



Montenegro
Ministry of Economy

Energy Efficiency Action Plan

- for the period 2010-2012 -

Podgorica, December 2010

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LIST OF ABBREVIATIONS

CIEE	Central institution for energy efficiency (Ministry of Economy)
EC	European commission
ED	Energy dealer/trader: a natural or legal person, that sells energy to final customers
EE	Energy efficiency
EEAP	(National) Energy efficiency action plan
EETF	Energy Efficiency Task Force
EEI	Energy efficiency improvement: an increase in energy end-use efficiency as result of technological, behavioural and/or economic changes
EI	Energy intensity
EnCT	Energy Community Treaty
EPBD	Energy Performance of Buildings Directive [2002/91/EC] (as adapted by Decision No. 2009/05/MC-EnC)
ESCO	Energy service companies, implementing energy performance contracting
ESD	Directive 2006/32/EC on energy end-use efficiency and energy services (as adapted by Decision No. 2009/05/MC-EnC)
ETD	Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community
EU	European union
FEC	Final (inland) energy consumption
FEC-Primary	Final (inland) energy consumption expressed in terms of primary energy consumption (conversion factor for electricity 2.5)
FEI	Final energy intensity
GDP	Gross domestic product
GoM	Government of Montenegro
IFS	International Financial Institutions
KAP	Aluminium Plant Podgorica, Montenegro
ktoe	Thousand tons of oil equivalent
LoE	Law on Energy
LoEE	Law on Energy Efficiency
MB	Municipal budget
ME	Ministry of Economy
MS	Member States
MSPE	Ministry for Spatial Planning and Environmental Protection
NGO	Non-governmental organization
PEC	Primary energy consumption
PEI	Primary energy intensity
RES	Renewable energy sources (RE: Renewable energy)
SB	State budget
SEE	Sector for Energy Efficiency (Ministry of Economy)
SME	Small and medium-sized enterprise
SO	State organization
TA	Technical assistance
TA-EnCT	EU funded project “Technical Assistance for the Implementation of the Energy Community Treaty” in Montenegro (2010-2011)
TWC	Tradable white certificates
VA	Value added

BACKGROUND

The “Energy Efficiency Strategy of the Republic of Montenegro” (EE Strategy) was adopted by the Government on 13 October 2005. Despite the fact that the EE Strategy is rather outdated concerning baseline data and projections, the basic priorities and key measures foreseen in this document are still valid. The priorities and key measures of the EE Strategy were confirmed by the Energy Development Strategy of Montenegro (Dec. 2007). An Action Plan for Energy Efficiency 2008-2012 was adopted by the Government but only few actions have been implemented. One of the most important implemented actions is the adoption of a special Law on Energy Efficiency.

The new Law on Energy Efficiency (LoEE) was approved by the Parliament on 22/4/2010 and published in the O.G. of Montenegro No 29/10 of 20/05/2010. In general, the LoEE is in line with the Decision No. 2009/05/MC-EnC of 18 December 2009 and largely transposes, or provides the legal basis for transposition through secondary legislation, the Directive 2006/32/EC on energy services (ESD), the Directive 2002/91/EC on Energy Performance of Buildings (EPBD) and Energy Labelling Directives (92/75/EEC and subsequent Directives) into the national legislation. In addition, the LoEE provides for transposition of the eco-design framework.

Implementation of the LoEE and transposition of many articles of the Directives will be enabled though a number of legal acts of secondary legislation and guides to be drafted and adopted within one year period. Drafting of the secondary legislation as well as overall responsibility for implementation of the LoEE is assigned to the Ministry of Economy (ME) and particularly to the newly founded Sector for Energy Efficiency (SEE). The Ministry for Spatial Planning and Environment participates in development of certain regulations related to buildings and constructions.

In line with the Work Program of the Energy Efficiency Task Force (EETF) and the Decision No. 2009/05/MC-EnC of the Ministerial Council, the Contracting Parties undertook the obligation, among others, to implement the ESD Directive 2006/32/EC as it has been adapted for the purpose of its implementation by the Contracting Parties to the Treaty. According to this Decision, the Contracting Parties shall prepare and report to the Secretariat three National Energy Efficiency Action Plans (EEAP) for the period 2010 – 2018 as follows:

- a first EEAP not later than 30 June 2010;
- a second EEAP not later than 30 June 2013;
- a third EEAP not later than 30 June 2016.

The first Draft EEAP of Montenegro, has been submitted in December 2009. It was pre-assessed by the Secretariat in May 2010.

This version of the EEAP of Montenegro is substantially updated, taking into account the new LoEE that is now into force, the initial remarks of the Secretariat and remarks from stakeholders. This EEAP covers the period 2010-2012

The structure of the EEAP is based on template of EEAP suggested by the EETF of the Energy Community

EXECUTIVE SUMMARY

This Energy Efficiency Action Plan (EEAP) has been elaborated on the basis of requirements of the Law on Energy Efficiency (O.G. of Montenegro No 29/10 of 20/05/2010) and the Directive 2006/32/EC of the European Parliament and of the Council on energy end-use efficiency and energy services as adapted for the purpose of its implementation by the Contracting Parties to the Treaty by Decision No. 2009/05/MC-EnC of the Ministerial Council (further in the document: Directive or ESD).

The reported period for achievement of the indicative target under the Directive is **2010 – 2018**. The primary aim is that all Contracting Parties achieve an energy savings target of **9%** of the average final inland energy consumption (FEC) of the period 2002-2006, for the ninth year of application of the Directive. The above mentioned target for EU Member States, does not apply to energy consumers covered by Directive 2003/87/EC of 13 October 2003 establishing a scheme for greenhouse gas emission allowance trading within the Community (ETD), as well to the final consumers, whose energy consumption is classified into sectors of aviation and maritime bunker fuels.

Montenegro is not obliged to implement ETD. Therefore the energy consumption, potentially covered by the ETD (steel, pulp and paper industry), is not excluded from the calculation of the FEC.

However, the consumption of the Aluminium factory KAP is excluded from the calculation of the FEC. The structure of the FEC in Montenegro is heavily imbalanced. Only one company, the Aluminium factory KAP, consumes about 40% of the FEC. Due to technological constrains of aluminium production, this plant cannot achieve considerable savings. Any contribution of improved energy management for the reduction of auxiliary energy uses would be negligible in comparison with the consumption used in the production process. In addition, the annual production and energy consumption of KAP in the last years vary significantly affecting all energy and economic indicators of the country. Given the above, a potential inclusion of KAP in the FEC in the scope of the Directive (that is used as basis for the calculation of the energy savings target), means that energy consumers other than KAP, must achieve savings about 15% in order for Montenegro to achieve an average 9% national energy savings target. Given also the weak institutional capacity of Montenegro and the limited funds available for EE, an actual target of 15% would be unrealistic. The particularities of the structure of the FEC were presented by the Montenegrin delegation in the 8th EE Task Force meeting of February 2010. The participants of the EETF meeting found reasonable and adequately justified the proposed exclusion of KAP from the FEC in the scope of the Directive.

This does not mean that KAP will be excluded from obligations to save energy. As per the LoEE all big consumers, including KAP, undertake several obligations i.a. to introduce energy management, implement EE actions and report to the ME. Therefore, any savings to be achieved by KAP will be additional to the 9% energy saving target set for the entire period up to 2018 or the intermediate indicative target up to 2012 that is set in this Plan.

This first three-year Energy Efficiency Action Plan for Montenegro (further in the document: Plan or EEAP) covers the period **2010-2012** and sets intermediate indicative target for this period for about **2 %** of the final energy consumption within the scope of the Directive, average for the period 2002 – 2006 for which adequate statistical data are available.

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.

The specific features on the assessment of the total and intermediate indicative target are described in details further in this document.

Aggregated and individual data on energy consumption have been used to set the target. These data are provided by the Ministry of Economy and the Statistical Office of Montenegro. The used energy balances do not differ from those provided to EUROSTAT.

In the course of implementation of the Plan, Montenegro should further introduce significant normative, tax, financial, and organizational measures for the complete implementation and fulfilment of the Directive.

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 is of utmost 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**:

1. **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.
2. **Implementation of the EEAP Actions** including demonstration projects, incentives for EE, targeted information campaigns, etc.

1. OVERALL NATIONAL TARGET

1.1. Overall Objectives of EEAP

The new Law on Energy Efficiency (LoEE) provides for the legal basis for transposition of the basic EE Acquis in Montenegro. Implementation of the LoEE is assigned to Ministry of Economy (ME) and particularly to the Sector for Energy Efficiency (SEE). The Law provides for a large number of regulatory development actions that must be implemented by ME and, in certain cases, in collaboration with the Ministry for Spatial Planning and Environment.

In addition, the LoEE provides for establishment of energy management schemes, adoption of EE plans, provision of data on energy consumption and other indicators and implementation of EE actions by public institutions, local authorities, big consumers, etc.

On the other hand, the capacity and available funds of the involved Montenegrin institutions are limited. Taking this into account, the **overall objectives** of the 1st EEAP are:

- To implement the LoEE by completing the regulatory framework and straightening the institutional structures,
- 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.

Given the limited financial resources available for implementation of the EEAP, the ME must:

- take initiatives to **mobilise any possible funds** including State Budget (SB), Municipal Budgets (MB) and private capital, promote the market development for energy services and alleviate barriers and promote implementation of alternative financing mechanisms,
- make systematic effort to **direct, coordinate and utilise, as much as possible, donors' assistance so that their activities contribute and cover specific needs for the implementation of the EEAP,**
- support **strengthening the capacity** of the central and local institutions to become able to meet their obligations under the LoEE and absorb donors' assistance.

1.2. Determination of the overall target

In pursuance of the Directive, Montenegro has adopted a national indicative energy savings target of **9 %** of the FEC for 9 years by **2018** (an average 1 % annually), which means that the country should ensure energy savings to the amount of **58,9 ktoe of FEC expressed in terms of primary energy equivalent (further in this document: FEC-Primary)**. The absolute amount of the indicative target, which the country should prove as a sum of the energy savings in the following 9 years, is determined on the basis of data on FEC for the latest five years (2002-2006) for which sufficient statistical data exist.

The FEC under the scope of the Directive has been calculated according to Draft Decision of the Ministry of Economy on “Methodology for calculating indicative energy savings target” that is in line with Annex 1 of ESD. According to the Draft “Methodology”:

- The energy consumption of KAP is excluded from FEC in the scope of the Directive. Justification is provided in Annex 2 of this EEAP.
- The energy consumption of energy consumers covered by ETD (steel factory and pulp and paper industry) is not excluded, as Montenegro is not obliged to implement the ETD at the present stage.
- Consumption of aviation and maritime bunker fuels is excluded from FEC.
- For savings in kWh electricity a default coefficient of 2,5 (for conversion to primary energy equivalent i.e. FEC-Primary) is applied reflecting the estimated 40 % average EU generation efficiency during the target period.

1.3. Determination of the intermediate target

In order to calculate the intermediate target up to 2012, account has been taken of the fact that the proposed additional EEI measures and incentives, such as:

- adoption of the Law on Energy Efficiency, as well as gradual development of a complete legislative, regulatory, and institutional framework for EE on the basis of relevant EU Directives and standards, as well as establishment of enforcement and implementation mechanisms,
- strengthening and capacity building of the Sector for Energy Efficiency of the Ministry of Economy (Central EE Institution), as well as development of capacity for energy management, energy efficiency measures etc. at institutions of the broader public sector, local authorities and big energy consumers,
- continuation of support for development energy auditing services and introduction of energy certification of buildings,
- alleviation of barriers and promotion of alternative financing mechanisms (energy performance contracting, third party financing etc.) and of ESCOs,
- regulatory establishment of EE criteria in public procurements etc.,
- continuation and introduction of new EE programmes for schools and other public buildings, promotion of EE in transport sector and other EE measures described in this EEAP.

are new for the country and require several years to be implemented, as well as relevant preliminary studies and analyses have to be made.

In this respect, Montenegro has taken a tentative approach to setting of the intermediate target in the first three-year Action Plan (2010-2012). The intermediate target amounts to **13,4 ktoe (FEC-Primary)** of saved energy by the end of 2012, which represents about 2 % of the average amount of FEC within the scope of the Directive. This target has been set on the basis of the analysis of expected results of the EEI actions in the period 2010 -2012 taking into account that:

- the potential for no/low cost measures that can be implemented in first 3 year period is significant, but

- on the other hand, priority will be given to the development of the basic regulatory and institutional framework for EE which does not produce direct energy savings.

Determination of the national indicative targets, on the base of FEC (2002-2006) is shown in Table 1.1. Analytical calculations are provided in Annex 1 of this EEAP.

Table 1.1: Calculation of the energy saving targets

	(used units ktoe)	Average 2002-2006		
		Electricity	Other fuels and energy	Total consumption
		1	2	3
1	Final Energy Consumption (FEC)	322.1	398.2	720.3

2	Excluded FEC	163.0	141.3	304.3
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Of which:

2.1	• Covered by the ETD	0.0	0.0	0.0
2.2	• Aviation fuels	0.0	12.7	12.7
2.3	• Maritime bunker fuels	0.0	1.9	1.9
2.4	• Podgorica Aluminium Plant (KAP)	163.0	126.7	289.7

3	FEC in the scope of the Directive	159.1	256.9	416.0
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Of which:

3.1	• Households	91.5	57.3	148.8
3.2	• Services	45.5	24.4	69.9
3.3	• Industry	19.3	38.8	58.2
3.4	• Transport	1.8	129.9	131.7
3.5	• Agriculture	0.9	6.5	7.3

Calculation of primary energy equivalent (FEC-Primary)

	SUMMARY	Electricity	Other fuels and energy	Total consumption
4	Final Energy Consumption in scope of the Directive (ktoe)	159.1	256.9	416.0
5	Conversion factor to primary equivalent	2.5	1.0	
6	FEC - Primary equivalent	397.7	256.9	654.6
TOTAL FEC-Primary in GWh				7612.6

TARGETS expressed in primary energy equivalent (FEC-Primary)

	TARGETS (primary energy equivalent)	in %	in ktoe	in GWh
7	Overall indicative energy savings target up to end 1018	9 %	58.9	685.1
8	Intermediate indicative energy savings target up to end 1012	approx . 2 %	13.4	155.5

Intermediate indicative energy savings target up to end 2012 is rather low. This is explained by the fact that the most EEI Measures will start having effects mainly in 2012 after the completion of the regulatory framework and initiation of various actions in 2011.

1.3.1. Macro economic indicators

According to macroeconomic indicators, the main characteristics of the Montenegrin economy are characterised by a stable economic growth. Macroeconomic trends in Montenegro in 2006 that is the baseline year for the EEAP, compared to the previous period are characterised by:

- accelerated economic growth, from 4.0% in 2005 to 8.1% in 2006, dropped down to an average 4,3% for the period 2007-2009;
- inflation that was at a low 2% level in 2006;
- fast and permanent reduction of unemployment rate, from 19.7% in 2005 to 14.7% in 2006;
- maintenance of public sector surplus at around 3% of the GDP;
- large increase of exports (by 36.9% in 2006), however followed by even larger increase of imports (by 54.7% in 2006);
- trends in international trade of goods and services lead towards fast increase of deficit of exchange of goods, which reached extraordinary large proportions of 31.6% in 2006, with further growing trend. Surplus in the revenue balance and current transfers is only slightly mitigating this deficit;
- exceptionally high increase of gross capital formation, raising from 17.93% of GDP in 2005 to 30.48% in 2006, with further growing trend;
- deficit of the current account is mostly covered with net inflow of foreign direct investments and also with the increase of other foreign investments;
- work productivity has increased by 3.7% in 2006.

The energy demand forecasting model that was applied for the background studies carried out for the preparation of the Energy Development Strategy of Montenegro, used data for the year 2003 as a base year. However, based on trends and macroeconomic indicators, it can be observed that, in general, the trends remained the same and that possible data deviations do not affect recommendations provided in the Strategy.

Montenegro's GDP in 2003, as at the official exchange rate, amounted to 2,477 US\$ 2000 per capita, which is 8.7 times less than the EU 15 average, but higher than GDPs of most countries in the region. In the same year, FEC amounted to 1,159 ktoe per capita, which is 2.5 times less than the EU 15 average, but similar to that in other countries of the region. Gross electricity consumption amounted to 7,290 kWh per capita, which is almost equal to EU 15 consumption, and two times more than in countries of the region.

Concerning GDP structure by certain economy sectors related to the energy sector, the sector of electricity, gas and water production and supply presented an increase in the period 2000–2003 from 5.7% to 6.3%, while the share of the mining and quarrying sector fell from 2.7% to 2%. Manufacturing industry accounted for 9.6% and 12% in the same years. Production of KAP, together with bauxite mines accounted over 21% of total Montenegrin GDP.

In the period 1997-2006 total consumption of primary energy grew at the average annual rate of 3.7%. In the same period, consumption of coal grew at the average annual rate of 3.0%, and hydro-energy grew at a rate of 5.4%. Total consumption of petroleum products grew at the rate of 4.2%. As it is shown in Figure 1.1, in the structure of total consumption of primary energy,

major share is of petroleum products (32.3%), coal (30.1%), hydro-energy (19.6%) and wood and waste (5.3%).

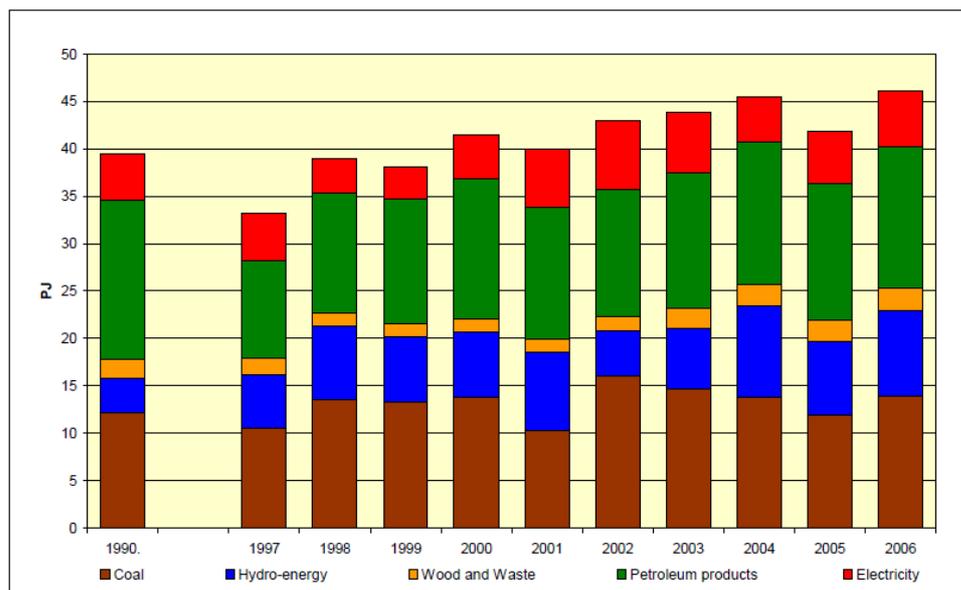


Figure 1.1: Primary energy consumption - historical development

The energy sector in Montenegro is characterized by high-energy intensity in comparison with the EU and other developed countries, which is primarily caused by the high consumption level in aluminium and steel industry. In 2003, energy intensity of gross consumption of electricity amounted 2,955 kWh/10³ US\$ 2000 (GDP), which is 8.5 times higher than the EU-15 value and higher than almost all countries in the region. Intensity of total energy consumption in Montenegro amounts 1.908 ktoe/US\$ 2000 (GDP), which is 5.6 times higher than the EU-15 average. All of this implies that there is considerable need for energy rationalization.

Notwithstanding the relatively high energy intensity of the Montenegrin economy and the fact that the country has a significant potential for implementation of cost-effective EEI measures, following a period of stabilization, the FEC started to increase. (Figure 1.2)

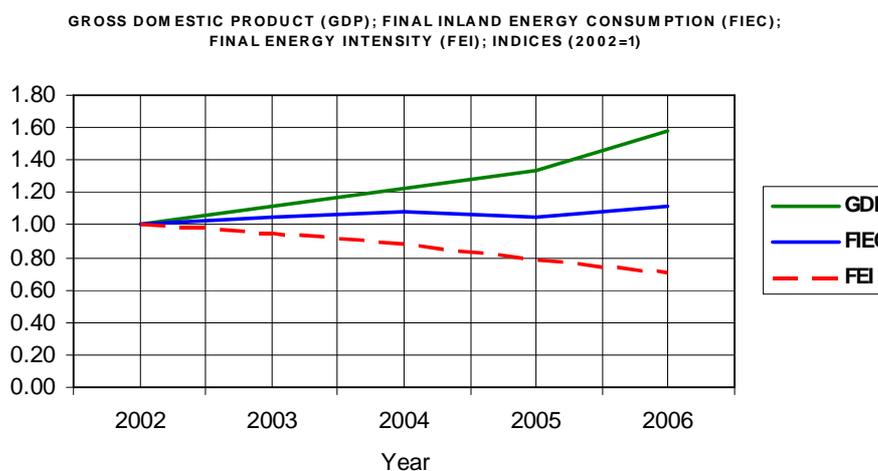


Figure 1.2: Final energy intensity - historical development of GDP, FIEC¹ and FEI

¹ FIEC - Final Inland Energy Consumption

The growth of energy consumption in the country is attributed to:

- The high rate of GDP growth and the increasing quantities of energy resources needed to ensure it;
- Use of energy inefficient and often obsolete technology in the Montenegrin industry sector coupled with inadequate energy management and maintenance practices;
- Growing consumption in the residential sector as a result of intensive construction trend in last years and the tendency to increase residential comfort towards the normal European levels;
- Growing consumption in the transport sector: slow renovation of the motor vehicles for transportation of goods and those for transportation of passengers in the public transport sector, a-tendency of increased use of private cars towards the normal European levels;
- Energy pricing policies that did not encourage energy savings, etc.

1.3.2. Structure of FEC

The FEC presented a constant increase in the previous period and reached the amount of 755 ktoe in 2006 that is about 11% higher than the 2002 level.

The structure of the FEC is characterised by limited diversification of energy forms. The main characteristic of the past few years is the increased use two main energy forms: liquid fuels, reaching 47 % of the FEC, and electricity, reaching 44% of the FEC in 2006. The rest was biomass (7%) used mainly in households and small quantities of lignite. Natural gas is not available and District Heating is practically not developed. Figure 1.3 presents the structure of the FEC by type of fuel.

Concerning liquid fuels, transport is the larger consumer followed by the two large plants (Aluminium Factory and Steel Works Plant). Less significant consumers are the Commercial and Public Sector and other industry. The structure of final electricity consumption is also dominated by Aluminium Factory and the Steel Works Plant that consume about 55% of the total consumption. The residential and public sectors are also significant consumers. There is extensive use of electricity for space heating and domestic hot water production.

In defining priority EEI measures, account should be taken of the growing use of liquid fuels and electricity.

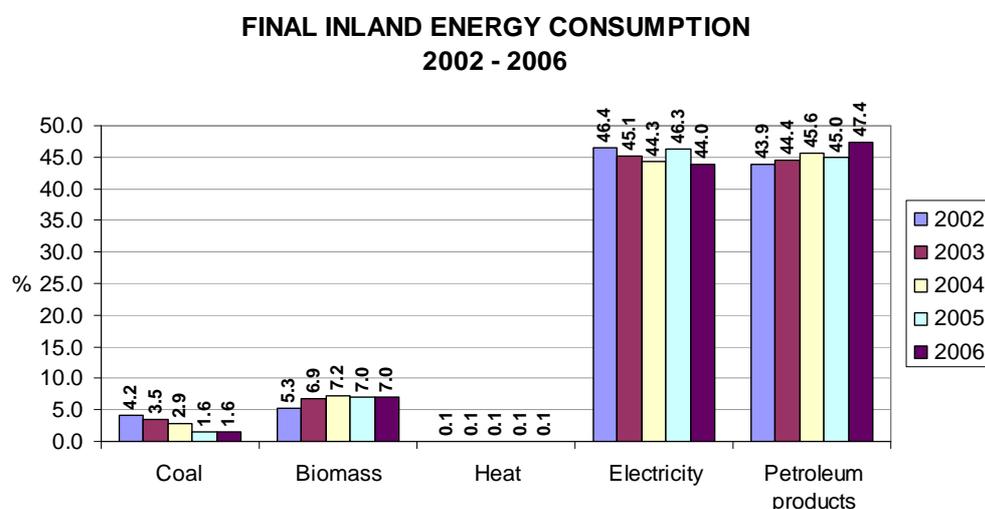


Figure 1.3: Final energy consumption in the period 2000-2006

1.3.3. Sectors in the scope of ESD

The average FEC in Montenegro in the period 2002-2006 was equal to 720 ktoe out of it 322 ktoe electricity and 398 ktoe of fuels, coal and biomass. From the FEC, the following consumers and activities are excluded:

- the energy consumption of KAP (see justification in Annex 2);
- the consumption of aviation and maritime bunker fuels.

