



## **BULLETIN**

ON THE STATE AND DEVELOPMENT

OF THE ENERGY SECTOR IN THE

REPUBLIC OF BULGARIA

***2015***

THE PRESENT DOCUMENT IS PREPARED  
PURSUANT TO ARTICLE 4, PARAGRAPH 2,  
ITEM 17 OF THE ENERGY ACT WHICH  
REQUIRES ANNUAL PUBLICATION OF A  
BULLETIN ON THE STATE AND  
DEVELOPMENT OF THE ENERGY SECTOR.



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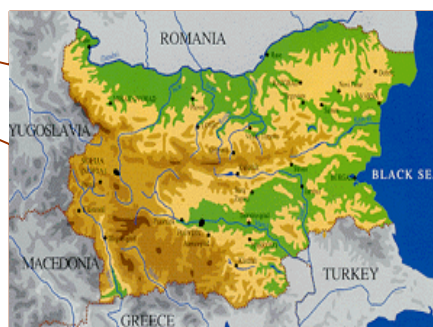
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# ENERGY PROFILE OF THE REPUBLIC OF BULGARIA

## GENERAL OVERVIEW



- Area – 110 944 km<sup>2</sup>
- EU member since 1<sup>st</sup> January 2007 , NATO member
- 10% corporate tax
- 20% VAT
- Strategic geographic position



## MACROECONOMIC PARAMETERS

		2009	2010	2011	2012	2013
Population	mIn	7.56	7.50	7.33	7.28	7.25
GDP, real growth	% per year	-5.0	0.7	2.0	0.5	1.1
Real GDP per capita (PPP)*	EC=100	44	43	44	45	45
Export	EUR million	11 699	15 561	20 265	20 770	25 460
Import	EUR million	16 876	19 245	23 407	25 460	25 829
Average annual inflation	%	2.8	2.4	4.2	3.0	0.9
Unemployment	%	6.8	10.2	11.3	12.3	12.9
Exchange rate**	BGN/EUR	1.9558	1.9558	1.9558	1.9558	1.9558

Source: NSI, BNB, Eurostat

\* Operating currency board and fixed exchange rate of BGN against the Eur

\*\* Eurostat Data

## MACROENERGY PARAMETERS

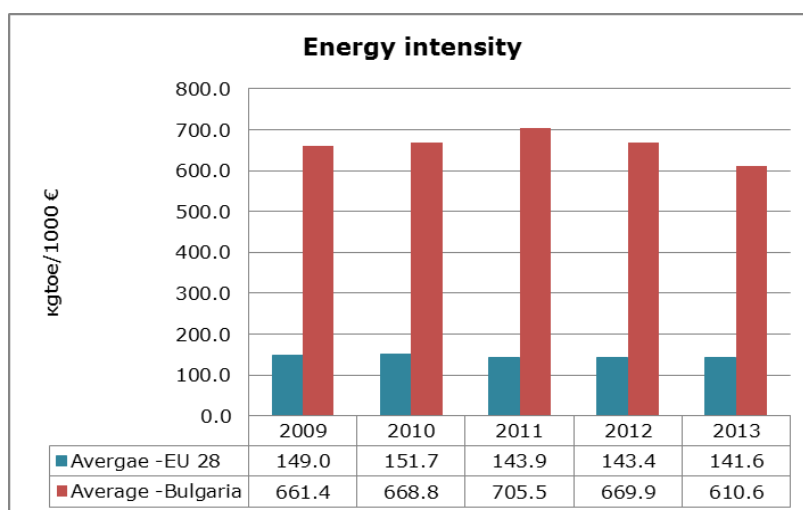
		2009	2010	2011	2012	2013
Primary energy production	1000 toe	9 553	10 188	11 919	11 321	10 208
Gross domestic energy consumption	1000 toe	17 444	17 783	19 106	18 305	16 954
End consumption of energy	1000 toe	8 493	8 720	9 050	9 044	8 598
Share of energy from RES in gross domestic energy consumption	%	12.2	14.1	14.3	16.0	19.0

\*Source-NSI Energy balances 2013

## ENERGY EFFICIENCY INDICATORS

		2009	2010	2011	2012	2013
Energy efficiency of the economy – EU 28	kgoe/1000 EUR	149.0	151.7	143.9	143.4	141.6
Energy efficiency of the economy – Bulgaria	kgoe/1000 EUR	661.4	668.8	705.5	669.9	610.6

Source: Eurostat



**Energy intensity** of Bulgarian economy according to Eurostat data for 2013 show that Bulgaria is last among the 28 EU member countries-with the highest energy intensity rate of 610.6 kgoe/1000 EUR (according to comparable prices for 2005). The average European intensity is 141.6 tnoe/1000 EUR. It should be underlined that the different parity purchasing powers within the EU mitigate this dramatic contrast without eliminating it.

