



**Energy and Water Regulatory Commission (EWRC)
Bulgaria**

Annual Report to the European Commission

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LIST OF ABBREVIATIONS

ACER	Agency for the Cooperation of Energy Regulators
ANRE	Romanian energy regulatory authority
BOTAS	Turkish gas transmission operator
CCP	Commission for Consumer Protection
CCR	Capacity Calculation Regions
CCR SEE	Capacity Calculation Region South East Europe
CDP	Commercial dispatching platform
CEER	Council of European Energy Regulators
CEF	Connecting Europe Facility
CESEC	Central and South Eastern Europe Gas Connectivity
CPC	Competition Protection Commission
CR 3	Concentration ratio – the sum of the market shares of the three biggest market participants
DAM	Day Ahead Market
DEPA	Greek Energy Company
DESFA	Greek gas transmission operator
EA	Energy Act
EMR	Electricity Market Rules
ENTSOE	European Network of Transmission System operators - electricity
ENTSOG	European Network of Transmission System operators – gas
EPS	Electric power system
ESO EAD	Electricity system operator EAD
ETN	Electricity transmission network
EU	European union
EWRC	Energy and Water Regulatory Commission
GDN	Gas distribution network
GMS	Gas metering station
GRIPs	Gas regional investment plans
GRMB	Gas regulatory metering board
HHI	Herfindahl-Hirschman Index, sum of the squares of the market shares of the participants in the relevant market
HPP	Hydroelectric power plant
IBEX EAD	Independent Bulgarian Energy Exchange EAD
IBS	Gas interconnection Bulgaria – Serbia
IGB	Gas interconnection Greece – Bulgaria
ITB	Gas interconnection Turkey – Bulgaria
ITO	Independent Transmission Operator
MPNGAT	Methodology on pricing of natural gas access and transit in gas transmission networks owned by Bulgartransgaz EAD

NC TAR	Network code on harmonized tariff structures for transmission of gas
NDC	National Dispatching Centre
NEK EAD	National Electricity Company EAD
OEPR	Ordinance №1/2013 on electricity price regulation
ONGPR	Ordinance №2/2013 on natural gas price regulation
OLAES	Ordinance №3/2013 on licensing the activities in energy sector
OP	Operative Programme
PCI	Project of common interest
PP	Power plant
PvPP	Photovoltaic power plant
RAE	Greek energy regulatory authority
RBP	Reginal booking platform
RES	Renewable energy sources
SLP	Standardized Load Profiles
TANAP	Trans-Anatolian natural gas pipeline
TAP	Trans-Adriatic pipeline
TSO	Transmission System Operator
UGS Chiren	Underground gas storage
VTP	Virtual trading point
WPP	Wind power plant

1. FOREWORD

The efforts of the Energy and Water Regulatory Commission (EWRC, the Regulator) in the electricity sector in 2017 were focused on the continuation of the electricity market liberalization processes launched in 2015 in line with European policies and legislation. In 2017, EWRC concentrated its activity on creating the necessary regulatory framework to remove barriers to full market opening. Regulations for the introduction of different power exchange trading segments were adopted to ensure the application of fair pricing principles.

In 2017, EWRC continued its work on adopting the overall necessary regulatory framework on the establishment of a liberalized gas market in Bulgaria and on gas supplies diversification. The Regulator approved *Congestion management procedures in case of contractual congestion* in accordance with the objectives and principles of and in compliance with Regulation (EC) No 715/2009 and *Rules on granting access to gas transmission and / or gas distribution networks and access to natural gas storage facilities*. This contributes to gas market opening and creating opportunities for real competition in the sector.

Since 1 October 2017, the entry/exit tariff model has been effectively implemented for natural gas access and transmission through the gas transmission system of Bulgartransgaz EAD. The balancing regime application in the gas market continued under interim measures in accordance with the provisions of Commission Regulation (EU) No 312/2014 of 26 March 2014 establishing a Network Code on Gas Balancing of Transmission Networks.

Assoc. prof. Ivan N. Ivanov, PhD
Chairman
Energy and Water Regulatory Commission

2. MAIN DEVELOPMENTS IN THE GAS AND ELECTRICITY MARKETS

2.1. Main developments in the electricity market

The first stage of activity of *Bulgarian Independent Energy Exchange EAD* (IBEX EAD) – introduction of the “day ahead trading” segment was undoubtedly successful. The bilateral contracts segment launched its functioning too. It is foreseen to launch the “intraday” market segment soon as well. The amendments to the Energy Act (EA) as of 1 Jan 2018 stipulate that all electricity generators with total installed capacity over 5 MW shall be obliged to offer their generated power on the organized exchange, which is a step towards increasing the electricity market liquidity. The exchange trading expansion raised the important regulatory issue of monitoring and control and prevention of market manipulation and abuse attempts. This requires the implementation of the European Regulation (EU) No 1227/2011 of the European Parliament and of the Council of 25 October 2011 on wholesale energy market integrity and transparency (REMIT) into national law and regulations as an important measure, which will enable EWRC to perform its functions fully in order to ensure transparency and market integrity and in cases of proven manipulation to impose effective sanctions against offenders.

Regarding the price decisions over the period, EWRC consistently applied a balanced approach taking into account the interests of all participants and did not allow sharp price changes. Electricity prices in the regulated market in 2017 practically kept their previous levels, as evidenced by the fact that they have increased by 2.5% over the past 3 years. After the unavoidable jump in heating prices of about 20 % in April as a result of the sharp change in international gas prices, EWRC did not allow price changes for the households during the heating season 2016-2017. This regulator's approach to electricity and district heating prices was of particular importance to household customers and especially to those belonging to the category vulnerable consumers. It is necessary the state to introduce support measures for their protection in order to allow market liberalization to proceed without social disturbances.

2.2. Main developments in the gas market

In 2017, EWRC took an active part in the process of creating the necessary conditions for achieving competitiveness and liberalization of the Bulgarian natural gas market as part of the EU market and that of Eastern Europe by taking a number of important steps that are crucial in achieving the stated objectives. During the reporting year, within its powers, EWRC adopted decisions in compliance with the requirements of the European legislation related to the natural gas market liberalization and integration. Thus, the actual implementation of the regulations adopted by EWRC in the previous year has started, which has had a positive impact on the liberalization processes development in the sector and the proper functioning of the natural gas market in the country, in line with the European legislation.

Since 1 October 2017, the entry-exit tariff model has been introduced for pricing natural gas access and transmission through the gas transmission system. In this respect, in accordance with the *Methodology on pricing of natural gas access and transit in gas transmission networks owned by Bulgartransgaz*, EWRC approved the necessary annual revenues of Bulgartransgaz EAD for the first year of the regulatory period 2017-2019. Following EWRC's approval of the necessary annual revenues, Bulgartransgaz EAD determined the tariff structure and the prices for

access and transmission of natural gas at entry and exit points/zones for the first pricing period - gas year 2017/2018. EWRC carries out an ongoing monitoring of the activity of the natural gas transmission operator regarding the application of the entry/exit tariff model, analysing monthly the data provided by Bulgartransgaz EAD on allocated capacities, reserved capacities and their usage by the users, as well as on the operating income.

Based on *Daily imbalance charge calculation methodology*, in March 2017 EWRC approved a cost component in the natural gas balancing price for Bulgartransgaz EAD as of 01 May 2017 and in September 2017 the same component for 2017/2018 gas year. Bulgartransgaz EAD organizes natural gas market balancing according to the provisions of the Energy Act, the *Natural Gas Trading Rules* and the *Natural gas market balancing rules*. The balancing party concludes deals for the purchase and sale of natural gas for balancing with the network users at prices determined under the *Daily imbalance charge calculation methodology*. According to the Methodology, the balancing party calculates the cost component and submit it for EWRC validation.

The amendments in *Rules for access to the gas transmission and/or gas distribution networks and storage facilities* adopted in the end of 2016 have defined clear rules to ensure that all gas market participants have the opportunity of transparent and non-discriminatory access to the gas transmission network, through transparent and efficient capacity allocation tendering procedures, creating prerequisites for a flexible use of the gas transmission networks which will contribute to competition and increasing natural gas market liquidity in the country. In 2017, capacity notification and allocation for both interconnection points and internal system entry and exit points were realized at RBP regional capacity booking platform.

In compliance with the requirements and in accordance with the objectives and principles of Regulation (EC) No 715/2009 of the European Parliament and of the Council of 13 July 2009 on conditions for access to the natural gas transmission networks, in 2017 EWRC adopted *Congestion management procedures* in cases of contractual congestion to be implemented by Bulgartransgaz EAD. Congestion management is the transmission capacities management of the transmission system operator in order to optimize and maximize the use of technical capacity and timely detection of future congestion and saturation points. The principles of congestion management and capacity allocation are based on the disposal of unused capacity by allowing network users to lend or resell the capacities under their contracts as well as an obligation for transmission system operators to offer the unused capacity in the market for at least one day ahead and without interruption.

In 2017, with a view to achieve optimal conditions for overcoming the Bulgarian gas market isolation and providing opportunities for unrestricted gas transmission across the Bulgarian borders, EWRC adopted a Position paper on the commitments offered by Gazprom in AT.39816 - upstream gas deliveries in Central and Eastern Europe.

An important condition for the gas market liberalization in the country is the creation of a single regional gas market, which can be achieved by building and connecting the natural gas transmission infrastructures between the countries, as well as by overcoming the differences in the manner capacities allocation and balancing regimes in the gas markets. The effective opening of the internal market and the development of a regional gas market are a precondition for the establishment of a single gas market in the EU, which is in the interests of citizens and industry. Key to that regional gas market establishment is the construction and putting into operation of the infrastructure projects included in the list of projects of common interest published by the European Commission. To that end, in 2017, EWRC approved the Ten-Year Network Development Plan of Bulgartransgaz EAD for the period 2017-2026, which serves as a basis for

the drafting of the Regional Investment Development Plans (GRIPs), as well as for the Community network development plan in EU, elaborated by the European Network of Transmission System Operators (ENTSO-G).

In performing its regulatory powers EWRC tries to ensure a balance between the interests of energy companies and customers, equality between different categories of energy companies and aims at market opening, proper functioning and development of a competitive, secure and sustainable internal gas market as part of the single EU gas market.

3. ELECTRICITY MARKET

3.1. Networks regulation

3.1.1. Unbundling

In relation to the restructuring of electricity generation, transmission and system operation, as well as in compliance with Directive 2009/72/EC and the Council from 13 July 2009 on common rules for the internal market in electricity and repealing Directive 2003/54/EC (Directive 2009/72/EC) Bulgaria has chosen the independent transmission operator model, where the transmission operator and network assets are separated into a legal entity within the vertically integrated undertaking, which carries out the generation and supply activities.

In pursuance of the requirements of Directive 2009/72/EC, after the performed unbundling procedure for Electricity System Operator EAD (ESO EAD) from Natsionalna Elektricheska Kompania EAD (NEK EAD) in 2014, ESO EAD became an owner and operator of the whole electricity transmission network in Bulgaria.

ESO EAD is a certified independent transmission operator certified by EWRC Decision in 2015, thus implementing the requirements of art.10 and art.11 of Directive 2009/72/EC and art.3 of Regulation (EU) 714/2009.

Electricity distribution is carried out by electricity networks operators in separate territories – CEZ Electro Bulgaria AD, Electrodistribution North AD, Elektrorazpredelenie Yug EAD (EP Yug), ERP Zlatni Pyasatsi AD and National Company Railway Infratsructure.

3.1.2. Technical operation

Provision of balancing services

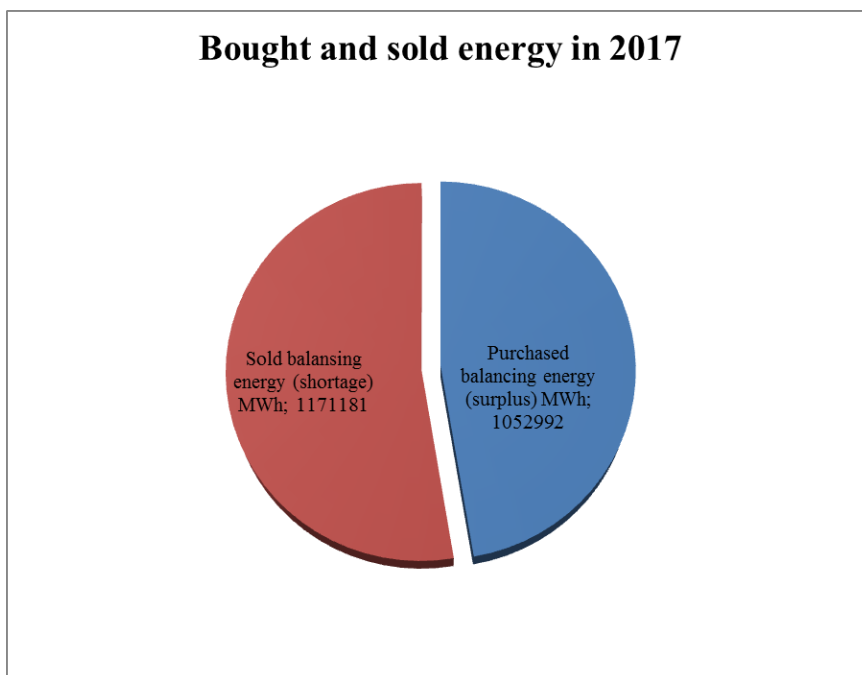
Under the EA, EWRC sets annually a marginal price for trading energy on the balancing market (BM). Under § 1, p. 2 of the EA Additional Provisions, “balancing energy” is the active electric power which the TSO activates to compensate the difference between the registered at the TSO delivery schedules and the actually realized ones, as well as the non-contracted delivery schedules load fluctuations. The provisions governing the balancing electricity market are part of the Electricity Market Rules (EMR) and regulate balancing energy sale and purchase conditions in order to ensure security and stability of the national electric power system (EPS) and reliable parallel operation of Continental Europe EPS.

EWRC's observations on the balancing electricity market activity in Bulgaria in 2017 show that the market operates stably and provides predictable environment in the relations between all market participants. EWRC Decision № II-41 of 30 Dec 2016 kept marginal price unchanged for transactions on the balancing energy market, namely:

- price cap for transactions on the balancing energy market for upward regulation (in case of energy shortage) at the amount of 202.00 BGN/MWh and;

- price cap for transactions in the balancing energy market for downward regulation (in case of energy surplus) at the amount of 0.00 (zero) BGN/MWh.

The common power shortage in 2017 was 1 052 992 MWh, compared to 980 322 MWh in 2016, which represents increase in power shortage by 7%. The energy to cover the energy surplus in 2017 was 1 171 181 MWh, which is almost 2% more than the previous year, when it was 1 144 163 MWh.



Balancing energy price is set for each settlement period as two balancing energy prices. The average 2017 energy shortage price was 191.17 BGN/MWh, compared 185.58 BGN/MWh in 2016. The average energy surplus price in 2017 was 13.56 BGN/MWh, compared to 14.45 BGN/MWh in 2016.

The table below depicts the minimal, maximal and average balancing energy prices for shortage and surplus in 2017:

Balancing top-up energy	
Minimum price, EUR/MWh	72.09
Maximum price, EUR/MWh	541.66
Average price, EUR/MWh	97.74

Balancing spill energy	
Minimum price, EUR/MWh	0
Maximum price, EUR/MWh	16.36
Average price, EUR/MWh	6.93

In 2017 the following were registered in the balancing energy market:

- 57 standard balancing groups' coordinators;
- 15 special balancing groups' coordinators;
- 14 combined balancing groups' coordinators.

By Decision No.C-40 of 29.12.2017, EWRC adopted an approach for tying the marginal cost for trading on the balancing energy market with the aim to provide upstream system service with the base load price on the day-ahead market of the Bulgarian Independent Energy Exchange EAD for the respective day. EWRC considers that the application of this approach will provide prerequisites for sector stability, security of supply, absence of arbitrage between the balancing market and the day-ahead market, observance of the principles under Art. 23, Art. 24 and Art. 31 of the Energy Act and that at the price thus determined, the costs of the commercial participants on an annual basis should not be increased.

Monitoring time taken to connection and repair

EA lays down the obligations of transmission or distribution companies to connect all generation and users' sites to the network. In relation to the application of the legal requirements under art.116, para.7 of EA on the technical terms and conditions for connection to the transmission or distribution networks, disconnection or power supply disruption, as well as on the ownership boundary between electrical facilities, EWRC adopted by a decision some amendments and supplements to its Ordinance.

Regarding the implementation of the legal requirements concerning the technical conditions, and the connection methods and terms for connection to the electricity distribution networks, by EWRC decisions, the following secondary legislation and administrative acts have been adopted: *Ordinance № 6 of 24.02.2014 on connection of power generators and customers to electricity transmission or distribution networks (Ordinance № 6)*, *Ordinance № 3 of 21.03.2013 on licensing the activities in the energy sector*, *Instructions on price formation for the connection of consumers to the electricity distribution network and general terms and conditions of the contracts for electricity supply and distribution*, which contain the rules to work with energy services customers. In order to provide information to consumers, the aforementioned administrative acts are publicly known, they are prominently displayed in the customer service centers and are published on the websites of the supply and distribution companies.

Within its statutory powers, by conducting current and ex-post control and in fulfilment of the obligations under art.37, para.1, item m of Directive 2009/72/EC, EWRC shall monitoring the activity of the licensed energy companies within the granted licenses and the time taken by network operators to make connections and repairs with a view to reduce and alleviate connection procedures and administrative burdens, by establishing a unified service procedure.

3.1.3. Connection and access network tariffs

Transmission and distribution network tariffs to end consumers are approved by EWRC upon the companies' proposal in time and form specified under *Ordinance № 1 of 14 March 2013 on electricity prices regulation (OEPR)*.

Different consumers' groups and tariff structures are specified according to companies' proposals and are grouped according to the voltage level and daylight zones. Network services are paid based on electricity consumption, excluding the access price for non-household customers connected to the distribution network of CEZ Distribution Bulgaria and

Elektrorazpredelenie Yug EAD, which is paid in KWh/day available capacity. Transmission and access services are paid by consumers connected to the electricity transmission and distribution networks, traders with export transactions and traders with transactions on behalf of a network services user.

In 2017 by Decision № II-7 of 7 April 2017 and II-19 of 1 July 2017, EWRC approved electricity and networks services prices after analysis and evaluation of the reported results from the electricity companies during the ongoing pricing period.

Transmission and access to the electricity transmission network

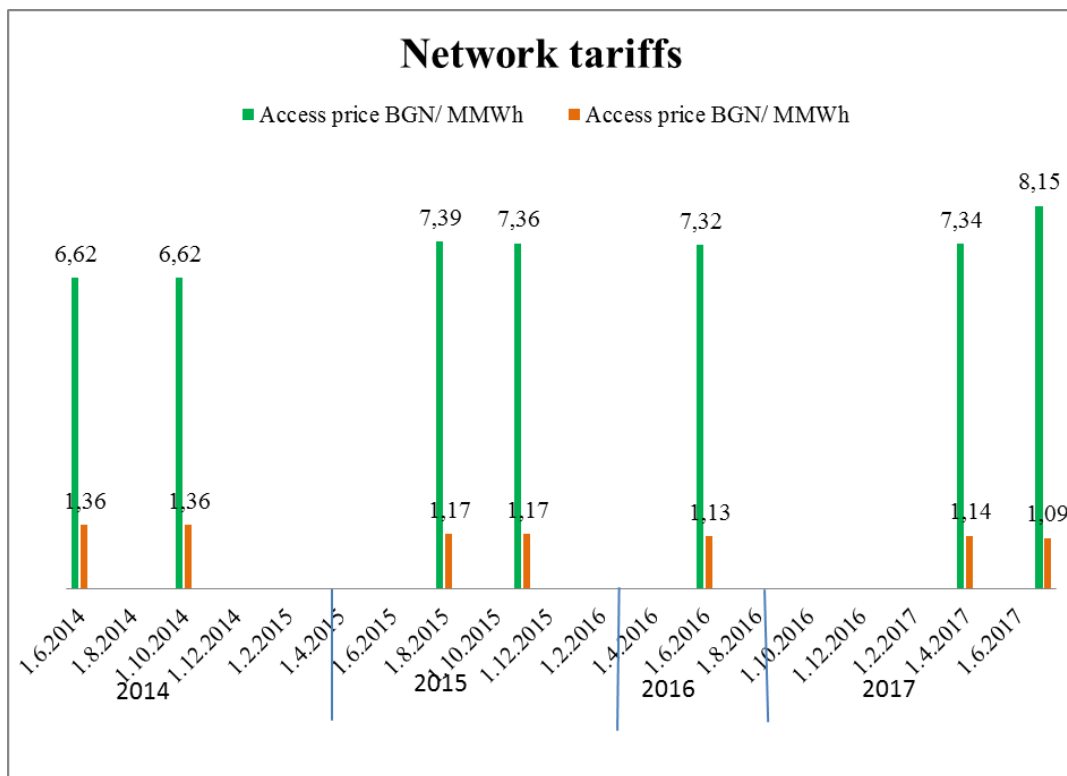
When regulating the network tariff for transmission through the transmission network EWRC uses the method “rate of return” regulation.

