BULLETIN

ON THE STATE AND DEVELOPMENT

ON THE ENERGY SECTOR

IN THE REPUBLIC OF BULGARIA

2013

THE PRESENT DOCUMENT IS PREPARED PURSUANT TO ARTICLE 4, PARAGRAPH 2, POINT 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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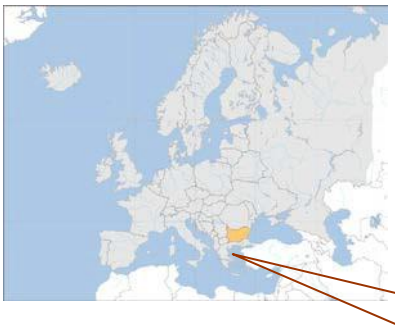
ENERGY PROFILE OF THE REPUBLIC OF BULGARIA

GENERAL OVERVIEW



- Area – 110 944 km^2
- EU Member since 1st of January 2007. NATO Member
- Investment credit rating
- 10% corporate tax
- 20% VAT

MACROECONOMIC PARAMETERS

		2005	2006	2007	2008	2009	2010	2011
Population	Million	7.72	7.68	7.64	7.61	7.56	7.5	7.33
GDP, real growth	% per year	6.4	6.5	6.4	6.2	-5.5	0.4	0.8
Real GDP per capita (PPP)*	EC=100	37	38	40	43	44	44	46
Export	EUR million	9 467	12 012	13 512	15 204	11 699	15 561	20 265
Import	EUR million	14 663	18 480	21 862	25 095	16 876	19 245	23 407
Average annual inflation	%	5.0	7.3	8.4	12.3	2.8	2.4	4.2
Unemployment	%	10.1	9.0	6.9	5.6	6.8	10.2	11.2
Exchange rate**	BGN/EUR	1.9558	1.9558	1.9558	1.9558	1.9558	1.9558	1.9558

Source: NSI, BNB

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

MACROENERGY PARAMETERS

		2005	2006	2007	2008	2009	2010	2011
Primary energy production	1000 toe	10 539	11 011	9 738	9 966	9 553	10 188	11 919
Gross domestic energy consumption	1000 toe	20 122	20 761	20 163	19 889	17 447	17 783	19 107
End consumption of energy	1000 toe	9 512	9 880	9 748	9 568	8 504	8 728	9 059
Share of energy from RES in gross domestic energy consumption	%	11.8	11.2	7.5	7.4	9.8	15.1	9.8
Energy dependency*	%	47.5	46.2	51.3	52.1	45.3	40.1	36.6

The data for the period 2005-2010 are updated from the NSI yearbook for 2011.
** Eurostat data*

ENERGY EFFICIENCY INDICATORS

		2005	2006	2007	2008	2009	2010	2011
Gross domestic energy consumption/GDP	kgoe/EUR	0.929	0.900	0.822	0.763	0.708	0.694	0.691
Gross domestic energy consumption/GDP	2005=100	100.0	96.9	88.4	82.1	76.2	74.7	74.3
End consumption of energy/ GDP*	kgoe/EUR	0.439	0.428	0.397	0.367	0.345	0.341	0.327
End consumption of energy/ GDP*	2005=100	100.0	97.5	90.4	83.6	78.6	77.6	74.6
End/ Gross domestic energy consumption	%	0.47	0.48	0.48	0.48	0.49	0.49	0.47

Source: Eurostat, NSI
**constant prices from 2005*

INSTITUTIONS

Ministry of Economy, Energy and Tourism

(http://www.mee.government.bg)

State Energy and Water Regulatory Commission (SEWRC)

(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, Energy and Tourism 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 and its subsidiary ESO EAD, 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 2012 is 29.9 million tonnes, which represents 90.4% 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 Melrose Resources Sarl and Oil and Gas Exploration and Production Plc. In 2012, production of natural gas in Bulgaria marked a significant growth as a result of the two new fields developed in Kaliakra and Kavarna, whose concessionaire is Melrose Resources Sarl.

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; system operator of the gas transmission network) 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, the major market share of 61.85% being held by the subsidiaries of Overgas AD, Citygas Bulgaria - with a market share of 12.92% and Black Sea Technology Company with a
market share of 10.24%.

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, 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 the 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 and solar power plants). Electric power generation is carried out by plants which are separated from NEK EAD in 2000, some of which are now incorporated in BEH EAD, others are owned by private companies.