As mentioned in Chapter 1.2, the energy consumption of energy consumers covered by ETD (steel factory and pulp and paper industry) is not excluded. Also for savings in kWh electricity a default coefficient of 2,5 (for conversion to primary energy equivalent) has been applied.

On the basis of the above, the average FEC within the scope of the Directive in Montenegro was equal to 416 ktoe broken down as follows:

- Electricity: 159 ktoe (or 398 ktoe in terms of FEC-Primary);
- Other fuels: 257 ktoe.

The average FEC-Primary within the scope of the Directive in the period 2002-2006 was 655 ktoe.

Table 1.2 presents the structure of the FEC consumption in ktoe while Table 1.3 the structure of the FEC-Primary.

Table 1.2: Structure of the FEC within the scope of the Directive (in ktoe)

	ktoe	%
FEC in scope of Directive	416.0	100%
Households	148.8	36%
Services	69.9	17%
Industry	58.2	14%
Transport	131.7	32%
Agriculture	7.3	2%

Table 1.3: Structure of the FEC-Primary within the scope of the Directive (in ktoe of primary energy equivalent)

	ktoe (primary)	%
FEC in scope of Directive	654.6	100%
Households	286.2	44%
Services	138.2	21%
Industry	87.1	13%
Transport	134.5	21%
Agriculture	8.7	1%

1.3.4. Distribution of the indicative target by sectors and by different kinds of fuels and energy

The structure of the FEC presented above, clearly indicates the priorities of the EEAP. Households account for 44% of the FEC-Primary. Transport is a significant consumer of fuels. Services (private and public sector) hold also a significant share of the FEC. Industry, other than KAP, consumes about 13% of the FEC, while most of this consumption is attributed to the Steel Works Plant.

The sector allocation of the energy saving target is based on the following:

- the proportion of individual sectors within the FEC,
- the potentials for EE improvements and
- the level of policy interventions in the sector.

Table 1.4: Distribution of the indicative target by sector

Sectors – final energy users	Distribution of the target until 2012 ktoe (FEC-primary)	Shares of the target, index (%)	Notes
Households	6.1	45%	Need to confront the increasing energy demand due to improvement of living standards through improved energy performance of buildings and appliances, increased use of RES, awareness raising, etc.
Services	5.0	37%	Opportunity to exploit the large EEI potential; Need to demonstrate the exemplary role of the public sector in EEI.
Industry	1.3	10%	The large industries will be individually addressed by the Ministry of Economy as per the LoEE
Transport	1.0	8%	Need for reduction of the country dependency on liquid fuels imports; Environmental protection.
Total	13.4	100%	

It is important to note that the sector allocation of the national target has not been made solely in proportion to the shares of the different sectors in FEC, but also by taking account of the exemplary and multiplier effect of the implementation of measures and programmes funded by the state and municipal budget (i.e. public sector).

Households, transport and services (especially the public sector and local authorities), will be targeted in priority.

We expect that most of the savings during the first EEAP will be mainly achieved in households, public sector and local authorities. EE in transport sector is a rather new concept for Montenegro. EEI measures in transport are expected to produce some savings in the period of the first EEAP, but considerable effects are expected at a later stage, when the conditions are more mature.

Finally, the LoEE impose implementation of EEI measures to the large industry and other big consumers. Investment support to industry for EEI measures is provided through sustainable energy financing facilities available in Western Balkans (EBRD, etc).

In terms of energy forms, savings are expected in both, electricity and fuels.

On the basis of the above and the actual opportunities for implementation of EEI measures in the different sectors, the allocation of the indicative target for the first EEAP by sector is presented in Table 1.4.

1.4. FEC base line

The energy statistics system of Montenegro is not yet developed on the basis of Eurostat / IEA methodology. Therefore we base the projections of the FEC in relation to GDP growth on default values suggested by the EE Task Force and the best forecasts available about the economic growth.

The GDP will be expressed in fixed prices of the base year that is applied by the Statistical Office of Montenegro.

As presented in Chapter 1.2 “Determination of the overall target” the energy consumption of Podgorica Aluminium Plant (KAP) is excluded from the FEC that is taken into account for the calculation of the energy saving target.

Equally, the effect of KAP activities to the GDP will be subtracted from the overall GDP of Montenegro and the result of this calculation will be used for the determination of the index of GDP growth.

During the period 2010-2018 Montenegro adopts the FEC base line, which could increase with an index corresponding to the index of GDP growth reduced by:

- Effect of national economy restructuring: 0,6 %
- Effect of preceded introducing of the part of EU legislation: 0,35 %
- Effect of autonomous EE increase: 0,85 %.

The index of FEC increase according to the scenario „business-as-usual” is equal to the index of GDP growth reduced by the sum of above mentioned effects (1.8%).

Under the assumption of average GDP growth 4,3% that is a scenario of the Energy Development Strategy, Table 1.5 presents the expected FEC-Primary in the scope of the Directive after implementation of the EEAPs, estimated by “top-down” approach.

Taking into account above mentioned special features we could formulate the first national indicative target in the frame of this EEAP equal to 2% up to 2012.

The values of the expected FEC have been calculated using the base year 2006. The FEC in the scope of the Directive in terms of primary energy equivalent in 2006 was as follows:

	FEC	Coefficient	FEC-Primary
Electricity (ktoe)	161.1	2.5	402.8
Fuels (ktoe)	276.2	1	276.2
TOTAL (ktoe)	437.3		679.0

The values of the FEC-Primary at the ends of the three national action plans (2012, 2015, 2018), foreseen in Directive corresponding with the indicative targets (2%, 5% and 9%) could be prove by “top-down” approach shown in Table 1.5.

Table 1.5: Expected FEC (Primary) in the scope of the Directive after implementation of the Plans, estimated by „top-down” approach²

Year	2006	2010	2011	2012	2013	2014	2015	2016	2017	2018
Index of GDP growth: prognosis (excluding the effect of KAP to the GDP)		1.043	1.043	1.043	1.043	1.043	1.043	1.043	1.043	1.043
Expected FEC-Primary by normal market development, ktoe	679	749	768	787	807	827	848	869	891	913
Indicative target, ktoe				13.4			32.7			58.9
FEC-Primary after implementation of EEI measures, ktoe				774			815.2			854.2

1.5. Assessment and monitoring of the energy savings, according to ESD in the period 2010-2012

The assessment of energy savings in 2012 (including savings by sector and by energy form) by “top-down” approach has to be made on the basis of the EC recommended standard methodology in connection to the list of recommended EEI measures (Annex 4). It has to be made on the base of the official statistical data. The actual FEC and the historic GDP growth will be taken into account.

Monitoring in the frame of this Plan will be done every year on the base of data from national statistical energy balances.

Monitoring through “bottom-up” approach is not yet elaborated. Such an approach will be established according to the harmonized model to be developed by the EC and Energy Efficiency Task Force.

It is worth mentioning that the EU funded project TA-EnCT works to establish a central EE statistics system according to the requirements of the LoEE that will be gradually filled-in with data submitted by all major energy consumers and other sources. In addition, monitoring systems are foreseen for all buildings of the public sector in which energy efficiency measures will be implemented in the frame of World Bank, KfW and other programmes. All these activities are expected to gradually develop a sufficient data base that would support development of a reliable assessment and monitoring system of the energy savings in Montenegro.

² It should be noted that the Ministry of Economy plans to update the Energy Development Strategy of Montenegro. The updated Energy Development Strategy will provide updated data that can be used for a more detailed analysis and more accurate forecasts of the expected FEC.

2. DESCRIPTION OF THE ENERGY END-USE MARKET. SECTORAL PRESENTATION AND ASSESSMENT OF ENERGY EFFICIENCY IMPROVEMENT PROGRAMMES, ENERGY SERVICES AND OTHER MEASURES TO IMPROVE ENERGY EFFICIENCY

2.1. Households

2.1.1. Main characteristics of the sector

The households sector is the second larger consumer of energy in Montenegro, especially in electricity, after industry (including KAP). Besides its importance for the energy balance of Montenegro, EEI in households is an important factor for the welfare and the family economy. The residential sector in 2002-2006 consumed in average about 21% of the total FEC in Montenegro (or 23% in the total FEC-Primary). Analytical data are provided in Annex 1.

According to the census of 2003, there were about 180,000 households in Montenegro with an average family size 3,4 persons per household. The total number of dwellings (including summer houses, etc.) was about 248,000 with an average floor area 64 m²/dewlling.

Construction activity has been intensified in Montenegro, especially in the central and southern part, after 2004. According to available statistics 215,000 m² average floor area of new residential buildings was constructed annually in Montenegro the period 2004-2008.

The vast majority of buildings have been constructed before 1990, built according to ex-Yugoslavian standards. They were constructions of poor quality. Even if they initially featured some thermal insulation this is now practically ineffective due to ageing and moisture problems. This has been confirmed by several studies including observations with the use of thermal cameras.

Many of new flats are still constructed without or with poor thermal insulation. However, an increasing number of the new constructions are built with better energy performance standards due to increased awareness of owners. This is a result of various awareness raising actions carried out by ME, donors and NGOs as well as of promotion activities by construction companies and construction materials suppliers.

Low electricity prices in the past for the residential sector, along with operation flexibility of electric heating appliances, resulted to extensive use of electricity for space heating in buildings, especially in urban areas. Air conditioners (split units) that are commonly used for space heating, are usually of low performance due to their low quality, improper installation and poor maintenance. Direct electricity heating (heat accumulators, electric hot water boilers connected to radiators, electric heaters) is also used for space heating, sometimes as the only heating source. Electricity is also used for domestic hot water production, especially in urban areas. Thermal solar systems are rare. Use of filament lamps is common in Montenegrin houses. Electricity consumption is also increasing due to increasing use of summer cooling.

In rural areas, especially in the Northern part of Montenegro, biomass (wood) participates significantly in space heating. Natural gas is not available and District Heating is not developed. These are indicated by the significant share of electricity (62%) and secondly by biomass (31%) in the total average final energy consumption in households in 2002-2006, as shown in Figure 2.1. It is worth mentioning that in EU 27 in 2006, the share of electricity in total energy

consumption of residential sector was only 23%, natural gas and petroleum products, coal and District Heating 67% and biomass only 10%.

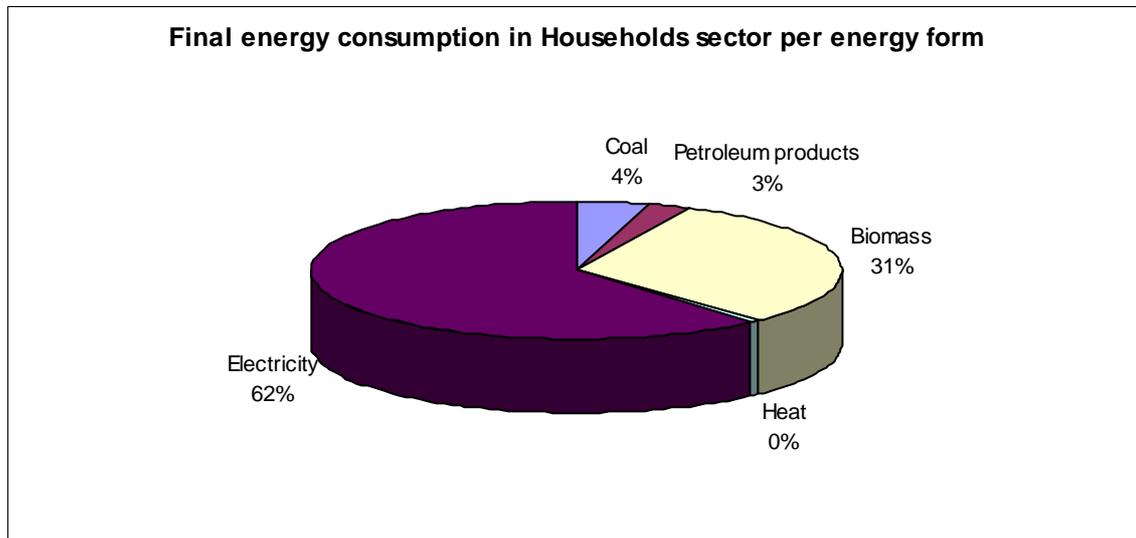


Figure 2.1: Percentage share of the fuels in the Residential sector in Montenegro (average 2004-2006)

According to a survey, more than half of the population (56.6%) uses fuel wood for heating and 45% of the population relies solely on fuel wood to meet their heating needs during the winter months. Among the poor, the dependence on fuel wood is even higher, with 86 % of poor households relying to some extent on fuel wood for heating. The percentage of households using fuel wood is higher in rural areas (79 %) and in the northern part of the country (71 %), where the availability of fuel wood is larger and the climate is much colder than the coastal and certain central areas.

The legislative and regulatory framework related to energy performance of buildings and labelling of household appliances is now at the first stage of development.

The only legal document related to EE in buildings was so far the Law on Spatial Development and Construction of Structures (OG 51/08). However this Law makes only general references to EE and does not provide for any concrete obligations and deadlines for adoption of secondary legislation that would specify and put into force provisions related to EE.

On the contrary, the recently adopted LoEE provides for the transposition of the EPBD and energy labelling Directives within specified optimistic deadlines. A lot of work has to be performed to develop secondary legislation, adopt technical standards, train professionals and increase awareness of the population. The EEAP focuses on these main targets for next few years.

The new legislative framework on the energy rating of buildings may give also the opportunity to introduce minimum energy efficiency requirements as one of the prerequisites for “formalising” buildings constructed without proper licences, the so-called “informal buildings”. There is a large number of informal buildings constructed mainly before the adoption of the Law on Construction in 2008. An appropriate mix of incentives and obligations for improvement of their energy performance before their official formalisation could result to significant energy savings. The relevant decisions however will be made at high governmental level as the many factors should be taken into account including constructions’ safety, spatial planning aspects, social, economic, environmental and other criteria.

2.1.2. Overview table of all EEI measures for the Households Sector

Table 2.1: Overview of Energy Efficiency Improvement (EEI) programs and measures for the households

№	Title of the EEI program /measure	Category	Appli-cation	Target group/ sector	End-use EEI action targeted <i>(see detailed lists in next Chapter – Description of Measures)</i>	Status of implementation and exact timeframe	Annual energy savings (FEC-primary)
H1 (S1)	Development of new regulatory framework for buildings as per the LoEE, EPBD and enforcement (phase 1)	1.1 Building Codes and Enforcement	National	Building construction industry and related professionals; Investors in buildings; Building owners; tenants.	<p>Development of new regulations (1st version) as per the LoEE and EPBD on:</p> <ul style="list-style-type: none"> • minimum energy performance of buildings • energy audits in buildings • energy certification of buildings • inspection of boilers and air-conditioners, etc. <p>Proposal to incorporate energy performance obligations in the process of “formalising” buildings constructed without proper licences.</p> <p>Straightening of enforcement mechanisms.</p> <p>Development and maintenance of a data base of energy auditors, inspectors, certificates issued and large buildings subject to certification.</p>	<p><i>New EEI measure - process of implementation started</i></p> <p>Law on Spatial Development and Construction of Structures (2008) provided for EE in constructions (secondary legislation was not adopted and the relevant provisions of the Law are inactive).</p> <p>LoEE provides for transposition of all main concepts of EPBD.</p> <p>Regulations on energy performance of buildings are under development (draft expected by end 2010). Regulations on inspection of boilers and air-conditioners are planned (drafts expected by mid 2011).</p> <p>Data base of energy auditors, inspectors, certificates issued and large buildings subject to certification, is planned for the end 2011.</p> <p>General deadline: end 2011</p>	<p>1.8 ktoe in 2012</p> <p>All fuel types</p>

№	Title of the EEI program /measure	Category	Appli-cation	Target group/ sector	End-use EEI action targeted <i>(see detailed lists in next Chapter – Description of Measures)</i>	Status of implementation and exact timeframe	Annual energy savings (FEC-primary)
H2 (S2)	Training and certification of auditors, building certifiers and boilers / air-conditioning systems inspectors and officials	1.1 Building Codes and Enforcement; 2.5 Training and education	National	Engineers and officials	<ul style="list-style-type: none"> • Training programme and certification for energy auditors, building certifiers • Training programme for inspectors of boilers and air conditioning systems • Capacity building of officials involved in issuing licences and inspections of constructions • Software supporting implementation of EPBD and training on the software use (with update to the 1st version of relevant regulations). 	<p>Training programme for energy auditors started on 2008. Up to July 2010, 27 energy auditors have been trained.</p> <p>Certification of auditors/ building certifiers (after adoption of secondary legislation (2011) (early action without major adaptations planned).</p> <p>Training/ certification of inspectors for heating/cooling systems will start after adoption of the relevant regulations in 2011 (new EEI measure – planned)</p> <p>Development (or procurement) and training on software for implementation of buildings regulations – Source of financing is not yet identified (new EEI measure – under consideration). Expected in 2011-2012.</p>	Included in savings of EEI measure No H1
H3	Energy Labelling of household appliances	2.2 Energy labelling schemes	National	Residential sector (mainly)	<p>Introduction of energy labelling to specific household appliances.</p> <ul style="list-style-type: none"> • Establishment of regulatory framework • Establishment of institutional scheme for its implementation. 	The LoEE provides for transposition of Energy Labelling directives. They will be drafted by end 2010 to be adopted by mid 2011 (new EEI measure – planned)	2.2 ktoe in 2012 Electricity

№	Title of the EEI program /measure	Category	Appli-cation	Target group/ sector	End-use EEI action targeted <i>(see detailed lists in next Chapter – Description of Measures)</i>	Status of implementation and exact timeframe	Annual energy savings (FEC-primary)
H4 (S3)	Information campaigns to the general public and other end-users – Info Centres	2.1 Focused information campaigns 2.3 Information Centres	National/Local	Residential (mainly) and services sectors	<p>Increased awareness and changed behaviour of end-users focusing on:</p> <ul style="list-style-type: none"> • New regulations (EPBD) • Energy labelling • Substitution of direct electrify for heating • Promotion of solar-thermal • Good practices (esp. in lighting, air conditioners, devices, use of RES), etc. <p>Dedicated web page of SEE</p> <p>Establishment of local EE info-centres.</p> <p>Demonstration projects (low energy buildings)</p>	<p>The 1st campaign started in 2008 and implemented on 2009 (Energy Efficiency Year).</p> <p>Plan for new campaign focusing on promotion of the reforms introduced by the LoEE are under elaboration (Oct. 2010)</p> <p>Implementation is expected in 2011-2012 (early action with adaptations planned).</p> <p>Certain local business centres of SMEDD that also provide information on EE have been established. Their functions concerning EE will be enriched on the basis of the LoEE and this EEAP.</p> <p>New EE info centres may be established. Low-energy buildings demonstration projects are under consideration (new EEI measures planned or under consideration)</p>	<p>1.4 ktoe in 2012</p> <p>Additional to other measures (good practices)</p>

№	Title of the EEI program /measure	Category	Appli-cation	Target group/ sector	End-use EEI action targeted <i>(see detailed lists in next Chapter – Description of Measures)</i>	Status of implementation and exact timeframe	Annual energy savings (FEC-primary)
H5.	Financial incentives for use of solar thermal systems, small biomass applications, energy saving lamps and other EEI/RES measures, granted to citizens under public announcements or donors programmes.	3.3 Loans (soft and/or subsidised)	National/Local	Residential sector (mainly)	<p>Financial mechanism for implementation of solar water heating in the residential sector.</p> <p>Incentives for replacement of filament lamps with economy lamps.</p> <p>Depending on international donors' financial assistance and budget availability, additional incentives may be provided or designed for EEI/RES measures for the residential sector. Actions can be implemented in combination with low-carbon strategy, CDM mechanism. Also actions can be combined with incentives for improvement of energy performance of buildings without proper licences under the process of their formalisation.</p>	<p>Market study for solar water heating systems carried out in 2009, shown a considerable potential.</p> <p>In 2009 the Municipality of Podgorica lunched subsidy for installation of solar systems (early action without major adaptations planned).</p> <p>A program for providing soft loans for installation of solar water heating systems is under discussion. Actual implementation is expected to start in 2011 (new EEI measure under consideration).</p> <p>A program for providing economy lamps to citizens that will be paid back though the electricity bills is also under consideration (new EEI measure under consideration).</p> <p>Additional EEI/RES measures and incentives, such as incentives for improvement of energy performance of buildings, promotion of modern biomass appliances, will be also considered for implementation within this and the next EEAP (2013-2015) (new EEI measure under consideration).</p>	<p>0.6 ktoe in 2012</p> <p>Electricity</p>

2.1.3 Description of individual EEI measures for the Households Sector

No and Title of the EEI measure	H1/S1: Development of new regulatory framework for buildings as per the LoEE, EPBD and enforcement (phase 1) <i>(Cross-sectoral measure applicable to all buildings mainly of the residential and services sector - it is described here as it mainly impacts households)</i>
Category	Category: 1. Regulation / Subcategory: 1.1 Building Codes and Enforcement
Regional application	National
Target group	Building construction industry and related professionals; Investors in buildings; Building owners; tenants.
End-use EEI action targeted	<p>1) Development of the first simplified version of new regulations as per the LoEE and EPBD on:</p> <ul style="list-style-type: none"> • minimum energy performance of buildings • energy audits of buildings • energy certification of buildings • inspection of boilers and air-conditioners, • other legal acts determining which buildings are excluded from certification obligations etc. <p>The relevant regulations (rule-books) are presented in Chapter 5 (Items 3 to 9 in the list). The first version of regulations has to compromise between the methodological/ procedural completeness and what is practically applicable in Montenegro under the current circumstances. It is expected that after the initial application and based on the first results, the regulations will be adapted/revised and completed (during the 2nd EEAP) assuming that appropriate specialised approved software that enables carrying out of the relevant technical calculations will become available.</p> <p>The new legislative framework on the energy performance of buildings may give also the opportunity to introduce minimum energy efficiency requirements as a prerequisite for “formalising” buildings constructed without proper licences. The ME with MSPE will promote this concept to the Government and possibly include this category of buildings with some exemptions as “new buildings” in the rule-book for minimum energy performance requirements. This way the minimum requirements for “new buildings” apply automatically to the “informal buildings”.</p> <p>2) Straightening of enforcement mechanisms, especially the SEE and authorities responsible for issuing licenses for buildings construction, usage permits and inspection of buildings through:</p> <ul style="list-style-type: none"> • recruitment/appointment of adequate qualified staff • staff training and capacity building (see EEI Measure H2/S2).