## ENERGY DEPENDENCE

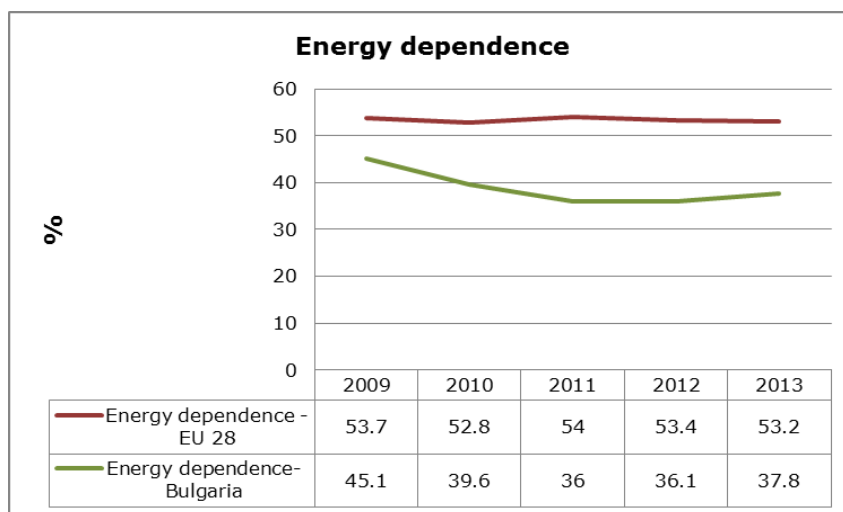
		2009	2010	2011	2012	2013
Energy dependence – EU-28	%	53.7	52.8	54.0	53.4	53.2
Energy dependence-Bulgaria	%	45.1	39.6	36.0	36.1	37.8

Source: Eurostat

**Energy dependence** indicates a country's dependence on import of energy and resources. Major local resource of Bulgaria is lignite coal. Nuclear energy is considered a local source and significantly contributes to the enhancement of energy independence.

The measures undertaken in the last few years to stimulate energy efficiency, increased energy generation from RES and projects realized by the new capacities of local coal have shown a positive reflection in the energy dependence indicator.

Bulgaria's energy dependence for the last years is significantly lower than the average one of EU member countries.



## INSTITUTIONS

### Ministry of Energy

(<http://www.me.government.bg>)

### Energy and Water Regulatory Commission (EWRC)

(<http://www.dker.bg>)

### Nuclear Regulatory Agency (NRA)

(<http://www.bnsa.bas.bg>)

### Sustainable Energy Development Agency (SEDA)

(<http://www.seea.government.bg>)

## ENERGY COMPANIES

### BULGARIAN ENERGY HOLDING

**The Bulgarian Energy Holding EAD** (BEH EAD) was established on 18 September 2008 by Decision of the Minister of Economy and Energy with main subject of activity acquisition, management, evaluation and sale of shares in companies, carrying out business activities in the areas of production, extraction, transmission, transiting, storage, management, distribution, sale and/or purchase of natural gas, coal, electricity, heat and other forms of energy and raw materials. BEH EAD is a shareholding company with 100% state participation. In turn, BEH owns 100% of the share capital of: Maritsa Iztok Mines EAD, TPP Maritsa Iztok 2 EAD, NPP Kozloduy EAD, NEK EAD, ESO EAD, Independent Bulgarian Energy Exchange EAD /IBEX/, Bulgargaz EAD, Bulgartransgaz EAD and Bulgartel EAD.

### COAL MINING

Maritsa Iztok Mines EAD is a subsidiary of BEH EAD, which is at the beginning of the technological process for electric power generation in thermal power plants in the Maritsa Iztok complex. The mines operate the largest lignite coal field in Bulgaria, which supplies with coal four thermal power plants for electricity generation and a factory for the production of briquettes. The total coal output at the Maritsa Iztok Mines for 2014 is 27.6 million tonnes, which represents 88% of the total output of coal used for the generation of electricity and heat in Bulgaria.

The priority share in the brown coal production belongs to the coal mines in the Pernik and Bobovdol basins. Black coal production is realized in "Balkan 2000 Mines EAD".

### NATURAL GAS

The companies engaged in **domestic production of natural gas** are "Petroceltic" /former "Melrose Resources Sarl"/ and "Oil and Gas Exploration and Production Plc." In 2014, production of natural gas in Bulgaria marked a low of 35.6% compared to 2013.

**Bulgargaz EAD** (Public provider of natural gas which functions are related to the purchase and sale of natural gas) and "**Bulgartransgaz**" EAD /combined operator which functions are related to the transmission, transiting and storage of natural gas; the company has submitted an application for certificate for independent transmission operator/ have been established as a result of legal and organizational restructuring of the National Gas Company, and at present are subsidiaries of BEH EAD.

**Gas distribution** is organized by private regional and local companies, whereas in 2014 the major market share of 59.4% was held by the subsidiaries of "Overgas" AD, "Citigas Bulgaria" - with a market share of 16.2%, 'Black Sea Technology' with 10.7% and other gas distribution companies with total market share of 13.7%.

## OIL AND OIL PRODUCTS

The oil and oil products market in the country is completely liberalized. The largest oil refinery on the Balkan Peninsular operates in Bulgaria, with Lukoil as majority shareholder. Among the major players in the trade in oil and oil products are **LUKOIL, PETROL, OMV, SHELL, EKO, ROMPETROL, NAFTEX, PRISTA OIL, OPET, HELLENIC PETROLEUM.**

**LUKOIL Bulgaria EOOD** – a subsidiary of the Russian Lukoil, established in 1999, is a leader in the trade and distribution of fuels, polymers and petrochemicals produced by **LUKOIL Neftohim Burgas AD.** The group owns a chain of over 200 petrol stations all over the country with a large share of the market of oil products, fuels and polymers in South Eastern Europe.

