ENERGY AGENCY
OF THE REPUBLIC OF SERBIA

2019

2019 ENERGY AGENCY ANNUAL REPORT

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Serbian Energy Sector Report

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Annual and Financial Report

Belgrade, May 2020

CONTENTS

INTRODUCTORY REMARKS

In line with the provisions of the Energy Law of the Republic of Serbia ("Official Gazette of RS", No. 145/14 and 95/18 another law), the Council president and members of the Energy Agency of the Republic of Serbia are accountable for their work and the work of the Agency to the National Assembly of the Republic of Serbia. They submit the report to the National Assembly once a year. Apart from the annual report and financial report, this document also includes the report on the situation in the energy sector of the Republic of Serbia in areas under the Agency's jurisdiction.

The report on the Serbian energy sector includes the review on the situation and activities in electricity and natural gas markets and partly in oil and oil derivatives market, security of electricity and natural gas supply, activities of general interest and electricity and natural gas customer protection. In terms of its structure and its content, the Report is also in line with the recommendations of the Council of European Energy Regulators – CEER.

The Council of the Energy Agency of the Republic of Serbia was elected on March 22, 2018 on the session of the National Assembly of the Republic of Serbia ("Official Gazette of RS", No. 23/18) upon a vacancy invitation in line with the Energy Law. During 2019, 48 sessions of the Council of the Energy Agency of the Republic of Serbia were held in total. In line with the Law, all decisions within the scope of the Agency's work are adopted by the Council of the Agency. During the sessions of the Council of the Energy Agency of the Republic of Serbia, decisions, approvals, certificates, conclusions and other acts in the field of price regulation, energy market establishment and monitoring, license issuance and withdrawal and methods of operation of the Agency and other issues within the jurisdiction of the Council were adopted.

In 2019, the Energy Agency of the Republic of Serbia was fulfilling its obligations arising from the Law which are relevant for the enforcement of the law, and Serbian energy market functioning. By expressing its views, the Agency also played an important role in the work of Energy Community (EnC) institutions and also offered expert support to other national institutions in their activities.

The security of electricity, natural gas and oil derivatives supply in 2019 was on the satisfactory level.

The total electricity consumption in 2019 was on a similar level to the one in 2018. Households consumption was reduced by 0.6%, while the consumption with high voltage consumption was reduced by 5.3%. Consumption in industry was increased as well as in case of medium voltage customers by 3.4% and of consumption for generation purposes in thermal power plants and hydro power plants by 9.4%. Total power generation in 2019 was by 0.3% lower than in 2018 (with by around 1% higher generation in coal-fired thermal power plants, and by 10.4% lower power generation in hydro power plants due to unfavourable hydrological conditions). In 2019, electricity import was higher than export by 367 GWWh. Natural gas consumption in 2019 was lower by 8% than in 2018. Natural gas consumption increased in households but decreased in industry and for district heating companies purposes. Consumption increase in households indicates that natural gas is a competitive energy source.

In 2019, out of the total sales scale, in the open market, at market prices, 49.2% of electricity (47.1% in 2018) and 84.1% of natural gas (85% in 2018) were sold. Households exercised their right to select their supplier and purchase energy sources in the open market to a negligible extent (less than 0.1%) and most of them were supplied at regulated prices.

The Energy Sector Development Strategy until 2025 forecast electricity consumption of less than 1% annually. In that period, this consumption should be covered by the extension of the lifetime and increased capacities in existing power plants and by the construction of new ones. The third block in TPP Kostolac B is the most significant project which and the realisation of it was initiated. The construction of CHP Pančevo was also initiated. In line with the target of 27% of production from renewable energy sources in gross final consumption until 2020, around 3,500 GWh should be provided from power plants fuelled by renewable energy sources. During 2019, wind power plants of 134 MW of installed capacity were connected to the transmission network thereby resulting in the end of the year in the total installed capacity of wind power plants connected to the transmission network amounting to 373 MW. In the end of 2019, 311 small power plants with total installed capacity of 201 MW were connected to the distribution network.

The Preliminary National Plan of the Republic of Serbia for Emission Reduction envisaged the operation of some of the oldest thermal units by 2026 where, due to old-fashioned technology, the implementation of measures for the reduction of emission of sulphur and nitrogen oxides was not planned. These units will gradually stop operating and their production will be replaced by the above mentioned new capacities. Long-term energy stability also requires prudential adjustment of the energy sector of Serbia to global and EU requirements related to the protection of the Planet in line with the results of the UN Climate Change Conference taking national interests into account. In the future, this may have a significant impact on the costs of electricity production in thermal power plants and to its further development.

In line with the Energy Law which transposes the so-called "Third Package" of EU regulations on common rules for internal energy market, on March 5, 2019, the Council of the Energy Agency of the Republic of Serbia adopted a Decision on the Exemption of New Natural Gas Interconnector thereby approving to the company "Gastrans" d.o.o. an exemption from the obligation of compliance with the third party access rule, from ownership unbundling and from regulated transmission fees for the gas pipeline which will be used to transport natural gas through the Republic of Serbia and which will be connected to the Bulgarian and Hungarian national transmission system. New gas interconnection is the most important condition for the provision of long-term more stable natural gas security of supply, market development and avoidance of risks which Serbia used to face. In the current conditions, Niš – Sofia gas pipeline is the project which is supported by the EU institutions. The low level of gasification of households (around 10% of the total number) indicates that there is a potential for a bigger growth in this sector which implies the development of gas infrastructure. For a further gas market development, it is also very important to accelerate the procurement and instalment of relevant metering equipment.

Natural gas prices for public supply for all public suppliers and natural gas transmission and distribution tariffs did not change in 2019.

Adequate long-term policy of regulated prices, predictable for both customers and investors is very important for the sustainable development of energy systems. However, an obligatory prerequisite for the change in regulated electricity prices for households is an increase in the number of protected socially vulnerable customers because the number of protected customers in 2019 was still was several times lower than the number of customers who should be protected, in line with the register of authorised institutions.

While approving regulated prices, the Council of the Energy Agency of the Republic of Serbia insists on rationalisation in the operations of energy companies and on the acknowledgement of justified costs only. High electricity losses in the distribution network represent one of the highest costs and these are regularly acknowledged by the Agency on the level lower than the actual one, in line with the plan for loss reduction. In 2019, distribution network losses reduced by 0.45% in comparison to 2018 and they amount to 11.75% of electricity withdrawn into the distribution system which is still very high in comparison to the losses justified on the technical ground. It is still necessary to repress electricity theft more efficiently, among other things, by controlling metering points. It is also necessary to intensify investments in the electricity distribution network, transfer of metering devices and of connection lines and to have more efficient replacement of metering devices.

In 2019, PE *EMS* JSC continued their activities aiming at system development and strengthening cross-border capacities and participation in coordinated cross-border capacity auctions. In 2019, the scale of trade in the organised market SEEPEX – electricity exchange was increased.

Within the Energy Community, activities were taken so as to develop regional electricity market. The integration into the EU market also requires the provision of adequate participation of the institutions of the Republic of Serbia (regulatory ones as well) in the relevant EU institutions so as the interests of the country would be protected adequately.

In 2019, indicators of for unplanned interruptions of electricity delivery in the distribution system slightly worsened in comparison to 2018 while the trend of improvement in the transmission system continues both in terms of undelivered electricity and in terms of disconnection. The delivery continuity indicators are still considerably worse than the European average.

The collection of data on natural gas delivery quality was organized in 2019 as well, but the required data were not provided and submitted to the Agency by all energy entities this year either. The data were submitted by both transmission system operators and by 29 natural gas distribution system operators which delivery natural gas to around 58% of delivery points. Based on available data, delivery continuity indicators in 2019 in the distribution system are better than in 2018. There were unplanned interruptions within the transmission system in 2019, too, while there were none of them in 2018, while the unplanned interruptions within the distribution systems remained on the same level.

In 2019, 366 files in total were submitted to the Agency. The files mostly referred to the operation and proceedings of energy entities in different fields of their operation. The Agency processed all the received appeals and submitted replies to the file applicants. If necessary, the files were forwarded to competent state bodies for further steps to be taken.

The activities of the Agency in terms of market monitoring regarding the treatment of customers and system users by energy entities and of protection of energy customers' rights and interests are gradually expanding.

We would like to strongly indicate the fact that the deadlines for the adoption of decisions on energy licence issuance are considerably shorter and now within the framework prescribed by the Law.

Council of the Energy Agency of the Republic of Serbia

May 2020

SERBIAN ENERGY SECTOR REPORT

1. ENERGY DEMAND IN SERBIA

Primary energy consumption in Serbia without the Autonomous Province of Kosovo and Metohija (APKM[1]) in 2018 amounted to around 15.4 million tons of oil equivalent (mtoe). It is characteristic of Serbia to have a high share of coal, primarily lignite with low calorific value in the total primary energy (around 49%) which is dominantly used for electricity generation. A great share of local lignite enables a relatively high energy independence of the country, in comparison to other countries and relatively lower and more stable costs of electricity production. On the other hand, the use of lignite in electricity production increases its negative impact to the environment. In the long run, this fact also increases the risk of growing costs of carbon dioxide emission, i.e. the greenhouse gases.

This chapter includes the latest available data on total consumption of primary and final energy as well as other important data linked with the energy sector and the comparisons with the European Union.

The energy net import dependence of Serbia recorded 34.8% in 2018, which is lower than in the vast majority of European countries (the European Union 55%). Import dependence in Serbia was reduced in comparison to the previous decade mainly thanks to the increased local production of oil and natural gas which used to increase until 2013. Since then, the import dependence keeps growing again. In 2019, the costs of net energy imports amounted to € 2.09 billion which is 2% more than in 2018. These costs present 32.9% of the net import and export trading balance of the Republic of Serbia in 2019 which is by 10% lower than in 2018.

Table 1-1: Energy sector of Serbia (without APKM) – some indicators for 2014 - 2018

	Measurement unit	Year				
		2014	2015	2016	2017	2018
Population number, in midyear	thousands	7,132	7,095	7,058	7,021	6,983
GDP per capita, per spending power parity	Fixed $ from 2011	14,025	14,345	14,903	15,289	16,035
Primary energy consumption	Mtoe	13.34	14.8	15.72	15.93	15.37
Final energy consumption	Mtoe	7.67	8.08	8.67	8.70	8.47
Import dependence	%	27.9	27.7	30.3	34.4	34.8

Data: RZS, World Bank, MRE, AERS

Compared to the European Union (Figure 1-1), gross domestic product of Serbia per purchasing power parity (which reflects the level of development and standard in a more realistic manner) in 2018 was on the level of 40%, consumption of total primary energy per capita – 73% and final electricity consumption – 73%.

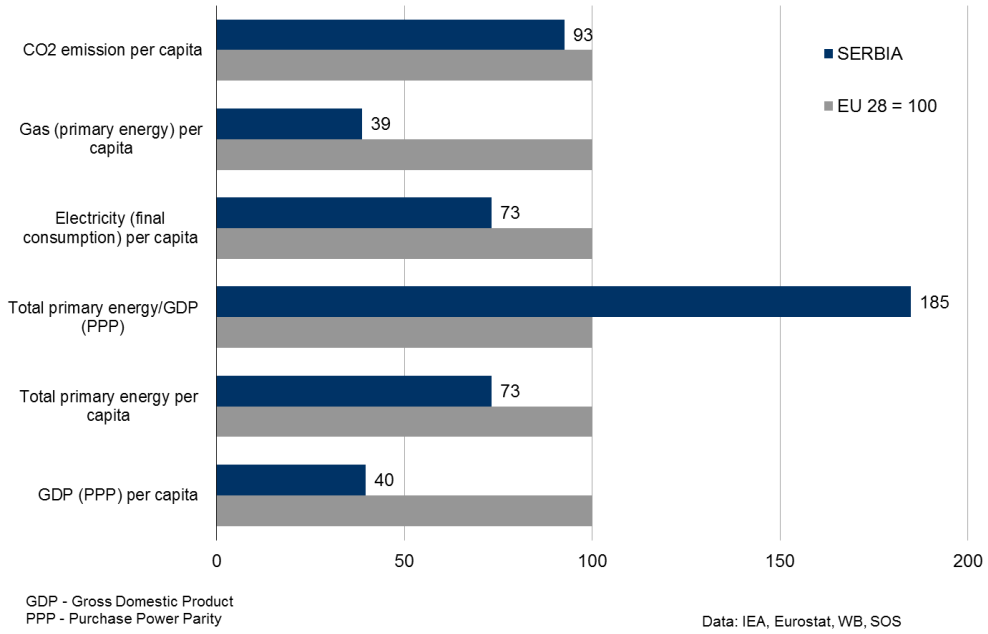

Figure 1-1: Comparative indicators of Serbia and the European Union in 2018

[1] Treatment of energy data for the territory of the Autonomous Province of Kosovo and Metohija (APKM) in this Report depends on their availability, reliability and necessity to indicate them if they relate to a unique function on the whole territory (unique regulation area), while bearing in mind the United Nations Security Council Resolution No. 1244 of 10/06/1999.

Energy intensity, i.e. total primary energy consumption per domestic product unit (per purchase power parity) was on the level of the countries in the region, but it was 1.85 times higher than the European average. Greater energy intensity is partly a consequence of inevitable technical losses in the process of transformation of lignite into electricity (two thirds of electricity is produced from lignite). However, it is primarily due to irrationality, i.e. low efficiency in consumption in households, industry, due to low rate of capacity use and old technology, as well as in other sectors. Primary gas consumption per capita amounts to around 39% of the EU and therefore, this sector has a high growth potential.

An important difference in the final energy consumption structure in comparison to the European Union lies in the high consumption share in households in Serbia and higher energy consumption share in transport in the EU (Figure 1-2). In addition, one should bear in mind that industrial consumption in Serbia is much lower than in the end of 80s.

