

# Briefing Paper

## An Alternative Approach for Energy

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### Introduction

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The energy sector, especially electricity production, continues to be one of the sectors that represent a serious problem for Kosovo, Consumers, households, as well as businesses are facing an unsatisfactory and instable provision of electricity, which turns to be a barrier for the economic development of the country. The consequences of the inadequate treatment of this sector are large technical and commercial losses and an increase in demand, Kosovo continues to be the country in the region with the highest dependency concerning electricity imports. In comparison to 2009, Kosovo has continuously increased its electricity imports about 6% and this year a higher percentage of import is expected.

Therefore, the problem of electricity along with the projection of its demand and supply is and will be one of the biggest challenges in Kosovo. From the public discussions associated with this issue until now, the impression is that the only solution to overcome this situation will be through building new-generation capacities which rely on lignite. Based on this arbitrary assumption, the problem is narrowed down in deciding on the size of the capacities: whether the new thermo power plant will be 2100, 1000, or 600 MW, without leaving room for dealing with this issue from a larger perspective.

This principally deductive approach of dealing with the issue from the bottom creates the impression that the other solutions have more of a polemic character. At the end of the day the assumption remains the same: building new-generation capacities is the only solution. Without contesting the urgent need for building new capacities that rely on lignite, we consider that the energy issues should be dealt with differently in order to have a better picture. Along with the idea of building new generation capacities, an inductive approach will be important to identify the steps that should be taken.

Firstly, there should be an approved and credible base for energy needs for the five following segments of consumption: Households, Industry, Transportation, Agriculture, and Service for the next 10 to 20 coming years. In the absence of a general development strategy, Kosovo lacks the projections for the electricity demand as well as alternative sources to meet this demand. In this situation, discussions and decisions for new capacities that rely on lignite are highly arbitrary. Even though the authors recognize the high importance of these projections, this issue will not be discussed in this paper.

Secondly, there should be a proper evaluation in order to identify the immediate actions and measures needed to influence the improvement of the demand and supply relation. The needed steps are:

1. Fusion of the energy systems between Kosovo and Albania
2. Heating system for heating of districts and hot water supply
3. Implementation of efficiency measures
4. Minimization of commercial and technical losses
5. Building new capacities which rely on renewable energy

In the following sections we will address in a detailed manner all the above mentioned steps, which are not in ordered based on their importance, since all of them have the same priority. These steps should be taken and the progress in this direction will facilitate decision-making by the government related with optimal new-generation capacities which rely on lignite extracted from Kosovo.

## 1. Fusion of the Energetic Systems between Kosovo and Albania

There is a general consensus that a creation of a unified energetic system between Kosovo and Albania is beneficial for both countries, and will increase technical stability in the transmission lines within the Balkans. The fusion of energetic systems between Kosovo and Albania should encourage the reconstruction and reformulation of up to date energy policies in these two countries and other countries in the region. The beginning of construction of a transmission line that connects Kosovo with Albania represents a step towards this direction; however this is not yet sufficient. Since the latter one is a precondition for infrastructure which will enable the technological functioning of a new united structure, the expected effects from this unification should be presented through preparing of the strategic documents.

In this context, firstly we should draw energy balances for Kosovo and Albania for the last 10 years, along with respective tables for production, imports, and exports, broken down on monthly bases for the countries in the Balkans. From this data will be able to argue that in winter period instead of importing electricity from the regional countries, Kosovo will be able to export the remaining electricity from Albania. Currently, Albania is exporting this electricity in inappropriate conditions due to the fact that it cannot forecast the demand in the long run. On the other hand, in drought periods, in the absence of water capacities, Albania will be able to import from Kosovo. Currently, Kosovo easily can export its remaining electricity produced by the thermo power plants, which for similar reasons cannot be sold on the market with beneficial conditions.

Secondly, after drawing the energy balances, we should collect the information about losses in supply and price due to the separate functioning of these two systems. This analysis would clarify the level of savings and the improvements in supplying the consumers with electricity if this system would function as single one. Moreover, the effects of the level of increase in stability as a consequence of a single energetic system will be clarified.