**PRISTA-OIL AD** – Bulgaria is part of PRISTA-OIL Group which, through its subsidiaries all over Europe, carries out activities in the field of production, distribution, sale and trade in motor oils and industrial lubricants, greases, brake fluids, metalworking fluids and coolants. For the past 13 years the company has developed business relationships in over 20 countries in the region, and its market share in the individual countries ranges between 5-55%.

**PETROL AD** is a private company established in 1932, a leader in the distribution of fuels in Bulgaria with over 500 petrol stations, laboratories for permanent quality control of oil products, 80 petrol bases and 3 petrol harbor terminals evenly distributed all over the country.

## ELECTRIC POWER

**Bulgaria has a diverse electricity generation mix, including nuclear, thermal and renewable energy sources (hydro, wind, solar and biomass) power plants.**

**The National Electric Company EAD** is a subsidiary of BEH EAD, which carries out licensed activities in transmission, electricity generation from hydro power plants and pumped-storage hydroelectric power plants (2,631 MW), supply of electric power to consumers connected to the transmission network and to end suppliers of electricity and is a party to long-term bilateral power purchase agreements. In fulfillment of the requirements of the Third Energy Liberalization Package, introduced in the country with the amendments to the Energy Act of 2012 (prom. SG, issue 54 of 2012 in effect from 17.07.2012,) the release of ESO EAD with the



transmission assets from NEK EAD is pending and the two companies will remain in the structure of BEH EAD.

**ESO EAD** holds a certification for transmission of electric power /Decision of State Energy and Water Regulatory Commission (SEWRC) № P-205 from 18.12.2013/. As of 4<sup>th</sup> February 2014 ESO EAD is the owner of the power transmission grid.

**"Bulgarian Independent Energy Exchange" (IBEX) EAD** holds a licence to operate the electricity exchange in Bulgaria for a period of 10 years. IBEX EAD was established in January 2014.

**The distribution of electricity** on the regulated market is performed by regional companies - operators of the electricity distribution network - ENERGO-PRO Grid AD (Southeast Bulgaria) and CEZ Distribution Bulgaria AD (West Bulgaria) with majority shareholders respectively Energo-Pro a.s., Czech Republic and CEZ a.s., Czech Republic. EVN Bulgaria Distribution AD operates in Southwest Bulgaria which major shareholder is EVN AG, Austria. The end suppliers on the regulated market in the respective licensed territories above-mentioned are ENERGO-PRO Sales AD, CEZ Electro Bulgaria AD and EVN Bulgaria Electricity Supply AD.

Since 1st of July 2007, the Bulgarian energy market has been fully liberalized, which means that each user has a legal right to choose a provider and a free and fair access to the network for transmission of electricity to the place of consumption. A market-based model is implemented based on regulated third party access to the electricity transmission network, where transactions are concluded through direct bilateral contracts between producers or traders and consumers, and where insufficient quantities are purchased and the surplus under bilateral contracts are sold in the balancing market. During the transition period of gradual liberalization, in parallel with the free segment where prices are freely negotiated between the parties to the transactions that are subject to balancing, a segment subsists in which electricity transactions are concluded as per the EWRC regulated prices.

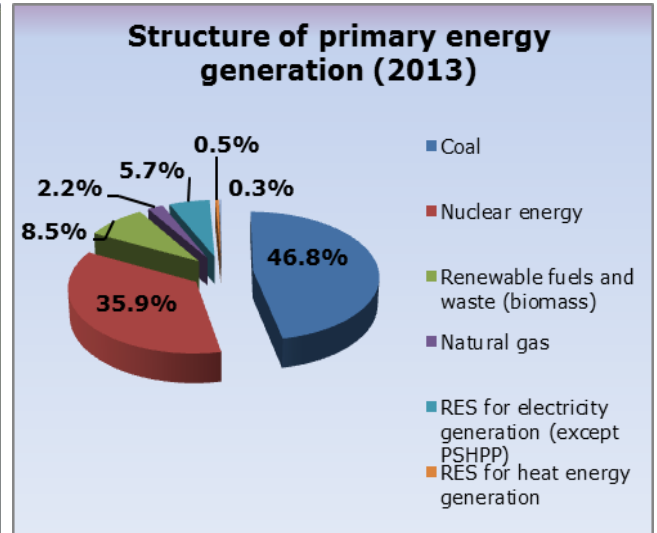
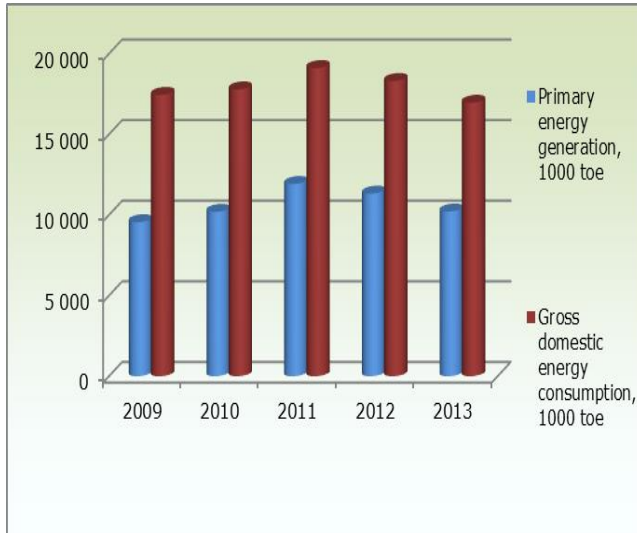
## HEAT ENERGY

Licenses for carrying out heat supply activities have been issued by EWRC to over 20 regional heat supply companies. Licenses have also been granted to thermal power plants, which are part of the assets of chemical, metallurgical, food-processing, petro-chemical and textile industrial enterprises. Most of these companies possess installations for co-generation of electricity and heat and respectively possess a licence for selling electricity obtained by co-generation applying the preferential prices approved by EWRC.