	<p>3) Development and maintenance of a data base of energy auditors, inspectors, certificates issued and large buildings subject to certification.</p> <p>We recognise the weaknesses of the enforcement mechanisms in Montenegro. In this respect this EEAP puts particular emphasis on EEI support measures that will increase awareness and demand for energy efficient buildings through information campaigns, training professionals, provision of advice, voluntary agreements with the construction industry, etc. (see relevant EEI Measures).</p>
<p>Implementation arrangements</p>	<p>The new regulatory framework for the energy performance of buildings must be in line with the EPBD (Directive on the energy performance of buildings 2002/91/EC).</p> <p>The planned management and administration scheme for development and implementation of the new framework is the following:</p> <ul style="list-style-type: none"> • An Administration Committee for EPBD Implementation (SEE/ME, MSPE) will oversee the development and strategic elements of the scheme with membership/involvement from various stakeholders • The day-to-day operation of the scheme will be managed by SEE/ME <p>Development and implementation will include the following steps:</p> <ul style="list-style-type: none"> • Planning and preparation: Planning of implementation, setting up of the initial management and administration scheme, safeguarding of financing of studies, database and other activities. • Development of relevant Rulebooks in line with the LoEE as listed in Chapter 5 (Items 3 to 9 in the list). • Discussion of the draft Rulebooks with the involved stakeholders (construction companies, academics, engineers, etc.) • Keeping records of the authorized auditors, certifiers and inspectors, as well as of audit reports and certificates issued • Monitoring of implementation and reporting <p>The MSPE and ME are the responsible government bodies. MSPE will also identify measures for strengthening capacity for building inspections. ME is responsible for inspection of energy systems (incl. boilers and air-conditioning systems).</p>
<p>Status of implementation and exact timeframe</p>	<p>New EEI measure - process of implementation started</p> <p>Law on Spatial Development and Construction of Structures (2008) provided for EE in constructions but the necessary secondary legislation was never adopted and the relevant provisions of the Law are inactive.</p> <p>LoEE provides for transposition of all main concepts of EPBD.</p> <p>The relevant regulations on energy performance of buildings, energy auditing and certification are under development (drafts are expected by end 2010).</p>

	<p>Regulations on inspection of boilers and air-conditioners are planned (drafts expected by mid 2011).</p> <p>The data base of energy auditors, inspectors, certificates issued and large buildings subject to certification is planned for the end 2011</p> <p>General deadline for completion of the framework and enforcement: end 2011.</p> <p>The recast of the Directive on the energy performance of buildings (2010/31/EU) has been adopted by Decision No 2010/02/MC-EnC of 24 September 2010 of the Ministerial Council. Its implementation is foreseen for the 2nd EEAP.</p>
<p>Financing and sources</p>	<p>Funding is required for:</p> <ul style="list-style-type: none"> • Development of Rulebooks (EPBD) – 1st simplified Version • Adoption of relevant EN Standards • Training of MSPE/ Local Authorities and ME officials for controls and inspections of constructions (combined with EEI Measure H2) • Expenses for organising public consultations activities • Development of data base of auditors, inspectors, certificates issued and buildings subject to certification. <p>TOTAL: 140,000 €³</p> <p><u>Sources of financing:</u></p> <ul style="list-style-type: none"> • State Budget (est. 30,000 €) • Donors' assistance (est. 110,000 €) <ul style="list-style-type: none"> • GTZ/Norwegian aid allocated 50,000 € for development of buildings regulations for the period 2010-2012. • UNDP/GEF plans to support development of the database of on audits and certificates • The EU funded TA-EnCT project will prepare the regulation on inspection of boilers/ air conditioners
<p>Expected annual energy savings in 2012</p>	<p>The expected savings will be the result from this and a number of other EEI supporting actions (e.g. information campaigns, auditors training etc.) that are described in the following EEI Measures. The savings have been calculated on the basis of expected surface area of new constructions, a scenario about the ratio of constructions to be built in compliance with the new regulations and the expected savings per m². It is taken into account that the measure will start producing savings in late 2011 and 2012.</p> <p>Annual energy savings – Electricity: 0.6 ktoe (2012)</p> <p>Annual energy savings – Fuels: 0.4 ktoe (2012)</p> <p>Annual energy savings – FEC-primary: : 1.8 ktoe (2012)</p>

³ About 30% of the resources of the EU funded TA-EnCT project of total budget 1,5 million € are allocated for support to the SEE/ME and EE activities. EU contribution is additional to the mentioned budget figures.

No and Title of the EEI measure	H2/S2: Training and certification of auditors, building certifiers and boilers / air-conditioning systems inspectors and officials <i>(Cross-sectoral measure applicable to all buildings- it is described here as it mainly impacts households)</i>
Category	Category: 1.Regulation / Subcategory: 1.1 Building Codes and Enforcement Category: 2. Information and mandatory information measures / Subcategory: 2.5. Training and education
Regional application	National
Target group	Engineers and officials
End-use EEI action targeted	Based on the rulebooks (see EEI measure H1) the following activities are planned: 1) Recurrent training programme for building auditors and certifiers / certification of energy auditors and building certifiers 2) Recurrent training programme/ certification for inspectors of boilers and an air conditioning systems 3) Training and capacity building of officials from MSPE and local authorities to implement the regulations esp. officers involved in licensing, inspections of constructions etc 4) Development/ procurement of software supporting implementation of EPBD and training on the software use (with possible update to the 1 st version of relevant regulations)
Implementation arrangements	LoEE prescribes requirements to obtain authorisation for energy auditors and certifiers which will be in detail described in secondary regulation (see Chapter 5): Development and implementation will include the following steps: <ul style="list-style-type: none"> • Planning and preparation: Development of abovementioned rulebooks (EEI Measure No H1) regarding energy auditing and certification, development of the secondary regulations regarding regular inspection of boilers and air-conditioning systems. These regulations will determine the final content of the Training Programmes for each type of professionals (auditors, certifiers and inspectors) according to the LoEE. • Training program to engineers and officials: Establishment of Training Programme on relevant institution (Mechanical and Architectural faculty of University of Montenegro), provision of theoretical and practical training, provision of training on software for energy performance calculation, as well as final examinations for the participants of the training courses. • Issuance of certificate by ME for each type of experts (auditors, certifiers, inspector) in accordance with the level of training

	<p>program that trainees successfully complete after examinations and their professional qualifications.</p> <ul style="list-style-type: none"> • The existing available software, developed by ENSI under Norwegian aid grant, does not cover cooling load calculations but it is the only available for use for the time being. Development / purchasing of software, approved by the ME, to support calculations specified in the EPBD is needed. Availability of such software is a precondition for updating and upgrading of the 1st version of the relevant regulations so that they become fully in line with the EPBD and its recast. • Training on new software use, will be incorporated in the training programmes. <p>Completion of the legal framework that is a precondition for implementation for this EEI action, is expected by early 2011. Ministry of Economy (ME) is the responsible government body.</p>
<p>Status of implementation and exact timeframe</p>	<p>Early action without major adaptations planned: ME with support of donors already establish Training Programme at Mechanical and Architectural faculty of University of Montenegro and trained in two cycles energy auditors. In total 27 auditors successfully completed the courses. Certification of auditors/ building certifiers will start after the adoption of the relevant secondary legislation (2011). It is expected that the trained auditors will be the first certifiers (possibly with temporary licence). At the same time training of officials will start.</p> <p>New EEI measures – planned: Training/ certification of inspectors for heating/cooling systems will start after adoption of the relevant regulations in 2011.</p> <p>New EEI measure – under consideration: Development (or procurement) of software approved by ME and training for implementation of buildings regulations. Software can be developed under a project initiated ME and MSPE and possibly distributed without licence fee or by private firms with licences fee. – Source of financing is not yet identified (expected in 2011 - 2012).</p>
<p>Financing</p>	<p>Funding is required for:</p> <ul style="list-style-type: none"> • Continuation of training programme for building auditors, certification for energy auditors and building certifiers • Development of materials and training programme for certification for inspectors of boilers and an air conditioning systems • Establishment of data base of auditors, certifiers, inspectors and certificates • Software supporting implementation of EPBD as per EN Standards. <p>TOTAL COST: 70,000 € plus 300.000 € for software development and training programmes</p>

	<p><u>Sources of Financing:</u></p> <ul style="list-style-type: none"> • State Budget (est. 70,000 €) • Donors' assistance (est. 300,000 €) <ul style="list-style-type: none"> • Software development est. 200,000 € (source to be identified) • GTZ/Norwegian aid and UNDP/GEF plan to finance capacity building activities <p>The EU funded TA-EnCT project provides advice.</p>
Expected annual energy savings in 2012	The saving potential of this measure is already included in savings of EEI measure No H1

No and Title of the EEI measure	H3: Labelling of household appliances
Category	Category: 2. Information and mandatory information measures / Subcategory: 2.2. Energy labelling schemes
Regional application	National
Target group	Residential sector (mainly)
End-use EEI action targeted	<p>1) Introduction of energy labelling to specific household appliances as per the relevant EU Directives:</p> <ul style="list-style-type: none"> • Establishment of regulatory framework • Establishment of institutional scheme for its implementation.
Implementation arrangements	<p>The energy labelling is particularly effective in giving the consumer correct and well-balanced information about the appliance's consumption ratio in an easy to read and understandable format.</p> <p>Indirectly, it spurs the manufacturer to update the product to bring it as far as possible into line with the consumer's motivated choices.</p> <p>Development and implementation will include the following steps:</p> <ul style="list-style-type: none"> • Planning and preparation: LoEE introduces energy labelling of household appliances (Art. 38). • Adoption of regulations: Development of the regulatory framework for the labelling scheme. • Establishment of supervisory body and control (inspection) scheme for market enforcement of regulations and reporting (as it will be specified with the above regulations) <p>This measure will be supported by EEI Measure H4 (Information campaigns).</p> <p>Completion of the legal framework for this activity expected by the mid of 2011.</p>

	Ministry of Economy (ME) that is also responsible for commerce is the competent government body for implementation of this EEI Measure.
Status of implementation and exact timeframe	New EEI measure – planned: The LoEE provides for transposition of Energy Labelling directives. The secondary regulations will be drafted by end 2010 to be adopted by mid 2011.
Financing	Funding is required for: <ul style="list-style-type: none"> • Drafting of Regulations • Inspections/Reporting: <i>[regular work of the ME]</i> Cost of information campaigns is included in the next EEI Measure H4. <u>Sources of Financing:</u> <ul style="list-style-type: none"> • State budget (10,000 € for monitoring implementation of regulations) • EU/TA-EnCT Project will draft the regulations • Ministry's regular budget
Expected annual energy savings in 2012	The savings have been estimated on the basis of data on number of households, energy consumption and a scenario on the expected rate of penetration of Class A devices. It is estimated that this measure will start having a rather considerable effect towards the end of the 1 st EEAP: Annual energy savings – Electricity: 0.9 ktoe (2012) Annual energy savings – FEC-primary: : 2.2 ktoe (2012)

No and Title of the EEI measure	H4/S3: Information campaigns to the general public and other end-users – Info Centres <i>(Cross-sectoral measure applicable to residential and services sectors- it is described here as it mainly impacts households)</i>
Category	Category: 2. Information and mandatory information measures / Subcategory: 2.1 Focused information campaigns and Category: 2. Information and mandatory information measures / Subcategory 2.3. Information Centres
Regional application	National / Local
Target group	Residential (mainly) and services sectors
End-use EEI action targeted	1) Increased awareness and changed behaviour of end-users through promotional campaigns, information dissemination and marketing activities addressing specific issues and target groups focusing on : <ul style="list-style-type: none"> • Promotion of introduction of new regulations especially for buildings energy performance and appliances labelling;

	<ul style="list-style-type: none"> • Series of activates (seminars, thematic meetings, publicity and similar events) aiming at informing and educating the public about EE good practices; • Promotion of solar thermal systems and small biomass applications; • Substitution of direct use electrify for heating; • Promotion of energy efficiency lighting, air conditioning etc. <p>2) Dedicated web page and free telephone line for informing and advising citizens</p> <p>3) Opening of local info-centres – depending on donors assistance and contribution of Municipalities</p> <p>4) Demonstration projects (low energy houses) – depending on donors assistance</p> <p>5) Public researches on the level of awareness and assessment of results of the campaign.</p>
<p>Implementation arrangement</p>	<p>A well planned campaign with clear target groups (general population, services sector consumers) and objectives will have a positive impact on attitudes and awareness about efficient contractions and appliances, efficient lighting, proper maintenance and good practices in energy use and introduction of RES. Both the energy effectiveness and cost-effectiveness of such measures will be demonstrated.</p> <p>The campaign will be designed by the ME/SEE. Local Authorities, donors, NGOs etc. will be invited to contribute and/or co-ordinate their on-going information activities with ME aiming at achieving two main goals:</p> <ul style="list-style-type: none"> • to promote implementation of the LoEE • to promote implementation of the EEAP. <p>In this respect, a “Coordination meeting on EE” is planned to achieve effective coordination of activities of donors and stakeholders in information dissemination as well as on all other actions of this EEAP.</p> <p>To increase effectiveness, information campaigns should be repeated on a regular basis addressing also specific target groups (e.g. air-conditioner installers, hotels, etc.) as well as on the occasion of introduction of new regulations and other energy policy initiatives.</p> <p>Monitoring and evaluation of results will be part of the campaigns.</p> <p>ME/SEE will be the coordination body.</p>
<p>Status of implementation and exact timeframe</p>	<p>Early action with adaptations planned:</p> <p>The 1st campaign started in 2008 and implemented on 2009 (Energy Efficiency Year). It was a straight forward EE campaign with many actions promoting the concept of EE, good practices and efficient technologies.</p> <p>Certain local business centres of SMEDD that also provide information on EE, have been established. Their functions concerning EE will be enriched on the basis of the LoEE and this EEAP.</p>

	<p>The concept of the new planned campaign will differ in that it will particularly focus on the promotion of the reforms introduced by the LoEE and this EEAP.</p> <p>Implementation is expected in 2011-2012</p> <p>Certain actions, such as development of dedicated EE info centres or low-energy demonstration projects are new EEI measures planned or under consideration.</p>
<p>Financing</p>	<p>Funding is required for:</p> <ul style="list-style-type: none"> • Plan of information campaign • Implementation of campaign • On-going monitoring and evaluation of effects • Demonstration projects/ info centres and training of their staff <p>TOTAL: 20,000 from the ME for monitoring and media relations plus 1,000,000 € from donors for the campaign incl. demoprojects and info centres</p> <p><u>Sources of Financing:</u></p> <ul style="list-style-type: none"> • Donors' assistance and other donations <ul style="list-style-type: none"> • GTZ/Norwegian aid declared 250,000 € funding for information campaign • EU/TA-EnCT Project will prepare the Awareness Plan up to 2012. • Other donors (incl. UNDP/GEF) may finance/provide incentives for demo projects in the residential sector. • State and Municipality Budgets
<p>Expected annual energy savings in 2012</p>	<p>The expected contribution of the information campaigns in improving buildings performance and market penetration of class A household appliances have been already taken into account in the respective EEI measures above. The expected savings resulting from financial incentives are taken into account in the following EEI Measure H5. Therefore the following estimations represent the expected energy savings resulting from increased awareness and change of behaviour of residential end-users:</p> <p>Annual energy savings – Electricity: 0.5 ktoe (2012) Annual energy savings – Fuels: 0.3 ktoe (2012) Annual energy savings – FEC-primary: : 1.4 ktoe (2012)</p>

No and Title of the EEI measure	H5: Financial incentives for use of solar thermal systems, , small biomass applications energy saving lamps and other EEI/RES measures, granted to citizens under public announcements or donors' programmes
Category	Category: 3. Financial instruments / Subcategory: 3.1.Subsidies and 3.3 Loans
Regional application	National / Local
Target group	Residential sector
End-use EEI action targeted	<p>1) Financial mechanism for implementation of solar water heating in the residential sector.</p> <p>2) Incentives for replacement of filament lamps with economy lamps</p> <p>3) Depending on international donors' financial assistance and budget availability, additional incentives may be provided or designed for EEI/RES measures for the residential sector e.g. rehabilitation of building envelope and improvement of central heating/cooling systems in existing buildings, introduction of highly efficient and multifunctional biomass appliances (with aim to prevent switching from biomass to other fuels with the increase of household income).</p> <p>Actions can be implemented in combination with low-carbon strategy and CDM mechanism. Also actions can be combined with incentives for improvement of energy performance of buildings without proper licences under the process of their formalisation.</p>
Implementation arrangement	<p>Financial incentives for EE/decentralised RES act in two ways:</p> <ul style="list-style-type: none"> • facilitate building owners and tenants to finance small EE investments and • as a means for promotion of these measures to others who will not directly benefit for the incentives by demonstrating their cost effectiveness. <p>In turn, effectiveness of financial incentives of EE is strengthened if it is combined with information and promotion campaign.</p>
Status of implementation and exact timeframe	<p>Early action without major adaptations planned:</p> <p>Market study for solar water heating systems carried out in 2009, shown a considerable potential.</p> <p>In 2009 municipality Podgorica lunched subsidy for installation of solar thermal systems in new buildings through reducing communal taxes (fees for utility land) in amount 100 € per square metersolar system installed. So far the results are rather poor as this measure was not adequately promoted and citizens are not informed.</p> <p>New EEI measure under consideration:</p> <p>A program for providing soft loans for installation of solar water heating systems is under elaboration. Repayment of loans will be done with the electricity bills while the grant will cover the interest rates. Actual implementation is expected to start in 2011 if the programme is approved.</p>

	<p>A program for providing economy lamps to citizens that will be paid back through the electricity bills is also new EEI measure under consideration.</p> <p>Additional EEI/decentralised RES measures and incentives will be also considered for implementation within this and the next EEAP (2013-2015).</p>
<p>Financing</p>	<p>The level of financing of this EEI Measure depends much on grants and donors' assistance:</p> <ul style="list-style-type: none"> • Indicative grant for solar systems: 750,000 € • Est. indicative grant for lighting: 300,000 € <p>These include grant administration costs</p> <p>TOTAL COST(Grant): 20,000 from the ME for monitoring plus 1,050,000 € from donors plus municipality financing</p> <p><u>Sources of Financing:</u></p> <ul style="list-style-type: none"> • Donors' assistance (grant) <ul style="list-style-type: none"> • UNEP may finance measures for solar systems • UNDP/GEF plans to provide incentives for EE measures • ESCOs (if developed on time) • State and Municipality Budgets
<p>Expected annual energy savings in 2012</p>	<p>Financing for installing 4000 m² solar collectors is at a rather mature stage. Financing of replacing filament lamps is not yet safeguarded. Therefore the expected electricity savings are estimated only for the component of solar collectors:</p> <p>Annual energy savings – Electricity: 0.2 ktoe (2012)</p> <p>Annual energy savings – FEC-primary: 0.6 ktoe (2012).</p>

2.2. Services

2.2.1. Main characteristics of the sector

The services sector in 2002-2006 consumed in average about 10% of the total FEC in Montenegro (or 11% in the total FEC-Primary). Analytical data are provided in Annex 1.

As presented in Figure 2.2, electricity and petroleum products accounted for about 66% and 25% respectively of the final energy consumption in 2002-2006. The rest was lignite (about 9%).

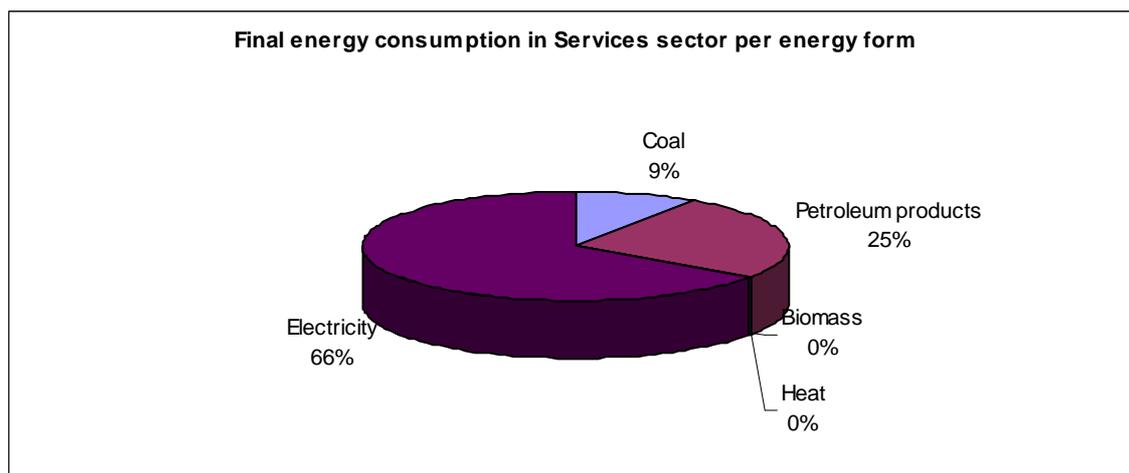


Figure 2.2: Percentage share of the fuels in the Services sector in Montenegro (average 2002-2006)

Electricity is extensively used in services sector buildings. Besides the normal electricity uses, such as lighting and cooling, electricity is also used to cover space heating, hot water production and other thermal needs. There are many buildings, where electricity is the only source of energy. Petroleum products are used mainly for space heating and hot water production.

Hotels and commercial buildings are the main consumers of the private sector services.

The most important consumers in the public sector services (excluding transport) are the water supply companies, the public lighting, the Ministry of education (schools, high schools, universities, dormitories, office buildings etc.) and the Ministry of health (hospitals, health centres, office buildings).

Unfortunately, Montenegrin energy statistics do not distinguish between consumption in the public and commercial services.

Energy consumption in the public sector practically is not monitored and controlled. So far there was no systematic programme for EEI in the public sector with the exception of an on-going World Bank loan programme for EEI investments in public buildings.

However all relevant studies and energy audits that have been carried out, show that there is a considerable EEI potential in many areas including heating and cooling loads of buildings, heating and cooling systems, indoor and street lighting, water pumping stations, water supply systems (due to huge losses of pumped water), etc. In many cases, no-cost energy management measures could save much energy, however awareness and capacity are very limited, while energy wasting attitudes are common among the personnel.

Besides the energy cost savings opportunities for the state and municipal budgets, the public sector's buying power and visible leadership offer a powerful means to stimulate market demand for energy efficient products and services.

In this spirit, the recently adopted LoEE covers extensively the promotion of EEI in the broader public sector. The LoEE provides for several EEI plans and actions to be implemented by public institutions, local authorities, big consumers etc.

Among others, the LoEE provides for:

- Annual Operational Plan for Energy Efficiency Improvements in Public Administration Institutions
- Three-year Energy Efficiency Improvement Programmes that will be implemented through annual Energy Efficiency Improvement Plans by Local Self-Governments.
- EEI plans and reporting requirements by big energy consumers (including consumers of the services sector)
- Introduction of energy efficiency criteria in public procurements, energy certification of buildings, etc.
- Introduction of alternative financing mechanisms,
- Introduction of energy management schemes and regular reporting energy statistics, etc.

Implementation of the above measures requires a fully-developed regulatory framework, implementation guides, awareness raising and capacity building and, most important, commitment of resources and political will both at central and local authorities' level. It is necessary that the broader public sector bodies are mobilised and make available the required human and financial resources, while the SEE of the ME initiates and implements programmes for implementation monitoring and provision of adequate training and guidance.

The EU funded TA-EnCT project will assist SEE in developing regulatory framework acts, capacity building plan, certain pilot training courses, etc. Other donors' assistance and participation of local educational institutions is necessary to complete the regulatory framework and capacity building infrastructure. Repetition of training courses across the country, provision of technical assistance to broader Public Sector organisations and possibly, hardware and specialised software for energy management and energy statistics is needed.

There is also a considerable interest of donors to finance EEI investments in public buildings and services (World Bank, KfW, UNDP/GEF etc.). However implementation of the EEI measures in the services cannot rely only on donors' assistance. State and local authorities budgets must also contribute, while private capital, especially though ESCOs, should be mobilised.

The EEI measures of EEAP for the services sector have been selected, recognising the aforementioned considerations.