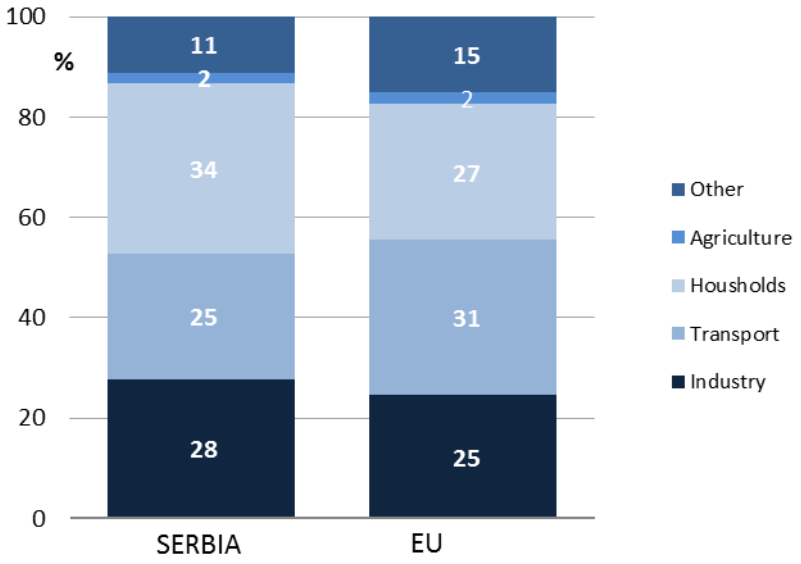

Figure 1-2: Final consumption structure (without non-energy consumption) in 2017

2. ELECTRICITY AND NATURAL GAS MARKET IN 2019

2.1 Legal and regulatory framework

The legal and regulatory framework for the development of electricity and natural gas market in the Republic of Serbia was established by the Energy Law ("Official Gazette of RS", No. 145/14 and 95/18 –other law, hereafter: the Law) and by-laws which are harmonised with the Third EU Energy Package.

Electricity and natural gas markets are largely regulated by separate by-laws which acknowledge the specificity of each market, such as general conditions of delivery, electricity market codes, transmission and distribution network codes, methodologies for setting use-of-system charges, price of regulated supply of households and small-scale customers and connection costs. Some regulations which relate to the protection of final customers and their rights are common for electricity and natural gas, as well as the legal acts regulating: switch of suppliers of final customers who have signed a contract on full supply; monitoring technical and commercial indicators and regulating quality of delivery and supply; exercising the right of a final customer to access the data on his/her consumption; proceedings and imposing measures and keeping records of imposed measures. The regulation on the method, procedure and deadlines for keeping accounting records, implementing unbundling of accounts for each activity and submission of data and documentation for regulation purposes.

In 2019, in line with indicated demand, the Agency amended regulations from its jurisdiction in order to have more efficient market functioning, better protection of final customers and other market participants.

2.2 Electricity market development

Unbundling of the operator

The unbundling of the electricity transmission and distribution system operator, as natural monopolies, from energy entities performing production and supply as market activities is one of the most important tasks in the market reform of the sector. Equal right of access to network systems is thereby provided for all market participants.

The following entities are appointed to perform electricity transmission and distribution on the territory of the Republic of Serbia:

- *Elektromreža Srbije* JSC, Belgrade (*EMS* JSC), for electricity transmission and transmission system operation, 100% state-owned, corporatized since 2016 and operates as closed joint stock company and
- PE *EPS Distribucija* LLC, Belgrade, which was established as a subsidiary by PE *Elektroprivreda Srbije* (PE *EPS*) for electricity distribution and distribution system operation, 100% state-owned.

Even prior to the adoption of the 2014 Energy Law, these companies performed these activities, but the Law introduced new conditions for the award of the right to perform these activities, especially in terms of independence. *EMS* JSC is the Transmission System Operator (TSO) since it is licenced for transmission and transmission system operation, while *EPS Distribucija* is the Distribution System Operator (DSO) and there is an ongoing procedure for the award of the licence for distribution and distribution system operation to the company.

The compliance with the conditions regarding the transmission system ownership unbundling model which is prescribed by the Law is established within the certification procedure executed by the Agency. The ruling legal solution implies that only after a legal person is certified as a transmission system operator, the person may submit an application for the issuance of an energy licence for transmission and transmission system operation. In line with the Law, this legal person is appointed as the electricity transmission system operator by the issuance of the licence.

In line with the certification procedure prescribed by the Law, EMS JSC was awarded with the final certificate as the electricity transmission system operator issued by the adoption of a Decision of the Agency Council following the preliminary certification and the Opinion of the Energy Community Secretariat.

PE *EPS Distribucija* submitted an application for licence issuance. However, during 2019, conditions for the licence issuance were not met. PE *EPS Distribucija* has to prove, in line with the Law, that the company is independent in terms of legal form, organisation and decision-making process from production and supply within the same vertically-integrated company. Activities on the adjustments to the legal acts which ensure the independence were organized and the conditions are expected to be met in 2020.

EMS JSC and PE *EPS Distribucija* became the owners of the system within which they perform their activities. EMS JSC proved within the certification procedure and licence issuance procedure that there is a legal ground for EMS JSC to use power facilities which serve for this energy activity.

Electricity consumption

In 2019, 34.83 TWh of electricity were produced in Serbia, while gross electricity consumption amounted to 33.8 TWh. Final customers consumption amounted to 29 TWh, while the remaining quantities were used for the power plants operations, pumping within the pumped-storage hydro power plant and pumping facility and for recovery of electricity losses in electricity transmission and distribution networks.

According to the data available from electricity suppliers, 4.3 TWh of electricity were imported in 2019, while 3.9 TWh were exported. Therefore, both electricity import and export were lower than in 2018. As a consequence of the highest monthly consumption and lower production in thermal power plants and reduced hydrology, the import was on the highest level in January when 643 GWh of electricity were imported. This quantity is around twice as high as the import level in any other month. Electricity export was on a considerable level in March when 932 GWh were exported and this is almost one quarter of the total energy quantities exported during the whole year.

The highest daily gross consumption of 121,468 MWh was recorded on January 10, 2019 and the maximum hourly peak load of 5,472 MW was recorded on the same day at 6 p.m.

Wholesale

In 2019, suppliers mainly traded between themselves in the wholesale electricity market because there are no big independent producers. The suppliers' activity in the open market is the most intensive in the field of cross-border exchange, mostly with the purpose of transit via Serbia which is dominant due to central geographic position of the power system of Serbia in the region. In 2019, it amounted to around 13.9 TWh. The right to nominate working schedules based on a relevant contract signed with EMS JSC in 2019 was awarded to 76 electricity market participants which is 8 of them more than in 2018.

The Republic of Serbia borders eight countries and considerable electricity quantities are transferred from north-east to south-west which is why there are combustions on cross-border overhead lines and why new overhead lines are planned to be constructed. The most important project involves the plan to connect eastern and western Europe over the territory of Serbia by the construction of 400 kV line (TransBalkans Corridor project which was initiated by the construction of a section Pančevo 2 – Rešica which was completed up to the border with Romania). This will additionally increase the security of electricity supply in Serbia as well.

Organised day-ahead market

Organised day-ahead market/power exchange in Serbia – *SEEPEX a.d.* (JSC) Beograd (South-eastern European power exchange) was established on the basis of partnership between *EMS* JSC and EPEX SPOT – France as a joint stock company with the majority ownership of the Serbian side. It is licenced for organized electricity market operation. There were 19 participants registered in 2019 on an organized day-ahead electricity market/power exchange which is one participant more than in 2018. 18 participants were actively involved in the trade amounting to the same number as last year.

The total electricity quantity traded in 2019 on SEEPEX amounted to 2,528 GWh which is around 200 GWh more than in 2018. A portion of this quantity was not traded between suppliers since the transmission system operator purchased a portion of electricity for loss recovery while the operator also sold extra electricity for loss recovery which was purchased via their auction platform. In 2019, the greatest monthly scale of trade in the exchange amounted to 260,895 MWh was recorded in November, while the daily maximum was recorded on March 11 with the trade scale of 13,483 MWh. The lowest trade scale was recorded in February and it amounted to 168,968 MWh which is 1.76 times higher than last year. The highest hourly price was reached on August 29 at 9 p.m. and it amounted to 153.3 €/MWh. Average basic price on the annual level amounted to 50.5 €/MWh.

The growth of the trade scale and of the number of registered and active SEEPEX members increases the liquidity of the exchange and thereby facilitates the establishment of a referent wholesale price both in Serbia and in the region.

Retail

The Law enabled all final customers in Serbia to purchase electricity in the open market. Only households and small customers are entitled to guaranteed supply, i.e. supply at regulated prices. 50.4% of final customers' consumption is supplied at regulated prices which includes households and small customers' consumption.

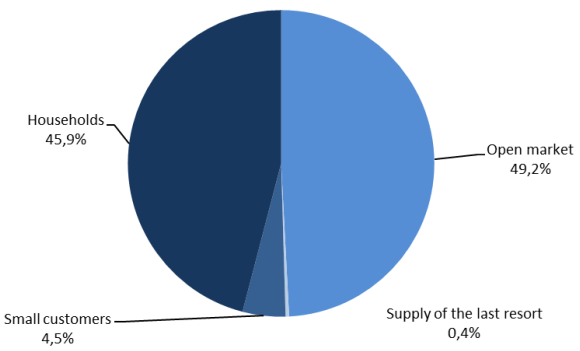

Figure 2-1: Electricity sales in the open and regulated markets in 2019

Only those customers who are not entitled to guaranteed supply purchase electricity in the open market and 49.6% of electricity consumed by final customers in total was sold during 2019. Out of the amount, only 0.4% of electricity was consumed within the supply of the last resort regime by customers who failed to select a supplier and who used their legal right to the supply of the last resort.

In the end of 2019, there were 68 energy entities licenced for electricity supply in the open market. Out of the number, only 13 were active. PE *EPS* is still the dominant supplier in the open market with the share of 95.9% of electricity sold to final customers in the open market and 97.9% of the total final consumption.

In 2019, a supplier was switched on around 15.7 thousand metering points (0.4% of the total number of metering points) with consumption slightly lower than 776.5 GWh which amounts to 2.8% of the total final customers' consumption.

Security of supply

In 2019, the security of supply was on the satisfactory level. Investments within several years into revitalization and modernisation of production, transmission and partly distribution capacities increased reliability and efficiency of the power system operations. In 2019, in terms of the transmission system, quality indicators of electricity delivery continuity were better than during the previous year. In case of the distribution system, the indicators were slightly worse but they remained on the five-year average level.

The Strategy of the Energy Sector Development of the Republic of Serbia until 2025 with forecast until 2030 envisages average increase in electricity consumption of below 1% on the annual level. Considering the age and efficiency of existing production capacities and the fact than some of them will stop operating, it is necessary to construction new capacities. The construction of a new thermal clock B3 in TPP Kostolac B with 350 MW capacity was initiated. In the beginning of March 2019, the construction of combined heat and power plant Pančevo of 190 MWe in condensed regime was initiated (the investors are *Naftna industrija Srbije a.d*. and Gasprom energoholding, Russia). It is planned to construct thermal power plants of considerable capacity fueled by renewable energy sources. National action plan for the use of renewable energy sources indicated the plan to achieve annual production from renewable sources of around 3.5 TWh until 2020. During 2019, wind plants with installed capacity of 134 MW were connected to the transmission system. In the end of the year, the total installed capacity of wind farms connected to the transmission system amounted to 373 MW.

2.3 Natural gas market development

Unbundling of the operator

Natural gas transmission is performed by two energy entities on the territory of Serbia: PE *Srbijagas*, Novi Sad and Yugorosgaz-Transport, LLC Niš. Following the adoption of the Law, both enterprises initiated activities on the unbundling of the transmission system operator from other activities of the vertically-integrated company.

With the consent of the Government of the Republic of Serbia, PE *Srbijagas* established companies *Transportgas Srbija* LLC and *Distribucijagas* Srbija LLC which are registered in the company register as active companies. By the Conclusion of December 23, 2016, the Government of the Republic of Serbia enabled PE *Srbijagas* to continue performing the activity of general interest – transmission and transmission system operation, either independently or through the company *Transportgas Srbija* LLC until the licence is obtained. The Government also recommended to *Transportgas Srbija* LLC to take all necessary activities meant to provide the licence as soon as possible. In the end of 2019, *Transportgas Srbija* LLC started performing some of its activities while *Distribucijagas* Srbija LLC has not started operating even in 2019.

In November 2018, *Transportgas Srbija* LLC submitted a certification application in line with an independent transmission operator model. In February 2019, the Agency denied this application since this company did not submit the prescribed documentation and did not prove the compliance with the prescribed certification conditions within the legal deadline. In May 2019, *Transportgas Srbija* LLC refiled the certification application in line with ITO model, but this application was denied by the Agency in September 2019 for the same reasons.

Yugorosgaz-Transport, LLC *Niš* was certified as an independent system operator by the decision of the Agency Council from June 2017 with an obligation to harmonise its organization and operation in a manner providing for the compliance with the conditions related to the independence and an obligation to submit the compliance programme to the Agency as well as an evidence on the procurement of natural gas for loss recovery purposes. The deadline for the compliance with the obligation was one year long and, in case of failure, the certificate would have been revoked. From all the above given conditions, the first condition is beyond the jurisdiction of the Agency and the compliance with it depends exclusively from competent state bodies. By the Decision of the Energy Agency Council, in July 2018, *Yugorosgaz-Transport*, LLC *Niš* obtained a one-year extension of the deadline in order to comply with the certification conditions in line with independent system operator model with an obligation to inform the Agency twice a month on the activities taken to that end. Since *Yugorosgaz-Transport*, LLC *Niš* did not submit all the evidence on the compliance with the conditions prescribed by the Final Certification Decision until the end of the given deadline, in July 2019, the Agency Council adopted a decision on the revocation of the certificate from *Yugorosgaz-Transport*, LLC *Niš*.

Acting in line with the Energy Law and with the Decision of the Energy Agency of the Republic of Serbia on the Exemption of New Natural Gas Interconnector, in June 2019, *GASTRANS d.o.o.* (LLC) *Novi Sad* filed a certification application. In August 2019, by the Preliminary Decision, the Agency Council certified *GASTRANS d.o.o.* (ad hoc ITO model) with conditions prescribed, with an obligation to submit all occupancy permits or to register ownership rights over transmission

system facilities as well as to submit evidence proving its independent operation and independent operation over the constructed transmission system. The deadline for the compliance with the prescribed conditions was six months. Otherwise, the certificate would be revoked.

In 2019, gross natural gas consumption amounted to 2,351 million m^3, by 8% lower than in 2018. The consumption in industry and district heating companies decreased by 9%, while it increased in households by 5%. Local production covered only 12.6% of the demand, while the remaining gas quantities were provided from import.

Wholesale

Wholesale was dealt with only by three companies which are licenced for natural gas supply (PE *Srbijagas*, *King gas d.o.o. Cestor Veks d.o.o.*) and natural gas producer *Naftna industrija Srbije a.d.* ((Petroleum Industry of Serbia) JSC, herafter: NIS). The fact that PE *Srbijagas*, i.e. *Transportgas Srbija* still does not enforce Transmission Network Code, which regulates the access to cross-border capacities based on non-discrimination and transparency principles, represents a significant constraint for wholesale market since legal unbundling of the transmission system operator from PE *Srbijagas* has not been completed. Therefore, capacity allocation in line with the Transmission Network Code was not realised even in 2019.

