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**Republika Kosova - Republic of Kosovo**

**ZYRA E RREGULATORIT PËR ENERGJI**  
**REGULATORNI URED ZA ENERGIJU**  
**ENERGY REGULATORY OFFICE**



# **Statement of Security of Supply for Kosovo** **(Electricity, Natural Gas and Oil) 2015-2016**

Pristine, 2017



## CONTENTS

<b>1</b>	<b>THE ROLE OF MAIN PLAYERS IN THE ENERGY SECTOR</b> .....	7
<b>2</b>	<b>LEGAL BACKGROUND</b> .....	8
2.1	Description of the role of regulatory authority .....	8
<b>3</b>	<b>ELECTRICITY SECTOR IN KOSOVO</b> .....	10
3.1	Supply and demand balance in the electricity sector .....	10
3.1.1	Transmission network .....	10
3.1.2	Distribution network .....	13
3.1.3	Electricity generation .....	14
3.1.4	Gross demand and peak load.....	16
3.1.5	Consumption in the distribution system.....	20
3.2	The balance of electricity production and demand in previous years (2000-2016) .....	21
3.3	The achieved and expected levels of system operation security .....	22
	Investments in the transmission system .....	23
	Investments in the distribution system.....	23
3.3.1	Expected investments in new transmission capacities.....	23
3.3.2	System quality and maintenance level .....	24
3.3.3	Measures to cover peak demand and to deal with shortfalls of one or more suppliers.....	25
3.4	ACTIVITIES RELATED TO THE CONSTRUCTION OF NEW GENERATING CAPACITY .....	26
3.4.1	Renewable Energy Sources .....	26
3.4.2	Incentives to build RES capacities .....	27
3.5	FORECAST OF DEMAND AND GENERATION .....	28
3.5.1	Forecast of demand for different economic growth scenarios .....	28
3.5.2	Electricity generation forecast for the period 2017-2026 .....	30
3.5.3	The balance of production and consumption for 2017 - 2026 .....	33
<b>4</b>	<b>NATURAL GAS SECTOR</b> .....	34
4.1	General description .....	34
4.2	Legal and Institutional framework .....	34
4.3	Currently available production and import capacity.....	34
4.4	Forthcoming production and import investment for the next three years .....	34
4.5	Progress in major infrastructure projects.....	34



<b>5</b>	<b>OIL SECTOR</b> .....	36
5.1	Legal and Institutional Framework .....	36
5.2	Domestic supply of crude oil and petroleum products.....	36
5.3	Import and consumption of crude oil and petroleum products.....	36
5.4	Imports dependency and origin of imported fuels.....	37
5.5	Stockholding of crude oil and petroleum products.....	38
5.6	Oil infrastructure.....	39
5.7	Import/Export Customs duty.....	39
5.8	Price Regulation, role of the regulatory authority .....	39
<b>6</b>	<b>CONCLUSIONS</b> .....	40



## Abbreviations

CEFTA	Central European Free Trade Agreement
DSO	Distribution System Operator
ECS	Energy Community Secretariat
ECSEE	Energy Community of South East Europe
ERO	Energy Regulatory Office
EU	European Union
GDP	Gross Domestic Product
HPP	Hydro power plant
ICMM	Independent Commission of Mines and Minerals
ITC	Inter TSO Compensation
KCC	Kosovo Competition Commission
KEDS	Kosovo Energy Distribution Company
KESICO	Kosovo Energy Supply Company
KEK JSC	Kosovo Energy Corporation (Korporata Energjetike e Kosovës)
KOSTT JSC	Kosovo Transmission and Market System Operator
LPG	Liquefied petroleum gas
MED	Ministry of Economic Development
MTI	Ministry of Trade and Industry
PPA	Power Purchase Agreement
SoSSoK	Security of Supply Statement of Kosovo
TPP	Thermal Power Plant
TSO	Transmission System Operator



## EXECUTIVE SUMMARY

About 95% of power generation installed capacities in Kosovo is based on two lignite fired power plants of KEK: Kosovo A (5 units) and Kosovo B (2 units). Total installed capacity of both plants is 1,478 MW, which could have been sufficient to fulfill current Kosovo's demand for electricity if they were totally available. But, due to age and non-operation of two units of TPP Kosova A, net operational generation capacity of these two plants has been significantly reduced.

The current situation of electricity supply in Kosovo is not satisfactory, in different time periods there is lack of electricity imposing interruption of electricity for customers. Illegal use of electricity and use of electricity for heating, as well as the limited availability of power generation capacities doesn't guarantee stable and sufficient electricity supply to all consumers.

Efficient functioning of the electricity sector and the need for investment particularly in electricity generation requires restructuring of the sector, market liberalization and growth of competition in the electricity market. In order to attain these objectives a number of measures are undertaken: amendments of the energy laws, harmonization of secondary legislation and approval of different documents including "Guidelines for liberalization of the market in Kosovo". These documents and the increased activities for their implementation will determine necessary measures to accommodate commercial arrangements in order to attract necessary domestic and foreign investments to develop the electricity sector in Kosovo.

Electricity consumption during 2017 - 2026 will be met by domestic production and also by imports in different time periods especially in peak hours.

In order to meet the growing demand in the country and potentially to export electricity surpluses, investments in the following projects are planned:

- Construction of a new unit in TPP "Kosova e Re" with installed capacity of about 450 MW, expected to be operational in 2023;
- Construction of HPP Flexible with capacity 200 MW in 2023. This project is considered very important for balancing and optimizing the work of the Power System;
- Construction of small power generation units (mainly from RES) by private investors with planned capacities: about 205 MW - small HPP, 150 MW – Wind turbines, 14 MW – biomass fired plants and 10 MW – solar (photovoltaic);

Kosova e Re project has changed in capacity from 2x300 MW to 1x450 MW. TPP Kosova e Re in line with TPP Kosova B will represent the main component of domestic electricity production on lignite ensuring the base energy for the system. ERO has been a participant in the steering committee and in the working group of the project.

Concerning fuel oil sector and its derivatives, we can emphasize that almost all consumption of oil products is covered by imports, since Kosovo has no domestic oil sources nor oil pipelines or domestic production, oil products are imported mainly by trucks and to lesser extent by rail.

Current oil legislation obliges all petroleum product storages and sale points to possess at least 5% of the storage capacity for state emergency purpose.

Kosova does not produce natural gas and actually is not connected to any functional network of natural gas supply. Supply and consumption of natural gas in Kosovo is restricted in LPG (Liquefied petroleum gas) that is bottled.



Kosova considers as an possible option introducing the natural gas connection with regional gas pipeline specially through ALKOGAP project, which enables connection in TAP gas pipeline.



## 1 THE ROLE OF MAIN PLAYERS IN THE ENERGY SECTOR

**The Energy Regulatory Office (ERO)** is an independent agency established by the Assembly of the Republic of Kosovo in accordance with Articles 119.5 and 142 of the Constitution of the Republic of Kosovo, responsible for economic regulation of energy sector.

Duties and functions of ERO are set forth in the Law No. 05/L-084 on the Energy Regulator, among which are the following: creating and operating an efficient, transparent and non-discriminatory energy market; determining criteria and conditions for issuing licenses for the conduct of energy activities; determining criteria and requirements for granting authorizations for the construction of new generating capacity; monitoring and enhancing security of electricity supply; setting reasonable criteria and conditions for energy activities pursuant to tariff methodology:

**Ministry of Economic Development (MED);** is among others, responsible for energy sector strategy and policy (preparation and implementation), development of secondary legislation, renewable energy sources and rational use of energy, coordination of donors and attraction of investments;

**Independent Commission for Mines and Minerals (ICMM);** established pursuant to Regulation No. 2005/2 of January 21 2005 (as amended by Regulation No. 2005/38 of 29 July 2005 and Law 03/L-081 of 13 June 2008) is an independent agency pursuant to the Articles 119, paragraph 5, and 142 of the Constitution of the Republic of Kosovo. ICMM regulates mining activities in Kosovo in accordance with the present law, the sub-normative acts issued pursuant to the Law on Mines and Minerals, and the Mining Strategy.

**Kosovo Competition Commission (KCC);** was established by the Assembly of Kosovo based on the Competition Law no. 2004/36. Kosovo Competition Commission is an independent body and has responsibility for promoting competition among undertakers and protection of consumers in Kosovo.

**Kosovo Energy Corporation J.S.C (KEK);** Is an electricity utility of Kosovo that includes coal mining and power generation that includes about 95% of electricity produced in the country.

**Kosovo's Company for Electricity Distribution (KEDS);** KEDS is a private company of the Consortium Limak-Çalik that performs activities of electricity distribution, maintenance of medium and low voltage network, including metering devices.

**"Kosovo Electricity Supply Company" (KES/CO) J.S.C;** *Is a company which in 2014 was created as a result of legal unbundling between distribution operator and supplier entered into force on 01.01.2015. This company is responsible for supply including universal services supplier obligation activity.*

**Transmission System Operator (TSO) and Market Operator (MO); KOSTT** is established on 1 July 2006, as a result of the restructuring of the energy sector and is responsible for planning, development, maintenance and operation of the electricity transmission system in Kosovo; ensuring an open and non-discriminatory access for third parties; functioning of the new electricity market; providing conditions that encourage competition in Kosovo; cooperating with neighboring Transmission System Operators (TSO) for the benefit of Kosovo and the region. KOSTT operates as the Transmission System Operator (TSO) and Market Operator (MO).



## 2 LEGAL BACKGROUND

This updated Security of Supply Statement of Kosovo (SoSSoK) follows the structure proposed by the ECS in its communication of 09.10.2006 and updated on 17.10.2012, which limits the scope to electricity and gas sectors only, as per the relevant directives 2009/72 EC (for electricity) and 2009/73 (for natural gas). This statement is also based on national legislation, specifically on the Law on Energy Regulator.

The Energy Community Treaty in its article 29 calls for statements on monitoring of security of supply one year after the entry into force of the Treaty. In particular the statement should cover: a) diversity of supply, b) technological security and c) geographical origin of the imported fuels.

Furthermore directives require that statements on monitoring of Security of Supply in the electricity and gas markets, in particular cover:

- a) Supply/demand balance on the national market,
- b) Level of expected future demand and available supplies,
- c) Envisaged additional capacity being planned/constructed,
- d) Quality and level of maintenance of the networks,
- e) Measures to cover peak demand, and
- f) Measures to deal with shortfalls of one or more suppliers.

According to the above-mentioned directives, *“Member States shall ensure the monitoring of security of supply issues. Where Member States consider it appropriate they may delegate this task to the regulatory authorities.”*

Based on article 42 of the Law on Energy Regulator, ERO is responsible for monitoring and taking the actions specified in this law to promote and enhance the short-term and long-term security of supply of energy. ERO prepares and publishes every two (2) years a report outlining the findings resulting from the monitoring of security of supply issues, as well as details of any measures taken or envisaged to be taken to address them.

The European Commission has indicated that the obligations under the Energy Community Treaty should not go beyond the EU *acquis*. Therefore it will be sufficient to comply with the Security of Supply requirements under the energy *acquis*.

### 2.1 Description of the role of regulatory authority

Law 05/L-084 on Energy Regulator established a strong, fully-independent Regulator (Energy Regulatory Office - ERO), completely autonomous from any Governmental Department to exercise economic regulation in the energy sector (Electricity, District Heating and Natural Gas) and defined its executive powers, duties and functions, primarily amongst which are:

- Issuing, amending, suspending, transferring and terminating licenses to carry out energy activities;
- Supervision, monitoring and ensuring compliance with licenses;
- Monitoring functioning of energy markets in Kosovo, including access conditions for parties;





- granting authorizations for construction of new generation capacities and gas pipeline systems, including direct electricity lines and direct pipelines;
- development and issuing tariff methodologies, and determining and approving tariffs for regulated services;
- to prescribe general conditions of energy supply;
- monitoring and taking actions, as stipulated by the law, to promote and enhance security of energy supply;
- monitoring the effective unbundling and development of competition in the energy sector; and
- review and approve customer protection measures and resolving disputes in energy sector.

The establishment of ERO falls within the wider framework of energy policy harmonization in South Eastern Europe, where Kosovo is the 'Contracting party' of the Energy Community of South East Europe (ECSEE).

### 3 ELECTRICITY SECTOR IN KOSOVO

#### 3.1 Supply and demand balance in the electricity sector

Kosovo has the prerequisites for production of electricity, not only to meet its own needs, but also to export it. Kosovo's power system is designed to produce lignite-based basic energy. As for this, it is a great challenge balancing the system for all sector participants. In order to balance the system it is needed to monitor changes in consumption on a daily and seasonal basis, and to try meeting the demand through domestic generation and imports. In particular cases when domestic generation and import quantities aren't sufficient for covering the demand, in order to keep the system balanced, the load shedding is applied.

In spite of increase of production in recent years, the domestic production is not sufficient to meet the growing consumption; therefore, a part of consumption of electricity in Kosovo is covered by imports during different time periods especially in the peak hours. However, in specific periods, mostly at nights – during the low tariffs of electricity, there is excess of electricity which is exported.

##### 3.1.1 Transmission network

Electricity transmission is of particular importance for security of supply and for the operation of entire power system. Kosovo's Transmission network represents the important regional node which is interconnected with European power system.

