Republika e Kosovës

Republika Kosova - Republic of Kosovo

Qeveria - Vlada - Government

MINISTRIA E ZHVILLIMIT EKONOMIK
MINISTARSTVO EKONOMSKOG RAZVOJA
MINISTRY OF ECONOMIC DEVELOPMENT

BALANCA VJETORE (E REALIZUAR) E ENERGJISË E REPUBLIKËS SË KOSOVËS PËR VITIN 2011

GODIŠNJI (REALIZOVANI) ENERGETSKI BALANS REPUBLIKE KOSOVA ZA 2011. GODINU

ANNUAL (REALIZED) ENERGY BALANCE OF REPUBLIC OF KOSOVO FOR THE YEAR 2011

Prishtinë, 2012

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This document was compiled by the Energy Balance Division in MED. This document could not be prepared without close cooperation with entities outlined in the Administrative Instruction on the Rules of the Energy Balance.

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Abbreviations

MED	Ministry of Economic Development
KOSTT J.S.C.	System and Market Operator
KEK J.S.C.	Kosovo Energy Corporation
KSA	Kosovo Statistical Agency
ERO	Energy Regulator's Office
MF	Ministry of Finance
MAFRD	Ministry of Agriculture, Forestry and Rural Development
KFA	Kosovo Forest Agency
MESP	Ministry of Environment and Spatial Planning
CK	Customs of Kosovo
EnCTS	Energy Community Treaty Secretariat
REKOS	2011 Census of Population, Households and Residences in Kosovo
CRES	Center for renewable energy and saving, Athens, Greece
EUROSTAT	European Community Statistics Office
IEA	International Energy Agency
LPG	Liquefied Petroleum Gas
TPP	Thermal Power Plant
HPP	Hydro Power Plant
GWh	Giga Watt/Hour
GW	Giga Watt
MWh	Mega Watt/Hour
MW	Mega Watt
RES	Renewable Energy Sources
GDP	Gross Domestic Product
CO	Carbon monoxide
VOC	Volatile organic compound
NO_x	Nitrate oxides – NO and NO_2
CO_2	Carbon dioxide

Executive Summary

The Annual (realized) Energy Balance 2011 was prepared by the division responsible for energy balances in the Department of Energy and Mining in the Ministry of Economic Development.

The Annual (realized) Energy Balance 2011 in the Republic of Kosovo was compiled in accordance with the requirements set forth in the Law on Energy No. 03/L-184 and the Administrative Instruction No. 07/2011 on Energy Balance rules.

This document reflects on energy flows of all types and sources used in Kosovo during 2011.

Data were collected from the following entities:

- Ministry of Finance – GDP data;
- Kosovo Statistical Office – demographic and social data;
- Kosovo Energy Corporation, KEK J.S.C. – data on coal (production, supply and stock), data on electricity consumption
- Kosovo System, Transmission and Market Operator j.s.c. (KOSTT) – periodic monthly and annual data on electricity balance;
- 'Kosova Thëngjilli' j.s.c. – data on trade of processed coal, extracted from Kosovo's open cast mines;
- Kosovo Customs – data on import and export of all energy products which come in and out of Kosovo;
- District heating companies – data on energy flows in heating enterprises;
- MAFRD and KFA – data on firewood;
- MTI – data on oil product production, import, and export.

The electricity consumption analysis of the present document is based in surveys and studies carried out to develop energy balance documents.

Data was collected, processed, systemized and presented in line with the EUROSTAT format.

1. Annual (realized) Energy Balance Energy in 2011

The key sections of the actual energy balance are primary sources, namely energy supply and energy consumption, energy consumption or distribution of energy consumption per economic sectors. Both sections shall be further analyzed below

1.1. Primary sources

The structure of primary energy consumption in Kosovo during 2011 has not changed in comparison to the 2010 consumption. It comprises of coal, petroleum products (gasoline, diesel, heavy oil, kerosene and liquefied petroleum gas – LPG), biomass, electricity, hydro energy, wind-powered energy, solar energy and bio-fuel. Electricity as primary energy also included imported and exported energy.

As noted in Table 1 and Figure 1, the gross available energy in 2011 was 2505.03 ktoe.

Table 1 Overview of available primary source energy

Sources of energy	**ktoe**
Coal	1623.49
Petroleum products	591.56
Biomass	241.93
Electricity	38.27
Hydroenergy	9.00
Solar energy	0.63
Wind energy	0.02
Biofuel	0.13
Total	**2505.03**

Data on available energy from firewood (biomass) for 2011 is based on the results of the biomass study conducted by Energy Community Secretariat, extrapolated based on the increased number of households and the GDP for 2011.

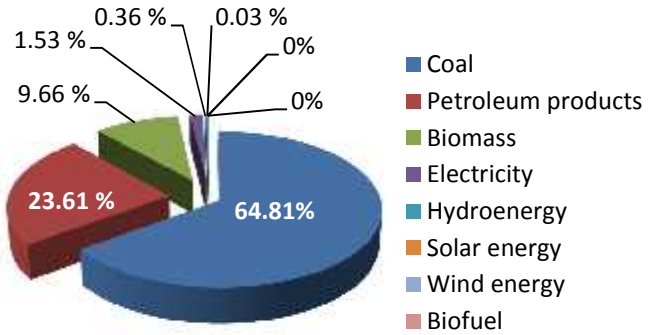

Figure 1 Share of available primary sources (%)

1.1.1. Coal

Supply and use of coal in 2011 was 1623.49 ktoe. Table 2 provides information on available coal-powered energy

Table 2. Overview of coal quantity as a primary available source

Coal	**ktoe**
Anthracite	30.12
Bituminous coal and other coal	0.00
Coking coal	0.00
Lignite	1593.43
Coke and semi-coke	-0.63
Coal gas, water gas, etc.	0.00
Pitch coke	0.00
Brown coal briquettes	0.28
Tar	-0.06
Peat	0.34
Total	**1623.49**

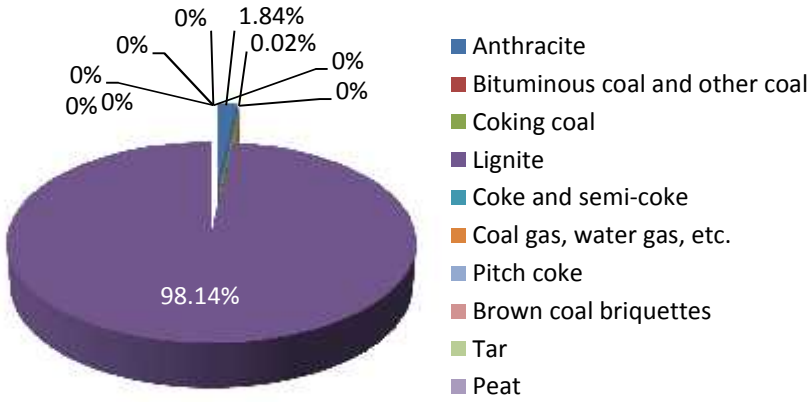

Figure 2 Overview of coal as primary available source (ktoe)

Figure 2 indicates that of all coal types, lignite has a share of 98.14% of the total coal consumption as available primary source, followed by anthracite with 1.84% and brown coal briquettes with 0.02%. We only produce lignite, while others are all imported.

1.1.2. Petroleum products

In 2011 import of petroleum products reached 591.61 ktoe. Unlike previous years, in 2011 there was an import of gasoil and kerosene as a raw material for desulfurization processing, as a result of which we had petroleum processing of 6.53 ktoe and heavy oil of 4.06 ktoe. Table 3 provides data on the amount of available energy from petroleum products

Table 3 Overview of petroleum products (ktoe)

Petroleum products	**ktoe**
Gasoline	78.65
Gasoil	6.90
Kerosene	1.63
Aviation kerosene (Jet fuel)	11.93
Petroleum oil/heavy fuel oil	74.57
Diesel	283.78
LPG	40.97
Petroleum coke	43.07
Other petroleum products	0.00
Residual oil	0.00
Bitumen	50.07
Total	**591.56**

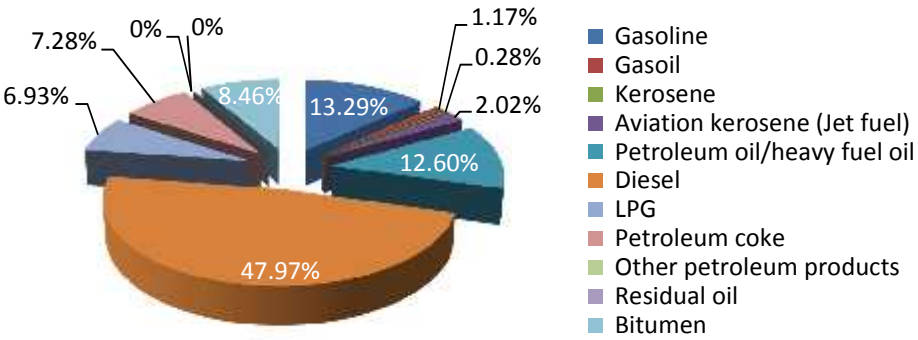

Figure 3 Share of petroleum products as primary available sources (%)

Figure 3 shows that diesel comprises the most utilized of all petroleum products, with a share of 47.97% of the overall quantity of available petroleum products, followed by gasoline with 13.29%, heavy fuel oil 12.60%, bitumen 8.46%, petroleum coke 7.28% and LPG 6.30%, etc.