The Law prescribes that the Government of the Republic of Serbia appoints the supplier of public suppliers until a competitive market is established. The supplier of public suppliers has to offer natural gas to all public suppliers (including the one within the same legal entity as the supplier itself) under the same conditions and at the same price. In 2019, PE *Srbijagas* was the supplier of public suppliers.

Retail

Total final customers' consumption to 2,083 million m^3. In addition, NIS consumed 241 million m^3 from their own production quantities and, therefore, these quantities were not subject to trade in the Serbian natural gas market. There were 26 suppliers in the open market (out of 64 licensed suppliers) who dealt with retail, i.e. with the supply of final customers in 2019 while there were 32 public suppliers who also acted as natural gas distributers. Trade in the open market was dominant in the retail sphere. The natural gas sale indicated in Figure 2-2 does not include volumes produced by *NIS* to cover its own demand.

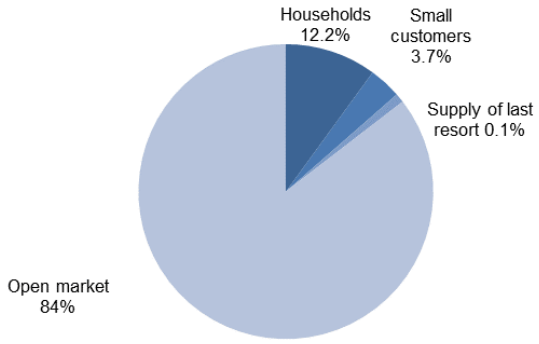

Figure 2-2: Sale of natural gas in the open and regulated markets in 2019

In 2019, around 84% of the total natural gas quantities which were sold to final customers were sold in the open market. The Law prescribed that the final customer who is not entitled to regulated supply can be supplied temporarily by the supplier of the last resort, if a customer loses his supplier. The Government appoints the supplier of the last resort, and, in case of 2019, the supplier of the last resort was PE *Srbijagas*. In 2019, the supply of the last resort was exercised by 8 customers with 2.1 million m^3 delivered to them in total, i.e. only 0.1% of the total consumption in the market (without *NIS* consumption from its own production).

In 2019, the switching of supplier occurred only with 6 out of 32 distribution systems, on 207 metering points in total, with the consumption of 7.4 million m^3, which amounts to 0.5% of natural gas quantities consumed in total in the market (without *NIS* consumption from its own production).

Households and small customers (with annual natural gas consumption of up to 100,000 m^3 with all their facilities connected to the natural gas distribution system) are entitled to be supplied by the public supplier at regulated prices if they do not select a supplier in the open market. Households and small customers have a small share in the final consumption of only 332 million m^3 i.e. 15.9% of the total gas quantities procured in the market (without *NIS* consumption from its own production).

Security of supply

In 2019, the security of natural gas supply was on a satisfactory level. There were sufficient quantities of gas to cover the whole demand of customers.

Efforts are made in Serbia in order to provide an alternative supply direction. The construction of an interconnector towards Bulgaria is under preparation and it will contribute to the increase in the security of supply. In addition, so as to increase the

security of supply, it would be useful to connect with gas pipelines in other neighbouring countries, first of all, with Romania and Croatia since these countries have a developed gas infrastructure and additional options for natural gas procurement.

In 2017, interest in natural gas transmission from the Bulgarian-Serbian to the Serbian-Hungarian border was expressed. Gasprom and PE Srbijagas established a company GASTRANS d.o.o. in order to construct this gas pipeline. In February 2018, in order to secure the construction of the gas pipeline, GASTRANS do.o. submitted an application for the exemption from: third party access rule, ownership unbundling and regulated gas pipeline tariffs to the Agency. During the year, market test procedure was executed. In early October 2018, the Agency adopted a preliminary Decision on the Exemption of New Natural Gas Interconnector. Following the decision on the exemption which was adopted in March 2019, Gastrans d.o.o. successfully organized capacity allocation and consequently started constructing the gas pipeline – interconnector of 402 km length from the border with Bulgaria near Zaječar to the border with Hungary near Horgoš. The gas pipeline is expected to be completed during 2020. The construction of this gas pipeline will provide for the compliance with the infrastrucure supply standard N-1 in the Republic of Serbia since it will increase from the current level of 33.8% to 114%.

3. ELECTRICITY

3.1 Sector structure and capacities

3.1.1 Organisational and ownership structure of the sector

Since the adoption of the first Energy Law ("Official Gazette of RS", No. 84/04) which established basic principles for the development of electricity and natural gas markets, the organisational structure of the power sector has been constantly harmonized with the needs of the electricity market development in line with the principles of non-discrimination, efficient competition and transparency. The transformation was initiated in 2005 by unbundling a joint vertically-integrated PE *EPS* which included: electricity production, transmission, distribution and trade into a separate company PE *Elektromreža Srbije* (which was corporatized in 2016 and has been functioning as a closed joint stock company – *EMS AD*) in charge of transmission and into a vertically-integrated PE *EPS* in charge of: electricity production, wholesale supply and retail supply (of final customers) and distribution.

The structure of the power sector in the end of 2019 is indicated in Figure 3-1.

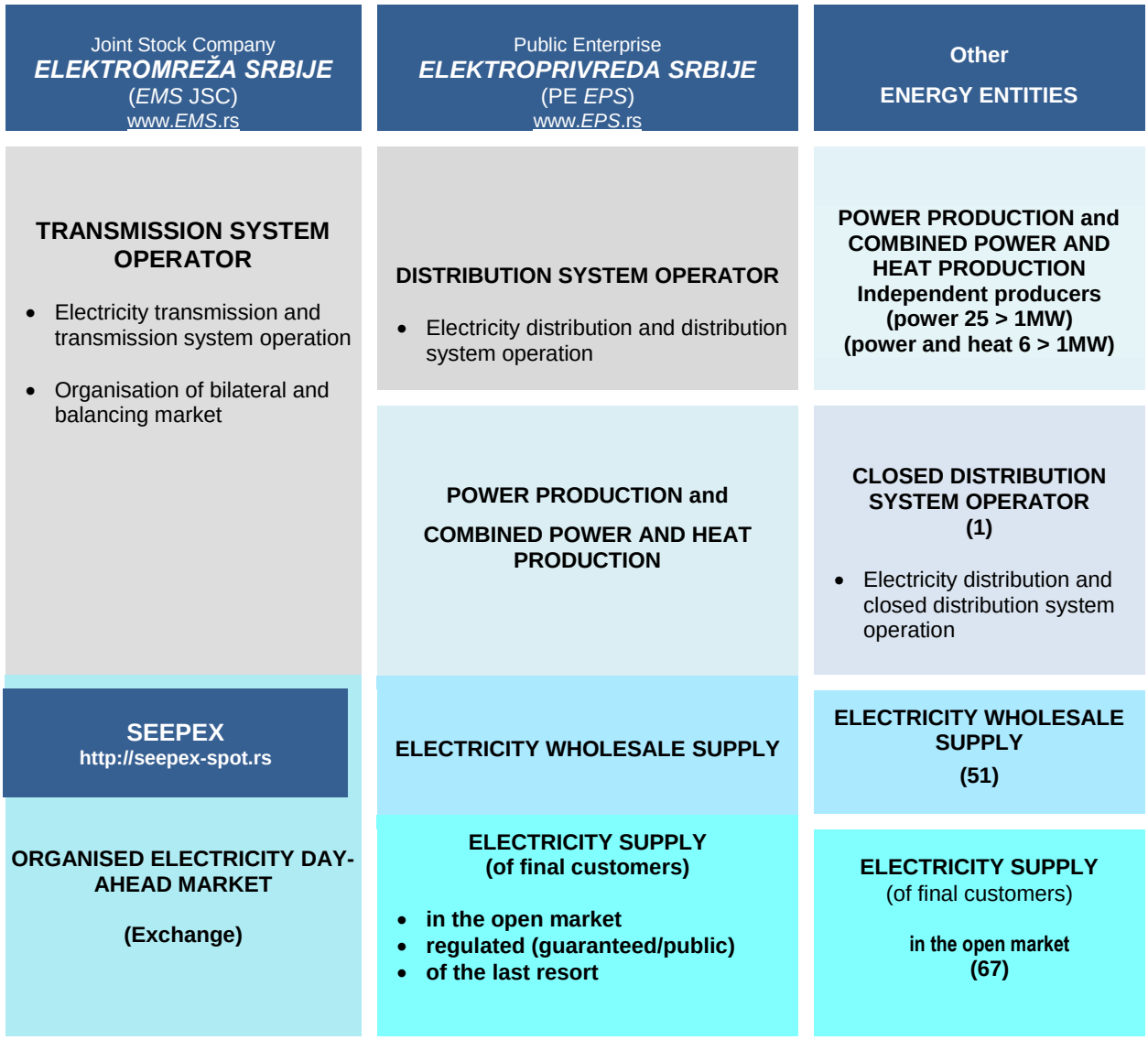

Figure 3-1: Organisational structure of the power sector in the end of 2019

Public enterprise PE *EPS* and the joint stock company *EMS* JSC are 100% owned by the Republic of Serbia.

In partnership with EPEX SPOT, France, *EMS* JSC established an organised day-ahead electricity market (exchange) SEEPEX. Within the exchange, *EMS* JSC holds 75% of the shares while EPEX SPOT holds 25%.

PE *EPS* performs the following activities: power production and combined power and heat production, electricity wholesale and retail supply and electricity distribution. PE *EPS* is the biggest producer (93.5% of the total installed capacity in Serbia) and it is the dominant electricity market player. Apart from selling and purchasing in the open market, PE *EPS* is also appointed as the supplier of the last resort and the guaranteed/public supplier of households and small customers it supplies at regulated price. Out of total 29.5 TWh of final consumption, PE *EPS* sells 97.9% of electricity (all under regulated supply regime and over 95% in the open market).

In order to perform distribution activities and distribution system operation on the whole territory of the Republic of Serbia, PE *EPS* established a subsidy – Distribution System Operator "*EPS Distribucija*" (DSO). PE *EPS* is obliged to ensure the independence of DSO operation and development in line with the Law. The independence of DSO is extremely important because DSO has to provide service to all market participants using the distribution system in a transparent manner and under the same conditions and it must not favour production and/or supply of PE *EPS*. By the end of 2019, DSO did not fully start operating in line with the Law.

Until the end of 2019, there were 311 small power plants with total capacity of 201 MW connected to the distribution system (out of the number, 18 of them are owned by PE EPS with the capacity of 41 MW, while 293 of them are owned by independent power producers with the capacity of 160 MW). In addition to PE EPS, the licence for power production was also held by 25 energy entities, while the licence for combined power and heat production was held by 7 energy entities (including PE EPS) with production facilities with capacity of over 1 MW.

In 2019, there was one closed distribution system operator – *AD Aerodrom "Nikola Tesla"* (JSC Airport) Beograd which is connected to the distribution system and which includes one transformation station with voltage level of 35/10 kV/kV with installed capacity of 16 MVA, six transformer stations with voltage level of 10/0.4 kV/kV with total installed capacity of 8.52 MVA and 11 km of power cables with voltage level of 10 kV.

Since 1999, a part of the power system of Serbia which is located on the territory of the Autonomous Province of Kosovo and Metohija (APKM) is under the administration of UNMIK in line with the United Nations Security Council Regulation 1244.

A great number of electricity suppliers is licensed in Serbia. In the end of 2019, there were 68 licensed suppliers who are entitled to perform the wholesale and retail supply and 52 suppliers entitled to wholesale only. Out of the number, 61 were active while only 13 suppliers dealt with the supply of final customers in the open market.

3.1.2 Production, transmission and distribution capacities

3.1.2.1 Production

The total net installed capacity of power plants in Serbia amounts to 8,274, without power plants on the territory of APKM, including power plants of independent producers (Table 3-1). Within PE *EPS*, which is the dominant electricity producer, 4,429 MW are installed in lignite-fuelled thermal power plants, 2,941 in hydro power plants, 330 MW in combined heat and power plants fuelled by natural gas or mazoute and 41 MW in 18 small hydro power plants connected to the distribution system. Lignite for all thermal power plants is produced in open pit mines within PE *EPS*.

Apart from the production capacities of PE *EPS*, production capacities of independent producers are connected to the transmission and distribution networks. During 2019, wind farms with installed capacity of 134 MW were connected to the transmission network. Therefore, in the end of the year, the total installed capacity of wind farms connected to the transmission network amounted to 373 MW. On the other hand, in the end of 2019, 293 small power plants which are owned by other legal and natural persons with total installed capacity of 160 MW were connected to the power distribution company network.

Table 3-1: Electricity production capacities in 2019 (without APKM)

Technology	Installed capacity MW
Hydro power plants	2,941
Thermal power plants (coal)	4,429
Combined heat and power plants (gas, fuel oil)	330
Gas fired power plants	-
Nuclear power plants	-
Wind power plants – independent producers	373
Other sources (renewable sources) – small PE *EPS* power plants	41
Small power plants – independent producers	160
TOTAL INSTALLED CAPACITY	**8,274**

The structure of production capacities, including wind power plants within trial regime, excluding the power plants on the territory of APKM is given in Figure 3-2. The share of the capacities within thermal power plants (TPP) and combined heat

and power plants (CHPs) amounts to 57.5%, while the hydro power plants (HPPs) connected to the transmission system cover 35.6%. One of them is a pumped-storage HPP with 2x307 MW capacity, which is very important for system operation, apart from covering an important energy share. The share of wind power plants connected to the transmission system amounts to 4.5%. 2.4% of installed capacities are covered by small power plants connected to the distribution system.

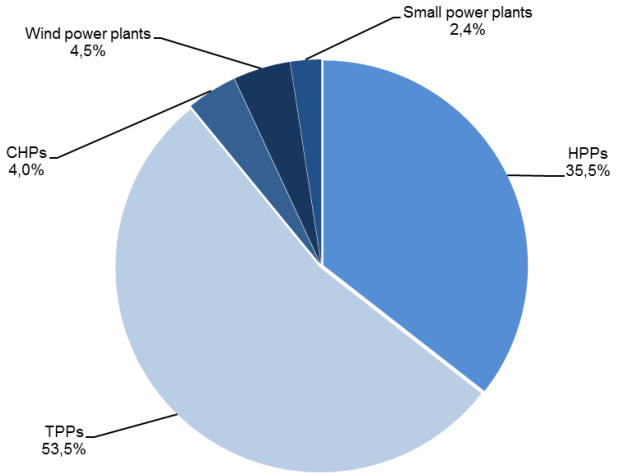

Figure 3-2: Production capacity structure in 2019 (without APKM)

Apart from PE *EPS* which is the biggest and the dominant electricity producer, the licence for the production of electricity is held by 25 energy entities, while the licence for combined heat and power production is also held by 7 energy entities (independent electricity producers) which own small production facilities connected to the distribution network. Out of all licenced independent producers, the biggest ones include "*ELECTRAWINDS K-WIND" d.o.o.* with a wind park *Kovačica* of 104.5 MW, "*ELECTRAWINDS-S" d*.o.o. with a wind park *Alibunar* of 42 MW, "*Naftna industrija Srbije*" JSC with 11.94 MW in 9 facilities, "*Vetropark Kula d.o.o."* (Windfarm Kula) with 9.9 MW, "*Novosadska toplana"* (Novi Sad District Heating Company) with combined production of 9.98 MW and "*ELECTRAWINDS MALI WF" d.o.o.* with a wind power plant in *Alibunar* of 8 MW.