There are interconnection lines with neighboring countries as follows:

- Albania, Macedonia, Montenegro and Serbia - line 400 kV,
- Albania and Serbia - line 220 kV and
- Serbia - two lines 110 kV

Interconnection line 400 kV SS Kosova B - SS Kashar (Tirana) was finalized in 2016 included issuing successfully for testing, but for political reasons has not yet been made entirely operational.

Non-operation of this interconnection line has a major impact on the transmission capacity of the system by reducing the possibility of exporting or importing electricity to Albania. It also affects on reducing the possibility of cooperation between the parties in providing ancillary services (the LFC agreement between relevant stakeholders of Kosovo and Albania).

Failure to put in operation of this interconnection line also has a significant impact on the financial aspect of the two countries; particularly non realization of planed revenues has negative impact on return of the investments.

During the years 2000 - 2016, investments have been carried out to enhance and improve the transmission network capacities. These investments has increased security of supply and transmission losses have been reduced significantly – in 2016 transmission losses were 1.46% of the electricity entering the transmission system or 2.25% of the gross consumption.

Due to investments in infrastructure the transmission network is in good condition, which is shown in the tables below where are presented transforming capacities and the length of transmission network lines as per voltage levels.

Table 3.1 Basic data for transmission lines

Voltage (kV)	Owner	Length (km)
400	KOSTT	279.5
220	KOSTT	231.8
110	KOSTT	841.8
Total		1,353.1

Table 3.2 Basic data for transmission substations

Transformation (kV/kV)	Owner	No. of SS	No. of TR	Power (MVA)
400/220	KOSTT	1	3	1,200
400/110	KOSTT	2	2	1,200
220/110	KOSTT	3	9	1,350
220/35	Feronikel	1	2	320
220/35/10(20)	KOSTT	1	1	40
220/10(20)	KOSTT	1	1	40
110/35/10(20)	KOSTT	5	6	238
110/35/6.3	Trepça	1	2	126
110/6.3	Trepça	1	2	63
110/35	Ujmani	1	1	20
110/6.3	Sharri	1	2	40
110/10(20)	KOSTT	14	22	790
110/35	KOSTT	12	19	681
110/10	KOSTT	6	8	252
Total		50	80	6,359

### 3.1.1.1 Electricity flows

Kosovo is in a favorable position as a regional node, therefore there is considerable electricity flows through its transmission network. These flows are represented on the figure below 3.1 for every inter-connected line of Kosovo. Similarly to the recent years, the electricity supply situation in the region is generally characterized with lack of sufficient electricity supply; therefore electricity flows from north to south.

Kosovo is a country with a high transit of electricity, at a ratio of up to 35% of transit to consumption (the transit key). This strengthens the position of the transmission system, but also increases transmission losses and leads to network congestion. To manage the regional transit, a mechanism for calculating the transit compensation between TSOs (ITC mechanism) has been established. From 1 January, 2016, KOSTT participates in ITC mechanism for calculation of compensation for transit costs and obligations for imports and exports.

Also related to the operation of the transmission network, the KOSTT inability for the allocation of transmission capacity should be mentioned due to non-recognition of KOSTT as area/block regulator.

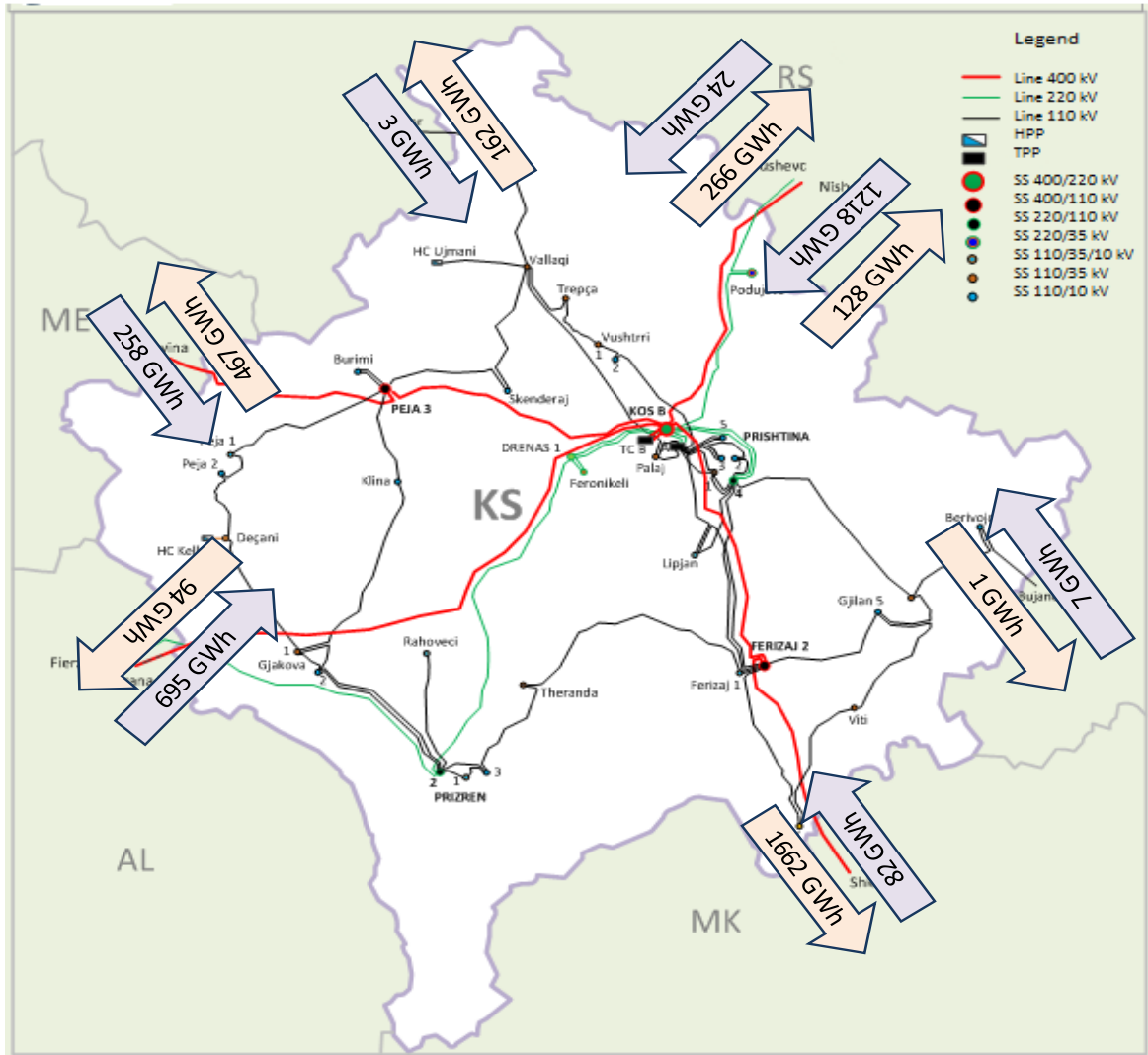


Figure 3.1 Flow of electricity through connection lines

### 3.1.1.2 Electricity transmission losses

In recent years can be noted certain stabilization of the curve of electricity losses in transmission. During the year 2016, losses were 120 GWh, or in percentage terms 2.25 % of the overall consumption, while in 2015 these losses were 110 GWh or 1.98 % of gross consumption in Kosovo. Transmission losses also include losses caused by transit. Losses as a percentage of the total energy introduced into the transmission network in 2016 are 1.46%.

The figure below shows the in transmission losses curve during recent years.

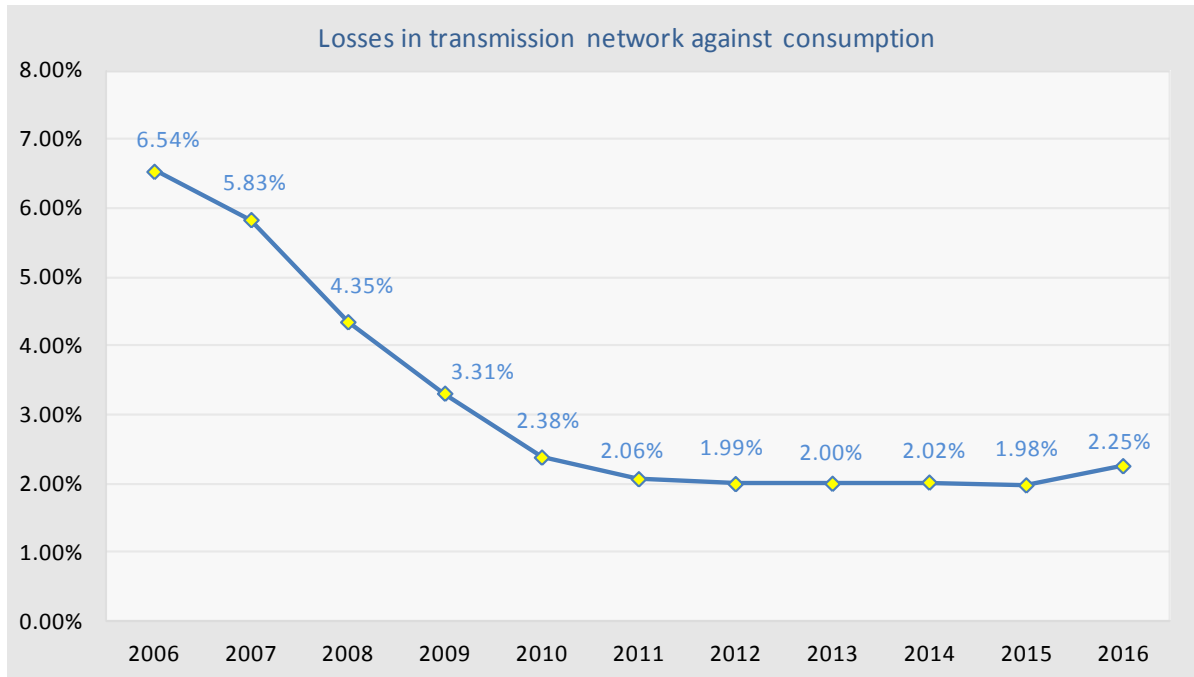


Figure 3.2 Transmission losses 2006-2016

### 3.1.2 Distribution network

In recent years there were investments in Distribution Network, which were however insufficient as to ensure quality and reliable supply of electricity to customers.

The distribution network includes lines of voltage levels of 35 kV, 20 kV, 10 kV, 6 kV and 0.4 kV, and relevant substations of 35/xx kV/kV level and lower.

There were continuous investments intended to reinforce and expand transformation capacities and lines of the distribution system as a result of consumption increase year by year. Basic data of substations and lines by voltage level and length in the distribution system are given in the table below.

Table 3.3 the number of substations by voltage level in DSO

Transformimi (kV/kV)	Owner	No. of SS	No. of TR	Power (MVA)
35/10	KEDS	44	94	660
35/10kV	Privat	8	12	62
35/6kV	Privat	5	8	43
35/0.4kv	Privat	14	20	16
10(20)/0.4	KEDS	2,287	2,380	1,242
10(20)/0.4	Privat	1,803	1,813	835
10/0.4	Privat	1,247	1,253	606
10/0.4	KEDS	2,865	2,865	868
6(3)/0.4	KEDS	65	65	9
Total		8,338	8,510	4,340

Table 3.4 Basic data of DSO lines

Voltage (kV)	Owner	Air network (km)	Cable network (km)	Total (km)
35 kV	KEDS	482	18	500
10(20) kV	KEDS	1,388	301	1,690
10 kV	KEDS	4,165	904	5,070
6 kV	KEDS	42	8	50
3 kV	KEDS	4	1	5
0.4 kV	KEDS	16,870	2,277	19,147
Total		22,952	3,510	26,462

### 3.1.2.1 Distribution losses

Overall distribution losses are very high. These losses are divided into technical losses which occur in the network components, and commercial losses which occur as a result of unauthorized use of electricity.

The figure below shows the trend of variations of technical and commercial losses, as well as overall losses in distribution network during the years 2006 – 2016.

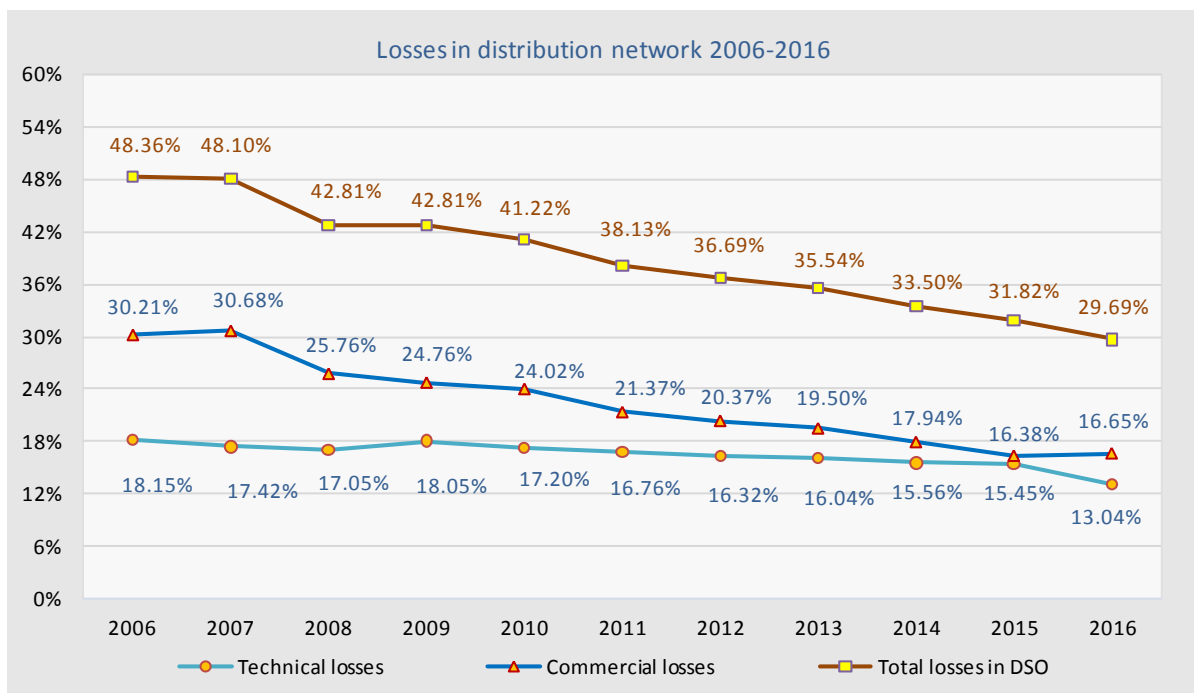


Figure 3.3 Distribution losses 2006-2016

### 3.1.3 Electricity generation

The electricity generation capacities of Kosovo are mainly dominated by the lignite fired thermal power plants of Kosovo A and Kosovo B. These two power plants together have a total installed power capacity of 1,478 MW. Due to lifetime and non operation of two units of TPP Kosova A, the available capacity of the units is much below the installed capacity. Altogether the total average available power capacity of the thermal units only amounts to approximately 960MW.