All heat supplying companies, which carry out district heating in 12 big towns throughout the country, except for Toplofikatsia Sofia AD (servicing over 70% of all consumers of heat in the country and which is 100% municipality-owned), are private.

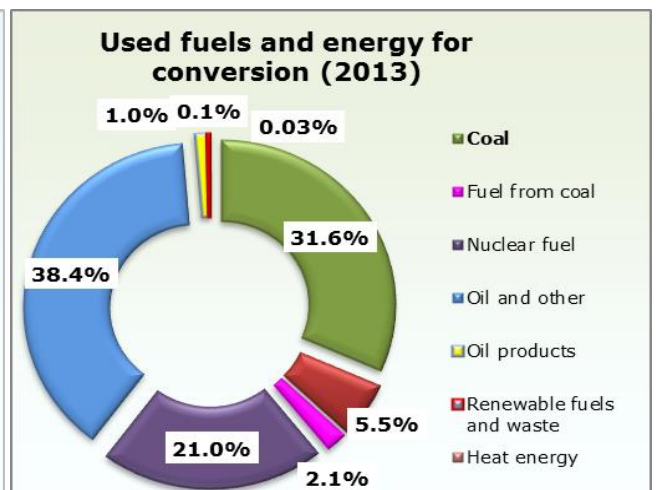
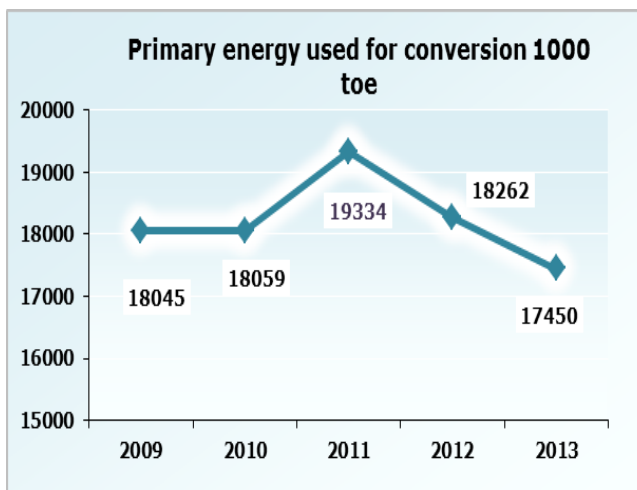
## PRIMARY ENERGY GENERATION

Primary energy generation meets about 60% of gross domestic energy consumption in the country with relatively unchanged structure over the past years and with dynamics resulting from the dynamics of consumption /according to data by NSI/.



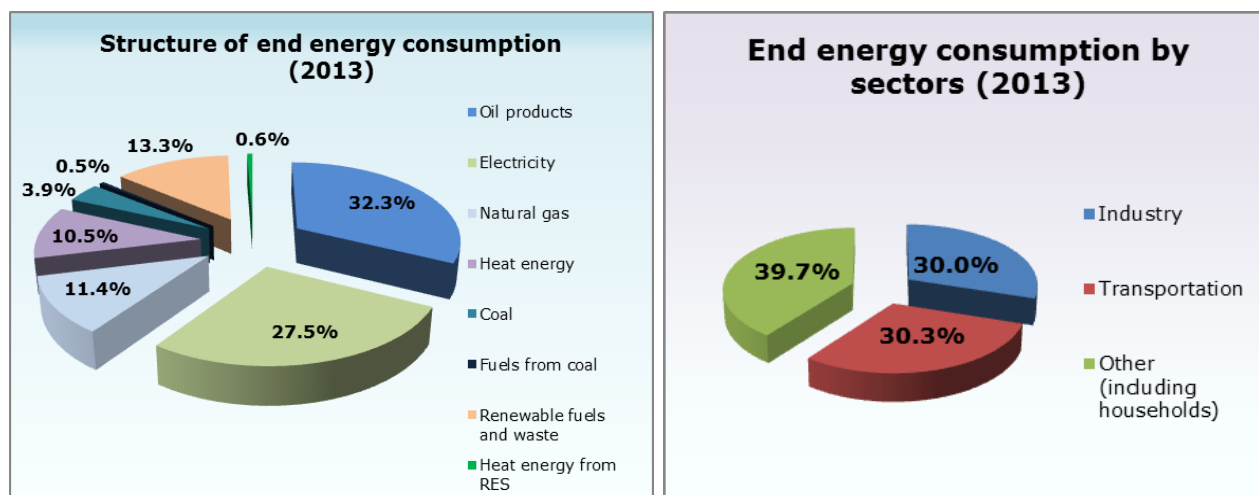
## ENERGY CONVERSION

About 2/3 of fuels and energy are used by power plants for electricity and heat generation, approximately 1/3 is used in oil refineries to produce oil products and an insignificant part is used in briquette factories, blast furnaces and coking enterprises. The energy obtained as a result of conversion is about 60% of the energy put in for conversion.



