



Republika e Kosovës
Republika Kosova - Republic of Kosovo
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Ministria e Zhvillimit Ekonomik
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Agjencia e Kosovës për Eficiencë të Energjisë
Kosovska Agencija za Energetsku Efikasnost- Kosovo Agency for Energy Efficiency

First Annual Report Under the Energy Efficiency Directive

December 2017

A. National energy efficiency target for 2020

Targets and achieved energy savings in 2015, as well as information of the national energy efficiency targets until 2020 (according to the adopted 3rd NEEAP) are provided in the table below:

[Contracting Party] TARGETS	2015	2016	2017	2018	2019	2020
BUILDINGS [ktoe]	2.75*			42.90		
INDUSTRY [ktoe]	1.17*			24.84		
TRANSPORT [ktoe]	NA*			24.15		
OTHER [ktoe] (public lighting)	1.2*					
EED ARTICLE 3 [ktoe]**	5.12*			91.89***		113.09***
EED ARTICLE 5 [ktoe]**						
EED ARTICLE 7 [ktoe]**			4.6****	9.1****	15.5****	21.9****
FEC [ktoe]	1327	1432	1451	1486	1520	1556
PEC [ktoe]	2511	2689	NA	NA	NA	NA

*energy savings achieved in 2015 (target from Directive 2006/32/EC)

** Articles from Directive 2012/27/EU

***The value under 2018 is an estimated value for energy saving according to NEEAP 2010-2018. The value under 2020 is also an estimated value for energy saving.

**** Expected values when Art.7 will be fully implemented

Table 1 - Division of targets per sectors and per different articles of EED

B. Key statistics data

The table below is given according to the official statistical information for 2015

Estimation of key statistics related to energy consumption in 2015	Value	Unit
Total primary energy consumption (*)	2511	ktoe
Total final energy consumption (*)	1327.48 ¹	ktoe
Final energy consumption – Transport (*)	387.84	ktoe

¹ <http://ask.rks.gov.net/media/2446/balanca-vjetore-e-energijs-ne-republiken-2015.pdf>

Estimation of key statistics related to energy consumption in 2015	Value	Unit
Final Energy consumption – Industry (*)	282.12	ktoe
Final energy consumption – Households (*)	477.86	ktoe
Final energy consumption – Services (*)	153.14	ktoe
Gross value added by sector – Industry (**)	744,288,000²	Euro
Gross value added by sector – Services (**)	1,767,919,000	Euro
Disposable income of households (**)	6482	Euro
Gross domestic product (GDP) (**)	5,807,009,000	Euro
Electricity generation from thermal power plants (***)	495.37	ktoe
Electricity generation from combined heat and power (***)	16.84	ktoe
Heat generation from thermal power generation (***)	14.05	ktoe
Heat generation from combined heat and power plants, incl. industrial waste heat (***)	-	-
Fuel input for thermal power generation (***)	1519	ktoe
Passenger kilometres (pkm), if available (**)	-	-
Tonne kilometres (tkm), if available (**)	-	-
Combined transport kilometres (pkm + tkm) (**)	-	-
Population (**)	1,757,924³	

Table 2: Key energy statistics data.

(*) *Energy statistics*

(**) *State Statistical office*

(***) *Independent System Operator (ISO), electricity generation companies.*

² http://askdata.rks.gov.net/PXWeb/pxweb/sq/askdata/askdata_07%20National%20and%20government%20accounts_National%20accounts_Annual%20national%20accounts/gdp09.px/table/tableViewLayout1/?rxid=0b4e087e-8b00-47ba-b7cf-1ea158040712/

³ <http://ask.rks.gov.net/media/2144/kos-ne-shifra-2016-shqip.pdf>

C. Overview of energy consumption trends

The result of an analysis of previous energy balances for all sectors reveals that up to 2013 the **household sector** was Kosovo's largest energy consumer, **followed by transport and industry**. In 2015, the household sector consumed 477.86 ktoe of energy, followed by transport with 387.84 ktoe, and industry with 282.12 ktoe.