Currently the thermal power generation of Kosovo represents about 95% of the total power generation of the country. Beside the generation form thermal power plants, there is also an installed hydro-power capacity of 35 MW provided by the hydro power plant (HPP) Ujmani, the capacity of 26 MW by HPP's in the cascade of river Lumbardhi and by several other small HPP's connected to distribution system with overall installed capacity of 18.12 MW.

Table 3.5 Capacity of electricity generation

Generator units	Units capacity (MW)			Entry into operation
	Installed	Net	Min/max	
A1	65	ot operative		1962
A2	125	ot operative		1964
A3	200	144	100-130	1970
A4	200	144	100-130	1971
A5	210	144	100-135	1975
TPP Kosova A	800	432		
B1	339	264	180-260	1983
B2	339	264	180-260	1984
TPP Kosova B	678	528		
HC Ujmani	35.00	32.00		1983
HC Lumbardhi	8.08	8.00		(1957) 2006
HC Dikanci	4.02	3.34		(1957) 2013
HC Radavci	1.00	0.90		(1934) 2010
HC Burimi	0.95	0.85		(1948) 2011
Total HC	49.05	45.09		
EGU Belaja	8.08	7.50		2015
EGU Decani	9.81	9.50		2015
HC Hydroline-Albaniku III	5.00	4.22		2015/2016
HC Brod II	5.20	5.00		2015
Wind Power	1.35	1.35		2010
LedLight	0.10	0.10		2015
Solar photovoltaic plant ONIX	0.50	0.50		2016
Total RES	30.04	28.17		
Total	1,557.09	1,033.27		

Kosovo A Power Plant has five units, which were constructed during the 1960s and the 1970s. Actually only units A3, A4 and A5 are in operation. Units A1 and A2 have been out of operation for several years. The availability of the Kosovo A units ranges between 50-60%.

The Kosovo B Power Plant is consists of two lignite fuelled units of 2x339MW installed capacity. Different projects for rehabilitation of these units have been carried out between 2000 and 2002, as well as other rehabilitation projects. The aim of specified rehabilitation project was the upgrade of TPP Kosovo B in order to improve the availability and the control characteristics. TPP Kosovo B power plant today operates with low efficiency, with actual capacity 310 MW per unit (about 265MW output). The units of Kosovo B power plant will soon reach the end of their lifetime, therefore, significant investments and rehabilitation measures planned to be undertaken



in 2023/2024 will bring these two units at the level of standards required for operation, and thus reaches the level of environmental standards required and will extend their lifetime beyond 2039.

Due to better maintenance of generation capacities, significant investments in repairs of generating units, and sufficient coal production, electricity production has been increased year by year.

The chart below shows the total generation within Kosova for the years 2004-2016 where a continuous increase is noted until 2016.

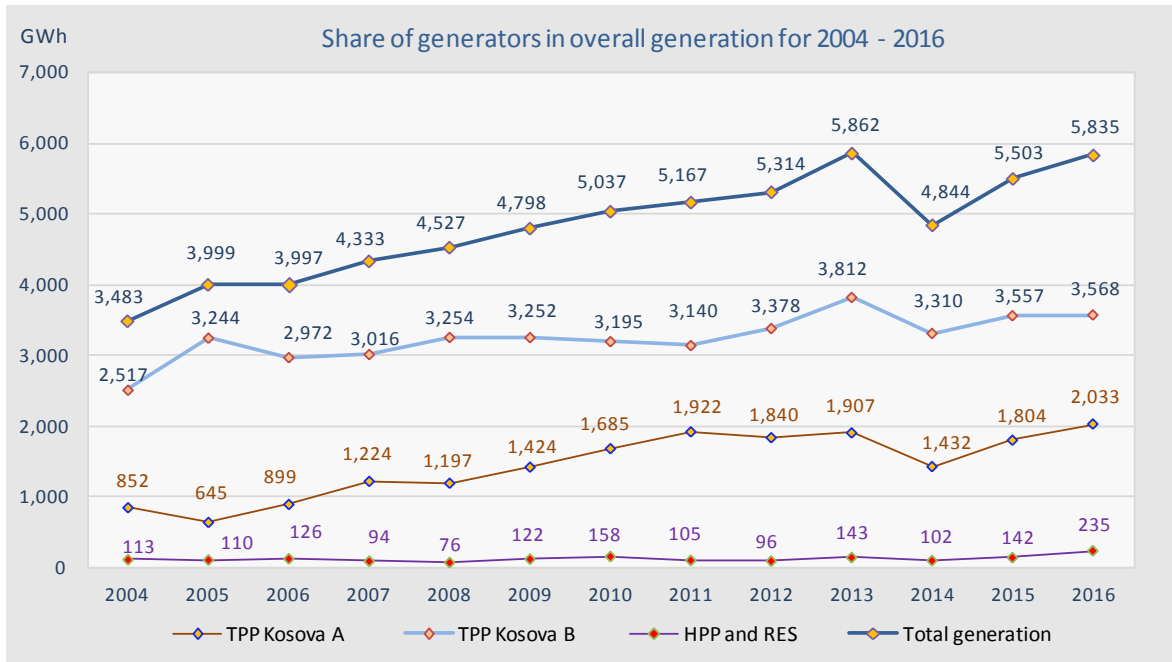


Figure 3.4 Total generations 2004-2016

### 3.1.4 Gross demand and peak load

During the years 2000 - 2010 the consumption was continuously increased; from 2010 it was noted the stabilization of consumption, while during three last years the slight decrease of consumption is noted.

In the chart below is presented the consumption during the period 2000 – 2016.



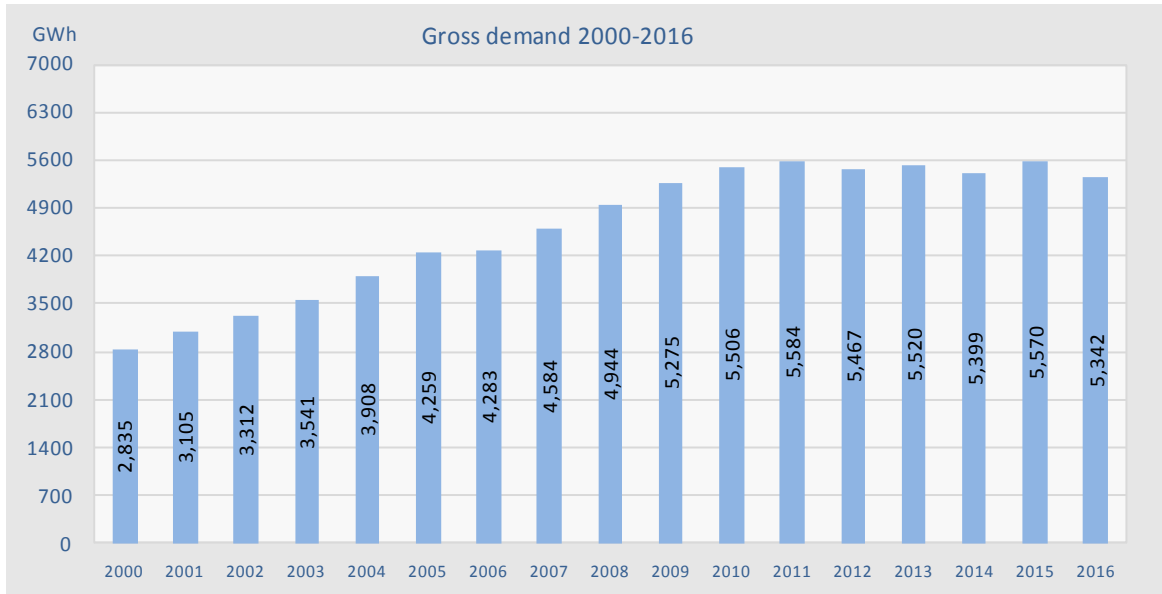


Figure 3.5 Total demands 2000-2016

Total net energy demand in 2015 was 5,570 GWh with the winter peak 1,129 MW, and in 2016 was 5,342 GWh with the winter peak demand reaching 1,160 MW.

To evaluate the load of the transmission network, an analysis of electricity flows through the network and the maximum values of consumption are required. To carry out these tests, five (5) peak values (maximum loads) occurring in 2015 and 2016 are used.

The following tables show five peak values for 2015 and 2016 respectively.

Tab. 3.6 Five peak values in 2015

Maximum load (MW)	Hour	Date
1,129	20	31.12.2015
1,083	19	01.01.2015
1,081	20	30.12.2015
1,076	18	02.01.2015
1,060	20	07.01.2015

Table 3.7 Five peak values in 2016

Maximum load (MW)	Hour	Date
1,160	18	31.12.2016
1,121	20	04.01.2016
1,100	23	30.12.2016
1,092	18	28.12.2016
1,086	18	23.12.2016

Daily diagrams extracted as an hourly average for the whole year 2015 and 2016 shows that daily production was with little variations, while consumption has changed at day - night intervals. Load shedding has also partially an impact in the form of daily diagrams. The difference between consumption in daytimes and nighttimes is quite high.