## END CONSUMPTION OF ENERGY

The energy available for end consumption is used for non-energy consumption (mainly in the chemical industry) and for energy consumption.

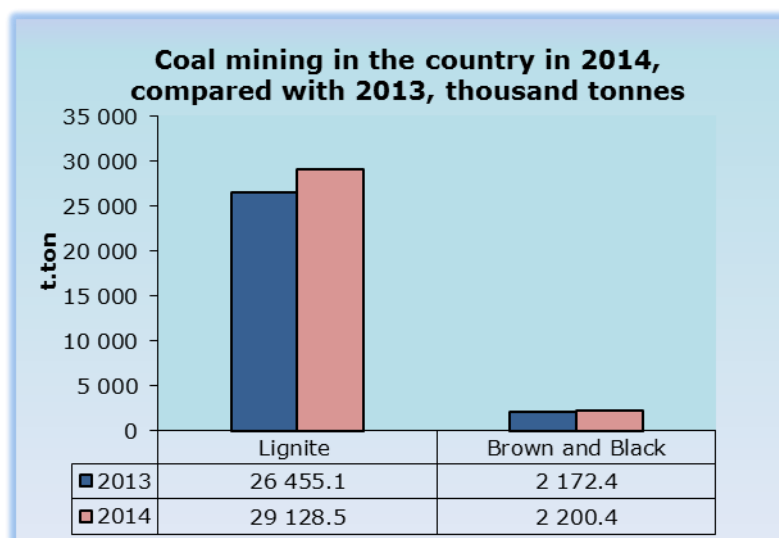


## ENERGY SECTOR IN FIGURES– 2014

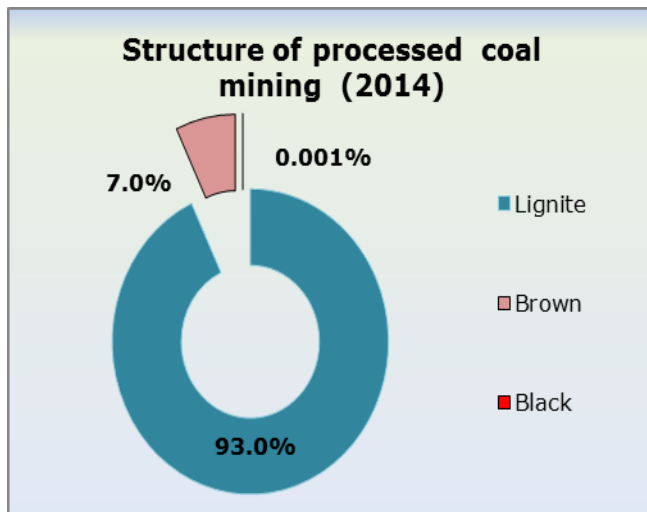
This section is prepared on the basis of the Energy Balance for 2014, drawn up by the Ministry of Energy and on the accounting information provided by the energy companies in the country in accordance with the provisions of the Energy Act and the regulatory framework for its implementation.

### LOCAL COAL

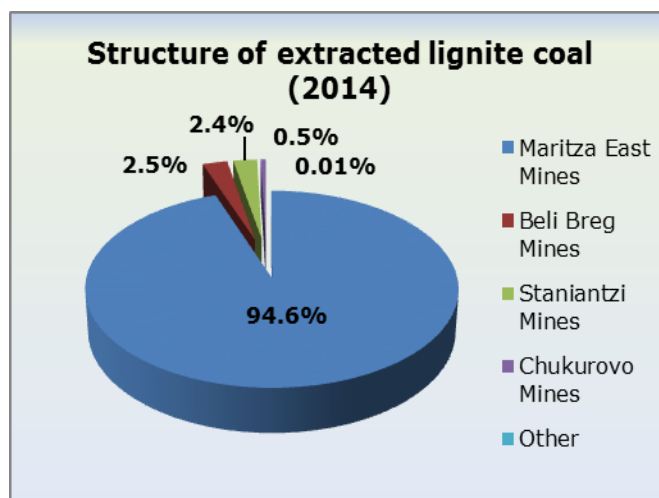
**COAL PRODUCTION** in 2014 is estimated at 31.3 million tonnes, which is 9.4% more compared to 2013.



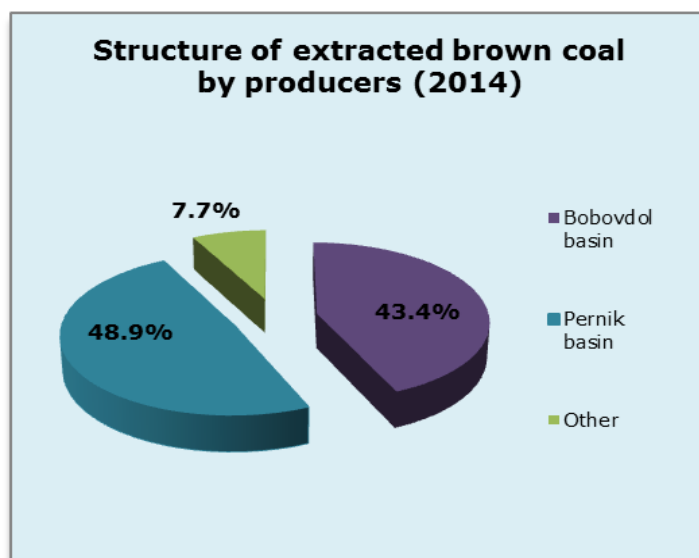
The lignite coal are prevailing in the coal production structure – 93.0%, followed by brown coal - 7.0% and black coal - 0.001%.