2.2.2. Overview table of EEI measures for the Services Sector

Table 2.2: Overview of Energy Efficiency Improvement (EEI) programs and measures for the Services Sector

№	Title of the EEI program /measure	Category	Appli-cation	Target group/ sector	End-use EEI action targeted <i>(see detailed lists in next Chapter – Description of Measures)</i>	Status of implementation and exact timeframe	Annual energy savings (FEC-primary)
S1 (H1)	Development of new regulatory framework for buildings as per the LoEE, EPBD and enforcement (phase 1)	1.1 Building Codes and Enforcement	National	Building construction industry and related professionals; Investors in buildings; Building owners; tenants.	<i>Described as EEI Measure H1 for the households sector</i>	<i>Described as EEI Measure H1 for the households sector</i>	1.4 ktoe in 2012 All fuel types
S2 (H2)	Training and certification of auditors, building certifiers and heating/cooling systems inspectors and officials	1.1 Building Codes and Enforcement; 2.5 Training and education	National	Engineers and professionals	<i>Described as EEI Measure H2 for the households sector</i>	<i>Described as EEI Measure H2 for the households sector</i>	Included in savings of the EEI measure No S1
S3 (H4)	Information campaigns to the general public and other end-users – Info Centres	2.1 Focused information campaigns 2.3 Information Centres	National/Local	Private and public services sectors (combined with campaign for the residential sector)	<i>Described as EEI Measure H4 for the households sector</i>	<i>Described as EEI Measure H4 for the households sector</i>	1.1 ktoe in 2012 All fuel types (mainly electricity)

№	Title of the EEI program /measure	Category	Appli-cation	Target group/ sector	End-use EEI action targeted <i>(see detailed lists in next Chapter – Description of Measures)</i>	Status of implementation and exact timeframe	Annual energy savings (FEC-primary)
S4	Programme for carrying out energy audits in public sector buildings	2.4 Energy Audits 2.7 Exemplary role of the public sector	National/Local	Public sector	Preliminary and detailed energy audits in public buildings.	<p>The Project “Promotion and Implementation of Energy Audits in Public Buildings”, with financial and expert support from GTZ and the Government of Norway started an auditing campaign in public buildings in early 2009.</p> <p>Up to date about 35 audits have been completed.</p> <p>According to the LoEE energy audits to buildings with useful floor area is more than 1000 m² used by broader Public Sector bodies is mandatory.</p> <p>Auditing activity will continue in next period financed by the state and municipal budgets and donors’ assistance. (early action without major adaptations planned).</p>	Included in savings of the EEI measure No S5

№	Title of the EEI program /measure	Category	Appli-cation	Target group/ sector	End-use EEI action targeted <i>(see detailed lists in next Chapter – Description of Measures)</i>	Status of implementation and exact timeframe	Annual energy savings (FEC-primary)
S5	Implementation of EEI investments and introduction of EEI grant schemes for buildings of the broader public sector	2.7 Exemplary role of the public sector 3.3 Loans (soft and/or subsidised)	National/Local	Broader Public sector	Investments for implementation of EEI in public sector buildings financed by loans of IFIs (on the basis of results of energy audits) Additional investments are expected with the initiative of organisations of the broader public sector as per LoEE.	Starting from 2009 with studies and tendering, implementation of EEI measures in 14 educational and 6 health institutions is planned. Works in 2 buildings started In May 2010 and the programme is scheduled to finish by end 2012. Financing is provided from a World Bank loan of EUR 6.5 million (including project development and monitoring costs) (early action without major adaptations planned). A loan of EUR 11 million is under negotiation with KfW for EEI investments in public buildings. The programme is planned to start by the end 2010. Actual implementation of works is planned to start in 2011 (new EEI measure under consideration) UNDP/GEF plans to co-finance EEI investments in 5 Municipalities In addition few EEI investments in public buildings are expected to be financed by Ministries' and Municipality Budgets as well as by other donors (new EEI measure planned or under consideration)	1.7 ktoe in 2012 all fuel types
S6	Energy performance certification of public buildings and visibility of certificates	2.7 Exemplary role of the public sector	National	Public sector, Local Authorities	Improved awareness and demonstration of the exemplary role of the public sector. Introduced mandatory certificates for sites, public or municipal property, in operation, with a total useful area of over 1000 sq. m., preceded by energy audits prescribing energy savings measures.	The LoEE, Art. 22, provides for energy audits in public sector buildings over 1000 sq. m. and Art. 29 provides for visibility of certificates. This measure will be further specified with secondary legislation about buildings certification. (new EEI measure planned)	Included in savings of the EEI measures No S1 and S5

№	Title of the EEI program /measure	Category	Appli-cation	Target group/ sector	End-use EEI action targeted <i>(see detailed lists in next Chapter – Description of Measures)</i>	Status of implementation and exact timeframe	Annual energy savings (FEC-primary)
S7	Implementation of EEI investments in utilities of Municipality and public companies (demand side)	2.7 Exemplary role of the public sector 3.1 Subsidies (Grants) 5.2 Third-party Financing 5.3 Energy performance contracting	Local	Local Authorities, ESCOs	Investments for implementation of EEI in: <ul style="list-style-type: none"> • street lighting • water utilities, etc. Involvement of ESCOs will be intensively promoted	Montenegro has applied for the grant programme “ORIO” financed by Gov. of Netherlands for EEI in street lighting of 14 municipalities. Regardless of the result of this application, Local Authorities have to prepare and implement 3-year Energy Efficiency Improvement Programme and annual Plans that will include, among others, measures for EEI in buildings, water supply utilities, street lighting, etc. Certain Municipalities (e.g. Podgorica) are already planning adoption of EE plans etc. (three municipalities already participate in the Covenant of Mayors). Few municipalities are expected to start some investments by the second half of 2011 and intensify efforts on 2012 and beyond. (new EEI measure: planned or under consideration)	0.8 ktoe in 2012 electricity
S8 (T1)	Establishment and implementation of EE criteria in procurement of goods, buildings and services and lease of buildings by the broader Public Sector bodies	4.3 Energy efficiency public procurement 2.7 Exemplary role of the public sector	National	Public sector, local authorities	Regulations and guide on introduction EE criteria in public procurements. The relevant information dissemination and capacity building actions are included in Measures No S3 and S10.	The LoEE (Art. 18, 19) provides for establishment of EE criteria in public procurements. The relevant regulations and guides will be drafted by end 2010. Implementation is expected to start in 2011. (new EEI measure planned)	After 2012

№	Title of the EEI program /measure	Category	Appli-cation	Target group/ sector	End-use EEI action targeted <i>(see detailed lists in next Chapter – Description of Measures)</i>	Status of implementation and exact timeframe	Annual energy savings (FEC-primary)
S9	Removal of barriers for alternative EE financing mechanisms in the public sector and other end-users	5. Energy services for energy savings	National	Public sector, local authorities, private sector end-users	<ul style="list-style-type: none"> • Study on implementation of alternative energy financing mechanisms • Legislative / regulatory amendments and acts • TPF, EPC, Contract models <p>The relevant information dissemination and capacity building actions are included in Measures No S3 and S10</p>	<p>The LoEE (Art. 44, 45) introduce the concept of ESCOs and Energy Performance Contracting.</p> <p>A discussion paper on alternative financing mechanisms with suggestions for the necessary legislative / regulatory amendments and acts and TPF, EPC contract models will be developed by end 2010.</p> <p>Local private sector companies show interest for ESCO businesses (<i>new EEI measure: planned or under consideration</i>)</p>	Included in savings of the EEI measure No S5 and S7
S10	Capacity building plan for the services sector (public and private) and implementation.	2.1 Focused information campaigns 2.5 Training and education	National / Local	Public sector, local authorities and big consumers of the private sector	<ul style="list-style-type: none"> • Capacity building plan in all aspects related to the obligations of broader public sector institutions and big consumers of the public and private services sector under the LoEE. • Development of training and capacity building modules on energy efficiency, energy management, financing mechanisms, etc. • Pilot training and workshops • Repetition of training across the country • Scheme for provision of technical assistance. 	<p>The LoEE provides for establishment of EEI programmes and plans, Energy Management schemes, alternative financing mechanisms, EE data collection and reporting etc. for all major public sector bodies, public authorities and private and public sector big consumers (including those of the services sector).</p> <p>Development of a capacity building plan is planned for Oct. 2010. In addition certain training materials and guides will be developed. Pilot training programmes will be organised in 2011.</p> <p>Additional training modules have to be developed by local universities and experts.</p> <p>Implementation of the plan at local level will be implemented from 2011. Financing is expected from the ministries and local budgets and donors.</p> <p><i>(new EEI measure: planned or under consideration)</i></p>	Included in savings of the EEI measures No S5, S7 and S8

№	Title of the EEI program /measure	Category	Appli-cation	Target group/ sector	End-use EEI action targeted <i>(see detailed lists in next Chapter – Description of Measures)</i>	Status of implementation and exact timeframe	Annual energy savings (FEC-primary)
S11	Financing EE projects in SME's sector and introduction of additional incentives	3. Financial instruments 2.4 Energy Audits	National	SME's sector	<ul style="list-style-type: none"> • Measures to promote and facilitate EE investment in SME's sector. • Measures to promote solar thermal systems and other RES in hotels and other SME's • Intensive promotion and awareness raising, as well as technical and advisory support to SME's. • Incentives/support for energy audits Involvement of ESCOs will be promoted	<p>Process of implementation started in 2007. Implementation of a KfW revolving fund of 19 million € "Energy efficiency and renewable energy sources in Montenegro" is ongoing but with poor results so far. The project is intended to provide TA and finance the EE in SME's.</p> <p>A special body in the Chamber of Commerce of Montenegro was established in 2009, in order to promote networking and EE and RES solutions at SMEs. (early action without major adaptations planned).</p> <p>New incentive measures need to be studied (e.g. solar thermal for hotels), designed (2011), financed and implemented from 2012. (new EEI measure under consideration)</p>	Not evaluated yet all fuel types
S12	Voluntary agreements with building construction companies	1.1 Building Codes and Enforcement 4.2 Commercial or Institutional Organisations	Local	Construction companies	<ul style="list-style-type: none"> • Voluntary agreements between the GoM or the ME and large building construction companies as a supporting measure for the quick implementation of the EPBD. • Combined also with the information campaigns 	The framework for potential voluntary agreements will be elaborated by April 2011. (new EEI measure under consideration)	Included in savings of the EEI measures No H1 (households) and S1 (services)

2.2.3. Description of individual EEI measures for the Services Sector

No and Title of the EEI measure	S1/H1: Development of new regulatory framework for buildings as per the LoEE, EPBD and enforcement (phase 1) <i>(Cross-sectoral measure applicable to all buildings mainly of the residential and services sector - it is described in the as EEI Measure H1 for the households sector as it mainly impacts households)</i>
Category	Category: 1. Regulation / Subcategory: 1.1 Building Codes and Enforcement
Regional application	National
Target group	Building construction industry and related professionals; Investors in buildings; Building owners; tenants.
End-use EEI action targeted	See EEI Measure H1
Implementation arrangements	See EEI Measure H1
Status of implementation and exact timeframe	See EEI Measure H1
Financing and sources	Incorporated in EEI Measure H1
Expected annual energy savings in 2012	There are no adequate statistical data to evaluate expected savings. The estimation of savings has been based on proportions with the data from the residential sector and the fact that services sector has additional obligations under the LoEE for implementation of EPBD: Annual energy savings – Electricity: 0.4 ktoe (2012) Annual energy savings – Fuels: 0.3 ktoe (2012) Annual energy savings – FEC-primary: : 1.4 ktoe (2012)

No and Title of the EEI measure	S2/H2: Training and certification of auditors, building certifiers and boilers / air-conditioning systems inspectors and officials <i>(Cross-sectoral measure applicable to all buildings mainly of the residential and services sector - it is described in the as EEI Measure H2 for the households sector as it mainly impacts households)</i>
Category	Category: 1.Regulation / Subcategory: 1.1 Building Codes and Enforcement Category: 2. Information and mandatory information measures / Subcategory: 2.5. Training and education

Regional application	National
Target group	Engineers and officials
End-use EEI action targeted	See EEI Measure H2
Implementation arrangements	See EEI Measure H2
Status of implementation and exact timeframe	See EEI Measure H2
Financing	Incorporated in EEI Measure H2
Expected annual energy savings in 2012	The saving potential of this measure is already included in savings of EEI measure No S1

No and Title of the EEI measure	S3/H4: Information campaigns to the general public and other end-users – Info Centres <i>(Cross-sectoral measure applicable to all buildings mainly of the residential and services sector - it is described in the as EEI Measure H4 for the households sector as it mainly impacts households)</i>
Category	Category: 2. Information and mandatory information measures / Subcategory: 2.1 Focused information campaigns and Category: 2. Information and mandatory information measures / Subcategory 2.3. Information Centres
Regional application	National / Local
Target group	Residential (mainly) and services sectors
End-use EEI action targeted	See EEI Measure H4 Specific actions targeting certain services end-users (e.g. hotels, technicians etc.) will be incorporated in the campaign
Implementation arrangements	See EEI Measure H4
Status of implementation and exact timeframe	See EEI Measure H4
Financing	Incorporated in EEI Measure H2

Expected annual energy savings in 2012	<p>The expected contribution of the information campaigns in improving buildings performance have been already taken into account in the respective EEI measure S1 above. Also the expected energy savings from specific incentives and measures are presented in the respective EEI actions that follow. Therefore the following estimations represent the expected energy savings resulting from increased awareness and change of behaviour of services end-users:</p> <p>Annual energy savings – Electricity: 0.3 ktoe (2012) Annual energy savings – Fuels: 0.2 ktoe (2012) Annual energy savings – FEC-primary: : 1.1 ktoe (2012)</p>
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No and Title of the EEI measure	S4: Programme for carrying out energy audits in public sector buildings
Category	Category: 2. Information and mandatory information measures / Subcategory: 2.4 Energy Audits and 2.7 Exemplary role of the public sector
Regional application	National/Local
Target group	Broader public sector
End-use EEI action targeted	<p>1) Preliminary and detailed energy audits in public buildings as a part of training of auditors (EEI Measure S2, H2). Recommendations of certain energy audits are being implemented (EEI Measure S5).</p> <p>2) Continuation of energy audits to buildings of the public sector and municipalities.</p> <p>3) Registration of buildings of the broader Public Sector over 1000 m² and of audits carried out (part of the database on audits and certificates described in Measure H1/ registration of audits is part of the reporting obligations of auditors to ME)</p>
Implementation arrangements	<p>As mentioned above (EEI Measures H2/S2) training of auditors is under way.</p> <p>According to the LoEE (Art 22) energy audits to buildings with useful floor area is more than 1000 m² used by broader Public Sector bodies is mandatory. The ME will keep records of these buildings in a special database.</p> <p>As per Art 33 of the LoEE the auditors have to submit to the ME the list of audits carried out.</p> <p>So far the ME coordinated the auditing activity that was carried out under Donors' projects.</p> <p>With the implementation of the LoEE the responsibility for initiation and carrying out energy audits and implementation of suggested measures will pass to the relevant Ministries, other public institutions and Local Authorities that own or use buildings.</p> <p>ME will keep a supervisory/ advisory role as well monitoring of all auditing programmes.</p>

Status of implementation and exact timeframe	<p>Early action without major adaptations planned:</p> <p>The Project “Promotion and Implementation of Energy Audits in Public Buildings”, with financial and expert support from GTZ and the Government of Norway started an auditing campaign in public buildings in early 2009.</p> <p>Up to date about 40 audits have been completed under the training and WB projects. Audits ordered by public institutions, local authorities etc. are expected after adoption of the regulations i.e. in 2012 and onwards.</p> <p>Auditing activity will continue in next period financed by the state and municipal budgets and donors’ assistance.</p>
Financing	<p>The cost of the audits will be covered by the responsible organisations. The cost per audit by local experts is about 1500 - 2000 € for a building over 1000 m² using ME/SEE’s equipment.</p> <p>The cost of training of auditors and issuing guidelines is incorporated in EEI Measures S1/H1 and S2/H2.</p> <p>The cost of information dissemination and capacity building programmes have been incorporated in EEI Measures H3/S4 and S10</p> <p>Ministry of Economy should finance energy audits in it’s own buildings and promote the measure (30,000 €).</p> <p><u>Sources of Financing:</u></p> <ul style="list-style-type: none"> • Donors’ assistance (GTZ/Norwegian aid and UNDP/GEF plan to finance a number of energy audits) • Ministries’ and Municipality Budgets • ESCOs (assuming that they are developed during period of this EEAP)
Expected annual energy savings in 2012	<p>The expected savings from this measure have been included in savings of the EEI measure No S5</p>

No and Title of the EEI measure	<p>S5: Implementation of EEI investments and introduction of EEI grant schemes for buildings of the broader public sector</p>
Category	<p>Category: 2. Information and mandatory information measures / Subcategory: 2.7 Exemplary role of the public sector</p> <p>Category: 3. Financial instruments/ Subcategory: 3.3 Loans (soft and/or subsidised)</p>
Regional application	<p>National/Local</p>
Target group	<p>Public sector</p>
End-use EEI action targeted	<p>1) Investment programmes for implementation of EEI in public sector buildings based on IFIs loans (implementation of results of energy audits – see EEI S4).</p>

	<p>2) New investment programmes for the implementation of EEI measures proposed by audits to be carried out with Ministries, Local Authorities initiatives</p>
Implementation arrangements	<p>The ME in cooperation with beneficiary Ministries (Ministry of Education, Ministry of Health) and the Ministry of Finance negotiate loans and grants from IFs, manage and monitor implementation the loans/ grants.</p> <p>It is expected that public institutions and local authorities will implement additional investments in the frame of their obligations under the LoEE (to carry out energy audits and adopt EE plans)</p> <p>The ME will monitor progress and report it to the GoM with annual reports.</p>
Status of implementation and exact timeframe	<p>Early action without major adaptations planned:</p> <p>Starting from 2009 with studies and tendering, implementation of EEI measures in 14 educational and 6 health institutions is under way. Works in 2 buildings started in May 2010 and the programme is scheduled to finish by end 2012. Financing is provided from a World Bank loan of € 6.5 million (including project development and monitoring costs)</p> <p>New EEI measures under consideration:</p> <p>A loan of € 11 million is under negotiation with KfW for EEI investments in public buildings (mainly schools). The programme is planned to start by the end 2010. Actual implementation of investments is to start in 2011.</p> <p>In addition EEI investments in public buildings are expected to be financed by Ministries, Municipal budgets and donors. However, considerable investments are not expected before 2012 as these organisations need first to establish energy management schemes, adopt EEI plans and safeguard financing.</p>
Financing	<ul style="list-style-type: none"> • World Bank loan (including project development and monitoring costs) 6,500,000 € • KfW (potential) loan (including project development and monitoring costs) – to be completed during the 2nd EEAP 11,000,000 € • UNDP/GEF plans to co-finance EEI measures in 5 municipalities (that includes a number of other measures in the residential sector, spatial planning etc.) – 2,000,000 € • Ministries / Municipality budgets [<i>not yet specified</i>] <p>TOTAL (loans): 40,000 € from ME for monitoring plus 17,500,000 € from IFs plus UNDP/GEF grant.</p> <p><u>Sources of Financing:</u></p> <ul style="list-style-type: none"> • IFs Loans • UNDP-GEF grant • Ministries' and Municipality Budgets • ESCOs (if developed on time)

Expected annual energy savings in 2012	<p>The expected energy savings are calculated on the basis of audit results (WB loan) and assuming that about 5.5 millions investments will be realised by 2012 under the KfW loan. The expected savings are estimated to:</p> <p>Annual energy savings – Electricity: 0.3 ktoe (2012) Annual energy savings – Fuels: 1.0 ktoe (2012) Annual energy savings – FEC-primary: : 1,7 ktoe (2012)</p>
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No and Title of the EEI measure	S6: Energy performance certification of public buildings and visibility of certificates
Category	Category: 2. Information and mandatory information measures / Subcategory: 2.7 Exemplary role of the public sector
Regional application	National
Target group	Public sector, Local Authorities
End-use EEI action targeted	<p>The measure aims at improved awareness and demonstration of the exemplary role of the public sector.</p> <p>1) Introduction of mandatory certificates for sites, public or municipal property, in operation, preceded by energy audits prescribing energy savings measures.</p>
Implementation arrangements	<p>The Public institutions and Local Authorities will be responsible for implementation of this measure as per LoEE.</p> <p>The Administration Committee for EPBD Implementation (SEE/ME, MSPE) will be responsible for monitoring implementation.</p> <p>The ME will keep records of certificates issued.</p>
Status of implementation and exact timeframe	<p>New EEI measure – planned:</p> <p>The LoEE, Art. 22, provides for energy audits in public sector buildings over 1000 sq. m. and Art. 29 provides for visibility of certificates. This measure will be further specified with secondary legislation about buildings certification (see EEI Measure H1/S1).</p> <p>Implementation is expected to start with the enforcement of the LoEE in 2011 but tangible results are not expected before 2012.</p>
Financing	<p>Financing of this measure is included in the EEI measures No S1/H1 and S5.</p> <p>The ME will allocate 15,000 € for Monitoring and Support</p>
Expected annual energy savings in 2012	Expected energy savings are included in savings of the EEI measures No S1 and S5.

No and Title of the EEI measure	S7: Implementation of EEI investments in utilities of Municipality and public companies (demand side)
Category	<p>Category: 2. Information and mandatory information measures / Subcategory: 2.7 Exemplary role of the public sector</p> <p>Category: 3. Financial instruments / Subcategory: 3.1 Subsidies (Grants)</p> <p>Category: 5. Energy services for energy savings / Subcategory: 5.2 Third-party Financing and 5.3 Energy performance contracting</p>
Regional application	Local
Target group	Local Authorities, ESCOs
End-use EEI action targeted	<p>1) Investments for implementation of EEI measures in:</p> <ul style="list-style-type: none"> • street lighting • water utilities, • other public municipality services <p>This measure <u>does not</u> refer to transport services (see EEI measures for transport) and to supply side utilities (power generation, transmission, distribution, etc.)</p> <p>Involvement of ESCOs will be intensively promoted.</p>
Implementation arrangements	<p>Municipalities will be required to include relevant measures in their EEI Plans.</p> <p>Responsible institutions for implementation of this EEI measure are the Municipalities as well as public utilities operating at the demand side.</p> <p>The ME in collaboration with the Union of Local Authorities and individual Municipalities will make efforts to attract financing and technical assistance and coordinate/manage inter-municipality programmes.</p>
Status of implementation and exact timeframe	<p>New EEI measure - planned or under consideration:</p> <p>Local Authorities have to prepare and implement 3-year Energy Efficiency Improvement Programme and annual Plans that will include, among others, measures for EEI in buildings, water supply utilities, street lighting, etc.</p> <p>Certain Municipalities (e.g. Podgorica) are already planning adoption of EE plans etc. (three municipalities already participate in the Covenant of Mayors).</p> <p>Few municipalities are expected to implement some investments by 2012 and intensify efforts during the 2nd EEAP.</p>
Financing	<p>Funding is required for:</p> <ul style="list-style-type: none"> • Street lighting: <i>[not yet defined]</i> • EEI in water supply systems: <i>[not yet defined]</i> • Other EEI investments: <i>[not yet defined]</i> <p>TOTAL (estimated): 7,500,000 €</p>

	<p><u>Sources of Financing:</u></p> <ul style="list-style-type: none"> • International donors programmes (including existing Regional financing facilities) • State and Municipal Budgets • ESCOs (if developed on time)
Expected annual energy savings in 2012	<p>The expected energy savings are calculated on the basis of the expected financing and background studies for street lighting, watersupply systems etc., as well as on the fact that the relevant projects are not mature enough yet. The expected savings are estimated to:</p> <p>Annual energy savings – Electricity: 0.3 ktoe (2012)</p> <p>Annual energy savings – FEC-primary: : 0.8 ktoe (2012)</p>

No and Title of the EEI measure	<p>S8/T1: Establishment and implementation of EE criteria in procurement of goods, buildings and services and lease of buildings by the broader Public Sector bodies</p> <p><i>(Cross-sectoral measure applicable to transport also for new vehicles and transport services -EEI Measure T1)</i></p>
Category	<p>Category: 4. Voluntary agreements and co-operative instruments / Subcategory: 4.3 Energy efficiency public procurement</p> <p>Category: 2. Information and mandatory information measures / Subcategory: 2.7 Exemplary role of the public sector</p>
Regional application	National
Target group	Public sector, local authorities
End-use EEI action targeted	<p>1) Drafting new /amendments to existing regulations and guides on introduction EE criteria in public procurements including:</p> <ul style="list-style-type: none"> • List of energy efficiency measures/ Guidelines for implementation • Methodology for evaluation of EE level in Public Procurements • EE criteria for buildings purchased or leased by the broader public sector. <p>The relevant regulations (rule-books) are presented in Chapter 5 (Items 15 and 16 in the list).</p> <p>2) Straitening of enforcement mechanisms by establishment of a coordination body with the participation of ME/SEE and public institutions related to public procurements</p>

Implementation arrangement	<p>The ME/SEE will be responsible for drafting the new regulations/guides and proposed amendments of existing legislation on public procurements. The Ministry of Finance is responsible for public procurements and related legislation</p> <p>A coordination body with the participation of ME/SEE and Ministry of Finance will promote adoption of new regulations, amendments of existing procurement rules and supervise implementation.</p> <p>The relevant information dissemination and capacity building actions are included in Measures No S3 and S10.</p>
Status of implementation and exact timeframe	<p>New EEI measure planned:</p> <p>The LoEE (Art. 18, 19) provides for establishment of EE criteria in public procurements including buildings. The relevant regulations and guides will be drafted by end 2010. Adoption of regulations is expected in 2011, while actual implementation is not expected before 2012.</p>
Financing	<p>Funding is required for:</p> <ul style="list-style-type: none"> • Drafting /amendments to regulations/guides • Monitoring / Support from ME: 10,000 € <p><u>Sources of Financing:</u></p> <ul style="list-style-type: none"> • EU/TA-EnCT Project (drafting of regulations) • Ministry's budget
Expected annual energy savings in 2012	<p>It is estimated that expected savings up to 2012 are rather small as implementation will practically start after 2012.</p>

No and Title of the EEI measure	<p>S9: Removal of barriers for alternative EE financing mechanisms in the public sector and end – users</p>
Category	<p>Category: 5. Energy services for energy savings</p>
Regional application	<p>National</p>
Target group	<p>Public sector, local authorities, private sector end-users</p>
End-use EEI action targeted	<p>1) Study on implementation of alternative energy financing mechanisms 2) Legislative / regulatory amendments and acts 3) TPF, EPC, Contract models</p>
Implementation arrangements	<p>The EEI Measure will be coordinated by ME/SEE in collaboration with Ministry of Finance</p> <p>The relevant information dissemination and capacity building actions are included in Measures No S3 and S10</p>