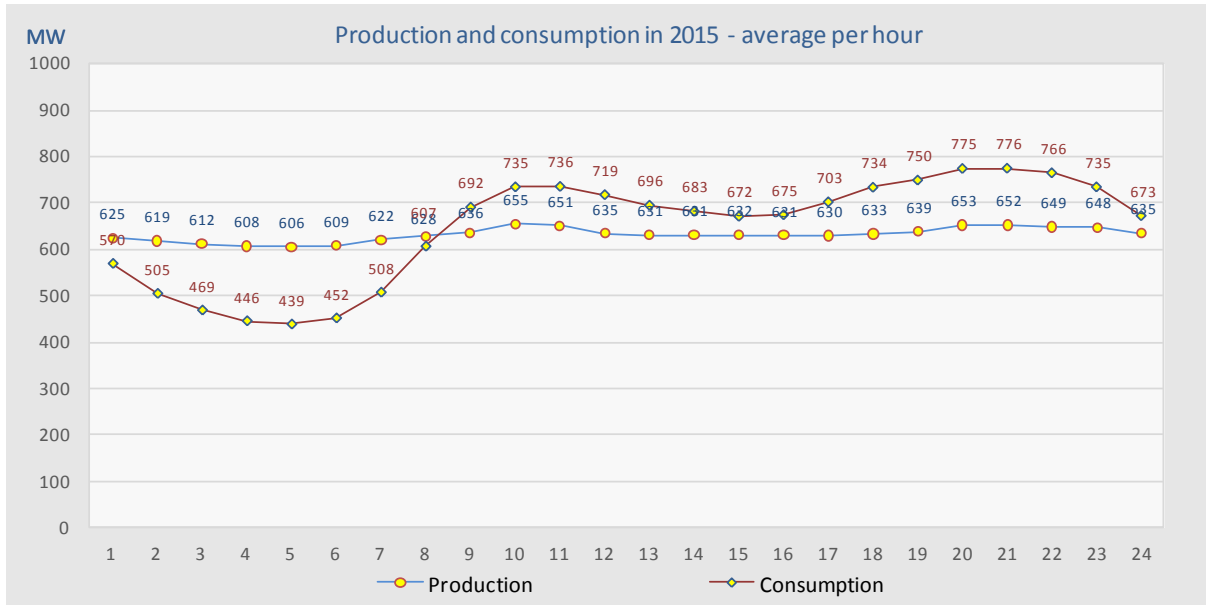


Fig. 3.6 Daily chart representing the yearly average per 24 hours in 2015

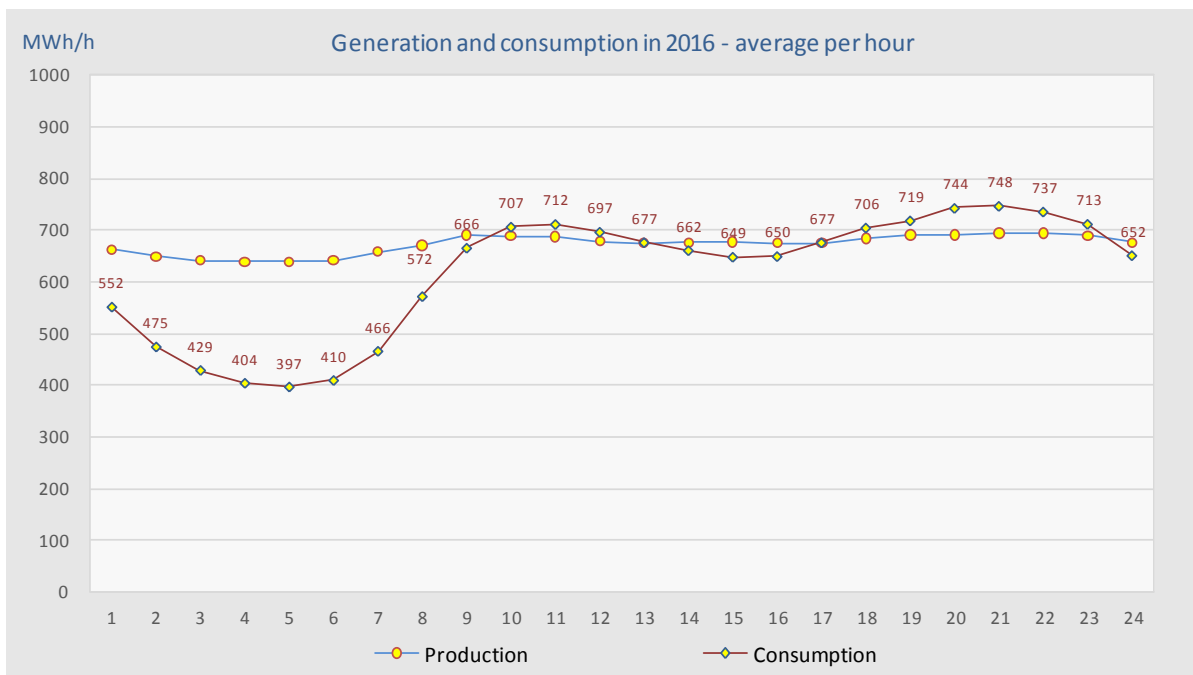


Figure 3.7 Daily diagram presented in average hourly values for 24 hours for 2016

The charts below shows the difference between the maximum and minimum average values of daily consumption by months, for the year 2015 and 2016.

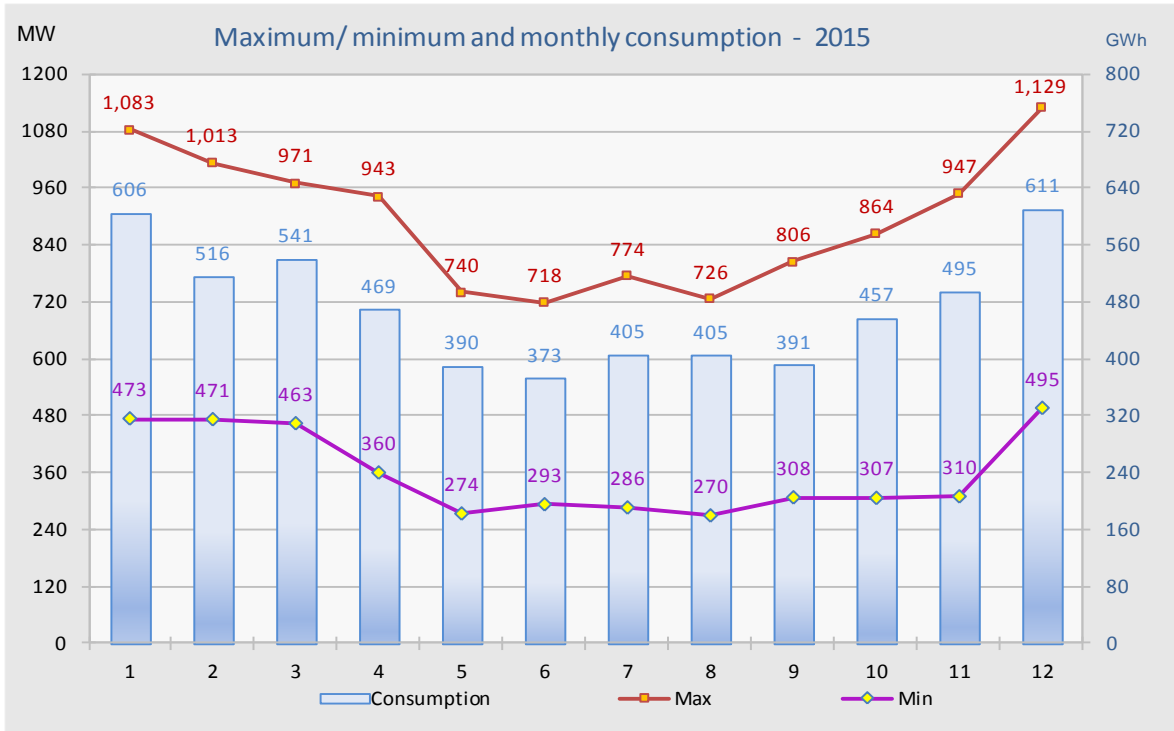


Fig. 3.8 Monthly average of daily maximum and minimum loads in 2015

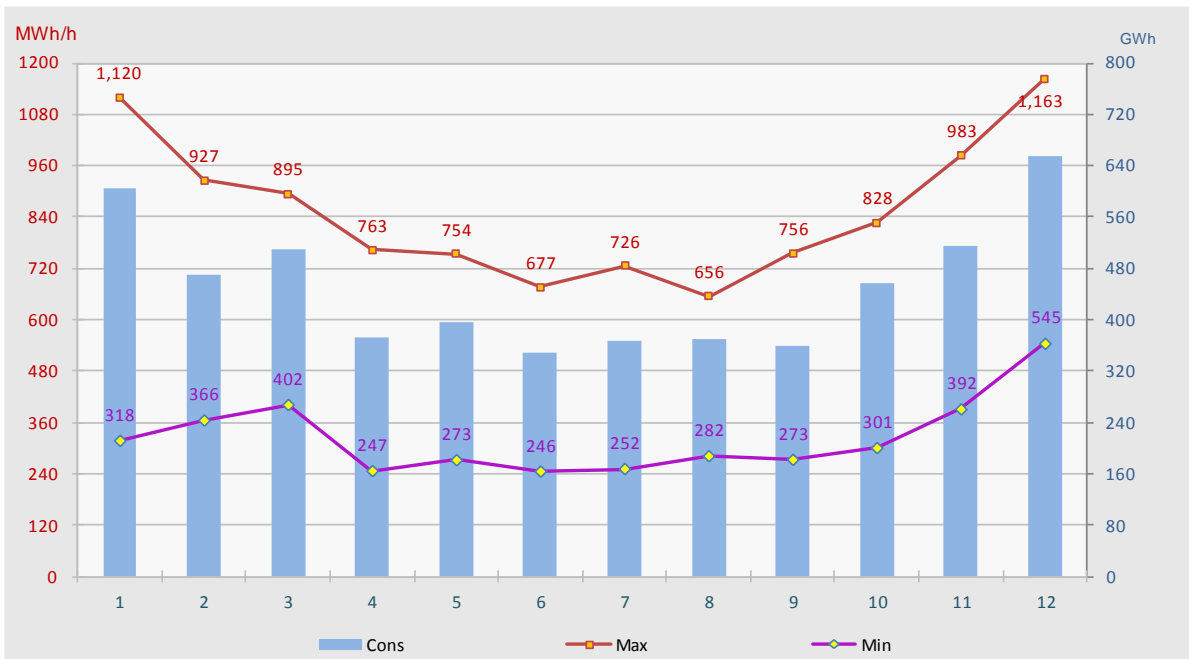


Figure 3.9 Monthly averages of maximal and minimal loads for 2016

Consumption of electricity by customer category for 2015 and 2016 is given in Table 3.8. It should be emphasized that the following customers: Ferronikeli, Trepça and Sharrcemi are connected to the transmission network.

Table 3.8 Consumption by categories and losses

Customer category	2015 GWh	Share in consumption (2015)	2016 GWh	Share in consumption (2016)
Household consumption	2,114	37.95%	2,214	41.44%
Commercial consumption	812	14.57%	856	16.02%
Industrial consumption	935	16.78%	616	11.53%
Commercial losses	766	13.75%	800	14.98%
Technical losses	722	12.97%	627	11.74%
Transmission losses	110	1.98%	120	2.25%
KEK internal consumption	112	2.01%	109	2.04%
<b>Total</b>	<b>5,570</b>	<b>100.00%</b>	<b>5,342</b>	<b>100.00%</b>

### 3.1.5 Consumption in the distribution system

For the period 2000-2016 consumption in distribution system is mainly characterized by growth, except in year 2016. Total demand in distribution during the period 2000-2016, can be seen from the chart below.

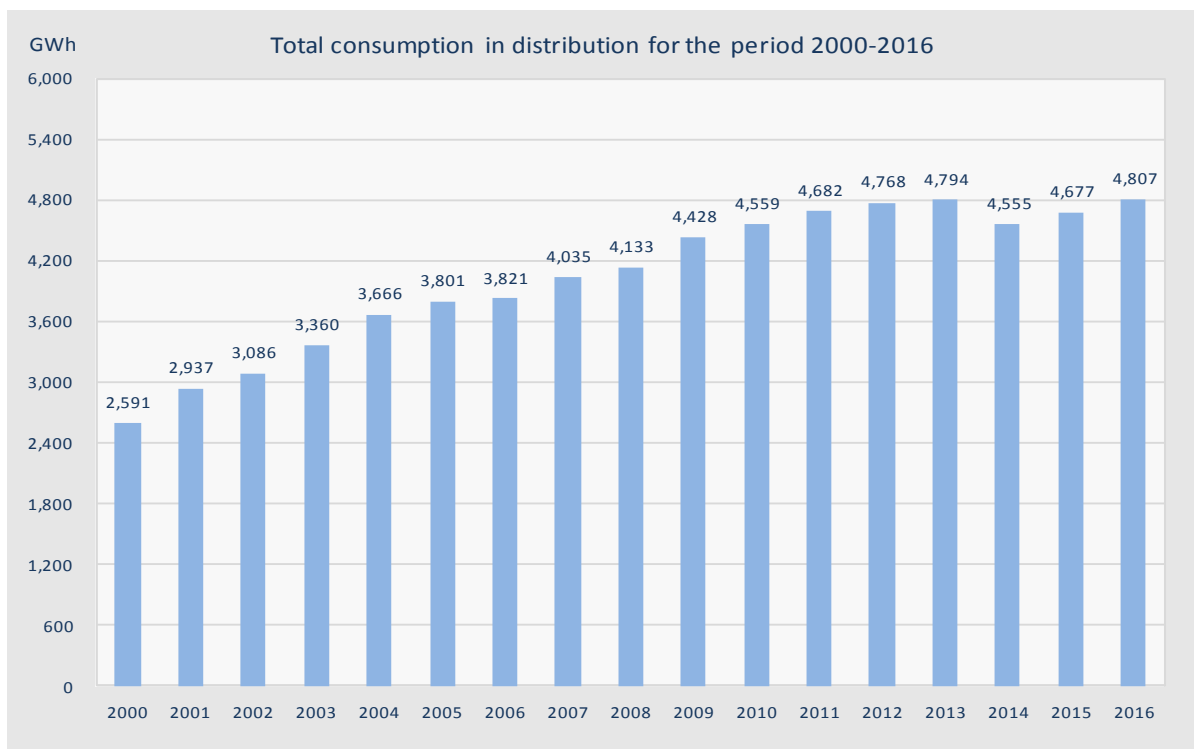


Figure 3.10 Total consumption in Distribution System for 2000-2016

Although it is noted certain decrease of electricity load-shedding, still the load-shedding was present during 2015 and 2016.

It is important to analyze and present the share of electricity consumption by customer categories in total consumption, in order to may identify consumption patterns. Figure 3.10 and 3.11 shows the share of customer groups in total consumption in distribution (presented with and without distribution losses).