The total production of lignite coal is 29.1 million tonnes, which is 10.1% more than the previous year. Main producer of lignite coal is Maritza Iztok Mines EAD. The mines has accounted an increase of 8.2 % of the extracted coal compared to the previous year, which is owing to the increased volumes of energy coals, as well as the rise in briquette production. Maritza East Mines EAD has a share of 94.6%. Other producers of lignite coal are the Beli Breg Mines AD (2.5%), Stanyantsi Mines AD (2.4 %) and Chukurovo Mines AD (0.5%) and others (0.01%).

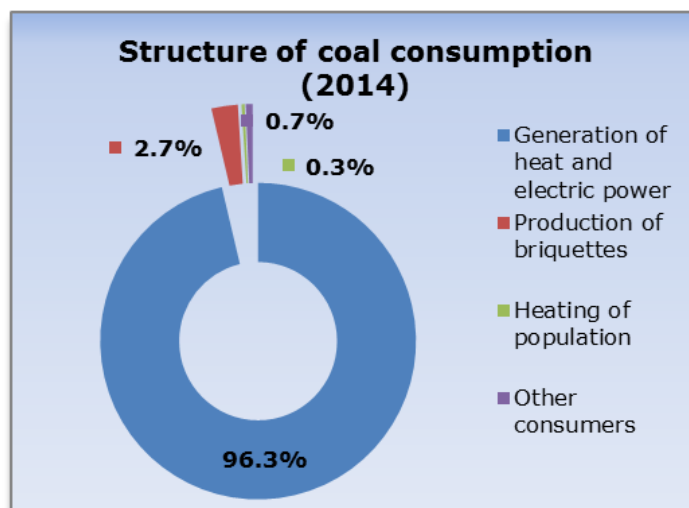


The production of brown coal, which is 7.0% of the total production, is made mainly in Bobovdol basin /43.3 %/ and Pernik basin 48.9 %.



The total production of black coal is insignificant (0.3 thousand tonnes) and has been realized in "Balkan 2000 Mines" EAD.

**CONSUMPTION** of coal is mainly for the purpose of electricity and heat generation– 96.3%, as well as for briquettes production (2.7%). Consumption for own needs and other consumers is (0.7%) and for household heating (0.3 %).



## NATURAL GAS

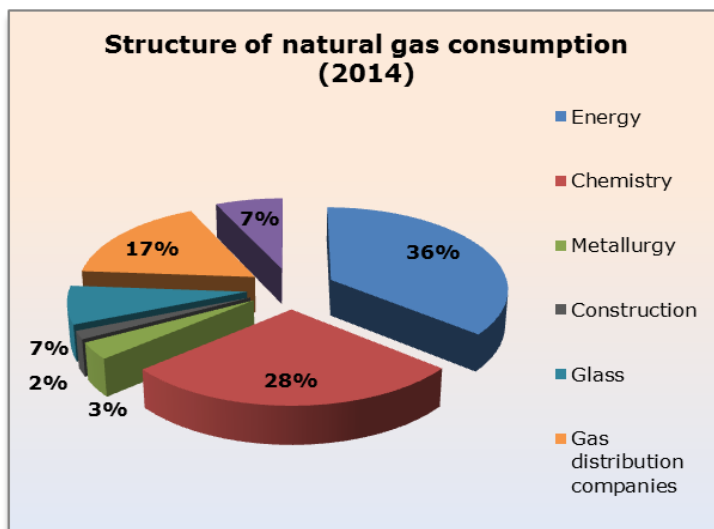
**The extraction** of natural gas in Bulgaria in 2014 is 181 mln m<sup>3</sup> or 35.6% less than 2013.

**The import** of natural gas in Bulgaria in 2014 is 2 725 mln m<sup>3</sup>, which is 6.1% higher than the previous 2013.

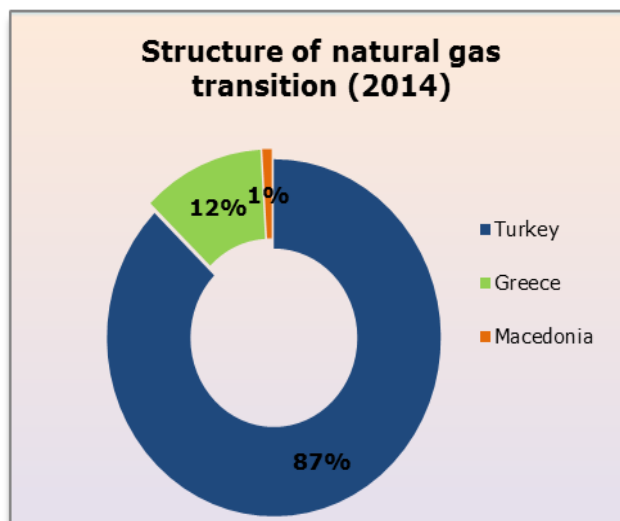
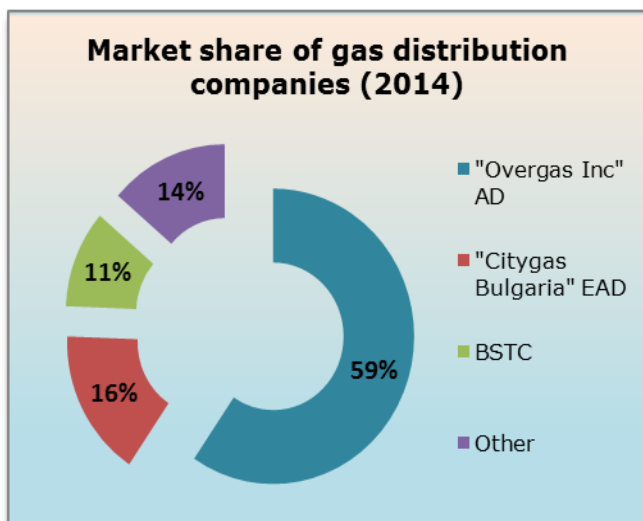
Bulgaria operates the underground CHIREN Gas Storage with a capacity of active gas of about 450 million m<sup>3</sup>/per year. In 201, 294 million m<sup>3</sup> of natural gas was compressed in this Gas Storage and the withdrawn quantity amounted to 273 million m<sup>3</sup>.