Status of implementation and exact timeframe	<p>New EEI measure - planned:</p> <p>The LoEE (Art. 44, 45) introduce the concept of ESCOs and Energy Performance Contracting.</p> <p>A discussion paper on alternative financing mechanisms with suggestions for the necessary legislative / regulatory amendments and acts and TPF, EPC contract models will be developed by end 2010.</p> <p>Local private sector companies show interest for ESCO businesses.</p>
Financing	<p>Funding is required for:</p> <ul style="list-style-type: none"> • Drafting /amendments to regulations/guides • Monitoring / Support from ME: 15,000 € <p><u>Sources of Financing:</u></p> <ul style="list-style-type: none"> • EU/TA-EnCT Project (Drafting /amendments to regulations/guides) • Ministry's budget
Expected annual energy savings in 2012	<p>Expected annual energy savings are included in the savings of the EEI measures No S5 and S7</p>

No and Title of the EEI measure	<p>S10: Capacity building plan for the services sector (public and private) and implementation.</p>
Category	<p>Category: 2. Information and mandatory information measures / Subcategories: 2.1 Focused information campaigns and 2.5 Training and education</p>
Regional application	<p>National / Local</p>
Target group	<p>Public sector, local authorities and big consumers of the private sector</p>
End-use EEI action targeted	<ol style="list-style-type: none"> 1) Development of a capacity building plan in all aspects related to the obligations of broader public sector institutions and big consumers of the public and private services sector under the LoEE. 2) Development of training and capacity building modules on energy efficiency, energy management, financing mechanisms, etc. 3) Pilot training and workshops 4) Repetition of training across the country 5) Scheme for provision of continuous technical assistance including encouragement of networking of energy managers.
Implementation arrangements	<p>The EEI Measure will be planned, developed and co-ordinated by the ME/SEE.</p> <p>Public Institutions and Local Authorities will be responsible for organisation of training/capacity building activities for their staff.</p>

<p>Status of implementation and exact timeframe</p>	<p>New EEI measure - planned or under consideration:</p> <p>The LoEE provides for establishment of EEI programmes and plans, Energy Management schemes, alternative financing mechanisms, EE data collection and reporting etc. for all major public sector bodies, public authorities and private and public sector big consumers (including those of the services sector).</p> <p>Development of a capacity building plan is planned for Oct. 2010. In addition certain training materials and guides will be developed. Pilot training programmes will be organised in 2011</p> <p>Additional training modules have to be developed by local universities and experts.</p> <p>Relevant to this action is the Project "TA for introduction of Energy Management System in Municipalities"</p> <p>Implementation of the plan at local level will be implemented from the end of 2011, early 2012. Financing is expected from the state and local budgets and donors.</p> <p>Donors will be invited in a coordination meeting to participate/finance specific activities.</p>
<p>Financing</p>	<p>Funding is required for:</p> <ul style="list-style-type: none"> • Capacity building plan • Training and capacity building modules • Pilot training and workshops • Additional training modules • Repetition of training across the country • Scheme for technical assistance/ networking <p>TOTAL : 100,000 € from ME plus 120,000 € from Donors⁴</p> <p><u>Sources of Financing:</u></p> <ul style="list-style-type: none"> • EU/TA-EnCT Project (Capacity building plan, pilot training courses, materials) • Donors' assistance (UNDP/GEF and GTZ/Norwegian Aid plan to finance relevant actions) • Ministries' and Municipality Budgets.
<p>Expected annual energy savings in 2012</p>	<p>Expected annual energy savings are included in savings of the EEI measures No S5, S7 and S8.</p>

⁴ This budget does not include EU/TA-EnCT contribution.

No and Title of the EEI measure	S11: Financing EE projects in SME's sector and introduction of additional incentives
Category	Category: 3. Financial instruments Category: 2. Information and mandatory information measures / Subcategory: 2.4 Energy Audits
Regional application	National
Target group	SME's sector
End-use EEI action targeted	1) Measures to promote and facilitate EE investment in SME's sector. 2) Measures to promote solar thermal systems and others RES in hotels and other SME's 3) Intensive promotion and awareness raising, as well as technical and advisory support to SME's. 4) Incentives/support for energy audits Involvement of ESCOs will be promoted
Implementation arrangements	Responsible body is the ME/Directorate for SMEs. ME/SEE will be involved in programme monitoring.
Status of implementation and exact timeframe	Early action without major adaptations planned: Process of implementation started in 2007. Implementation of the project/ KfW credit line "Energy efficiency and renewable energy sources in Montenegro" is ongoing but with poor results so far. The project provides TA and financing for EE in SME's. A special body in the Chamber of Commerce of Montenegro was established in 2009, in order to promote networking and EE and RES solutions at SMEs. New EEI measure under consideration: New incentive measures need to be studied (e.g. solar thermal for hotels), designed (2011), financed and implemented from 2012. (new EEI measure under consideration)
Financing	Revolving KfW fund 19 million. Small part has been utilised. Monitoring / Support from ME: 10,000 € <u>Sources of Financing:</u> <ul style="list-style-type: none"> • KfW credit line • Donors' assistance • SMEs • ESCOs Promotion costs are included in the information campaigns

Expected annual energy savings in 2012	Not evaluated yet.
No and Title of the EEI measure	S12: Voluntary agreements with building construction companies
Category	Category: 1. Regulation / Subcategory: 1.1 Building Codes and Enforcement Category: 4. Voluntary agreements and co-operative instruments / Subcategory: 4.2 Commercial or Institutional Organisations
Regional application	Local
Target group	Construction companies
End-use EEI action targeted	1) Voluntary agreements between the GoM or the ME and large building construction companies as a supporting measure for the quick implementation of the EPBD. It will be combined also with the information campaigns.
Implementation arrangements	Few construction companies dominate the building construction activity in Montenegro. Voluntary agreements could be concluded in order to ensure that they apply or exceed the energy performance of new buildings and in turn they receive public recognition or other incentives. ME with MSPE will monitor implementation of the agreements.
Status of implementation and exact timeframe	New EEI measure under consideration: The framework for potential voluntary agreements will be elaborated by April 2011. Implementation is a matter of political will and agreement of the construction companies.
Financing	Funding is required for: <ul style="list-style-type: none"> • Framework for voluntary agreements • Dissemination expenses, monitoring / support from ME: 10,000 € <u>Sources of Financing:</u> <ul style="list-style-type: none"> • State Budget • EU/TA-EnCT Project (framework for voluntary agreements)
Expected annual energy savings in 2012	The expected annual energy savings is included in savings of the EEI measures No H1 (households) and S1 (services)

2.3. Industry

2.3.1. Main characteristics of the sector

The **industry sector**, as a whole, participated in the total FEC of Montenegro with about 48% in the reference period 2002-2006. In terms for FEC-Primary the share of industry was 52% in the same period. The structure of FEC is as follows: electricity 52%, petroleum products 44%, solid fuels 3% and biomass 1%.

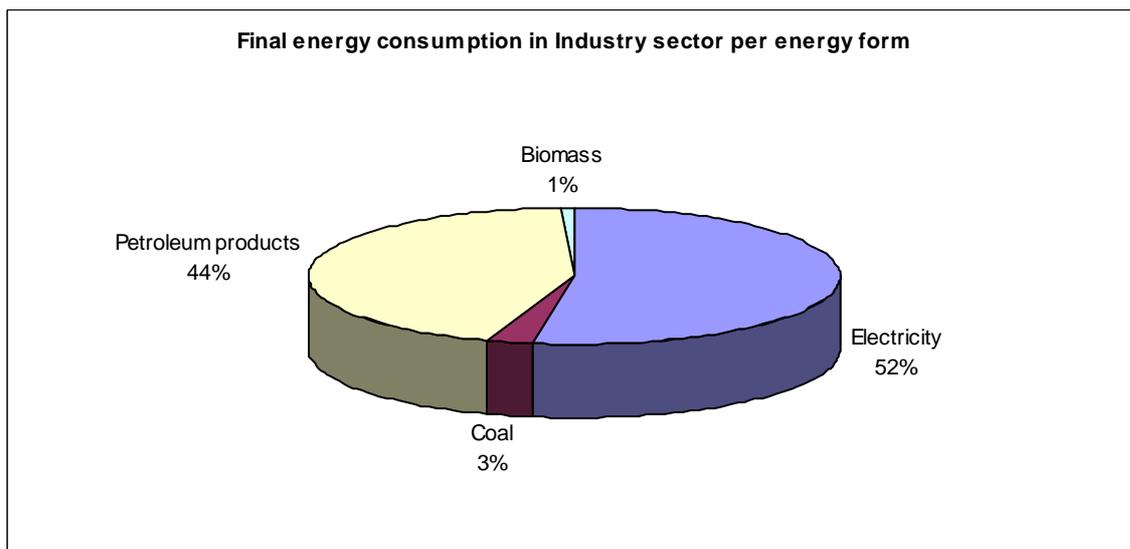


Figure 2.3: Percentage share of the fuels in the Industry sector in Montenegro (average in 2002- 2006)

Two industrial companies, the Aluminium Plant Podgorica (KAP) and the Steel Works Plant in Niksic consume about 45% of the total FEC or 91% of the FEC in industry.

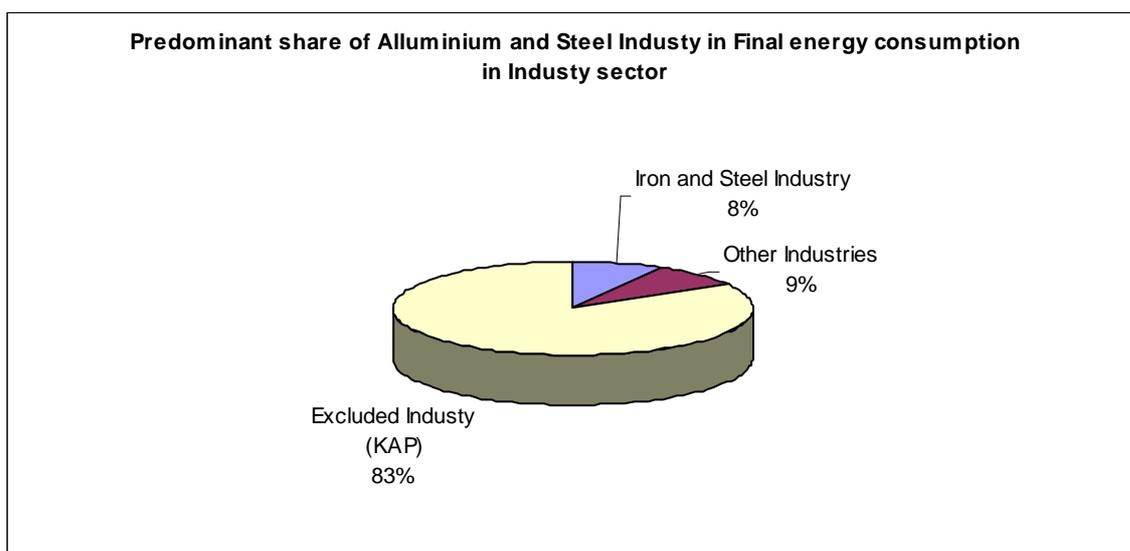


Figure 2.4: Breakdown of FEC in industry (average in 2002- 2006)

KAP that is excluded from the calculation of energy saving target in the scope of the Directive, consumes about 83% of the FEC in industry, while the Steel Works Plant 8% as presented in Figure 2.4. All other industrial consumers participate with only by 9% in the FEC of industry that is 4% of the total FEC on the country. Due to the limited participation of small industry in the FEC, this category of enterprises is not considered priority target for the 1st EEAP.

KAP and Steel Works Plant have the capacity, expertise and access to funds for implementation of EEI measures. The LoEE imposes to big consumers to adopt annual EEI plans, establish energy management systems, implement EEI measures and report on the implementation of the plans, their energy consumption and savings achieved. Secondary legislation will further specify these obligations.

Industrial SMEs have access to technical assistance and loan financing for EEI through existing facilities in the region including the EU supported, EBRD sustainable energy financing facilities for Western Balkans (see horizontal measures).

The EEI measures selected for the industrial sector aim at two main goals:

- to enforce implementation of the LoEE by the two big industrial consumers. Note that KAP is excluded from the calculation of the energy saving target but not from its obligation for EEI measures as big consumer under the LoEE.
- to promote voluntary agreements with industry
- to provide technical assistance and information to Small and Medium industrial Enterprises.

In addition to the measures described in the following section, certain horizontal measures are foreseen that cover industry and other sectors such as services.

2.3.2. Overview table of all EEI measures in Industry sector

Table 2.3: Overview of Energy Efficiency Improvement (EEI) programs and measures for the Industry Sector

№	Title of the EEI program /measure	Category	Application	Target group/ sector	End-use EEI action targeted <i>(see detailed lists in next Chapter – Description of Measures)</i>	Status of implementation and exact timeframe	Annual energy savings (FEC-primary) ⁵
11	Regulatory requirements for big consumers	1. Regulation 4.1 Industrial Companies	National	Big industrial consumers; Other big consumers	Regulatory requirement for large industrial consumers (and other big energy consumers) for: <ul style="list-style-type: none"> • Annual Plans for EEI • Report on implementation of EEI • Establishment of energy management, energy audits and energy data monitoring and reporting system. 	The LoEE (Art. 20, 53) provides for obligations of big consumers. The relevant regulations will be drafted by 3/2011. The first Annual EEIs are expected by end 2011. Enforcement will be monitored by the SEE/ME and will be strengthened by potential voluntary agreements. <i>(new EEI measure planned)</i>	1.3 ktoe in 2012 all fuel types

⁵ The annual energy savings (FEC-primary) exclude savings to be achieved by KAP. Any savings to be achieved by KAP will be additional to the figures mentioned in this table.

№	Title of the EEI program /measure	Category	Application	Target group/ sector	End-use EEI action targeted <i>(see detailed lists in next Chapter – Description of Measures)</i>	Status of implementation and exact timeframe	Annual energy savings (FEC-primary) ⁵
12	Voluntary agreements with industry	4.1 Industrial Companies	Local	KAP, Steel Works Plant, other industrial companies	Voluntary agreements between the GoM or the ME and the two large industries and possibly other industrial companies aiming at: <ul style="list-style-type: none"> • performing detailed expert analysis of EEI opportunities • prioritizing and implementing EEI measures • committing themselves to energy saving targets • demonstrating achievements • supporting audit schemes. 	The framework for potential voluntary agreements will be elaborated by April 2011. <i>(new EEI measure under consideration)</i>	Included in savings of the EEI measures No I1
13	Capacity building for industrial energy audits, energy management	2.4 Energy Audits 2.5 Training and education	National	Industry	Capacity development for energy auditing for buildings is on going. Training courses and guides for industrial energy management have to be developed and organised Practical training and pilot energy audits must be included Encouragement of networking of energy managers	This Action has to be planned by SEE/ME and financing has to be identified by end 2010. <i>(new EEI measure under consideration)</i>	Savings of big consumers are included in savings of the EEI measures No I1.

2.3.3. Description of individual EEI measures for the Industry Sector

No and Title of the EEI measure	I 1: Regulatory requirements for big consumers
Category	Category: 1. Regulation
Regional application	Local
Target group	Big industrial consumers; Other big consumers
End-use EEI action targeted	<p>1) Regulatory requirement for large industrial consumers (and other big energy consumers) for:</p> <ul style="list-style-type: none"> • Annual Plans for EEI • Report on implementation of EEI • Establishment of energy management, energy audits and energy data monitoring and reporting system. <p>The relevant regulations are presented in Chapter 5 (Items 11,12, 14, and 19 in the list).</p> <p>2) Supervision of implementation</p>
Implementation arrangements	<p>ME will issue the legal acts with specifications on detailed content of Annual Plans and Reports, energy management, and information systems for big energy consumers.</p> <p>Enforcement will be monitored by the SEE/ME</p>
Status of implementation and exact timeframe	<p>New EEI measure planned:</p> <p>The LoEE (Art. 20, 53) provides for obligations of big consumers.</p> <p>The relevant regulations will be drafted by 3/2011. The first Annual EEI Plans from big consumers are expected by end 2011.</p> <p>Effectiveness of this measure will be strengthened by potential voluntary agreements.</p>
Financing	<p>Funding is required for:</p> <ul style="list-style-type: none"> • Regulations/Guides for Big Consumers • Consultancy support/ Monitoring from ME: 15,000 € <p><u>Sources of Financing:</u></p> <ul style="list-style-type: none"> • State Budget • EU/TA-EnCT Project (Regulations/ Guides)

Expected annual energy savings in 2012	<p>The savings of this measure are expected not before 2012 and exclude any savings in KAP:</p> <p>Annual energy savings – Electricity: 0.3 ktoe (2012)</p> <p>Annual energy savings – Fuels: 0.6 ktoe (2012)</p> <p>Annual energy savings – FEC-primary: : 1.3 ktoe (2012)</p>
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No and Title of the EEI measure	I 2: Voluntary agreements with industry
Category	Category: 4. Voluntary agreements and co-operative instruments / Subcategory: 4.1 Industrial Companies
Regional application	Local
Target group	KAP, Steel Works Plant, other industrial companies
End-use EEI action targeted	<p>1) Voluntary agreements between the GoM or the ME and the two large industries and possibly other industrial companies aiming at:</p> <ul style="list-style-type: none"> • performing detailed expert analysis of EEI opportunities • prioritizing and implementing EEI measures • committing themselves to energy saving targets • demonstrating achievements • supporting audit schemes.
Implementation arrangements	<p>Preparation of the framework for potential voluntary agreements</p> <p>Voluntary agreements can be concluded between the GoM or the ME with large industrial consumers. CDM mechanisms can be exploited.</p> <p>ME will monitor implementation of the agreements</p>
Status of implementation and exact timeframe	<p>New EEI measure under consideration:</p> <p>The framework for potential voluntary agreements will be elaborated by April 2011.</p> <p>Implementation is a matter of political will and agreement of the industrial.</p>
Financing	<p>Funding is required for:</p> <ul style="list-style-type: none"> • Framework for voluntary agreements • Financing of audits and implementation of EEI measures • Technical support [<i>can be incorporated in EEI Measure No I3</i>] • Dissemination expenses/ Consultancy support/ Monitoring from ME: 10,000 €

	<u>Sources of Financing:</u> <ul style="list-style-type: none"> • State Budget • EU/TA-EnCT Project (Framework for Voluntary Agreements) • Industry • Possible support from UNDP/GEF (related to CDM mechanism)
Expected annual energy savings in 2012	The expected annual energy savings is included in savings of the EEI measures No II

No and Title of the EEI measure	I 3: Capacity building for industrial energy audits, energy management
Category	Category: 2 Information and mandatory information measures / Subcategory: 2.4 Energy Audits and 2.5 Training and education
Regional application	National
Target group	Industry
End-use EEI action targeted	<p>1) Development of training materials on industrial energy auditing and management: Capacity development for energy auditing for buildings is on going. Although the basis principles for energy audits are applicable also to industry, a specialised guide and training programme focusing on industrial energy management and EE in industrial processes has to be developed.</p> <p>2) Organisation of training courses/ workshops on industrial energy management</p> <p>3) Practical training and pilot energy audits (possibly combined with Measure I 2)</p> <p>4) Encouragement of networking of energy managers</p>
Implementation arrangements	<p>Preparation: An Action Plan for Capacity Building will be developed (by Oct. 2010). Part of this plan can refer to EE in industry.</p> <p>Training materials and guide can be prepared by local consultants</p> <p>Organisation of training courses / workshops by ME with industry</p>
Status of implementation and exact timeframe	<p>New EEI measure under consideration:</p> <p>Big industrial consumers undertake serious obligations under the LoEE (Art. 20, 53). This training programme will cover a requirement of the ESD for availability of energy audits for all sectors.</p>

Financing	<p>Funding is required for:</p> <ul style="list-style-type: none"> • Capacity building plan • Development of materials • Organisation of training/ workshops • Pilot audits: [within training plus financed by industry] <p>TOTAL: 80,000 € from ME plus 80,000 from donors</p> <p>Sources of financing:</p> <ul style="list-style-type: none"> • EU/TA-EnCT project (capacity building plan) • Industrial Enterprises • Donors' assistance • State Budget
Expected annual energy savings in 2012	<p>Savings are included in savings of the EEI measures No I 1.</p>

2.4. Transport

2.4.1. Main characteristics of the sector

The transport sector is a significant consumer of energy, especially of imported energy, which calls for special measures for energy savings and optimization. Transportation participates with about 20% in the FEC in Montenegro. Imported fuels (motor gasoline, diesel, kerosene) represent 99% of the total FEC in the Transport Sector. Electricity consumption is negligible (1%).

About 88% of FEC in the transport sector is consumed by cars. Railways consume only 2%, while the rest 10% is the consumption of aviation and maritime bunker fuels that is excluded from the scope of the Directive and this EEAP.

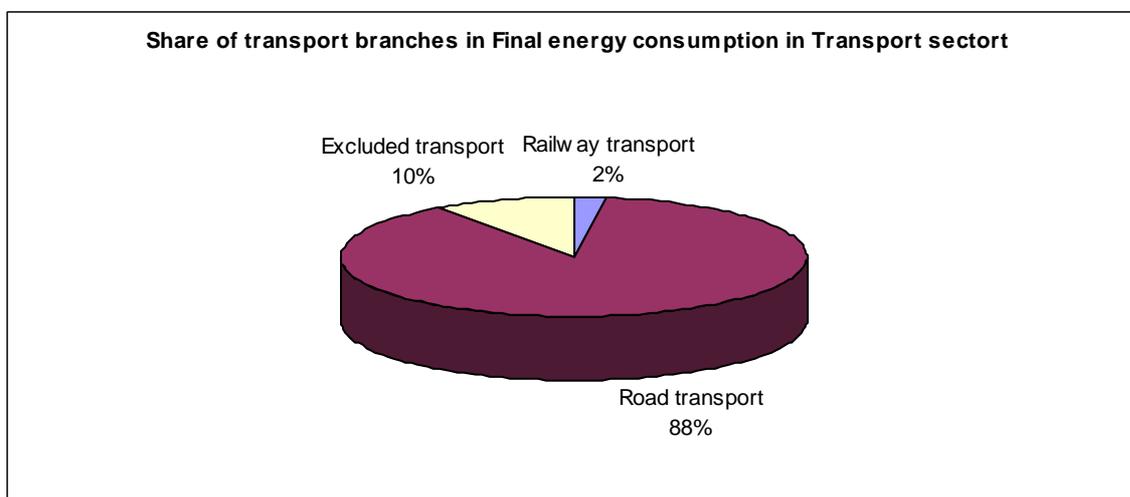


Figure 2.5: Breakdown of FEC in the transport sector (average in 2002- 2006)

The energy consumption in the transport sector presents very high growth rates. This trend is expected to continue in the future, especially because of the increase in the number of cars, increased distance travelled per car and decreased car occupancy.

The development of the transportation system in Montenegro is not at a satisfactory level in respect to the density of the transportation network, roads quality and services quality. Local public transportation is not organized on appropriate level in most cities, especially in the north of Montenegro.

Recently some new road constructions, such as ring-roads to by-pass city centres, improved significantly local traffic load conditions and resulted to reduction of fuel consumption and car emissions.

Given that road transportation is dominating in energy consumption, this is the main area for optimization and savings under this EEAP. Potential for energy savings in transportation, according to Energy Efficiency Strategy of Montenegro is 10%.