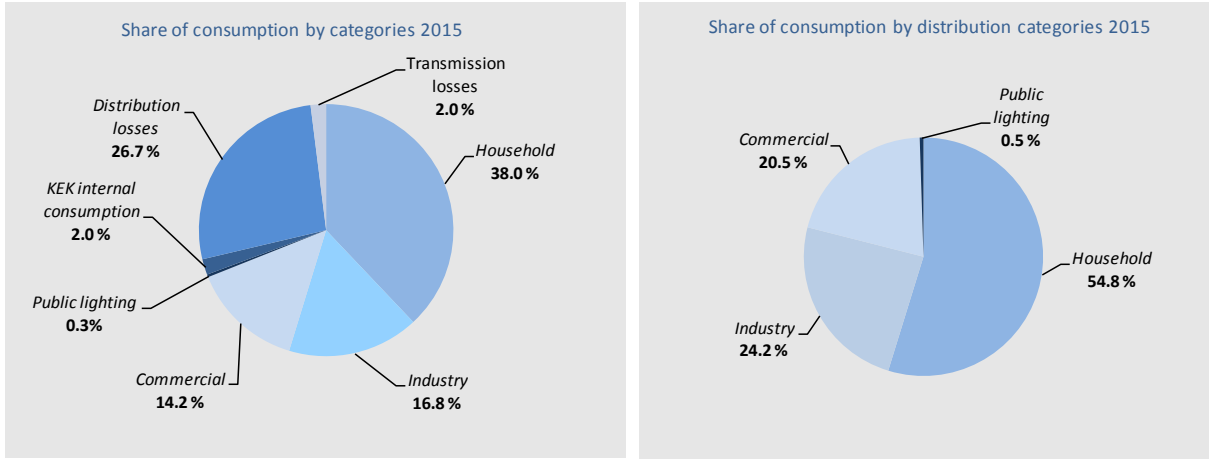


Figure 3.10 Share of consumption categories in distribution, 2015

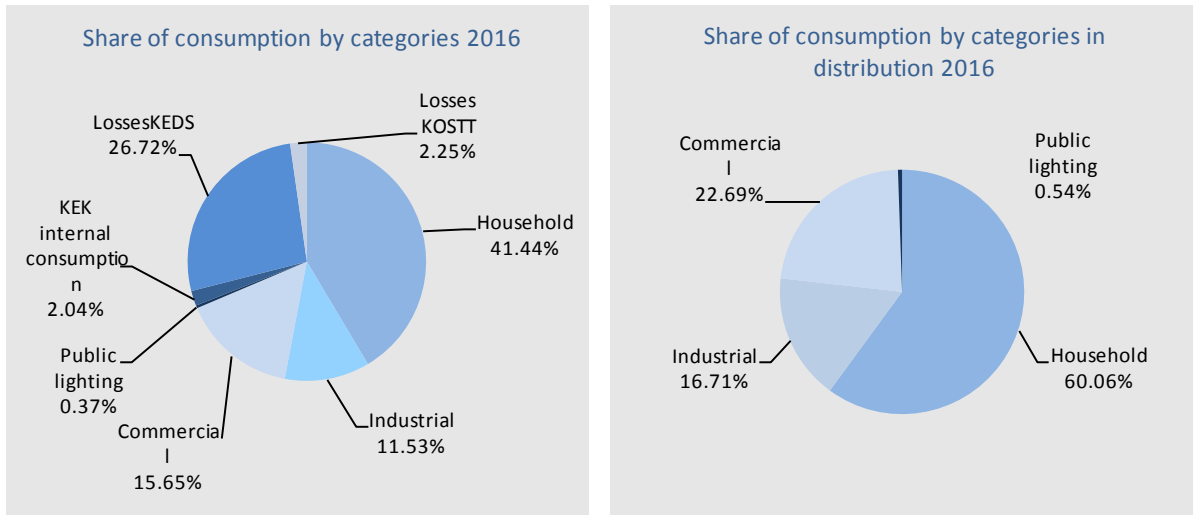


Figure 3.11 Share of consumption categories in distribution, 2016

### 3.2 The balance of electricity production and demand in previous years (2000-2016)

The balance of electricity production and demand in the period 2000-2016 is presented in Figure 3.12:

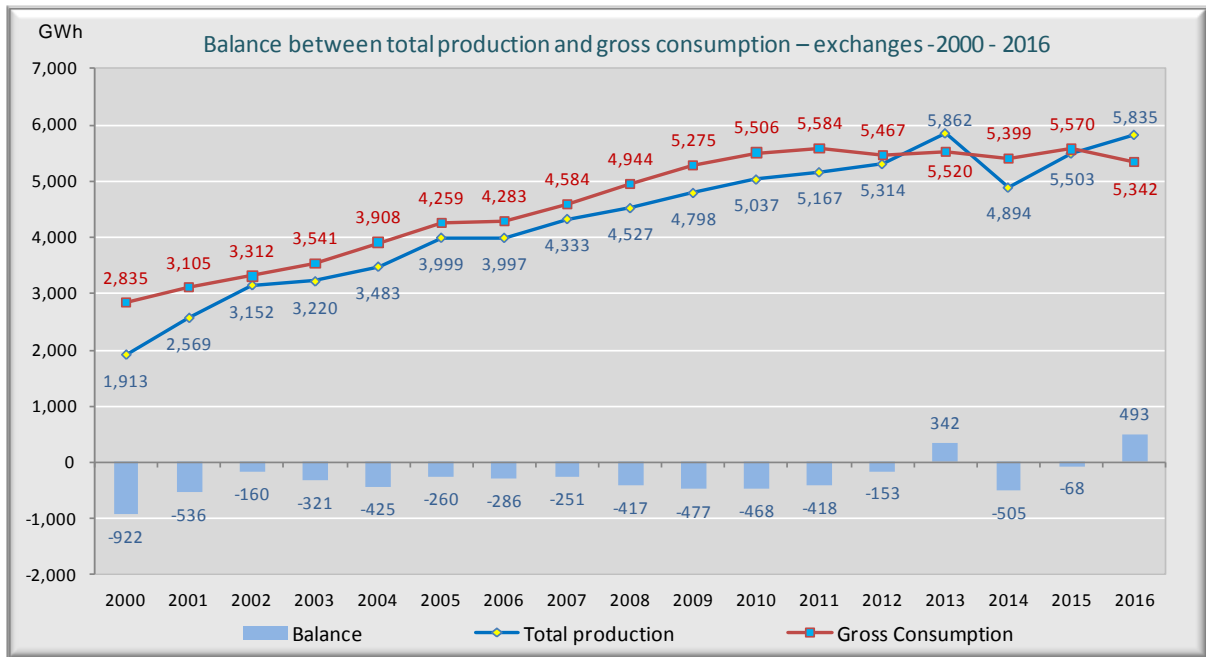


Figure 3.12 Balance of electricity production and demand in previous years (2000-2016)

During the period 2000-2016 total consumption is increased for average of 5.5%. Since after the war until 2016, generating units didn't meet electricity demand; it has been therefore necessary to import electricity in order to meet the electricity demand, except in 2013 and 2016 the electricity production has exceeded the consumption and Kosovo was net exporter of electricity.

The figure above clearly shows the level of net imports to ensure supply of electricity to consumers. Average net imports from 2000 to 2016 make 6.16% of total consumption in the Republic of Kosovo.

For the period 2015 and 2016 the electricity situation can be summarized as follows:

- While in 2015 the Country's electricity production was lower than the demand, in 2016 the production was higher than the demand,;
- Technical and commercial losses are still at high level with slight reduction; particularly worrisome is the fact that the level of commercial losses remains very high representing a challenge for the sector.
- Collection rate was improved in last two years – in 2015 was 95.17% and in 2016 has reached the level of 97.03%.
- Electricity imports continue to cover a certain share of overall country's consumption; and
- Electricity system balance, in some cases still is achieved through load shedding.

### 3.3 The achieved and expected levels of system operation security

During the last several years investments have been made in order to upgrade the system that have contributed to the increase of system security by providing safer and qualitative supply of customers. These investments have increased security of supply and resulted in significant reduction of losses.

### **Investments in the transmission system**

Investments in the transmission system have affected the losses in transmission to be reduced significantly to the average regional level.

- Allocation of line L1806 from Gjakova 2 to Gjakova 1, revitalization SS Gjakova 2;
- Installation of transformers 40 MVA, 110/10 (20) kV in Skenderaj and Burim;
- Revitalization of HV equipment in SS Prizren 3;
- Revitalization of HV equipment in SS Gjakova 2;
- LFC- Secondary Regulation;
- Installation of transformers 31.5 MVA, in Berivojce and Viti;
- Interconnection line 400 kV SS Kosova B - SS Tirana 2 (242 km);
- Revitalization of MV (35 kV) equipment in SS Gjakova 1;
- Installation of the third transformer 40 MVA, 110/10 (20) kV in SS Prishtina 2.

### **Investments in the distribution system**

Despite the ongoing investments in the distribution network aimed at strengthening and expanding transformation capacities and lines, these investments were not sufficient to create an expected level of customer security of supply. However, there are some improvements in supply.

Over the past several years, some investments in the distribution network have been made, which were mainly emergency investments and mainly focused on the low voltage network and overloaded transformers, without neglecting other necessary investments. These investments were:

- Investments in increasing the capacity at medium voltage substations (MV).
- Investments in the 10 kV medium voltage Overhead Lines (OL).
- Investments in upgrading the low voltage network.
- Investing in overloaded transformers at MV/LV level;
- Investments in the 35 kV network;
- Investments in spare parts for maintenance;
- Investments in the measuring points;

#### **3.3.1 Expected investments in new transmission capacities**

The transmission network is in good condition after investments made in infrastructure, however, continuous investments are needed, given that the security of supply includes increasing transmission capacity, reinforcing the transmission network, network revitalization, load support, support of the transmission system operation, etc.

Over the forthcoming years, it is expected to be invested in projects that will impact the security of supply for consumers:

#### **Reinforcement of the transmission network**

- Additional transformers in SS Lipjan, SS Klina and SS Gjilani 5;
- Replacement of transformers in SS Deçan, SS Theranda;
- New 110 kV overhead line SS Peja 3 - SS Peja 1 and revitalization of SS Peja 1;



- New 110 kV overhead line SS Rahovec - SS Theranda;
- New 110 kV overhead line SS Prizren 1 - S Prizren 2.

#### **Network revitalization**

- Revitalization of the 110 kV overhead line, SS Peja 2- SS Deçani;
- Revitalization of the 110 kV overhead line, SS Prizreni 1 - NS Prizreni 3;
- Replacement of power breakers and switch gears in SS Prishtina 4;
- Revitalization of the SS Theranda;
- Revitalization of 110 kV overhead line and transformers switch gear panel in substations: Lipjan and Viti;
- Revitalization of Substation SS Vallaqi.

#### **Load Support**

- SS Mitrovica 2, 110/10(20) kV;
- SS Prishtina 6, 110/10(20) kV;
- SS Dragashi and overhead line 110 kV SS Kukës-SS Dragash- SS Prizren 2;
- SS Fushë Kosova 110/10(20) kV;
- SS Drenasi 2, 220/35/10(20) kV;
- Project Malisheva 110/10(20) kV.

#### **Supporting the transmission system operation**

- Implementation of changes and their incorporation into SCADA / EMS;
- INTER-TSO Meters;
- Revitalization of the SCMS / SCADA system in SS Kosovo B, SS Podujeva and SS Prishtina 5;
- Independent (redundant) AC / DC self-supply system in HV / MV substations;
- GIS System for supporting the Transmission System.

### **3.3.2 System quality and maintenance level**

The forecast of generation, demand, losses, transmission and maintenance plans of electricity facilities, based on the legislation in force, are an obligation presented in the annual balance and the long-term energy balance.

The balances describe the output of generation units as well they define their planned maintenance and overhauls.

Also, the balances foresee the level of the flows across the transmission and distribution network including the overhaul of the overhead lines and high voltage transformers - in the transmission system.

For the distribution system the maintenance is planned at the district level and is carried out on the needed bases - when the failure arise and other problems due to the aging of the distribution system facilities.



### 3.3.3 Measures to cover peak demand and to deal with shortfalls of one or more suppliers

Since Kosovo's energy system is modeled for basic energy production, balancing the system remains one of the key issues. The energy required for the peak period is mainly provided through imports, while in case of generating units failures this is accomplished through emergency imports or sometimes with the application of reductions as the last measure to keep the system in balance.

Over the period 2000-2016, Kosovo was mainly a Net Importer of electricity, except few years when Kosovo was a Net Exporter. Regardless of this, at different daily periods, as mentioned in previous paragraph the peak demand is usually covered from imports, while, especially at night, there is a surplus of electricity.

Based on the Law on Energy, Article 25, the Government may, as an emergency measure, impose restrictions on energy supply for customers or impose specific obligations on energy enterprises in following cases:

- ...
- *any unexpected long-term shortage of energy generation capacity or energy transmission or distribution capacity*
- ...

Within this Government can:

- *impose constraints on commercial activities in respect of specific energy resources*
- *prescribe special commercial conditions*
- *limit energy trade or prescribe special conditions for energy trading*
- *compel (force) energy generation to take place at specified generation facilities*
- *impose an obligation to supply energy to selected customers only in accordance with pre-defined and objective criteria developed by the Transmission System Operator and the Distribution System Operator, and approved by the Regulator*

Due to the incomplete operation of KOSTT as a regulation block/zone, energy supply agreements for secondary and tertiary reserves as a measure to cover the needs of the energy system in peak load period cannot be fully implemented. It is expected that the utilization of reserves will be operational in the future and thus facilitate the coverage of energy demand at peak period.

In the event of a failure of the existing supplier, based on the legislation in force, ERO will designate Supplier of the Last Resort which will take responsibility for the supply of customers who for whatever reasons have remained without supplier. ERO is in the process of defining the Supplier of Last resort.

These responsibilities include:

- *supply final customers as per Article 39 of this Law until customers select a supplier of choice, but not for longer than sixty (60) days*
- *bill final customers as per Article 39 of this Law for electricity delivered, in accordance with guaranteed supply prices approved by Regulatory in compliance with the methodology drafted and approved by Regulatory*
- *inform final customers on conditions of guaranteed supply, termination of the contract on guaranteed supply, and their right to free selection of electricity suppliers*



- *service to final customers contracts on guaranteed supply, no later than eight (8) days upon commencement of such supply*

### **3.4 ACTIVITIES RELATED TO THE CONSTRUCTION OF NEW GENERATING CAPACITY**

The main investment project in electricity generation is TPP Kosova e Re project which has changed in capacity from 2x300 MW to 1x450 MW. Project TPP "Kosova e Re" together with TPP Kosova B will present the main pillar of sustainable generation from lignite, securing basic energy for the system. ERO participated in the Project Steering Committee and Working Group.