Final energy consumption in 2024 is expected to reach 1724.73 ktoe. Measures related to rehabilitation of the electricity system and development of Kosova e Re Power Plant are expected to result in diminishing technical losses and in an increased system efficiency. This will increase the amount of electricity for final consumption generated from the same capacities as well as it will ensure a sustainable supply of electricity, thus enhancing supply reliability. For further information about system efficiency see the 3rd Kosovo NEEAP (Chapter. 2).

Energy consumption in the **transport sector** for 2015 was 387.84 ktoe. There has been an increase of 14.17% as compared to 2014. Oil (diesel) was the most used energy product in 2015 in the transport sector.

The sector expected to have the most significant energy demand increase is the **industry**. This is based on GDP growth projections and on comparison with consumption trends in other developing countries. Power consumption (of all energy products) in the industry sector in 2015 was 282.12 ktoe. The most consumed energy products in the industrial sector are oil products with a share of 54%, followed by electricity 36%, coal 6%, and biomass 4%.

Despite estimates on the enhanced rhythm of growth for the industry sector, this sector is expected to amount to around 28% of the final energy consumption by 2024.

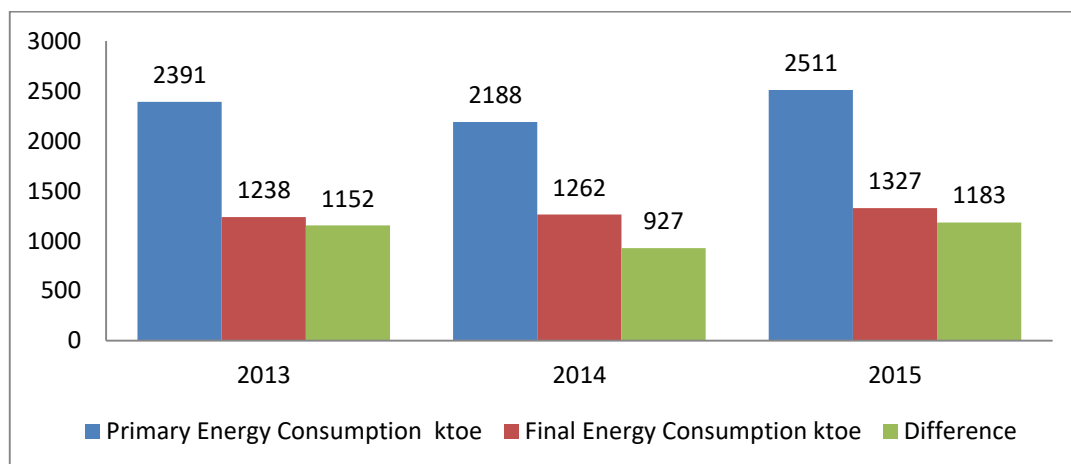


Fig 1a

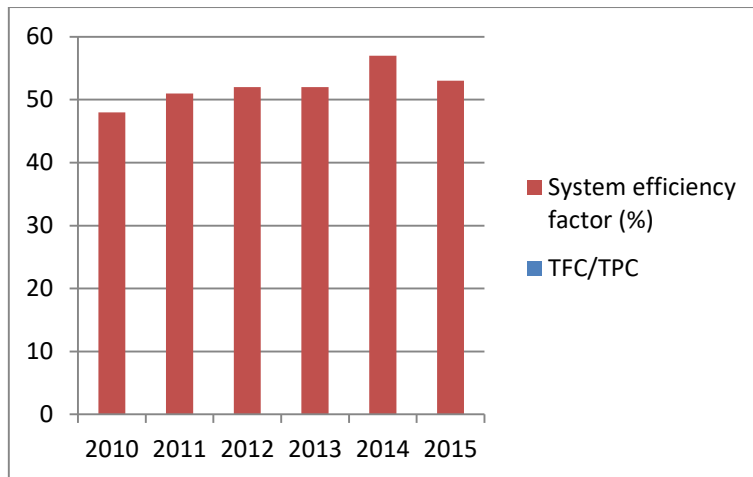


Fig 1b

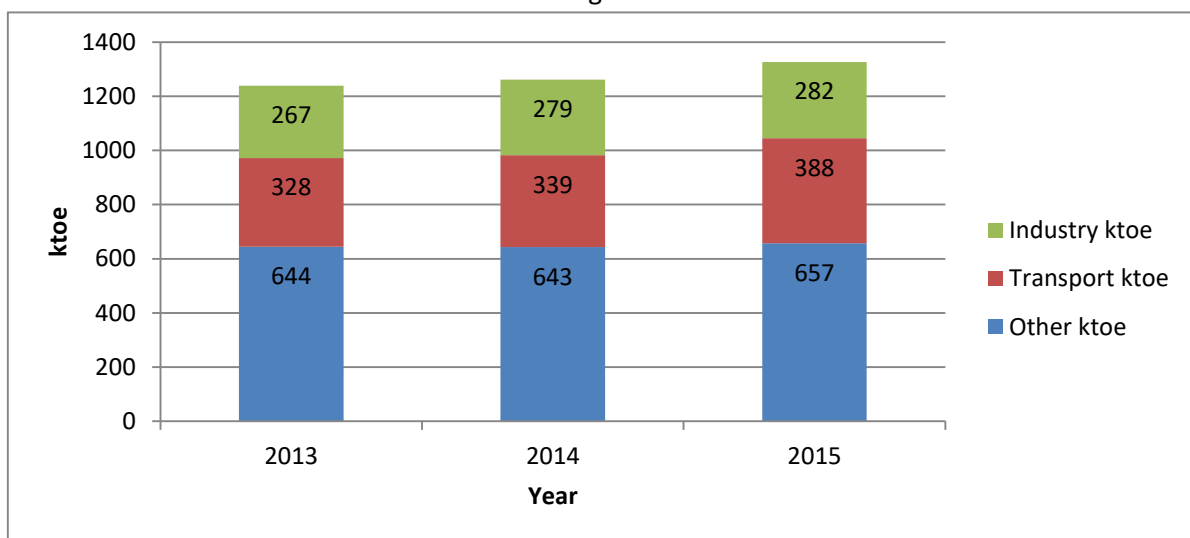


Fig 1c

Figures 1a, 1b and 1c show: Final and primary energy consumption during 2013-2015 (a), system efficiency factor during period 2010-2015 (b) and final energy consumption per sectors during years 2013 – 2015 (c)

D. Update of measures implemented in the last year

• Legislative measures

Regarding Transposing the Energy Efficiency Directive (EED) – Kosovo is in the phase of finalizing the new EE Law which will transpose the EED directive, and this law foresees the establishment of an EE fund. For this we have engaged technical assistance that is funded through the EU project with special emphasis on EE and RE (GFA - European Commission).