Kozloduy Nuclear Power Plant (3760 MW installed capacity, and after decommissioning of units 1, 2, 3 and 4 the operative capacity is 2000 MW) and **TPP Maritsa Iztok 2** (1587 MW installed capacity) are sole proprietor trading companies which are 100% owned by BEH EAD.

TPP Varna EAD (1260 MW), **TPP Contour Global Operations Bulgaria** (908 MW), replacing capacity at the site of **AES-3C Maritsa Iztok 1** (700 MW), **TPP Maritsa 3 Dimitrovgrad** (120 MW), **TPP Ruse** (220 MW) and **TPP Bobov Dol** (630 MW) are prevailingly or entirely privately owned. Small hydro power plants have been privatized and the larger hydro power facilities and the pumped-storage hydroelectric power plants are owned by NEK EAD.

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. Ever since 1 January 2007, after restructuring in compliance with the requirements of Directive 2003/54, the subsidiary **Electricity System and Market Operator (ESO**

EAD) has been separated from NEK EAD but the transmission assets are owned by the mother company. 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 with 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.

The distribution of electricity on the regulated market is done 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, mentioned above are ENERGO-PRO Sales AD, CEZ Electro Bulgaria AD and EVN Bulgaria Electricity Supply AD.

Since 1st of July 2007, the Bulgarian energy market is 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 subject to balancing, a segment subsists in which electricity transactions are concluded as per the SEWRC regulated prices and participants are not subject to balancing.

The unregulated market operates on the basis of freely negotiated prices between traders, consumers and independent producers who trade with the quantities of electricity that remain after fulfilling the obligations to the public providers within the quotas defined to meet the electricity needs of the customers on the regulated market. Trade is carried out through bilateral contracts at freely negotiated prices, on a market organized by ESO. At the same time, the system operator is in the process of introducing a platform that will enable him to arrange a "spot" market.

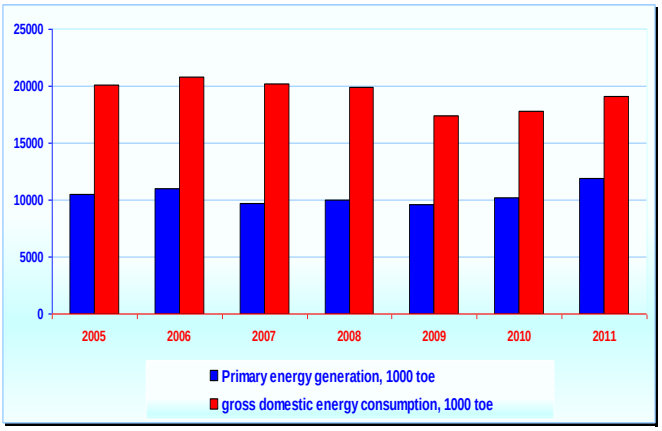
Heat Energy

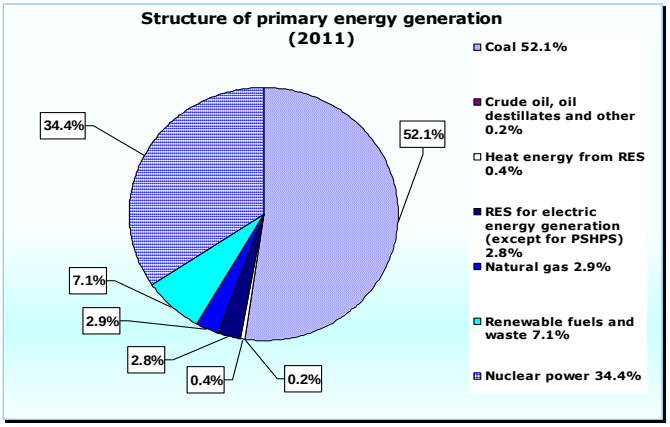
Licenses for carrying out heat supply activities have been issued by SEWRC to over 20 regional heat supply companies. Licenses have been also granted to thermal power plants, which are part of the assets of chemical, metallurgical, food-processing, petro-chemical and textile industrial enterprises. Most of these companies possess installations for co-generation of electricity and heat, with total installed electrical capacity of 1750 MW, and respectively possess a license for selling electricity obtained by co-generation applying the preferential prices approved by SEWRC.

All heat supplying companies, excluding Toplofikatsia Sofia AD (servicing over 60% of all consumers of heat in the country and is 100% municipality-owned), are private.