TPP Kosova e Re is planned to be in operation no later than December 2023, with installed capacity of 450 MW.

Except TPP Kosova e Re project, generation projects from Renewable Energy Sources (RES) present a particular interest for energy sector.

#### **3.4.1 Renewable Energy Sources**

RES represent a particular interest in the energy sector. European Directives and obligations stemming from ECT define the requirements related to RES. These sources should take an important place in foreseeing the investments in the energy sector. In addition, the laws in energy sector in Kosovo support the investments in generation capacities from RES. The criteria for investments in RES should take into account the targets set by MED, level of affordability of customers, system stability, and their impact on system balance.

Referring to long-term goals of the Kosova Strategy, government policies, i.e. Administrative Instruction nr.01/2013 on Renewable Energy Targets, "Pre-feasibility study to identify water sources for small hydro-plants in Kosova", as well as obligations deriving from the South Eastern European Energy Treaty in the field of new generating capacities from renewable sources, ERO has completed the secondary legislation on renewable energy sources.

An important activity of ERO is considered to be the issuing of Authorizations for the construction of new generating capacities that is using renewable energy sources, in accordance with the Article 43 paragraph 1 of the Law on Energy Regulator and Rule on the Authorization Procedure for the Construction of New Capacities, issued by ERO.

ERO has reviewed applications/requests received for authorization for the construction of new generation capacities, in accordance with the laws on the energy sector and relevant regulations, ensuring that such applications have been reviewed in an objective, transparent and non-discriminatory manner. In reviewing applications, ERO has taken into account relevant criteria that had to be met by the applicant as required by the Rule on the Authorization Procedure for the Construction of New Capacities.

During the period 2015 – 2016, ERO has issued 29 preliminary authorizations for construction of new generating capacities from RES, with overall capacity of about 177.17 MW. From these applications three (3) belongs to wind generation capacities with installed capacity of about 105 MW, fifteen (15) applications are for construction of small HPP with installed capacity of 47 MW, and eleven (11) applications for construction of solar photovoltaic panels with total capacity of 25.17 MW.

During this period ERO has issued twelve (12) final authorizations for construction of new generation capacities with total capacity of 76 MW. Except the company "Matkos Group" that is

constructed and is in operation HPP, with capacity of 2.1 MW, all other plants are in different phases of construction.

### **3.4.2 Incentives to build RES capacities**

For the promotion of electricity generation from renewable energy sources the Law Nr. 05/L-081 on Energy, Article 14, requires that participants in the energy sector perform the following tasks:

- a) When dispatching of the generated electricity, the Transmission System Operator, or the Distribution System Operator, shall give priority to electricity generated from renewable energy sources and from co-generation, subject to the restrictions specified for purposes of system security by the Grid Code and other rules and codes.
- b) Transmission System Operator and Distribution System Operator shall establish and publish standard rules on who bears the costs of technical determinations, such as grid connections and their grid reinforcements, necessary to integrate new electricity producers supplying electricity produced from renewable energy sources into the interconnected system. Such rules shall be submitted for approval to the Regulator and should be consistent with the Strategy, based on objective, transparent and non-discriminatory criteria, taking particular account of all the costs and benefits associated with the connection of these producers to the system.
- c) Transmission System Operator and Distribution System Operator shall provide any new electricity producer using renewable energy sources or co-generation wishing to be connected to the system with a comprehensive and detailed estimate of the costs associated with the connection for which estimate the system operator may levy a charge that reflects its reasonable costs.
- d) Transmission System Operator and Distribution System Operator shall establish and publish standard rules relating to the sharing of costs of system installations, such as grid connections and reinforcements, between all electricity producers benefiting from them. Such rules shall be submitted for approval to the Regulator, and shall be consistent with the Strategy as well as other sub-legal acts.
- e) The Regulator shall ensure that transmission and distribution fees for connection and for use of the transmission and distribution systems do not discriminate against the operator of electricity from renewable energy sources, including in particular the operator of the electricity from renewable energy sources produced in peripheral regions and of low population density.

As required in article 16 paragraph 1.16 of the Law on Electricity, KOSTT has developed and ERO has approved the Connection Charging Methodology on transmission network. This document was developed under fully transparent and non-discriminatory criteria that define obligations for each party. Connection Charging Methodology of distribution network is in its finalization process and approval. These documents will support realization of construction and connection of RES generators in corresponding networks.

Regarding promotion for developing renewable, MED has adopted annual and long-term targets, for which ERO has approved feed-in tariffs (wind, small HPP, biomass and solar photovoltaic). RES will have PPA for 10 years except for photovoltaic and wind which PPA period is 12 years.

### 3.5 FORECAST OF DEMAND AND GENERATION

In order to secure reliable supply of customers, an adequate planning of the electricity demand and generation is needed, including the obstacles that could arise during the implementation. Main issues related to the supply of electricity are:

- Continuous growth of electricity consumption that cannot be met by domestic electricity generation;
- Overall losses in the Kosovo power system remain high;
- Non-technical losses (unauthorized use of electricity) still remains in high level;
- Lack of alternative energy sources (e.g. natural gas), which is could have been suitable for balancing the system;
- Low electricity prices compared to free market prices;
- Relatively high prices of other energy sources (e.g. fuel oil), pushing consumers to use electricity for heating;
- The increase of petrol and diesel consumption in transport has contributed to the growth of the overall energy imports in Kosovo.

#### 3.5.1 Forecast of demand for different economic growth scenarios

Based on long-term energy balance 2015-2024, approved by ERO, below is presented the projection of GDP growth in the next 10 years according to Energy Strategy, which is used for the electricity demand forecast.

Table 3.9 Three scenarios of GDP growth rate in [%] for the period 2017-2026

Annual growth [%]	2016	2017	2018	2019	2020-2026
GDP Base Growth Scenario	1.1%	2.5%	2.2%	2.2%	2.2%
GDP Low Growth Scenario	4.0%	4.3%	4.3%	4.3%	4.3%
GDP High Growth Scenario	4.5%	6.2%	5.4%	5.4%	5.4%

*(Scenarios that are built do not claim to be precise in predictions, because so much data and a very clear development strategy for the various economic and social sectors are needed. Base scenario considered more acceptable on forecast of demand)*

The Base demand scenario (BDS) for electricity envisages a slight increase of demand in the household sector, whereas high increase of demand is projected for the services and industrial sectors. Electricity demand (base scenario) in 2017 is forecasted at 5,463 GWh; in 2026 the demand will reach 6,423 GWh; the associated peak loads will be around 1,162 MW, and 1,333 MW in respective years.

Electricity demand and peak loads for the three scenarios are presented in Table 3.10.

Table 3.10 Electricity demand and peak loads for the period 2014 – 2024



Gross demand [GWh]	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Base Growth Scenario	5,463	5,700	5,902	5,955	6,024	6,084	6,156	6,238	6,330	6,423
Low Growth Scenario	5,250	5,580	5,706	5,715	5,741	5,751	5,776	5,809	5,849	5,897
High Growth Scenario	5,574	5,890	6,164	6,253	6,361	6,461	6,577	6,706	6,848	7,010
Development Scenario	5,990	6,120	6,280	6,410	6,610	6,870	7,080	7,319	7,522	7,731

Peak load [MW]	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Base Growth Scenario	1,162	1,188	1,225	1,236	1,250	1,263	1,278	1,295	1,314	1,333
Low Growth Scenario	1,137	1,152	1,184	1,186	1,192	1,194	1,199	1,206	1,214	1,224
High Growth Scenario	1,199	1,222	1,279	1,298	1,320	1,341	1,365	1,392	1,421	1,455

The forecast of increased demand according to the high demand scenario implies not sufficiently justified or premature investments for the construction of new power generation capacities as well as investment for expanding the capacities of the transmission and distribution networks.

Base growth scenario of total gross electricity demand as well as for other consumer categories, including technical losses in the transmission and distribution network and commercial losses in the DSO (Distribution System Operator), for the period 2015 – 2024 are shown in Figure 3.13.

Technical and commercial losses are forecasted to be reduced in a linear way, despite the continuing growth of demand.

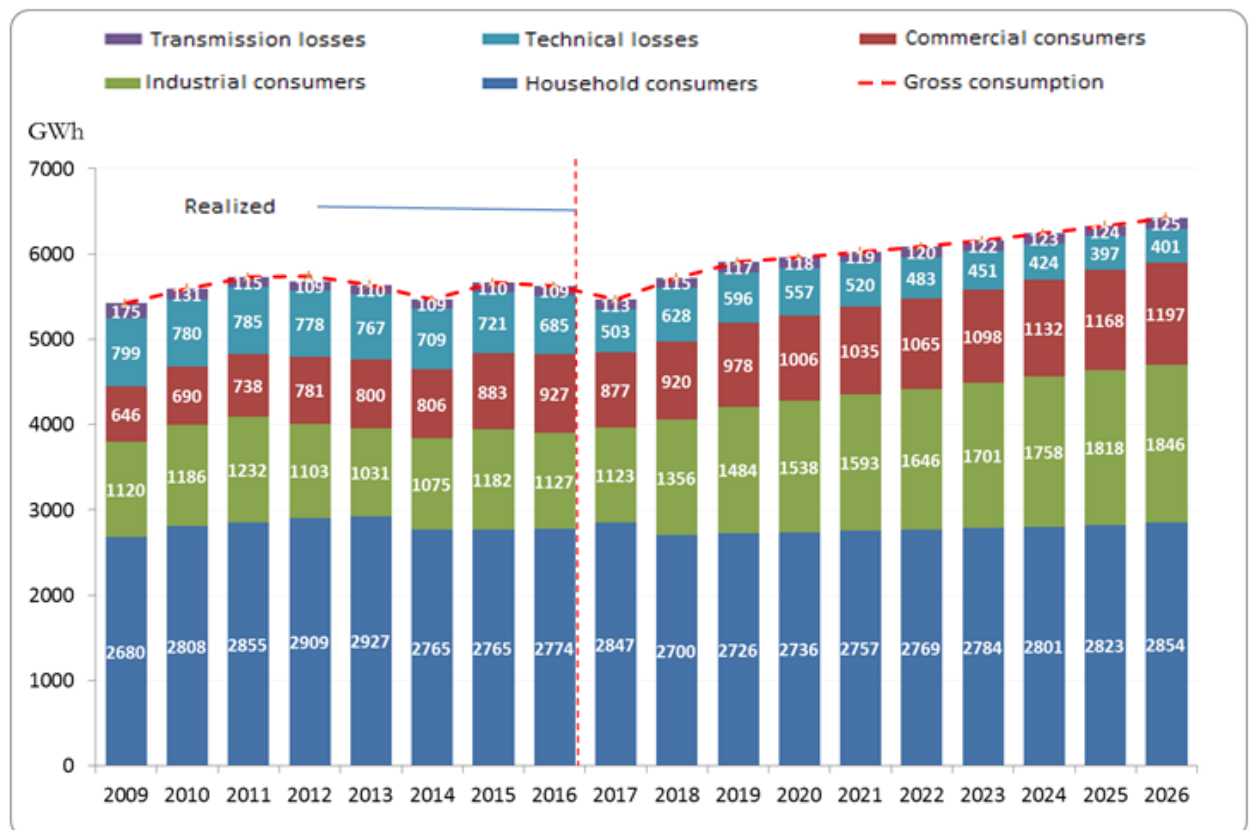


Figure 3.13 Basic scenario of electricity demand for 2009-2026 divided into consumer categories

It should be noted that the data of industrial consumption forecast have been provided by Trepça and Sharr-Cem (KOSTT questionnaires) and the forecasted demand by Ferronikeli. Development

of the rest of the industrial consumption such as food industry, light industry, industrial parks (manufacturing businesses) etc. is primarily based on forecasts of GDP as the main factor for the development of this sector, respectively growth of industrial electricity consumption.

### 3.5.2 Electricity generation forecast for the period 2017-2026

The forecast of power generation for the period 2015-2024 is based on production of electricity from TPP Kosova A, TPP Kosova B, HPP Ujman, HPP in river Lumbardhi, existing small HPPs, other planned renewable energy sources, and production form TPP New Kosova.

*Table 3.11 Basic scenario of developments in the existing generation capacity*

Generator units	Units capacity (MW)			Entry into operation	Life expectancy
	Installed	Net	Min/max		
A3	200	144	100-130	1970	2017
A4	200	144	100-130	1971	2017
A5	210	144	100-135	1975	2017
<b>TPP Kosova A</b>	<b>610</b>	<b>432</b>			
B1	339	264	180-260	1983	2030
B2	339	264	180-260	1984	2030
<b>TPP Kosova B</b>	<b>678</b>	<b>528</b>			
HPP Ujmani	35.00	32.00		1983	> 2030
HPP Lumbardhi	8.08	8.00		(1957) 2006	> 2030
HPP Dikanci	4.02	3.34		(1957) 2013	> 2030
HPP Radavci	1.00	0.90		(1934) 2010	> 2030
HPP Burimi	0.95	0.85		(1948) 2011	> 2030
<b>Total HPP</b>	<b>49.05</b>	<b>45.09</b>			
EGU Belaja	8.08	7.50		2015	> 2030
EGU Decani	9.81	9.50		2015	> 2030
HC Hydroline-Albaniku III	5.00	4.22		2015/2016	> 2030
HC Brod II	5.20	5.00		2015	> 2030
Wind Power	1.35	1.35		2010	> 2030
LedLight	0.10	0.10		2015	> 2030
Solar photovoltaic plant ONIX	0.50	0.50		2016	> 2030
<b>Total RES</b>	<b>30.04</b>	<b>28.17</b>			
<b>Total</b>	<b>1,367.09</b>	<b>1,033.27</b>			

Meanwhile the basic scenario of the development of new generation capacity (TPP, HPP and renewable sources) is presented in Table 3.12.