The Energy Performance of Buildings Directive is partially transposed into the Law on Energy Performance in Buildings - adopted in the Assembly on 1 December 2016 and promulgated by decree of the President of R. Kosovo on 15.12.2016,

Secondary legislation (adopted)

- AI for Energy Auditing
- AI for Labeling
- AI for Promotion of EE
- AI for Developing of Municipality Plans and Reporting (draft)

Regulations (adopted)

- Regulation for establishment of KEEA
- Regulation for establishment of Certification Commission for Energy Auditors and Managers
- Technical regulation for thermal energy saving in buildings
- Regulation on Labeling

Finalized regulations - pending signing for consent by the Ministry of Integration:

1. Regulation for the Energy Performance Building Certification Procedure
2. Regulation on Inspection of Heating Systems and Air Conditioning Systems

In the process of drafting and finalizing:

1. Regulation on minimum requirements for energy performance in buildings, Reep plus;
2. Regulation on the minimal calculation method for energy performance in buildings, completed, GIZ and UP;
3. The Regulation on Types of Residential Sector for Energy Efficiency in Kosovo, GIZ December 2017 begins.
4. Drafting the National Registry Model - Database (GFA - European Commission) for:
 - Register of performance certificates
 - Register of inspection reports for heating and air conditioning systems
 - List of energy auditors, appraisers and independent experts.
 - List of independent quality control
5. Drafting the Technical Regulation for the Design of Low- Near Zero Energy Consumption Buildings (NZEB) - (GFA - European Commission)

- **Non-legislative measures**

All other measures which indirectly or directly lead to the achievement of energy savings.

The third Action Plan for Energy Efficiency has been approved by the Government of the Republic of Kosovo on 02.08.2017 and is currently being implemented, this plan encompasses the period up to 2018. Meanwhile, the GFA consultants supported by the European Commission will work on the new EE plan covering the period up to 2020. Plans are planned to include appropriate EE measures for the Kosovo case.