1.1.3. Biomass (firewood)

The provision of data on firewood logged in the Republic of Kosovo is problematic. Data available to the Kosovo Forestry Agency speak of a small amount of firewood logged in Kosovo. On the hand, the estimated demand for heating is much higher that what official data suggest.

The amount of firewood consumed only by the household sector in 2011 was 222.36 ktoe. In all economic sectors, firewood consumption during 2011 reached 241.93 ktoe.

Data on firewood consumption have been taken from the study on biomass consumption 'Study on biomass consumption for energy purposes in the Energy Community' implemented by CRES and contracted by the Energy Community.

1.1.4. Electricity

Based on the EUROSTAT methodology of the Energy Balance, imported and exported energy is treated as primary energy. This energy in 2011 was 38.27 ktoe (import-export).

1.1.5. Hydro energy

Data on hydro energy was provided by KEK and KOSTT and are based on the quantities of electricity generated from hydro power plants: Ujmani, Lumbardhi, Radavci, Dikanci and Source.

Annual hydro energy generation in 2011 was 9.00 ktoe

1.1.6. Wind energy

Wind-generated electricity 2011 amounted to 281 MWh or 0.02 ktoe.

1.1.7. Solar Energy

Data on solar energy are estimated based on 2008 data

1.1.8. Biofuels

Biofuel represents a renewable energy source. This fuel, which is treated as renewable energy source, is secured from imports, which in 2011 reached 0.13 ktoe.

1.2. Energy consumption

Energy consumption in 2011[1] is based on the survey study for all economic sectors, implemented in 2009, 2010 and 2011. Biomass consumption data are taken from the results of the survey on biomass consumption in the household, services, and industry sectors, a project contracted by the Energy Community in 2011, and the 2011 consumption is extrapolated for the growth of the number of households (2% annual growth) and GDP growth (5.3%).

Distribution of energy in sectors in presented in Table 4

Table 4 Overview of the share of all sectors in the final energy consumption

Economic sector	**ktoe**
Industrial sector	315.64
Household sector	490.51
Services sector	119.57
Agricultural sector	19.95
Transport Sector	338.58
Total	**1284.25**

Table 4 shows that energy consumption for 2011 was 1284.25 ktoe. The sector marking the largest energy consumption in 2011 was the household sector, which consumed 490.25 ktoe

"Energy Consumption in Kosovo", implemented by Riinvest Institute in 2009,
"Study on the distribution of energy consumption in the industry sector, and the possibility to improve efficiency", implemented by MPR GROUP in 2010,
"Study on the distribution of energy consumption in the household sector, and the possibility to improve efficiency"-implemented by Instituti Intech in 2011,
"Study on biomass consumption for energy purposes in the Energy Community", implemented by CRES in 2011

or 38.2 % of total consumption, followed by the transport sector (338.5 ktoe or 26.4%), industry sector (315.64 ktoe or 24.6%), services sector (119.57 ktoe or 9.3% %) and agricultural sector (19.95 ktoe or 1.6%).

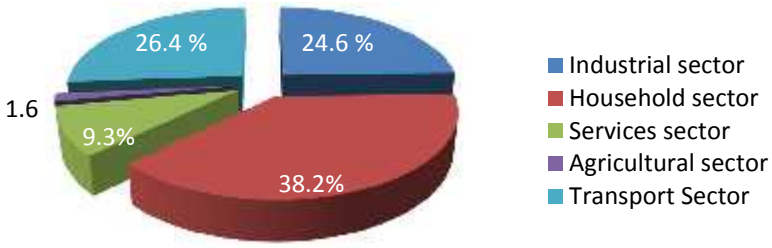

Figure 4 Share of economic sectors in energy consumption (%)

Final non-energy consumption in 2011 was 50.41 ktoe. Peat is the only type of coal consumed for non-energy purposes in the chemical sector, amounting to 0.34 ktoe. From the ranks of oil byproducts, bitumen is the only type used for non-energy purposes on 2011, reaching 50.07 ktoe. The following is a presentation of the final non-energy consumption.

Table 5 Final non-energy consumption

Economic sector	**ktoe**
Chemical industry	0.34
Other sectors	50.07
Total	**50.41**

Table 6 Overview of consumption of all energy sources

Source	**ktoe**
Coal	86.65
Petroleum products	605.14
Biomass	241.93
Biofuel	0.13
Electricity	396.80
Solar energy	0.63
Derived heat	3.04
Total	**1334.32**

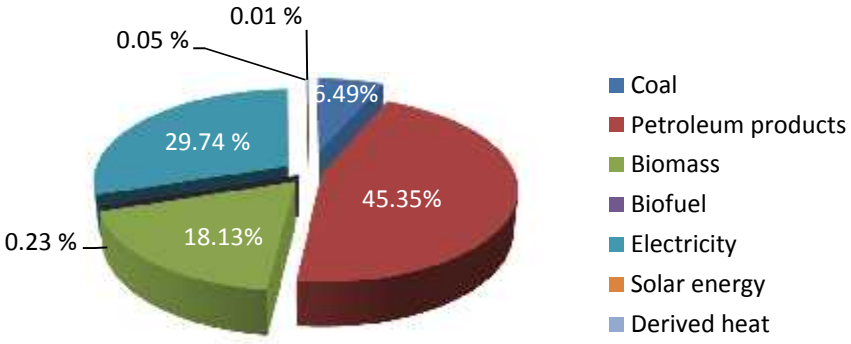

Figure 5 Share of energy sources in the overall consumption (%)

The analysis of all energy sources (table 6) shows that consumption of petroleum products in 2011 covered 605.14 ktoe or 45.35% of the overall consumption of all energy products; followed by electricity with 396.80 ktoe 29.74%, biomass with 241.93 ktoe 18.13%, coal with 886.65 ktoe, or 6.49%; heating with 3.04 ktoe, or 0.23%; solar energy with 0.63 ktoe or 0.05%, and biofuel, with 0.13 0.01 % of overall energy source consumption.

Table 7 Available and consumed energy (ktoe)

	Coal	Petroleum products	Biomass	Electricity	Biofuel	Solar energy	Derived heat
Available energy	86.31	577.18	241.93	396.80	0.13	0.63	3.04
Final energy consumption	86.65	555.07	241.93	396.80	0.13	0.63	3.04
Final non-energy consumption	0.34	50.07	0.00	0.00	0.00	0.00	0.00
Difference	-0.68	-27.96	0.00	0.00	0.00	0.00	0.00

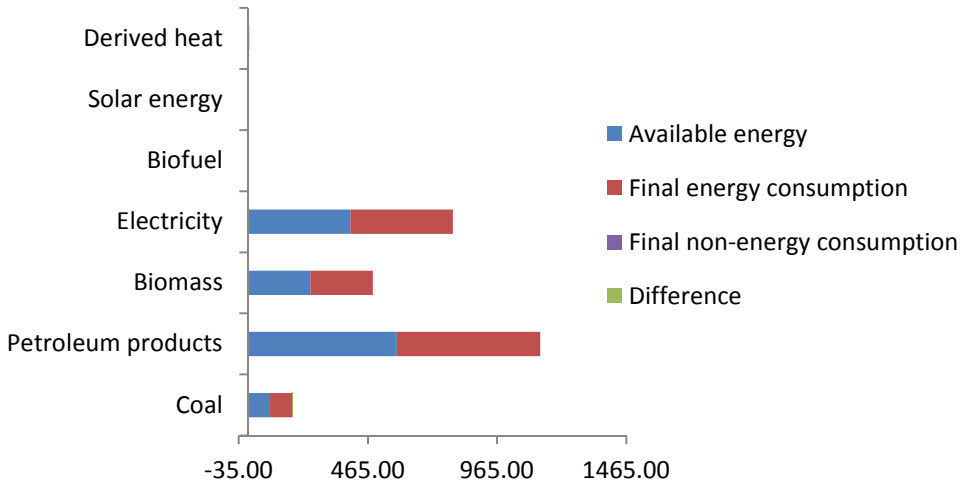

Figure 6 Available energy and consumption (ktoe)

1.2.1. Coal consumption

Final energy consumption of all coal byproducts is presented in the following table:

Table 8 Overview of final coal consumption

Coal	**ktoe**
Anthracite	30.12
Bituminous coal and other coal	0.00
Coking coal	0.00
Lignite	56.25
Coke and semi-coke	0.00
Coal gas, water gas, etc.	0.00
Pitch coke	0.00
Brown coal briquettes	0.28
Tar	0.00
Peat	0.34
Total	**86.99**

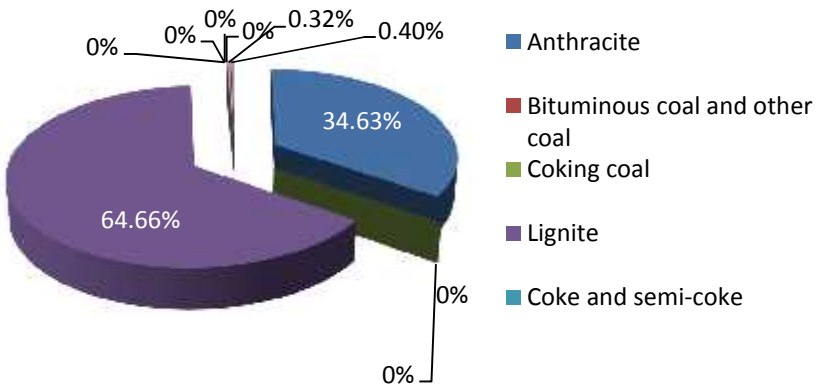

Figure 7 Overview of coal consumption (%)

Table 8, shows that in 2011 lignite was the most consumed type of coal with a share of 56.25 ktoe or 64.66%, followed by anthracite with 30.12 ktoe, or 34.63%, Peat with 0.34 ktoe or 0.40%, however, this amount of Peat is used for non-energy purposes (see table 7) and brown coal briquette with 0.28% or 0.32%.