The approved by EWRC Decision № II-19 of 30 June 2016 prices and pricing elements for the activity of transmission and access to the transmission network, are shown in the following table:

Pricing decisions		2016	2017	
		30.06.2016	07.04.2017	01.07.2017
Transmission price	BGN./MWh	7.32	7.34	8.15
Annual revenue requirements	thou BGN	294 708	295 831	326 475
Estimated power amounts for the regulated period	MWh	40 283 089	40 283 089	40 077 648
Access price	BGN/MWh	1.13	1.13	1.09
Annual revenue requirements	thou BGN	45 646	45 646	43 580
Estimated power amounts for the regulated period	MWh	40 283 089	40 283 089	40 077 648

The following graph shows the change in transmission and network access prices over the last four years.

It shows that the access price decreases, while the transmission price increases as a result of the smaller amount of electricity and the increase of the revenues requirements of the company for carrying out the licensing activity.



Access price for renewable energy sources (RES) generators – solar and wind

In order to maintain the EPS balance, ESO EAD balances at every moment the unintentional random deviations, incl. the ones resulting from accidents, electricity load, generation capacities and interconnection exchanges. In addition, the electricity generation from PvPP and WPP, unlike the electricity generation from HPP and biomass power plants, has a mutable nature, as it is heavily dependent on variable meteorological conditions and adds to the cost of ancillary services availability, to the costs for the full-bodied participation in power plants regulation, to the turn on/off costs and reserve costs.

These variations are able to offset each other, but are very often cumulative, leading to even greater deviations and require additional balancing costs.

On the basis of the data submitted by the transmission operator and the justification made, EWRC by Decision № II-19 of 30 June 2016 approved a price of access to the electricity transmission network of ESO EAD paid by electricity generators from PvPP and WPP, connected to the electricity transmission and distribution networks, at the amount of 6.68 BGN/MWh.

Prices are payable to ESO EAD by all electricity generators using renewable sources (solar and wind) and selling their energy at feed-in-tariffs, regardless of the connection point.

Transmission and access to the electricity distribution networks

Regulating the network tariffs for the electricity distribution companies, EWRC applies incentive-based (revenue cap) regulation. Under Article 3, para.2, p.2 of OEPR when incentive-based (revenue cap) method is used, EWRC approves the revenue requirements of the energy utility for the first year of the regulatory period and analyses and may adjust them for each subsequent year of the regulatory period in compliance with Chapter three of OEPR. With EWRC Decision № II-19 of 1 July 2017, the revenue requirements and prices of the electricity

distribution companies were approved for the third price period of the fourth regulatory period. In this regard, according to Art. 38, para. 3 of OEPR, the annual revenue requirements, respectively prices, can be corrected with an inflation index for a previous period on the basis of data from the National Statistics Institute (NSI), according to its impact on the eligible operating expenses (excluding depreciation costs). They can also be adjusted by performance improvement ratio, by performance indicators 44 (power quality and service quality) and the the eligible revenue requirements of the energy company are adjusted for non-fulfillment of the target indicators set by EWRC and for the presence of difference between the forecast and realized investments, based on reliable data about the assets by type of activity according to the submitted reports and /or inspections done. The annual revenue requirements, respectively prices, are adjusted by differences in the cost of buying and selling electricity, as well as the difference in costs caused by a change in the number of customers – Art. 38, para. 4 of OEPR. The annual revenue requirements may also change due to changes in the cost of electricity needed to offset the distribution technology costs, the cost of access and transmission to / through the transmission grid and the public service obligation.

According to the provision of Art. 31a, para. 1, item 3 of EA, EWRC is entitled to amend the approved electricity prices during the ongoing price period, but not more often than once per calendar quarter, by modifying the eligible size of other pricing elements in compliance with the principle to ensure a balance between the interests of energy companies and customers. Given the change in gas prices for the second 2017 quarter, which had a significant impact on the high-efficiency cogeneration plants and according to the provisions of Art. 22, para. 1 of Ordinance No. 5 of 23.01.2014 on the regulation of heat energy prices, applying the price regulation methods, in 2017 the prices of the electricity distribution companies were amended by EWRC Decisions No. C-7 dated 7 April 2017.

Technological costs

EWRC approves a maximal amount of technological costs for the transmission and distribution companies in line with art.21, para.1, item 19 of EA and art.10, para.5 and 6 of Ordinance № 1 on pricing.

By Decision № II-19 of 30 June 2017, EWRC kept the technological costs' target values for the distribution companies the same, as per the reports presented and for each company they are as follows:

- CEZ Distribution Bulgaria AD – 8%;
- EVN Bulgaria Distribution EAD – 8%;
- ENERGO-PRO Grids AD and – 9%;
- ERP Zlatni Piasaci AD – 5%.

3.1.4. Cross-border issues

Cross-border infrastructure access, including capacity allocation and congestion management procedures

Auction rules were developed in line with Regulation (EC) № 714/2009 on conditions for access to the network for cross-regional cooperation between operators, by introducing common rules and procedures for the allocation of available transmission capacity in both directions on the interconnections of the EPS of Bulgaria and neighbouring power systems. The purpose of these rules is to ensure optimal networks management, promoting energy exchanges development and coordinated allocation of cross-border capacity through non-discriminatory market-based solutions.

At the Bulgarian-Romanian border in 2017 Transelectrica (Romania) organized monthly and annual auctions. The draft 2017 rules remain unchanged in the roles allocation as well as without a substantial change in the auctions conditions for the transmission capacities allocation between the two bidding zones, compared to 2016 Auction Rules approved by EWRC. It was ESO EAD who used to organize the daily auctions at the Bulgarian-Romanian border in 2017. The draft 2017 rules remain unchanged in the roles allocation as well as without a substantial change in the auctions conditions for the transmission capacities allocation between the two bidding zones, compared to 2016 Auction Rules approved by EWRC.

In December 2017, EWRC approved auction rules for coordinated allocation of transmission capacity between ESO EAD and MEPSO (FYR of Macedonia), where MEPSO organized the annual and monthly auctions for transmission capacities allocation at the Macedonian-Bulgarian border, and the secondary market would be administered by the Macedonian transmission operator. ESO EAD organizes the daily auctions for the transmission capacities allocation.

Agreement for bilateral coordinated auctions between ESO EAD and TEIAS (Turkey) has not yet been concluded. In this regard, the independent transmission operator shall conduct annual, monthly and daily auction procedures to provide 50% of the commercial capacity for commercial exchanges at the relevant border. The main change in the Auction Rules includes: it is no longer required for a commercial participant, who has acquired physical transmission capacity rights (PTCR) through an auction conducted by ESO EAD for the interconnector with Turkey, to notify in advance the number of counterparties registered as participants in the Turkish energy market; the submission of a counterpart notice for the interconnector with Turkey is made together with the interconnection exchange schedule notification.

At the Bulgarian - Greek border, ESO EAD organizes the monthly PTCR auctions and IPTO (Greece) organizes the annual and daily auctions. The draft 2017 rules remain unchanged in the roles allocation, as well as without a substantial change in the auctions conditions on the PTCR allocation between the two bidding zones, compared to 2016 Auction Rules approved by EWRC.

At the Bulgarian - Serbian border ESO EAD organizes the annual and monthly transmission capacities allocation auctions, and the secondary market would be administered by the Bulgarian transmission operator. The draft 2017 rules remain unchanged in the roles allocation, as well as without a substantial change in the auctions conditions on the PTCR allocation between the two bidding zones, compared to 2016 Auction Rules approved by EWRC.

Daily auctions at the Bulgarian - Serbian border are to be organized by EMS (Serbia). The draft 2017 rules remain unchanged in the roles allocation, as well as without a substantial change in the auctions conditions on the PTCR allocation between the two bidding zones, compared to 2016 Auction Rules approved by EWRC.

In connection to the TSOs obligation of the Capacity calculation region South East Europe (CCR SEE) to apply the provisions of Art.51 of Regulation 2016/1719 on Harmonized Rules for the Allocation of Long-Term Transmission Rights, as of 01.01.2018 the national regulatory authorities of CCR SEE unanimously and jointly asked ACER to adopt a decision on the proposal for a Regional Annex. In this respect, the three regulators urged ACER to decide whether to approve or request an amendment to the proposed Regional Annex. ACER approved the application of the Harmonized Rules for the Allocation of Long-Term Transmission Rights to be considered as of 01.01.2019.

According to metering data and calculated border exchanges in 2017, the Bulgarian EPS received 3 705 423 MWh electricity from neighbouring EPSs, which is less than 19% compared to data in 2016, and exported 9 185 794 MWh, which is 16% less than 2016.

Monitoring of national development plans and investment plans related to the 10-year network development plan of ESO EAD and PCIs

In line with the provisions of art.81d of EA, ESO EAD shall develop and annually submit at EWRC Ten-year network development plan (TYNDP) which is drafted in compliance with section three of the Electricity Power System Management Rules and under the requirements of ENTSO-E. The ten-year network development plan contains the main electricity transmission infrastructure that is planned for construction, expansion, reconstruction and modernization over the next ten years. It provides timely and harmonious construction and commissioning of new elements in the transmission network in order to ensure economical and reliable operation of the electricity system, in compliance with security criteria and the current quality of electricity supply standards.

The transmission network of the Republic of Bulgaria is part of the integrated transmission network of Continental Europe and its development is closely related to the development of the neighboring countries networks. In this regard, when drawing up the ten-year plan submitted at EWRC, besides solving technical issues of the electricity network, the results of market and network calculations, carried out in the South East Europe Working Group at ENTSO-E, were taken into account in preparing the 2017 regional investment plan.

The construction and putting into operation of the infrastructure projects included in the list of projects of common interest (PCI) published by the European Commission, is the key to a regional electricity market foundation:

- Maritsa East substation – Nea Santa substation (Greece);
- Plovdiv substation - Maritsa East substation;
- Maritsa East substation - TPP Maritsa East 3 switchyard;
- Maritsa East substation – Burgas substation;
- Burgas substation – Varna substation.

By Decision № ДПМ-2 of 25.09.2017, on the grounds of art.21, para. 3, p. 8 and art.81d of EA, art.112 and art.113 of Ordinance № 3 of 21.03.2013 on licensing the activities in the energy sector, EWRC approved the ESO EAD 2017-2026 TYNDP.

Cooperation in relation to the application of EC Regulations

Over the past year, EWRC carried out a number of activities and adopted a number of decisions in the electricity sector related to the implementation of the regulations and network codes defining the single European electricity market. The network codes and related guidelines have been developed to meet the three objectives of the European energy policy - to ensure security of supply, to create a competitive internal electricity market and to reduce carbon emissions in the electricity sector. All these to happen, network codes and related guidelines need to be applied and implemented across Europe.

Regulation (EC) 2015/1222 of the Commission of 24 July 2015 establishing a guideline on capacity allocation and congestion management (Regulation (EC) 2015/1222) sets out rules on cross-border capacity calculation, defining and reviewing of bidding zones and the operational day-ahead and intraday markets. Regulation 2015/1222 sets out the day-ahead and

intraday markets allocation capacity methods and outlines the way that capacities can be calculated in different zones. The introduction of harmonized cross-border markets will result to a more efficient single European market and will benefit consumers. These rules provide the basis for the implementation of a single energy market in Europe.

With its entry into force in August 2015, Regulation 2015/1222 marks the start of the official implementation period during which Member States, including ENTSO-E, Transmission System Operators (TSOs), National Regulators, Energy Exchanges and market participants cooperate in order to develop the methodologies and tools described in Regulation 2015/1222.

In pursuance of its regulatory functions, in 2017 EWRC decided to request from the market coupling operator - IBEX EAD and the transmission system operator - ESO EAD, the following amendments in accordance with Regulation 2015/1222:

- Common Grid Model Methodology, in line with art.17;
- Congestion Income Distribution Methodology, in line with art.73;
- Market Coupling Operators (MCO) Plan, in line with art.7;
- All TSO's proposal for intraday cross-zonal gate opening and gate closure times (IDCZGT), in accordance with art.59;
- All NEMOs' proposal for back-up methodology, in line with art. 36;
- Proposal for Day Ahead and Intraday Algorithm, including set of requirements developed by TSOs and NEMOs, in line with art.37;
- Proposal concerning products that can be taken into account by NEMOs in the single day-ahead and intraday coupling, in line with art.40 and art.53;
- Proposal for Fallback procedures in Capacity Calculation Region SEE (Bulgaria, Greece and Romania), in line with art.44.

In pursuance of its regulatory functions, in 2017 EWRC approved the following documents in compliance with Regulation 2015/1222:

- Generation and Load Data Provision Methodology, in line with art.16;
- Amended proposal for Common Grid Model Methodology, in line with art.17;
- Day-ahead firmness deadline, in line with art.69;
- Amended proposal for MCO functions, in line with art.7.

Commission Regulation (EU) 2016/1719 of 26 September 2016 establishing a guideline on forward capacity allocation. The European Commission adopted Regulation (EU) 2016/1719 establishing a guideline on forward capacity allocation (Regulation (EU) 2016/1719, Regulation FCA), which became mandatory in the EU Member States on 16 October 2016. Regulation (EU) 2016/1719 establishes guidelines that set detailed rules on interconnection capacity allocation in the forward markets, on the establishment of *относно създаването на обща методология за определяне на дългосрочния междусистемен капацитет*, the establishment and operation of a single allocation platform at European level, that should provide long-term transmission rights and on the possibility to return the long-term transmission rights for further allocation or transfer them from one eligible market participant to another.

In pursuance of its regulatory functions and in compliance with Regulation 2016/1719, in 2017 EWRC approved TSOs' proposal for the requirements of a single allocation platform under art.49 and requested amendment of the Proposal of the TSOs in capacity calculation region South East Europe (CCR SEE) on Regional design of long-term transmission rights under art.31.

Regulation (EU) No 1227/2011 of the European Parliament and of the Council of 25 October 2011 on wholesale energy market integrity and transparency Regarding the REMIT

requirements, in 2016 the EWRC experts continued maintaining the national register of market participants. The register provides each market participant with a unique identifier and contains sufficient information to identify the market participant, including details relating to the VAT identification number, registered office and the person responsible for its operational and trading decisions. The market participants registration through EWRC is done using the application Centralised European Register of Energy Market Participants, CEREMP, created by ACER.

In 2017, EWRC acquired access to the ACER notification platform, whereby market participants could notify EWRC and ACER in case of suspected manipulation of the electricity market. Access to the platform is clearly visible on EWRC website.

On the recommendation of ACER, EWRC experts started to participate in the Market Monitoring Standing Committee (MM SC), where representatives of the national regulatory authorities and ACER discuss potential violations of REMIT. During the reported year, EWRC experts actively participated in the work of the working groups on the implementation of Regulation (EU) No 1227/2011 (REMIT) and in particular in the working groups REMIT CG and Market Monitoring Standing Committee (MM SC). Within the working groups, methodologies and guidelines have been drafted, related to the Regulation implementation, surveys on wholesale electricity market manipulation and insider trading. The development of these guidelines and methodologies requires national regulators to actively participate in the discussions, questionnaires and provide data. In this connection, questionnaires were completed by EWRC, related to the obligations performance of persons professionally arranging transactions (PPAT), art. 15 of the Regulation. Also EWRC's views were expressed in the drafting of a handbook for the identification of good practices for investigating manipulations related to capacity retention (capacity withholding), providing information on ongoing cases, etc.

3.1.5. Compliance

The regulatory authority obligation under art.37, § 1, d of Directive 2009/72/EC on the application and control of the execution of legally binding decisions of the European Commission or ACER, has been transposed in EA, art. 21, para.1, item 31.

Under Article 21, para.1, item 27 of EA, EWRC shall monitor the obligations performance of the independent transmission operator. In cases where the independent transmission operator fails to perform its obligations, pursuant to Art. 21, para. 3 of EA and within its regulatory powers, EWRC shall:

1. impose sanctions for discrimination behaviour of the operators in favour of the vertically integrated undertaking;
2. monitor the communications between the operator and the vertically integrated undertaking, in order to guarantee that the operator fulfills its obligations;
3. act as an authority for dispute settlement between the vertically integrated undertaking and the operator;
4. request information and documents, related to the commercial and financial relations, including loans between the vertically integrated undertaking and the operator;
5. approve commercial and financial agreements between the vertically integrated undertaking and the operator in cases, where they influence the market development conditions;
6. request justification by the vertically integrated undertaking on the presented by the compliance officer decisions about the network development plan or some investments done by the operator, including observation of the requirements for non-discrimination behaviour in favour of the vertical integration undertaking;
7. carry out inspections on sites of the vertically integrated undertaking and the operator;

8. approve the TYNDP, monitor and control its implementation under the conditions and procedure of the Ordinance under Art. 60;

9. assign all or certain tasks of the independent transmission operator to an independent system operator, proposed by the network owner, in case the operator violates systematically its obligations, related to the independence requirements, under Chapter Eight "a", Section II of EA, including in cases of systematically discriminatory behaviour in favour of the vertically integrated undertaking.

Pursuant to Art.21, para.4, point 4 of the Energy Act and in connection with the exercise of its powers to regulate the activities of the Independent System Operator of the transmission system, EWRC shall approve a 10-year transmission network development plan and shall monitor and control its implementation under OLAES conditions and procedure. Under Art.114, para 1 and and seq. of OLAES, EWRC shall monitor and evaluate continuously the implementation of the ten year network development plan. When the independent transmission operator fails to execute an investment under the ten-year network development plan, which was to be executed in the following three years, EWRC shall require a written explanation about the reasons, together with supporting data and documents. EWRC, by a decision, shall oblige the operator to execute the investments in question, if they are still to be executed, as well as to provide the costs reimbursement for such investments through the network services prices, unless the non-execution is due to overriding reasons beyond the control of the network operator.

ACER provides an integrated framework within which NRAs cooperate in order to perform their tasks at EU level. This framework is designed, among others, to support the development of EU-wide rules (network codes) and their consistent implementation across the European Union, and other activities where NRAs are expected to coordinate their actions.

3.2. Promoting competition

3.2.1. Wholesale market

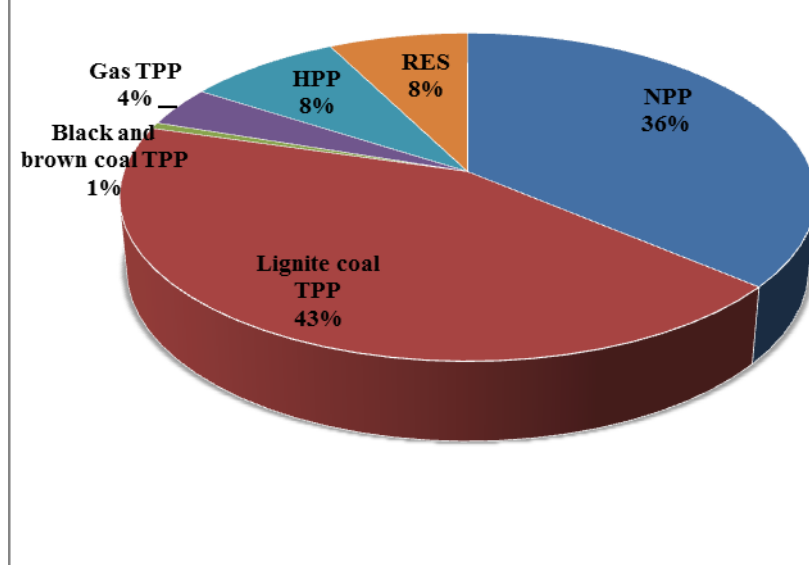
Wholesale market description

Bulgaria has a diverse power generation mix, including nuclear, thermal power plants and plants using renewables (hydro, wind, solar and biomass).

Total installed capacity of all electricity generation types in the country in 2017 was estimated at 12 070 MWh. Absolute maximum load was realized on 10 Jan at 7 p.m. (7 690 MW) with highest peak consumption of 164 024 MWh and the absolute minimum load was realized on 10 June, 3 907 MWh).

Electricity generated shares, depending on the primary resource and the method used, in 2017 were as follows:

Structure of electricity generation by source



The largest share in the overall structure of the installed capacity in the country was that of the conventional thermal (lignite) power plants – 43 %, next is the nuclear share – 36 % and the share of energy generated from renewable sources (hydro – 8 %, wind, solar and biomass – 8%).

When analyzing the electricity generation dynamics in 2017, compared to 2016, two trends could be observed. In some of the primary electricity generation technologies there was a decline in the energy generation. The largest decrease was in the electricity generation from hydroelectric power plants - 23.5%. A minimum decrease of about 2% was reported for nuclear, wind and photovoltaic plants. The technology that marks a rise in net electricity generation in 2017 was lignite-fired power plants. Their growth was 8.7% compared to 2016 and for biomass plants - 8.07% growth.

The presented installed capacity data and the net generated electricity in 2016 and 2017 of the enterprises connected to the transmission network have been provided by ESO EAD.