PRIMARY ENERGY GENERATION

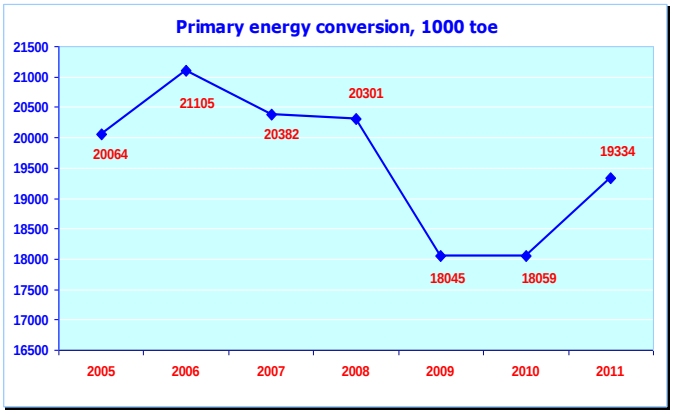
Primary energy generation meets about 55% of gross domestic energy consumption in the country with relatively unchanged structure over the past years and with dynamics resulting from the dynamics of consumption

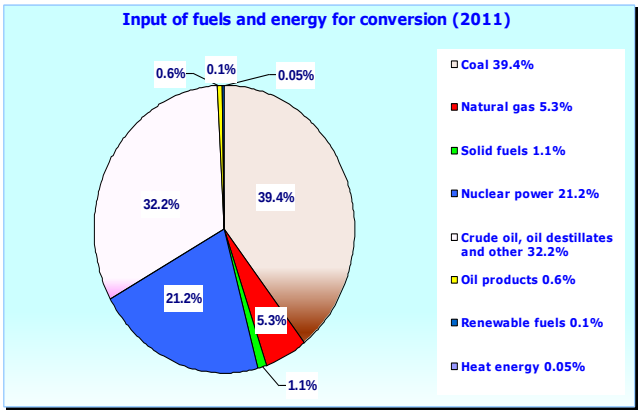




ENERGY CONVERSION

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

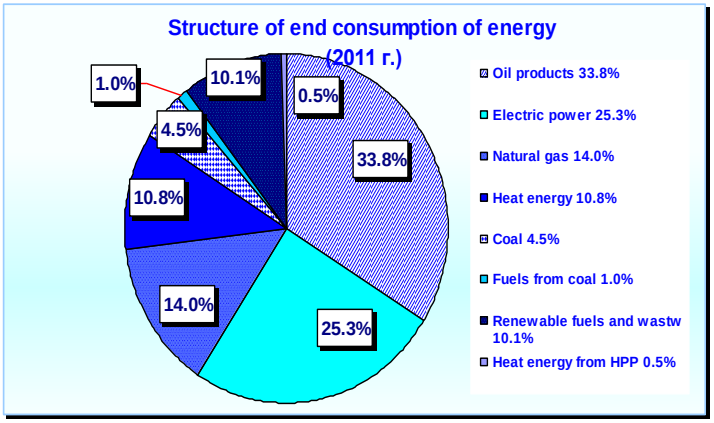


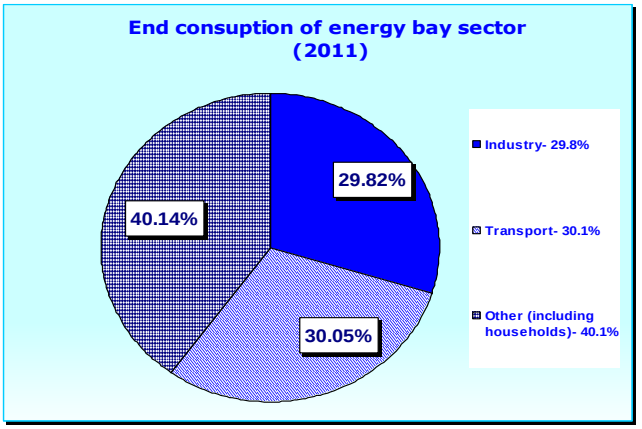


END CONSUMPTION OF ENERGY

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

Industry remains the dominant energy consumer.





ENERGY SECTOR IN FIGURES - 2012

This section is prepared on the basis of the Energy Balance for 2012, drawn up by the Ministry of Economy, Energy and Tourism based 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.