1.2.2. Consumption of petroleum products

The following of final consumption of all petroleum products:

Table 9 Overview of final consumption of petroleum products

Petroleum products	**ktoe**
Gasoline	78.65
Gasoil	0.00
Kerosene	0.00
Aviation kerosene (Jet fuel)	11.93
Petroleum oil/heavy fuel oil	66.20
Diesel	303.96
LPG	51.27
Petroleum coke	43.07
Other petroleum products	0.00
Residual oil	0
Bitumen	50.07
Total	**605.14**

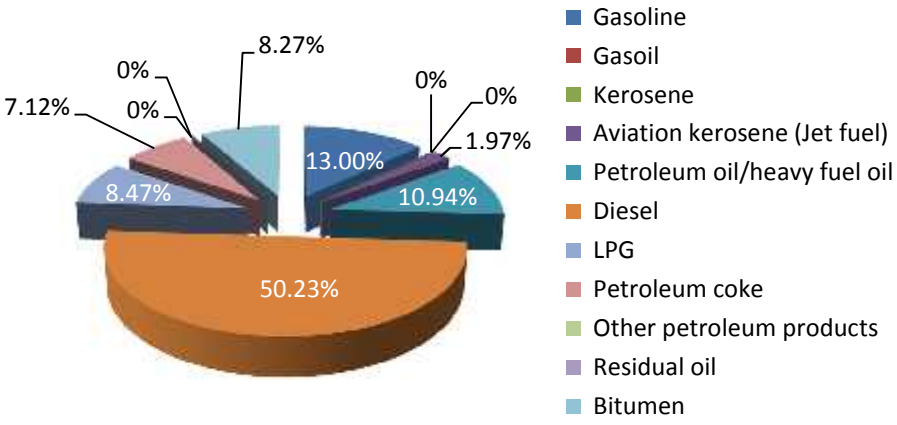

Figure 8 Overview of consumption of petroleum products (%)

As seen in Table 9, diesel in 2011 was the most consumed by product, with a share of 303.96 ktoe or 50.23% of the total consumption of petroleum-derived products, followed by gasoline with 78.65 ktoe, or 13.00%, heavy oil with 66.20 ktoe, or 10.94%, LPG with 51.27 ktoe or 8.47%, bitumen with 50.07 ktoe or 8.27%**,** however this amount of bitumen is consumed for non-energy purposes (see table 7), petroleum coke with 43.07 ktoe or 7.12% and kerosene (Jet fuel) 11.93 ktoe or 1.97% of the total consumption of petroleum-derived products.

1.2.3 Consumption of electricity

In 2011 electricity consumption was 396.80 ktoe. The following table presents the electricity consumption in all economic sectors.

Table 10 Overview of electricity consumption

Sector	ktoe
Industry	111.36
Transport	0.00
Households	216.85
Agriculture	6.87
Services	61.72
Total	**396.80**

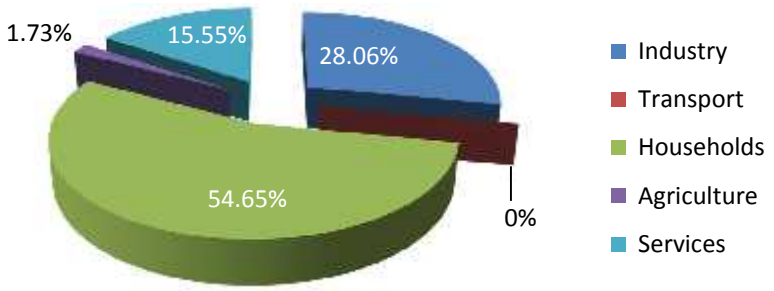

Figure 9: Share of electricity consumption in economic sectors (%)

As presented in Table 10, the household sector is the largest electricity consumer, with a consumption of 216.85 ktoe or 54.65% of the overall electricity consumption, followed by the industry sector with 111.36 ktoe or 28.06%, the services sector with 61.728 ktoe or 15.55% and the agricultural sector with 6.87 ktoe or 1.73%.

1.2.4. Derived heat consumption

The total derived heat in 2011 was 3.04 ktoe. Households represent the main consumer category with 1.98 ktoe or 65% of the total heating consumption, followed by the services sector with a consumption of 1.06 ktoe or 35%.
The following table presents the consumption of derived heat in each economic sector.

Table 11: Overview of the consumption of gained heating in each economic sector

Sector	ktoe
Industry	0.00
Transport	0.00
Households	1.98
Agriculture	0.00
Services	1.06
Total	**3.04**

1.3. Industry sector consumption

1.3.1. Consumption of all energy sources in the industry sector

In 2011, energy consumption in the industry sector reached 315.64 ktoe. Similar to the other sectors, data on energy consumption is generally based on the data provided by the 2008, 2010 and 2011[2] consumption studies, data from KEK billing, Kosova Thëngjilli, MIT, and the economic growth analysis.

Table 12: Overview of consumption of all energy sources in the industry sector

Source	**ktoe**
Coal	59.14
Petroleum products	134.12
Biomass	11.01
Electricity	111.36
Total	**315.64**

Most consumed energy sources in the industry sector were petroleum products with 134.12 ktoe or 42.49 of the overall consumption, followed by electricity with 111.36 ktoe or 35.28%, coal with 59.14 ktoe or 18.74% and biomass with 10.01 ktoe or 3.49%.

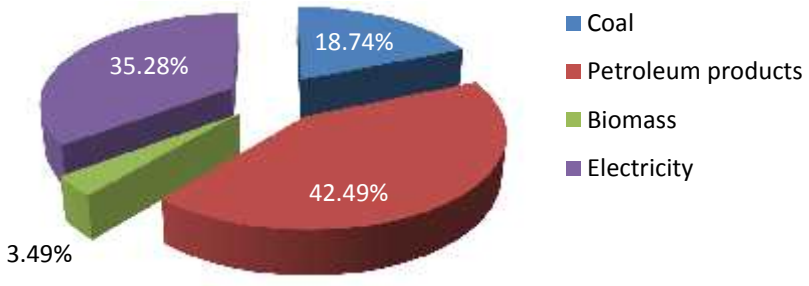

Figure 10: Overview of consumption of all energy sources in the industry sector (%)

1.3.2. Coal consumption in the industry sector

Table 12 shows the overview of consumption of all coal byproducts in the industry sector. In 2011, anthracite participated with 30.12 ktoe or 50.93%, while lignite covered 29.02 ktoe or 49.07%.

The following table shows the consumption of each coal byproduct in the industry sector.

[2] "Energy Consumption in Kosovo", implemented by Riinvest Institute in 2009,
Study on the distribution of energy consumption in the household sector, and the possibility to improve efficiency" - implemented by"- implemented by MPR GROUP in 2011,
Study on biomass consumption for energy purposes in the Energy Community, implemented by CRES in 2011.

Table 13. Overview of consumption of all coal byproducts in the industry sector

Coal	**ktoe**
Anthracite	30.12
Bituminous coal and other coal	0.00
Coking coal	0.00
Lignite	29.02
Coke and semi-coke	0.00
Coal gas, water gas, etc.	0.00
Pitch coke	0.00
Brown coal briquettes	0.00
Tar	0.00
Peat	0.00
Total	**59.14**

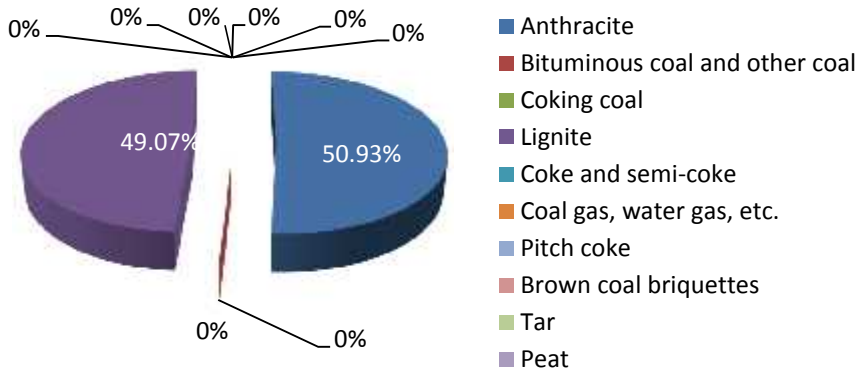

Figure 11: Overview of consumption of all coal byproducts in the industry sector (%)

Table 12 shows the overview of consumption of all coal byproducts in the industry sector. In 2011, anthracite participated with 30.12 ktoe or 50.93%, while lignite covered 29.02 ktoe or 49.07%.