Plant type	Installed capacity in MW		Net electricity generated in MWh		Change in% generated electricity
	2016	2017	2016	2017	2016=100
<i>1. NPP</i>	2 000	2 000	14 932 619	14 718 368	98.57
<i>2. Lignite coal TPP</i>	4 119	4 119	16 196 171	17 605 902	108.70
<i>3. Black and brown coal TPP</i>	600	362	255 316	246 111	96.39
<i>4. Gas TPP</i>	563	563	1 729 845	1 609 514	93.04
<i>5. HPP including:</i>	3 204	3 204	4 438 123	3 395 131	76.50
<i>5.1. PSHPP generation</i>	1 399	1 399	1 059 839	899 639	84.88
<i>5.2. PSHPP pumps</i>	933	933	625 373	647 485	103.54
<i>6. RES including:</i>	1 813	1 822	3 054 654	3 054 993	100.01
<i>6.1. WPP</i>	701	701	1 424 548	1 414 564	99.30
<i>6.2. PvPP</i>	1 043	1 043	1 338 661	1 325 472	99.01
<i>6.3. Biomass PP</i>	69	78	291 445	314 956	108.07
Total: 1+2+3+4+5+6	12 299	12 070	40 606 726	40 630 018	100.06

Source: ESO EAD

Annual gross generation in the country during the reporting period (2017) amounted to 42 578 650 MWh, and annual consumption and own needs of power plants were 4 830 449 MWh.

Gross domestic electricity consumption in 2017 amounted to 37.7 TWh, with no significant change compared to 2016.

Electricity generation, consumption and export development is presented in the tables below:

Index	Year				
	2013	2014	2015	2016	2017
<i>Gross output fed into transmission grid from PP, MWh</i>	41 072 730	44 559 309	46 107 609	42 090 851	42 578 650
<i>Consumption and own needs from PP, MWh</i>	4 306 159	4 718 268	4 904 209	4 570 426	4 830 449
<i>Net generation fed into transmission grid, MWh</i>	36 766 571	39 841 041	41 203 399	37 520 425	37 748 201
<i>Physical import **</i>	3 350 387	4 319 338	4 232 762	4 568 412	3 705 090
<i>Total generation fed into transmission grid, MWh</i>	40 116 958	44 160 379	45 436 161	42 088 837	41 453 291
<i>Losses in transmission grid, MWh</i>	884 604	953 325	935 256	867 040	902 326
<i>Withdrawn energy from transmission grid, MWh</i>	39 232 354	43 207 054	44 500 906	41 221 799	40 550 965
<i>PSPP consumption, MWh</i>	1 057 064	813 789	748 281	918 394	968 736
<i>Physical export, MWh**</i>	9 530 934	13 774 537	14 697 872	10 940 640	9 186 146
<i>Consumption from transmission grid, MWh*</i>	28 644 357	28 618 728	29 054 752	29 362 765	30 396 083

Source: ESO EAD

* does not include losses in transmission grid and consumption of pumps

** Data on physical imports and exports from 2015 to 2017 are in GMT, while those of 2013 and 2014 are in the CET time

PP – power plant

Physical import – actually imported power from neighbouring countries into Bulgaria

Physical export – actually exported power from Bulgaria into neighbouring countries

In 2017, the largest electricity exchanges volumes at schedules by market participants from Bulgaria were in direction Romania, with a growth of 296% compared to 2016, Serbia - with a growth of 149% and Macedonia - with a growth of 112%. An unfavorable trend with a drastic reduction in trade with Turkey is reported. The exchange with Turkey has decreased 5 times, where it represents 21% of that in 2016, while the exchange in the opposite direction to Bulgaria marks an increase of 1015%.

EXCHANGES			
Realized commercial electricity exchange by schedules of market participants			change
border/direction	MWh		%
	2016	2017	2017/2016
Bulgaria - Romania	514 874	1 524 288	296
Romania - Bulgaria	2 114 696	1 146 712	54
Bulgaria - Serbia	1 342 400	2 005 243	149
Serbia - Bulgaria	1 078 044	684 809	64
Bulgaria – FYR Macedonia	1 418 496	1 595 182	112
FYR Macedonia - Bulgaria	145 201	60 953	42
Bulgaria - Greece	4 091 761	3 200 313	78
Greece - Bulgaria	291 880	267 571	92
Bulgaria - Turkey	2 752 500	580 984	21
Turkey - Bulgaria	124 618	1 265 223	1015

Total physical exchange of electricity imports in 2017 was 3 705 090 MWh, falling by 29% as to 2016. That decrease was greatest at the borders with Serbia and Romania. At the borders with Turkey, Greece and FYR of Macedonia there was an increase in the physical imports. In 2017 the decrease trend remained also in the total electricity export at a physical border. Total physical exports were 9 186 146 MWh and decreased by 26% compared to 2016. The biggest decrease was again at the border with Turkey - over 2 times, followed by the border with Greece. An increase was recorded at the borders of Romania, Serbia and FYR of Macedonia.

Physical electricity exchange between Bulgarian EPS and neighbouring EPSs			change
border/direction	MWh		%
	2016	2017	2017/2016
Inport			
Physical border – total	4 568 412	3 705 090	81
- Romania	4 322 966	3 571 101	83
- Serbia	225 753	9 490	4
- FYR Macedonia	1 798	2 200	122
- Turkey	3 418	101 832	2980
- Greece	14 477	20 467	141
Export			
Physical border – total	10 940 640	9 186 146	84
- Romania	181 168	464 933	257
- Serbia	1 375 323	2 124 747	154
- FYR Macedonia	2 233 120	2 448 594	110
- Turkey	4 624 846	2 085 160	45
- Greece	2 526 183	2 062 712	82

Electricity generation market participants

In 2017 generators' sales by hourly schedules were: NPP Kozloduy EAD - 14 708 494.6 MWh, TPP Maritza East 2 EAD - 7 756 748 MWh, TPP Bobov Dol EAD - 1 847 303.840 MWh, TPP ContourGlobal Maritza East 3 EAD - 4 345 855 MWh, TPP AES Maritza East 1 EAD - 3 146 825 MWh, TPP Maritza 3 AD - 28 905 MWh and Toplofikatsiya Ruse – 39 859 MWh.

A picture of the market competition can be given using two quantitative criteria to measure market concentration - Hirschman Herfindal Index - HHI¹ and Concentration Index C3². Based on ESO EAD data regarding net electricity generation by the main players in the electricity generation market, EWRC was able to calculate the two criteria values. The value of HHI was 4015 and C3 - 78.66. In that case, it can be concluded that the market is highly concentrated and poorly competitive.³

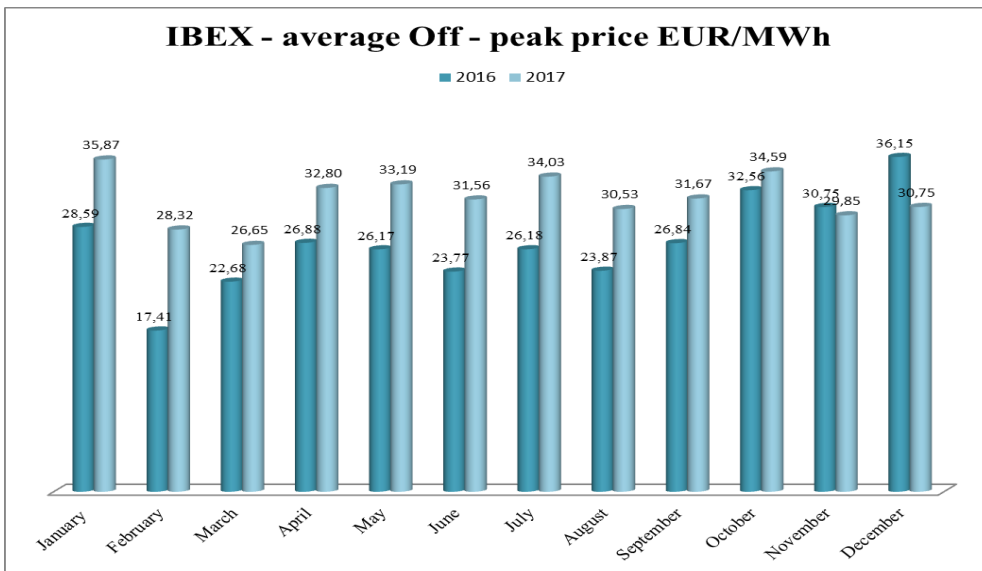
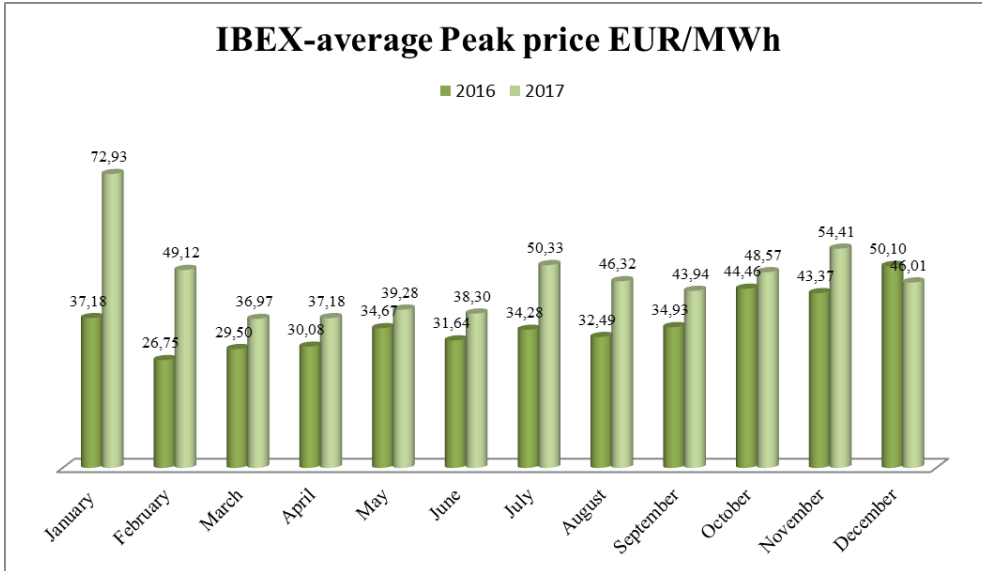
The graphs below follow the dynamics of the average IBEX prices by months in 2016 and 2017 as per base load, peak and off-peak load.

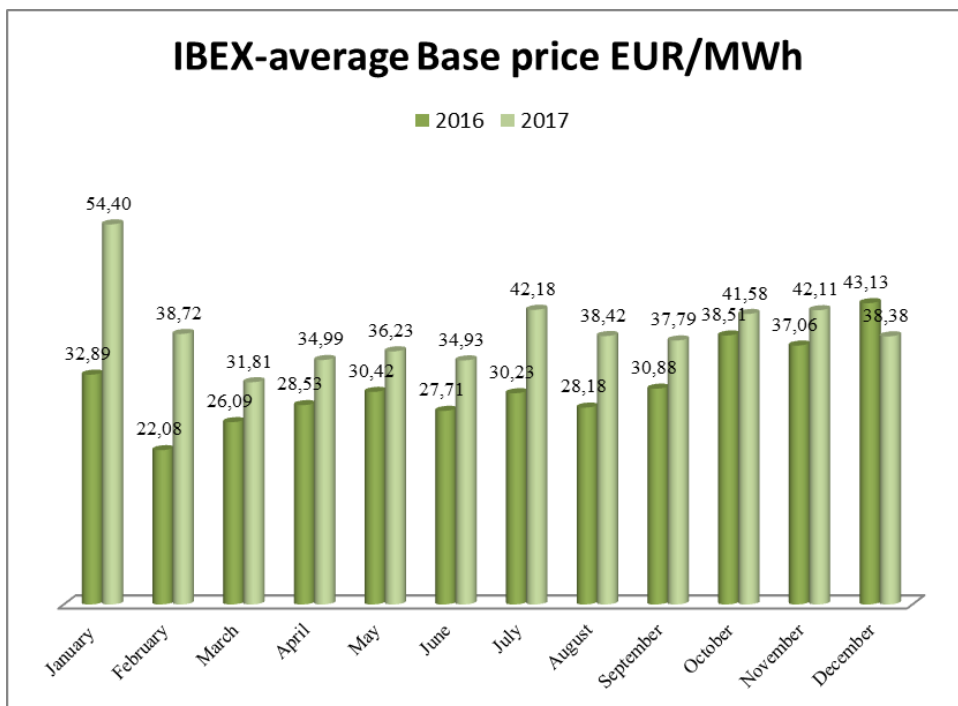
Comparing the weighted average prices for the three product markets in the day-ahead market by month, 2017 versus 2016, there is an increase in monthly prices with one exception - December, where the trend is reverse.

¹ Hirschman Herfindal Index is calculated as the sum of market shares of the market participants raised in a square.

² The index is calculated as a sum of the first three market participants with the largest market share.

³ Electricity Market Rules http://www.dker.bg/files/DOWNLOAD/PTEE_18072013.pdf





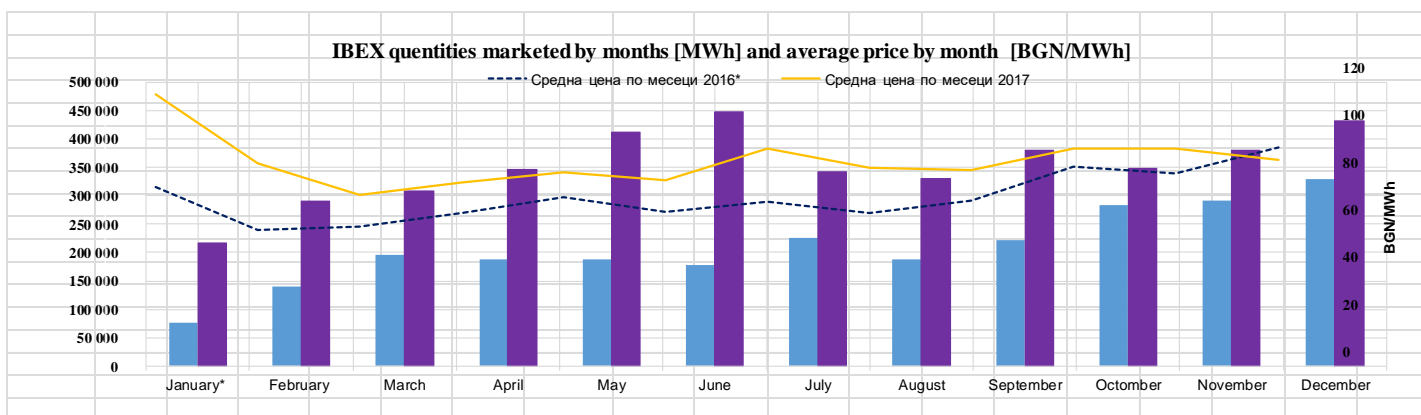
Month	Change in the average prices in % 2017 as to 2016		
	Base load	Peak	Off-peak
<i>January</i>	196.14 %	165.40 %	125.46 %
<i>February</i>	183.60 %	175.34 %	162.65 %
<i>March</i>	125.32 %	121.93 %	117.51 %
<i>April</i>	123.58 %	122.65 %	122.06 %
<i>May</i>	113.28 %	119.10 %	126.80 %
<i>June</i>	121.06 %	126.08 %	132.76 %
<i>July</i>	146.84 %	139.53 %	129.96 %
<i>August</i>	142.58 %	136.37 %	127.92 %
<i>September</i>	125.81 %	122.35 %	117.98 %
<i>October</i>	109.24 %	107.97 %	106.24 %
<i>November</i>	125.46 %	113.63 %	97.06 %
<i>December</i>	91.85 %	89.00 %	85.06 %

From the analysis of the average exchange prices dynamics for the three types of load, it can be noted that the highest price growth is in January and February, with a 60% to 96% growth. This sharp increase could be explained by the fact that on 9 Jan 2017, by an order of the Minister of Energy, the export of electric power was stopped in order to guarantee the domestic consumption, which marked a significant increase due to the low winter temperatures.

In an EC analysis⁴ on the influence of the actions taken by Bulgaria, Greece, Romania, France and Italy during the bad weather conditions in January 2017, it was concluded that the decisions to limit exports had regional impact. Regarding Bulgaria, the conclusion was that the high electricity demand had been limited within a short period of time, 4 days, so it had not been necessary to stop exports for such a long period (27 days). In the report, EC estimated that the energy companies in Bulgaria had suffered losses of EUR 27 million.

In July and August, there was also a significant increase in prices, compared to the same months in 2016 - between 30 and 46%.

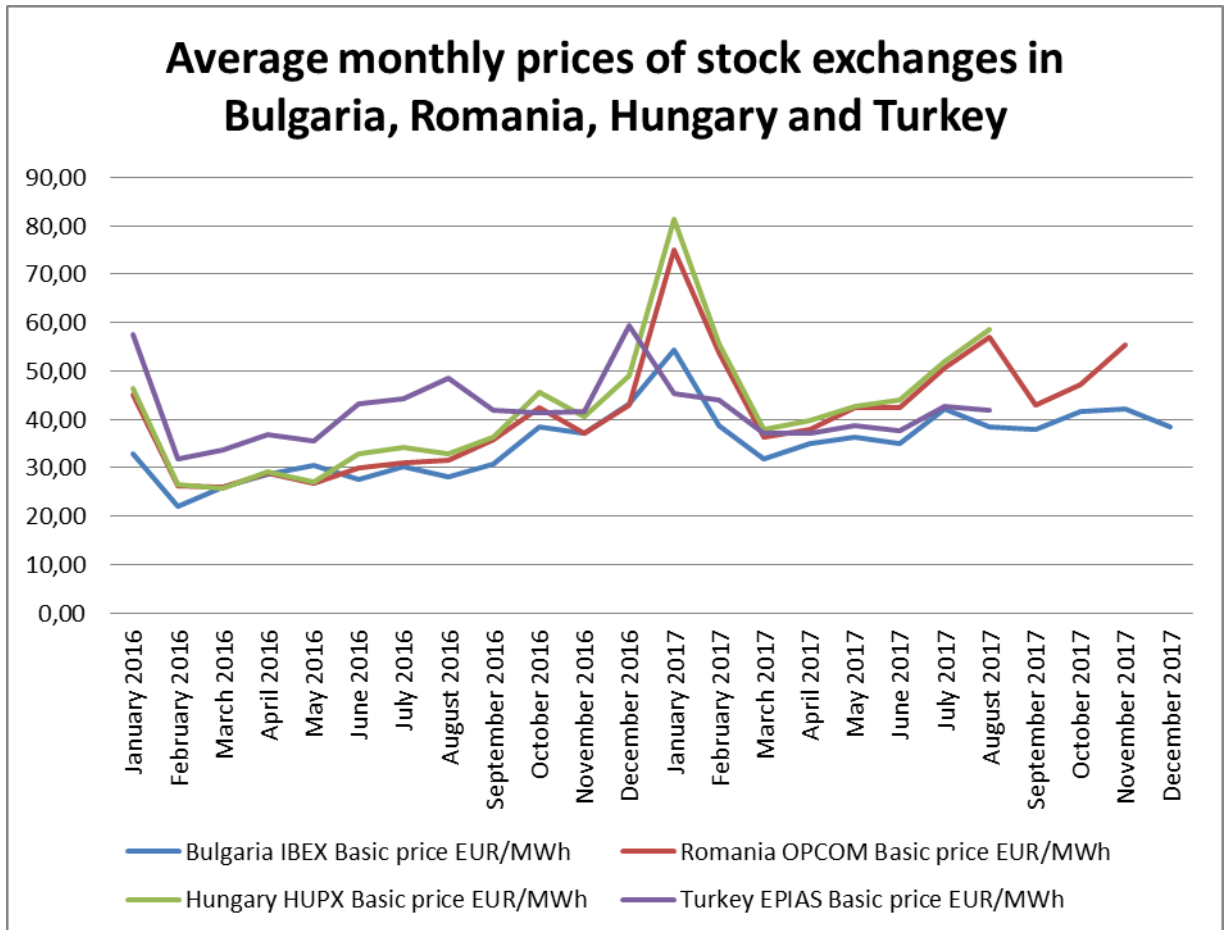
In the rest of the year, that growth was within the range of 6 to 32%. In December 2017 the trend was reversed and the three loads prices were lower by 15 %.



The IBEX EAD chart compares traded volumes and the respective average exchange prices. In July and August there was a high growth in prices and a sharp decline in traded volumes. In May and June, the largest volumes - over 400 000 MWh, were traded. Following the drop in traded volumes, in July and August, a slight increase was again observed, reaching the highest value in December - 430 274.90 MWh. The total volume of traded quantities in 2017 was 4 233 800 MWh. Growth, as per the traded volumes in 2016 – 2 505 209 MWh, was 167%.

When comparing the average base prices on the power exchanges in Bulgaria, Hungary, Romania and Turkey by months in 2017, the prices of IBEX EAD were found to be below the average exchange prices in the other countries. The prices dynamics in 2017 on the Bulgarian power exchange followed that of the other power exchanges. The largest difference in prices was observed in January, February and August 2017 with the prices on the Romanian power exchange (a margin of 15 to 20 euro/MWh and in Hungary with a margin of 16 to 26 euro/MWh).

⁴https://ec.europa.eu/energy/sites/ener/files/documents/platts_report_final_version_rrr.pdf



Balancing mechanism, cold reserve and regulating energy

In 2017 in Bulgaria, the cold reserve and ancillary services market followed a model of bilateral contracts with notice on the day before delivery and balancing all electricity transactions. The trading participants' balancing is done by applying unified principles of negotiating and providing a reserve.

Reserve type:

- primary regulation reserve;
- secondary regulation reserve;
- tertiary regulation reserve;
- cold reserve.

