations on energy performance of buildings and other energy efficiency regulations;
- estimation of energy efficiency with indicators based on which the assessment was made;
- proposal of measures for reducing energy consumption and improving energy efficiency with estimation of energy savings and methods for defining the savings;
- estimation of cost effectiveness of implementation of energy efficiency improvement measures, and
- proposal of energy management with the purpose of improving energy efficiency.

The authorized person of this Article shall submit to the Ministry a copy of the report referred to in paragraph 4 of this Article, within 30 days from the date of performing of the audit.

### **Energy Audit of Boilers**

#### **Article 24**

The owner of a building or a special part of the building with a heating system fired by gas, liquid or solid fuels of nominal capacity of 20 kW or more is required to organize implementation of regular energy audits of boilers.

### **Energy Audit Air-conditioning Systems**

#### **Article 25**

The owner of a building or a special part of the building in which an air-conditioning system of nominal capacity of 12 kW and more has been installed, is required to organize implementation of regular energy audits of air-conditioning systems.

Method and deadline to perform the energy audit of a boiler referred to in Article 24 of this law and an air conditioning system from paragraph 1 of this Article shall be determined in the legal act enacted by the Ministry.

### **Certification for Buildings**

#### **Article 26**

Based on the report on performed energy audit of the building, the authorized person issues a certificate on energy performance of the building.

Certificate referred to in paragraph 1 of this Article shall contain in particular:

- reference values of a specific energy consumption according to the type and purpose of the building, in accordance with the technical regulation;
- values of a specific energy consumption of a building and
- proposal of energy efficiency improvement measures.

The certificate from paragraph 1 of this Article shall be issued on the period of 10 years.

The Ministry shall keep records of issued energy certificates.

The authorized person, who performed the audit, is required to submit the copy of the issued certificate to the Ministry, within 8 days from the date of issuance.

The Ministry shall, by enactment of a legal act, more closely determine the methodology of certification of buildings, method of determination of the energy class of the building, form and content of the table on basic energy performance of the building referred to in Article 29 of this law, content of certificate and registry of issued certificates of energy performance of the building.

### **Obligations of the Building Owner**

#### **Article 27**

Before the change in the ownership or lease of the building or its part, the building owner is required to hand over the certificate on the energy performance of the building to a buyer, that is, shall make it available to a lessee.

### **Obligations of the Investor**

#### **Article 28**

Besides the request for issuance of the usage permit, the investor is required to submit certificate on energy performance of the building.

### **Data on Energy Performance of Buildings**

#### **Article 29**

Persons referred to in Article 17 paragraph 1 of this law is required to place the table containing basic information from the certificate on the energy performance of the building in clearly visible location at the premises it makes use of.

Certain types of buildings, which in accordance to their purpose do not have to fulfil requirements on minimum energy performance and do not have to be certified, shall by determined by a legal act enacted by the Ministry.

### **Requirements to Obtain Authorization to Perform Energy Audit**

#### **Article 30**

Enterprise, entrepreneur or legal entity may obtain authorization to perform energy audit that:

- is registered in the Central Registry of the Commercial Court for: design, supervision of construction, maintenance of buildings, energy management and provision of energy services;
- has one person permanently employed with a degree in technical sciences, with at least five years of working experience in fields of design, supervision of construction, maintenance, examining energy facilities and installations, performing of energy audits, and who was trained under the Training Programme for Acquiring Authorization for Energy Audit.

The Ministry shall determine the fulfilment of requirements referred to in paragraph 1 of this Article, as well as shall issue the authorization to perform energy audit.

The authorization referred to paragraph 2 of this Article shall be issued for the period three years

The authorization referred to paragraph 2 of this Article may be extended upon the request submitted two months before the expiration of the validity period referred to in paragraph 3 of this Article.

Training Programme referred to paragraph 1 item 2 of this Article shall be determined and provided for by the Ministry.

### **Issuing Method of Authorization**

#### **Article 31**

Authorization referred to in Article 30 of this law shall be issued based on the request, containing evidence to prove fulfilment of given requirements.

Records of the authorized persons for energy audit shall be kept by the Ministry in electronic form.



Detailed content of the request referred to in paragraph 1 of this Article, as well as documentation submitted with the request, as well as the content of the registry of authorized persons shall be determined by the legal act enacted by the Ministry.

### **Revoking the Authorization**

#### **Article 32**

The Ministry shall revoke the authorization to perform energy audit in case:

- the authorized person performs energy audit contrary to the provisions of this Law,
- the authorized person ceases to fulfil requirements defined by the provisions of this Law,

### **Obligations of the Authorized Person**

#### **Article 33**

The authorized person shall perform energy audit in accordance with this Law, technical regulations and the rules of vocation.

The authorized person is required to keep records on performed energy audits and keep documentation on performed energy audits for at least 10 years.

The authorized person shall submit to the Ministry an annual report on performed energy audits not later than March 1<sup>st</sup> of the current year, for the previous year.