1.3.3. Consumption of petroleum products in the industry sector

Table 14 shows that the list of most consumed petroleum products in 2011 is topped by heavy fuel oil with 39.49 %, followed by oil coke with 32.11%, diesel with 18.45%, LPG with 9.50% and gasoline with 0.45% of the overall consumption of petroleum products by the industry sector.

The following table shows the consumption of each petroleum byproduct in the industry sector.

Table 14. Overview of the consumption of each petroleum byproduct in the industry sector

Petroleum products	**ktoe**
Gasoline	0.61
Gasoil	0.00
Kerosene	0.00
Kerosene (Jet fuel)	0.00
Petroleum oil/heavy fuel oil	52.96
Diesel	24.74
LPG	12.75
Petroleum coke	43.07
Other petroleum products	0.00
Residual oil	0.00
Bitumen	0.00
Total	**134.12**

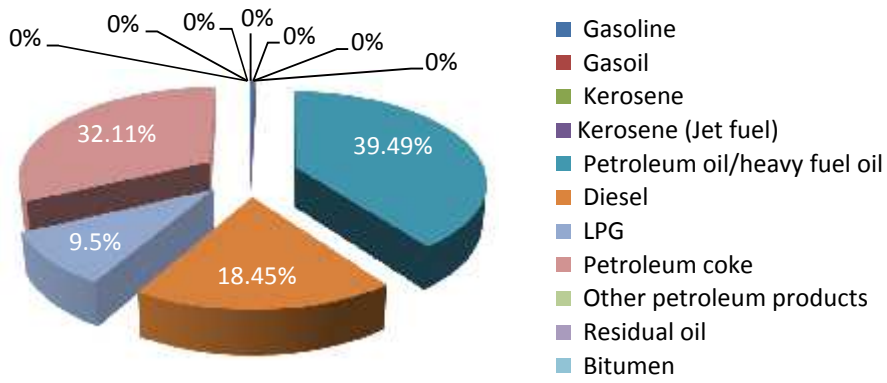

Figure 12: Share of petroleum products consumption in the industry sector (%)

The industry sector comprises of numerous various subsectors, such as: steel and iron industry, non-ferric metal industry, chemical industry, glass industry, ceramic and construction material industry, ore extraction industry, food, drink and tobacco industry, textile industry, leather and clothing, paper and stamping, engineering and other metal industries.

1.3.4 Electricity consumption in the industry sector

Overall electricity consumption in 2011 in the industry sector was 111.36 ktoe. The steel and iron industry is the subsector with the highest electricity consumption, covering 445.33 ktoe or 40.70% of the total electricity consumption of the industry sector, followed by the food, drink and tobacco industry with 41.66 ktoe or 37.41%, other industries 15.73 ktoe or 14.13%, glass, ceramics and construction material industries with 5.45 ktoe or 4.89%, and non-ferric metal industry with 1.44 ktoe or 1.29%.

The following table shows electricity consumption in the industry sector.

Table 15: Overview of electricity consumption in the industry sector

Industry subsector	**ktoe**
Iron and steel industry	45.33
Non-ferrous metal industry	1.44
Chemical industry	0.25
Glass, ceramic & construction material industries	5.45
Excavating industry	1.24
Food, drinks & tobacco industry	41.66
Textile, leather and clothes industry	0.09
Paper and printing	0.17
Engineering & metallic industries	0.01
Other industries	15.73
Total	**111.36**

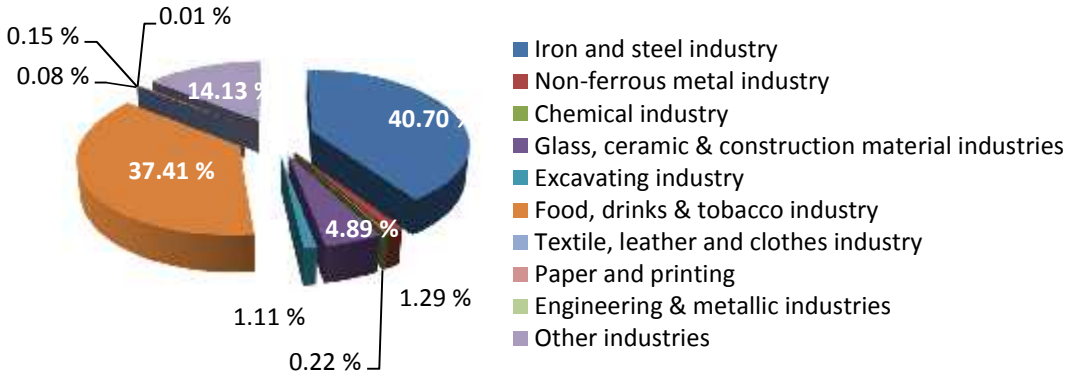

Figure 13: Share of electricity consumption in the industry sector (%)

1.3.5 Share of industrial subsectors in energy consumption

The analysis of energy consumption by industrial subsector in 2011 shows that the food, drink and tobacco subsector has the highest consumption with 83.80 ktoe or 26.5% of the total industry sector consumption, followed by the steel and iron subsector with 69.03 ktoe or 21.9%, non-ferric metal subsector with 64.47 ktoe or 20.4%, glass, ceramic and construction material industry with 60.69 ktoe or 19.2%, and other industrial subsectors with 32.62 ktoe or 10.3%.

The following table presents the total consumption of industrial subsectors:

Table 16: Overview of total energy consumption by industrial subsectors

Industry subsector	**ktoe**
Iron and steel industry	69.03
Non-ferrous metal industry	64.47
Chemical industry	1.89
Glass, ceramic & construction material industries	60.69
Excavating industry	2.70
Food, drinks & tobacco industry	83.80
Textile, leather and clothes industry	0.17
Paper and printing	0.26
Engineering & metallic industries	0.01
Other industries	32.62
Total	**315.64**

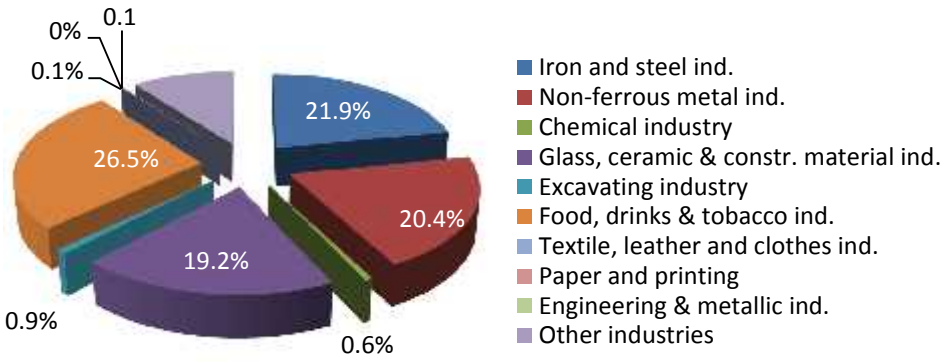

Figure 14: Overview of energy consumption of industrial subsectors (%)

1.4. Consumption in the household sector

1.4.1. Household sector consumption, all energy sources

Similar to other sectors, data of energy consumption are generally based on the findings of the consumption study of 2009, 2010 and 2011, data from KEK billing, Kosova Thëngjilli, and the economic growth analysis[3].

Energy consumed by households is used for heating spaces, air conditioning, heating sanitary water, cooking, lighting and use of electrical appliances for family and individual needs**.**

The energy consumed by the household sector in 2011 was 490.51 ktoe.

[3] "Energy Consumption in Kosovo", implemented by Riinvest Institute in 2009,
"Study on the distribution of energy consumption in the household sector, and the possibility to improve efficiency" - implemented by Intech Institute in 2011,
"Study on biomass consumption for energy purposes in the Energy Community, implemented by CRES in 2011.

Table 17: Overview of consumption of all energy sources in the household sector

Source	**ktoe**
Coal	23.32
Petroleum products	25.82
Biomass	222.36
Electricity	216.85
Solar energy	0.19
Derived heat	1.98
Total	**490.51**

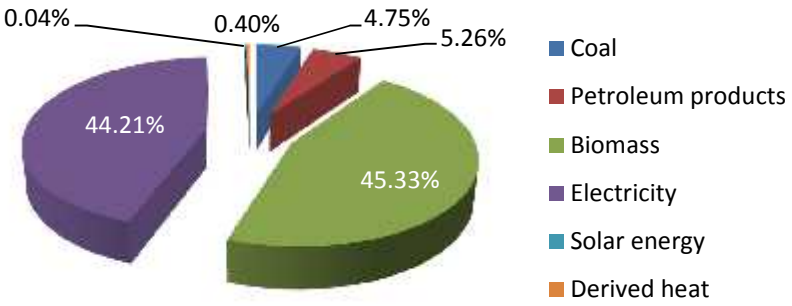

Figure 15: Overview of use of all energy sources in the household sector (%)

The most consumed energy source in the household sector for 2011 is biomass, with a consumption of 222.36 ktoe or 45.33% of the total energy consumed by the sector, followed by electricity with 216.85 ktoe, or 44.21% of the total consumption, petroleum products with 25.82 ktoe or 5.26% of the total consumption, coal with 23.32 ktoe or 4.757% of the total energy consumption, derived heat with 1.98 ktoe or 0.40% of the total energy consumption. The low participation of gained heating in the total energy consumption in the household sector is related to:

- Collective outages of district heating supply to customers, in particular by Prishtina's "Termokos", as a result of measures taken against non-paying customers; and
- Lack of fuel for the generation of district heating (heavy oil).