ESO EAD does not pay for tertiary regulation reserve.

Negotiation period

- Primary and secondary regulation reserves (ancillary services reserve) are negotiated on an annual basis, but each month ESO EAD sets the range for every balancing energy supplier.
- Cold reserve is purchased under auctions, usually for a month or longer period.

Reserve negotiation and provision

By the 10th day of the month preceding the month of delivery, ESO EAD determines the availability for participation in primary and secondary regulation of thermal plants for the next month.

Generators are required to allocate the specified for ESO EAD certain availability by aggregates scheduled to be operated on day D and inform ESO EAD on day D-1. Generators are not allowed to sell electricity on the market above the specified for ESO EAD availability.

3.2.2. Retail market

Households market participants

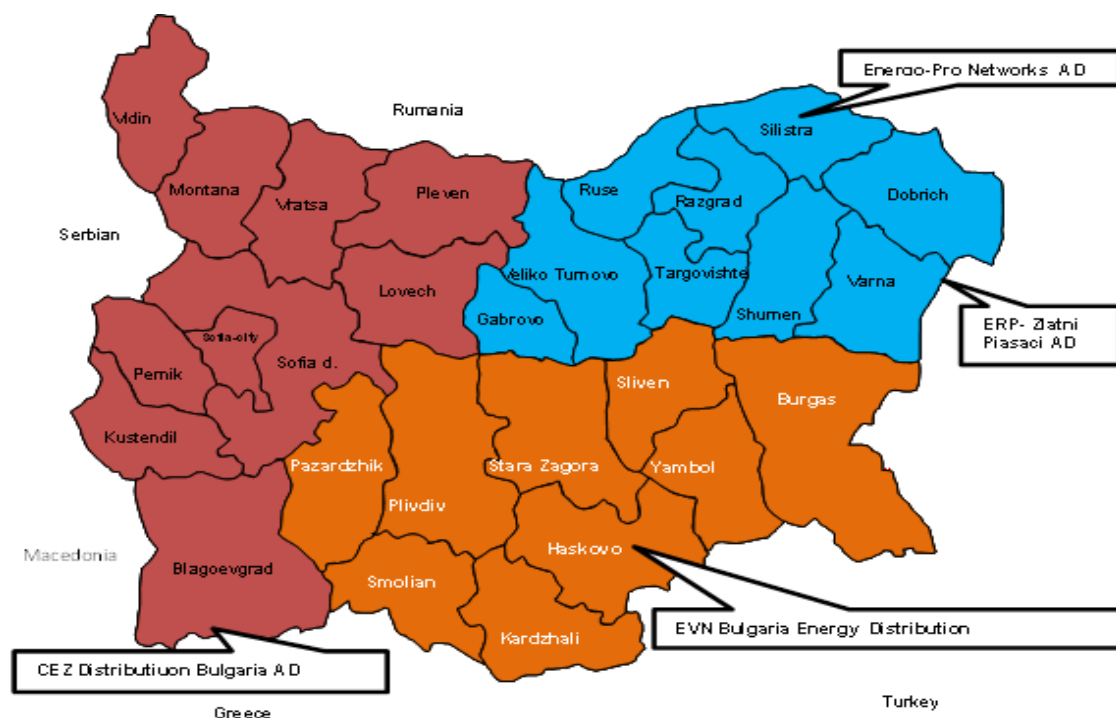
A well-functioning retail market requires a significant level of competition between sufficient number of active electricity suppliers. A major role in the retail market competition development is played by distribution system operators, which should ensure a level playing field for market participants in their access to distribution networks and to customers. These conditions are crucial in order to develop efficient market competition that attracts investment and benefits consumers.

Four electricity distribution network operators hold licenses for electricity distribution to customers connected to the low and medium voltage distribution grids in the respective retail areas.

- *CEZ Distribution Bulgaria AD* operates in the territory of 10 districts in Western Bulgaria. *CEZ Distribution Bulgaria AD* is the company responsible for maintaining the network and ensuring the continuous and high quality supply of electricity to consumers in Western Bulgaria. The major shareholder of *CEZ Distribution Bulgaria AD* is CEZ a.c. Czech Republic, which owns 67% of the company's capital. The remaining 33% are owned by various minority shareholders - legal and natural persons.

- *Electrodistribution North AD* operates in the territory of 9 districts in North Bulgaria and *Electrodistribution South EAD* operates in the territory of 9 districts in South Bulgaria. *Electrodistribution Zlatni Piasaci AD* has a limited geographical area of activity in the region of Varna.

The graph below shows the geographic territories in which the four companies, distribution network operators exercise their activity:

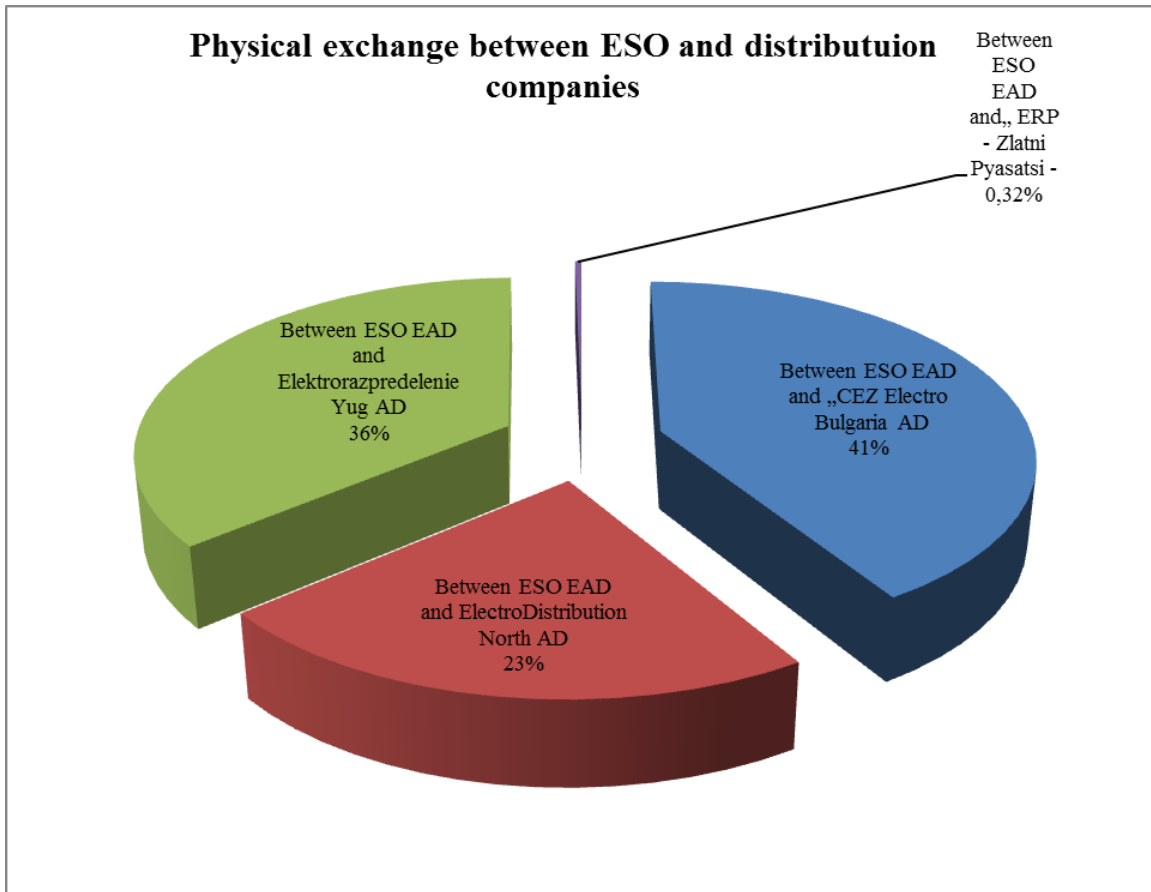


Electricity physical exchanges⁵ between ESO EAD and the distribution networks of the four distribution companies, marks a growth in 2017 as to 2016 by 3.09 %. The biggest increase was with *Electrodistribution South EAD* with 4.50%, followed by *CEZ Distribution Bulgaria AD*.

PHYSICAL EXCHANGES BETWEEN ESO EAD AND THE DISTRIBUTION COMPANIES			
DISTRIBUTION NETWORK OPERATORS	MWh		Change %
	2016	2017	
CEZ Distribution Bulgaria AD	9 441 145	9 694 546	102.68
Electrodistribution North AD	5 235 539	5 324 216	101.69
Electrodistribution South EAD	8 068 454	8 431 922	104.50
Electrodistribution Zlatni Piasaci AD	74796	74756	99.95
TOTAL	22819934	23525441	103.09

Exchanged electricity shares with distribution companies are presented in the figure below: the largest share of 41% has *CEZ Distribution Bulgaria AD*, followed by *Electrodistribution South EAD* - 36%.

⁵ Net quantities



Electricity supply market participants in the retail market

From supply point of view, the market consists of three groups of suppliers:

- Supplier of last resort (SLR) – a supplier that guarantees the universal service provision as a last resort in accordance with a license obtained from EWRC. It has the obligation to supply electricity to customers who are connected to the distribution network and have not chosen an electricity trader or when the electricity trader they had chosen fails to provide the supply due to non-customer reasons. The SLR final selling prices are determined by EWRC methodology on electricity prices of a supplier of last resort.
- End supplier (ES) of electricity - supplies electricity to objects of household and non-household end consumers connected to the electricity distribution network at a low level at regulated prices determined by EWRC;
- Free market supplier - a trader who supplies electricity to household and non-household customers at prices based on demand and supply.

Three vertically integrated⁶ energy companies actively operate in the energy retail market.

CEZ Group

CEZ Electro Bulgaria AD is a company holding licenses for the activities of “end supplier”, “supplier of last resort” and “trade in electricity”. The company supplies end customers, connected to the distribution network low voltage in Western Bulgaria; the majority shareholder CEZ a.s., Czech Republic owns 67% of the company and the rest 33 % are owned by various minority shareholders - legal and natural persons.

CEZ Trade Bulgaria EAD is a company with a license for the activity "trade in electricity". The company is 100% owned by CEZ a.c. Czech Republic.

EVN Group

EVN Bulgaria Electricity supply EAD is a company holding licenses for the activities “end supplier”, “supplier of last resort” and “electricity trading”. The company supplies electricity at regulated prices to end customers connected to the low voltage electricity distribution network in Southern Bulgaria. It is owned at 100% by the Austrian energy company EVN AG.

EVN Trading South East Europe EAD is a company holding a license for the activity “trade in electricity”. The company is 100% owned by the Austrian energy company EVN AG.

Energo-Pro Group

Energo-Pro Sales AD is a company holding licenses for the activities “end supplier” and “supplier of last resort”. The majority owner ENERGO-PRO Varna EAD owns over 90% of the company and the rest is owned by various minority shareholders - legal and natural persons.

Energo-Pro Energy Services EOOD is a company holding a license for the activity “trade in electricity”. The company is 100% owned by ENERGO-PRO Varna EOOD.

На пазара на дребно, освен дружествата от трите икономически групи, електрическа енергия по свободно договорени цени доставят търговци на електроенергия. През 2017 г. активните доставчици на пазара на дребно общо са 51 броя доставчици.

Regulated market – end suppliers

The comparative analysis of the realized electricity quantities on the regulated market by end suppliers in 2015, 2016, 2017 shows that electricity sales to non-household customers decrease by 23.87% in 2016 compared to 2015 and by 24.69% in 2017 compared to 2016.

With household customers the reverse trend in sales growth could be observed in 2016 - 13.64% compared to 2015. In 2017 the growth was negligible - only 3.03% compared to 2016.

There was a decrease in the total amount of energy sold to customers on the regulated market in 2017 by 4.12 %.

⁶ Art.2, p. 21 of Directive 2009/72: ‘vertically integrated undertaking’ means an electricity undertaking or a group of electricity undertakings where the same person or the same persons are entitled, directly or indirectly, to exercise control, and where the undertaking or group of undertakings perform at least one of the functions of transmission or distribution, and at least one of the functions of generation or supply of electricity;

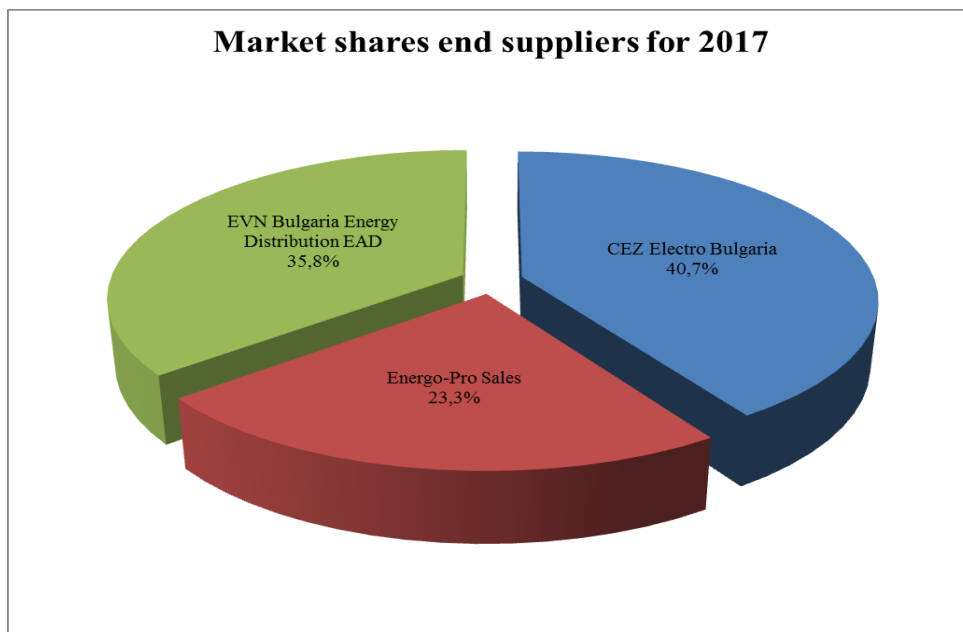
ELECTRICITY SALES TO REGULATED MARKET CUSTOMERS					
	2015	2016	2017	change 2016/2015 (%)	change 2017/2016 (%)
Indicators	MWh	MWh	MWh		
Electricity for non-household customers	4 899 835	3 730 232	2 809 280	-23.87%	-24.69%
Electricity for household customers	9 443 575	10 731 506	11 056 297	13.64%	3.03%
Total Electricity end suppliers customers	14 343 411	14 461 738	13 865 577	0.82%	-4.12%

Source: DSOs

Market shares of end suppliers are calculated on the basis of energy sales to household and non-household customers connected to the low voltage distribution network. End suppliers participate in the regulated market and supply electricity to a geographically limited market within the license of the economic group distribution network operator. In practice, suppliers that are end suppliers are not in competition with each other.

MARKET SHARE			
End Suppliers	2015	2016	2017
CEZ Distribution Bulgaria AD	44.76%	40.71%	40.79%
EVN Bulgaria Electricity Supply EAD	37.85%	35.24%	35.83%
Energo-Pro Sales AD	25.71%	24.05%	23.38%

Analysing the market share data, it can be concluded that *CEZ Electro Bulgaria AD* has the largest market share, but it drops slightly between 2015 and 2017, from 44.76% to 40.79%. In 2017, the market share of *ENERGO-PRO Sales AD* was 23% and *EVN Bulgaria Electricity Supply EAD* was 36%. *Electrodistribution Zlatni Piasaci AD* was not included in the analysis because it has a market share below 1% and has no significant impact on the market.



In terms of demand, the retail market consists of two segments - household customers and non-household customers.

The total number of non-household customers in 2017 was 606 055. The total consumption of non-household customers was 13 050 GWh. 9 931 GWh were delivered to the free market. Supplies to 469 645 non-household customers were made at regulated prices. The share of non-household customers that have entered the free market by 2017 is 23 %.

The total number of household customers in 2017 was 4 476 040. Total electricity consumption in the retail market was 11 068 GWh. The volume of energy delivered at free market prices in the household customers market was 13 GWh, which represents 0.12% of the total electricity supply to the retail market.

Market shares and market concentration

As a result of the measures taken to liberalize the electricity market, new entrants have been actively entering the retail market over the last few years, putting competitive pressure on the incumbent suppliers, part of the three vertically integrated companies. In 2017, the number of active suppliers in the market was 51, which enabled wholesale customers to benefit from the growing variety of suppliers and make choices between different offers. In the household customers market segment active suppliers in 2017 were 35.

It should be noted that in spite of the increase in the number of suppliers, still a large part of the non-household customers remain on the regulated market and with household customers the number of free-market consumers is negligible compared to the total number of household customers.

New entrants still have small market shares. For example, in the non-household market, 5 suppliers have a market share of over 5%. The number of suppliers with a market share of between 1% and 5% is 8 and 38 suppliers have a market share below 1%. The concentration index HHI is 1381 and C3 is 61%.

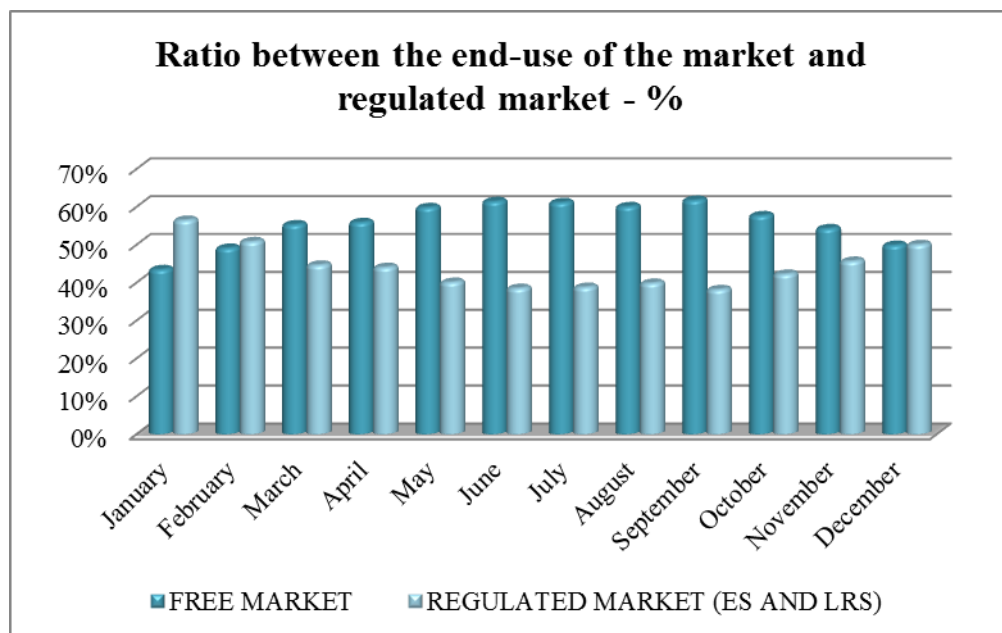
In the household consumers market, suppliers with a market share of over 5% are 8; 7 suppliers have market share between 1% and 5% and 20 suppliers have market share below 1%. HHI concentration index is 1130 and C3 is 47, 21 %.

Despite the large number of suppliers, there is a slight decline in the market shares of the three largest suppliers. The market shares of the three main suppliers of the CEZ, EVN and ENERGO-PRO groups remain the highest. They can significantly influence market competition. Indicators on the number of active suppliers and the suppliers entry/exit process give an idea of the users' choice and the options available to customers in the two retail segments. In addition, they determine the existence of barriers to market entry and the importance of regional markets for the efficient competition development, etc.

Market suppliers' entry/exit

Five new suppliers entered the household consumer market in 2017 and other five exited the market. Six suppliers entered the non-household customers market and 11 exited the market. From the entry and exit data analysis of the market suppliers, contradictory conclusions can be made. On one hand, the significant number of new entrants in the market in 2017 is a sign that it is sufficiently open, with low entry barriers. On the other hand, in 2017 there was a large number of participants exiting the market. Eleven suppliers exiting the market account for 26% of all active non-household customers. This is a signal that the retail market is dynamic and unsustainable, which can lead to customer insecurity and loss of confidence in the benefits of the free market. As a result, customers in the two segments may not only refrain from moving from the regulated market to the free market, but also those who are in the free market may go back to the regulated market and to incumbent suppliers. Such customer behaviour in the two market segments may hamper the market liberalization process.

The unfavorable trend can also be illustrated by the dynamics of the electricity amounts sold by months, in the free and in the regulated market.



The analysis of the final electricity consumption in the free market and in the regulated market by months shows also the trend reversal in the ratio between the free and the regulated market final electricity consumption. In the period from March to September, the free market expands at the expense of the regulated market, with the ratio reaching 60% for the free market, compared to 40% for the regulated one. This trend reversed in November, with the regulated market share growing, and in December 2017, the two markets were equal, with 50% each.

Switching the supplier

The switching supplier index is one of the key indicators to assess the development of competition in retail energy markets. Typically, the index has high values for well-developed markets that guarantee customers a wide choice of suppliers and offers. An unobstructed change of supplier is a sign that market participants are subject to effective competitive pressures that can provide quality customer service. The low value of the switching supplier index is a signal that there is no effective competition in the market or its development is hampered.

In 2017 the whole retail market switching supplier index is low - 0.5% and marks a decrease compared to 0.86% in 2016. Household customers' value of the indicator was 0.002%.