3.1.2.2 Transmission

The transmission system, without a part of it on APKM, includes 34 transformer stations (TS) of voltage level of 400/x and 220/x kV/kV with installed capacity of 16,175 MVA (27 of them with installed capacity of 15,382 MVA owned by *EMS* JSC), 20 switching stations (12 of them owned by *EMS* JSC) and lines of voltage 400, 220 and 110 kV with total length of 10.003 km (9,822 km of overhead line owned by *EMS* JSC). In comparison to 2018, capacities within the transmission system of *EMS* JSC were increased by around 500 MVA because of an increased capacity in TSs owned by EMS and because of the construction of two new TSs owned by system users. In addition, four switching stations were constructed because of commissioning of wind power plants connected to the transmission system. The following TSs with voltage level of 110/x kV/kV are owned by EMS AD: TS 110/35 kV/kV Beograd 4, which will become a part of TS 220/110/35 kV/kV/kV Beograd Београд 17 within the reconstruction process, TS 110/35 kV/kV Sevojno and TS 110/6 kV/kV Obrenovac which serves to cover its own demand and the demand of TENT A thermal power plant and TS 400/220 kV/kV in Obrenovac.

The process of transfer of overhead lines and cables of 110 kV between *EMS* JSC and PE *EPS* which was initiated in line with the Law in 2013 is still ongoing. The procedure of taking over remaining overhead lines and cables of 110 kV which are still owned by DSO is continued and it is expected to be completed in 2020.

The transmission system of *EMS* JSC is connected with neighbouring power systems via 23 interconnectors of 400, 220 and 110 kV and 22 of them are active.

Table 3-2: Data on the transmission system of *EMS* JSC in the end of 2019 (without APKM)

Transmission system elements	**Unit**	
Network length, total	km	9,822
400 kV – network length	km	1,798
220 kV – network length	km	1,848
110 kV – network length	km	6,176
Number of transformers (including TS 110/x kV/kV owned by *EMS* JSC)		76
Number of transformer stations and switchgear plants (including 110 kV voltage level - owned by *EMS* JSC)		43
Number of (active) interconnections		23 (22)

3.1.2.3 Distribution

In 2019, electricity distribution and distribution system operation on the territory of the Republic of Serbia without APKM was performed by DSO *EPS Distribucija* which was established on July 1, 2015 as a PE *EPS* subsidy. The distribution system, without the territory of APKM, includes 37,113 transformer stations with total installed capacity of 31,888 MVA and 169,997 km of distribution lines of voltage level of 110, 35, 20, 10 and 0.4 kV, via which electricity is distributed to final customers.

There are 35,672 transformer stations owned by DSO with total installed capacity of 30,462 MVA and 163,380 km of distribution lines of all voltage levels. Their structure is indicated in Table 3-3. In line with the legal obligation, transformer stations of 110/x kV/kV were taken over from *EMS* JSC. As far as the lines of 110 kV, there is only the remaining overhead lines and cables to be transferred to *EMS* JSC.

Table 3-3: Length of lines owned by DSO in the end of 2019 (without APKM)

km

Voltage level	Data for distribution areas					Total DSO
	Novi Sad	Beograd	Kraljevo	Niš	Kragujevac	
110 kV	0	6	0	0	2	8
35 kV	1,025	951	2,226	1,747	729	6,687
20 kV	8,642	0	1,653	0	0	10,295
10 kV	426	6,923	12,432	9,528	4,138	33,447
0.4 kV	14,065	17,744	47,576	21,184	12,383	112,952
Total	**24,158**	**25,624**	**63,887**	**32,459**	**17,252**	**163,380**

3.2 Consumption and generation

Final consumers' electricity consumption (without power plants' demand for production purposes) amounted to 29 tWh which is only 0.03 TWh less than in 2018.

In the last ten years, as the dominant producer, PE *EPS* reached maximum power production level of almost 37.5 TWh in 2013. In 2019, in PE EPS production facilities, slightly more than 33.5 TWh of power were produced which is by 0.9 TWh less than in 2018. Production in coal-fired thermal power plants amounted to 23.17 TWh which is around 1% higher than last year. Due to unfavourable hydrological conditions during the whole of 2019, generation in hydro power plants was by 1.15 TW, i.e. 10.4% lower than in 2018. Combined heat and power production plants operated during wintertime and produced 337 TW, 41.6% more power than in 2018.

Generation of other producers has been increasing year by year. Other producers include small power plants connected to the distribution network where over 520 GWh of power were produced. Along with small power plants connected to the distribution network, other producers also include wind power plants connected to the transmission network. In addition to two wind power plants connected to the transmission system in the end of 2018, in the second half of 2019, additional two wind power plants were connected to the transmission system which operated under the trial regime during 2019. These four wind power plants produced around 830 GWh of power and therefore, in 2019, the production from power plants of other independent producers was over 450% higher than in 2018.

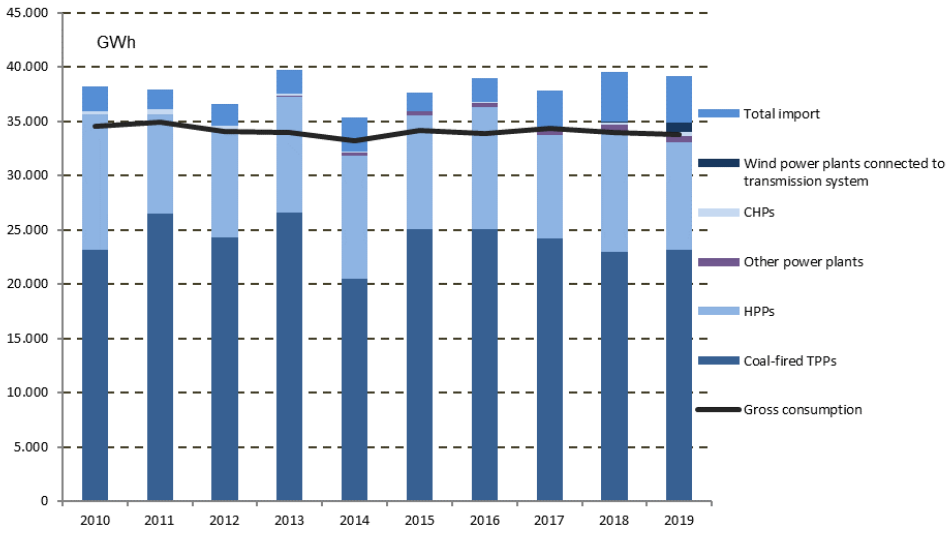

Figure 3-3: Production, import and gross consumption in Serbia in 2019 (without APKM)

In 2019, 34,832 GWh were produced in total in power plants in the Republic of Serbia. Out of that number, coal-fired thermal power plants produced 66.4%, hydro power plants connected to the transmission system 28.4%, combined heat and power plants 1%, wind power plants connected to the transmission system – 2.4% while other power plants (small power plants connected to the distribution system) produced 1.8% of the total electricity production.

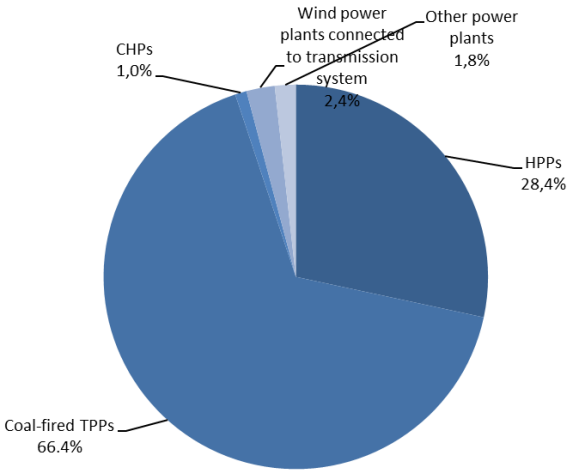

Figure 3-4: Generation structure in 2019 (without APKM)

Table 3-4: Electricity production and consumption in 2010 – 2019 (without APKM)

GWh

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
GENERATION										
Hydro power plants	12,420	9,145	9,808	10,729	11,366	10,529	11,227	9,477	11,031	9,884
Coal fired thermal power plants	23,162	26,462	24,275	26,537	20,455	25,017	25,016	24,240	22,954	23,169
Combined heat and power plants	222	408	390	167	63	45	90	185	238	337
Wind PPs connected to trans.sys.									85	830
Other power plants	61	46	73	104	267	321	448	538	642	612
Total generation	**35,865**	**36,061**	**34,546**	**37,537**	**32,151**	**35,912**	**36,781**	**34,441**	**34,950**	**34,832**
Other (UNMIK)	93	184	144	0	0	15	69	143	94	12
***EPS'* and of suppliers' import for the purpose of trade in Serbia**	**2,305**	**1,800**	**2,039**	**2,148**	**3,180**	**1,732**	**2,225**	3,397	4,582	4,280
TOTAL AVAILABLE QUANTITY	**38,263**	**38,045**	**36,729**	**39,685**	**35,331**	**37,659**	**39,075**	**37,981**	**39,626**	**39,124**
EPS' and suppliers' export – of power produced and purchased in Serbia	**2,559**	**2,064**	**1,592**	**4,475**	**1,021**	**2,142**	**3,578**	2,186	4,246	3,940
Pumping	1,049	860	875	1,007	902	1,102	1,034	944	1,070	1,102
Other (UNMIK)	145	199	196	207	180	300	445	458	313	275
Gross consumption	**34,509**	**34,928**	**34,059**	**34,000**	**33,228**	**34,115**	**34,018**	**34,320**	**33,997**	**33,807**
Transmission network losses	1,065	1,096	1,022	1,013	948	932	892	852	868	806
Distribution network losses	4,958	4,747	4,586	4,482	4,215	4,236	3,917	3,953	3,664	3,527
Total losses	**6,022**	**5,843**	**5,602**	**5,499**	**5,163**	**5,168**	4,808	**4,805**	**4,532**	**4,333**
Losses to gross consumption ratio	17.5%	16.7%	16.4%	16.2%	15.5%	15.4	14.1%	13.9%	13.3%	12.8%
Final consumption *	**28,487**	**29,085**	**28,457**	**28,501**	**28,065**	**28,947**	**29,210**	**29,515**	**29,465**	**29,474**

***** *In comparison to final consumption given in the balance sheet of the Statistical Office of the Republic of Serbia, final consumption in this Report also includes electricity consumption in all energy sectors, including energy purchased by power plants for production purposes.*

3.3 Regulation of the transmission system operator

The joint stock company *EMS* JSC is the transmission system operator (TSO) in the Republic of Serbia. It is responsible for electricity transmission and transmission system operation as well as for organisation and administration of electricity bilateral and balancing market. The following responsibilities of the TSO are regulated by the Law in detail. Namely, the TSO is obliged to provide: safe, reliable and secure operation of the transmission system, transmission system development,

adequate transmission capacity for the purpose of security of supply, quality of electricity delivery; non-discriminatory and transparent access to the transmission system, system balancing, accuracy and reliability of electricity metering on points of delivery into and from the transmission system, etc.

The most important activities of the transmission system operator in 2019 included the following:

- drafting ten-year transmission system development plan;
- amendments to the Transmission Network Code in order to harmonise it with the Law and an obligation to implement European network codes which was assumed under the Energy Community;
- amendments to the Rules on Publication of Key Market Data in order to harmonise them with the European Commission Regulation on Market Data Transparency which is implemented in our legal system via a Energy Community Ministerial Council decision;
- adoption of the rules for the cross-border transmission capacities allocation in 2020, general and bilateral ones with the transmission system operators of Hungary, Romania, Bulgaria, Macedonia, Bosnia and Herzegovina, Croatia and Montenegro;
- procurement of energy for the recovery of transmission network losses;
- system services contracting;
- monitoring security of supply and submission of the data which are to be incorporated into the report on security of energy supply to the ministry in charge of energy;
- setting electricity prices for the purpose of system balancing, in line with the Electricity Market Rules and regular publication of the data on active balancing energy and the settlement price;
- collecting and publishing the data and information related to electricity market transparency and monitoring;
- exchanging information necessary for safe and secure operations of the system with other system operators;
- activities related to the issuance of guarantees of origin;
- activities related to the transfer of remaining tranformer station 110/x kV/kV to the distribution system operator *EPS Distribucija* and takeover of remaining 110 kV overhead lines and cable lines;
- submission of the data and documentation necessary for monitoring transmission system operator's operations and price regulation to the Agency and
- other activities which improve the security, efficiency and transparency in the operations of the transmission system and market functioning.

Transmission Network Code

Transmission Network Code regulates technical aspects of transmission network operations and relations between *EMS* JSC as the transmission system operator and system users. The Code is available on websites of both *EMS* JSC and the Agency. The enforcement of the Network Code began in May 2008, upon the approval of the Council of the Agency of the first draft of the code. Upon an amendment in December 2011, Code was adopted in July 2014. Following the adoption of the new Energy Law that year, on the session held on November 3, 2015, the Agency Council adopted a decision on the approval of the Transmission Network Code harmonised with this Law. During 2017, basic amendments were made to the Code due to corporatisation of the public enterprise and its transfer into closed joint stock company. Id mid December 2017, the Agency Council approved the new Code. Simultaneously, amendments to the Code were in preparation in order to harmonise it with European network codes, guidelines and instructions. In the first half of 2018, EMS JSC prepared a Code draft which was under public consultation from June 4 till June 29, 2018. Taking into account comments from the public consultation, EMS JSC prepared a new Code draft which was adopted by the EMS JSC Assembly on the session held on December 27, 2018. The draft was submitted to the Agency for approval purposes. Upon the analysis of the submitted Code draft, the Agency Council adopted a decision to require certain Code amendments. By the end of 2019, EMS JSC was working on the new Code draft.

3.3.1 Unbundling of the Transmission System Operator

A very important element of market reforms was achieved by unbundling network activity – electricity transmission as natural monopoly from production and supply which are market activities.