**CONSUMPTION** of natural gas in the country for 2014 was 2 635 million m<sup>3</sup>, which was 6.3% less compared to 2013.

Gas distribution grid in Bulgaria is currently under development and enlargement. The companies owing the largest market share in the country are "Overgas Inc." AD, "Citygas Bulgaria" EAD and Blacksea Technology Company.



In 2014, gas distribution companies distributed 3.9% less natural gas in Bulgaria compared to 2013.



In 2014, transit volumes through the country reduced with 6.3% and the decrease was in all three directions.

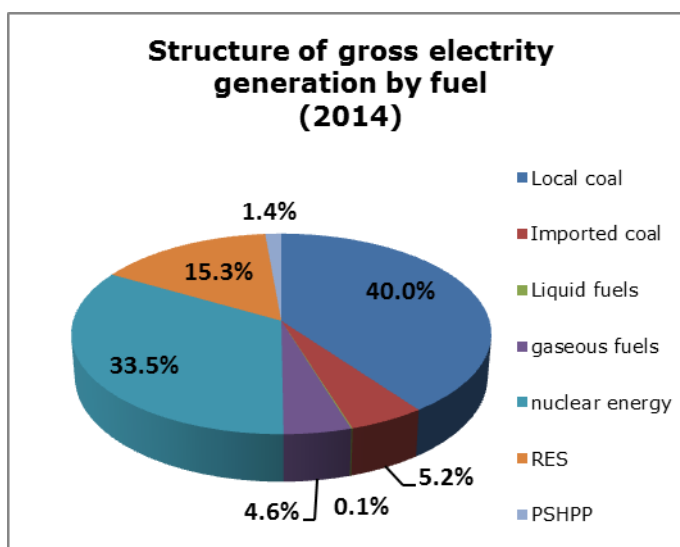
## OIL AND OIL PRODUCTS

Oil in Bulgaria is produced in insignificant amounts. In 2014 the extracted oil in the country is 4.6% less compared to 2013. Oil demands were covered mainly by import. In 2014, imported oil volumes are 7.2% less than in 2013.

The produced oil products have been realized on both, the internal fuel market (automobile, diesel, aircraft fuel and oils) and the external.

## ELECTRIC POWER

The gross electric power **GENERATION** in 2014 is 47.4 TWh, which is by 8.4 % more than the generation in 2013. There is an increase in the generation of energy by NPP (+12%), TPP(+10.7%), RES (+3.8%) and HPSPP (+1.2%). There is a decrease in gross electricity generation by FHPP (-4.8%) and PSHPP (-3.9%) in 2014 compared to 2013.



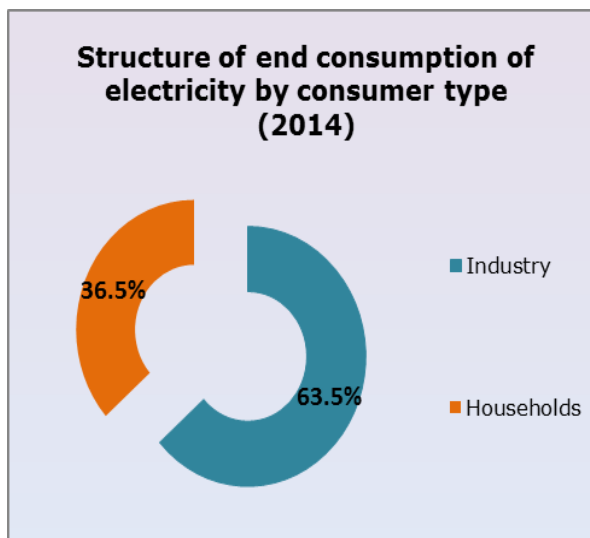
The structure of electric power generation is dominated by thermal power plants using coal, followed by Kozloduy Nuclear Power Plant. Major sources for the generation of electrical power are local coal and nuclear fuel.

The share of local energy resources in electric power generation in 2014 was 91%, while that of imported resources was 9% (nuclear energy was reported as a local energy resource).