## 2. Heating System for District Heating and Hot Water

The project of district heating supplied by the steam emitted from Kosovo B has been estimated, for a long time, to have a high importance for the development of energy sector. For this project, at least within the city of Prishtina, the financial calculations are already conducted. The direct supply of steam from thermo power plant, from the condensation system in the process of transformation in the district heating of our city, represents an extraordinary transformation useful for the steam energy. The provision of hot water will significantly reduce electricity consumption and timber consumption. Consequently, it will reduce the demand for electricity especially during the cold months. According to the reports of the after war years, the dominant sector for electricity consumption is the household sector. In this sector, the electricity is used mainly for heating, hygiene, and cooking purposes.

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*Merging energetic systems between Kosovo and Albania will improve the energy situation in both countries*

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According to Riinvest (2008-2010), from these three activities 80% of the electricity is spent for heating purposes during the cold period, and for heating the water. Therefore, the aforementioned project should be developed and expanded into two plans:

1. In the first plan, the functional one, firstly (i) through building district heaters for heating during the winter and (ii) heating the water for households for the entire year. Whereas,
2. The second plan is a geographic one. The project should be spread all over Kosovo. Certainly, in phases and with a timeframe. From the cost benefit analysis of the other similar projects we understand that the district heating system yields benefits for urban places with large buildings. However, we think that we should invest on district heating systems even in the cities with small buildings and diffused buildings because long term benefits exceed initial costs. Furthermore, these systems use steam energy which if not used will be lost.

District heating with steam from the thermo power plant should be considered as a long term project followed by a detailed evaluation for the two plans of implementation mentioned above. The implementation of this project will influence the electricity savings making it useful for other purposes of consumption.

### 3. Implementation of Efficiency Measures

Reducing electricity consumption in different sectors in Kosovo is a precondition for coming up with appropriate decisions with regard to building new capacities. The decision making process becomes more important when taking into consideration the side effects that these generation capacities have in the aspect of emitting CO<sub>x</sub>, SO<sub>x</sub>, and other environmental pollutants.

Measures for an efficient electricity consumption are undertaken in many world countries, especially in developed countries, where beside improvements on legislation, a special emphases, is given to raising awareness among citizens. In Kosovo also, as a developing country, we should put more effort on the energy efficiency in order to achieve the results which are evidential in the countries that promote these measures.

Since sectors such as agriculture and transportation, largely do not have anything directly to do with electricity that is produced from Kosovo's thermo power plants, the sectors on which we should focused more in order to reduce electricity consumption are household, industry and service sectors. Together they amount up to 55%, 16% and 7% respectively of the overall electricity consumption (Berisha 2010).

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In the following paragraphs, we will elaborate on how the aforementioned sectors we will achieve a significant reduction on electricity consumption. The order for these measures is not done based on their importance.

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*By replacing all the incandescent light bulbs with efficient ones, about €14 million would be saved yearly*

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**a) Efficient Light Bulbs.** If all incandescent light bulbs in the household sector and other sectors will be replaced with the efficient ones, then about 70% of the electricity used for lighting will be saved. According to a study conducted by Riinvest (2009), if only in the household sector, all the incandescent light bulbs will be replaced with the efficient ones, then the total electricity consumption will be decreased by 5.6%. In monetary terms, this can be translated as 14 million Euros of electricity saving from the households per year. If the other sectors will be included, the percentage of saving might be doubled. The initial cost for the energy efficient light bulbs is higher, in comparison with the incandescent ones, but also their lifetime is longer as many times as it is their cost. According to a study conducted by the University of Bochum (2011) an incandescent light bulb has a lifetime of 1000 hours, whereas as an efficient light bulb has a total lifetime of 6000 hours, a fact that justifies the difference in cost, which is six times greater. Therefore, in the long run, benefits significantly outweigh the initial installment cost. The usage of the energy efficient light bulb is crucial even if we look it from the European Integration perspective. The European Union in 2012 has foreseen to ban the usage of incandescent light bulbs. Consequently, Kosovo should consider this important parameter.