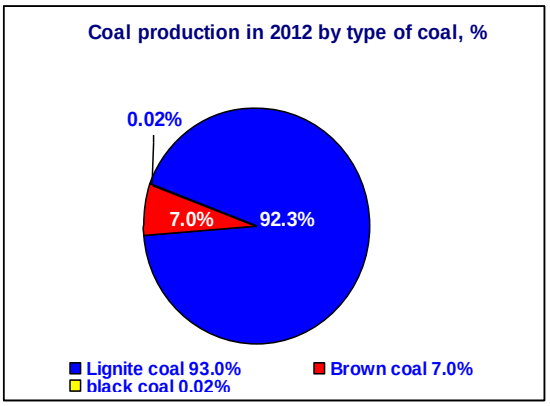
LOCAL COAL

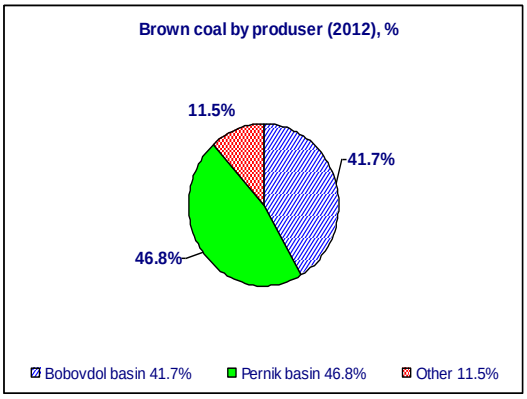
COAL PRODUCTION is estimated at 33.4 million tonnes, which is by 9.4% less compared to 2011.

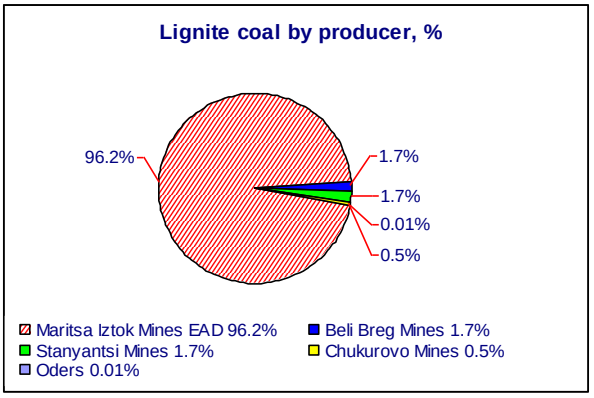
The lignite coal are prevailing in the coal production structure – 93.0%, followed by brown coal - 7.0% and black coal - 0.02%.

The total production of lignite coal is 31.0 million tonnes and the main producer is Maritsa Iztok Mines EAD with a share of 96.2%. Other producers of lignite coal are the Beli Breg Mines (1.7%), Stanyantsi Mines (1.7%) and Chukurovo Mines (0.5%).

The total production of brown coal is 2.3 million tonnes, produced mainly in the Bobovdol (0.97 million tonnes) and Pernik (1.09 million tonnes) basins.
The total production of black coal is insignificant (7.2 thousand tonnes) and has been realized in Balkan 2000 Mines EAD.







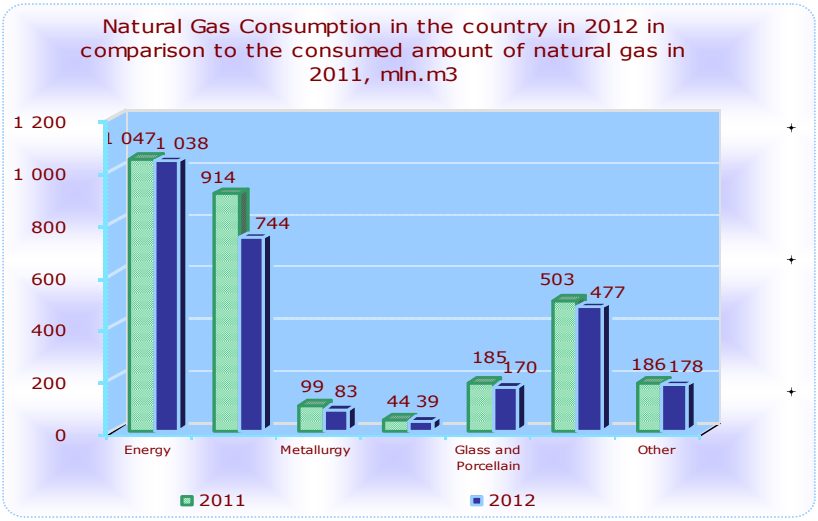
CONSUMPTION of coal is mainly for the purpose of electricity and heat generation– 97.4%, as well as for briquettes production (1.4%), for own needs and other consumers (0.7%), and for household heating (0.5%).