*Table 3.12 Base scenario for new generating capacity in the future*



NEW GENERATION CAPACITY				
		Install capacity	In operation	Life
New TPP's	TPP New Kosova			
	G1	P=450 MW	2023	>2050
	TPP Fleksibile			
	G1	P=200 MW	2023	>2050
Renewable Energy Sources	Small HPP			
		P <sub>2026</sub> =205 MW	2017 - 2026	>2050
	Wind turbines			
		P <sub>2026</sub> =150 MW	2017 - 2026	2035 - 2045
	Biomass			
		P <sub>2026</sub> =14 MW	2017 - 2026	>2050
	Solar			
		P <sub>2026</sub> =10 MW	2017 - 2026	2035 - 2045

From tables 3.11 and 3.12 can be concluded as follows:

- (i) Power generation from TPP Kosova A, operating with A3, A4 and A5 units (In line with the European Directive for Large Combustion Plants, the units of TPP Kosova A) could be operated until the end of 2023<sup>1</sup>.
- (ii) Power generation from TPP Kosova B, operating with B1 and B2 units – It is anticipated that these two units will be rehabilitated during the period 2023 – 2024, including investments needed to meet emission standards required by EU Directive for Large Combustion Plants. These units would continue their commercial operation for up to 15 more years after revitalization, respectively until 2039.
- (iii) Power generation from Ujmani and Lumbardhi Hydro Power Plants (HPPs), which under the precondition of proper maintenance and rehabilitation could continue its commercial operations for a long-term period.
- (iv) Power generation from the Flexible Hydro Power Plant, expected to be in operation in 2023.
- (v) Power generation from new units of TPP “Kosova e Re” is expected to enter into commercial operation in 2023.
- (vi) During the period 2017-2026, few HPPs will be developed, entering into operation with a total installed capacity of over 240 MW.
- (vii) Substantial participation in the production of electricity from renewable sources is projected to be mainly from wind generators; until the end of 2026 it is expected to reach the capacity of about 150 MW, as well as some photovoltaic centrals with capacity until 10MW.
- (viii) Until the start of production in TPP “Kosova e Re”, the uncovered demand by domestic generation will continue to be met by imports.

Based on the above assumptions, electricity generation from domestic power generation plants for the period 2017-2026 is shown in Table 3.13.

Table 3.13 Electricity generation forecast [GWh]

<sup>1</sup> Time of decommissioning of the units of the TPP Kosova A will depend from the time of commissioning of the units of TPP New Kosova.



Base scenario for all generation units [GWh]	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
TPP Kosova A	2,014	1,432	1,804	1,800	1,982	1,800	1,800	1,800	1,800	1,800	0	0	0	0
TPP Kosova B	3,863	3,690	3,550	3,400	3,563	3,200	3,200	3,200	3,200	3,200	2,000	1,600	3,400	3,400
TPP New Kosova	0	0	0	0	0	0	0	0	0	0	3,370	3,370	3,370	3,370
<b>TOTAL FROM TPPs</b>	<b>5,877</b>	<b>5,122</b>	<b>5,354</b>	<b>5,200</b>	<b>5,545</b>	<b>5,000</b>	<b>5,000</b>	<b>5,000</b>	<b>5,000</b>	<b>5,000</b>	<b>5,370</b>	<b>4,970</b>	<b>6,770</b>	<b>6,770</b>
HPP Ujmani	100	101	102	93	95	92	92	92	92	92	92	92	92	92
HPP (Lumbardhe+Dqani+Belaja)	29	31	23	84	87	87	87	87	87	87	87	87	87	87
HPPs in distribution	21	17	21	23	21	21	21	21	21	21	21	21	21	21
HPP Fleksibile	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Small HPPs	0	0	0	35	85	201	228	249	258	258	258	258	288	315
<b>TOTAL FROM HPPs</b>	<b>151</b>	<b>150</b>	<b>147</b>	<b>235</b>	<b>288</b>	<b>401</b>	<b>428</b>	<b>450</b>	<b>458</b>	<b>458</b>	<b>458</b>	<b>458</b>	<b>489</b>	<b>515</b>
Biomass power plants	0	0	0	0	0	0	0	30	30	38	53	53	68	68
Wind farm	0	0	3	0	2	61	109	123	193	193	210	210	228	268
Solar power plants	0	0	0	0	1	8	8	10	10	12	12	14	14	16
<b>Total Biomass, Wind, Solar</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>70</b>	<b>117</b>	<b>163</b>	<b>233</b>	<b>243</b>	<b>275</b>	<b>277</b>	<b>310</b>	<b>352</b>
<b>Total renewables</b>	<b>51</b>	<b>49</b>	<b>48</b>	<b>142</b>	<b>196</b>	<b>379</b>	<b>453</b>	<b>520</b>	<b>599</b>	<b>609</b>	<b>641</b>	<b>643</b>	<b>706</b>	<b>775</b>
<b>Total Gross Generation</b>	<b>6,028</b>	<b>5,272</b>	<b>5,504</b>	<b>5,434</b>	<b>5,835</b>	<b>5,471</b>	<b>5,545</b>	<b>5,612</b>	<b>5,691</b>	<b>5,701</b>	<b>6,104</b>	<b>5,706</b>	<b>7,568</b>	<b>7,637</b>

Electricity generation forecast is also presented graphically in Figure 3.14.

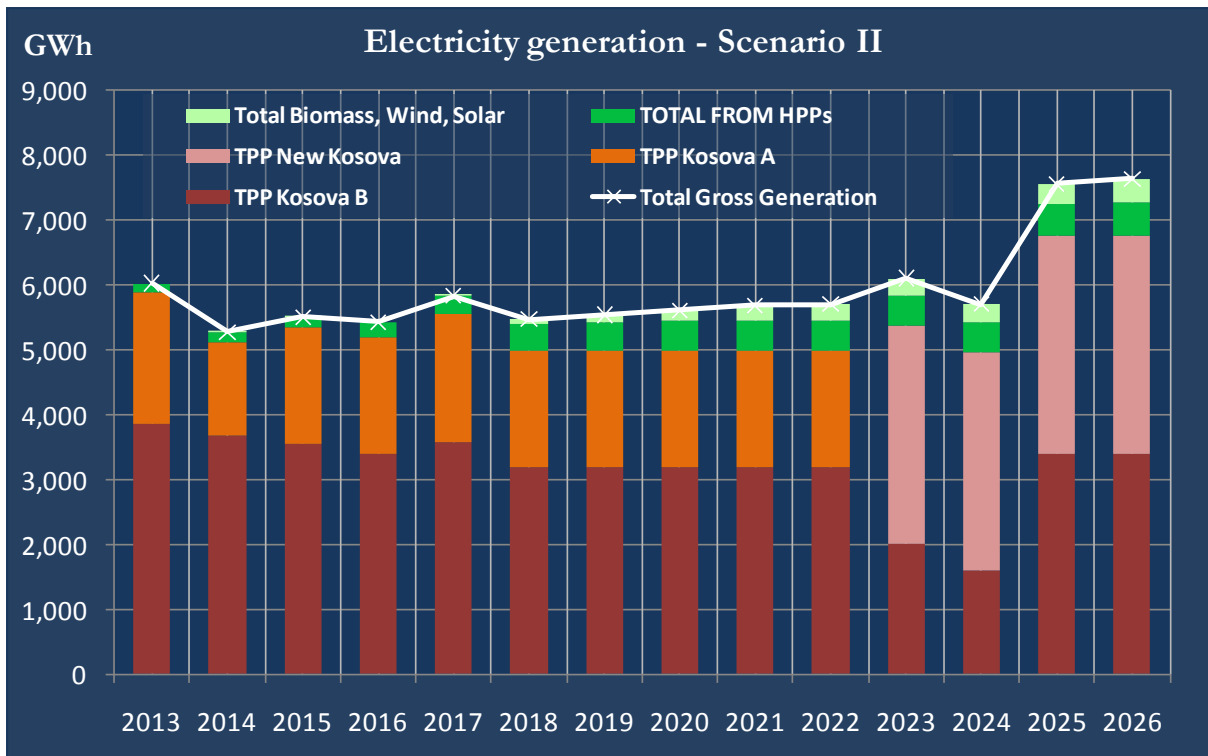


Figure 3.14 Electricity generation forecast [GWh]

Despite the large lignite reserves, electricity generation depends on the lignite mining areas. A problem during coal exploitation may occur due to the delays in expropriation of properties to be used for exploitation. This process requires treatment from relevant government institutions, so that there is no dissatisfaction and disagreement of the owners of these properties that could endanger the security of electricity supply.



### 3.5.3 The balance of production and consumption for 2017 - 2026

The balance of the electricity in the next ten years considers the forecasted demand and development of generating capacity and needs for electricity import or export. The realization of imports and exports of electricity depends on the demand and on the development of local and regional electricity markets. The Figure 3.15 shows the balance of electricity for the period 2017-2026 defined by the difference between production (base scenario) and demand (base scenario)

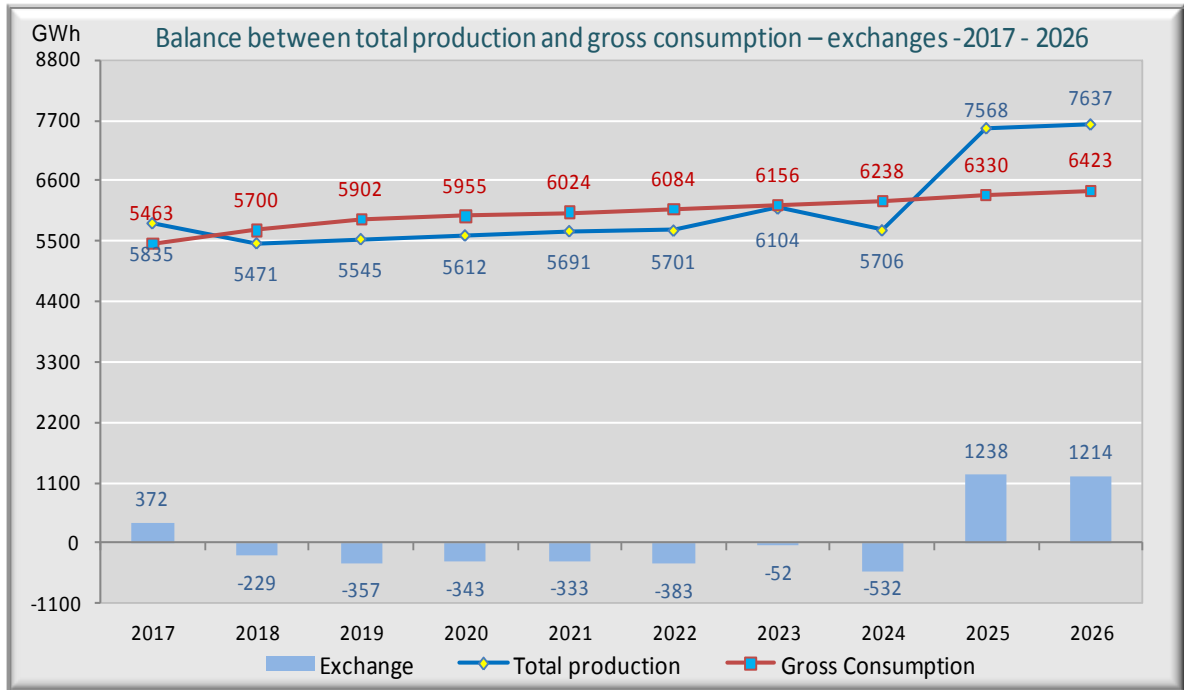


Figure 3.15 Balance of electricity production and demand in the future (2017-2026)

Negative value indicates energy deficit of electricity (needs for imports), while the positive value indicates surplus of electricity (export possibilities). In the figure is shown the difference between planned net production and planned consumption, without taking into account the electricity needed for ancillary services (primary, secondary and tertiary reserves) and non-utilized capacities of generation units.

## 4 NATURAL GAS SECTOR

### 4.1 General description

Kosovo has no domestic production of natural gas and it is not linked to any operational natural gas supply networks. A connection to natural gas supply would be an important option for introduction of natural gas in Kosovo, which would have impacted diversification of fuel supply in the country and to increase security of supply.

Gas supply and consumption in Kosovo is therefore limited to bottled LPG (liquefied petroleum gas).

### 4.2 Legal and Institutional framework

In order to create the perspective for development of natural gas sector and fulfillment of the obligations that Kosovo has as a full member in Energy Community Treaty, the Kosovo Assembly in June 2016, adopted the Law no. 05/L-082 on Natural Gas, as part of the package of energy laws.

Following this Law was made the transposition of the European third package legislation which was relevant for natural gas, mainly:

- Directive No. 2009/73/EC concerning common rules for the internal market in natural gas; and
- Regulation No. 715/2009/EC on conditions for access to the natural gas transmission networks.