**b) Insulation**-Building insulation includes: wall insulation, double glazing, replacement of doors, and ceiling insulation. Proper insulation, certainly without affecting the quality of air inside the building, can reduce about 30% of the electricity consumption; however, this value applies to those buildings that use electricity as a heating source, but not timber, gas and other heating sources. Insulation in Kosovo is essential when taking into account the fact that more than 30% of the total energy consumption in Kosovo is used for heating purposes in the household sector (The Center for Energy and Natural Resources, 2011). This percentage could be higher if other sectors such as private and public sector will be included, who use electricity for heating. According to Riinvest (2010) if all the houses/apartments will be insulated, then around 487 GWh or 24 Million will be saved per year (Riinvest 2010).

**c) Lighting Management** is about installing automatic switchers in households and administrative buildings. Hence, in cases where there is no one present in the room or office of the building, then the lights will switch off automatically. This also contributes in a substantial reduction in electricity consumption for lighting purposes. The installation of sensors in different parts of the world has resulted with substantial reductions in electricity costs.

## 4. Minimization of Commercial and Technical Losses

Commercial and technical losses represent another group of problems with respect to the electricity consumption in Kosovo. According to MEM (2009), transmission lines as well their stations are overcharged/overloaded, especially during winter months. This overload is reflected with frequent electricity blackouts, and with huge technical losses which during 2008 were approximately 17% of the electricity produced and imported (MEM 2009). On the other hand, commercial losses are even higher. The same report indicates that during 2008 commercial losses were approximately 25%. Compared with the last years, these commercial losses have decreased (in 2007, about 30%); however, the total percentage still remains very high. Another report from the European Union shows that the losses occurred as a cause of irregular electricity bill collection in 2008 was about 36 million.

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*In 2008, as a cause of irregular bill collection losses were about €36 million*

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Irregular billing of domestically produced and imported electricity has created many obstacles, not only in the electricity corporation, but also in the society as a whole. The lack of ability to do the proper billing is caused by many factors including: internal organization of KEK and its mismanagement, irregular judiciary system, low citizen awareness, lack of right to exercise authority within the whole territory of Kosovo as well as lack of will among the government and international community to solve this issue. The increase in efficacy in order to eliminate commercial and technical losses, according to some KEK appraisals, will enable us to save about 40% of the electricity produced and imported. One of the technical preconditions to overcome this situation is market liberalization in distribution level as well as installing digital electricity measurers.

## 5. Building New Capacities which rely on Renewable Energy

### Water Potentials

Water is considered to be a very important source from which Kosovo can benefit with regard to electricity generation. According to a report conducted by MEM (2010), studies made in Kosovo in 2006 identified around 18 potential spots for building new small hydropower plants. Their capacity is foreseen to be about 58 MW. According to the same report, in 2009 there has been another study where another 20 potential places were identified all over Kosovo. Their capacity is expected to be lower if compared with the first ones, about 22 MW. Finally, last year there has been another study from the Albanian experts which identifies another 41 potential hydropower plants with a capacity of 50 MW (MEM 2010).

These potential places are spread in the following rivers: Llapi, Klina, Lumi Morava e Binçës, Istogu, Nerodime, Çajlanë, Sitnice, Lumi Rekë e Aliagës, Drini i Bardhe, Drini i Bardhe – Jabllanica, Lepenci pjesa e poshtme, Prizreni, Peja, Llocani. The total capacity of all these small hydropower plants is planned to be 132 MW or less than 1/10 of the Kosovo's actual demand for electricity. As it is planned, the investment cost for all these small hydropower plants is about 163 million euro. Considering the fact that none of them will be more than 5MW, then there is no need for building dams for them; as a consequence, the negative effects that might rise in the sea world will be limited.

Table 1 presents a summary of the collected data for the identified hydropower plants.