Since 2005, the transmission system operator - PE *Elektromreža Srbije* has been an independent legal entity, legally and functionally unbundled from energy entities operating in the field of power production and supply. In 2016, this public enterprise was corporativised and since that moment, it has been functioning as a closed joint stock company.

In line with the EU regulations, the 2014 Law established the model of the so-called ownership unbundling of the transmission system operator and the deadlines for its implementation. In line with the prescribed model, the independence of the transmission system operator is realised by not having the same person or persons authorised to exercise direct or indirect control over energy entities performing production or supply and over the transmissions system operator at the same time. In addition, this(ese) person(s) is(are) not simultaneously authorised to be a member(s) or to appoint the members of the management body within the transmission system operator and energy entities dealing in electricity production or supply. In case when this person is actually the Republic of Serbia or a state body, the control over the transmission system operator and over energy entities in charge of production and supply, the control over the transmission system operator and over entities in charge of production and supply cannot be exercised by the same state body. When separate state bodies exercise the control, these bodies cannot be controlled by the same third party.

The compliance with the conditions for the implementation of the ownership model of unbundling of the transmission system operator which is prescribed by the law is examined within the certification procedure which is implemented by the Agency.

The ruling legal ground imposes that only after a legal person is certified as a transmission system operator, the person may submit an application for the issuance of an energy licence for transmission and transmission system operation to the Agency. In line with the Law, this legal person is appointed as an electricity transmission system operator by the issuance of the licence.

Acting within a deadline prescribed by the law, in October 2016, EMS JSC submitted a certification application to the Agency. Following the certification procedure which implies the adoption of a preliminary decision on certification in the first place (by the Decision of the Agency Council of January 26, 2017, when EMS JSC was preliminarily certified as an electricity transmission system operator), obtaining the opinion of the Energy Community Secretariat (the Energy Community Secretariat submitted its opinion to the Agency on June 16, 2017), by the Decision of the Agency Council of August 4, 2017, in line with the Energy Law and the Rulebook for Energy Licence and Certification, a final certificate was issued to the Joint Stock Company "Elektromreža Srbije" Beograd as to an electricity transmission system operator.

Following the adoption of the certification decision, on December 8, 2017, the Agency Council issued a licence to the Joint Stock Company "Elektromreža Srbije" Beograd for the performance of electricity transmission and transmission system operation. Acting in line with the jurisdiction arising from the Energy Law, on September 20, 2017, the Energy Community Secretariat submitted a request for the initiation of a certification procedure to assess the compliance of EMS JSC with the unbundling criteria again.

Considering the given request, following the issuance of an opinion of the Ministry of Mining and Energy, Ministry of Economy, Ministry of State Administration and Local Self-Government and the Republic Legislation Secretariat stating that the ministries are independent in their activities and working within the Constitution of the Republic of Serbia and based on it, based on the law and other regulations and general acts and stating that one ministry cannot supervise the work of another ministry, on April 26, 2018, the Agency informed the EnC Secretariat that the Agency considered the final decision valid and that the request for the initiation of a new certification procedure for EMS JSC was not justified. It was not justified since there is neither mutual influence in the work of the ministry in charge of economic affairs and the ministry in charge of energy issues, nor the Government over the work of ministries, and therefore, there is no unique control over the transmission system operator on one hand and over energy entities operating in the field of electricity production and supply on the other hand.

3.3.2 Price regulation

3.3.2.1 Costs of connection to the system

The costs of connection to the system are set by the TSO on the basis of elements given in the connection application and the Methodology for Setting Costs of Connection to the Electricity Transmission and Distribution Systems ("Official Gazette of RS", No. 109/15; valid as of 01/03/2016) which is adopted by the Agency. The Methodology defines types of costs: collection of documentation, procurement and installment of equipment and material, works, the manner of calculation of all costs. In addition, the TSO is obliged to adopt certain standards and to use market prices, i.e. prices of work and services when setting costs of connection in their decision on connection.

Since connections to the transmission system cannot be standardized and since each of them is a project of its own, TSO is obliged to comply with principles of transparency and non-discrimination and to inform the applicant, upon his/her request, on the documents which serve as the basis for setting the level of connection costs and the method for setting these costs.

Except for paying for the construction of the connection, the applicant is obliged to pay defined set of costs arising from the connection of the applicant's facility to the system.

TSO is the investor, i.e. the owner of the constructed facility (of the connection line, metering equipment and other equipment, up to the metering point within the customer's facility).

In line with the Law, *EMS* JSC also adopted the Procedure for Connection of Facilities to Transmission System which was approved by the Agency. This procedure regulates the schedule of TSO's activities and the connection applicant in more detail and the deadlines in the procedure of facility connection to the transmission system.

3.3.2.2 Use-of-system charge

Upon the positive assessment of the Council of the Agency and the approval of the Government of the Republic of Serbia, regulated electricity transmission use-of-system charges were applied on January 1, 2008 for the first time. Since then, they have been modified six times. The last time they were modified was on November 1, 2019. In the first ten months of 2019, tariffs approved on March 1, 2017 were applied, while the tariffs approved on November 1, 2019 were applied during November and December.

The trend of the annual level of approved electricity transmission use-of-system charges (VAT and duties free) are given in the table below:

Table 3-5: Trend of annual level of average approved transmission use-of-system charges[2]

RSD/kWh

	Annual level of approved charge						
	as of 01/01/2008	as of 01/08/2008	as of 01/03/2010	as of 01/04/2011	as of 01/03/2013	as of 01/03/2017	as of 01/112019
Total electricity transmission use-of-system charge	0.23	0.25	0.28	0.34	0.44	0.49	0.50
Net electricity transmission use-of-system charge *	0.10	0.10	0.11	0.17	0.18	0.28	0.29

** Net electricity transmission use-of-system charge is calculated by reducing the total maximum allowed revenue by system services costs and loss recoveries in the transmission grid and dividing it with the total annual delivered electricity quantities.*

The charges applicable in 2019 are listed in Table 3-6.

Table 3-6: Transmission use-of-system charges valid as of 01/03/2017 and as of 01/11/2019

RSD

Tariff element	Calculation element	Unit	Charge as of 01/03/2017	Charge as of 01/11/2019
Power	Accounting power	kW	45.1823	48.0148
	Extra power	kW	180.7292	192.0592
Active energy	Higher day-time	kWh	0.3719	0.3822
	Lower day-time	kWh	0.1859	0.1911
Reactive energy	Reactive energy	kvarh	0.1783	0.1942
	Extra reactive energy	kvarh	0.3566	0.3885

During 2019, the Agency Council adopted a decision on amendment to the Methodology for Setting Electricity Transmission Use-of-System Charge, where, in chapter IV, SETTING MAXIMUM ALLOWED REVENUE, Section IV.2 Calculation of Maximum Allowed Revenue, Subsection IV.2.1 Operational Costs, modification of calculation of regulatory fee was made.

The current transmission use-of-system charge is available on the Agency website (www.aers.rs).

In 2019, by the application of ruling charges to actual tariff elements, average transmission use-of-system charge (VAT and duties free) was realised. It amounted to 0.49 RSD/kWh.

Table 3-7: Average transmission use-of-system charges

RSD /kWh

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Realised transmission use-of-system charges	0.28	0.33	0.35	0.42	0.43	0.43	0.43	0.48	0.49	0.49

Transmission use-of-system charges (VAT and duties free) in European countries and their structure are given in line with 2019 ENTSO-E data in the Figure 3-5.

[2] Terms related to prices used in the Report include the annual price level and average price. The annual price level represents the quotient of the revenue arising by the application of ruling tariffs on a certain date to annual quantities and other tariff elements used in the process of tariff approval. The average price represents the quotient of the realized revenue and realized quantities over a period of one year. If there were no changes in prices over a one-year period, these two prices should be similar, i.e. there should be only small difference between realized quantities and tariff elements compared to the planned ones which are used in the process of price approval.

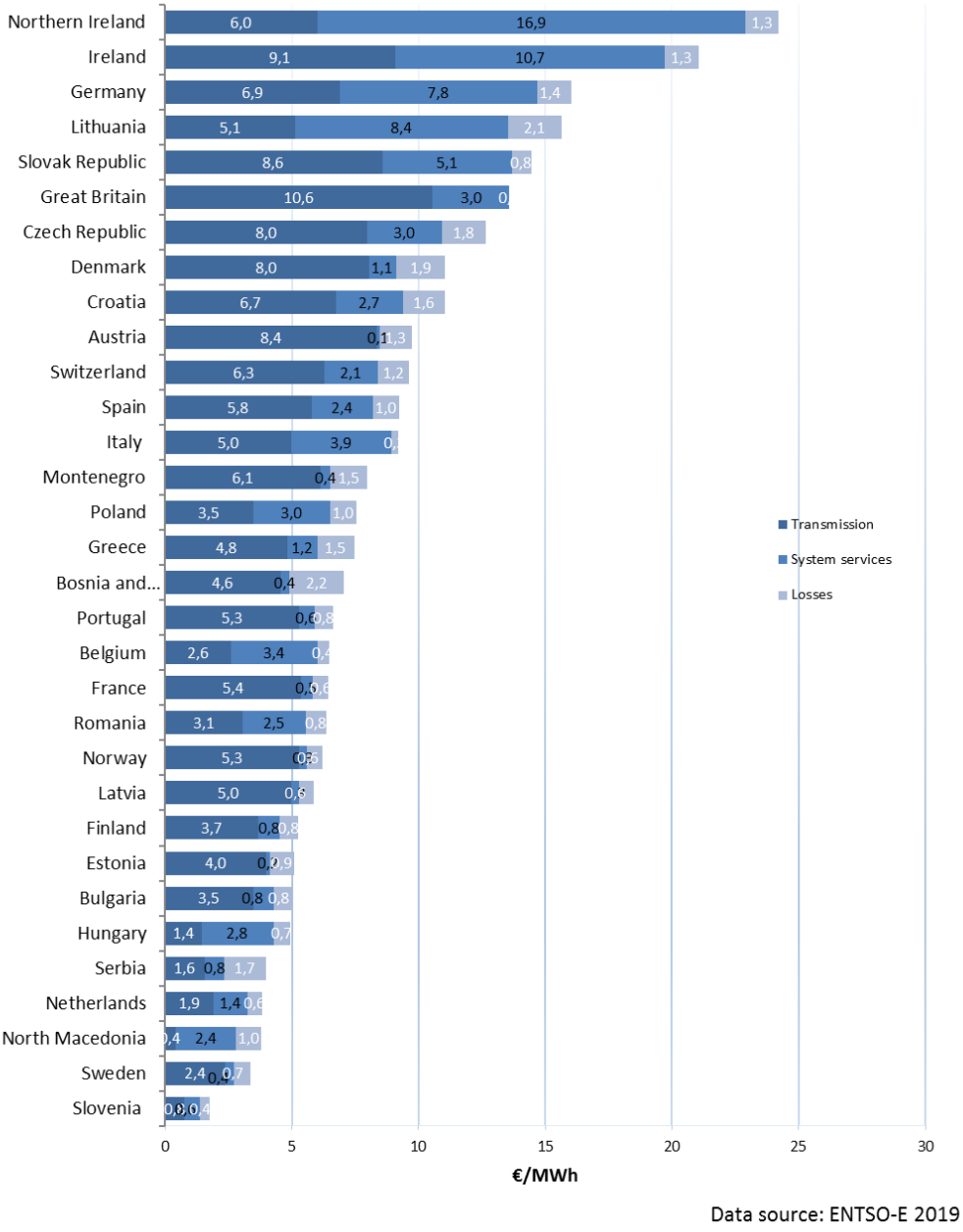

Figure 3-5: Transmission use-of-system charge (€/MWh) in 2019

3.3.2.3 Prices of secondary and tertiary control reserve

The Electricity Transmission Network Code defines that the level of capacity which has to be reserved for the purpose of system service - primary control is set in line with Rules on interconnection operations, that the range of secondary control capacity amounts to 160 MW and that tertiary control capacity amounts to 300 MW for positive and 150 MW for negative reserve. It also defines that the whole reserved capacity has to be provided from production units connected to the local transmission system.

The Electricity Transmission Network Code defines the manner how production units connected to the local transmission system provide these services as well as the ability of the system operator to engage the missing capacity or procure energy for system services purposes from other electricity market participants (suppliers and wholesale suppliers) or from the operator of another transmission system.

Usually, the Agency adopts Decision on Prices of Capacity Reserve for System Services of Secondary and Tertiary Control in the end of each calendar year. The price of these system services are set in line with the mechanism of compensation of the value of the undelivered electricity in the electricity market due to capacity reserve for these purposes. The energy which producers cannot place in the market freely due to capacity reserve for the purpose of secondary and tertiary control is set on the basis of the data from the energy balance sheet and the data on the engagement of these capacities in the previous period.

The price which is used as the basis for the calculation of the revenue lost due to capacity reservation for the purpose of secondary and tertiary control is set on the basis of realised average market prices of annual futures[3] for continuous production, i.e. consumption (baseload) on relevant electricity exchanges.

The prices of 2019 capacity reserve for the purpose of secondary control were set on the level of 1,216 RSD/MW and of tertiary control of 375 RSD/MW in case capacity was supposed to be increased. The service of tertiary control in case capacity is supposed to be reduced is free of charge. Prices of reserved capacity for system services of secondary and tertiary control in terms of increase of capacity for 2020 were not set in 2019 but in the beginning of 2020.

Primary control is not charged.

3.3.2.4 Prices of ancillary services

Beside setting prices of system services, the Agency also sets the prices of ancillary services (voltage regulation and reactive power control and black start) which are provided to the transmission system operator by producers whose facilities are connected to the power system. These prices are set on the annual level as the lump sum based on the value of the investment equipment in power plants used for these purposes. For 2019, the prices of ancillary services for the voltage regulation and reactive power amounting to RSD 134,430,000 and for the service of black start amounting to RSD 8,323,000 were set. They are billed in equal monthly installments set as one twelfth of the given amount. The prices of ancillary services (voltage and reactive power control and black start) for 2020 were not established in the end of 2019 but in early 2020.

Total allowed annual levels for the provision of system and ancillary services in the period from 2015 until 2019 are indicated in Table 3-8.

Table 3-8: Total annual level for the provision of system and ancillary services

000 RSD

Year	2015	2016	2017	2018	2019
Total annual value	2,547,037	2,625,261	2,746,403	2,822,709	3,583,388

3.3.2.5 Prices of Non-Standard Services

The Law prescribes that in addition to providing services to customers and system users which are charged via use-of-system charge or via connection costs, upon a customer's, i.e. system user's request, the transmission system operator also provides services which are not included in the above stated prices. In addition, the operator provides services when necessary in order to remove the consequences arising from a customer's or system user's acts which are contrary to regulations. Since these services are individual and occurring from occasionally upon a customer's or system user's request, they are called non-standard services. In order to compensate the costs arising from the provision of these services, EMS JSC established a price list for non-standard services which was approved by the Agency Council in August 2017. The list classifies non-standard services and establishes unit prices. These prices have not been modified and, for this reason, they were applied in 2019 as well.