NATURAL GAS

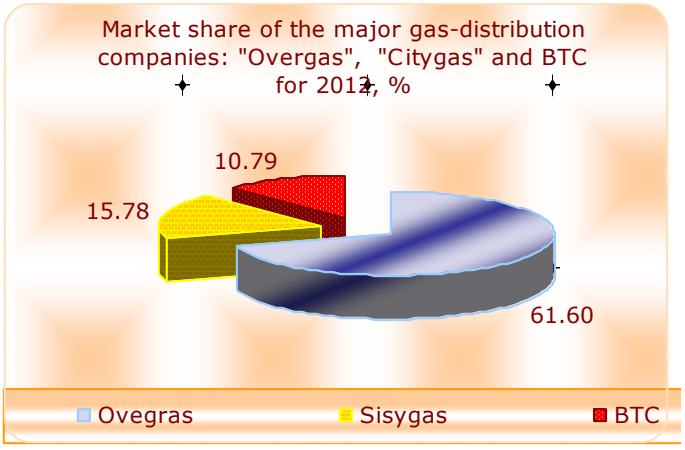
IMPORTS of natural gas in Bulgaria for 2012 amounted to 2 527 million m^3 /including 245 million m^3 of fuel gas for the operation of the transit system/, which was by 10% less than the previous year (2011). The local production of natural gas is realized by Melrose Resourses Sarl and Oil and Gas Exploration and Production EAD. In 2012 they have produced 389 million m^3 or by 12% less compared to 2011.

Bulgaria operates the underground CHIREN Gas Storage with a capacity of active gas of about 450 million m^3/per annum. In 2012, 222 million m^3 of natural gas was compressed in this Gas Storage and the withdrawn quantity amounted to 346 million m^3.

CONSUMPTION of natural gas in the country for 2012 was 2 749 million m^3, which was by 8% less than in 2011 and is shown in the chart below:



The focus is on the dynamics of sales of the gas distribution companies whose gas distribution network is in a process of development and expansion. In 2012 the gas distribution companies distributed 457 670 thousand m^3 of natural gas on the territory of the country which is 33 926 thousand m^3 or (-7%) less than the realized sales in 2011. The companies with the largest market share in the country are Overgas Inc. AD, Citygas Bulgaria EAD and Black Sea Technology Company. Their market share is displayed in the following graph:



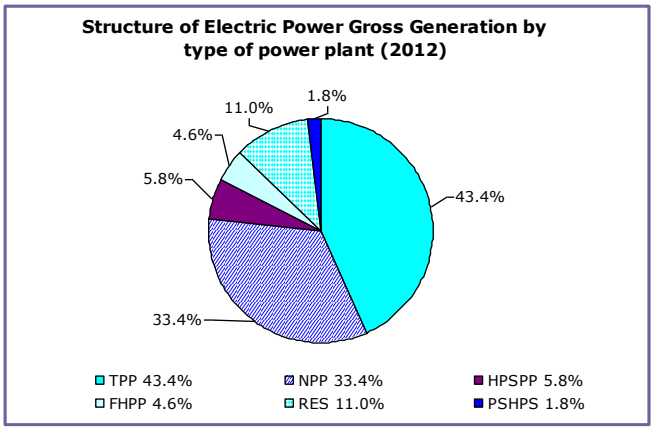
OIL, OIL PRODUCTS AND BIOFUELS

Oil is produced in Bulgaria in insignificant amounts – 23.5 thousand tonnes in 2012. Production was realized by Oil and Gas Exploration and Production EAD in Dolni Dabnik, which was privatized in 2004.

The demand of **OIL** in the country is met mainly by imports. The main oil importer and processor is Lukoil Neftohim Burgas AD. In 2012 the refinery imported about 5.7 million tonnes of crude oil, which is by 24.1% more than in 2011.

The produced oil products are 6.0 million tonnes and they have been realized both on the internal fuel market (automobile, diesel, aircraft fuel and oils) and for export.

ELECTRIC POWER



The gross electric power **GENERATION** is 47.3 TWh. which is by 6.7% less than the generation in 2011. The **EXPORT** of electric power is 8.3 TWh or 17.6% of the gross generation.

The structure of electric power generation is dominated by thermal power plants using coal, followed by the Kozloduy Nuclear Power Plant.