2.4.2. Overview table of all EEI measures in Transport sector

Table 2.4: Overview of Energy Efficiency Improvement (EEI) programs and measures for the Transport Sector

№	Title of the EEI program /measure	Category	Application	Target group/ sector	End-use EEI action targeted <i>(see detailed lists in next Chapter – Description of Measures)</i>	Status of implementation and exact timeframe	Annual energy savings (FEC-primary)
T1 (S8)	Establishment and implementation of EE criteria in procurement of vehicles and transport services by the broader Public Sector bodies	1. Regulation 4.3 Energy efficiency public procurement	National / Local	Public sector, local authorities	In the frame of introduction of EE criteria in public procurements (See EEI Measure No S8) specific criteria for vehicles and contracting public transportation services will be included. The relevant information dissemination and capacity building actions are included in Measures No T3.	The LoEE (Art. 18) provides for establishment of EE criteria in public procurements. This can apply also to procurements of vehicles and contracting public transportation services by third parties. The relevant regulations and guides will be drafted by end 2010. Implementation is expected to start in 2011. (new EEI measure planned)	Included in EEI Measure No S8
T2	Incorporation of Chapter on “Energy Efficiency in transport” in the Energy Efficiency Improvement Programs and Plans	1. Regulation	National/ Local	Public sector, local authorities	Incorporation of a special chapter for EEI Measures in transport in EE Improvement Plans and Programs of Local Self-Government Units.	The LoEE (Art. 7, 8 and 9) prescribes the obligation for Local Self-Government Units for adoption of EE Improvement Plans and Programs. As Local authorities are responsible for road network and transport management in the cities as well as for the public transport, special attention in these documents must be given to transport issue. (new EEI measure planned)	-

№	Title of the EEI program /measure	Category	Appli-cation	Target group/ sector	End-use EEI action targeted <i>(see detailed lists in next Chapter – Description of Measures)</i>	Status of implementation and exact timeframe	Annual energy savings (FEC-primary)
T3	Information campaign on energy efficient behaviour in transport and demonstration (pilot) actions	2.1 Focused information campaigns	National / Local	Car users; intermediary organisations (car fleet managers, driving schools, sector organisations, etc.); general public	<p>Raising general awareness on:</p> <ul style="list-style-type: none"> • purchase/ use of energy efficient vehicles / vehicles on alternative fuels, • efficient vehicle maintenance • energy conscious and environmental friendly driving. <p>Promotional actions:</p> <ul style="list-style-type: none"> • Promotion of cleaner modes of transport as use of public transportation, walking, cycling ect. • Promotion EE measures in Urban Public and Freight Transport • Promotion of sustainable transport systems • Promotion of cleaner car • Car free days 	<p>Promotion of EE in transport has not been included in any pubic information campaign till now except form few demonstration actions as "Car-free days" in 2008 and 2009 in central city area of Capital Podgorica or some smaller interventions in cycle and walking paths in some areas of Montenegro.</p> <p>In the period of the first EEAP more attention will be given to the promotion of EE in transport. Promotional activities will to be designed and implemented. Financing is not yet safeguarded but it is expected to start in 2011. (new EEI measure – under consideration)</p>	0.5 ktoe in 2012 fuels
T4	Study - Action Plan for Energy Efficiency in Transport	1. Regulation	National	Government; Broader public sector; Car users; General public	<p>Development of Study for Energy Efficiency in Transport with the Action plan defining concrete measures, applicable in Montenegro, which should be approved by Government.</p> <p>The study is expected to define concrete regulatory and institutional measures (including law amendments or new regulations), introduction of EU standards, strengthening of car inspection mechanisms and a series of other EE measures, with priorities, detail description as well as budget and savings estimations.</p>	<p>The study / Action Plan will help Government and other authorities to define policy and priorities in the field of EE in transport.</p> <p>Financing is not yet safeguarded but it is expected to be carried out in 2011.</p> <p>(new EEI measure – under consideration)</p>	-

№	Title of the EEI program /measure	Category	Appli- cation	Target group/ sector	End-use EEI action targeted <i>(see detailed lists in next Chapter – Description of Measures)</i>	Status of implementation and exact timeframe	Annual energy savings (FEC- primary)
T5	Transport infrastructure measures with energy saving effects	1. Regulation 4. Voluntary agreements and co-operative instruments	National/ Local	Car users; General public	<ul style="list-style-type: none"> • Regulation with detailed specifications for the implementation of the requirement of Law on Spatial Planning and Construction for EE study as a part of technical documentation for all constructions including transport (see horizontal measure HZ 9) • Study of a system for assessment of energy efficiency and emission reduction effects of certain transport infrastructure projects. • Construction of ring-roads by-passing city central areas • Investments in appropriate urban infrastructure projects including bicycle zones, parking places, better programming of traffic lights, public transport and bus-stops etc. • Improving the quality of the existing infrastructure. 	<p>A number of transport infrastructure projects in the last years reduced significantly inter-city connection distances, as well as local transport conditions (e.g. Podgorica and Niksic city centre by-pass roads that reduce distances, traffic jams, car stops in traffic lights, etc.). The effect on fuel savings is significant, but unknown.</p> <p>The ME/SEE will undertake the initiative to mobilise MSPE and possibly the Ministry responsible for Transport for joint implementation of this important EEI Measure.</p> <p>Financing is not yet safeguarded but implementation is expected to start in 2011.</p> <p><i>(early action – new EEI actions planned)</i></p>	0.5 ktoe in 2012 fuels

2.4.3. Description of individual EEI measures for the Transport Sector

No and Title of the EEI measure	T1/S8: Establishment and implementation of EE criteria in procurement of vehicles and transport services by the broader Public Sector bodies <i>(Cross-sectoral measure applicable to all public procurements including those in transport -it is described in the as EEI Measure S8 for the services sector).</i>
Category	Category: 4. Voluntary agreements and co-operative instruments / Subcategory: 4.3 Energy efficiency public procurement Category: 2. Information and mandatory information measures / Subcategory: 2.7 Exemplary role of the public sector
Regional application	National / Local
Target group	Public sector, Local authorities
End-use EEI action targeted	Regulations and guide on introduction EE criteria in public procurements will include procurements in transport (See EEI Measure No S8). The relevant information dissemination and capacity building actions are included in Measures No T3.
Implementation arrangements	(See EEI Measure No S8). Implementation of this measure will be supervised by Ministry of Finance with ME/SEE.
Status of implementation and exact timeframe	New EEI measure planned The LoEE (Art. 18) provides for establishment of EE criteria in public procurements. This can apply also to procurements of vehicles and contracting public transportation services by third parties. The first version of the relevant regulations and guides will be drafted by end 2010 (See EEI Measure No S8). Implementation is expected to start in 2011.
Financing and sources	Funding is required for: <ul style="list-style-type: none"> • Regulations/Guides for EE in Public Procurement for vehicles and transport services TOTAL: 15,000 € from ME plus contribution of Donors <u>Sources of Financing:</u> <ul style="list-style-type: none"> • State Budget • EU/TA-EnCT Project (first version of the relevant regulations)
Expected annual energy savings in 2012	The expected savings are included in the impact of EEI Measure S8

No and Title of the EEI measure	T2: Incorporation of Chapter on “Energy Efficiency in transport” in the Energy Efficiency Improvement Programs and Plans
Category	Category: 1.Regulation
Regional application	National / Local
Target group	Public sector, Local authorities
End-use EEI action targeted	Introduction of a special chapter on “EEI Measures in transport” in the Improvement Plans and Programs of Local Self-Government Units on the basis of the guidelines to be issued by the ME/SEE.
Implementation arrangements	<p>ME is responsible for establishing certain EE criteria and recommend list of measures applicable in all sectors including transport sector.</p> <p>In addition the ME/SEE, possibly in collaboration with the Ministry responsible for Transport, plans a special study for EE in transport (see measure T4).</p> <p>Based on these recommendations Local Authorities should include in their EE Action Plans and Programs concrete measures that will be implemented on municipal territory. The same applied for countrywide transport organisations including railways.</p> <p>Local authorities may need to carry out special urban mobility and transportation studies that should include, among others, estimations of energy savings and CO2 and other emissions reduction.</p> <p>Local authorities may need to carry out special studies and introduce effective fleet management systems.</p>
Status of implementation and exact timeframe	<p>New EEI measure planned</p> <p>The LoEE (Art. 7, 8 and 9) prescribes the obligation for Local Self-Government Units for adoption of EE Improvement Plans and Programs. Other public bodies and big consumers including those in the transport sector have similar obligations.</p> <p>As Local authorities are responsible for road network and transport management in the cities as well as for the public transport, special attention in these documents must be given to EE in transport.</p> <p>It is also essential that EE issue should be addressed in all broader studies and plans for the transport sector.</p> <p>Preparation of EE Improvement Programs and Plans of Local Self-Government will start in 2011.</p>
Financing	<p>Funding is required for:</p> <ul style="list-style-type: none"> • List of recommendations for EE in transport • Further development and implementation: [<i>Local Authorities</i>] <p>TOTAL: 15,000 € from ME plus contribution of donors</p>

	<u>Sources of Financing:</u> <ul style="list-style-type: none"> • State Budget • EU/TA-EnCT Project (list of recommendations – templates for action plans) • Local Authorities budgets
Expected annual energy savings in 2012	This will produce savings after 2012

No and Title of the EEI measure	T3: Information campaign on energy efficient behaviour in transport and demonstration (pilot) actions
Category	Category: 2. Information and mandatory information measures / Subcategory: 2.1 Focused information campaigns
Regional application	National / Local
Target group	Car users; intermediary organisations (car fleet managers, driving schools, sector organisations, etc.); general public
End-use EEI action targeted	<p>Design and implementation of general awareness raising actions focusing on:</p> <ul style="list-style-type: none"> • the energy and environmental benefits of purchasing /using energy efficient vehicles and vehicles on alternative fuels, • the crucial importance of efficient vehicle preventive maintenance for longer life and less maintenance cost due to failures, improved safety and reduction of fuel costs and pollution • the energy conscious and environmental friendly driving for less energy consumption and pollution <p>Design and implementation of specific promotional actions, such as:</p> <ul style="list-style-type: none"> • Promotion of cleaner modes of transport as use of public transportation, walking, cycling ect. • Promotion EE measures in Urban Public and Freight Transport • Promotion of sustainable transport systems • Promotion of cleaner car • Car free days
Implementation arrangements	<p>The campaign will be designed and implemented under the co-ordination of ME/SEE, possibly in collaboration with the Ministry responsible for Transport.</p> <p>Specific actions can be implemented in collaboration with local authorities.</p> <p>The campaign is also expected to promote implementation of the above EEI improvement measures No T1 and T2.</p>

Status of implementation and exact timeframe	<p>New EEI measure – under consideration</p> <p>Promotion of EE in transport has not been included in any public information campaign till now except from few demonstration actions as "Car-free days" in 2008 and 2009 in central city area of Capital Podgorica or some smaller interventions in cycle and walking paths in some areas of Montenegro.</p> <p>In the period of the first EEAP more attention will be given to the promotion of EE in transport. Promotional activities will to be designed and implemented.</p> <p>Financing is not yet safeguarded.</p>
Financing	<p>The required funds include:</p> <ul style="list-style-type: none"> • Design of the campaign and actions • Implementation of the campaign and actions • On-going monitoring and evaluation of effectiveness <p>TOTAL: 10,000 from ME for monitoring /support plus 100,000 € from donors</p> <p><u>Sources of Financing (to be identified):</u></p> <ul style="list-style-type: none"> • State Budget • Local Authorities • Donors' assistance
Expected annual energy savings in 2012	<p>Expected savings are foreseen for 2012 onwards:</p> <p>Annual energy savings – Electricity: 0 ktoe (2012)</p> <p>Annual energy savings – Fuels: 0.5 ktoe (2012)</p> <p>Annual energy savings – FEC-primary: : 0.5 ktoe (2012)</p>

No and Title of the EEI measure	T4: Study / Action Plan for Energy Efficiency in Transport
Category	Category: 1. Regulation
Regional application	National / Local
Target group	Government; Broader public sector; Car users; General public
End-use EEI action targeted	<p>Development of Study/ Action Plan for Energy Efficiency in Transport with the Action plan defining concrete measures, applicable in Montenegro, which should be approved by Government.</p> <p>The study is expected to define concrete regulatory and institutional measures (including law amendments or new regulations), introduction of EU standards, strengthening of car inspection mechanisms and a series of other EE measures, with priorities, detail description as well as budget and savings estimations.</p>

Implementation arrangements	<p>ME, possibly with Ministry responsible for transport sector, will tender and evaluate the study/ Action Plan.</p> <p>This document will propose further development of state and local policy in transport sector and will be proposed to the Government of adoption.</p>
Status of implementation and exact timeframe	<p>New EEI measure – under consideration</p> <p>The study / Action Plan will help Government and other authorities to define policy and priorities in the field of EE in transport.</p> <p>Financing is not yet safeguarded but the study is expected to be carried out in 2011. Implementation of recommendations is foreseen for the period of the 2nd EEAP after 2012, although some actions can be initiated or implemented in 2012.</p>
Financing	<p>The required funds include:</p> <ul style="list-style-type: none"> • Study/Action Plan <p>TOTAL: 30,000 € from ME plus 30,000 € from donors</p> <p><u>Sources of Financing (to be identified):</u></p> <ul style="list-style-type: none"> • State Budget • Donors' assistance
Expected annual energy savings in 2012	-

No and Title of the EEI measure	T5: Transport infrastructure measures with energy saving effects
Category	<p>1. Regulation</p> <p>4. Voluntary agreements and co-operative instruments</p>
Regional application	National/ Local
Target group	Broader public sector; Car users; General public
End-use EEI action targeted	<p>Development of transport infrastructure serves mainly economic development and improved safety. However, it also has significant impacts on energy efficiency and environmental protection.</p> <p>The impact of transport infrastructure projects on fuel saving has not been sufficiently addressed so far.</p> <p>This EEI measure aims at demonstrating the fuel savings and emissions reduction effects of transport infrastructure projects and encouraging further development investments. The Measure includes:</p> <ul style="list-style-type: none"> • Regulation with detailed specifications for the implementation of the requirement of Law on Spatial Planning and Construction for EE study as a part of technical documentation for all constructions including transport (see horizontal measure HZ 9)

	<ul style="list-style-type: none"> • Study of a system for assessment of energy efficiency and emission reduction effects of certain transport infrastructure projects • Construction of ring-roads by-passing city central areas • Investments in appropriate urban infrastructure projects including bicycle zones, parking places, better programming of traffic lights, public transport and bus-stops, etc. • Improving the quality of the existing infrastructure.
Implementation arrangements	<p>Law on Spatial Planning and Construction requires that every construction project (including transport infrastructure) as a part of technical documentation must include elaboration of EE issues as a part of evaluation of the selected solution in comparison with alternatives.</p> <p>However, these provisions have not been implemented as the necessary regulation with detailed specification of the EE part of technical documentation is missing.</p> <p>ME/SEE with MSPE will elaborate the necessary regulations (see EEI Measure No HZ 9)</p> <p>The ME/SEE with MSPE and the Ministry responsible for Transport, will undertake to establish the system of assessment of energy and environmental impacts</p> <p>The same Ministries and Local Authorities will promote new transport infrastructure projects with significant energy saving impacts.</p>
Status of implementation and exact timeframe	<p>Early action – new EEI actions planned</p> <p>A number of transport infrastructure projects in the last years reduced significantly inter-city connection distances, as well as local transport conditions (e.g. Podgorica and Niksic city centre by-pass roads that reduce distances, traffic jams, car stops in traffic lights, etc.). The effect on fuel savings is significant, but unknown.</p> <p>The ME/SEE will undertake the initiative to mobilise MSPE and possibly the Ministry responsible for Transport for joint implementation of this important EEI Measure.</p> <p>Financing is not yet safeguarded but implementation is expected to start in 2011.</p>
Financing	<p>The required funds include:</p> <ul style="list-style-type: none"> • Study of a system for assessment or rough assessment of energy efficiency effects of certain transport infrastructure projects. – Dissemination of results <p>TOTAL (excluding design and construction investments): 20,000€</p> <p><u>Sources of Financing (to be identified):</u></p> <ul style="list-style-type: none"> • State Budget • Donors' assistance <p>Budget for regulation for EE assessment in infrastructure construction projects is included in EEI Measure No HZ 9.</p>

Expected annual energy savings in 2012	Expected savings are foreseen for 2012 onwards: Annual energy savings – Electricity: 0 ktoe (2012) Annual energy savings – Fuels: 0.5 ktoe (2012) Annual energy savings – FEC-primary: : 0.5 ktoe (2012) Additional savings are expected from transport infrastructure investments (to be identified)
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3. HORIZONTAL AND CROSS-SECTORAL MEASURES

The following Table 3.1 presents the main horizontal or cross-sectoral measures. Most of these measures are supportive to EEI actions described in the previous Chapter 2 for each sector separately. The expected energy savings from these horizontal and cross-sectoral measures have already been taken into account for the estimation of energy savings from the relevant EEI sectoral measures and are not repeated here.

3.1. Overview table of all horizontal and cross-sectoral EEI measures

The Table 3.1 provides an overview of all horizontal and cross-sector measures and the sectors they impact.

Table 3.1: Horizontal and cross-sector measures and application to sectors

No	Measure	Households	Services	Industry	Transport	Remarks
HZ1	Development of the basic legislative, regulatory and institutional framework for EE in Montenegro	X	X	X	X	On the basis of the new LoEE, Law on Construction, EnCT commitments, etc.
HZ2	Adoption of strategic and planning documents for EE	X	X	X	X	As above / Related also to planned update of the Energy Development Strategy, 2 nd EEAP, etc.
HZ3	Establishment of an EE Statistics and Monitoring system	(X)	X	X	X	Linked also to the development of the overall energy statistics system
HZ4	Individual/smart metering and informative billing	X	X	X		EPCG programme
HZ5	Promotion of sustainable energy Financing Facilities and alternative financing mechanisms	(X)	X	X	(X)	Exploitation of existing Financing Facilities of IFIs in the region and ESCO financing
HZ6	Strengthening EE in education	(X)	(X)	(X)	(X)	
HZ7	Promotion of high efficiency cogeneration		X	X		Preliminary assessment (to be implemented with the 2 nd EEAP)
HZ8	Introduction of eco-design regulatory framework	X	X	X		Adoption of eco-design framework (effects are expected during the 2 nd and 3 rd EEAPs)
HZ9	Introduction of energy efficiency requirements and criteria in Spatial Planning and infrastructure development investments	X	X	X	X	This is a requirement of the Law on Spatial Planning and Constructions (effects are expected during the 2 nd and 3 rd EEAPs)

In addition to the above horizontal and cross-sector measures, several of the EEI measures already presented in Chapter 2 are, in fact, “cross-sectoral”. However they are described as specific EEI measures for the sector for which they may have the highest impact. Measures of this type include:

- Development of new regulatory framework for the energy performance of buildings and enforcement (EEI Measure H1, S1)
- Training and certification of auditors, building certifiers and heating/cooling systems inspectors (EEI Measure H2, S2)
- Information campaigns (EEI Measure H4, S3)
- EE criteria in public procurements (EEI Measure S8, T1)
- Promotion of Energy Management Schemes and capacity building (EEI Measure S10, I3)
- Energy auditing and incentives for EE (EEI Measure S11, I2, etc.)

3.2. Description of horizontal and cross-sectoral EEI measures

The horizontal and cross-sectoral EEI measures not described within the sectors are described below:

No and Title of the EEI measure	HZ 1: Development of the basic legislative, regulatory and institutional framework for EE in Montenegro
Category	1. Regulation Relevant to all categories
Regional application	National
Targeted Sectors	All sectors
End-use EEI action targeted	<ol style="list-style-type: none"> 1) Adoption of the Law on Energy Efficiency (LoEE) 2) Adoption regulations / guides for implementation of LoEE (See Chapter 5) 3) Strengthening of the Sector for Energy Efficiency (SEE) under the Ministry of Economy <ul style="list-style-type: none"> • appointment of Assistant Minister for SEE with decision making power • recruitment of adequate qualified consultants and staff for SEE • capacity building for SEE 4) Safeguarding financing for implementation of EEAP (in the absence of an EE Fund) 5) Establishment of Energy Management schemes of Ministries, other public organisations and Local Authorities. 6) Elaboration of discussion papers on white certificates, voluntary agreements and ESCOs

<p>Implementation arrangements</p>	<p>The new approved LoEE is generally in line with the Decision No. 2009/05/MC-EnC of 18 December 2009 and largely transposes, or provides the legal basis for transposition, the Directive on Energy Services (ESD), the Directive for Energy Performance of Buildings (EPBD) and Energy Labelling Directives into the National Legislation. It also provides for introduction of eco-design. On the other hand, the Law is not sufficiently elaborated concerning the institutional structures and financing. The EEAP aims at covering, in the best possible way, these areas.</p> <p>The LoEE does not provide for the establishment of an EE Agency and assigns all responsibilities to the Ministry of Economy (ME) (practically to the SEE). Therefore the SEE must be straightened and permanent collaboration with universities and institutes should be established to outsource standard work, such as training, model runs, etc. that cannot be accomplished by a Ministry.</p> <p>The LoEE provides for a large number of legal acts of secondary legislation and guides (See Chapter 5). All these must be prepared within one year under the responsibility of the SEE utilising as much as possible donors' assistance and local experts.</p> <p>The LoEE provides for several EE plans and other obligations to public institutions, local authorities, big consumers and energy distribution. These institutions need support and capacity buildings. A special EEI action is foreseen under the Services sector section (EEI Measure No S 10)</p> <p>The LoEE does not provide for the establishment of an EE Fund. The ME/SEE must request from the State Budget the required financing for its operation and EE actions. Other Ministries and Public Bodies must also allocate budgets for EE on an annual basis as per LoEE Art. 6 (Annual Operational Plan for Energy Efficiency Improvements in Public Administration Institutions).</p> <p>Further to this, financing for EE must be provided by the Local Authorities, donors' assistance and private capital. Note that leveraging of private capital depends much on the successful implementation of EEI measures related to ESCOs, alternative financing mechanisms and provision of incentives.</p> <p>Regular Donors' Coordination Meetings will ensure that their actions are consistent with the national policy as expressed by the LoEE and the EEAP and useful for Montenegro..</p>
<p>Status of implementation and exact timeframe</p>	<p>Early action with major adaptations planned – on going:</p> <p>The first drafts of the LoEE were prepared in 2009. The LoEE was approved by the Parliament on 22/4/2010.</p> <p>The organisational chart of the SEE, approved in 2009, provides for 15 staff members.</p> <p>The new Assistant Minister for SEE has been appointed in July 2010 and started officially her work in August 2010. As of today the SEE has 6 staff members including the Assistant Minister. The Plan is to recruit additional 5 staff members in 2010-2011.</p> <p>The first EE Coordination Meeting was organised in September 2010.</p>

Financing	<p>The estimated financing of this EEI Measure (additional to financing of associated specific EEI Sectoral Measures) include funds for:</p> <ul style="list-style-type: none"> • Recruitment of consultants to support SEE for about 2 years in average • General activities of SEE (meetings, missions, ad-hoc studies, etc.) <p>TOTAL: 140,000 € from ME plus 150,000 from donors</p> <p><u>In addition funds for EEI measuers will be allocated by Ministries from the State Budget as per LoEE Art. 6</u></p> <p><u>Additional Sources of Financing:</u></p> <ul style="list-style-type: none"> • EU/TA-EnCT project (day to day advice and capacity building the SEE; development of a number of regulatory and other actions under this EEAP; support for the preparation of the EEAP) • Donors
Expected annual energy savings in 2012	This is a supportive measure that will generate savings through the implementation of associated specific Sectoral EEI measures.