3.3.3 Access to cross-border capacities

3.3.3.1 Cross-border capacity allocation and combustion management

The Republic of Serbia borders with eight countries and there are twelve interconnection overhead lines (400kV and 220kV) where *EMS* JSC allocates the rights to use transmission capacities. On the Serbian-Hungarian border since 2011, Serbian-Romanian border since 2013, Serbian-Bulgarian and Serbian-Croatian since 2014, on Serbian-Bosnian and Herzegovinian border since 2014 and on Serbian – North Macedonian border since 2017, joint explicit auctions have been organised for the allocation of 100% of available capacity. On the borders with Albania and Montenegro, *EMS* JSC and neighbouring transmission system operators allocate 50% of cross-border transmission capacities each. Since 2018, Joint Auction Office S.A. from Luxembourg has been organizing coordinated cross-border capacity allocation on the Serbian – Croatian border. Since 2019, this has been the case with the Serbian – Bulgarian border as well.

Rules for the cross-border transmission capacity allocation

Being the TSO, *EMS* JSC is responsible for the allocation of rights to use available cross-border transmission capacities on interconnection lines of the Serbian power system. The mechanism for the allocation of rights to use available cross-border transmission capacities is defined by the Transmission Network Code, the agreements between the transmission system

[3] Futures – purchase and sale in organized electricity market (exchange) for a future period/date.

operator of the Republic of Serbia and the transmission system operators of Hungary, Romania, Bulgaria, Bosnia and Herzegovina, Croatia and North Macedonia on the procedure and method of allocation of cross-border capacities and access to cross-border transmission capacities and general Rules for Available Cross-Border Transfer Capacities Allocation on Borders of Control Area of Republic of Serbia. The rules and agreements which were applicable in 2019 were approved by the Agency Council in the end of 2018.

Cross-border capacity allocation

Being the TSO, *EMS* JSC is responsible for the calculation, allocation and use of cross-border transmission capacities on all borders of the control area of the Republic of Serbia. More details on the cross-border capacity allocation are available on the website of the Transmission System Operator (www.*EMS*.rs). The right to participate on cross-border capacity allocation auctions is held by market players holding licence for electricity wholesale supply or electricity supply and having a contract signed with EMS JSC on balancing responsibility.

Tables 3-9 and 3-10 indicate average monthly amounts of net cross-border transmission capacities (NTC) on all borders in both directions.

Table 3-9: Average monthly level of NTS for entry into Serbia in 2019

MW

Border/months	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Hun---> Ser	700	700	700	700	700	700	648	700	543	700	686	700
Rom---> Ser	600	500	324	426	400	383	416	288	371	329	358	400
Bul ---> Ser	300	300	300	350	350	350	350	350	256	304	350	350
Mac---> Ser	420	420	450	406	450	456	500	480	380	500	450	500
Alb---> Ser	250	250	193	189	210	210	210	210	188	250	250	250
Mon---> Ser	600	500	641	406	554	700	700	654	423	600	625	550
BosHer--- Ser	600	600	600	600	572	600	479	500	278	400	600	600
Cro---> Ser	600	550	193	340	572	580	495	600	278	400	600	600

Table 3-10: Average monthly level of NTS for exit from Serbia in 2019

MW

Border/months	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Ser --->Hun	800	800	800	800	500	783	706	800	693	800	783	800
Ser --->Rom	800	800	751	773	359	566	603	530	451	506	775	700
Ser --->Bul	250	250	250	300	300	300	300	300	220	261	300	300
Ser --->Mac	600	600	619	700	600	470	500	445	358	461	546	600
Ser --->Alb	250	250	193	189	210	210	210	210	177	145	250	250
Ser --->Mon	600	600	654	700	680	513	577	493	331	241	625	700
Ser --->BosHer	600	450	500	591	461	543	438	393	600	600	600	400
Ser --->Cro	600	600	161	323	461	523	585	393	600	600	600	600

In 2019, *EMS* JSC organised explicit auctions on cross-border transmission capacities on all borders and in all directions of the control area of the Republic of Serbia.

In 2019, in line with the Rules for the Cross-Border Transmission Capacity Allocation, *EMS* JSC allocated 50% of the available capacity on the annual and monthly level, by organizing explicit auctions on the following borders: Serbia-Albania and Serbia-Montenegro. In case of congestion, reservation was charged at marginal price. The allocation of the other half of transmission capacity quantities was organised by the transmission system operators of neighbouring countries. *EMS* JSC also organised intraday allocation of cross-border transmission capacity on these borders by the method „first come – first served“ (in line with the application time).

In 2019, the right to participate in the auctions on 50% of available capacity was on disposal of 50 market players. 25 of them actively participated in the auctions. Annual auctions were held only on the border with Montenegro, with 13 participants on the auction with marginal price of 0.65 EUR/MWh in the direction Montenegro – Serbia and15 participants on the auction with marginal price of 0.41 EUR/MWh in the direction Serbia – Montenegro. The auctions on the borders with Albania were not organised since it was not possible to guarantee annual capacity in case KOSTT area is established. Monthly allocations were organized for each month of 2019 on the borders with Montenegro and Albania. The data on the given annual auctions are given in Table 3-11. Weekly explicit auctions were organized only on Serbian – Montenegrin border using the “marginal price” charging method.

Table 3-11: Data on realised monthly auctions for the allocation of 50% of available cross-border transmission capacity in 2019

Border – direction	No. of days with "0" capacity	Number of congestions/total number of auctions	Number of participants in auctions (min.-max.)	Range of marginal prices in case of congestion EUR/MWh
Alb-Srb	5	16 / 18	6 - 12	0.07 – 0.51
Mon- Srb	0	22 / 23	9 - 14	0.03 – 1.01
Srb -Alb	5	20 / 22	9 - 14	0.21 – 5.51
Srb -Mon	0	31 / 31	10 - 15	0.06 – 5.00

In 2019, *EMS* JSC organised daily explicit auctions for the allocation of 100% available capacity on the Serbian-Hungarian border charging in line with the last successful price ("marginal price") as well as intraday auctions by the application of the method „first come-first served". The Hungarian transmission system operator MAVIR ZRt. realised the allocation of available capacity on annual and monthly level, charging in line with the last successful price ("marginal price"). There were 36 participants on all auctions organised by *EMS* JSC while there were 56 of them entitled to participate.

For the allocation of 100% of available capacity on Serbian-Romanian border, *EMS* JSC organised explicit auctions charging in line with the last successful price ("marginal price"), while the Romanian transmission system operator CNTEE Transelectrica S.A. realised the allocation of the available annual and monthly capacity on daily level charging in line with the last successful price ("marginal price"), as well as on the intraday level, by organizing explicit auctions (6 4-hour sessions). There were 17 participants on all auctions organised by *EMS* JSC, while there were 48 of them entitled to participate.

In 2019, Joint Auction Office JAO S.A. was responsible for the organisation of annual, monthly and daily explicit auctions on Serbian – Croatian and Serbian – Bulgarian border applying the "marginal price" charging method. EMS JSC organised available capacity allocation on intraday level only on Serbian – Croatian border by method "first come-first served" and there were 12 participants involved out of 41 entitled participants. On the Serbian – Bulgarian border, intraday cross-border capacity allocation was not organised due to technical problems that the Bulgarian transmission system operator was facing.

In 2019, EMS JSC organised annual and monthly explicit auctions for the allocation of 100% of available capacity on Serbian-Bosnian and Herzegovinian border charging in line with the last successful price ("marginal price"), and the same method was used by the Bosnia and Herzegovina transmission system operator (NOSBIH) which organised daily auctions. NOSBIH also organised intraday auctions by using the method „first come-first served". There were 17 participants in the auctions organised by *EMS* JSC while there were 46 of them entitled to participate.

The North Macedonian Transmission System Operator MEPSO organised annual and monthly auctions for the allocation of 100% of available capacity on the North Macedonian border in line with the "marginal price" charging method. EMS JSC organised the allocation of available capacity on daily level in line with the "marginal price" charging method and on intraday level in line with "first come-first served" charging method. There were 23 participants involved in the capacity allocation organised by EMS JSC out of 45 entitled participants.

The data on the joint annual auctions for 2019 are given in Table 3-12.

Table 3-12: Data on joint annual auctions for the allocation of cross-border transmission capacities in 2019

Border – direction	Number of auction participants entitled to capacity	Marginal price (EUR/MWh)
Hungary – Serbia*	13	0.51
Serbia – Hungary*	12	0.74
Romania – Serbia*	9	2.97
Serbia – Romania	9	0.07
Bulgaria – Serbia**	7	8.48
Serbia – Bulgaria**	11	0.27
Croatia – Serbia**	7	0.22
Serbia – Croatia**	9	0.45
BiH - Serbia	8	0.16
Serbia - BiH	6	0.06
North Macedonia – Serbia*	9	0.80
Serbia – North Macedonia**	10	0.70

** Data gathered from the neighbouring transmission system operator*

*** Data gathered from the JAO S.A.*

The data on joint monthly auctions in 2019 are given in Table 3-13.

Table 3-13: Data on joint monthly auctions for the allocation of cross-border transmission capacities in 2019

Border – direction	No. of days with "0" capacity	Number of congestions/total number of auctions	Number of participants in auctions entitled to capacity (min.-max.)	Range of marginal prices EUR/MWh
Hungary – Serbia*	3	12 / 12	8 – 17	0.23 – 1.31
Serbia – Hungary*	3	12 / 12	11 – 17	0.12 – 0.57
Romania – Serbia*	4	54 / 55	4 – 10	0.15 – 2.49
Serbia – Romania*	4	46 / 47	6 – 12	0.01 – 0.56
Bulgaria – Serbia**	12	12 / 12	8 – 16	0.26 – 4.31
Serbia – Bulgaria**	12	12 / 12	6 – 12	0.16 – 1.11
Croatia – Serbia**	35	12 / 12	7 – 16	0.19 – 0.51
Serbia – Croatia**	35	12 / 12	6 – 14	0.07 – 0.48
BiH - Serbia	0	19 / 19	5 – 13	0.05 – 0.50
Serbia - BiH	0	25 / 27	5 - 14	0.01 – 0.11
North Macedonia – Serbia*	0	13 / 18	6 – 14	0.10 – 0.90
Serbia – North Macedonia*	0	27 / 27	3 - 17	0.10 – 4.70

** Data gathered from the neighbouring transmission system operator*

*** Data gathered from the JAO S.A.*

In the end of 2019, EMS JSC concluded agreements on the organization of common allocation/auctions for 2020 with those neighbouring transmission system operators that had them organized in 2019 as well. In addition, agreement was signed with the Transmission System Operator of Montenegro. The Council of the Agency approved all these agreements by the end of the year.

3.3.3.2 Annual exchange within and across the borders of control areas

The total scale of cross-border transactions in 2019 (with APKM) amounted to 17,331 GWh – entrance, i.e. 16,868 GWh – exit from the market area of Serbia. The scale of internal transactions[4] amounted to 20,788 GWh. Table 3-14 indicates the scale of nominated and confirmed internal and cross-border transactions in the period 2010-2019.

Table 3-14: Cross-border and internal transactions in the market area of Serbia 2010 - 2019

GWh

Year	Cross-border transactions – entry	Cross-border transactions – exit	Internal transactions
2010	10,551	11,581	5,835
2011	11,171	11,481	10,004
2012	10,781	10,769	7,815
2013	10,094	13,939	11,711
2014	16,637	14,416	11,574
2015	16,165	16,910	9,835
2016	15,526	17,844	15,633
2017	19,133	17,822	15,865
2018	17,350	16,837	20,536
2019	17,331	16,868	20,788

In comparison to the previous year, in 2019, cross-border exchange in entry and exit direction differs slightly. The scale of internal exchange was slightly increased in comparison to last year thanks to increased electricity trade in the organised market in Serbia. Apart from the transactions indicated in Table 3-14, a segment of cross-border exchange was realised via island operations of distribution system of Serbia and Bosnia and Herzegovina, amounting to 62.56 GWh in direction from Serbia towards Bosnia and Herzegovina and 1.03 GWh in the opposite direction.

Table 3-15 indicates the scale of cross-border transactions for each border for 2019.

[4] Bilateral trade between two balancing responsible parties in Serbia

Table 3-15: Entry and exit nominated cross-border transactions for each border for 2019

GWh

Border with	Entry into Serbia	Exit from Serbia
Romania	1,652	1,663
Bulgaria	1,671	1,042
North Macedonia	2,022	3,955
Montenegro	379	1,618
Albania	1,084	1,820
BiH	2,938	1,522
Croatia	1,802	1,108
Hungary	5,783	4,140
On all borders	**17,331**	**16,868**

3.3.3.3 Use of revenue arising from the cross-border capacity allocation

In 2019, *EMS* JSC generated revenue from capacity allocation amounting to over €23 million in line with the following structure:

Table 3-16: Revenue from cross-border capacity allocation in 2019

Allocation	Revenue (€)
Annual	11,431,668
Monthly	9,815,648
Daily	2,447,882
Total	23,695,198

In line with the Regulation (EU) 714/2009, revenues of TSO arising from the cross-border capacity allocation are a part of the total revenue. Therefore, they were used for financing investments in the transmission system as one of sources of funds in order to maintain and increase cross-border transmission capacities in order to reduce congestion.

3.3.4 Transmitted electricity quantities

Table 3-17 indicates the transmitted electricity quantities and transmission system losses in 2019 in comparison to the quantities planned for 2019 in the balance sheet. In comparison the balance sheet planned data, transmitted energy quantities were by around 4% lower while the losses were around 7% lower than the planned ones.

Table 3-17: Basic indicators of transmission plan realisation (without APKM)

	2019		
	Balance	Realised	Real./Bal.
Entry (GWh)	41,179	39,640	96.26
Losses (GWh)	900	806	89.55
Losses (%)	2.19%	2.03%	92.69
Exit (GWh)	40,279	38,834	96.41

Realised physical electricity transit in 2019, calculated as a lower value of average hourly electricity which was withdrew into or out of the transmission system via interconnection overhead lines amounted to 4,281 GWh. The physical transit per month is indicated in table 3-18.