As discussed in the previous meetings, the indicative target until 2020 is to continue with 1% energy savings target for the remaining two years by 2020.

The Government of Kosovo has invested about 2 million Euros in the renovation of 5 buildings managed by the central level and this is expected to be finalized within this year.

Kosovo is at the stage of implementing the project financed by World Bank (Kosovo EE&RES Project in public CG buildings - around **140 public buildings**), supported by **WB through credit line** (31 mil. \$), **14 buildings** are expected to be finalized this year, detailed design has been prepared and the company has been selected for refurbishing **20 buildings**. Kosovo is also in the selection phase of the design company for refurbishing **25 buildings** and those EE measures are expected to be implemented during 2018.

E. Central Government buildings (Article 5)

The total building floor area of the buildings with a total useful floor area over 500 m² and as of 01 January 2019, over 250 m² owned and occupied by the Contracting Parties' central government that, on 1 January of the year in which the report is due, did not meet the energy performance requirements referred to in Article 5(1).

The total building floor area of heated and/or cooled buildings owned and occupied by the Contracting Party's central government that was renovated in the previous year referred to in Article 5(1) or the amount of energy savings in eligible buildings owned and occupied by their central government as referred to in Article 5(6).

Article 5 of EED provides the choice between two different options in expressing the targets regarding this article. Contracting Party should express which option has been chosen and to provide data accordingly.

Policy measures implementing EED

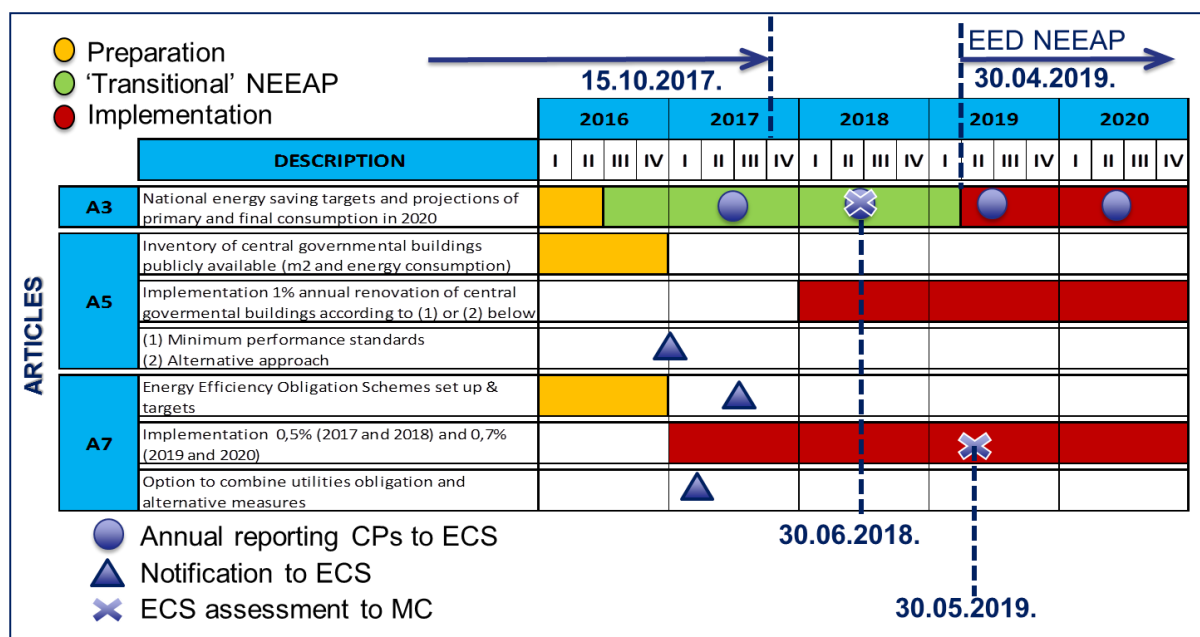


Figure 2- Foreseen timeline from the 3rd NEEAP for EED implementation (Articles 3, 5 and 7).

In Figure 2 - the planned/supposed timeline for deliverables and reporting according to EED is given.