1.4.2. Coal consumption in the household sector

Table 18 shows that lignite is the most consumed coal in the household sector with 23.04 ktoe or 98.80% of total coal consumption in the household sector.

Consumption of each coal type in the household sector is provided in the following table:

Table 18: Overview of consumption of all coal types in the household sector

Coal	**ktoe**
Anthracite	0.00
Bitumen and other Coal	0.00
Coke coal	0.00
Lignite	23.04
Coke and semi-coke	0.00
Coal gas, gas, etc.	0.00
Pitch coke	0.00
Brown coal briquette	0.28
Tar	0.00
Peat	0.00
Total	**23.32**

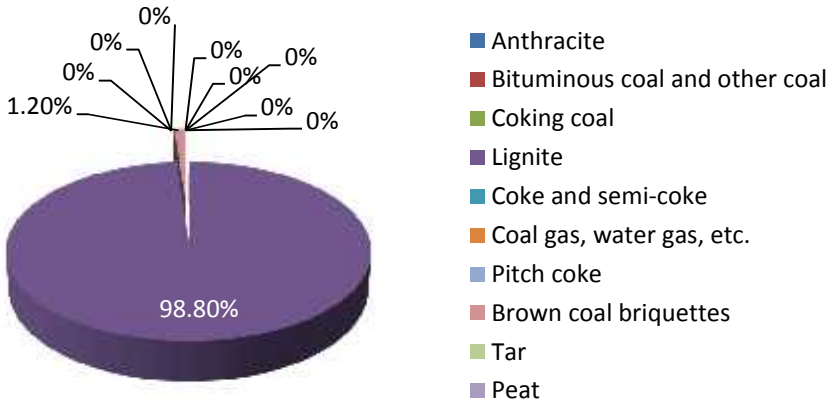

Figure 16: Overview of consumption of all coal byproducts in the household sector (%)

1.4.3. Consumption of petroleum products in the household sector

Table 19 shows that LPG is the most consumed petroleum product in the household sector, with 10.94 ktoe or 42.36% of total consumption, followed by diesel with 8.74 ktoe or 33.86% and gasoline with 6.14 ktoe or 23.78

The petroleum byproduct consumption in the household sector is provided in the following table:

Table 19: Overview of all oil products consumption in the household sector

Petroleum products	**ktoe**
Gasoline	6.14
Gasoil	0.00
Kerosene	0.00
Kerosene (Jet fuel)	0.00
Petroleum oil/heavy fuel oil	0.00
Diesel	8.74
LPG	10.94
Petroleum coke	0.00
Other petroleum products	0.00
Residual oil	0.00
Bitumen	0.00
Total	**25.82**

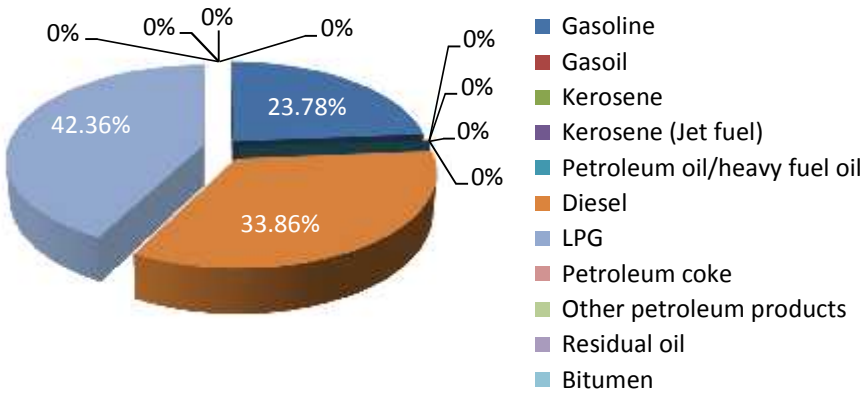

Figure 17: Overview of all oil byproducts consumption in the household sector (%)

1.5. Consumption in the service sector

1.5.1. Consumption of all energy sources in the service sector

Similar to other sectors, energy consumption data in general are based on findings of the consumption study of 2008, 2009, 2010 and 2011, data from KEK billing, Kosova Thëngjilli, and the economic growth analysis[4]. Similar to the household sector, the service sector uses energy for heating spaces, air conditioning, hot water, cooking in restaurants, hotels, health care facilities, kindergartens, rehabilitation facilities, public lighting, and electrical appliances in service sector facilities and buildings.

In 2011, the service sector consumed a total of 119.57 ktoe. The service sector is further divided into two key subsectors: public and private, both of which further include branches, such as hotel and tourism services, healthcare, trade, education, handicrafts, consultancy, culture and sports, public services, etc

[4] "Energy Consumption in Kosovo", implemented by Riinvest Institute in 2009,
Study on biomass consumption for energy purposes in the Energy Community, implemented by CRES in 2011.

Table 20: Overview of energy consumption in the service sector, all sources

Source	**ktoe**
Coal	3.92
Petroleum products	46.06
Biomass	6.37
Electricity	61.72
Solar energy	0.44
Derived heat	1.06
Total	**119.57**

In terms of derived heat, similar to the household sector, the service sector has not enjoyed sufficient heating, due to collective cuts of district heating supply for consumers, and lack of heating fuel (heavy oil).

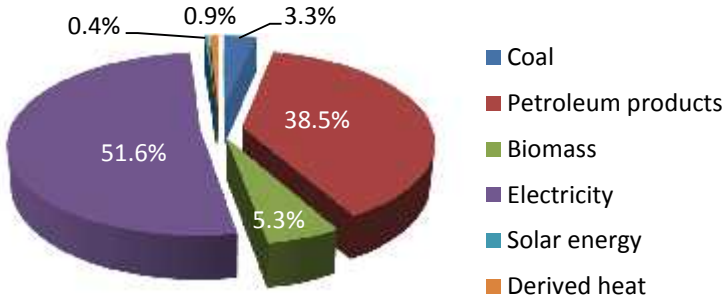

Figure 18: Consumption of all energy sources in the service sector (%)

In 2011, the most preferred energy source in the service sector was electricity, with 61.72 ktoe or 51.6% of the total consumption, petroleum products with 46.06 ktoe or 38.5%, biomass with 6.37 ktoe or 5.3%, coal with 3.92 ktoe or 3.3%, gained heating with 1.06 ktoe or 0.9% and solar energy with 0.44 ktoe or 0.4 %.

1.5.2. Coal consumption in the service sector

Consumption of all coal types in the service sector is provided in the following table:

Table 21: Overview of consumption of all types of coal in the service sector

Coal	**ktoe**
Anthracite	0.00
Bitumen and other Coal	0.00
Coke coal	0.00
Lignite	3.92
Coke and semi-coke	0.00
Coal gas, gas, etc.	0.00
Pitch coke	0.00
Brown coal briquette	0.00
Tar	0.00
Peat	0.00
Total	**3.92**

The only coal type consumed in the service sector is lignite with 3.92 ktoe.

1.5.3. Consumption of petroleum products in the service sector

Consumption of petroleum products in the service sector is provided in the following table:

Table 22: Overview of consumption of all oil products in the service sector

Petroleum products	**ktoe**
Gasoline	0.26
Gasoil	0.00
Kerosene	0.00
Kerosene (Jet fuel)	0.00
Petroleum oil/heavy fuel oil	13.24
Diesel	18.36
LPG	14.21
Petroleum coke	0.00
Other petroleum products	0.00
Residual oil	0.00
Bitumen	0.00
Total	**46.06**

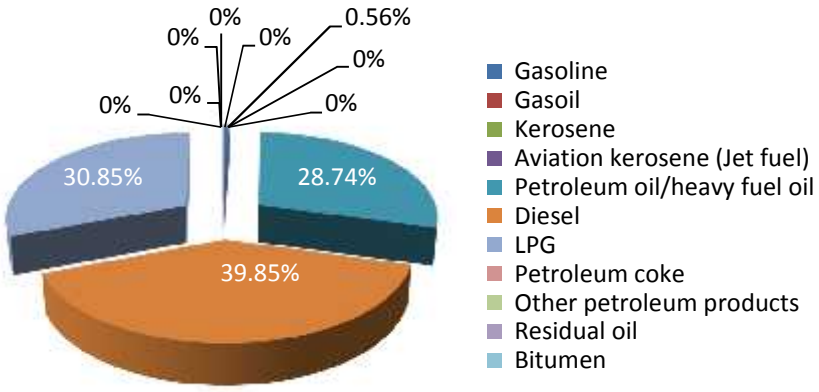

Figure 19: Overview of consumption of all oil byproducts in the service sector (%)

The most consumed petroleum product in the service sector is diesel, with a participation of 18.36 ktoe or 39.85%, followed by LPG with 14.21 ktoe or 30.85%, heavy oil with 13.24 ktoe or 28.74% and gasoline 0.26 ktoe or 0.56% of the total consumption.