Law on natural gas lays the foundations of legal and regulatory framework for the transmission, distribution, storage and supply with natural gas and the operation of gas transmission and distribution systems. Consequently, this law determines the organization and functioning of the natural gas sector and access to networks and gas market.

### 4.3 Currently available production and import capacity

There is no production of gas in Kosovo, nor import capacity by pipelines.

### 4.4 Forthcoming production and import investment for the next three years

- **Authorized** - There are actually no authorized investment projects.
- **Actually in process of construction** - There are no projects under construction.
- **Requirements relating to supplier of last resort** - There are no special requirements.
- **Incentives to increase production/import capacity or any type** - There are no specific incentives in place.

### 4.5 Progress in major infrastructure projects

**Important interconnection projects between or within Member States** – Currently in the preparation phase is the project: ALKOGAP – Albania-Kosovo Gas Pipeline, which is regarded as



favourable option for connection of Kosovo through Albania with TAP respectively IAP Projects. This project is included in the List of the Project of Energy Community Interest ('PECI' List). Albania and Kosovo have also jointly applied to WBIF - "Western Balkans Investment Framework" – for financial support for ALKOGAP project, and WBIF steering committee decided by WBIF platforms to allocate 300 thousand Euros to prepare prefeasibility study. Leading financial institution is the European Bank for Reconstruction and Development (EBRD).



## 5 OIL SECTOR

### 5.1 Legal and Institutional Framework

The main law governing the oil sector in Kosovo is the Law no. 2004/5 on Trade with Petroleum and Petroleum Products enforced in 2004, amended by Law nr. 03/L-138 enforced in 2009. The Law applies to the wholesale and retail supply, transport, and storage of petroleum and petroleum products.

The Department for petroleum market regulation operates in accordance with relevant provisions of above mentioned law is responsible for regulation respectively licensing of the oil sector activities in Kosovo. While the monitoring and oversight of the petroleum market is performed by the Market Inspectorate, which also operates within the Ministry of Trade and Industry.

A draft Law on the Trade with Petroleum and Bio-fuels is in the process of re-drafting, in order to fully transpose the respective European Directive – namely the Directive 2009/28/EC for promotion of the use of bio-fuels and the Minimal Oil Stock Directive 2009/119 /EC. Actually it is established the working group for re-drafting of the draft law, and it is expected the re-drafting to be completed by the 4th quarter of the year 2017.

For the purpose of full transposition and implementation of the Directive 1999/32/EC on limitation of sulfur content in certain fuels (heavy fuel oil and gasoil), on February 2017 the Administrative Instruction no. 01/2017 on the quality of petroleum products was approved, by which the Administrative Instruction 07/2012 was repealed. Compliant to this Instruction the quality of the petroleum products is controlled at the customs terminal by the customs officials.

### 5.2 Domestic supply of crude oil and petroleum products

Kosovo has neither domestic reserves of crude oil nor capacities for refining of crude oil and therefore does not import crude oil. Kosovo is net importer of petroleum products, and produces only heavy fuel oil for heating from imported raw material amounting approximately 30% of the consumption of heavy fuel oil for heating. There are four licensed production plants, which currently produce heavy fuel oil with less than 1% of sulfur content; heavy fuel oil with less than 1% sulfur content is produced by mixing heavy fuel oil containing over 1% sulfur with light oils such as gasoline and kerosene.

### 5.3 Import and consumption of crude oil and petroleum products

Kosovo is net importer of oil products. Since there are negligible amounts of domestic production and exports, almost all consumption within the country is covered by imports. In recent years the total import of oil products did not have significant upward trend, but only slight variations.

In the table and the graph below are presented data for consumption, import, and production and export (negligible amounts).

Table 5.1: Data for petroleum products in 2016 (in 1,000 tons)

2016	CRUDE OIL	PETROLEUM PRODUCTS									
	Crude	Raw materials (gasoil, heavy fuel oil with over 1% sulphur)	Diesel	Petrol	Heavy fuel oil	Jet fuel	LPG (Propane and/or butane)	Bitumen	Petrol coke	Lubricants and other oils	Total Petroleum
PRODUCED	0				9.5						9.5
EXPORTED	0				1.4			3.3	2.5	0.1	7.2
IMPORTED	0	10.4	423.8	64.2	24.3	4.2	35.1	41.8	80.7	6.6	691.2
CONSUMPTION	0		423.8	64.2	32.5	4.2	35.1	38.6	78.2	6.5	683.1

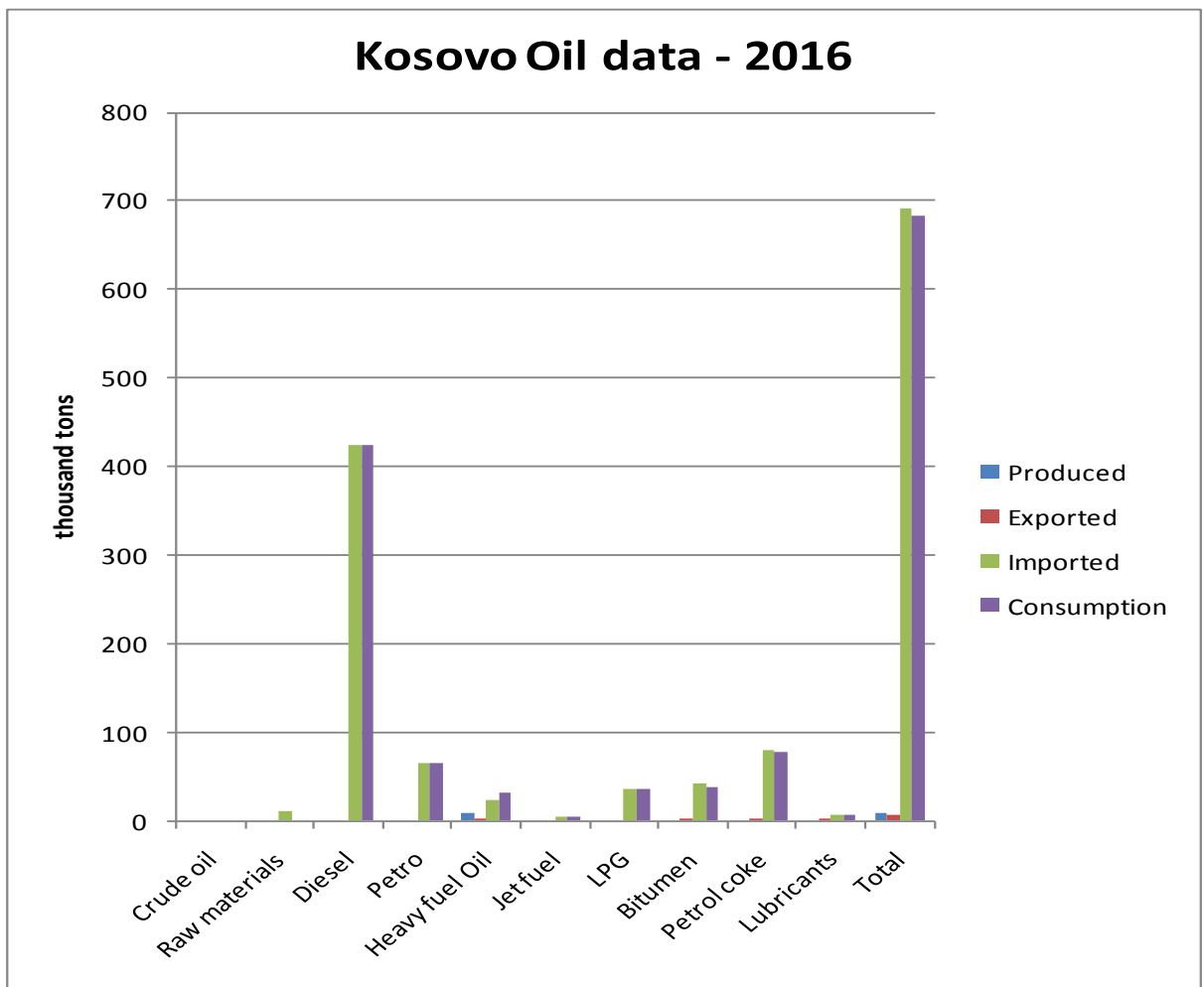


Figure 5.1 Graphical presentation of data for petroleum products in Kosovo in 2016

#### 5.4 Imports dependency and origin of imported fuels

Kosovo is almost 100% dependant on imports of oil products. Imports of oil products originate from regional countries. The pattern of imported oil products in 2016 is presented in the table below.

Table 5.2 Origin of Imports by counties of the region

Origin of petroleum products imports [%]	
Albania	4.0%
Bosnia & Hercegovina	13.1%
Montenegro	0.2%
Greece	69.2%
Serbia	0.4%
Macedonia	13.1%
<b>Total</b>	<b>100%</b>

### 5.5 Stockholding of crude oil and petroleum products

Law on trade with petroleum and petroleum products obliges all petroleum and petroleum products storage facilities and sale points to maintain reserves of at least 5% of their storage capacity at any time for emergency purposes. Current licensed storage capacities have approximately 80,000 m3 and approximately 40,000 m3 for retail sale of fuels, therefore 5% of this capacity equals to 3-4 days of average daily net import. There are additional 50,000 m3 of storage capacities that are not being used and are not licensed for fuel storage. Currently there are 12 storage facilities that are licensed for fuel wholesale (diesel, petrol, LPG).

Table 5.3 shows the proposed roadmap from Energy Community for Kosovo to meet the obligations of Directive 2009/119/EC by the end of 2020.

Table 5.3 Kosovo’s roadmap for achieving emergency oil stocks

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
<b>Task</b>										
<b>Legal</b>										
Develop regulatory framework/laws		█								
Enact relevant laws and regulations			█							
<b>Organisational and Management</b>										
Develop strategy and organisation for managing stocks		█								
Set up Central Stockholding Entity (as required)		█								
Develop stockholding obligations for operating companies (if required)			█							
Development of Emergency Response Planning			█							
Development of Inventory monitoring and reporting system			█							
<b>Engineering</b>										
Secure Engineering Budget		█								
Assess and design additional tank capacity		█								
Engineering design for additional tank capacity			█							
Tender for storage construction				█						
Build required additional tank capacity				█	█					
<b>Stockbuilding</b>										
Arrange financing for purchasing of emergency stocks					█					
Build-up emergency stocks					█	█	█	█	█	█
Report compliance progress to the Energy Community	█	█	█	█	█	█	█	█	█	█



## **5.6 Oil infrastructure**

Kosovo does not possess a pipeline for crude oil nor for oil products. Oil products are imported 75% by road transportation and 25% by railroad.

## **5.7 Import/Export Customs duty**

Kosovo\* has an open market for oil products including import and export, and prices are set freely by the market. In regards to a 10% customs duty, this issue is addressed by the respective legislation in force, which fulfils obligations arising from international agreements (CEFTA, Energy Community Treaty) for the oil sector; specifically the Law 04/L-163 and the Administrative Instruction no.05/2015 for commodities for which the customs duty isn't charged specifies oil products that are released from customs duty such are: diesel, petrol, fuel oil, kerosene, LPG, lubricants, bitumen, and petrol coke.

## **5.8 Price Regulation, role of the regulatory authority**

According to Law on Trade with petroleum and petroleum products, the responsible authority for the Kosovo's Oil sector is the Department for regulation of the Oil Sector of the Ministry of Trade and Industry. This department has the competences for licensing commercial entities for undertaking the activities in the oil sector. Price regulation isn't implemented since the market is very competitive with over 40 importers for transport fuels and many other importers of other petroleum products. The wholesale and retail prices are freely set by market.



## 6 CONCLUSIONS

Kosovo's energy system with all its difficulties over the years, has achieved significant improvements. These improvements in general are noticed in the generation, transmission, distribution and electricity supply of customers. Based on investments made in new equipment and maintenance in power plants, the reduction of energy for customer has decreased from year to year, and in recent years reductions due to power shortages are significantly lower. Currently supply of electricity to consumers can be considered satisfactory and are expected improvements in the coming years.

In general, when it comes to electricity, generation capacities mainly meet the basic consumption demand. However, the issue of balancing system remains problematic, where electricity imports are needed to cover the peak demand, while for the off-peak period, especially during the night, there are surpluses of electricity for export.

According to the Kosovo Energy Strategy, for covering the local demand that is growing, and potentially to export electricity, it is foreseen to build generation capacities as follows:

- TPP "Kosova e Re" with installed capacity of 450 MW;
- Flexible HP with installed capacity 200 MW;
- RES with capacities of 205 MW for small HP, 150 MW for wind turbines, 14 MW for biomass and 10 MW for solar energy).

The transmission network after investments made in physical infrastructure is in good condition. The transmission capacities have been increased especially with the construction of 400kV Kosovo-Albania interconnection line. It remains a very important issue the implementation of connection agreement between KOSTT and ENTSO-E. Another issue is cross boarder interconnector capacity allocation.

The distribution network despite investments made over the last few years still remains unsatisfactory and more investments are needed to ensure quality and sustainable electricity supply for consumers.

Finally, we can consider that Kosovo's electricity system in recent years is in an acceptable condition and ensures regular customer supply.

Kosovo has no natural gas production and is currently not connected to any functional gas supply network. It is expected that after the completion of the TAP project, Kosovo through the ALKOGAP project will be connected to the natural gas network.

Kosovo does not have sources of unrefined oil or capacities for its processing, so Kosovo is the net-importer of oil products. There are currently 12 storage facilities that are licensed for wholesale fuel sales (diesel, gasoline, LPG).

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