Central government buildings (Article 5)

Transposing of the EED in Kosovo is still in the process, and the first draft of EE Law is expected to be completed around 15 December 2017, and adopted in the first trimester of 2018.

The implementation of article 5 regarding the annual renovation of buildings owned and occupied by central government should start in the beginning of 2018 after the full transposition of the EED.

It is important to say that the deadlines for implementing particular articles of the EED in EnC Contracting Parties are in general set with the time shift of approximately 3 years compared to EU MS. This means that significant effort will have to be invested in EnC Contracting Parties having in mind that the available time for implementation is more demanding than in EU MS.

Energy Efficiency Directive, adapted for EnC Contracting Parties imposes a rate of 1% annual renovation of the central governmental buildings, starting from year 2018 (see Figure 2). The critical issue here is the accurate data on the building stock as well as the interpretation of the definition coming from the directive – buildings which are owned and occupied by the central government. Central governmental buildings in Kosovo are elaborated as part of the “Feasibility Study of Energy Efficiency and Implementation Measures in Public Buildings in Kosovo (2015)” prepared for the World Bank as a client under the Contract number PO 7169649.

As part of the aforementioned Study the terminology of central governmental buildings took into consideration the following buildings:

- Ministry or public administration

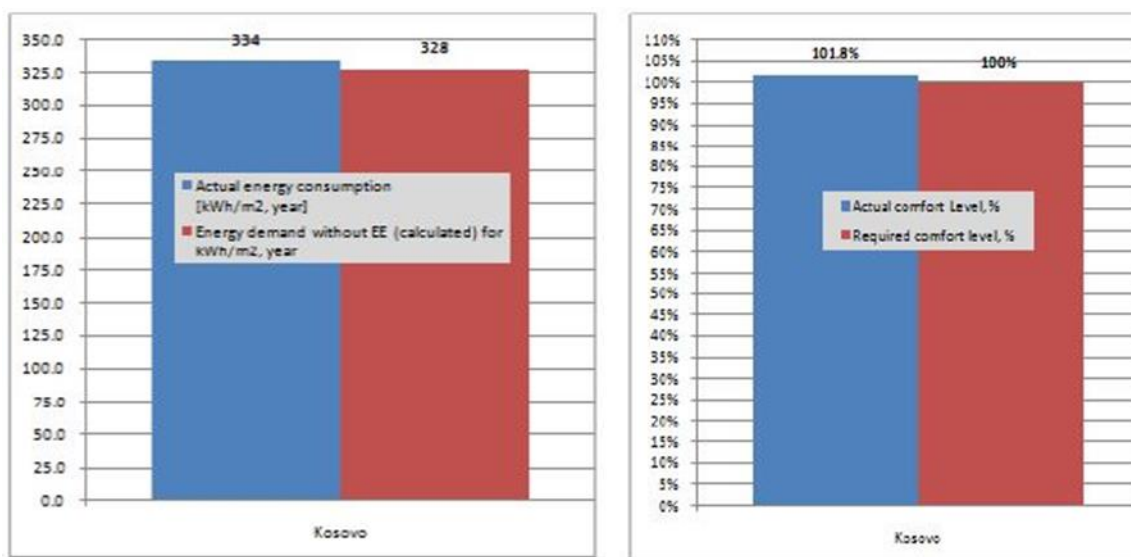
- Dormitories,
- Universities,
- Court/Prosecution,
- Police,
- Hospital,
- Army and
- Prison/Detentions.

Total evaluated floor surface of all buildings from the list above is 745,300 m² and the average energy consumption of final energy was 123kWh/m². If one takes into consideration the average efficiency of the heating system of 67% (reference value taken from the BU Methodology for Kosovo), then this small specific final energy indicates that the specific heat demand should be around 80 kWh/m². Having in mind the current status of these buildings one may say that the thermal comfort conditions were not satisfied. In that sense, proper normalization and additional analysis should be conducted, otherwise the feasibility of any energy efficiency measure will be questioned.

If one considers, as EED allows, only buildings owned and occupied by the central government or Ministry or public administration buildings according to the division above, then the total floor surface will be 130400 m² in 43 buildings out of this category. This means that the average building floor surface is approximately 3000 m². On the other hand, 1% annual renovation recalculated from the 130400 m² would be 1300 m² per year, or in other words, one building to be refurbished in two years!