SWITCHING DATA 2017	
INDICATORS	TOTAL
Total number of switchings	99 118
<i>Including:</i>	
<i>Total number of household customers that switched from the regulated market to a supplier within the same economic group</i>	386
<i>Total number of household customers that switched from the regulated to the free market opting for another supplier</i>	2 150
Number of household customers that switched supplier within the free market	108
<i>Including:</i>	
<i>Within the economic group</i>	19
<i>With another supplier</i>	89
Number of household customers that returned to the regulated market (at regulated prices)	551
Total number of non-household customers that switched from the regulated to the free market to a supplier within the same economic group	21 875
Total number of non-household customers that selected a supplier outside the economic group	24 517
Number of non-household customers that switched supplier at the free market	24 955
<i>Including:</i>	
<i>Within the economic group</i>	4 251
<i>With another supplier outside the economic group</i>	20 556
Number of non-household customers that returned to the regulated market (at regulated prices)	18 038

From the data in the table it can be concluded that in 2017 there was a tendency to return back to the regulated market for a significant number of customers, both from the household and non-household segments. In the household segment 551 customers have returned to the regulated market from the free market and 2 105 customers moved from regulated to free market. 108 customers have changed their supplier. In the non-household segment 18 038 customers have returned to the regulated market from the free market and total of 43 392 customers moved from regulated to free market, with 21 875 customers opting for a supplier within the economic group (incumbent supplier), and 24 955 customers have opted for another trader.

The number of customers that effectively moved from regulated to free market and the value of the switching supplier index are important elements in analyzing the level of competition and the overall functioning of retail energy markets.

The 2017 data on the index “number of customers moved from regulated to free market” and “switching supplier index”, as well as the ratio “regulated-free market final electricity consumption”, indicate an unfavorable trend which, if persisting in the coming years, could vitiate further retail market liberalization.

This tendency would not be favourable if we should to consistently follow the policy on the long-term goal of full electricity market liberalization in Bulgaria and its joining the European internal energy market, part of the Energy Union.

3.3. Security of supply

Implementation of safeguard measures under Article 42 of Directive 2009/72/EC

According to art.4 para.2 item 4 and 5 of EA, the Minister of Energy determines by an order mandatory indicators of the electricity supply reliability level, including measures for their implementation, and defines the necessary new generation capacities and promulgates an inventory listing these capacities in State Gazette.

Given the established regional cooperation and operational arrangements for the coordinated allocation of cross-border capacity with neighbouring system operators, as well as the agreed mutual support at emergencies, the safe and reliable operation has been ensured both in the internal and external electricity markets.

3.3.1. Monitoring balance of supply and demand

The Bulgarian ten-year transmission network development plan ensures timely and harmonious construction and commissioning of new elements of the electricity transmission network for economical and safe operation of the EPS, observing safety criteria and current electricity supply quality standards.

NPP and TPP are part of the base capacities. They provide ancillary services, guarantee the safety of the EPS operation and the security of electricity supply, regulated by Directive 2009/72/EC and Directive 2005/89/EC.

Measures envisaged to be taken in order to ensure the safety of the EPS operation, are:

- to build new balancing sources and expanding existing ones characterized by high maneuverability in terms of turning on/off and high speed of change in operational active capacity; these are to participate in load regulation in the condition of modified structure of the generation capacities involved in the generation - consumption process;

- participation of industrial users as suppliers of tertiary reserve through the balancing energy market mechanism.

These measures relate both to an increase in construction and commissioning investment and increase in balancing costs.

In order to secure the operation of the electricity transmission network, in compliance with the above mentioned principles (ensuring the necessary reliability of the electricity transmission and the stability of generation capacities), the following new power lines in the Bulgarian 400kV network ought to be constructed:

- substation Maritsa East – substation Nea Santa (Greece);
- substation Plovdiv – substation Maritsa East;
- substation Maritsa East – switchyard TPP Maritsa East 3;
- substation Maritsa East – substation Burgas;
- substation Burgas – substation Varna.

The construction of the new interconnection 400kV substation Maritsa East – substation Nea Santa (Greece) is agreed by the two neighbouring countries and the main benefits are the following:

- increase the net transfer capacity (NTC) between Bulgaria and Greece, observing the safety criterion “n-1”;
- increase the capacity (NTC) between Bulgaria and Turkey due to a large decrease in the transit flow from Bulgaria to Greece through;
- facilitating the implementation of the annual repair programs of the electricity transmission networks of Bulgaria and Greece;
- improving the conditions of mutual energy assistance between the two countries in case of system accidents or critical balance.

4. NATURAL GAS MARKET

4.1. Network regulation

In exercising its regulatory powers EWRC is guided by the following principles: stimulating investment in infrastructure in a non-discriminatory way, equal access for new entrants to the networks and the market; achieving high standards for services of public interest, securing customers' choices and switching, providing protection of energy services consumers; creating incentives for energy companies to improve the effectiveness of regulated activities.

EWRC exercises control over the activities of the independent transmission operator and the distribution system operators in terms of compliance with the adopted by EWRC:

- *Ordinance № 3 of 21 March 2013 on licensing the activities in energy sector;*
- *Ordinance № 4 of 5 Nov 2013 on natural gas transmission and distribution networks connection;*
- *Natural Gas Transmission Networks Management and Technical Rules;*
- *Rules on Natural Gas Distribution Networks Management;*
- *Rules for access to the gas transmission and/or gas distribution networks and storage facilities.*

Bulgartransgaz EAD gas transmission system and the gas market are balanced according to the adopted by EWRC *Natural gas trading rules, Natural gas market balancing rules and Daily imbalance charge calculation methodology* and the approved by EWRC decision interim

measures: balancing platform alternative, a temporary fee for imbalance and tolerance in accordance with Regulation (EC) No 312/2014.

4.1.1. Unbundling and TSO certification

In accordance with Directive 2009/73/EC, Bulgaria has chosen the “independent transmission operator” (ITO) model, according to which the transmission operator and network assets are separated into a separate legal entity within the vertically integrated undertaking.

Bulgartransgaz EAD is an independent entity within the vertically integrated undertaking Bulgarian Energy Holding EAD (BEH EAD) and Bulgartransgaz EAD owns the assets used for the activity “natural gas transmission” including the gas transmission network; the activities of the transmission network operator Bulgartransgaz EAD are unbundled legally, functionally and financially from the other activities of the vertically integrated undertaking.

According to EWRC Decision № C-4 of 22 June 2015 and Decision № C-6 of 5 November 2015, pursuant to article 10, paragraphs 1 and 2 of Directive 2009/73/EC, Bulgartransgaz EAD is certified as an independent transmission operator (ITO) of the transmission system in Bulgaria. EWRC continuously monitors the company's compliance with the legal independence requirements and its duties as an independent transmission operator.

4.1.2. Technical functioning

Bulgartransgaz EAD is a combined operator performing the activities of natural gas transmission and storage. The company holds licenses № JI-214-06 and № JI-214-09 of 29.11.2006 for the activity “natural gas transmission” and license № JI-214-10 of 29.11.2006 for the activity “natural gas storage”. Bulgartransgaz EAD is the operator of the:

- national gas transmission network on the territory of Bulgaria transporting gas to the natural gas distribution networks and business customers;
- transit gas transmission network for gas transportation through Bulgaria to the neighbouring countries of Romania, Turkey, Greece and FYROM;
- underground gas storage facility Chiren (UGS Chiren) for the storage of natural gas primarily intended to cover seasonal fluctuation in demand and to ensure natural gas security of supply.

The transmission network operator ensures the unified management and reliable operation of the gas transmission network; the transmission via gas transmission network and its metering; the maintenance of gas transmission network facilities and equipment in accordance with the technical and safety requirements; the transmission network development in accordance with long-term forecasts and gas supply development plans and beyond them, where economically justified and ancillary networks maintenance and development. In order to ensure reliable, safe and efficient operation of its natural gas transmission networks and associated facilities and reliable transmission, Bulgartransgaz EAD performs its activities in accordance with the regulations, technical norms, applicable standards in this area and safety work rules, respecting European rules on environmental protection and transmission system development plans. Bulgartransgaz EAD by its Central Dispatching Division provides unified management, reliable operation and transmission of natural gas transmission system and its metering in compliance with the quality requirements.

To ensure the security and reliability of gas networks operation the independent transmission operator performs preventive activities in the gas transmission networks and related facilities.

The transmission system operator shall prepare a schedule of planned repairs and reconstruction of gas networks facilities, which contains data on the type of repairs, their expected duration, as well as alleged restrictions on natural gas transmission. The transmission system operator develops emergency situations procedures as well.

TSO provides preventive actions in time of accidents and emergency situations. To this end, it develops and implements an emergency plan for carrying out rescue and emergency recovering works in case of disasters, accidents and catastrophes, which is consistent with the Emergency Situations Action Plan approved by Order of the Minister of Energy – the competent authority under Regulation (EU) № 994/2010 of the Council of 20 October 2010 concerning measures to safeguard security of gas supply and repealing Directive 2004/67/EC. In the event of crisis situations when the transmission networks modes are disrupted, the operator acts according to the said Plan, developing and coordinating the regime schemes of the network operation, reporting and analysing all entry-exit boundary conditions (bids, pressure, volumes, etc.), the gas transmission networks status, weather forecast, neighbouring transmission systems status and inertness degree. It also manages the required human and technical resources for the technological process, maintaining readiness for emergency notification and emergency situations in Central Dispatching Division, operating regions, compressor stations and the underground gas storage facility. In accordance with the adopted Regulation (EC) 2017/1938 of the European Parliament and of the Council of 25 October 2017 year concerning measures to safeguard security of gas supply and repealing Regulation (EC) No 994/2010, the action plan in emergency situations shall be updated in 2018.

In pursuance of Art.81d of EA and art.22 of Directive 2009/73 /EC the transmission network operator has developed the Ten-year network development plan for the period 2017-2026, following public consultations with stakeholders. The Plan is consistent with the upcoming changes in production, consumption and exchanges with other countries. Investment plans for regional networks and networks within the European Union have been taken into account. In the TYNDP Bulgartransgaz EAD has foreseen investments in gas transmission infrastructure and in UGS Chiren. The Plan contains all the investments decided to be performed and the new investments to be made over the next three years, as well as a schedule for the investment projects implementation. By Decision № ДИПМ-1 of 18 Aug 2017 EWRC approved the TYNDP of Bulgartransgaz EAD for the period 2017-2026.

The total length of distribution networks is 4724 km. Typical for them is that they are new, built in the last twenty years. Given that distribution networks are still under development they are loaded below their design capacity.

4.1.3. Network and LNG tariff for connection and access

Connection tariffs

EWRC regulates the terms and conditions of price formation for connection to gas distribution and transmission networks.

In the first case, the prices for connecting customers to the gas distribution networks (households and industrial customers) are formed by customers groups according to the requested maximum capacity and pressure and the relevant eligible costs of the consumer group. The costs of additional equipment for connection of a customer shall be on its account.

In the second case, transmission network connection prices of extraction pipeline networks, gas storage facilities, liquefied natural gas facilities, production units of gas from renewable sources, distribution networks and non-household customers outside the above groups are individual and include the actual costs of constructing the network connection facilities of the

undertaking concerned. Tariffs are formed on the basis of the costs incurred for all connection activities, the value of gas pipelines and facilities in accordance with the regulatory and technological requirements ensuring a direct connection from the technologically approved connection point of the respective network to the customer/customers point of connection.

Access and transmission through the gas transmission system

Since 1 October 2017, the entry-exit tariff model has been introduced for pricing natural gas access and transmission through the gas transmission system. Thus, in accordance with the *Methodology on pricing of natural gas access and transit in gas transmission networks owned by Bulgartransgaz*, EWRC approved the annual revenue requirements of Bulgartransgaz EAD for the first year of the regulatory period 2017-2019. Following EWRC's approval of the annual revenue requirements, Bulgartransgaz EAD determined the tariff structure and the prices for access and transmission of natural gas at entry and exit points/zones for the first pricing period - gas year 2017/2018. EWRC carries out an ongoing monitoring of the activity of the natural gas transmission operator regarding the application of the entry/exit tariff model, analysing monthly the data provided by Bulgartransgaz EAD on allocated capacities, reserved capacities and their usage by the users, as well as on the operating income.

In 2017 the problem of insufficient optimization of the reserved capacities compared to the actual quantity of transported natural gas should be taken into account, but in this respect it is important to note that there is an improvement and the total usability of the reserved capacity reached 90%. Given the fact that the effective implementation of the model in Bulgaria started in October 2017, it can be assumed that the difference between a reserved but unused capacity of about 10% is within the allowed range.

Access and storage of a storage facility

EWRC regulates the prices of access and storage of natural gas storage facilities in compliance with EA, the Ordinance on natural gas prices regulation (ONGPR) and the Guidelines on pricing access and storage of natural gas storage facilities, applying "rate of return on capital" regulation adopted by EWRC. Gas access and storage prices, which the operators of gas storage facilities, respectively a combined operator, offer for one and the same service to different customers under equivalent terms and conditions, ensure compliance with the principle of non-discrimination to all network users and at the same time the special characteristics of the national market are taken into account.

Access and transmission to the gas distribution networks

EWRC approves the prices for natural gas transmission and distribution to final consumers on companies' proposals according to Ordinance No 2 of 18.03.2013 on natural gas price regulation.

Prices of "natural gas distribution" and "natural gas supply by an end supplier" are regulated under the "price cap" method, under art.3 of ONGPR. EWRC approves tariff structures by customers' groups, reflecting the allocated annual revenue requirements for the service for each consumer group, based on submitted cost service study. The existing tariff structures and prices for end customers of the gas distribution companies are differentiated depending on consumption (household and non-household), consumption evenness and unevenness and the relevant consumption.

At the end of 2017, price adjustments were made for "natural gas distribution" to 9 gas distribution companies, according to ONGPR. The adjustments were made on the basis of the

difference between the projected and reported investments based on reliable data on non-current assets by type of activity according to the submitted reports and/or performed inspections. The maximum price reduction for natural gas distribution was 10% and the average price reduction was about 3.6%.

In the cases of access provision by the respective gas distribution network operator and use of gas facilities owned by non-household customers, under the Energy Act, this shall be done after a contract conclusion and at a price determined under a methodology approved by EWRC.

4.1.4. Cross-border issues

An important condition for the gas market liberalization in the country is the creation of a single regional gas market, which can be achieved by building and connecting the natural gas transmission infrastructures between the countries in the region, as well as by overcoming the differences in capacity allocation modes and gas markets balancing regimes. The effective opening of the internal market and the development of a regional gas market are a prerequisite for the establishment of a single gas market in the EU, which is in the interests of citizens and industry. Key to that regional gas market establishment is the construction and putting into operation of the infrastructure projects included in the list of projects of common interest published by the European Commission. To that end, in 2017 EWRC approved the Ten-Year Network Development Plan of Bulgartransgaz EAD for the period 2017-2026, which serves as a basis for the drafting of the Regional Investment Development Plans (GRIPs) as well as for the Community Network Development Plan in EU, elaborated by the European Network of Transmission System Operators (ENTSOG).

Transmission infrastructure in the Republic of Bulgaria



Legend:

- **National gas transmission network**
- **Transit gas transmission network**

In accordance with Regulation (EU) No 347/2013 of the European Parliament and of the Council of 17 April 2013 on guidelines for trans-European energy infrastructure and repealing Decision No 1364/2006/EC and amending Regulations (EC) No 713/2009, (EC) No 714/2009 and (EC) No 715/2009, and in connection with an investment request from Bulgartransgaz EAD, EWRC adopted a decision determining the distribution of investment costs for a project of common interest 6.8.2 “Necessary Rehabilitation, Modernization and Expansion of the Bulgarian Transmission System” - Phase 2.

EWRC representatives participated in the two-day seminar organized by the national gas operator Bulgartransgaz EAD, held on 4-5 April 2017 in Sofia, in which representatives of the European Commission, ENTSOG, the European Association of Energy Traders (EFET), the Ministry of Energy, Bulgartransgaz EAD, Bulgargaz EAD and market participants from the natural gas sector also took part. The main topics discussed at the seminar were: implementation of network codes on balancing and capacity allocation and congestion management rules.

It should be noted that there was no physical congestion in the gas transmission network at national and cross-border level in 2017. The project capacity of the national gas transmission network is 7.4 billion m³ and the actual annual consumption in the country does not exceed 40% of the maximum allowed project capacity.

Under EA art.170, para.1, item 9 the transmission system operator has the duty to provide sufficient cross-border capacity aiming the European gas transmission infrastructure integration, satisfying all economically feasible and technically realistic capacity requests, keeping in mind the observance of gas supply security requirements.

Pursuant to art.21, para.1 item 28 of EA, EWRC cooperates with regulatory authorities of other countries on cross-border issues – EU Member states and with ACER and concludes cooperation agreements with NRAs.

In 2017, the cooperation between EWRC and the Greek regulatory authority RAE continued in relation with an application submitted by ICGB AD pursuant to Article 36 of Directive 2009/73/ EC, with an exemption request of the interconnection Greece - Bulgaria (IGB) from the obligations under the Directive. Consultations to reach agreement on the exemption request have led to teleconferencing and meetings with RAE representatives to discuss key issues in preparing the analysis to meet the criteria of Article 36 (1) of the Directive. With regard to the realization of the Greece-Bulgaria gas interconnection, a trilateral meeting was organized in January 2017 at the invitation of the EC.

In 2017, EWRC continued the initiative to establish bilateral cooperation with energy and water regulators in Europe, mainly from the Balkan Peninsula. Cooperation agreements have been signed with the national regulators of FYR of Macedonia, Montenegro and Georgia. In the context of expanding regional cooperation, a regional forum is also being set up as a permanent platform for the exchange of regulatory practices and harmonization of the regulatory framework for the Balkan countries.

EWRC representatives took part in various initiatives and seminars, such as the 23rd meeting of the Stakeholder Group to the South East South East Gas Initiative in May and November 2017; Conference on Network Codes organized by ACER, ENTSO-E and ENTSO-G,

held in May 2017; ACER and ENTSO-G seminar on the implementation of Regulation 312/2014 in November 2017 and others.

In 2017, the activities carried out regarding the cooperation with ACER and CEER in the gas market include:

- Completing questionnaires to CEER and ACER on the implementation of the network codes for balancing, interoperability and data exchange, as well as annual gas indicators on the CEER website;
- Participation in the registration and completion of the AEGIS/AREA ACER platform of the requested retail market data for the natural gas sector.
- Participation in the completion of an ACER questionnaire on ten-year development plans for transmission operators.

4.1.5. Compliance

The power of the Regulator under art.41, §1 d of the Directive is transposed in art.21, para.1, item 31 of EA, namely to comply with and implement any relevant legally binding decisions of ACER and EC.

EWRC controls the compliance of the licensed activities with the conditions of the issued licenses, by performing preventive control in the procedures for issuing licenses under the Energy Act. EWRC is continuously monitoring the compliance of the licensed activity with the licensing conditions by conducting inspections of the energy companies and exercising ex-post control over the implementation of the decisions taken by the Energy Act. EWRC controls the performance of the activities subject to licensing under the Energy Act as well as the fulfillment of the obligation to provide access to its own facility and/or facility and to the extraction pipeline networks and to provide access for their use in the cases provided for in the Energy Act. EWRC requires information from all licensees and performs on-going control over: number of interruptions, duration of interruptions, service quality, number of complaints, time to respond to complaints, and time to correct errors in measurement, etc.

Regarding Bulgartransgaz EAD in its role as a certified independent transmission operator, EWRC's powers to regulate its activities are stipulated in art.21, para.3 of EA. EWRC monitors also the obligation of the ITO compliance officer to supervise the compliance programme implementation and to submit quarterly reports and an annual report in order to indicate the measures taken. It is evident from the reports by the compliance officer received at EWRC in 2017 that there were no irregularities in the compliance programme implementation. In pursuance of Art.81d of EA, EWRC monitors and assesses the implementation of the Ten-year network development plan developed by the transmission network operator following consultations with stakeholders. EWRC shall examine whether the Plan covers all investment needs identified during the consultation process, and whether it is consistent with the TYNDPs in the European Union. When the ITO fails to execute an investment, which, under the TYNDP is to be executed in the following three years, EWRC has the power to require the operator to make the investments, in case they are still needed and to provide their reimbursement through the network services prices, unless the failure is due to compelling reasons beyond the network operator's control.

4.2. Promoting competition

In 2017, EWRC took an active part in the process of creating the necessary conditions for achieving competitiveness and liberalization in the Bulgarian natural gas market as part of the EU and Eastern Europe markets by taking a number of important steps that are crucial in achieving

the stated objectives. During the reporting year, within its powers, EWRC adopted decisions in compliance with the requirements of the European legislation related to the natural gas market liberalization and integration. Thus, the actual implementation of the regulations adopted by EWRC in the previous year has started, which has had a positive impact on the liberalization processes development in the sector and the proper functioning of the natural gas market in the country, in line with the European legislation.

Under the Energy Act, a license is not required for the activity “natural gas trade”, thus natural gas market is 100% opened. As per art.176, para.1 of EA, extractive industries or natural gas traders, on one hand, and the public provider, natural gas suppliers, storage facility operators, LNG operators, traders or customers - on the other, may enter into natural gas transactions with each other at freely negotiated prices.