**Gross domestic electricity consumption** in 2014 is 37.9 TWh, which is an increase of 1.0% compared to 2013.

**Generation** of electrical power from RES accounts for 18.9% of gross domestic consumption of energy in 2014.

**End consumption** of electricity in the country in 2014 amounted to 29 TWh, which is by 1.5% more than in 2013, including industrial and the public sectors - 18.4 TWh and household sector - 10.6 TWh.



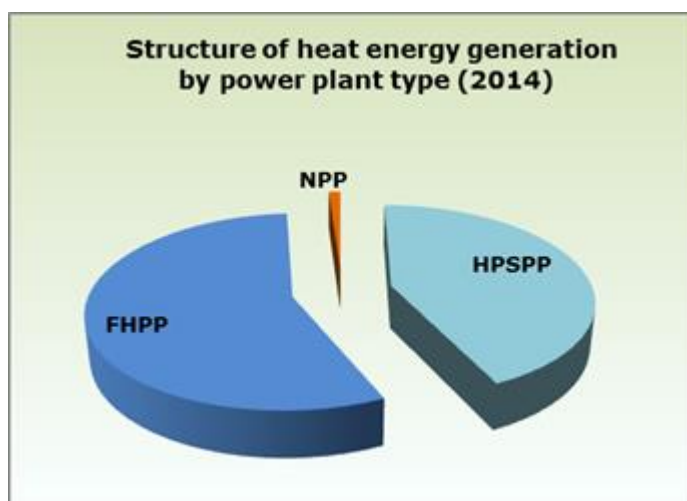
**Export of electrical energy** in 2014 is 9.5 TWh, which is by 53.3% more than in 2013 and represents 20% of gross electricity generation.

The share of **freely contracted quantities** of electrical energy, including export, equals 43.4%.

## HEAT ENERGY

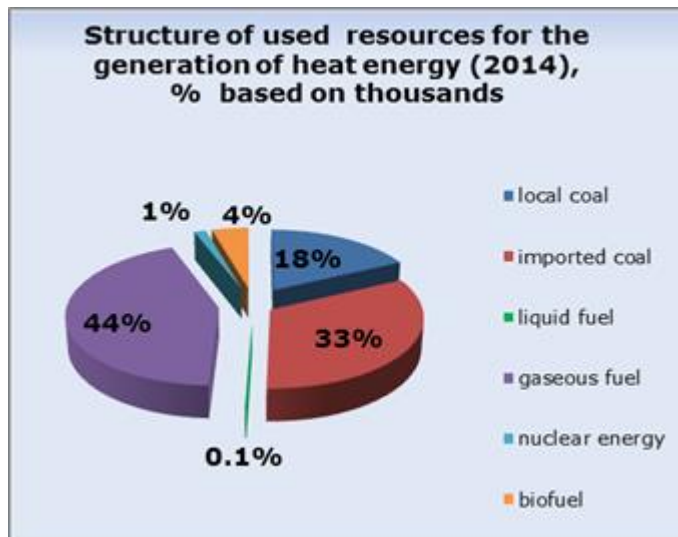
In 2014, the total **heat energy** generated by heat production and supply power plants (HPSPP), factory heat power plants (FHPP) and the Nuclear Power Plant (NPP) was 15 TWh, which was by 0.8% less compared to 2013.

In structural terms the largest share of heat generation was done by FHPP, followed by HPSPP and NPP.





The largest relative share of input fuels for heat production was occupied by gaseous fuels - 44 %, followed by imported coal - 33%, local coal - 18% and biofuels - 4 %. The other input fuels represent minor share.



The share of imported energy input for heat generation is 76% and that of local is 24% /nuclear energy is accounted as domestic/.

**Total end consumption** of heat energy in 2014 amounted to 12.4 TWh, which is by 0.1% less compared to 2013. In the structure of consumption of heat energy the largest share belongs to industrial and commercial consumers - 67%, followed by households - 28% and budgetary organizations - 5%.

**The centralized heat supply** in 12 big towns in Bulgaria is performed by co-generation Heat and Power plants.

In 2014 they generated 6.6 TWh heat energy.

**Total end consumption** of heat energy, generated by these power plants is 4.8 TWh, where 73.0% is by households, 14.7% is by industrial and commercial consumers and 12.3 % is by budgetary organizations.

## LIST OF ABBREVIATIONS

<b>NPP</b>	Nuclear Power Plant
<b>TPP</b>	Thermal Power Plant
<b>FHPP</b>	Factory Heat Power Plant
<b>HPSP</b>	Heat Production and Supply Power Plant (heat production and supply company)
<b>RES</b>	Renewable Energy Sources
<b>HPP</b>	Hydro Power Plant
<b>WPP</b>	Wind power plant
<b>PhVPP</b>	Photovoltaic power plant
<b>PSHPP</b>	Pumped Storage Hydro Power Plant
<b>EU</b>	European Union
<b>EU-28</b>	European Union, comprising the 28 member states
<b>GDP</b>	Gross Domestic Product
<b>GWh</b>	Gigawatt Hour
<b>MW</b>	MegaWattt Hour
<b>TWh</b>	TeraWatt Hour
<b>koe/euro GDP</b>	Kilogram(s) of Oil Equivalent per unit of Gross Domestic Product
<b>BGN/EUR</b>	Bulgarian lev to euro exchange rate
<b>Mln. m<sup>3</sup></b>	Million cubic metres
<b>Bln. m<sup>3</sup></b>	Billion cubic metres
<b>Mln. t</b>	Million tonnes
<b>NSI</b>	National Statistic Institute