The Study under the Title: “National Building Energy Efficiency Study for Kosovo (2013)” also dealt with central governmental buildings from processing energy audits of ten central public buildings. The results of audits show that the actual energy consumption fluctuated from a minimum value of 120 (kWh/m² year) up to 500 (kWh/m² year). Weighted actual average specific energy consumption values for central public buildings stock of Kosovo are presented in Figure 3.

Figure 3 - Actual and normalized energy consumption for 10 central governmental buildings in Prishtina (left) and relative comfort level (right)



Most central public buildings are located in Prishtina and they are included in this report as a single group for the entire Kosovo. Analysis shows that for central public buildings the actual energy consumption in most cases is higher than the baseline energy demand required to achieve full comfort levels. It can be seen that the central public buildings enjoy actual comfort levels higher than 100%, which means introducing EE measures will result in real energy savings.

Specific Public Sector Issues

(i) Economic Constraints

- EE is not a top priority for municipality mayors - water supply, waste disposal, and sewage treatment are considered more important issues.
- In order to improve the EE measures MED/KEEA firstly was engaged in the process of drafting the Administrative Instruction for establishing of MEOs (Municipality energy Offices) based on Energy Law Nr.05/L-081, Art.7, and Paragraph4. However, it is currently in the process of transposing the EED and reviewing the EE Law.

(ii) Institutional Constraints

- Insufficient EE expertise and resources at municipal level, even though 29 out of 38 MUNI-s have already approved their MEEPs (municipality EE Plans).

(iii) Legal and Regulatory Constraints

- Budgetary rules do not allow municipalities to benefit from any energy savings they achieve in the longer term – each year's budget allocation is based on the previous year's outturn.
- Technical Regulation Nr. 03/2009, which states that 'energy sustainability', requires the achievement of planned comfort levels in public buildings, as well as energy efficiency.
- The Law on Public Procurement should ensure that the process for evaluating government tenders takes account of any EE related benefits that a particular proposal will deliver.

(iv) Financial Constraints

- The Law on Public Debt imposes various restrictions on municipalities' ability to borrow money. (Although for those municipalities that meet the required standards, the legal and regulatory environment appears to be favorable to municipality lending.)
- Central government budgetary constraints prevent direct finance of EE projects and the creation of an energy efficiency fund is currently not allowed.

3. Cross Sector Issues

(i) Economic Constraints

- Underdeveloped local EE/RES business infrastructure.
- Absence of ESCOs and ESCO based schemes from the local market. In the meantime we are seeking to define the gaps for finding and implementing appropriate models of ESCOs.

(ii) Institutional Constraints

- Inadequate data and institutional capacity to monitor evaluate and verify the impact of EE programs.
- Lack of impartial and detailed technical information on EE markets and the goods and services they provide.
- Lack of surveys on the quality of EE services and products means that potential customers are not well positioned to make informed decisions.
- Lack of a comprehensive and reliable EE data base for Kosovo. Poor quality of data leads to poor decision making which in turn results in ineffective investments.

- In order to improve this situation described above, a MVP (monitoring verification platform) has been developed with the support of ORF GIZ.

(iii) Legal and Regulatory Constraints

- The Kosovo Energy Efficiency Agency is still under resourced relative to its responsibilities and obligations
- The Draft Law on Energy Efficiency has foreseen the establishment of an adequate financial mechanism (EE fund) in order to promote EE and RES measures. This is a matter of improving the new EE Law.

Specific initiatives to address and alleviate and/or remove these constraints are planned.

Plans for future period

The **Kosovo Energy Efficiency Agency** remaining the focal point for all EE related projects and initiatives. The Agency is now overseeing and coordinating the following projects:

1. “Support on implementing the 3rd Energy Package with focus on Energy Efficiency and Renewables”, funded by EU (€2.5 m) – has started in 2016. The purpose of this project is to support the relevant Kosovo institutions at central and local level in enhancing the legal framework and developing policies and action plans to increase energy efficiency and the use of renewable energy sources. The purpose is to support the process of transposing the acquis on energy efficiency and renewable in the Kosovo legislation, to enhance the planning and implementation process at both central and local levels on increasing the energy efficiency and the share of renewables in final energy consumption, accompanied with awareness raising activities.