Under art.180, para.1 of EA and the provisions of the *Rules for access to the gas transmission and/or gas distribution networks and storage facilities*, all customers have the right to choose a natural gas supplier, which is also guaranteed under the terms of the licenses for the activity “natural gas supply by end supplier”.

By the end of 2017 there were no natural gas customers who had a natural gas supplier other than the end supplier. 0.06% of business customers switched their natural gas supplier.

In 2017, there were no customers connected to gas distribution networks that had switched their natural gas supplier at unregulated prices to a regulated price supplier.

4.2.1. Wholesale markets

Under the current “Energy Strategy of Bulgaria” and in accordance with Directive 2009/73/EC and Regulation (EC) 715/2009 and the Council of 13 July 2009 on conditions for access to gas transmission networks for natural gas and repealing Regulation (EC) № 1775/2005, in 2017 gas sector in Bulgaria developed towards market liberalization.

Key gas market participants in the country are:

- Bulgartransgaz EAD – a combined gas operator, in charge of gas transmission and gas storage activities;
- Bulgargaz EAD – the gas public provider in Bulgaria, providing gas supplies at regulated by EWRC prices;
- Gas traders – concluding gas supply trades with the public provider, end suppliers, customers, other gas traders, extraction companies, gas storage undertakings and with the transmission/distribution network operators;
- Gas distribution companies - combine the activities “natural gas distribution” and “natural gas supply by end supplier” by supplying natural gas to customers connected to the respective distribution networks in the licensed territories;
- Non-household customers connected to the gas transmission network;
- Household and non-household customers connected to the gas distribution networks.

Natural gas delivery and supply in the Republic of Bulgaria is carried out in a transmission network owned by Bulgartransgaz EAD and distribution networks owned by the respective distribution companies. In the transit gas pipeline owned by Bulgartransgaz EAD natural gas transmission is carried out to the territories of Turkey, Greece and FYROM.

In 2017 natural gas supplies in the local market were realized by the public provider Bulgargaz EAD, by Petroceltic Bulgaria EOOD, Exploration and Production of Oil and Gas AD and natural gas traders.

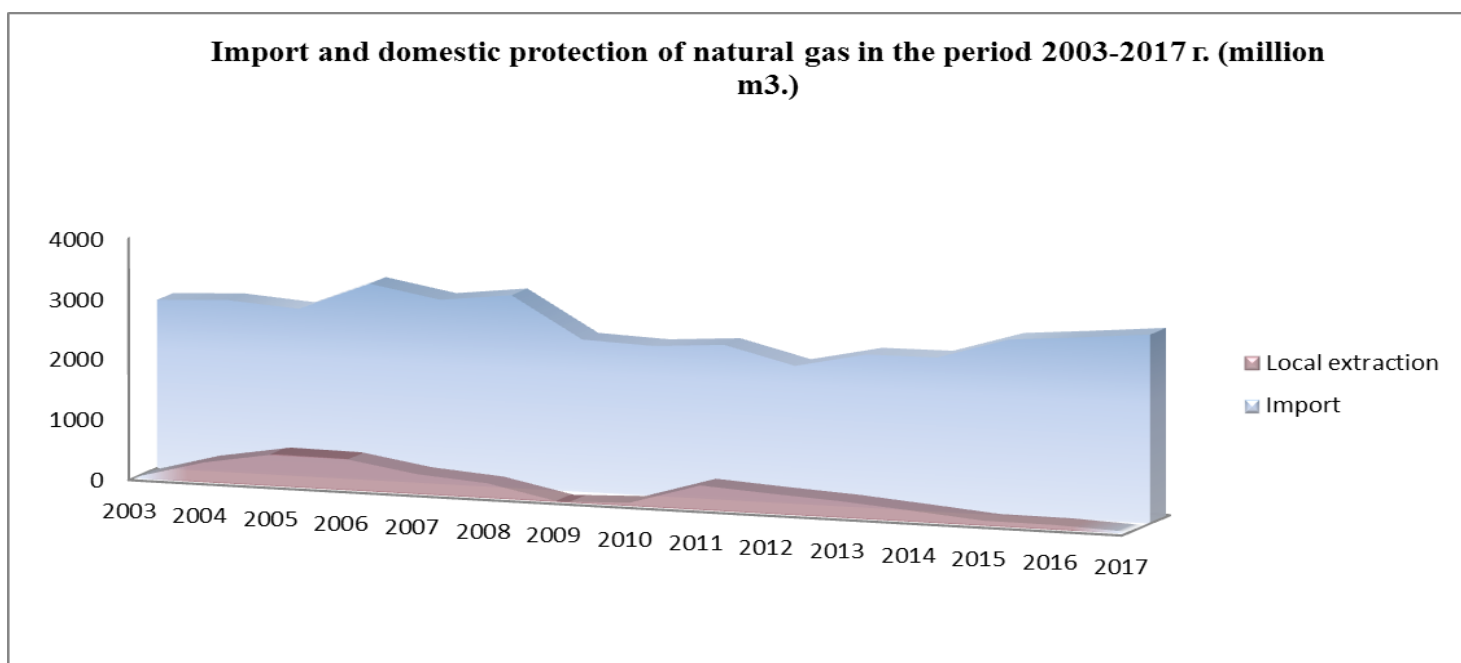
Bulgargaz EAD imports natural gas for the local market under the conditions of Contract № 02-12-13 of 15 Nov 2012 for gas supplies with OOO Gazprom Export.

Trends in the natural gas supplies for the local Bulgarian market are presented in tables and graphs below:

Natural gas imports and local production for the period 2003 – 2017 in million m³

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Import	2788	2848	2768	3249	3048	3190	2521	2480	2563	2281	2535	2551	2911	3014	3126
Local extraction	13	329	528	517	333	246	9	54	406	336	274	182	85	80	35
Total:	2801	3177	3296	3766	3381	3436	2530	2534	2969	2617	2809	2733	2996	3094	3161

* Data from imports include imports of Bulgargaz EAD and natural gas traders



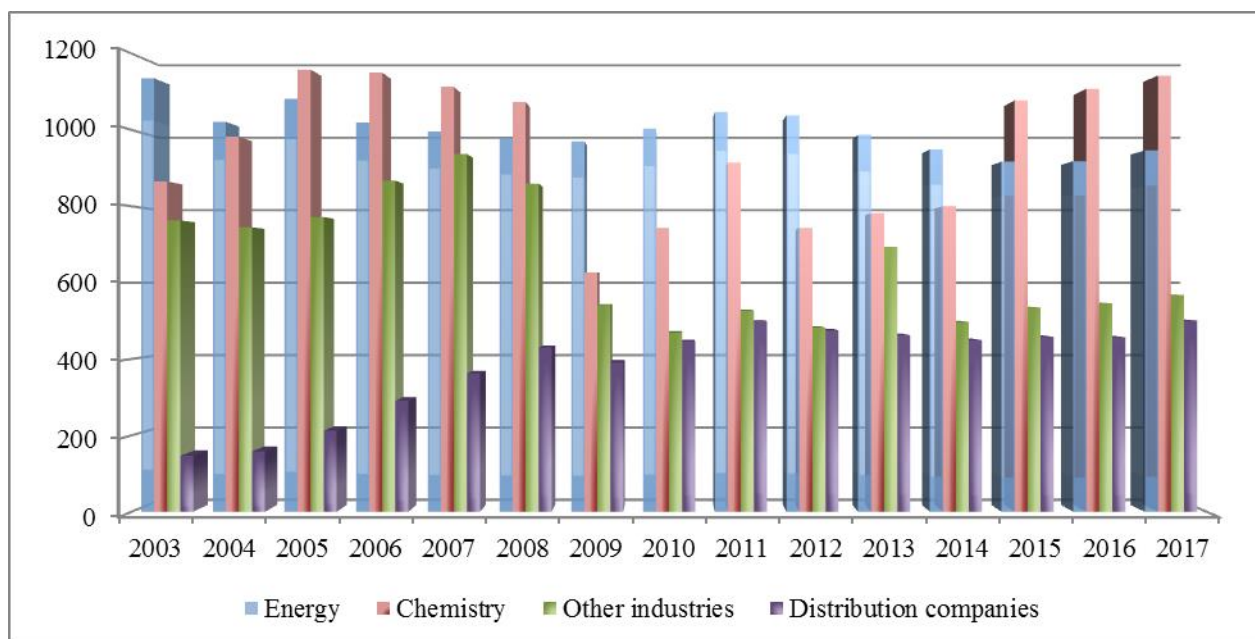
Quantities of realized natural gas in 2017 were 3 157 million m³ and the consumption structure by sectors was the following:

- Energy sector – 946 million m³ or 30%;
- Chemical industry – 1142 million m³ or 36%;
- Other industries – 568 million m³ or 18%;
- Distribution companies – 501 million m³ or 16%.

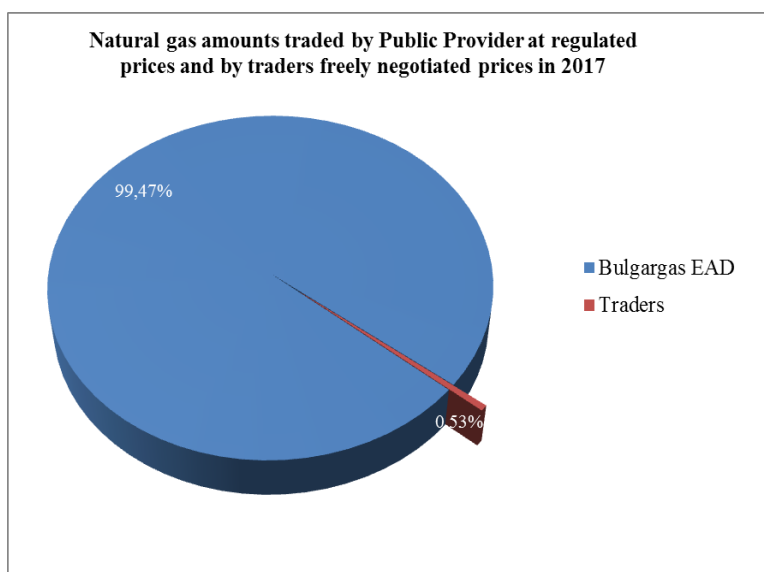
Natural gas consumption dynamics in Bulgaria in the period 2003 – 2017 in million m³

Year/Costumer	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Energy	1135	1021	1081	1019	996	979	970	1003	1047	1038	987	949	917	918
Chemistry	865	982	1158	1150	1113	1073	627	743	914	743	782	800	1077	1107
Other industries	763	745	772	867	937	859	542	469	527	482	694	497	535	546
Distribution companies	147	158	212	291	362	430	391	446	499	475	462	449	458	457
Total	2910	2906	3223	3327	3408	3341	2530	2661	2987	2738	2925	2695	2987	3028

Natural gas consumption structure by sector in the period 2003 – 2017 in million m³



The public provider Bulgargaz EAD sells natural gas at regulated by EWRC prices and its share in the natural gas sale in 2017 was 99.47%. The remaining 0.53% was realized by traders. The following chart presents the ratio of the natural gas quantity sold by the public provider at regulated prices (to gas distribution companies and customers connected to the gas transmission network) and by traders at freely negotiated prices (to gas distribution companies and customers).



Natural gas transmission in the national transmission network

In 2017 the main users of the “natural gas transmission” service in gas transmission and distribution networks in the country were the public provider Bulgargaz EAD, extraction companies and traders. Natural gas supply to consumers in the Republic of Bulgaria is carried out mainly via the national gas transmission network, a complex facility consisting of 1835 km gas pipelines and high pressure gas branches, three compressor stations – CS Kardam-1, CS Valchi Dol and CS Polski Senovets, with total installed capacity 49 MW, gas regulation stations, metering stations, electrochemical protection systems, communication system, information system and other auxiliary facilities. The natural gas transmission network has sufficient capacity to meet current natural gas demand and by the end of 2017 about 40% of the system’s maximum technical capacity has been used. Bulgaria's energy dependence in 2017 with regard to natural gas supply is very high - 98.3%. Domestic production is decreasing. On 1 November 2017, Petroceltic Bulgaria EOOD halted extraction from the Galata field. The natural gas quantities transported through the gas transmission network in the country in 2017 were 3 471 million m³ (including the quantities transported to the Chiren UGS), which is a growth of 2.48% compared to the previous year 2016 (3 387 mln. m³) and is a result of increased consumption.

Natural gas transit transmission

Bulgartransgaz EAD performs natural gas transit through the territory of the Republic of Bulgaria to neighbouring countries - Turkey, Greece and FYR of Macedonia. Quantitative and qualitative analysis of natural gas inflows in the transit direction is performed in gas metering stations Negru Voda 2 and 3. The transmission of natural gas by transmission directions is realized respectively at Malkochlar GMS for Turkey, Strimonohori GMS for Greece and Zhidilovo GMS for FYR of Macedonia.

In 2017 transit volumes transported through the transmission network were 16.4 billion m³ or by 12.8% more than those in 2016 (14.7 billion m³) and an increase in all three directions is observed. In 2017 gas quantities transited were as follows: Turkey 13.2 billion m³ or 12.41% more compared to 2016; Greece 2.9 billion m³ or 9.22% more compared to 2016; FYROM 275 million m³ or 30.89% more compared to 2016.

Natural gas storage

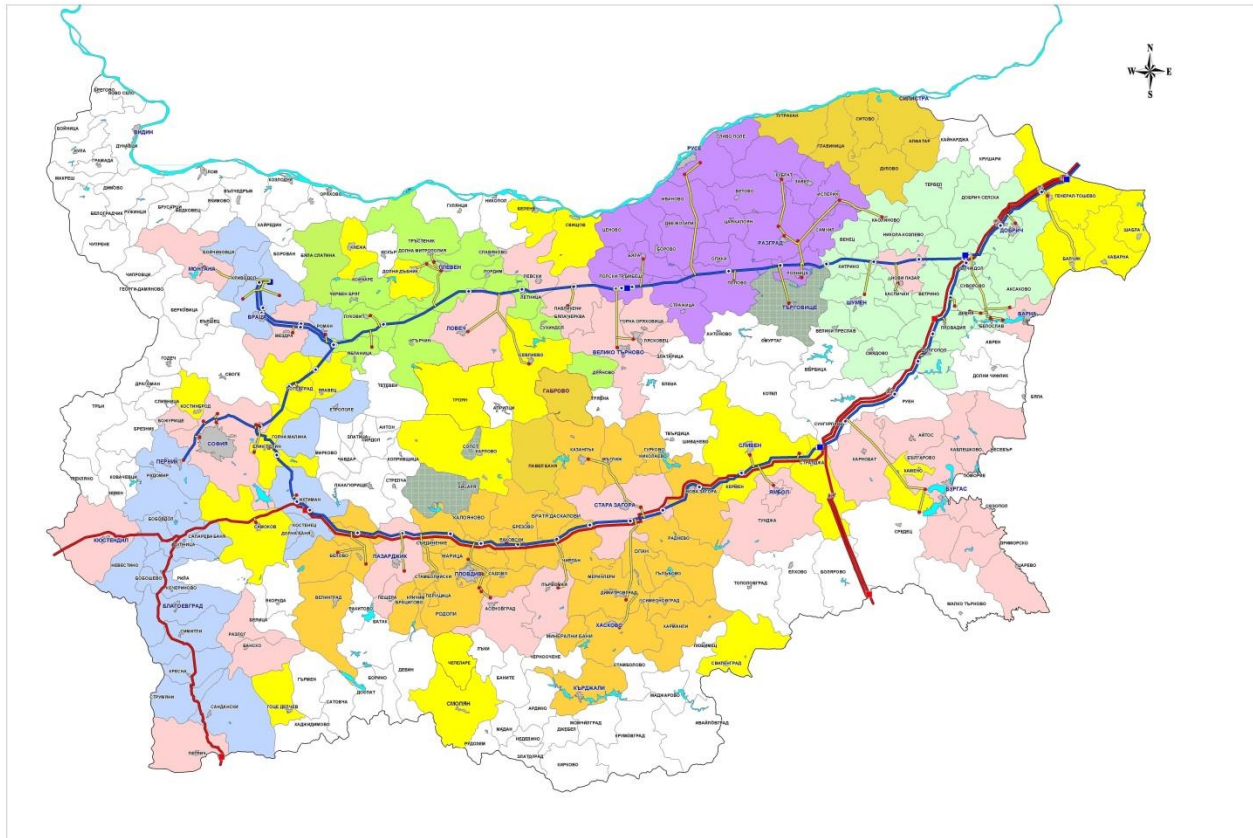
Natural gas storage activity is performed in the only one in the country underground gas storage facility Chiren (Chiren UGS), owned by Bulgartransgaz EAD. The storage operates by means of 23 exploitation wells, compressor station with a total installed capacity of 10 MW and other technological units necessary for the ensuring of the injection and withdrawal as well as for the quality of the stored gas. At the moment, at maximum filling, Chiren UGS is able to cover about 25-30% of the daily needs during the cold winter months.

Technological process associated with the natural gas storage activity is a seasonal (cyclical) one and represents injecting gas from/to the underground gas storage. In 2017 325 million m³ were withdrawn from UGS Chiren or a decrease by 4.99% compared to 2016 (342 million m³) and 325 million m³ were injected or an increase by 1.87% compared to 2016 (319 million m³).

4.2.2. Retail market

Natural gas supply in the territory of Bulgaria is carried out in the gas transmission network owned by Bulgartransgaz EAD for the customers directly connected to it and in gas distribution networks owned by the respective gas distribution companies.

At the end of 2017, 24 companies encompassing 35 areas are licensed on the territory of Bulgaria covering 172 municipalities representing 65% of all municipalities in the country. Nine of the companies carry out supply through compressed natural gas supply to parts of the municipalities that have no connection to the transmission network. The map below illustrates the location of the licensed territories for the activities of natural gas distribution and supply.



The needed natural gas distribution infrastructure in the country is still in process of construction and household consumers connected to the natural gas distribution network are few. Household consumption is very low - 2.28 % of the total consumption in the country. EWRC applies a regulatory mechanism, which ensures incentives for the natural gas distribution enterprises to continue the development of the networks and the connection of new consumers aiming the increase of consumption. One of the incentives enhancing market competition is that EWRC approves marginal prices for the gas sale and the gas distribution companies have the right to sell to consumers at prices lower than the approved, which promotes market competition.

EWRC permanently monitors the market with the view to ensure non-discrimination between all market participants, as well as between participants of one and the same category and to promote efficient competition and proper market operation. Regarding the latter, when exercising its controlling powers, EWRC carries out scheduled inspections of the energy companies, as well as surprise inspections in case of filed complaints and signals.

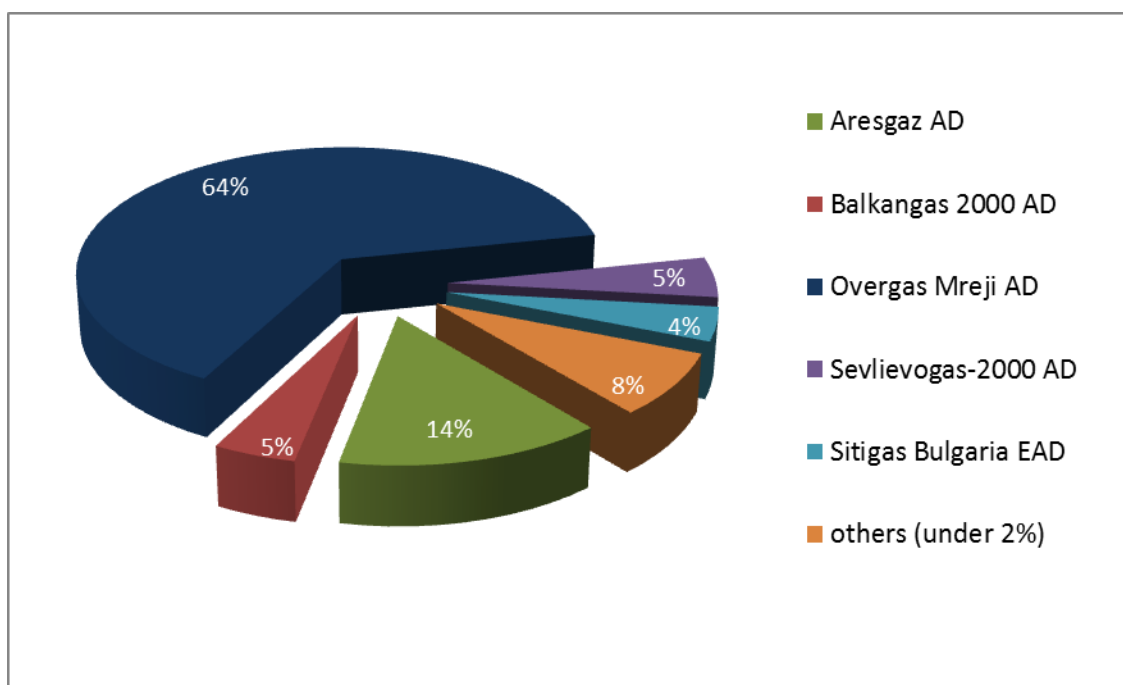
The Commission monitors and inspects the gas distribution companies regarding the compliance of the set in their approved business plans parameters connected with their duties under the licenses for the activities of natural gas distribution and supply by end supplier.