No and Title of the EEI measure	HZ 2: Adoption of strategic and planning documents for EE
Category	Relevant to all categories
Regional application	National
Targeted Sectors	All sectors
End-use EEI action targeted	<p>As per LoEE a number of strategic and planning documents will be prepared. These include:</p> <ul style="list-style-type: none"> • Development of 2nd EEAP (as per Decision No. 2009/05/MC-EnC) • Energy Efficiency Strategy • Annual operational plans for energy efficiency improvement in public administration institutions • Energy Efficiency Programmes and Plans of the Local Self-Government Units.
Implementation arrangements	<p>The ME/SEE is the responsible body for the preparation of the EE Strategy, EEAPs and Annual operational plans for energy efficiency improvement in public administration institutions.</p> <p>The Local Self-Government Units are responsible for adoptions of 3-year EE Programmes that will be implemented through annual action plans. The LoEE provides for submission of the EE Programmes to ME to check consistency with the EEAP, as well as for reporting to ME on implementation of the annual plans.</p>

<p>Status of implementation and exact timeframe</p>	<p>Early action with major adaptations planned – on going:</p> <p>An Energy Efficiency Unit (EEU) was informally established in the ME in 2004. The first EE Strategy was adopted in 2005 followed by adoption of EE Action Plans. Implementation of the Plans was not satisfactory as the EEU was consisting by 2 only persons with negligible financing..</p> <p>The EU funded project “TA to the EEU” papered a 5-year EE Action Plan. Most of the actions of the Plan were not realised due to lack of resources with the exception of information activities, the adoption of the LoEE, etc.</p> <p>In April 2005, the Government of Republic of Montenegro adopted the Energy Policy. The Energy Development Strategy of Montenegro by 2025 (Strategy) was adopted in December 2007. Action Plan for Implementation of Energy Development Strategy for the period 2008 - 2012 was adopted in October 2008.</p> <p>Following the adoption of the LoEE, this first EEAP has been prepared by the SEE and EU/TA-EnCT Project and submitted to the Secretariat of EnC in July 2010 and to stakeholders for comments before the official adoption by the Government..</p> <p>Other regular EE Plans and Reports will be submitted by the organisation defined by the LoEE to the MoE or Government within deadlines specified in the LoEE.</p> <p>The GoM recently approved the updating of the Energy Development Strategy. The SEE will provide input for this update.</p> <p>Updating of the EE Strategy will follow the update of the Energy Development Strategy.</p>
<p>Financing</p>	<p>The estimated financing of this EEI Measure (additional to financing provided by the EU through the TA-EnCT Project) include funds for:</p> <ul style="list-style-type: none"> • Preparation of Annual operational plans • Preparation of the second EEAP • Updating of the EE Strategy <p>TOTAL: 50,000 € from ME plus 70,000 € from donors plus funds from Local Self Governments, etc.</p> <p><u>Sources of Financing:</u></p> <ul style="list-style-type: none"> • State Budget • Local Self Governments • EU/TA-EnCT project • Other donors
<p>Expected annual energy savings in 2012</p>	<p>This is a supportive measure that will generate savings through the implementation of associated specific Sectoral EEI measures.</p>

No and Title of the EEI measure	HZ 3: Establishment of an EE Statistics and Monitoring system
Category	2. Information and mandatory information measures
Regional application	National
Targeted Sectors	All sectors / State administration bodies, local government bodies and big consumers
End-use EEI action targeted	<p>The LoEE provides for:</p> <ul style="list-style-type: none"> • Establishment of energy information systems by broader Public Sector bodies and big consumers (Art. 41) on the basis of guidelines issued by the ME • Submission of data on annual energy consumption, etc. by the same bodies (Art. 42) • Submission of data by Distribution System Operator, energy suppliers etc. (Art. 15) • Establishment and management of information system for monitoring of energy consumption in Montenegro by the ME/SEE (Art 13.) <p>In this frame, a methodology and system for monitoring and verification of energy savings must be established.</p>
Implementation arrangements	<p>The ME/SEE is the responsible body:</p> <ul style="list-style-type: none"> • Establishment and maintenance of the central EE statistics, Monitoring and Verification system • Issuance of guides and specifications for energy information systems by broader Public Sector bodies and big consumers as well as for data reporting by all responsible bodies. <p>In addition ME will initiate capacity building actions on energy management and EE statistics (EEI Measure No S10).</p> <p>The Public Sector bodies, Local Authorities, big consumers, Distributor System Operator, etc. will be responsible for the establishment of their energy statistics systems and for reporting.</p> <p>The EE Statistics system needs also input form the overall energy statistics system and other socio- economic data. The Sector for Energy of ME and the Statistical Office (MONSTAT) are the responsible bodies.</p>
Status of implementation and exact timeframe	<p>New action -planned:</p> <p>The first attempt to develop an EE database for the public sector buildings was done in 2007 under the EU financed project “TA to the Energy Efficiency Unit”. This effort succeeded to collect data from certain Ministries and the Power Utility EPCG, but it had no continuation due to the lack of legal basis to support it.</p>

	<p>The last energy balances in proper Eurostat methodology/ format are available for the year 2004, compiled in the framework of the background studies for the preparation of the Energy Development Strategy. Energy data from 2005 onwards are incomplete and do not follow any international acceptable standard.</p> <p>The GoM adopted a plan for development of energy statistics database in 2008, but it has not been implemented so far.</p> <p>Since there was no real progress so far we consider this EEI Measure as “New Action”.</p> <p>The work programme of the EU/TA-EnCT Project includes development of a central EE database, drafting of guidelines and organising pilot training by the first quarter of 2011.</p> <p>A Slovenian aid project for development of a software platform for general energy statistics is under discussion.</p> <p>It is estimated that satisfactory development of energy statistics and EE statistics system will require few years of intensive work and sufficient funding.</p>
Financing	<p>The estimated financing of this EEI Measure (additional to the support provided by the EU through the TA-EnCT Project) include funds for:</p> <ul style="list-style-type: none"> • Support to different bodies to establish their own systems / development of software models • Ad – hoc small studies and development/adaptation of pieces of software to meet specific needs and the like <p>TOTAL (for support): 70,000 from ME plus 150,000 € donors plus budgets from the following sources</p> <p><u>Additional Sources of Financing:</u></p> <ul style="list-style-type: none"> • Local Self Governments, Public bodies, Big consumers, etc. • EU/TA-EnCT project
Expected annual energy savings in 2012	<p>This is a supportive measure that will generate savings through the implementation of associated specific Sectoral EEI measures.</p>

No and Title of the EEI measure	HZ 4: Individual/smart metering and informative billing
Category	Category: 2. Information and mandatory information measures / Subcategory: 2.8 Metering and informative billing
Regional application	National
Targeted Sectors	Industry, Services, Residential sector
End-use EEI action targeted	As per the LoEE Art. 16 the obligations for individual energy consumption metering and informative billing are introduced.

	<p>The rules in case of cost sharing methods for common energy costs will be also specified.</p> <p>A pilot programme for “smart metering” has been implemented by EPCG. It is expected that this programme will continue and cover larger number of consumers.</p>
Implementation arrangements	<p>The EEI measure will be implemented by the distribution system operators and suppliers.</p> <p>The ME is the responsible body to supervise implementation</p> <p>Implementation of the expansion of the smart metering programme depends on EPCG.</p>
Status of implementation and exact timeframe	<p>Early action – adaptations planned:</p> <p>Individual metering in electricity is a common practice in Montenegro since many years.</p> <p>Rules for cost sharing methods for common energy costs are incorporated in the rulebooks for energy performance of buildings (by end 2010).</p> <p>As per the deadlines of the new LoEE, all provisions including informative billing should be implemented within one year i.e by May 2011.</p>
Financing	<p>ME signed an MoU with EPCG to contribute in financing smart metering in public sector facilities. It is expected that ME will provide 40,000 €, donors 60,000 €.</p> <p>The power utility EPCG is expected to finance mainly this EEI Measure.</p>
Expected annual energy savings in 2012	<p>The expected savings through the implementation of this measure have been already taken into account in the expected savings from the Information Campaigns (EEI Measures No H4 and S3).</p>

No and Title of the EEI measure	HZ 5: Promotion of sustainable energy Financing Facilities and alternative financing mechanisms
Category	Category: 3. Financial instruments / Subcategories: 3.1 Subsidies (Grants) and 3.3 Loans (soft and/or subsidised)
Regional application	National
Targeted Sectors	Industry, Services (mainly)
End-use EEI action targeted	<p>IFIs such as the EBRD, EIB, WB, KfW and others are active financing sustainable energy investments in the Western Balkans region. Usually they provide loans directly or through local Participating Banks, together with technical assistance for project preparation and a grant component on investment to successfully completed projects.</p> <p>These Facilities are demand driven meaning that financing is provided to those who can present eligible investment proposals. This EEI Measure aims at maximising the financing provided to Montenegro through:</p> <ul style="list-style-type: none"> • regular exchange of information between the SEE and IFIs

	<ul style="list-style-type: none"> • dissemination of information from the SEE to the targeted companies and investors from SEE's contact list • organisation of events jointly with the Financing Facilities to promote them in Montenegro • facilitation of contacts between the IFIs facilities consultants with companies and investors • donors' coordination meetings in which investment possibilities in Montenegro will be presented. <p>In addition, other available alternative financing mechanisms will be promoted.</p>
Implementation arrangements	The ME/SEE will coordinate implementation
Status of implementation and exact timeframe	<p>New action -planned:</p> <p>This type activity is implemented since many years but not in an organised way. The SEE will establish regular information exchange contacts with IFIs, develop and maintain and contact list with companies and candidate inventors and organise specific information dissemination activities as a part of SEE regular activities with staff members assigned for international cooperation and information dissemination.</p> <p>Preparatory activities will start in July 2010.</p>
Financing	<p>Limited financing is required for:</p> <ul style="list-style-type: none"> • information dissemination events • trips and participation meetings. <p>TOTAL: 15,000 € from ME for monitoring/ support plus IFIs, etc. funds</p> <p><u>Sources of Financing:</u></p> <ul style="list-style-type: none"> • ME/SEE Budget • IFIs • EU/TA-EnCT project (EE coordination meeting Sep. 2010)
Expected annual energy savings in 2012	This is a supportive measure that will generate savings through the implementation of associated specific Sectoral EEI measures.

No and Title of the EEI measure	HZ 6: Strengthening EE in education
Category	Category: 2 Information and mandatory information measures / Subcategory: 2.5 Training and education
Regional application	National
Targeted Sectors	All sectors

End-use EEI action targeted	Increased level of knowledge and awareness among students of all levels of education and future professionals
Implementation arrangements	<p>The ME/SEE with the Ministry for Education will coordinate implementation for primary and secondary schools</p> <p>Universities and other higher education institutions will be responsible for their curricula.</p>
Status of implementation and exact timeframe	<p>Early action with modifications planned:</p> <ul style="list-style-type: none"> • The Centre for Vocational Education of Montenegro, under the project of secondary vocational education reform in Montenegro, has started in 2009 a programme to introduce the special subject "Energy Efficiency" in vocational high schools. • The Power Utility of Montenegro (EPCG) has prepared an Education Programme about EE for primary schools. • The ME/SEE has established in 2009 a library for EE and renewable energy sources in premises of the Ministry. • The Faculty of Mechanical Engineering, University of Montenegro, is introducing special module on EE to postgraduate studies organized by the Department of Energy. <p>The ME/SEE will assess the results of all the above activities and promote massive implementation with the Ministry of Education, Universities and other stakeholders.</p> <p>Round table discussions with all involved parties will be organised to identify the more efficient ways and measures for implementation.</p>
Financing	<p>Financing is required for:</p> <ul style="list-style-type: none"> • assessment of the results of activities implemented and elaboration of proposals • Development of materials <p>TOTAL: 15,000 € from ME plus 50,000 € additional financing from donors for development of training materials, etc.</p> <p><u>Sources of Financing:</u></p> <ul style="list-style-type: none"> • ME/SEE Budget • Ministry of Education • Universities • Donors (GTZ/Norwegian aid allocated a budget for EE promotion in schools)
Expected annual energy savings in 2012	This is a supportive measure that will generate savings through the better performance of professionals and motivated pupils and students.

No and Title of the EEI measure	HZ 7: Promotion of high efficiency cogeneration
Category	Category: 1 Regulation
Regional application	National
Targeted Sectors	Services, Industry
End-use EEI action targeted	Study for co-generation potential and discussion paper on promotion of high efficiency cogeneration
Implementation arrangements	The ME/SEE will be responsible for this action.
Status of implementation and exact timeframe	<p>New action- under consideration:</p> <p>Promotion of go-generation is not a high priority for Montenegro as there is no natural gas available and biomass CHP potential applications are limited.</p> <p>However a study on the potential for high efficiency cogeneration and possible implementation of the relevant CHP Directive would be useful. The study could be carried out in 2012 provided that donors financing is offered.</p>
Financing	<p>Financing is required for:</p> <ul style="list-style-type: none"> • study on the potential for high efficiency cogeneration and possible implementation of the relevant CHP Directive <p>TOTAL: 20,000 €</p> <p><u>Sources of Financing:</u></p> <ul style="list-style-type: none"> • State budget or donors' assistance
Expected annual energy savings in 2012	This is a supportive measure that may generate some energy savings after 2012.

No and Title of the EEI measure	HZ 8: Introduction of eco-design regulatory framework
Category	Category: 1 Regulation
Regional application	National
Targeted Sectors	Households, Services, Industry
End-use EEI action targeted	Introduction of eco-design regulatory and institutional framework

Implementation arrangements	The ME/SEE in collaboration with the MSPE will be responsible for this action.
Status of implementation and exact timeframe	<p>New action- planned:</p> <p>Although introduction of eco-design framework is not an obligation of Montenegro under the EnC Treaty, the LoEE Art. 36 provides for eco-design of energy using products.</p> <p>The relevant regulatory and institutional framework must be adopted by May 2011 (general deadline of the LoEE).</p>
Financing	<p>Financing is required for:</p> <ul style="list-style-type: none"> • development of eco-design framework <p>TOTAL: 15,000 €</p> <p><u>Sources of Financing:</u></p> <ul style="list-style-type: none"> • State budget or donors' assistance
Expected annual energy savings in 2012	This is a regulatory measure that may generate some energy savings after 2012.

No and Title of the EEI measure	HZ 9: Introduction of energy efficiency requirements and criteria in Spatial Planning and infrastructure development investments
Category	Category: 1 Regulation
Regional application	National
Targeted Sectors	Households, Services, Industry, Transport infrastructure
End-use EEI action targeted	Development of regulatory framework and guidelines for incorporation of energy efficiency components in the documentation for Spatial Planning and transport infrastructure development (see also EEI Measure No T5)
Implementation arrangements	The MSPE is responsible for Spatial Planning. This measure will be implemented by ME/SEE in collaboration with the MSPE.
Status of implementation and exact timeframe	<p>New action- planned:</p> <p>The Law on Spatial Development and Construction of Structures (O.G. of Montenegro, number 51/08) distinguishes four levels of State planning documents and four levels of Local planning documents.</p> <p>The Law also defines the conditions and documents for construction of state structures of general interest (roads, airports, etc.) and buildings constructions.</p> <p>According to the Law in all cases with no exception, technical and planning documentation should follow guidelines for increased energy efficiency and use of renewable energy sources.</p>

	<p>A project for development of the guidelines for EE in spatial planning and in transport infrastructure planning documentation with the participation of specialized international and local experts is necessary. It can be implemented in 2011.</p> <p>The ME/SEE will take the initiative to collaborate with MSPE for the development of ToR and safeguard financing.</p>
Financing	<p>Financing is required for:</p> <ul style="list-style-type: none"> • development of guidelines for EE in spatial planning and in transport infrastructure planning • training of space planners • pilot spatial plans with defined criteria for EE and use of RES. <p>TOTAL: 50,000 € plus donors assistance</p> <p><u>Sources of financing:</u></p> <ul style="list-style-type: none"> • State budget • Donors' assistance (UNDP/GEF plans to finance development of guidelines, training and revision of spatial plans in 5 municipalities)
Expected annual energy savings in 2012	<p>This is a regulatory measure that will generate energy savings after 2012.</p>

3.3. Assessment of horizontal measures

Until now a significant number of EU normative documents in Montenegro have been introduced. They contain variety of activities including measures introducing different EE standards and norms. Their effect can hardly be estimated due to lack of available methodologies and statistical information. The effects of the measures and activities could be estimated after development of the monitoring standards and methodologies.

The prognosis of FEC is based on FEC dependence on GDP. The prognosis value of the average GDP growth index for the period 2010-2018 estimated taking into account the real GDP growth in the period 2007-2009 and the corresponding (worst case) scenario of the Energy Development Strategy of Montenegro is 4,3% annually. Actually observed increase of FEC has to increase at lower rates as a result of the implementation of EEI measures. In short-term and middle-term conditions this dependence could be accepted as constant: The rate of FEC increase will be lower than the rate of GDP growth. (see chapter 1.5)

Note:

Independently of the high value of Energy Intensity (EI) at this moment (significant part of it is attributed to the disproportionally significant contribution of the energy intensive industry KAP and steel factory) it is not realistic to expect that EI will drop significantly in the next several years. Even if we ignore the effect of the energy intensive industry, some important sectors such as households and private cars consume energy without having direct contribution to the GDP. With the increase of private income and improvement of comfort and living standards these sectors may increase their shares in the FEC and influence the overall picture about the real effects of EEI measures.

4. MEASURES SPECIALLY REQUIRED BY THE DIRECTIVE

4.1. Article 5 on EEI measures in public sector

(Requirements, concerning exemplary role of public sector:

*Public sector has to implement cost-effective measures which generate the largest energy savings in the shortest span of time. Each country has to implement **at least two measures** that shall be used from the list set out in Annex 6 in ESD.)*

Title	Article 5, Annex 6-a of ESD for changes in legislation in area of public procurement.
Relevant EEI measures	Requirements, concerning the use of financial instruments for energy savings, including energy performance contracting, that stipulate the delivery of measurable and pre-determined energy savings (including whenever public administrations have outsourced responsibilities): <ul style="list-style-type: none"> • EEI Measure: S9- Removal of barriers for alternative EE financing mechanisms in the public sector
Title of legislation or regulation	The LoEE (Art. 44, 45) introduce the concept of ESCOs and Energy Performance Contracting. The TA-EnCT project will elaborate a discussion paper on this subject and suggest necessary legislative / regulatory amendments and acts acts and TPF, EPC contract models. On the basis of the above the necessary legislative/regulatory amendments will be proposed to the ME or the GoM.
Data of entry into force	Discussion paper on ESCOs, TPF, EPC by end 2010 LoEE enforcement by May 2011.

Title	Article 5, Annex 6-b of ESD for changes in legislation in area of public procurement.
Relevant EEI measures	Requirements to purchase equipment and vehicles based on lists of energy-efficient product specifications of different categories of equipment and vehicles: <ul style="list-style-type: none"> • EEI Measure: S8 - Establishment and implementation of EE criteria in procurement of goods, buildings and services and lease of buildings by the broader Public Sector bodies
Title of legislation or regulation	The LoEE (Art. 18, 19) provides for establishment of EE criteria in public procurements. The relevant regulations and guides will be drafted by the TA-EnCT project.
Data of entry into force	Implementation is expected to start in 2011

Title	Article 5 of ESD on EEI measures in the public sector in connection with article 7.3 of Directive 2002/91/EC (Buildings Directive)
Relevant EEI measures	Introduced mandatory certificates for sites, public or municipal property, in operation, preceded by energy audits prescribing energy savings measures: <ul style="list-style-type: none"> • EEI Measure: S6 Energy performance certification of public buildings and visibility of certificates
Title of legislation or regulation	The LoEE Art. 22 provides for energy audits in public sector buildings over 1000 sq. m. and Art. 29 provides for visibility of certificates. This measure will be further specified with secondary legislation about buildings certification.
Data of entry into force	Planned for adoption by the end 2011.

4.2. Article 6 about obligations of the ED

Title	Article 6.1 of ESD for ensuring the key role of EDs for implementation of the indicative target.
Relevant EEI measures	Obligations of the energy dealers (alternative): <ul style="list-style-type: none"> • to provide statistical information of their final customers to the authorities – Provided by the LoEE – Art 15; • to ensure the offers to their final customers, and the promotion, of competitively priced energy services – Not applicable; • to ensure the availability to their final customers, and the promotion, of competitively-priced energy audits conducted in an independent manner and/ or energy efficiency improvement measures; - The LoEE – Art 46 provides for the obligation to EDs to provide information about energy audits and services provided by third parties • to contribute to the funds and funding mechanisms – Not applicable.
Title of legislation or regulation	LoEE Art. 15 and 46 as will be further specified by ME legal acts
Data of entry into power	LoEE enforcement by May 2011.

4.3. Article 7 on availability of information

Title	Article 7 of the ESD on transparency and wide dissemination to the relevant market actors of information on EEI mechanisms and adopted financial and legal frameworks with the aim of reaching the national indicative energy savings target.
Relevant EEI measures	<ul style="list-style-type: none"> • EEI Measures H4/S3: Information campaigns to the general public and other end-users – Info Centres • EEI Measures S10: Capacity building plan for the services sector (public and private) and implementation. • EEI Measure I3: Capacity building for industrial energy audits, energy management • EEI Measure HZ3: Establishment of an EE Statistics and Monitoring system
Title of legislation or regulation	LoEE Art 13 and Art 14 provide for information dissemination by ME and Local authorities respectively LoEE Art 41 provides for an information system for energy consumption.
Data of entry into power	Information campaigns started in 2008. Actions continue. New actions are foreseen for 2011 onwards Setting up of the first version of information system is planned for mid 2010 to mid 2011.

4.4. Article 12 on energy audits

Title	Article 12 Energy audits
Relevant EEI measures	<p>Ensuring the availability of efficient, high-quality energy audit schemes which are designed to identify potential energy efficiency improvement measures and which are carried out in an independent manner, to all final consumers, including smaller domestic, commercial and small and medium-sized industrial customers:</p> <ul style="list-style-type: none"> • EEI Measures H2/S2: Training and certification of auditors, building certifiers and heating/cooling systems inspectors • EEI Measure S4: Programme for carrying out energy audits in public sector buildings • EEI Measure I3: Capacity building for industrial energy audits, energy management

Title of legislation or regulation	A rulebook on Energy Audit Performing (methodology, content of report and timeframe for obligatory implementation of audits) is under preparation.
Data of entry into power	Planned for adoption at first half of 2011.

4.5. Article 13 on metering and informative billing of energy consumption

Title	Article 13.1 on individual metering
Relevant EEI measures	Measures to ensure that meters measure accurately and frequently actual energy consumption; and that billing is informative and sufficiently frequent. Individual meters are applicable to existing consumers if technically possible and financially reasonable. <ul style="list-style-type: none"> • EEI Measure HZ4: Individual/smart metering and informative billing.
Title of legislation or regulation	LoEE Art 16 provides for individual metering and informative billing
Data of entry into power	Smart metering pilot applications have been implemented. As per LoEE Art 16 must be implemented by May 2011.

Title	Article 13.2-3 on informative billing
Relevant EEI measures	Where appropriate, information, is made available to final customers with the bills such as (a) current actual prices and actual consumption of energy; (b) comparisons of the customer's current energy consumption with consumption for the same period in the previous year; (c) comparisons with an average normalised or benchmarked user of energy in the same user category; (d) contact information for consumers' organisations, energy agencies etc.
Title of legislation or regulation	LoEE Art 16 provides for individual metering and informative billing <ul style="list-style-type: none"> • EEI Measure HZ4: Individual/smart metering and informative billing.
Data of entry into power	As per LoEE Art 16 must be implemented by May 2011

5. LEGISLATIVE CHANGES RELATED TO THE TRANSPOSITION OF THE DIRECTIVE

The LoEE provides the legal basis for implementation of ESD. Transposition of ESD and the related EPBD and energy labelling Directives will be further enabled through a number of secondary legislation acts and guidelines.

The special authority, which has to act as an appointed organization under the ESD for the control and monitoring on the compliance with the Directive is the Ministry of Economy and particularly the Sector for Energy Efficiency.

The following legal acts and guidelines will be adopted:

No	Title	LoEE Art.
1.	Rulebook on Methodology to Determine the National Indicative Target for EE Improvement in Montenegro	12
2.	GoM Decision on National Indicative Energy Savings Target for EE Improvement in Montenegro (9 years EE target / 3 years intermediate EE target of EEAP)	12
3.	Rulebook on Energy Efficiency in Buildings and energy performance requirements (permitted values of the annual energy consumption)	21
4.	Rulebook on Methodology for calculation of Energy Performance of Buildings	21
5.	Rulebook on Energy Certification of Buildings (methodology of certification etc. and registry of issued certificates)	26, (49)
6.	Rulebook on Energy Audit Performing (methodology, content of report and timeframe for obligatory implementation of audits)	22
7.	Rulebook on Registration of Experts for Performing of Energy Audits and Certification of Buildings (including also determination of the Training Programme, content of the request of candidates and documentation to be submitted)	31 (30, 34, 35)
8.	Rulebook on Performing of the Energy Audit (Inspection) of a Boiler with Nominal Capacity over 20kWh (method and timeframe)	25
9.	Rulebook on Performing of the Energy Audit (Inspection) of a Air Conditioning System with Nominal Capacity Over 12 kWh (method and timeframe)	
10.	Rulebook on determination of the Detailed Content of the Annual Report on implementation of Annual EEI Plans of Local Self Governments (and other bodies of the Broader Public sector)	11, 42
11.	Rulebook on detailed content and functional performance of the information systems in broader Public Sector bodies and Big Energy Consumers.	41

No	Title	LoEE Art.
12.	Rulebook on detailed content and manner of energy data submission by broader Public Sector bodies and Big Energy Consumers.	42
13.	Rulebook on determination of the content of the data to be provided by DSO, Energy Suppliers, and energy-generation product distributors, as well as the submission method of the data (obligatory provision of data at least annually)	15
14.	Rulebook for the determination of the limits of energy consumption to define a Big Energy Consumer	20
15.	Decision on Determination of a List of energy efficiency measures and Guidelines for their implementation (for the broader Public Sector bodies)	17
16.	Rulebook on Methodology to Determine Evaluation of Energy Efficiency level in Public Procurement of Goods and Services	18
17.	Rulebook on eco design of energy use products	36
18.	Rulebook on energy efficiency labelling of household appliances (minimum energy performance requirements)	39
19.	Rulebook on content of the Annual Plans of Big Energy Consumers and on the Reports on the Plans	20

Certain of the above legal acts may be merged in one act.