Basic parameters	2006	2009	2010	TOTAL
Number of Identified HPP	18	20	41	79
Power, MW	58.6	22.6	50	131.2
Energy, GWh/year	270	110	253	633
Investment, Meuro	64.46	47.18	50.86	132.5
Energy Value( price 55 euro/ MWh), Meuro	15.5	6.5	14.5	36.5
Return on Investment period, years	5.72	7.98	4.82	6.12

(MEM 2011)

Apart from the aforementioned ones, also Zhuri hydropower plant represents a very good opportunity for producing a large amount of electricity from water. This hydropower plant is planned to be the largest one ever built in Kosovo with an installed capacity of 300 MW. However, the construction of this hydropower plant should be preceded with a detailed analysis on cost and benefits which Kosovo's citizens might incur.

### Solar Energy

Solar Energy, as a renewable source, should be considered as an alternative way to produce electricity in Kosovo. Kosovo, with about 287 sunny days per year, has an important potential to use the solar energy for electricity generation. Moreover, the intensity of the sunny rays during these days is considered to be similar with the intensity of the rays in the countries that have installed the solar panels. According to the Energy Regulatory Office (2011), Kosovo can produce from 1100 to 1250 KWh per square meter yearly. Installing solar panels are followed with high initial costs; however, the level of consumption for using this energy makes it an attractive alternative. Furthermore, some important features of solar panels are their long lifetime and minimum maintenance requirements.

## Wind Energy

Wind energy represents a good potential for energy production, and its use is considered as a priority in terms of environmental protection in accordance with European standards. However, studies conducted to date, which are based on data from the hydro-meteorological institute, unfortunately show that Kosovo in a large scale does not have the right speed of wind to produce energy. Moreover, the installation of wind turbines and generators is followed by high cost, consequently, the price of energy produced by wind could not be competitive to the energy generated from other sources (especially coal) (Dragusha, et al.,2009).

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*Decan is identified  
as an appropriate  
town for building 150  
windmills.*

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Despite that, different investors in Kosovo have installed the first manufacturing capacities in this sector. The first investment is made in the Golesh hill, from a German-Albanian joint stock company "Eind-PoEer", which placed three wind generators with a current capacity of 1.35 MW (Kosova PPESS 2010). The same company plans to establish similar generators in Artane, Rahovec, Ferizaj and Gjilan. Also, the Belgian company "Belenergy" is concentrated in Decan as a suitable place to build 150 wind turbines, which are expected to produce energy for the entire region of Dukagjin. This project is at the initial stage whereas its effects are expected to be shown later on. So, although the wind energy does not represent a source on which we can base the overall need for energy, still, it can be used as an important alternative for producing it.

## Geothermal Energy

Geothermal energy, a type of energy that comes out of the ground and that does not emit gases that pollute the environment, belongs to the category of renewable energy. In Kosovo, the geothermal energy started being utilized only during the last few years, and the level of investment in this kind of energy is very low, mainly limited to the private investment. Despite the high initial cost of installing the geothermal system, the long term benefits exceed costs. The return on investment in installing the geothermal system is estimated to be 4 to 5 years, depending on the capacity of the installation. According to a study conducted by the Riinvest Institute (2009), the substitution of electric energy with geothermal one would result in reduction of heating costs by 4 times. If such a substitution would be made in the national level, then a significant proportion of electricity used for heating would be saved.

## Conclusion

### Panel Discussion

#### **Justina Pula (deputy, ex-minister )**

Justina Pula opened her speech by saying that one of the main pillars for a sustainable development is environmental protection and protection of future generation. She said that if we decide to exploit our fossil resources we need to use them with an advanced technology. She continued her speech by saying that Kosovo's future is dependent on renewable energy and energy efficiency. She added, "The sources in which we should rely are water, wind, and solar energy."

There is a law infrastructure on energy but there is a lack of implementation. Moreover, she said that the Ministry of Economic Development should be expanded in order to facilitate the implementation of the enacted laws. Directives 20,20,20 set by the European Union should be met also. And lastly she said that we should work more on fulfilling the requirements set by the Energy Community Treaty.