Support and strengthening of existing institutions, especially to KEEA is implementing body as important part of the project. Equally important is support in development of the structures at state and local levels (e.g. EE Fund, local info offices).

2. National Building Energy Efficiency Study for Kosovo was carried out in 2012 with the support of the World Bank and is to be followed by implementing a program of EE measures in 100 to 140 central and local government buildings, funded through credit line by WB/EC with total investments of 31 mil \$.

3. “Energy Efficiency measures in Public Buildings at the Municipality level in Kosovo” financed by KfW. Total investment in 4 selected Municipalities (Prishtinë, Ferizaj, Gjilan and Gjakova) is €7.5 Mil., where €2.5 mil. Is credit line KfW, €2.5 mil., donation from German government and €2.5 mil., donation from EC.

4. “Regional Energy Efficiency Programme for the Western Balkans” (REEP plus) financed by EBRD will continue to support Kosovo on transposing of EPBD.

F. Energy efficiency obligations (Article 7)

Energy savings achieved through the national energy efficiency obligation schemes referred to in Article 7(1) or the alternative measures adopted in application of Article 7(9).

Article 7 of EED allows using the energy efficiency obligations schemes, alternative measures or any combination. In this section the elaboration of functioning of the EEO or explanation of categories of alternative measures which lead to corresponding savings.

Energy efficiency obligation scheme and alternative policy measures (Article 7)

To date no obligation has been placed on energy companies regarding the reduction of final end-use energy consumption in Kosovo. In the text which follows, the main focus will be put on calculation of preliminary targets based on the Kosovo energy statistics data and on latest available energy balances for 2014.

Calculation of Targets

Energy efficiency directive adapted for EnC Contracting Parties says that the implementation of Article 7 should generate a cumulative energy savings in end-use sector by 31 December 2020. This target should be equivalent to achieving new savings every year starting from January 1st 2017 of 0,7% annual energy sales to final customers of all energy distributors or retail energy sales companies by volume, averaged over the last three years period prior to 1 January 2016. The sales of energy in transport sector, by volume, may be partially or totally excluded from the calculations.

Paragraph 2 of the EED offers the possibility to take into account the energy savings from the transformation, distribution and transmission sectors, including efficient district heating and cooling infrastructure. Also, the energy savings measures coming from the projects implemented from December 2008 onwards which will continue to have an impact in 2020 can contribute to the achievement of target. However, the maximum relative amount of savings under the paragraph 2 is the 25%.

It is estimated that Kosovo fulfills the criteria outlined in Paragraph 2 and that the following calculation of targets is possible. Instead of fixed 0,7% mentioned in the first paragraph, for Kosovo opt for the 0,5% targets in years 2017 and 2018, and 0,7% targets in years 2019 and 2020.

In Table 3 below the annual targets coming from the Article 7 are shown. The cumulative amount of targeted energy savings by 2020 is 51,2 ktoe, which comes from supposed savings in 2017 and 2018 in the amount of 4,6 ktoe annually and 6,4 ktoe savings annually in 2019 and 2020. It has to be said that the presented numbers are preliminary estimated numbers.

Kosovo	Baseline FEC - transp [ktoe]	913	NATIONAL BALANCES 2010-2012		
Savings per year [ktoe]	0.50%	0.50%	0.70%	0.70%	TOTAL
2017	4.6				4.6
2018	4.6	4.6			9.1
2019	4.6	4.6	6.4		15.5
2020	4.6	4.6	6.4	6.4	21.9
CUMULATIVE [ktoe]					51.2
ANNUAL AV. [ktoe]					5.5

Table 3 - Illustrative example of how cumulative energy savings according to A7 are calculated.

In what follows the simplified calculation is presented which shows an impact of the introduction of energy efficiency obligation schemes on the price of electricity in this case.