1.6. Consumption in the transport sector

1.6.1. Consumption of all energy sources in the transport sector

The transport sector includes all transportation means, which means that not only the vehicles used exclusively for transport (lorries, buses, taxis, etc.), but also the vehicles used in other sectors, such as vehicles used in the household sector, services and external transport (outside the facility where activities are undertaken), in the sectors of industry and agriculture

The Kosovo transport sector consists of road, rail and air transportation.

Table 23: Overview of energy consumption in the transport sector, all sources

Source	ktoe
Petroleum	241.61
Gasoline	71.58
Kerosene	11.93
LPG	13.34
Total petroleum products	**338.45**
Biofuels	0.13
Total	**338.58**

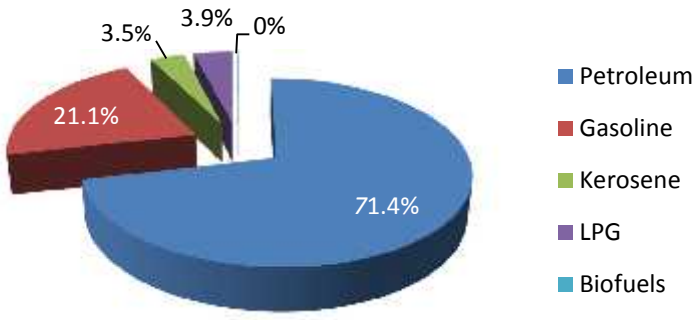

Figure 20: Energy consumption in the transport sector, all sources (%)

The transport sector consumption for 2011 was 338.58 ktoe.
Diesel remains the most consumed fuel in 2011, with 241.61 ktoe or 71.4%, gasoline with 71.58 ktoe or 21.1%, followed by LPG with 13.34 ktoe or 3.9% and kerosene (used exclusively in air transport) with 11.93 ktoe or 3.5% from the total consumption.

1.7. Consumption in the agricultural sector

1.7.1. Consumption of all sources of energy in the agriculture sector

The energy consumption in the agricultural sector for 2011, calculated with the methodology of extrapolating data from surveys carried out in 2009[5], was 19.95 ktoe. The most preferred energy sources in the agricultural sector are petroleum products with 10.61 ktoe or 53.2%, followed by electricity with 6.87 ktoe or 34.47%, biomass with 2.2 ktoe or 11.03%, and coal with 0.26 ktoe or 1.3% from the total energy consumption.

Table 24 Overview of energy consumption in the agriculture sector, all sources

Source	Ktoe
Coal	0.26
Petroleum products	10.61
Biomass	2.20
Electricity	6.87
Total	**19.95**

[5] "Energy Consumption in Kosovo", implemented by Riinvest Institute in 2009,

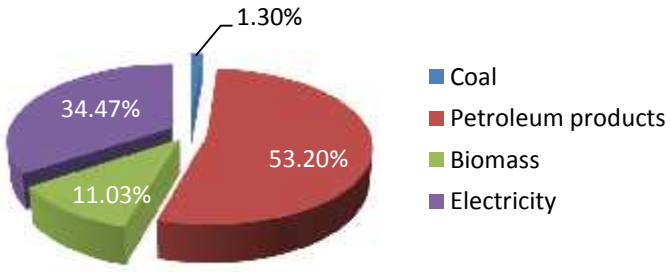

Figure 21 Overview of energy consumption in the agriculture sector, all sources (%)

1.7.2. Coal consumption in the agricultural sector

Coal consumption in the agricultural sector is provided in the following table:

Table 25: Overview of consumption of all types of coal in the agricultural sector

Coal	**ktoe**
Anthracite	0.00
Bitumen and other Coal	0.00
Coke coal	0.00
Lignite	0.26
Coke and semi-coke	0.00
Coal gas, gas, etc.	0.00
Pitch coke	0.00
Brown coal briquette	0.00
Tar	0.00
Peat	0.00
Total	**0.26**

1.7.3. Consumption of petroleum products in the agricultural sector

Consumption oil byproducts in the agricultural sector are provided in the following table:

Table 26: Overview of consumption of all oil products in the agricultural sector

Petroleum products	**ktoe**
Gasoline	0.06
Gasoil	0.00
Kerosene	0.00
Kerosene (Jet fuel)	0.00
Petroleum oil/heavy fuel oil	0.00
Diesel	10.52
LPG	0.04
Petroleum coke	0.00
Other petroleum products	0.00
Residual oil	0.00
Bitumen	0.00
Total	**10.61**

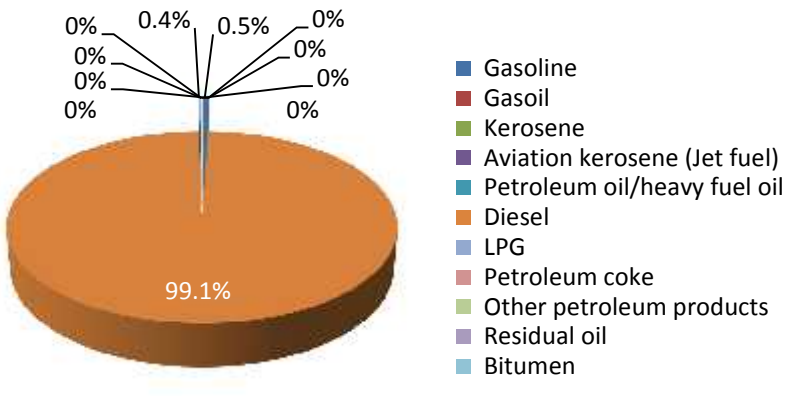

Figure 22: Overview of consumption of all oil byproducts in the agricultural sector (%)

Diesel remains the most consumed petroleum byproduct in the agricultural sector, with 10.52 ktoe or 99.1%, followed by gasoline with 0.5%, and LPG with 0.4%

1.8. Supply of energy for the demand

1.8.1. Coal (lignite) supply

Table 27: Supply of lignite demand for economic sectors

Economic sectors	**ktoe**
Industry	29.02
Households	23.04
Agriculture	0.26
Services	3.92
Final energy consumption	**56.25**
Available for final consumption	**56.25**
Statistical difference	**0.00**

The basis for calculation of coal consumption for 2011 is taken from official data of lignite (dry and wet) sales from Kosovo Thëngjilli j.s.c. and the Department of Business Support for Mining, KEK.

1.8.2. Electricity supply

Electricity supply in 2011 was provided largely from generation in power plants Kosovo A and B, hydro power plants (Ujman, Lumbardh, Radavc and Dikanc and Burim), and wind energy capacities from AEC Golesh. The amount of electricity generated in power plants in 2011 was 489.89 ktoe, electricity generated from hydro power plants in 2011 was 9.00 ktoe, and AEC Golesh contributed with 0.02 ktoe.

As seen in Table 28, electricity supply in 2011 from power plant generations was realized in a total of 5,234.6 GWh quantity, whereas hydro power plant generated electricity amounted to 104.63 GWh, and wind to 0.281 GWh. Total imported electricity was 816.20 GWh.

The following table shows a summary of electricity supply:

Table 28: Electricity supply

2011	MWh
[6]TPP Kosova A	2,014,450
[7]TPP Kosova B	3,220,180
HPP UJMANI	74,387
HPP Lumbardhi	22,304
HPP Radavci	2,985
HPP Dikanci	4,352
HPP Source	597
RES Golesh	281
Total	**5,339,536**

Source of information: Annual actual electricity balance 2011, KOSTT j.s.c.

1.8.3. Petroleum products supply

Petroleum supply is made possible only by imports and in very small amounts produces from desulfurization plants (micro refineries).

Table 29: Supply of petroleum products for the demand, in economic sectors

Economic Sector	ktoe
Industry	184.19
Transport	338.45
Household	25.82
Agriculture	10.61
Services	46.06
Final energy consumption	**605.14**
Available final consumption	**577.18**
Statistical difference	-27.96

Table 29 shows that the statistical difference of -27.96 ktoe results from non-registration of a quantity of petroleum products in the Kosovo Customs, which means that the demands of all economic sectors have been covered and supplied rather well. As expected, the main consumer of petroleum products remains the transport sector, with 338.45 ktoe or 55.93 %, followed by industry with 184.19 ktoe or 30.44%, services with 46.06 ktoe or 7.61%, households with 25.82 ktoe or 4.27% and agriculture with 10.61 ktoe or 1.75% of total consumption.

[6] TPP Kosova A is energy before transmission
[7] TPP Kosova B is energy before transmission

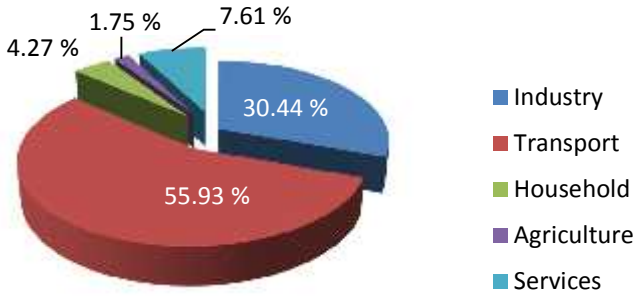

Figure 23: Participation and demand coverage with petroleum products, by economic sectors (%)

1.9. Energy consumption indicators

There are specific indicators affecting the energy consumption, the key indicators being:

- Energy consumption per capita, and
- Energy intensity.

The energy consumption per capita is an indicator of economic development of a country. If one analyses energy consumption per capita, in 2011, consumption was 0.73 toe/per capita[8].