#### **Ruzhdi Sefa ( UP – Civil Society )**

According to Ruzhdi Sefa, there is a lack of pragmatic coordination between actors in energy sector. He also expressed his views in promoting renewable energy. He then added that it is under the responsibility of government to subsidize renewable energy. He closed his speech by saying that the Ministry of Economic Development and Energy Regulatory Office should put more effort in order to improve the energetic situation in Kosovo.

#### **Visar Kelemendi ( Civil Society )**

He reemphasized the fact that the directives set by the European Union are mandatory, and should be respected if we aim to join the European Union. Independent power producers will help a lot the liberalization of energy market, which is a key precondition for advancing the energy sector. The Government should have a proactive approach in promoting alternative energy that has been mentioned for so long. Again he said that competition which comes as a result of independent power producers is a crucial option for developing the energy sector.

## Open Discussion:

### **Luan Morina (Ministry of Economic Development )**

He said that economic, social, technical, and many other aspects are important for merging energetic systems between Kosovo and Albania.

### **Ardian Berisha (Energy Regulatory Office)**

He said that as a result of incentive schemes, investors which are interested to build capacities of 100 MW have come to ask for authorization in their Office. He also said that, even though renewable energy is good for the environment, it is a burden for the pocket of our consumers.

### **Lulzim Syla (Private Sector)**

The government, through participating partially in investment, should help private sector in order to install solar panels; or it can lower custom taxes for these panels. "If we start using solar panels massively in Kosovo, we can start producing them by ourselves and why not exporting them as well." He also added that those citizens who are regular with electricity payments should be rewarded with 5 energy efficient light bulbs. This is a good way to stimulate our consumers. He continued by saying that we should submit more project proposals to European Commission. Finally, he recommended to Energy Regulatory Office to set tariffs for geothermal energy.

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As a private non-profit organization, the Friedrich-Ebert-Stiftung is committed to the ideas and basic values of social democracy. **Social Democracy** is based on social, human and civil rights and seeks to reinforce them. It broadens and consolidates the basis of political democracy by including social justice, democratization of society, social security, sustainable development and international solidarity. It strives to secure equal opportunities in life and the right to have a say in the affairs of their community for all citizens, both men and women.



The main areas of our work are: **Promoting democracy and supporting civil society** by assisting representatives of political institutions and civil society organizations as well as journalists, academics and trade unions. **Also we help to advance the decentralization process and local democratic governance by supporting the debates on concepts of Good Governance** at the local level and encouraging active participation of all ethnic communities in local government. Moreover, FES supports a **socially just and sustainable economic development** by means of enabling the social dialogue between government, trade unions and employers' organizations. Another aim is to promote **regional and international** integration by reviewing the European integration process with stakeholders. In addition, progressive policy proposals for Kosovo's integration at the regional and the international level are debated with civil society organizations and decision-makers.

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## About the Riinvest Institute

The Institute for Development Research - Riinvest has been operating since 1995 as a non-profit research organization, with a mission to promote modern economic development in Kosovo based on a philosophy of entrepreneurship. Between 1997 and 1999, Riinvest conducted research activities oriented towards the growth of knowledge and information on domestic and international factors influencing Kosovo's economy and their successful reconstruction. Since 2001, our main activities have included research on policies and policy advocacies on expansion of the business environment and construction of conditions towards economic viability.



We are **the first think tank** functioning in Kosovo as a **development research institute**. We promote modern economic development based upon a philosophy of entrepreneurship. We have been producing **economy** related publications and reports, including the most noted authors and professionals, and including topics of high significance. **We have formed strong partnerships with organizations around the world**. We organize seminars, conferences, round tables and meetings of great economic and business value for Kosovo. **Our know-how and experience allows us to be experts** in every single sector of the economy. We have been publishing on our country's history in economy, trade, entrepreneurship and business over the past two decades.

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