6. ANNEXES

6.1. ANNEX 1: Detailed calculation of the national indicative energy savings target

The final energy consumption (FEC) of Montenegro according to the best available data is presented in Annex1/Table 1:

ANNEX 1, Table 1. Annual final energy consumption of the years 2002 to 2006 (ktoe)

	(used units ktoe)	2002	2003	2004	2005	2006	Average
1	FEC	679.2	712.2	733.9	721.3	754.8	720.3
1.1	• Electricity	315.4	321.6	325.3	321.5	326.8	322.1
1.2	• Others	363.8	390.6	408.6	399.8	428.0	398.2

Of which:

2	Households	134.6	150.9	152	152.9	153.8	148.8
2.1	• Electricity	90.5	92.8	91	91.3	92.1	91.5
2.2	• Others	44.1	58.1	61	61.6	61.7	57.3
3	Services	67.5	71.7	70.6	70.1	69.6	69.9
3.1	• Electricity	43.9	47.5	46.2	46.6	43.3	45.5
3.2	• Others	23.6	24.2	24.4	23.5	26.3	24.4
4	Industry	336.4	346	352.4	338.8	365.8	347.9
4.1	• Electricity	178.3	178.7	185.3	180.9	188.6	182.4
4.2	• Others	158.1	167.3	167.1	157.9	177.2	165.5
5	Transport	132.9	136.5	151.6	152.3	158.3	146.3
5.1	• Electricity	1.8	1.8	1.9	1.8	1.9	1.8
5.2	• Others	131.1	134.7	149.7	150.5	156.4	144.5
6	Agriculture	7.8	7.1	7.3	7.2	7.3	7.3
6.1	• Electricity	0.9	0.8	0.9	0.9	0.9	0.9
6.2	• Others	6.9	6.3	6.4	6.3	6.4	6.5

As per the Draft Decision of the Ministry of Economy on “Methodology for calculating indicative energy savings target”, the FEC that is excluded from the scope of Directive and the FEC that is finally included in the scope of the Directive are presented in Annex1/Table 2.

ANNEX 1, Table 2. Final inland energy consumption excluded from the scope of Directive (ktoe)

	(used units ktoe)	2002	2003	2004	2005	2006	AVERAGE
1	Total Final Energy Consumption	679.2	712.2	733.9	721.3	754.8	720.3
1.1	• Electricity	315.4	321.6	325.3	321.5	326.8	322.1
1.2	• Other fuels	363.8	390.6	408.6	399.8	428.0	398.2

2	Excluded from the scope of the Directive	296.4	309.4	297.7	300.6	317.5	304.3
2.1	• Electricity	159.5	163.7	163.2	163.1	165.7	163.0
2.2	• Other fuels	136.9	145.7	134.5	137.5	151.8	141.3

Of which:

3	<u>Aviation fuels</u>	<u>15.5</u>	<u>13.6</u>	<u>7.7</u>	<u>13.0</u>	<u>13.7</u>	<u>12.7</u>
3.1	• Electricity	0.0	0.0	0.0	0.0	0.0	0.0
3.2	• Other fuels	15.5	13.6	7.7	13.0	13.7	12.7
4	<u>Maritime bunker fuels</u>	<u>1.8</u>	<u>1.9</u>	<u>1.8</u>	<u>2.0</u>	<u>2.0</u>	<u>1.9</u>
4.1	• Electricity	0.0	0.0	0.0	0.0	0.0	0.0
4.2	• Other fuels	1.8	1.9	1.8	2.0	2.0	1.9
5	<u>Podgorica Aluminium Plant (KAP)</u>	<u>279.1</u>	<u>293.9</u>	<u>288.2</u>	<u>285.6</u>	<u>301.8</u>	<u>289.7</u>
5.1	• Electricity	159.5	163.7	163.2	163.1	165.7	163.0
5.2	• Other fuels	119.6	130.2	125.0	122.5	136.1	126.7

6	FEC in scope of the Directive	382.8	402.8	436.2	420.7	437.3	416.0
6.1	• Electricity	155.9	157.9	162.1	158.4	161.1	159.1
6.2	• Others	226.9	244.9	274.1	262.3	276.2	256.9

A breakdown by sector of the FEC in the scope of the Directive is presented in Annex 1/Table 3.

ANNEX 1, Table 3. Annual final energy consumption in the scope of the Directive (ktoe)

	(used units ktoe)	2002	2003	2004	2005	2006	Average
1	FEC in scope of Directive	382.8	402.8	436.2	420.7	437.3	416.0
1.1	• Electricity	155.9	157.9	162.1	158.4	161.1	159.1
1.2	• Others	226.9	244.9	274.1	262.3	276.2	256.9

Of which:

2	Households	134.6	150.9	152	152.9	153.8	148.8
2.1	• Electricity	90.5	92.8	91	91.3	92.1	91.5
2.2	• Others	44.1	58.1	61	61.6	61.7	57.3
3	Services	67.5	71.7	70.6	70.1	69.6	69.9
3.1	• Electricity	43.9	47.5	46.2	46.6	43.3	45.5
3.2	• Others	23.6	24.2	24.4	23.5	26.3	24.4
4	Industry	57.3	52.1	64.2	53.2	64	58.2
4.1	• Electricity	18.8	15	22.1	17.758	22.9	19.3
4.2	• Others	38.5	37.1	42.1	35.442	41.1	38.8
5	Transport	115.6	121	142.1	137.3	142.6	131.7
5.1	• Electricity	1.8	1.8	1.9	1.8	1.9	1.8
5.2	• Others	113.8	119.2	140.2	135.5	140.7	129.9
6	Agriculture	7.8	7.1	7.3	7.2	7.3	7.3
6.1	• Electricity	0.9	0.8	0.9	0.9	0.9	0.9
6.2	• Others	6.9	6.3	6.4	6.3	6.4	6.5

Finally Annex1/Tables 4 and 5 present the calculations of the energy saving targets expressed in terms of primary energy equivalent using the appropriate conversion factor for electricity.

ANNEX 1, Table 4. Calculation of energy savings targets

	(used units ktoe)	Average 2002-2006		
		Electricity	Other fuels and energy	Total consumption
		1	2	3
1	Final Energy Consumption (FEC)	322.1	398.2	720.3
2	Excluded FEC	163.0	141.3	304.3

Of which:

2.1	• Covered by the ETD	0.0	0.0	0.0
2.2	• Aviation fuels	0.0	12.7	12.7
2.3	• Maritime bunker fuels	0.0	1.9	1.9
2.4	• Podgorica Aluminium Plant (KAP)	163.0	126.7	289.7
3	FEC in the scope of the Directive	159.1	256.9	416.0

Of which:

3.1	• Households	91.5	57.3	148.8
3.2	• Services	45.5	24.4	69.9
3.3	• Industry	19.3	38.8	58.2
3.4	• Transport	1.8	129.9	131.7
3.5	• Agriculture	0.9	6.5	7.3

ANNEX 1. Table 5. Calculation of indicative energy savings targets (ktoe)

	SUMMARY	Electricity	Other fuels and energy	Total consumption
4	Final Energy Consumption in scope of the Directive (ktoe)	159,1	256,9	416,0
5	Conversion factor to primary equivalent	2,5	1,0	
6	FEC - Primary equivalent	397,7	256,9	654,6
			TOTAL in GWh	7612,6

TARGETS expressed in primary energy equivalent (FEC-Primary)

	TARGETS (primary energy equivalent)	in %	in ktoe	in GWh
7	Overall indicative energy savings target up to end 1018	9,0%	58,9	685,1
8	Intermediate indicative energy savings target up to end 1012	2,0%	13,1	152,3

6.2. ANNEX 2: Justification for the exclusion of KAP from the indicative energy saving target (but not from energy saving obligations)

The structure of the FEC in Montenegro is heavily imbalanced. Only one company, the Aluminium factory KAP, consumes about 40% of the FEC. Due to technological constraints of aluminium production process, this plant cannot achieve considerable savings. Any contribution of improved energy management to the reduction of auxiliary energy uses would be negligible in comparison with the consumption used in the production process. In addition, the annual production and energy consumption of KAP in the last years vary significantly affecting all energy and economic indicators of the country. Inclusion of KAP in the FEC in the scope of the Directive that is used as basis for the calculation of the energy savings target, means actually that energy consumers, other than KAP, must achieve savings about 15-16% in order for Montenegro to achieve an average 9% national energy savings target. The results of the relevant calculations are presented in the following tables.

Assuming that KAP is included in the FEC (in the scope of Directive), the total FEC expressed in primary energy equivalent amounts to 1189 ktoe. The 9% saving target should be set to 107 ktoe:

FEC (including KAP)	Average for 5 years (ktoe)	Conversion factor	Primary energy equivalent (ktoe)	Energy saving target 9%
Final Energy Consumption in scope of the Directive	705.7		1188.9	107.0
Electricity	322.1	2.5	805.3	72.5
Others	383.6	1.0	383.6	34.5

The average FEC of KAP is 534,3 ktoe (primary energy equivalent). Potential energy savings of 2%, would mean 10,7 ktoe savings per year as it is shown in the next table:

FEC (KAP)	Average for 5 years (ktoe)	Conversion factor	Primary energy equivalent (ktoe)	Energy savings 2% (ktoe)
Final Energy Consumption	289.7		534.3	10.7
Electricity	163.0	2.5	407.6	8.2
Others	126.7	1.0	126.7	2.5

Case 1: Assuming that KAP does not save energy, all savings (107 ktoe primary energy equivalent) must be met by the rest consumers that currently consume 654,6 ktoe. In other words these consumers must achieve 16% savings.

FEC (excluding KAP) KAP Saves 0%	Average for 5 years (ktoe)	Conversion factor	Primary energy equivalent (ktoe)	Savings to be achieved by other consumers if KAP saves 0 %
Final Energy Consumption in scope of the Directive	416.0		654.6	16%
Electricity	159.1	2.5	397.7	18%
Others	256.9	1.0	256.9	13%

Case 2: The same exercise under the assumption that KAP saves about 2% energy results to obligation of the rest consumers is to save 15% energy:

FEC (excluding KAP) KAP saves 2%	Average for 5 years (ktoe)	Conversion factor	Primary energy equivalent (ktoe)	Savings to be achieved by other consumers if KAP saves 2 %
Final Energy Consumption in scope of the Directive	416.0		654.6	15%
Electricity	159.1	2.5	397.7	16%
Others	256.9	1.0	256.9	12%

Given the weaknesses of Montenegro in EE field, an actual energy saving target of 15% would be unrealistic. The issue of KAP and the implications in setting energy saving targets was presented by the Montenegrin delegation in the 8th EE Task Force meeting of February 2010. The participants of the EETF meeting found reasonable and adequately justified the proposed exclusion of KAP from the FEC in the scope of the Directive.

The above do not mean that KAP will be excluded from obligations to save energy. As per the LoEE all big consumers, including KAP, undertake several obligations i.a. to introduce energy management systems, implement EE actions and report to the ME. Therefore, **any savings to be achieved by KAP will be additional to the energy saving targets.**

6.3. ANNEX 3: Measures for achieving the national target by SECTOR and FUELS

	EEI MEASURE /ACTIONS	Energy Savings 2010-2012 (ktoe)				RESPONSIBLE INSTITUTION(S)	BUDGET REQUIREMENTS (Euro) AND SOURCES OF FINANCING				
		Electricity	Other fuels and energy	Total Savings	Total Savings (FEC-primary)		Ministry of Economy - SEE	Other Ministries	Local Authorities	Donors	End users/ others
		1	2	3	4	5	6	7	8	9	10
HOUSEHOLDS											
	Total Households	2.2	0.7	2.8	6.1		150000				
H1 (S1)	Development of new regulatory framework for buildings as per the LoEE, EPBD and enforcement	0.6	0.4	0.9	1.8	ME/SEE - MSPE	30000	√		(110000)	√
H2 (S2)	Training and certification of auditors, building certifiers and boilers / air-conditioning systems inspectors and officials			0.0	0.0	ME/SEE (with University)	70000			(300000)	
H3	Energy Labelling of household appliances	0.9		0.9	2.2	ME/SEE - ME/Sector for Trade	10000			EU/TA-EnCT	√
H4 (S3)	Information campaigns to the general public and other end-users – Info Centres	0.5	0.3	0.7	1.4	ME/SEE (with Local authorities - Donors)	20000		√	(1000000)	
H5	Financial incentives for use of solar thermal systems, , small biomass applications, energy saving lamps and other EEI/RES measures, granted to citizens under public announcements or donors programmes.	0.2		0.2	0.6	ME/SEE - EPCG	20000		√	(1050000)	√
SERVICES											
	Total Services	1.4	1.5	2.9	5.0		330000				
S1 (H1)	Development of new regulatory framework for buildings as per the LoEE, EPBD and enforcement	0.4	0.3	0.7	1.4	ME/SEE - MSPE					

	EEI MEASURE /ACTIONS	Energy Savings 2010-2012 (ktoe)				RESPONSIBLE INSTITUTION(S)	BUDGET REQUIREMENTS (Euro) AND SOURCES OF FINANCING				
		Electricity	Other fuels and energy	Total Savings	Total Savings (FEC-primary)		Ministry of Economy - SEE	Other Ministries	Local Authorities	Donors	End users/ others
		1	2	3	4	5	6	7	8	9	10
S2 (H2)	Training and certification of auditors, building certifiers and heating/cooling systems inspectors			0.0	0.0	ME/SEE (with University)					
S3 (H4)	Information campaigns to the general public and other end-users – Info Centres	0.3	0.2	0.6	1.1	ME/SEE (with Local authorities - Donors)					
S4	Programme for carrying out energy audits in public sector buildings			0.0	0.0	Public organisations - Local authorities (supervision by ME)	30000	√	√	√	
S5	Implementation of EEI investments and introduction of EEI grant schemes for buildings of the broader public sector	0.3	1.0	1.3	1.7	Supervision by ME/SEE with the beneficiary Ministries	40000	√	√	(17,5 million)	
S6	Energy performance certification of public buildings and visibility of certificates			0.0	0.0	Public organisations - Local authorities (supervision by ME)	15000	√	√		
S7	Implementation of EEI investments in utilities of Municipality and public companies (demand side)	0.3		0.3	0.8	Local authorities mainly (supervision by ME)	100000	√	(4,8 millions) +...	(2,6 millions) +...	
S8 (T1)	Establishment and implementation of EE criteria in procurement of goods, buildings and services and lease of buildings by the broader Public Sector bodies			0.0	0.0	ME/SEE - Ministry of Finance	10000	√		EU/TA-EnCT	
S9	Removal of barriers for alternative EE financing mechanisms in the public sector and other end-users			0.0	0.0	ME/SEE - Ministry of Finance	15000	√		EU/TA-EnCT	

	EEI MEASURE /ACTIONS	Energy Savings 2010-2012 (ktoe)				RESPONSIBLE INSTITUTION(S)	BUDGET REQUIREMENTS (Euro) AND SOURCES OF FINANCING				
		Electricity	Other fuels and energy	Total Savings	Total Savings (FEC-primary)		Ministry of Economy - SEE	Other Ministries	Local Authorities	Donors	End users/ others
		1	2	3	4	5	6	7	8	9	10
S10	Capacity building plan for the services sector (public and private) and implementation.			0.0	0.0	ME/SEE	100000	√	√	EU/TA-EnCT + (120000)	√
S11	Financing EE projects in SME's sector and introduction of additional incentives			0.0	0.0	ME/SMEDD - ME/SEE	10000			(19 millions)	√
S12	Voluntary agreements with building construction companies			0.0	0.0	GoM - ME/SEE - MSPE	10000	√		EU/TA-EnCT	
INDUSTRY											
	Total Industry	0.3	0.6	0.9	1.3		105000				
I1	Regulatory requirements for large industrial consumers	0.3	0.6	0.9	1.3	ME/SEE	15000			EU/TA-EnCT	
I2	Voluntary agreements with industry			0.0	0.0	GoM - ME/SEE	10000			EU/TA-EnCT	√
I3	Capacity building for industrial energy audits, energy management			0.0	0.0	ME/SEE	80000			EU/TA-EnCT + (80000)	√
TRANSPORT											
	Total Transport	0.0	1.0	1.0	1.0		40000				
T1 (S8)	Establishment and implementation of EE criteria in procurement of vehicles and transport services by the broader Public Sector bodies			0.0	0.0	ME/SEE - Ministry of Finance	15000	√		EU/TA-EnCT	

	EEI MEASURE /ACTIONS	Energy Savings 2010-2012 (ktoe)				RESPONSIBLE INSTITUTION(S)	BUDGET REQUIREMENTS (Euro) AND SOURCES OF FINANCING				
		Electricity	Other fuels and energy	Total Savings	Total Savings (FEC-primary)		Ministry of Economy - SEE	Other Ministries	Local Authorities	Donors	End users/ others
		1	2	3	4		5	6	7	8	9
T2	Incorporation of Chapter on "Energy Efficiency in transport" in the Energy Efficiency Improvement Programs and Plans			0.0	0.0	ME/SEE - Local authorities	15000		√	EU/TA-EnCT	
T3	Information campaign on energy efficient behaviour in transport and demonstration (pilot) actions		0.5	0.5	0.5	ME/SEE - Local authorities	10000		√	(100000)	
T4	Study - Action Plan for Energy Efficiency in Transport			0.0	0.0	ME/SEE - Ministry of transport	30000	√		(30000)	
T5	Transport infrastructure measures with energy saving effects		0.5	0.5	0.5	ME/SEE - Ministry of transport - Local authorities	20000	√	√	√	
HORIZONTAL - CROSS SECTORAL											
	Total Horizontal						415000				
HZ1	Development of the basic legislative, regulatory and institutional framework for EE in Montenegro					ME/SEE	140000	√	√	EU/TA-EnCT + (150000)	
HZ2	Adoption of strategic and planning documents for EE					ME/SEE	50000	√	√	EU/TA-EnCT + (70000)	
HZ3	Establishment of an EE Statistics and Monitoring system					ME/SEE and responsible institutions	70000	√	√	EU/TA-EnCT + (150000)	
HZ4	Individual/smart metering and informative billing					ME/SEE - EPCG	40000			(60000)	EPCG

	EEI MEASURE /ACTIONS	Energy Savings 2010-2012 (ktoe)				RESPONSIBLE INSTITUTION(S)	BUDGET REQUIREMENTS (Euro) AND SOURCES OF FINANCING				
		Electricity	Other fuels and energy	Total Savings	Total Savings (FEC-primary)		Ministry of Economy - SEE	Other Ministries	Local Authorities	Donors	End users/ others
		1	2	3	4	5	6	7	8	9	10
HZ5	Promotion of sustainable energy Financing Facilities and alternative financing mechanisms					ME/SEE	15000				
HZ6	Strengthening EE in education					ME/SEE - Ministry of Education and Science - Universities	15000	√		(50000)	Universities
HZ7	Promotion of high efficiency cogeneration					ME/SEE	20000			(√)	
HZ8	Introduction of eco-design regulatory framework					ME/SEE	15000			(√)	
HZ9	Introduction of energy efficiency requirements and criteria in Spatial Planning and infrastructure development investments					ME/SEE - MSPE	50000	√		(√)	
TOTAL		3.8	3.8	7.6	13.4		1140000.0				

6.4. ANNEX 4: Indicative list of examples of eligible energy efficiency improvement measures

(Copy of Annex 3 of ESD)

This Annex provides examples of areas in which energy efficiency improvement programs and other energy efficiency improvement measures may be developed and implemented in the context of Article 4 of ESD.

To be taken into account, these energy efficiency improvement measures must result in energy savings that can be clearly measured and verified or estimated in accordance with the guidelines in Annex IV of ESD, and their impacts on energy savings must not already be counted in other specific measures. The following lists are not exhaustive but are intended to provide guidance.

Examples of eligible energy efficiency improvement measures:

Residential and tertiary sectors

- (a) heating and cooling (e.g. heat pumps, new efficient boilers, installation/efficient update of district heating/cooling systems);
- (b) insulation and ventilation (e.g. wall cavity and roof insulation, double/triple glazing of windows, passive heating and cooling);
- (c) hot water (e.g. installation of new devices, direct and efficient use in space heating, washing machines);
- (d) lighting (e.g. new efficient bulbs and ballasts, digital control systems, use of motion detectors for lighting systems in commercial buildings);
- (e) cooking and refrigeration (e.g. new efficient devices, heat recovery systems);
- (f) other equipment and appliances (e.g. combined heat and power appliances, new efficient devices, time control for optimized energy use, stand-by loss reduction, installation of capacitors to reduce reactive power, transformers with low losses);
- (g) domestic generation of renewable energy sources, whereby the amount of purchased energy is reduced (e.g. solar thermal applications, domestic hot water, solar-assisted space heating and cooling);

Industry sector

- (h) product manufacturing processes (e.g. more efficient use of compressed air, condensate and switches and valves, use of automatic and integrated systems, efficient stand-by modes);
- (i) motors and drives (e.g. increase in the use of electronic controls, variable speed drives, integrated application programming, frequency conversion, electrical motor with high efficiency);
- (j) fans, variable speed drives and ventilation (e.g. new devices/systems, use of natural ventilation);
- (k) demand response management (e.g. load management, peak shaving control systems);
- (l) high-efficiency cogeneration (e.g. combined heat and power appliances);

Transport sector

- (m) mode of travel used (e.g. promotion of energy-efficient vehicles, energy-efficient use of vehicles including tyre pressure adjustment schemes, energy efficiency devices and add-on devices for vehicles, fuel additives which improve energy efficiency, high-lubricity oils and low-resistance tyres); 27.4.2006 EN Official Journal of the European Union L 114/77
- (n) modal shifts of travel (e.g. car free home/office transportation arrangements, car sharing, modal shifts from more energy-consuming modes of transport to less energy-consuming ones, per passenger-km or tonne-km);
- (o) car-free days;

Cross-sectoral measures

- (p) standards and norms that aim primarily at improving the energy efficiency of products and services, including buildings;
- (q) energy labelling schemes;
- (r) metering, intelligent metering systems such as individual metering instruments managed by remote, and informative billing;
- (s) training and education that lead to application of energy-efficient technology and/or techniques;

Horizontal measures

- (t) regulations, taxes etc. that have the effect of reducing energy end-use consumption;
- (u) focused information campaigns that promote energy efficiency improvement and energy efficiency improvement measures.

6.5. ANNEX 5: Description of EEI measures table content

(Copy of the Annex in the Template of 2007 NEEAP for MS)

Categories and subcategories of EEI measures to choose from

Category	Subcategories
1 Regulation	<i>Standards and norms:</i> 1.1 Building Codes and Enforcement 1.2 Minimum Equipment Energy Performance Standards
2 Information and mandatory information measures (e.g. mandatory labelling)	2.1 <i>Focused information campaigns</i> 2.2 <i>Energy labelling schemes</i> 2.3 Information Centres 2.4 <i>Energy Audits</i> 2.5 <i>Training and education</i> 2.6 Demonstration* 2.7 <i>Exemplary role of the public sector</i> 2.8 <i>Metering and informative billing*</i>
3 Financial instruments	3.1 <i>Subsidies (Grants)</i> 3.2 <i>Tax rebates and other taxes reducing energy end-use consumption</i> 3.3 <i>Loans (soft and/or subsidised)</i>
4 Voluntary agreements and co-operative instruments	4.1 Industrial Companies 4.2 Commercial or Institutional Organisations 4.3 <i>energy efficiency public procurement</i> 4.4 Bulk Purchasing 4.5 Technology procurement
5 Energy services for energy savings	5.1 <i>Guarantee of energy savings contracts</i> 5.2 Third-party Financing 5.3 <i>Energy performance contracting</i> 5.4 <i>Energy outsourcing</i>
6 EEI mechanisms and other combinations of previous (sub)categories	6.1 Public service obligation for energy companies on energy savings including " <i>White certificates</i> " 6.2 <i>Voluntary agreements</i> with energy production, transmission and distribution companies 6.3 <i>Energy efficiency funds</i> and trusts

* Energy savings can be allocated to these subcategories only if a direct or multiplier effect can be proven. Otherwise they must be evaluated as part of a package. Terms in *italics* are those used in the ESD.