Wind generated electricity in 2012 is 1.2 TWh, which is an increase of 45.7% compared to 2011 and represents 23.4% of gross electric power generation from RES. Electricity produced by photovoltaic power plants in 2012 is 0.8 TWh.

The share of local energy resources in electric power generation in 2012 was 89.9%, while that of imported resources was 10.2% (nuclear energy was reported as a local energy resource).

Combined generation of electricity and heat by heat production and supply companies tended to increase after the compliance of their production capacities with the European standards.

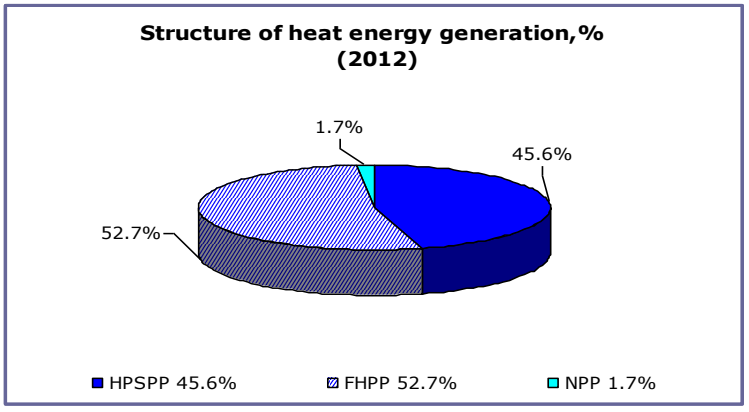
End **CONSUMPTION** of electricity in the country in 2012 amounted to 29.2 TWh, which is by 1.2% less than in 2011. The industrial and the public sectors participated in the end consumption of electricity with 62.8%, and the household sector with 37.2%.

Electric power purchased by end suppliers amounted to 26.3 TWh, which represents a decrease of 1.1% compared to 2011.

Sales of electricity in the open market in the country (consumers availing of their right to choose their supplier) in 2012 amounted to 5.1 TWh (17.6% of the electricity sold to end users in the country).

The level of opening the electricity market, including both consumers availing of their right of choice of supplier and the export, was 30.5%.

HEAT ENERGY



In 2012, 15.5 TWh of heat energy was **GENERATED** by heat production and supply power plants (HPSPP), factory heat power plants (FHPP) and the Nuclear Power Plant (NPP), which was by 6.4% more compared to 2011 (factory heat power plants - increase by 17.7%, NPP Kozloduy - increase by 2.0% and heat production and supply power plants - decrease by 4.0%).

The largest relative share of input fuels for heat production was occupied by gaseous fuels - 48.8%, followed by imported coal - 31.8%, local coal - 16.8%, nuclear energy - 2.1%, liquid fuels - 0.3% and biofuels - 0.2 %.

Heat production and supply companies occupied the dominant share in the structure of heat production - 52.7%, followed by power factory heat power plants - 45.6% and Kozloduy Nuclear Power Plant - 1.7%.

Heat energy **REALIZED** in 2012 amounted to 11.6 TWh, which is by 4.2% more compared to 2011. In the structure of consumption of heat energy the largest share belongs to industrial and commercial consumers - 59.6%, followed by households - 34.5 % and budgetary organizations - 5.9%. Compared to 2011, heat consumption of industrial and commercial consumers increased by 12.7%, of budgetary consumers decreased by 9.6% and of households decreased by 5.7%

LIST OF ABBREVIATIONS

NPP	Nuclear Power Plant
GDP	Gross Domestic Product
RES	Renewable Energy Sources
HPP	Hydro Power Plant
GWh	Gigawatthour
EU	European Union
EU-27	European Union comprising 27 member-states
FHPP	Factory Heat Power Plant
koe/euro GDP	Kilogram(s) of Oil Equivalent per unit of Gross Domestic Product
BGN/EUR	Bulgarian lev to euro exchange rate
Mln.m^3	Million cubic meters
	Milliard cubic meters
Mln.t.	Million tons
NSI	National Statistic Institute
PSHPP	Pumped Storage Hydro Power Plant
TWh	Terawatt hour
CO_2	Carbon dioxide
TPP	Thermal Power Plant
toe	Tonnes of oil equivalent
HPSPP	Heat Production and Supply Power Plant (heat production and supply company)
HPC	Hydropower complex
Thousand t.	Thousand tons
MW	Megawatt