Energy intensity – is another indicator of economic development, reflecting the relation between primary energy sources and the Gross Domestic Product (GDP). For 2011, the energy intensity has resulted in a rate of 0.54 toe/1000 €.

Kosovo must engage in efforts to decrease the energy intensity. Although, mathematically, a GDP growth must decrease energy intensity, this is not necessarily valid in reality. It may well happen that a growth in GDP causes an increase in energy demand, and the other way around, but not at a similar growth rate.

1.10. Environment pollution

Impact of petroleum and its products in environmental pollution

According to several studies, combustion of each liter of fuel releases: 100 *g* CO, 20 *g* VOC, 30 *g* NO_x and 2.5 *kg* CO_2, with some minor amounts of various matters, such as sulfate oxide, iron and other particles[9].

Table 30: Environmental polluters discharged from petroleum and vehicles

Emissions	Per liter of fuel (*g*)	Per vehicle annual (*kg*)	Total (kton)
CO	100	100	32.54
VOC	20	20	6.51
NO_x	30	30	9.76
CO_2	2500	2500	813.61

Source: Energy Balance Document, and Air pollution by Jeremy Colls

[8] Official data on Kosovo population taken from the KSA

[9] Air pollution by Jeremy Colls, page 127

Environmental impact caused by thermo power plants

According to the Athens Treaty establishing the Energy Community, signed by Kosovo (22 March 2005), the requirements of the EU Directive 2001/80/EC must be complied with by 31 December 2017. Differences between the current emissions by KEK J.S.C. power plants and the Directive limits are as follows:

Table 31: Pollution limits as per Athens Treaty

Emission	TPP A	TPP B	Limit	Timeline
Dust (mg/Nm^3)	917	464.5	50.00	31.12.2017
SO_2 (mg/Nm^3)	616	620	400.00	31.12.2017
NO_x (mg/Nm^3)	688.6	790.5	500.00	31.12.2017

Source: KEK j.s.c. Environment Report for 2011

2. Conclusions

- Electricity demand continues to grow in 2011. Its supply was met through domestic generation from TPPs and HPPs, and imports. However, sections of demands are yet to be fulfilled.

- Petroleum and LPG imports have increased compared to previous years due to improved customs duties for petroleum products.

- Increased use of coal in the household sector is expected as a result of higher prices of other alternative heating products. Although the use of coal is not environment-friendly, economic conditions drive its use.

ANNEXES

Annex 1. Characteristics of Kosovo's energy system

Installed capacities of the Kosovo TPP generation units

TPP	Unit	Year of commissioning	Installed capacity MW	Available power		Technical minimum MW	
				Generator	Thr.	Generator	Thr.
Kosova A	A1	1962	65	0	0	0	0
	A2	1965	125	0	0	0	0
	A3	1970	200	135	110	110	100
	A4	1971	200	135	110	110	100
	A5	1975	210	135	110	100	97
Total Kosova A			**800**	**405**	**330**	**320**	**297**
Kosova B	B1	1983	339	290	265	200	182
	B2	1984	339	280	265	200	182
Total Kosova B			**678**	**570**	**530**	**400**	**364**
Kosova Coal J.S.C.	N1	1970	25				
	N2	1970	16				
Total Kosova Coal			**41**	**0**	**0**	**0**	**0**

Installed capacities of renewable energy source (RES) generation units

Renewable sources	Generator	Year of commissioning	Active power (MW)
Wind generators (RES)	G1	2010	0.45
	G2	2010	0.45
	G3	2010	0.45
Total			**1.35**

Installed capacities of generation units of Kosovo HPPs

HPP	Unit	Year of commissioning	Installed Capacity MVA	Available Capacity AMW	Rotations. n/min	Minimal water quota
HPP Ujmani	G1	1981	19.5	17.5	428	638
	G2	1981	19.5	17.5	428	
Total Ujmani			**39**	**35**		
HPP Lumbardhi	G1	1957/2005	5.05	4.04	500/915	cosφ=0.8
	G2	1957/2005	5.05	4.04	500/915	cosφ=0.8
Total Lumbardhi			**10.1**	**8.08**		
Radavci	G1	1934/ Reconstruction 2010	0.5	0.45	1000	cosφ=0.9
	G2	1934/ Reconstruction 2010	0.5	0.45	1000	cosφ=0.9
Total Radavci			**1.0**	**0.90**		
Dikanci	G1	1957/ Repair phase I -2010	0.55	0.5	1000	cosφ=0.8
	G2	1957/ Repair phase I -2010	0.55	0.5	1000	cosφ=0.8
Total Dikanci			**1.1**	**1.0**		
Burimi	G1	1948/ reconstruction 2011	0.475	0.427	1000	29,5m
	G2	1948/ reconstruction 2011	0.475	0.427	1000	29.5m
Total Burimi			**0.95**	**0.854**		
TOTAL HPP			**52.15**	**45. 83**		

Length of lines in the Kosovo electricity system

LINES			
High voltage	**Length**	**Medium and low voltage**	**Length**
kV	**km**	**kV**	**km**
400	**187.85**	**35**	**806**
220	**231.88**	**10**	**5861**
110	**801.89**	**0.4**	**16760**
Total	**1221.62**		**23427**

Generation capacities of Kosovo Heating Companies

Termokos - Prishtinë	Dis. Heating- Gjakovë	Termomit - Mitrovicë	Dis. Heating- Zveqan
Installed Capacities	**Installed**	**Installed Capacities**	**Installed Capacities**

2X58 MW	**116 MW**	**1X18.MW**	**18.6 MW**	**-**	**-**	**-**	**-**
2X0.8 MW	**1.6**	**1X20**	**20 MW**				
2X7 MW	**14**						
1X4 MW	**4 MW**						
Total	**135.6 MW**	**Total**	**38.6 MW**		**- MW**		**-MW**

Annex 2. Characteristics of energy sources and unit conversion

Conversion of units

	kcal	**kJ**	**kWh**	**kgoe**
1 kcal	1	4.1871	0.001163	0.0001
1kJ	0.2388	1	0.000278	0.0239×10^{-3}
1kWh	860	3600	1	0.086
1kgoe	10000	41871.4	11.62	1

Energy source characteristics

Energy source	**Unit**	**kJ**	**kgoe**	**toe**	**ktoe**
Anthracite	kg	31,587.50	0.754	7.54E-04	7.54E-07
Bitumen coal and other	kg	20,125.00	0.481	4.81E-04	4.81E-07
Coal stone for coke	kg	29,310.00	0.700	7.00E-04	7.00E-07
Lignite	kg	7,802.15	0.186	1.86E-04	1.86E-07
Coke and semi-coke	kg	28,500.00	0.681	6.81E-04	6.81E-07

Coal gas, water gas, etc.	kg	20,000.00	0.478	4.78E-04	4.78E-07
Turpentine coke from coal tar	kg	37,700.00	0.900	9.00E-04	9.00E-07
Brown coal	kg	8,060.24	0.193	1.93E-04	1.93E-07
Brown Coal Pellet	kg	20,014.53	0.478	4.78E-04	4.78E-07
Peat	kg	10,802.82	0.258	2.58E-04	2.58E-07
White fuel	kg	43,600.00	1.041	1.04E-03	1.04E-06
Aviation gasoline	kg	44,006.84	1.051	1.05E-03	1.05E-06
Gasoline	kg	44,006.84	1.051	1.05E-03	1.05E-06
Kerosene	kg	43,001.93	1.027	1.03E-03	1.03E-06
Fuel oils/heavy fuel oil	kg	39,610.34	0.946	9.46E-04	9.46E-07
Petroleum	kg	42,290.11	1.010	1.01E-03	1.01E-06
LPG	kg	46,016.67	1.099	1.10E-03	1.10E-06
Petroleum coke	kg	31,403.55	0.750	7.50E-04	7.50E-07
Other petroleum products	kg	39,987.19	0.955	9.55E-04	9.55E-07
Bitumen	kg	37,684.26	0.900	9.00E-04	9.00E-07
Petroleum remains	kg	39,987.19	0.955	9.55E-04	9.55E-07
Biomass (20% humidity)	m^3	6,155,095.80	147.17	1.47E-01	1.47E-04
Biomass (40% humidity)	m^3	3,596,585.77	85.90	8.59E-02	8.59E-05
Biomass (45% humidity)	m^3	3,507,670.18	83.77	8.38E-02	8.38E-05
Biofuel	kg	6,168,000.00	0.874	8.74E-04	8.74E-07
Heating	kWh	3,600.94	0.086	8.60E-05	8.60E-08
Electricity	kWh	3,600.94	0.086	8.60E-05	8.60E-08