Gas distribution companies' activity results for 2017 are given below:

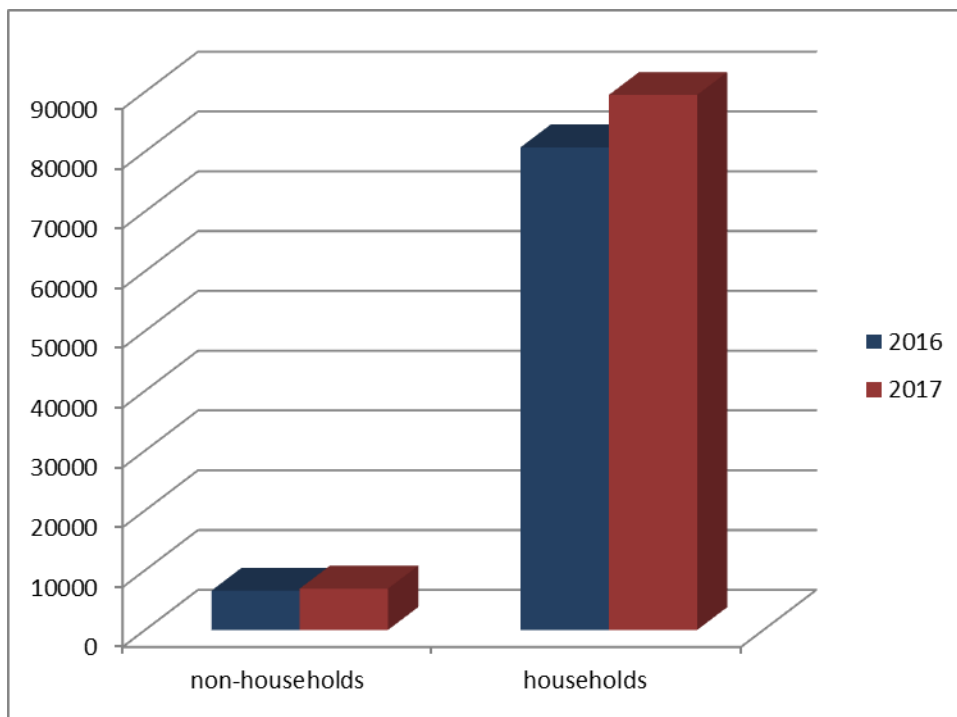
Parameter	Constructed network in 2017	Investment 2017	Number of consumers (accumulative) as of 31.12.2017		Natural gas consumed, thousand norm m ³ 2017	
			Non-households	Households	Non-households	households
Gas distribution companies	m	Thousand BGN				
Total:	153 287	20 744	6 913	89 469	476 054	91 042

According to data of distribution companies, total number of natural gas customers in 2017 was 96 382, 89 469 (93%) of them households and 6 913 (7%) non-household customers.

The breakdown of natural gas consumers by companies' share in servicing them is shown in the graph below:



Overgaz Mrezhi AD serves most of the customers – 61 777, which is 64% of all natural gas consumers in the country, followed by Aresgaz AD with 14%, Sevlievogaz - 2000 AD and Balkangaz – 2000 AD with 5%. The value of Herfindahl-Hirschmann index, which is a commonly accepted measure of market concentration and monopoly existence in terms of natural gas supplied by gas distribution companies to household consumers in Bulgaria, is 4579 and shows high market concentration. The index was indicated for calculation in the CEER annual gas indicators. The number of customers (household and non-household) of gas distribution companies in 2017 rose from 87 274 in 2016 to 96 382, which is 10% increase per year. The number of household customers increased by more than 10% and of non-household - by more than 5%.



The relatively low rate of increase in the number of non-household customers during the year was mainly due to the almost fulfilled connection potential of non-household customers in the gas distribution network. The increase potential of non-household customers is low, since non-gasified sites are mainly small and their transition to natural gas is estimated as inefficient, due to the very high initial investment. For the same reason, although with much higher potential, the household gasification development is slow and rapid increase in the potential fulfilment of the network cannot be expected.

The problems that the gas market is facing can be summed up in three main points: supply of natural gas occurs only from one source, local extraction is scarce and interconnection with neighbouring countries - insufficient. These factors account for the lack of a competitive and functioning retail natural gas market. The share of the dominant supplier remains very high, which is another obstacle to the formation of an efficient liquid market. Other objective reasons for low liquidity are the market size, the structure of natural gas imports and the lack of diversification of supply routes and sources.

4.2.3. Recommendation on supply prices, investigations and measures to promote effective competition

In 2017, with a view to achieving the optimum conditions for overcoming the isolation of Bulgarian gas market and providing opportunities for free gas transmission through Bulgarian borders, EWRC adopted a position on the commitments proposed by Gazprom on case at.-39816 gas upstream in Central and Eastern Europe.

The provision of Article 30, para.2 of EA stipulates that the prices of electricity, natural gas and services provided by energy companies are not subject to regulation by EWRC when the later finds out the existence of competition, which creates pre-conditions for the free negotiation of prices under market conditions for each energy sector activity. In this respect, as far as natural gas sector is concerned, pre-conditions for existence of market competition are provided by the

legislature through the provision of art.180, para.1 of EA: “Every customer connected to the gas transmission and/or gas distribution network may choose a natural gas supplier, regardless of the European Union member state in which the supplier is registered, provided the supplier complies with the rules under art.173, para.1 and the security of supply requirements”.

In line with art.181 of EA, natural gas contracts are concluded at regulated by EWRC prices for services of public interest regarding transmission, distribution and supply and at freely negotiated prices among the parties – prices outside the public interest services.

To achieve competition, which is a prerequisite for free negotiation of electricity and natural gas prices at market conditions, an effective market opening is needed, an establishment of a single EU natural gas market, which is in the interest of citizens and industry. This can be achieved through implementation of interconnection projects, which will enable natural gas supply from other sources and will increase competition and the possibilities to choose a supplier. The interconnection projects are a priority for Bulgaria and have significant influence regarding security of supply in the region.

4.3. Security of supply

Pursuant to art.4, para.2, item 4a of EA, the Ministry of energy is the competent authority concerning security of supply in the meaning of Regulation (EC) 994/2010. In line with art.72 a of EA, the Minister of Energy, after consultations with natural gas companies and organizations representing household and non-household customers’ interests, and with EWRC, implements at national level:

1. Preventive action plan containing the measures needed for the removal or limitation of the identified risks impact in compliance with the risk assessment.
2. Emergency action plan containing the measures needed for the removal or mitigation of natural gas supply interruption impact.

With reference to the European Commission Opinion of 21.06.2017 with Recommendations on a Preventive and Emergency action plan prepared pursuant to Regulation (EU) No 994/2010 of the European Parliament and of the Council of 20 October 2010 concerning measures to safeguard security of gas supply and repealing Council Directive 2004/67/ C, an interdepartmental group was established by the Minister of Energy, with the participation of EWRC experts.

Achieving security of gas supply, energy independence and real competition in a functioning gas market is possible by building additional gas infrastructure, modernization of the existing gas routes on the territory of the country and provision of alternative sources of natural gas supply. With the development of interconnection projects with Greece, Turkey and Serbia, the number of entry points through which natural gas flows into gas transmission networks is expected to increase significantly in the coming years. These projects will provide the opportunity to supply natural gas from different sources, which in turn will contribute to increased competition and will have a positive effect on natural gas consumers. The new gas connections will significantly increase the entry capacity to Bulgaria from Greece and Turkey, while at the same time ensuring the availability of liquefied natural gas from LNG terminals in these countries. With the planned extension of the storage capacity of the only gas storage facility UGS Chiren through new drilling and replacement of some of the above-ground facilities, the volume of the active gas in the storage is expected to increase to 1 billion m³, which will allow the daily natural gas extraction from the storage to increase too.

4.3.1. Monitoring supply and demand balance

In 2017 Bulgargaz EAD purchased natural gas from *Gazprom Export OOO* on the basis of a contract. The local production share for domestic needs in 2017 was provided by *Petroceltic Bulgaria EOOD* and *Oil and Gas Exploration and Production AD*. The local extraction in the country is decreasing and on 01.11.2017 *Petroceltic Bulgaria EOOD* stopped the extraction from the Galata field.

4.3.2. Measures to cover peak demand or shortfalls of suppliers

In 2017 the national gas transmission network operated considerably under the project capacity, as only 3.4 billion m³ were transported, which represents about 40% of this capacity. Gas distribution networks are relatively new and most of them are loaded also significantly under their project capacity.

Bulgargaz EAD provides gas for its clients (end suppliers and non-households connected to the transmission network) on the basis of a contract with *Gazprom Export OOO*. A major part of the end suppliers provide natural gas quantities to their customers, connected to the gas distribution networks under gas supply contracts with Bulgargaz EAD.

In the approved by EWRC TYNDP of Bulgartransgaz EAD for the period 2017- 2026 a scenario has been presented concerning capacity search and sources to cover natural gas demand in Bulgaria for the period 2017-2026, taking into consideration: forecast of the expected natural gas demand for a period of one year and peak demand levels per day; sources to meet the demand in the country with forecasts for the period 2017-2021; capacity demand forecast for cross-border transmission through the infrastructure of Bulgartransgaz EAD. Measures to safeguard security of natural gas supplies were described, including risk assessment and N-1 formula under Regulation (EC) № 994/2010, which describes the ability of the gas infrastructure technical capacity to satisfy total natural gas demand in the calculated area in case of disruption of the largest single gas infrastructure on a day with exceptionally high demand occurring with a probability of once in 20 years. In case of such disruption, the capacity of the remaining infrastructure should be able to deliver the necessary gas amounts in order to satisfy gas demand in the area. Two key scenarios have been developed to meet the requirements on infrastructure standard at N-1 formula, namely: a base scenario and a target scenario. Calculations with the base scenario illustrate that in case of disruption of the largest single gas infrastructure (from Russia through Ukraine), the capacity of the existing infrastructure is not able to deliver the required gas amounts to satisfy total gas demand in the territory of Bulgaria for a day of exceptionally high gas demand.

Investments foreseen for the period 2017- 2026 shall facilitate to reach increasing and ensuring technical security, safety and reliability of the gas infrastructure and to comply with environmental protection requirements in order to meet the expected growing gas demand in the country and in the region, through: investments in reconstruction, rehabilitation and transmission networks' repairs, including investments in existing compressor stations; investments in existing linear infrastructure; investments in existing gas regulation and measuring stations and UGS Chiren; investments in new facilities construction in addition to the existing infrastructure needed to increase the efficiency of operations; investment in ancillary infrastructure, including fibre network.

Investments shall ensure the security of gas supplies to the country through: investments in interconnections to provide connectivity with other transmission networks; investments in the expansion of the underground gas storage, of the extraction and injection facilities and to increase opportunities of larger gas amounts for the storage.

Measures to cover peak demand or shortage of suppliers are:

- Network configuration, real gas flows, including possibilities of physical flows in both directions - there are possibilities for reverse physical flow of natural gas from Greece and Turkey (2.4 million m³/day in the event of complete Russian gas supplies interruption). Reverse flow from Greece was realized at the end of January 2009 gas crisis, based on signed agreement;

- Natural gas storage - the amounts stored in UGS Chiren are intended mainly for compensating the uneven consumption as well as for guaranteeing security of supplies in the event of deficit. The storage facility has 23 exploitation wells, a compressor station with a total installed capacity of 10 MW and other facilities required to secure the injection and withdrawal as well as to the quality of the stored gas. The current storage capacity can provide 550 mln. m³ natural gas.

Realizing the investment envisaged shall enable the opportunity for competitive market development and diversification of natural gas supply sources and routes, resulting in greater energy independence; it will enable local traders to access the gas at various prices and the possibility of creating a regional gas exchange, including spot market by building the facilities necessary to connect to the existing transmission infrastructure with future trans-European gas corridors and with Southern Gas Corridor projects - Trans-Anatolian pipeline (TANAP), Trans-Adriatic Pipeline (TAP), as well as other pan-European projects intended to provide diversification of natural gas supply sources and gas transportation routes to Europe; connection of the gas production network of extraction enterprises in the country; development and implementation of electronic systems to manage the activities.

Projects, crucial to the process of liberalization, diversification of natural gas supply sources and routes and gas network development in the region, with a view to ensuring continuity and security of natural gas supply, are:

Gas Interconnection Greece - Bulgaria (IGB) has been announced by the European Commission as a Project of Common Interest of the EU. Bulgaria has again confirmed a state guarantee of EUR 110 million for the project in 2018 budget. Together with the EU grant of EUR 45 million under the European Energy Program for Reconstruction (EEPR), an additional grant funding of IGB from the EU Structural Funds for Bulgaria is envisaged for about EUR 35 million. Public procurements were launched, involving procedures for selecting a consultant engineer, choosing a pipe supplier, a public procurement for selecting a builder is due to be announced.

With regard to the realization of the Gas Interconnection Greece - Bulgaria (IGB) EWRC participated in a trilateral meeting, organized at the invitation of the EC, which took place in January 2017 in Brussels, Belgium, with the participation of EC and RAE experts. Questions were discussed between EWRC and RAE related to tariffs, unbundling, third party access rules, and the planned follow-up and their time frame.

In 2017, ICGB AD submitted an updated exemption application under Art.36 of Directive 2009/73/EC. After conducted discussions and teleconferencing with the EC and the Greek Energy Regulatory Authority, the company is required to provide the authorities with additional information on the financial model and the applicable tariff and to consider different scenarios for the ratio between the utilized pipeline capacity and the tariff rate. In October 2015, workshops were held in Athens with the participation of EWRC, RAE and ICGB AD representatives, at the invitation of RAE. The joint decision procedure with RAE on the submitted application of exemption from the requirements of Directive 2009/73/ EC is expected to end in 2018.

Gas Interconnection Bulgaria - Serbia (IBS) was announced by the European Commission as a Project of Common Interest. In January 2017, a Memorandum of Understanding was signed between the energy ministers of the two countries. The implementation of the first project phase of the Bulgarian section was completed at the end of December 2015 with funding from the Operational Programme “Development of the Competitiveness of the Bulgarian Economy 2007 - 2013”. For its second phase, a grant of EUR 45 million is foreseen through the procedure of direct fund allocation under Operational Programme “Innovation and Competitiveness 2014-2020”, the beneficiary is the Ministry of Energy of the Republic of Bulgaria. Significant progress has also been achieved in securing funding the project from Serbian side. Negotiations were finalized with the EC to secure the necessary funds under the pre-accession EU instruments and currently the pipeline section Dimitrovgrad (Serbia) - Nis (Serbia) is in the design stage. Initially, the gas pipeline is expected to deliver 1.8 billion m³/year. It is envisaged the construction of the interconnector to start in the beginning of 2019 and to be put into operation by the end of 2022. Bulgaria is working to strengthen the cooperation with Serbia in the gas sector. The possibility to develop and expand the gas transmission infrastructure from the border with Turkey to the border with Serbia, as a result of received unbinding forecasts for incremental capacity demand within the framework of market procedures conducted by Bulgartransgaz EAD, is in the stage of pre-investment survey.

Gas Interconnection Bulgaria - Turkey (ITB) is a system interconnection development project for connection of the gas transmission networks of Bulgartransgaz EAD and Botas C.A. – Turkey that will provide an opportunity for diversification of natural gas supply sources, shippers and routes, thereby enhancing security of supply in the region and competition development. ITB is a new onshore pipeline with a length of about 200 km (approximately 75 km of which on Bulgarian territory), with a capacity of 3 billion m³/y. The Interconnection Bulgaria - Turkey has been ranked in the list of Projects of Common Interest of the European Commission under Regulation (EU) № 347/2013.

A technical meeting between Bulgartransgaz EAD and Botas was held in 2017, where the conclusions of the feasibility study were adopted. Additional technical correspondence will be exchanged to finalize the parameters and the project’s value on the territory of the Republic of Turkey.

Eastring Project - Bulgaria is a subproject of the Eastring cluster project – a project for the construction of a transport corridor through the territory of Slovakia, Hungary, Romania and Bulgaria, providing possibilities for bi-directional natural gas supplies from alternative sources. Eastring concept, as developed so far and included in the ENTSO-G TYNDP 2017 - 2026, is envisaged to be developed jointly and in coordination between the TSOs of Slovakia, Hungary, Romania and Bulgaria.

Bulgartransgaz EAD is responsible for the implementation of the Bulgarian section of the project. Regarding the territory of Bulgaria for the first stage of the project (capacity of 570 GWh/d) it is planned to build a new gas pipeline with a length of about 257 km between a new entry/exit point at the Bulgarian-Romanian border and a new entry/exit point at an external EU border in Bulgaria, as well as the construction of new compressor capacities of 88-90 MW. The second stage of the project envisages additional construction of new compressor capacities. There is a foreseen possibility for Eastring to connect with the Bulgartransgaz EAD networks with entry/exit capacity of 200 GWh/d.

In 2017, the company Eustream signed a contract for the implementation of the feasibility study, which will be finalized in June 2018.

Expansion of Bulgartransgaz EAD's gas transmission infrastructure in the section from the Bulgarian-Turkish to the Bulgarian-Serbian border - Within the period 21 July- 21 August 2017, Bulgartransgaz EAD initiated a market study on the demand of incremental (new) capacity, Open Season, Phase 1 (non-binding forecasts on the demand of incremental capacity to/from neighbouring market areas) of projects for development and expansion of the gas transmission infrastructure to all neighbouring market areas. As a result of the nominations received, a non-binding, forecast demand of incremental capacity from Bulgaria to Serbia was identified with an entry point Turkey and an initial period declared by the users - gas year 2019/2020. The maximum daily capacity nominated at the entry point of Turkey is 567.84 GWh/d. The maximum daily capacity nominated at the Bulgarian-Serbian border is 357.672 GWh/d. The project is at an early stage of development. The final date for the commissioning of all sub-projects is based on the accepted completed preliminary (pre-investment) studies for “Expansion of Bulgartransgaz EAD's gas transmission infrastructure in the section from Bulgarian-Turkish to the Bulgarian-Serbian border”. The expected year of commissioning of all sub-projects is 2022.

Regional gas hub Balkan relates to the gas infrastructure development in the territory of Bulgaria. The concept of building a gas distribution centre (hub) is based on the idea significant natural gas amounts from various sources to enter the country in a certain real physical point near the city of Varna for further transportation, while in this same location a market place (hub) to be organized for gas trade - where all market participants could carry out gas transactions at market principles. The idea of a gas hub construction was supported by the strategic geographic location of Bulgaria, the well-developed existing gas transmission and storage infrastructure, as well as by the interconnection projects with Turkey, Greece and Serbia and completing the infrastructure with Romania.

The concept of building Balkan gas hub is included in the PCI List under Regulation (EU) No 347/2013. The project is listed under PCI 6.25.4 in cluster 6.25, which includes alternative projects for the supply of natural gas from new sources and new routes to Central, Eastern and Southeastern Europe.

Balkan gas hub concept includes several key elements that form the project as a whole: new gas sources; optimal use of the existing gas transmission networks and Chiren UGS; modernization and extension of existing infrastructure and new gas hub infrastructure.

In connection with the need for a detailed feasibility study, a grant of EUR 920 500 was approved under the Connecting Europe Facility (CEF Call 2016-2) for “Feasibility study of Balkan gas hub project”.

Regarding the project implementation, in September 2017, a public procurement was announced with subject: “Feasibility study of a Balkan gas hub”, part of PCI 6.25.4.

5. CONSUMER PROTECTION AND DISPUTE SETTLEMENT IN THE ELECTRICITY AND GAS SECTORS

5.1. Consumer protection

5.1.1. Electricity

Pursuant to the requirements of Art.37 (1) (n) of Directive 2009/72/EC, in order to ensure quick access and data provision on customer consumption, commercial metering devices, including the devices ruling the tariffs, are located in a way that the consumer has the opportunity to observe the figures displayed in the commercial metering devices. In cases where it is needed to guarantee the life and health of citizens, property, power quality, continuity of supply and security and reliability of the energy system and the commercial metering devices are put in a place with difficult access, the electricity distribution company shall be obliged to provide at its own account the possibility of visual inspection within three (3) days following a written request. In addition, energy companies have established in every major city of their licensed territory customer service centres and have their own internet sites for each user to have an access to them.

In Chapter III, Energy activities regulation, Section VI of EA, Measures to protect end consumers, in pursuance of the requirement of Art.37 (1) (n) of Directive 2009/72/EC, the energy companies' obligations to provide information to their customers regarding:

- actually consumed quantities and service provided value in accordance with the contracted readings periodicity with no obligation of additional payment for this service;
- conditions on the provision of electronic billing information and electronic invoices;
- energy supplier provides another energy supplier with the consumption data of a household consumer when such action has been provided for in an express agreement between the consumer and the energy supplier.

These provisions ensure customer access to energy consumption data, their providing in an easily understandable format and use. Customers have their consumption data and may, by an agreement and without additional costs, provide these data to any licensed supply company, thus transposing the requirements of Annex I, letter h of Directive 2009/72/ EC.

5.1.2. Natural gas

In exercising its regulatory powers, the Commission shall be guided by defined in the EA general principles, including ensuring a balance between the interests of energy companies and customers, equality between different categories of energy companies and between consumer types and to establish end customers protection measures. To protect energy companies customers' rights EWRC closely cooperates with the Consumer Protection Commission, the Ombudsman of the Republic of Bulgaria, as well as a number of consumer protection NGOs.