Table 3-18: Electricity transit by months of 2019 (physical flows)

Month	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Transit (GWh)	300	425	244	479	405	393	317	346	281	286	432	373

On a part of the system without APKM, 39,640 GWh of electricity were withdrawn in total. Out of the number, 33,390 GWh were withdrawn from hydro power plants, thermal power plants and combined heat and power production plants connected to the transmission system, 830 GWh were withdrawn from wind power plants connected to the transmission system, 5,177 GWh were withdrawn from neighbouring systems, while 238 GWh were withdrawn from the APKM territory. Since the production of power plants connected to the distribution system exceeded the demand in these parts of the distribution system, around 5 GWh of electricity was withdrawn from the distribution system. The greatest share of energy which was withdrawn was delivered to electricity distribution systems, final customers, neighbouring system and pumped-storage plants for pumping purposes respectively.

Table 3-19: Transmitted energy, maximum load and losses (without APKM)

	Unit	2018	2019	2019/2018
Transmitted electricity	GWh	40,715	39,640	97.4
Maximum daily gross consumption	GWh	127.42	121.47	95.3
Maximum hourly load	MW	5,805	5,472	94.3
Transmission system losses	GWh	868	806	92.9
Transmission system losses (as % of transmitted electricity)	%	2.13	2.03	95.3

In 2019, without APKM, electricity losses in the transmission system of Serbia amounted to 806 GWh, which represents 2.03% of electricity withdrawn into the transmission system. The Transmission System Operator (EMS JSC) purchased electricity to cover losses via auction platform and in an organised day-ahead electricity market in Serbia (SEEPEX) during 2019. In a bilateral market, they purchased 70.60% and in SEEPEX 29.40% of electricity to cover losses in the transmission system. EMS JSC compensated for disbalance between calculated and planned losses in the electricity balancing market.

Electricity consumption in Serbia, but in the region as well, depends on the season. Therefore, maximum consumption is seen in wintertime at lowest temperatures or on days prior to holidays. During the first and last quarter of 2019, in Serbia, without APKM, average daily consumption which greatly depends on the average daily temperature amounted to 100,836 MWh. The highest daily gross consumption amounted to 121,468 MWh on January 10, 2019. On the same day at 6 p.m., maximum 2019 hourly load was reached – 5,472 MW.

3.4 Regulation of the distribution system operator

On July 1, 2015, by the reorganization of PE *EPS*, a specific daughter company Distribution System Operator "*EPS Distribucija*" (DSO) was established and it continued performing the activity of electricity distribution and distribution system operation on the territory of Serbia without APKM. The Law regulated in detail the DSO responsibility to provide: safe and reliable distribution system operations and the quality of electricity delivery, distribution system development, non-discriminatory and transparent access to the distribution system, support to efficient market functioning, accuracy and reliability of electricity measurements on delivery points from and into the distribution system and quality of electricity delivery.

The most important activities of the distribution system operator in 2019 which provided the compliance of its work with the commitments arising from the Law and electricity market functioning were as follows:

- organisational changes in order to provide for efficient operation of a single distribution system operator;
- drafting the five years' distribution system development plan, three-year investment plan and harmonisation with the transmission system development and investment plans and applications for the connection of facilities of producers and customers which are not completed and not submitted to the Agency for approval;
- drafting a plan for metering points and accompanying equipment (connections) transfer;
- cooperation with *EMS* JSC and suppliers on the provision of data related to market functioning and balancing responsibility;
- submission of the data and documents necessary for monitoring operator's work and for the analysis of the data necessary for price regulation to the Agency;
- submission of the data which are to be incorporated into the report on security of energy supply to the ministry in charge of energy;
- takeover of transformer stations 110/x kV/kV from *EMS* JSC and transferring the lines 110kV to *EMS* JSC;
- procurement of energy meant for distribution grid loss recovery and
- other activities which improve the security, efficiency and transparency of the distribution system operations as well as market functioning.

By the end of 2020, the DSO is obliged by the Law to take over metering devices, switchboards, connection lines, installations and equipment in the switchboard and other devices within the connection in the facilities of existing customers

or producers since these devices and equipment are part of the distribution system. The plan is supposed to be drafted upon making an analysis of the situation with metering devices, switchboards, connection lines, installation and equipment in the switchboard and upon determining the necessity to replace them or adjust them to the requirements stipulated by technical regulations and distribution system code. The plan which was submitted to the Agency in 2019 was approved by the Agency Council.

Distribution Network Code

The Distribution Network Code regulates technical conditions for connection of customers to the system, technical and other conditions for safe operation of the distribution system and for the provision of reliable and continuous delivery of electricity to customers, procedures in case of crisis, rules on third party access to the distribution system, functional requirements and the category of measuring devices, electricity measuring method and other conditions. Following its establishment in the second half of 2015, The DSO started drafting the Code in the second half of 2015. In the period between July 2016 and July 2017, working teams of the DSO and the Agency were harmonizing the Code text, public consultations were organized on the Code. On the session held on July 19, 2017, the Agency Council approved the Code and it came into force on August 1, 2017. In 2018, amendments to the Code which served to remove noticed technical errors were prepared. In the beginning of 2019, the amendments were submitted to the Agency for approval. On the session held on March 1, 2019, the Agency Council approved the proposed amendments.

3.4.1 Unbundling of DSO

By unbundling of network activity – electricity distribution as a natural monopoly from production and supply which are market activities, a very important element of market reforms is reached.

Electricity distribution on the territory of the Republic of Serbia is performed by one subsidiary company Distribution System Operator EPS Distribucija d.o.o. Beograd as a part of a vertically-integrated company PE EPS. The Distribution System Operator which is a part of a vertically integrated company has to be independent in terms of the legal form, organization and decision-making process from other activities which are not connected to the electricity distribution activity.

In line with the Law (Article 131), the independence of the distribution system operator is provided by having persons responsible for the management of the distribution system operator restricted from participation in management bodies of the vertically-integrated company which are directly or indirectly responsible for electricity production, transmission or supply, as well as by taking measures which ensure that the persons responsible for the management of the distribution system operator act in a professional manner in order to provide for their independence during work. In addition, the distribution system operator is supposed to adopt decisions independently from the vertically-integrated company if these relate to funds necessary for the network operation, maintenance and development, as well as to current operation, i.e. decisions on the construction or upgrade within the distribution network if they comply with the approved financial plan.

Pursuant to the Law (Article 132), a Distribution System Operator which is a part of a vertically-integrated company is obliged to adopt the Compliance Programme for Non-Discriminatory Treatment which includes measures for the prevention of discriminatory behaviour, the method of monitoring the implementation of these measures and obligations of employees to achieve set goals. (The Agency Council approved the DSO Compliance Programme by its decision from June 2016). The approval is given conditionally with the “EPS Distribucija” d.o.o. Beograd Distribution System Operator’s obligation to, within the foundation act, inform the Energy Agency on the achieved independence of the distribution system operator prescribed by the provisions of the law regulating the legal position of public enterprises and other organisational forms which perform activities of general interest.

The Distribution System Operator is also obliged to appoint a compliance officer. (In June 2016, the Agency gave approval of conditions for the appointment and duration of term of a compliance monitoring officer, as well as the approval of the appointment decision which was adopted previously.).

The compliance officer drafts the annual report on the realisation of the Compliance Programme and submits it to the Agency for approval. In July 2017, the Agency Council approved the Annual Report on Implementation of Compliance Programme for Non-Discriminatory Behaviour for 2016. While approving this Report, the Agency Council did not estimate proposed measures and conclusions of the compliance officer.

The procedure of harmonization of the Decision on Establishment of EPS Distribucija d.o.o. Beograd Distribution System Operator with the new Law on Public Enterprises and the Law provisions was not completed until the end of 2019. By the decision of September 2019, for the given reason, the Agency Council did not approve the Annual Report on Implementation of Compliance Programme for Non-Discriminatory Behaviour for 2018. Within a procedure prescribed by the law, state bodies of the Republic of Serbia are expected to comply with the Agency’s suggestions to the establishment act of the EPS Distribucija d.o.o. Beograd Distribution System Operator. Following this, EPS Distribucija d.o.o. Beograd should adopt a new Compliance Programme for Non-Discrimination Behaviour and submit it to the Agency for approval purposes.

3.4.2 Price regulation

3.4.2.1 System connection costs

The DSO establishes distribution system connection costs on the basis of connection application and the Methodology for setting costs of connection to electricity transmission and distribution system which is adopted by the Agency (“Official Gazette of RS”, No. 109/15; valid as of 01/03/2016). The Methodology sets the types of costs: provision of documentation,

procurement and installment of equipment and material, works as well as the method of calculation of all costs. In addition, the operator is obliged to adopt adequate standards and to use market prices, i.e. prices of work and services when setting connection costs in the connection decision. The DSO is obliged to comply with the principles of transparency and non-discrimination and, upon an applicant's request, to give the applicant an insight into acts which serve as the basis for the establishment of connection costs and the manner of setting these costs. In the Methodology, connections are grouped into kinds and types and therefore, depending on the distance between a facility and the system, on technical conditions and methods of connection, we recognize standard and individual connections.

With standard connections, depending on the number of metering devices, we recognize individual and group standard connections. A DSO's legal act on the level of connection costs for standard connections also includes the level of:

- cost of construction of standard connection for each subkind and subtype of standard connections depending on the location where metering switchboards are installed;
- unit variable cost and
- cost of a part of the system which is set by the operator in line with the Methodology.

If, based on submitted data as well as on the data which may be demanded in line with the Law, the Agency concludes that the DSO has not adopted legal acts on the level of connection costs in line with the Methodology, the Agency will ask the DSO to submit a new legal act, fully harmonised with the Methodology within 30 days since the day the Agency's written request is submitted.

The act on prices of costs of connection to the electricity distribution system which was adopted by the DSO in June 2016 was applied in 2019 as well.

The DSO is obliged to provide the data on the number of new metering points connected to the distribution system, collected revenue and money flow based on issued decisions on connection to the distribution system for each connection type as well as on the connection costs which arose. The DSO provides these data regularly to the Agency in line with the info-tables established by the Agency.

In 2019, the DSO submitted data on the number of newly-connected metering points within the distribution system, collected revenues and money flow arising from the issued decisions on the approval of connection to the distribution system for each connection type as well as on arising connection costs. It was concluded that these data are of higher quality than during previous years.

3.4.2.2 Use-of-system charges

Distribution companies started applying regulated distribution use-of-system charges on March 1, 2010 for the first time following a favourable opinion of the Agency on price proposals given by 5 distribution companies and following the approval of the Government of the Republic of Serbia. Afterwards, distribution use-of-system charges were changed on April 1, 2011, August 1, 2013 and these were valid for customers entitled to guaranteed supply until February 2016. In the meantime, the Government of the Republic of Serbia adopted a Decree on Method and Conditions of Setting Balanced Distribution Use-of-System Charges. This Decree entered into force on January 1, 2014 and it was applicable for customers who were not entitled to regulated supply. Balancing the distribution use-of-system charges, customers belonging to the same customer category and group were allowed to purchase electricity from suppliers in the open market under the same conditions on the whole territory of the Republic of Serbia.

There was a change of status of July 1, 2015 and one DSO was established for the whole territory of the Republic of Serbia. Therefore, on March 1, 2016, with the Agency's approval, the DSO adopted a uniform distribution use-of-system charge for all customers with facilities connected to the distribution system. The charge was applied until November 8, 2016 when a new distribution use-of-system charge entered into force.

Table 3-20: Trend of annual level of average approved distribution use-of-system charges – total Serbia (without APKM)

RSD/kWh

Consumption category	Annual level of approved charge				
	As of 01/03/2010	As of 01/04/2011	As of 01/08/2013	As of 01/03/2016	As of 08/11/2019
Medium voltage - total	1.17	1.385	1.56	1.32	1.26
Low voltage (0.4 kV I grade)	2.71	3.19	3.53	3.58	3.40
Mass consumption - total	2.11	2.43	3.27	3.46	3.61
- 0.4 kV II grade	2.38	2.72	3.75	3.87	3.93
- households	2.08	2.39	3.20	3.40	3.56
Public lighting	1.61	1.90	3.06	2.82	2.81
Total low voltage	2.20	2.54	3.30	3.46	3.55
AVERAGE	1.82	2.30	2.93	2.93	2.92

The average distribution use-of-system charge (VAT and duties free) in 2019 for all customers amounted to 2.95 RSD/kWh (Table 3-21).

Table 3-21: Applied average distribution use-of-system charges

RSD/kWh

Consumption category	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
35 kV	1.24	1.35	1.35	1.46	1.32	1.28	1.25	1.24	1.25	1.24
10 kV	1.20	1.36	1.39	1.53	1.59	1.50	1.46	1.38	1.39	1.40
Low voltage (0.4 kV I grade)	2.89	3.22	3.19	3.68	4.22	4.12	3.95	3.86	3.81	3.79
- 0.4 kV II grade	2.41	2.63	2.72	3.16	3.75	3.71	3.81	3.82	3.82	3.84
- households	2.14	2.31	2.39	2.86	3.29	3.27	3.38	3.42	3.45	3.48
Public lighting	1.63	1.83	1.89	2.48	3.10	3.08	2.86	2.82	2.82	2.81
AVERAGE	2.03	2.23	2.14	2.66	3.01	2.96	2.98	2.96	2.95	2.95

Figure 3-6 indicates realized average electricity distribution use-of-system charges (VAT and duties free) for Serbia (without APKM) per customer category in 2019.

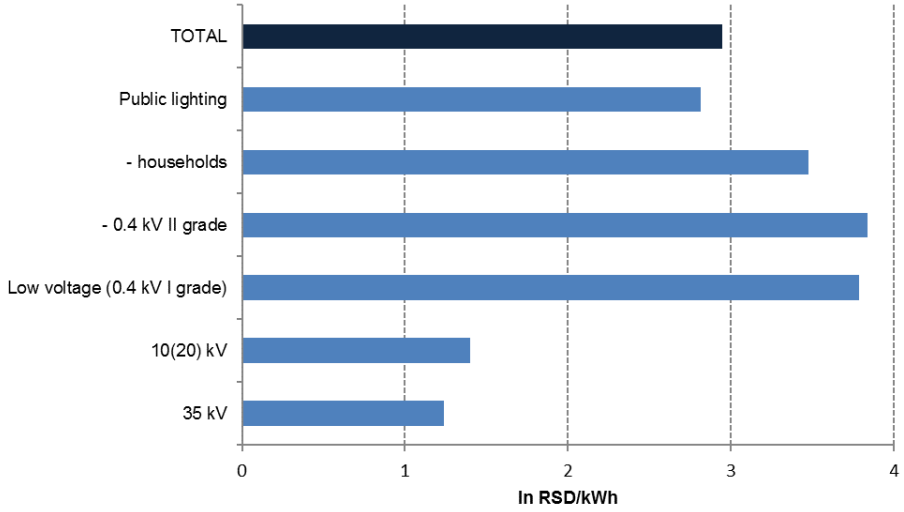

Figure 3-6: Average applied annual distribution use-of-system charge in 2019

Valid distribution use-of-system charge is available on the Agency website (www.aers.rs).