### **Prohibition to Perform Energy Audit for a Legal Person**

#### **Article 34**

The authorized person may not perform energy audit in case the client is a legal person:

- in which the authorized person participates in the ownership;
- for which the authorized person participated in design of the project, project monitoring, professional supervision of construction, construction or maintenance of the building for which the energy audit is performed;
- in which the authorized person is a member of a steering committee, member of the management, representative or employee and
- in which a spouse, a linear relative by blood, or a collateral relative by blood to the fourth level of kinship, is a member of a steering committee, a member of management, a representative or an employee.

### **Prohibition to Perform Energy Audit for a Natural Person**

#### **Article 35**

The authorized person may not perform energy audit in case the client is a natural person:

- for whom the authorized person participated in design of the project, project monitoring, professional supervision of construction, construction or maintenance of the building for which the energy audit is performed and
- who is their spouse, a linear relative by blood, or a collateral relative by blood to the fourth level of kinship.

### **Eco-design of Energy using Products**

#### **Article 36**

Energy using products may be placed on the market only if they fulfil eco-design requirements prescribed by technical regulation for products, if their compliance is determined in the prescribed procedure and if they are marked in accordance with the regulation related to the given group of products.

Technical regulations for implementing measures of eco-design shall be adopted by the Ministry in cooperation with the public administration body responsible for environmental protection.

### **Obligations of Suppliers and Distributors of Household Appliances**

#### **Article 37**

Suppliers of household appliances that use energy for their operation are required to provide

technical documentation of household appliances in the language officially used in Montenegro, in which the amount of energy consumed by using the appliance in the prescribed working conditions is stated.

Suppliers or distributors of household appliances are required to place on the market only those appliances which have an energy efficiency label and corresponding information sheet.

### **Energy Efficiency Label on Household Appliances**

#### **Article 38**

The energy efficiency label is an indicator of energy efficiency class which is placed on the household appliance as a label and is visibly displayed at the sale location.

The layout and content of the energy efficiency label shall be defined according to the type, category, performance and minimum requirements for energy efficiency of the household appliance by the regulation of the Ministry.

### **Renewable Energy Sources**

#### **Article 39**

The use of renewable energy sources for the production of electrical or heat energy shall be regarded as a measure of energy efficiency, in terms of this law:

- if produced electricity is used partially or completely for satisfying the needs of the built structure in which installation (plant) is located and
- if a specific renewable energy source is not already covered by some of stimulating measures or if the electricity produced from a specific renewable energy source is not intended for sale.

### **Stimulation Measures**

#### **Article 40**

Natural and legal persons, which use the renewable energy sources in accordance with the Article 39 of this law, may use stimulation measures intended for energy efficiency projects.

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### **Information System of Energy Consumption**

#### **Article 41**

Persons referred to in Article 17 of this law and big consumers are required to establish an information system in view of monitoring energy consumption in the premises they use.

Information system from paragraph 1 of this Article shall contain the following:

- database on buildings and building structures, which shall contain: location and lifetime of the structure, constructive performance of the building, energy performance of the building, as well as data on current costs for energy, maintenance and on investments;
- interface for energy consumption data entering and processing and
- interface for simple report generating.

Detailed content and functional performance of the information system shall be prescribed by the Ministry.

### **Submission of Data on Annual Energy Consumption**

#### **Article 42**

Persons referred to in Article 17 paragraph 1 of this law and big consumers shall submit to the Ministry the data on annual energy consumption in the buildings and building structures they use and on factors influencing that consumption, not later than March 1<sup>st</sup> of the current year, for the previous year.

Data from paragraph 1 of this Article shall particularly refer to the following:

- total energy consumption per energy-generating products;
- total energy consumption per specific building type within the public sector (administration, health care system, education, culture, other);
- useful floor area of the building;
- number of employees and

- total costs for energy, per energy-generating products and per building types.

Ministry shall enter the data referred to in paragraph 1 and 2 of this Article in the information system referred to in Article 13 item 4 of this law.

Detailed content of data and the manner of data submission referred to in paragraph 1 and 2 of this Article shall be prescribed by the Ministry.

## **Economic Stimulation**

### **Article 43**

For entrepreneurs and legal entities, using and implementing technologies, produce and trade in products that promote energy efficiency, may be supported with customs and tax policy measures and exemptions, pursuant to terms and conditions determined by a special regulation.

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## **VI ENERGY SERVICES**

### **Provision of the Energy Service**

#### **Article 44**

Energy service is a service which shall provide a measurable and verifiable method of increase in energy efficiency or energy savings, as well as realization of material benefits by implementation of energy efficient technology and/or methods which have as a result energy savings and other accompanying positive effects.

Energy services shall be performed by an ESCO or other service provider on the basis of energy performance contract or other appropriate contractual arrangement, during energy audit, design, construction, supervision of the construction reconstruction, maintenance of the building as well as management and supervision of the energy consumption.

#### **Energy Performance Contract**

#### **Article 45**

Energy performance contract must be in a written form, and shall particularly contain data on:

- contracting parties;
- basic energy consumption of the building;
- estimation of energy efficiency;
- guaranteed energy savings and procedures for defining the savings;
- method of financing investments in measures of improvement of energy efficiency;
- paying method for compensation for energy service and
- other rights and obligations of contracting parties.