Annex 3. Annual (Realized) Energy Balance in the Republic of Kosovo for 2011

Annual (realized) Energy Balance for 2011 (ktoe)	Total	Anthracite	Bituminous coal and other coal	Coking coal	Lignite/Brown coal	Coke and semi coke	Coal gas.water gas,etc.	Pitch coke	Brown Coal Briquettes	Tar	Peat	Total coal
Primary production	1792.63				1542.47							1542.47
Generated products												
Imports	702.28	30.12	0.08	0.00	7.97	0.12	0.00	0.00	0.28	0.00	0.34	38.92
Stock changes	46.79				46.79							46.79
Exports	36.66	0.00	0.08	0.00	3.81	0.75	0.00	0.00	0.00	0.06	0.00	4.69
Bunkers												
Gross inland consumption	2505.03	30.12	0.00	0.00	1593.43	-0.63	0.00	0.00	0.28	-0.06	0.34	1623.49
Inputs in transformation	1556.77	0.00	0.00	0.00	1537.18	0.00	0.00	0.00	0.00	0.00	0.00	1537.18
Public power plants	1542.68				1537.18							1537.18
Auto production power plants												
Nuclear power plants												
Power plants with patented fuel and briquette												
Cox furnaces												
Martin furnaces												
Gasification												
Refinery	8.93											
Concentrated heating plants	4.53											
Solar equipment	0.63											
Outputs from transformation	505.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Power plants	489.89											
Auto production power plants												
Nuclear power plants												
Power plants with patented fuel and briquette												
Cox furnaces												
Martin furnaces												
Gasification												
Refinery	10.58											
Concentrated heating plants	4.53											
Solar equipment	0.63											
Exchanges and transfers,returns	0.00											
Inter-production transfer												
Transferred procucts												
Returning to petrochemical energy												
Losses in transformation	0.00											0.00
Consumption in energy sector	66.06											
Losses in transmission and distribution	81.81											
Available for final consumption	1306.02	30.12	0.00	0.00	56.25	-0.63	0.00	0.00	0.28	-0.06	0.34	86.31
Final non energy consumption	50.41									0.00	0.34	0.34
Chemical industry	0.34									0.00	0.34	0.34
Other sectors	50.07									0.00	0.00	0.00
Final energy consumption	1284.25	30.12	0.00	0.00	56.25	0.00	0.00	0.00	0.28	0.00	0.00	86.65
Industry	315.64	30.12	0.00	0.00	29.02	0.00						59.14
Iron and steel	69.03	15.06	0.00		2.98	0.00						18.04
Non-ferrous metal industry	64.47	9.04			0.00	0.00						9.04
Chemical industry	1.89				0.00							0.00
Glass,ceramics&construction material industry	60.69				1.98							1.98
Excavating industry	2.70				0.00							0.00
Food ,drinks&tabacco industry	83.80	6.02			24.00							30.02
Textile ,leather and clothing	0.17				0.00							0.00
Paper and printing	0.26				0.01							0.01
Engineering&other metallic industries	0.01				0.00							0.00
Other industry	32.62				0.05							0.05
Transport	338.58			0.00								
Railwey	1.21											
Road transport	325.44											
Air	11.93											
Other transport												
Houshold	490.51			0.00	23.04				0.28			23.32
Agriculture	19.95			0.00	0.26							0.26
Services	119.57			0.00	3.92	0.00						3.92
Statistical difference	-28.64	0.00	0.00	0.00	0.00	-0.63	0.00	0.00	0.00	-0.06	0.00	-0.68

Annual (realized) Energy Balance for 2011 (ktoe)	Gasoline	Gasoil	Kerosene	Kerosene (Jet fuel)	Fuel oils	Diesel	LPG	Petroleum Cokes	Other petroleum	Residual oil	Bitumen	Total oil products
Primary production												
Generated products												
Imports	78.65	6.90	1.63	11.93	74.59	283.78	40.97	43.07	0.00	0.00	50.10	591.61
Stock changes												
Exports	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.03	0.05
Bunkers												
Gross inland consumption	78.65	6.90	1.63	11.93	74.57	283.78	40.97	43.07	0.00	0.00	50.07	591.56
Inputs in transformation		6.90	1.63		8.78	1.65	0.00	0.00				18.97
Public power plants					3.85	1.65						5.51
Auto production power plants												
Nuclear power plants												
Power plants with patented fuel and briquette												
Cox furnaces												
Martin furnaces												
Gasification												
Refinery		6.90	1.63		0.39							8.93
Concentrated heating plants					4.53							4.53
Solar equipment												
Outputs from transformation	0.00	0.00	0.00	0.00	4.06	6.53	0.00	0.00	0.00	0.00	0.00	10.58
Power plants												
Auto production power plants												
Nuclear power plants												
Power plants with patented fuel and briquette												
Cox furnaces												
Martin furnaces												
Gasification												
Refinery					4.06	6.53	0.00					10.58
Concentrated heating plants												
Solar equipment												
Exchanges and transfers,returns												
Inter-production transfer												
Transferred procucts												
Returning to petrochemical energy												
Losses in transformation					0.00	0.00	0.00	0.00	0.00	0.00		0.00
Consumption in energy sector					3.64	2.36						6.00
Losses in transmission and distribution												
Available for final consumption	78.65	0.00	0.00	11.93	66.20	286.30	40.97	43.07	0.00	0.00	50.07	577.18
Final non energy consumption	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.07	50.07
Chemical industry											0.00	0.00
Other sectors											50.07	50.07
Final energy consumption	78.65	0.00	0.00	11.93	66.20	303.96	51.27	43.07	0.00	0.00	0.00	555.07
Industry	0.61	0.00		0.00	52.96	24.74	12.75	43.07	0.00	0.00	0.00	134.12
Iron and steel	0.00				0.00	0.50	0.00	5.11				5.62
Non-ferrous metal industry	0.00				46.74	7.21	0.04	0.00				53.99
Chemical industry	0.03				0.00	0.04	1.55					1.62
Glass,ceramics&construction material industry	0.38				3.73	12.00	7.89	28.98				52.98
Excavating industry	0.01				1.04	0.36	0.00					1.41
Food ,drinks&tabacco industry	0.15				0.78	3.42	3.12					7.47
Textile ,leather and clothing	0.00				0.06	0.01	0.00					0.07
Paper and printing	0.00				0.00	0.07	0.01					0.08
Engineering&other metallic industries	0.00				0.00	0.00	0.00					0.00
Other industry	0.04				0.62	1.12	0.13	8.97			0.00	10.88
Transport	71.58	0.00		11.93		241.61	13.34	0.00	0.00	0.00	0.00	338.45
Railwey	0.00					1.21	0.00					1.21
Road transport	71.58					240.39	13.34					325.32
Air	0.00			11.93		0.00	0.00					11.93
Other transport	0.00					0.00	0.00					
Houshold	6.14	0.00		0.00		8.74	10.94	0.00	0.00	0.00	0.00	25.82
Agriculture	0.06	0.00		0.00		10.52	0.04	0.00	0.00	0.00	0.00	10.61
Services	0.26	0.00		0.00	13.24	18.36	14.21	0.00	0.00	0.00	0.00	46.06
Statistical difference	0.00	0.00	0.00	0.00	0.00	-17.66	-10.30	0.00	0.00	0.00	0.00	-27.96

Annual (realized) Energy Balance for 2011 (ktoe)	Biomass	Biofuel	Hydroenergy	Solar energy	Wind energy	Derived heat	Electric energy
Primary production	240.50		9.00	0.63	0.02		
Generated products							
Imports	1.43	0.13	0.00				70.19
Stock changes							
Exports	0.00	0.00	0.00				31.92
Bunkers							
Gross inland consumption	241.93	0.13	9.00	0.63	0.02		38.27
Inputs in transformation	0.00	0.00	0.00	0.63	0.00		0.00
Public power plants							
Auto production power plants							
Nuclear power plants							
Power plants with patented fuel and briquette							
Cox furnaces							
Martin furnaces							
Gasification							
Refinery							
Concentrated heating plants							
Solar equipment				0.63			
Outputs from transformation	0.00	0.00	0.00	0.63	0.00	4.53	489.89
Power plants							489.89
Auto production power plants							
Nuclear power plants							
Power plants with patented fuel and briquette							
Cox furnaces							
Martin furnaces							
Gasification							
Refinery							
Concentrated heating plants						4.53	
Solar equipment				0.63			
Exchanges and transfers,returns	0.00		-9.00		-0.02		9.02
Inter-production transfer			-9.00		-0.02		9.02
Transferred procucts							
Returning to petrochemical energy							
Losses in transformation	0.00						
Consumption in energy sector	0.00					0.57	59.49
Losses in transmission and distribution	0.00					0.92	80.89
Available for final consumption	241.93	0.13	0.00	0.63	0.00	3.04	396.80
Final non energy consumption	0.00						0.00
Chemical industry							
Other sectors							
Final energy consumption	241.93	0.13	0.00	0.63	0.00	3.04	396.80
Industry	11.01	0.00	0.00		0.00		111.36
Iron and steel	0.05						45.33
Non-ferrous metal industry	0.00						1.44
Chemical industry	0.03						0.25
Glass,ceramics&construction material industry	0.28						5.45
Excavating industry	0.05						1.24
Food ,drinks&tabacco industry	4.64						41.66
Textile ,leather and clothing	0.00						0.09
Paper and printing	0.01						0.17
Engineering&other metallic industries	0.00						0.01
Other industry	5.96						15.73
Transport	0.00	0.13	0.00		0.00		
Railwey							
Road transport		0.13					
Air							
Other transport							
Houshold	222.36	0.00	0.00	0.19	0.00	1.98	216.85
Agriculture	2.20	0.00	0.00	0.00	0.00		6.87
Services	6.37	0.00	0.00	0.44	0.00	1.06	61.72
Statistical difference	0.00	0.00	0.00	0.00	0.00	0.00	0.00