As a specialized state body EWRC regulates the activities in the energy sector, approves the *General conditions* of contracts provided for in EA and the *Rules on work with energy services consumers* developed by energy companies that provide services of public interest. This type of contracts has a regulated by EA mandatory content, which ensures consumers' rights. Licensees providing services of public interest are obliged to guarantee consumers' rights protection and equality between customer groups in the contracts' *General conditions* and in the *Rules on work with energy services consumers*.

By the amendments of EA, promulgated SG, 54 of 17.07.2012, and transposing the requirements of Directive 2009/73/ EC, enhance and guarantee the existing consumer rights and include greater transparency regarding their energy rights, particularly in the gas sector. New

provisions have been supplemented concerning measures to protect energy services consumers, aimed at ensuring effective and adequate protection of their rights. Provisions have been supplemented and refined concerning end-user protection measures included compulsorily in the energy services contracts.

EA requires energy companies providing services of public interest to determine in the general conditions for supply and use of networks and in the Rules for working with users of energy services, special procedures on provision of information to vulnerable customers related to their consumption and energy discontinuing. According to companies' data registered vulnerable customers in 2017 were 2.

EWRC monitors the energy companies' obligations on providing information to the customers and in regard to their work with them, as well as the submitted annual reported data on the activities and by on-site inspections.

5.2. Dispute settlement

Disputes settlement terms and conditions are regulated by EA and *Ordinance №3 on licensing the activities in the energy sector*. EWRC handles complaints of: networks and facilities users against transmission and distribution network operators, extraction companies, natural gas storage facilities operators and LNG operators related to the way these entities perform their duties under EA; customers against electricity and natural gas suppliers, including end suppliers regarding their duties performance under EA; as well as licensees against other licensees regarding their duties performance under EA.

Within two months of filing a complaint, EWRC may assist an amicable dispute settlement. The term may be extended by another two months if the nature of the dispute requires collecting additional data and information by EWRC. The procedure is voluntary and confidential. Under the amicable disputes settlement EWRC does not make a ruling/decision and the procedure ends with an agreement. It involves the dispute parties and a conciliator - a member of the EWRC working group that has been designated to handle the complaint. The conciliator uses all reasonable means and efforts to resolve the dispute by proposing to the parties a resolution and if consent is achieved - to draft a written agreement.

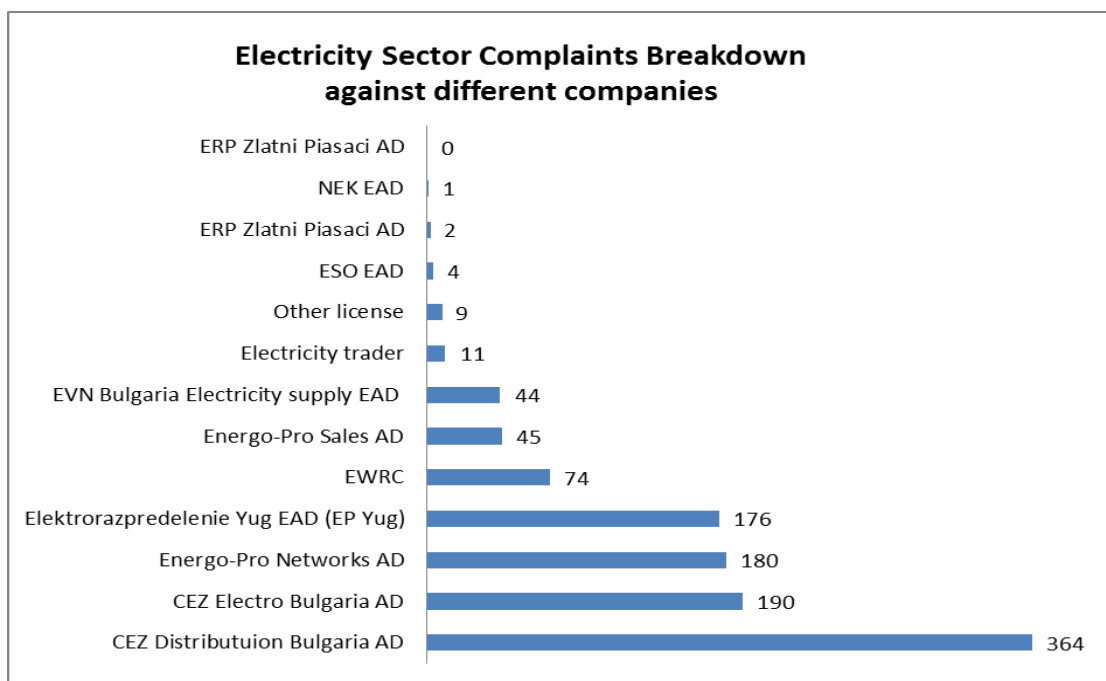
In case no amicable settlement has been achieved or the parties reject amicable settlement, EWRC shall decide on the complaint within two months after receiving it. This period may be extended by another two months if the nature of the dispute requires EWRC to collect additional data and information. Upon complainant consent the extended period may be extended again by another two months. When EWRC finds a complaint being justified, it issues a decision with binding guidelines on the implementation of the law. EWRC decisions are subject to appeal before the Administrative Court - Sofia City under the Administrative Code.

Under the legislation, EWRC has the power to fulfil the obligations set out in Directive 2009/72/EC and Directive 2009/73/EC, namely to act as a dispute settlement body in respect of any complaint against transmission or distribution operator in relation to that operator's obligations and to issue a decision within two months of the complaint receipt and the period may be extended again by another two months, when additional information is to be collected. This period may be extended with the consent of the applicant. The decisions of the regulatory authority shall have binding effect unless and until overruled on appeal.

5.2.1. Electricity sector

In 2017 the total number of electricity applications filed in EWRC was 1100, 970 of them were under the provisions of art. 22, para.1 of EA, thus considered as complaints. 130 applications represent letters characterized as notifications, opinions and requests of instructions. Consumer complaints are predominantly against the actions or lack of actions of the electricity distribution companies. There is the trend of previous years for their number to be greatest against CEZ Distribution Bulgaria and CEZ Electro Bulgaria, followed by Energo-PRO Networks AD and Elektrorazpredelenie Yug EAD. Electricity supply complaints were 11 and related to problems associated with supplier switching. 4 complaints against ESO EAD were submitted relating to connecting consumers directly to the transmission network. No complaints were registered against NEK EAD.

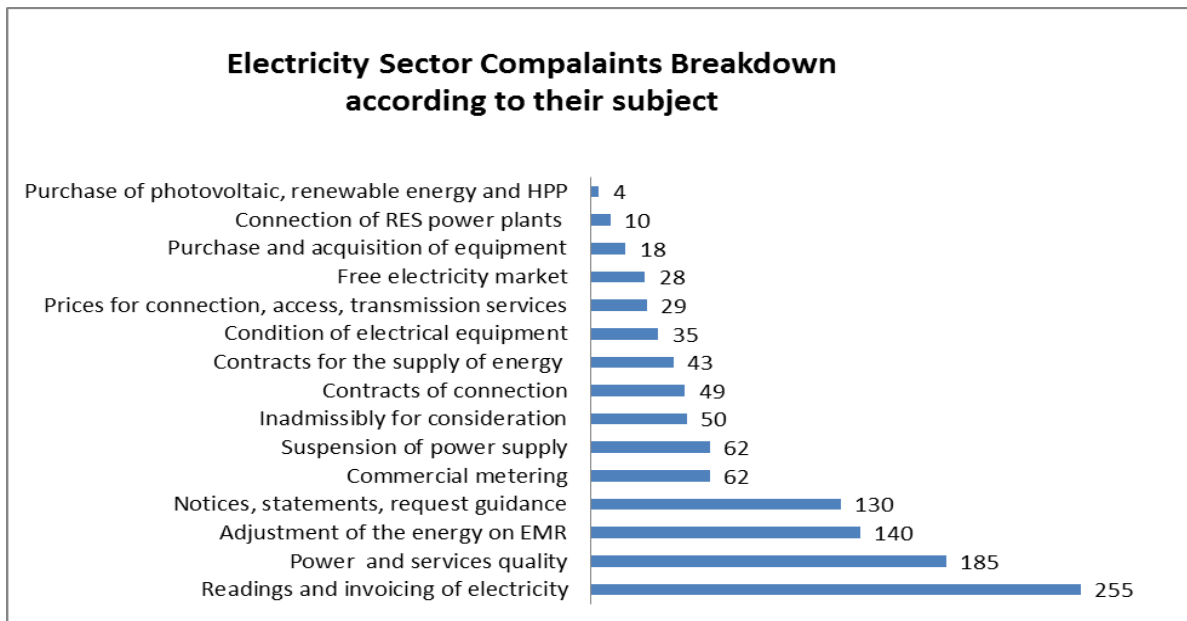
Distribution of applications by addressees as follows:



The largest number of received complaints was in connection to electric energy readings and billing. This includes allegations of inaccurate readings or lack of real readings, improper operation of clock switches, billing errors in the reported quantities and network services charging. Second is the quality of the low voltage electricity supplied in the connection point, frequent power cuts and damage to electrical appliances. Given the fact that the majority of complaints about poor electricity quality refer to entire neighborhoods and settlements, this problem actually affected the largest number of electricity consumers. The inspections done in this regard showed that complaints were justified in a high percentage of the cases, as well as concerning insufficient speed and commitment of the companies to eliminate the causes.

Other causes of complaints and signals were as follows:

- adjustments to consumed electricity amounts, but inaccurately metered and measured, as found under the electricity metering rules. In many of the cases, consumers filed lawsuits, which did not allow for EWRC to consider before the court's ruling;
- commercial metering devices – doubts about the accuracy of the devices, their place of installation, non-communication of planned or periodic replacements, absence of witnesses in the statement of facts document upon replacement;
- suspension of the power supply without reason and without notice;
- connection agreements of new users' and generators' sites – delays, unfair terms, unlawfully terminated contracts;
- electricity supply contracts – delays and problems with supplier switching;
- condition of electrical equipment - bad condition, dangerous installations, violated servitudes of energy sites;
- prices of connection, access, transmission and services - size and misapplication of EWRC pricing decisions;
- free electricity market - delay or non-issuance of documents for switching supplier;
- purchase and acquisition of equipment;
- connection of power plants using renewable energy to the electricity distribution networks;
- purchase of the electricity generated by RES power plants or cogeneration.



Based on the above analysis, EWRC plans to carry out inspections at the distribution and electricity supply companies issuing instructions for the elimination of the causes, respectively reducing the number of complaints filed at the companies and EWRC.

In 2017 EWRC examined complaints by electricity and services consumers and had decisions on the administrative proceedings, including:

- 65 justified, with mandatory instructions;
- 138 terminated due to groundlessness;
- 129 terminated due to inadmissibility;

- 51 terminated, due to failing legal interest by the complainant;
- 50 terminated, due to consideration by the court;
- 4 terminated, due to withdrawal of the appeal;
- 1 proceedings halted pending court.

Pursuant to Art.144, para.2 of *Ordinance № 3 on licensing the activities in energy sector*, when reviewing a filed complaint all necessary evidence must be gathered. The complaint review may involve a meeting of the parties at the EWRC's headquarters. In that regard, six meetings were held between energy companies and complaining parties to further clarify the circumstances. As a result of the talks and discussions on the issues raised, agreements and arrangements have been reached that helped to resolve disputes between the parties in a timely and proper manner.

5.2.2. Natural gas sector

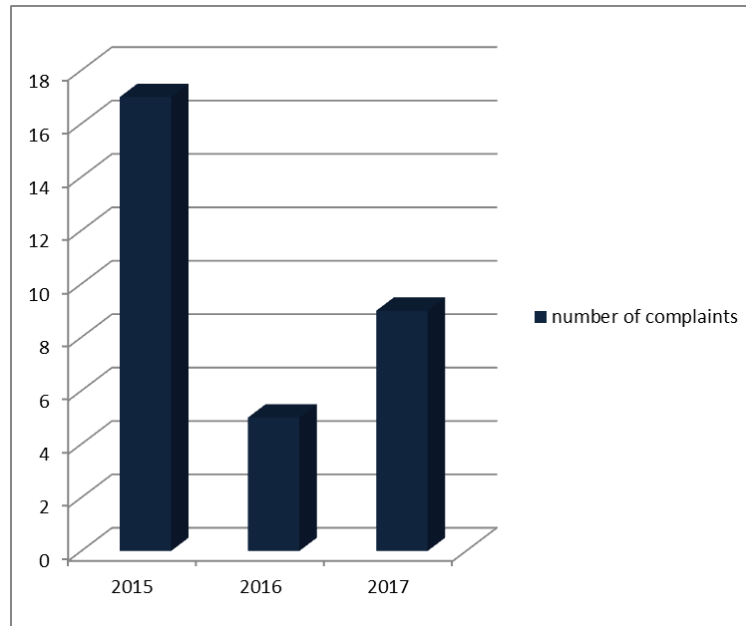
In Natural gas sector 31 inquiries and complaints were submitted at EWRC in 2017, of which 9 complaints under Art. 22 of EA. In relation to the received signals and inquiries, documentation checks have been performed and answers have been prepared which were sent to the addressees.

According to Art.142, para.4 of *Ordinance № 3 on licensing the activities in the energy sector* EWRC shall consider a complaint after the same had been reviewed by the energy company and the complainant is not satisfied with the response, as well as when no reply had been received.

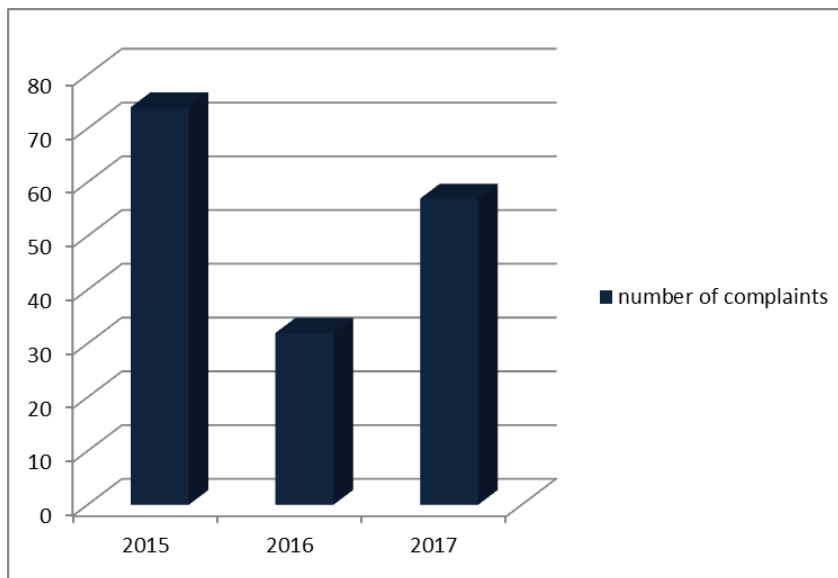
EWRC has taken a decision on four of the complaints by finding that 3 of the complaints were groundless and terminated the files. Regarding one of the complaints EWRC decided to close the case on the grounds of no interest by the complainant to obtain a ruling by authority. Four of the complaints were sent to the relevant company for solution by competence under art.142, para.5 of *Ordinance № 3*. One of the complaints is pending and a ruling is expected within the timeframes under art.22, para.4 of EA.

The Commission has also decided on a complaint of the previous year, the administrative procedure on which, due to the factual and legal complexity of the case, was completed in the reporting year.

The number of complaints in the natural gas sector in 2017 was 0.01% of the total number of natural gas customers (96 382) and was the lowest compared to the other three sectors. This is mainly due to the small number of gasified households in the country, which results in the low number of complaints submitted both to EWRC and to the companies. The trend of maintaining a low level of complaints in the sector is due to the fact that companies inform their clients (as it is defined in the general conditions of the contracts and the rules for working with users) about the way of submission and consideration of complaints. They also deal with complaints promptly and satisfy the justified ones.



In 2017 number of complaints submitting at the gas distribution companies was 57. In comparison, in 2016 the figure was 32 and in 2015 - 74.

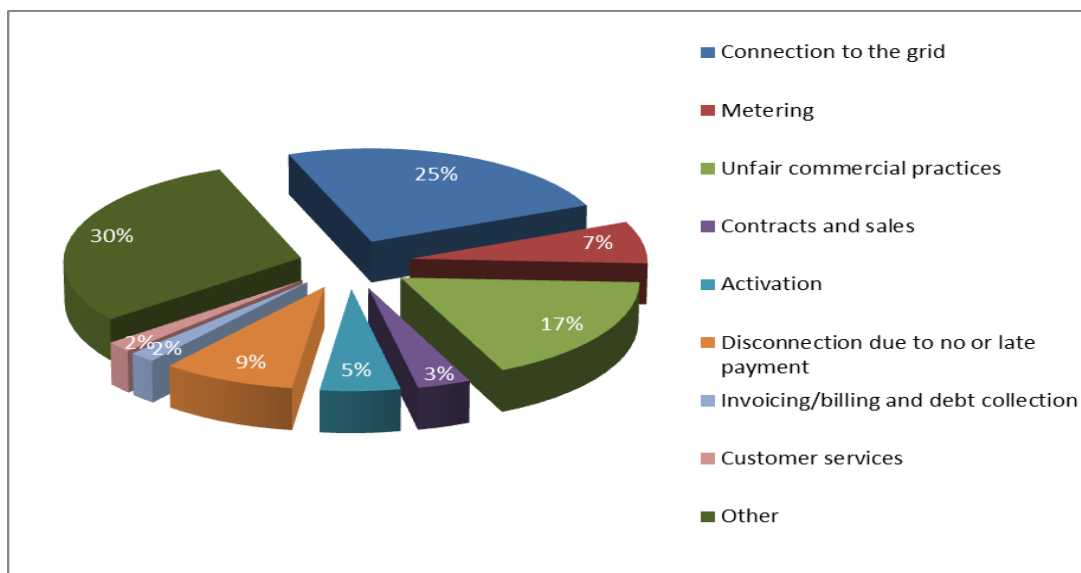


In 2017 consumers submitting complaints at the gas distribution companies represent less than 0.06% of all customers of natural gas, maintaining the trend of low number of complaints compared to the number of household customers, who in 2016 was less than 0.04% and in 2015 - less than 0.1%. From a total of 35 licensed areas in Bulgaria, complaints were filed in 13 of them. The number of natural gas users in these 13 territories (83 554) accounts for 87% of all natural gas consumers in the country. Most complaints were filed with Overgas Networks AD for the licensed territory of Sofia Municipality and Bozhurishte Municipality – 14 complaints (0.05% of all household customers of the company). This represents 25% of all complaints in the sector.

Complaints submitted at the gas distribution companies can be classified by subject, as follows:

Complaint subject	Number of complaints	Number of complaints satisfied
Connection to the grid	14	4
Inaccurate metering of the consumed amount of natural gas	4	2
Quality of supplies	0	0
Unfair commercial practices	10	7
Contracts	2	1
Restart of gas supply	3	2
Disconnection due to no or late payment	5	0
Content of invoices	1	0
Price	0	0
Compensation	0	0
Switching	0	0
Customer services	1	0
Other	17	6
Total Complaints:	57	22

As seen from the chart below, complaints are mainly related to connection to the distribution networks and unfair commercial practices. The other complaints are mainly related to inaccurate metering, contracts, restoration of gas supply, disconnection due to non-payment, content of invoices, customer services and others.



Four complaints were justified and satisfied out of 14 complaints relating to connection to the grid and 10 were found unjustified. Out of 10 complaints relating to unfair commercial practices, 7 were found justified and were satisfied. Out of 5 complaints relating to disconnection due to non-payment, one was satisfied. Out of 17 other complaints, 6 were found justified and were satisfied by the companies. Unjustified complaints related to: disagreement with the location of the gas regulation and metering station/switch; disagreement with accrued

prepayments; failures in the internal installations of customers; installation of a conduit for discharging fuel gas; damaged drainpipe due to construction works; frozen domestic gas system; clogged flexible connections with deposits of highly contaminated water and denial of warranty repair of the boiler; disagreement on auxiliary facility to connect to the distribution network.

No complaints were received concerning natural gas quality of supply, switching, tariffs and compensations.

Gas distribution companies examined the complaints received and accepted as valid 22 of them and satisfied them accordingly. All complaints received their replies within the provided for in the *Rules for work with customers* deadlines.

Gas companies work to increase the customers' awareness in terms of the services provided and to explain customers' rights and how to protect their interests in relation to complaints, settling disputes and the possibility to address EWRC when dissatisfied with the responses received.

Natural gas companies use different types of information channels like national information phone, internet site and email addresses. Each of these means help customers to get assistance on all matters related to gas supply and to address signals, complaints and appeals. Some companies have organized visiting hours and conduct surveys - online or in the customers' centers, in order to examine their opinions and act on the recommendations. Companies experts make inquiries, provide information and advise clients on all matters relating to gas supply.

The *General terms and conditions for the sale of natural gas* and the *Rules for working with consumers* are visibly placed in the customers' centers of the gas distribution companies, and there customers can also find the methods and procedures for filing complaints and settling disputes.