Fee amount and payment method for energy service in total or partially shall be based on the achieved energy efficiency improvements, as well as fulfilment or other agreed requirements related to the achieved improvements.

Energy efficiency improvement measures may be provided by a third party financing.

ESCO in provision of services shall undertake financial, technical and commercial risk of implementation energy efficiency measures.

### **Obligations of the Distribution System Operator and Energy Supplier in Provision of Energy Services**

#### **Article 46**

Distribution system operator and energy supplier, except for small distribution system operator and small energy supplier, with the purpose of promoting implementation of energy efficiency measures, is required to organize offer of energy services to their final energy customers at competitive prices.

The distribution system operator from paragraph 1 of this Article, which is within the system of vertically or horizontally integrated energy entity, may organize an activity of energy services within the integrated entity or within their own organization, with condition of separation of an accounting system for the given activity or by hiring of other providers of energy services.

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Offer of energy services from paragraph 1 of this Article shall at least include information on: energy efficiency indicators, energy efficiency measures, providers of energy services, prices, financing mechanisms.

Offer from paragraph 1 of this Article shall be published on website.

### **Financing**

#### **Article 47**

Financing of the energy efficiency projects and measures may be provided from: public budget of Montenegro, local self-governing units' budgets, donations, loans and other financial sources, in accordance with the law.

## **VII MONITORING**

### **Monitoring of Law Implementation**

#### **Article 48**

Monitoring of the implementation of this Law shall be performed by the Ministry.

### **Inspection**

#### **Article 49**

Inspection shall be performed by the Ministry.

In the process of inspection, performance of obligations defined by this Law shall be controlled, particularly:

- the behaviour of the authorized persons providing energy audits including certification of buildings;
- results of energy audit and energy certification of building, in case there is a doubt in accuracy of data and
- timely and harmonized planning and implementation of energy efficiency measures.

## **VIII PENALTY PROVISIONS**

### **Penalty Provisions for Energy Entities**

#### **Article 50**

A cash fine ranging from fifty times to three hundred times the minimum wage in Montenegro shall be imposed on an enterprise, entrepreneur or other legal person for offence, if:

- fails to submit to the Ministry data on consumption within prescribed deadlines (Article 15 paragraph 1);
- fails to provide to the final consumers adequate devices for measuring of energy consumption, pursuant to Article 16 paragraph 1 of this law and
- fails to submit to the final consumer with the bill the information containing data stipulated in Article 16 paragraph 3 of this law.

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For an offence referred to in paragraph 1 hereof, the person in charge in the enterprise or other legal person shall also be fined with a cash fine ranging from three to twenty times the minimum wage in Montenegro.

### **Penalty Provisions for Institutions, Enterprise, Entrepreneur or Other Legal Person**

#### **Article 51**

A cash fine ranging from fifty times to three hundred times the minimum wage in Montenegro shall be imposed on an institution, enterprise, entrepreneur or other legal person, if:

- fails to submit to the Ministry data on annual energy consumption, or fails to do so within the prescribed timeframe (Article 42 paragraph 1 and 2);
- fails to plan and implement energy efficiency measures (Article 20);
- fails to provide the authorized person with data and environment to perform without obstruction the energy audit (Article 23 paragraph 3);
- fails to submit to the Ministry the energy audit report or fails to do so in a prescribed

timeframe (Article 23, paragraph 4 and 5);

- fails to allow the energy audit to be performed for the boiler or air-conditioning system (art. 24 and 25);

- fails to keep record on performed energy audits or fails to keep the documentation on performed energy audits in the prescribed timeframe (Article 33 paragraph 2);

- fails to submit to the Ministry the report on the performed energy audits in a prescribed timeframe (Article 33 paragraph 3);

- performs energy audit contrary to provisions from art. 34 and 35 of this law;

- place on the market household appliances that use energy contrary to provisions set out in Article 37 of this law;

- fails to organize offer of energy services to final customers pursuant to Article 46 paragraph 1.

For an offence referred to in paragraph 1 hereof, a cash fine ranging from three times to twenty times the minimum wage in Montenegro, shall be imposed to person responsible in the institution, enterprise, entrepreneur or other legal person, as well as natural person.

## **IX TRANSITIONAL AND FINAL PROVISIONS**

### **Bylaws**

#### **Article 52**

Bylaws for implementation of this law shall be adopted a year from the date of its entry into force.

### **Programme and Plans for Energy Efficiency Improvements**

#### **Article 53**

Programme referred to in Article 7 of this law shall be adopted within one year as of the date of entry into force of this Law.

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Big consumers are required to develop and adopt the plan for energy efficiency improvement referred to in Article 20 of this law within one year as of the date of entry into force of this Law.

#### **Article 54**

This Law shall enter into force on the eight day from the date of its publishing in the “Official Gazette of Montenegro“, and shall be implemented from May 1<sup>st</sup>, 2011.