Sectors	Final consumption [ktoe]	Final consumption [MWh]	Final consumption [kWh]
TOTAL	1,279	14,871,979	14,871,978,800
Industry	282	3,283,731	3,283,730,500
Households	518	6,024,107	6,024,107,400
Services & Agriculture	146	1,700,190	1,700,189,700
Transport	332	3,863,951	3,863,951,200
Relevant for the target	368	4,280,067	4,280,067,362

Annual savings per A7	Savings [ktoe]	Savings [MWh]	Savings [kWh]	Costs [€]
2017 i 2018 (0.5%)	1.8	21,400	21,400,337	12,840,202
2019 i 2020 (0.7%)	2.6	29,960	29,960,472	17,976,283

El energy	El. energija [ktoe]	El. energija [MWh]	Price [€]
El en. In final cons.	406.0	4,721,780	378,114,510
El. en. All voltage levels	406.0	4,721,780	359,525,658
El. en. HH and rest	300.0	3,489,000	279,394,958
El. en. 10 kV i 35 kV	106.0	1,232,780	80,130,700

Years	2017	2018	2019	2020
Annual investments [€]	12,840,202	12,840,202	17,976,283	17,976,283
Ann. El. price increase [%]	3.6%	0.0%	1.4%	0.0%

Total investments [€]	61,632,970
% kWh price increase	5.0%
Avg. household [30 €]	31.5
Avg. household [60 €]	63.0
VT kupci ???	

conv. factor [ktoe] - [MWh]	11630
En savings price Euro/kWh	0.6
Avg. price MWh 0.4 KV	80.1
Avg. price MWh VN	65.0
Savings 0.5% for 2017 & 2018	0.5%
Savings 0.7% for 2019 & 2020	0.7%
oblig. schemes ratio in A7	40%

Table Above - Simple sheet for calculation of price increase for introduction of obligation schemes.

In table above simplified calculation is conducted for estimation of the electricity price increase as a result of the implementation of the obligation schemes on energy retail sales or distribution companies. It is assumed that the only fuel which will be covered by the obligation schemes is electricity and that the average price of the kWh saved is 0,6 euro. The estimation of the kWh saved costs is based on the data of already implemented energy efficiency projects in Kosovo. The data on electricity consumption in final use is taken from the energy balance of the Republic of Kosovo for 2014 and the price of MWh at the different voltage levels are averaged and for detailed and more precise analysis the rigorous segmentation and analysis should take place. However, preliminary results show a big influence of the schemes on electricity price.

Simple calculation showed that the full implementation of the obligation schemes on retail or distribution companies, translates in a 12% electricity price increase within a four year period. This is partly result of the fact that the electricity prices in Kosovo are low but on the other hand it is hard to expect that the envisaged electricity price increase will be approved. If one assumes that the maximum realistic price increase is up to 5% in a four year period, then the obligation schemes can provide 40% of cumulative expected savings. The rest of 60% will need to be obtained through alternative measures.

Implementation status and plans

At the moment there are no activities regarding the Article 7 implementation in Kosovo. There is a pending IPA project under the Title: "Support on implementing the 3rd Energy Package and EU acquis on Energy Efficiency and Renewables". This project is mainly focused on the transposition of the relevant acquis in the sectors of electricity, energy efficiency and renewables, which includes the preparation of the secondary legislation. However, in addition to the legal definition and formal transposition, Article 7 also carries additional complexities in terms of implementation, management and monitoring of the eventual scheme for obligated parties. Technical assistance on Article 7 is provided to some countries from the region via the REEP program and KEEA will analyze the outcomes and set up the implementation plan for Kosovo. Until now, no choice has been made whether the obligation schemes will be put on the retail sales companies and/or distributors or the equivalent amount of energy savings will be reached by alternative measures or any combination of these two. It is expected to be clear after the full transposition of EED.

REMARKS (EED Art.5, Art.7)

This part was focused on articles, such as:

- *Estimation of primary and final energy consumption by taking into consideration of recalculated individual cap consumption for Kosovo in 2020 (based on Kosovo energy balances and Energy strategy),*
- *Article 7 cumulative savings (based on 2012-2014 energy balances of Kosovo),*
- *Article 5 based on two Studies for the World Bank (see given comments on these studies).*

Used materials are from IPA projects regarding the third energy package implementation, renovation of the DH system in Prishtina and Gjakova, Heating Strategy of Kosovo, materials from KOSTT and KEDS. The newest information is still not updated but we will include them as soon as possible.

You will notice also that we put the preliminary calculation of the electricity price increase in case that Article 7 is implemented via obligation schemes. We were in dilemma to remove or keep this in the text. We preferred to leave it here for orientation and learning purposes for real planning dates.