3.4.2.3 Price of Non-Standard Services

The Law prescribes that in addition to providing services to customers and system users which are charged via use-of-system charge or via connection costs, upon a customer's, i.e. system user's request, the distribution system operator also provides services which are not included in the above stated prices. In addition, the operator provides services when necessary in order to remove the consequences arising from a customer's or system user's acts which are contrary to regulations. Since these services are individual and occurring from occasionally upon a customer's or system user's request, they are called non-standard services. In order to compensate the costs arising from the provision of these services, DSO established a price list for non-standard services which was approved by the Agency Council in January 2019. The list includes three segments: 1) technical services to DSO system users, 2) services related to setting design and connection conditions and 3) services related to issuance of an opinion on conditions for power plants connection.

3.4.3 Distributed electricity quantities

The electricity delivered to customers through the distribution system is almost fully withdrawn from the electricity transmission system. A smaller portion of energy is provided from the power plants connected to the distribution system and this portion is increasing year by year. However, the energy withdrawn from the power plants connected to the distribution system in 2019 amounted to by 4.7% less than in 2018. This is a consequence of unfavourable hydrological circumstances during whole 2019 and thereby, the production in small hydro power plants was around 55 GWh (18%) lower. Because of production in power plants connected to the distribution system in areas with low electricity consumption, around 5 GWh of electricity were delivered from the distribution system into the transmission system.

If one compares the percentages in 2019 and in 2018, electricity losses within the distribution system are lower in 2019, but they still exceed the technically justified ones. In comparison to the EU countries, such level of losses can only partially be

justified by inevitable technical losses due to a high share of low voltage consumption in comparison to most EU countries. High losses are primarily due to unauthorised connections to the distribution network and unauthorised withdrawal (theft) of electricity. In addition, losses are increased due to long-term low investments into the distribution network. Another problem includes a big delay in terms of replacement of meters and transfer of metering points and connection lines. This is proved by the data on minimum activities on control and transfer of the metering devices, connection lines and equipment which is a prerequisite of bringing these into technically valid state and of elimination of electricity theft. These activities are expected to be more intensive in the future. When giving approval of distribution use-of-system charges and when assessing justified level of losses within the network, all relevant data from previous years will be taken into account as well as the level of losses and planned activities for loss reduction.

Table 3-22: Electricity quantities distributed in 2010 – 2019

GWh, %

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Distributed - Total electricity withdrawn by the distribution system	**30,453**	**30,607**	**30,258**	**30,068**	**29,351**	**30,131**	**30,162**	**30,503**	**30,040**	**30,002**
Withdrawn from the transmission network (excluding customers connected to 110 kV)	30,558	29,922	30,183	29,965	29,078	29,778	29,712	29,964	29,397	29,389
Withdrawn from neighbouring distribution systems	0.5	3.1	3.6	0.1	6.4	32.2	2.0	1.0	1.0	1.0
Generation from power plants connected to the DS	46	48	73	104	267	321	448	538	642	612
Total delivered electricity quantities from the distribution system	**25,497**	**25,859**	**25,673**	**25,584**	**25,136**	**25,894**	**26,246**	**26,549**	**26,376**	**26,476**
Delivered to final customers (excluding customers connected to 110 kV)	25,496	25,857	25,677	25,586	25,130	25,863	26,147	26,425	26,240	26,358
Delivered to neighbouring distribution systems	0.5	2.1	0.6	0.5	27.4	32.3	98.6	121	128	113
Delivered into the transmission system								3	8	5
Losses in the distribution system	**4,958**	**4,747**	**4,586**	**4,482**	**4,215**	**4,236**	**3,917**	**3,953**	**3,664**	**3,527**
Losses in the distribution system (as % of total withdrawn energy)	**16.3**	**15.5**	**15.1**	**14.9**	**14.4**	**14.1**	**13.0**	**13.0**	**12.2**	**11.7**

3.5 Closed distribution systems

In 2019, there was only one energy entity holding a licence for electricity distribution and closed distribution system operation – the closed distribution system operator “BELGRADE AIRPORT” d.o.o. Beograd which is connected to the distribution system of ODS EPS Distribucija to 35kV voltage level. The closed distribution system of “BELGRADE AIRPORT” d.o.o. Beograd includes:

- 1 transformer station of 35/10 kV/kV with two transformers with total installed capacity of 16 MVA,
- 6 transformer stations of 10/0.4 kV/kV with 10 transformers with total installed capacity of 852 MVA and
- 11 km of cables of 10 kV voltage level.

In 2019, in total, the closed distribution system “BELGRADE AIRPORT” d.o.o. Beograd withdrew from the distribution system 27.2 GWh of electricity. Out of the quantity, 8.9 GWh were delivered to customers connected to the system while 18.3 GWh of electricity in total were consumed to cover the system demand and losses within the closed distribution system.

3.6 Electricity market

Electricity market in Serbia includes:

- bilateral electricity market;
- balanced electricity market and
- organised electricity market.

The scheme of electricity market in the end of 2019 is given in figure 3-7.

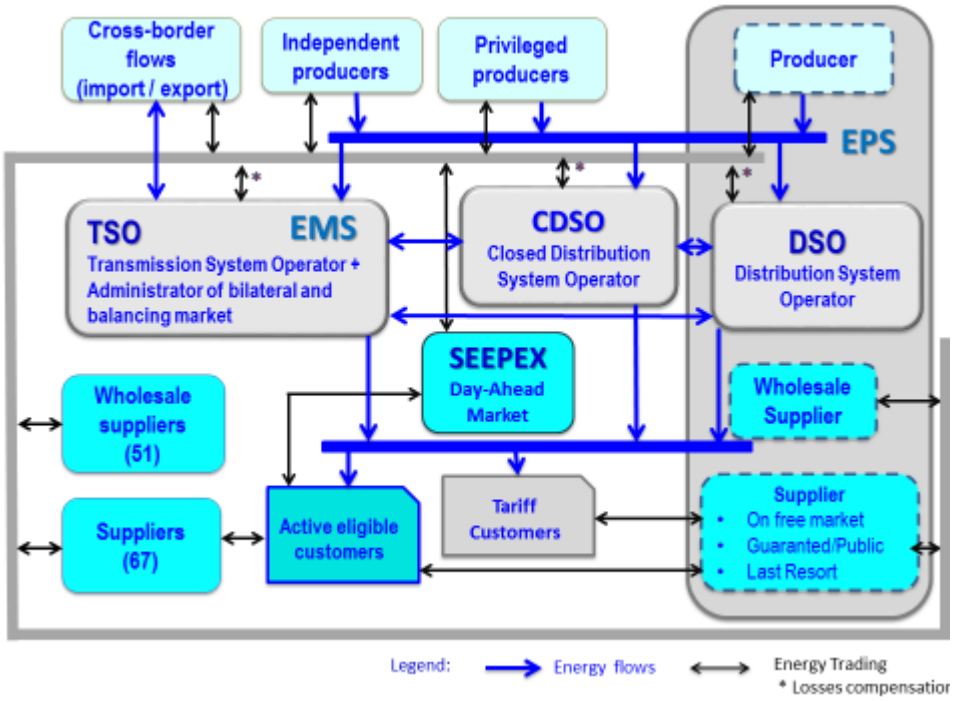

Figure 3-7: Electricity market scheme in 2019

Electricity market players are the following:

- electricity producer;
- electricity supplier;
- wholesale electricity supplier;
- final customer;
- transmission system operator in case of provision of system services, system balancing, provision of the safe system operations and electricity purchase for loss recovery within the transmission system;
- distribution system operator in case of electricity purchase for loss recovery within the distribution system;
- electricity closed distribution system operator and
- market operator.

3.6.1 Bilateral electricity market

Both electricity purchase and sales are organised on the bilateral market directly between market players, while on the wholesale bilateral market, the players traded in electricity at open market prices, while on the retail bilateral market, supply was organised at open market prices and regulated prices due to the fact that since 2014, all customers except for households and small customers have been obliged to purchase electricity in the open market. Since 2015, households and small customers have an option to select a supplier in the open market and they could always switch back to the supplier of the last resort/public supplier.

3.6.1.1 Wholesale market

In 2019, wholesale electricity market was based on trade between suppliers since, except for wind plants which are privileged producers, there are almost no big independent electricity producers at all. The activities of the suppliers in the open market are mostly concerned with the field of cross-border exchange, mostly for transit through Serbia which is dominant due to the central geographic position of the power system of Serbia in the region with 8 existing borders, as well as for the purpose of export and import meant for final customers. In 2019, electricity import meant for customers' demand in Serbia was slightly higher than export. Export was dominant in March when it was even 3.4 times higher than import and amounted to 932 GWh. Thanks to relatively mild winter and unusually high temperatures in March, as the dominant producer, PE EPS exported even one quarter of exported quantities in March. Electricity quantities which were sold and purchased in the organised market were slightly higher in comparison to the previous year. Although bilateral trade between suppliers is being decreased since the beginning of operation of organised electricity market, the scale of trade in bilateral market is still

1.5 times higher than on the organised market. The energy sale to final customers in the open market followed the growth trend in comparison to 2018 and increased by 1.5%.

The number of market players participating in the auctions for cross-border capacity allocation is rising, year by year. One of the most important reasons for this increase is the fact that by organizing joint auctions with neighbouring system operators on most borders even entities which are not licenced in Serbia have access to cross-border capacities via these joint auctions.

The right to nominate scheduling plans based on a relevant contract signed with EMS JSC in 2019 was held by 76 electricity market players which is by 11.76% more than in 2018. There were 61 active market participants, 1 more than in 2018. There were 13 suppliers operating in the field of final customers' supply which is 5 suppliers less than during the previous year.

Table 3-23: Number of market players entitled for scheduling 2010 - 2019

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Number of market players	35	35	45	37	47	51	60	65	68	76

Total engaged balancing energy in 2019 meant for balancing daily scheduling of suppliers amounted to 896 GWh. Total weighted settlement price amounted to 44.3 €/MWh which is 3.8 €/MWh less than during the previous year. Taking into account the direction of balancing entities involvement, weighted settlement prices amounted to 67.1 €/MWh for upward engagement and 21.7 €/MWh for downward engagement.

Figure 3-8 indicates electricity quantities for each of suppliers' activities in 2018 and 2019.[5]

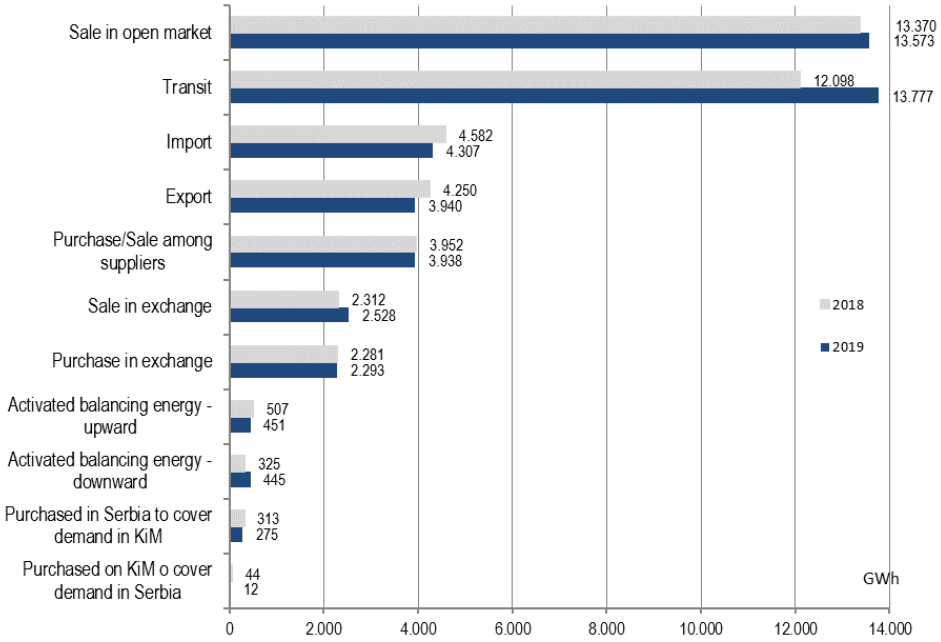

Figure 3-8: Electricity quantities for each supplier activity in 2018 and 2019

This is the list of suppliers which sold energy to other suppliers in the bilateral electricity market (some of the names of companies are given in Cyrillic letter since this is their official name in the licence):

1. Јавно предузеће "Електропривреда Србије" Београд
2. "ENERGY FINANCING TEAM (SWITZERLAND) AG", St. Gallen, Švajcarska
3. ALPIQ ENERGY SE, Prag
4. ПЕТРОЛ, Словенска енергетска дружба, д.д., Љубљана
5. "HOLDING SLOVENSKE ELEKTRARNE" doo, Љубљана
6. GEN-I друштво са ограниченом одговорношћу Београд
7. ИНТЕРЕНЕРГО доо, Љубљана
8. "GROUP TRANS ENERGY OOD", Софија, Бугарска
9. Привредно друштво "NETWORK FOR TRADING" доо, Београд
10. Друштво за истраживање, производњу, прераду, дистрибуцију и промет нафте и нафтних деривата и истраживање и производњу природног гаса "Нафтна индустрија Србије" а.д. Нови Сад

[5] All the data given in tables were submitted until February 15, 2020 and are entitled to modification in line with the Electricity Market Rules.

11. Привредно друштво за трговину електричном енергијом ENERGY MARKET доо, Пирот
12. Привредно друштво "TERNA ENERGY TRADING" доо, Нови Београд
13. Привредно друштво "ELMAKO-ENERGY" доо, Београд
14. Привредно друштво "GROUP TRANS ENERGY" д.о.о. Београд - Нови Београд
15. "HSE BALKAN ENERGY" д.о.о. Друштво за инжењеринг и трговину
16. „JAS Budapest" d.o.o. Subotica
17. ČEZ A.S, Праг, Чешка Република
18. Green Energy Trading д.о.о. Београд (Савски венац)
19. „DANSKE COMMODITIES A/S", Архус, Данска
20. ENERGY SUPPLY & TRADE доо, Београд - Савски венац
21. "AYEN ENERGY TRADING" доо Београд-Врачар
22. Привредно друштво "ENERGIA GAS AND POWER" д.о.о. Београд (Нови Београд)
23. "NOVA COMMODITIES" друштво са ограниченом одговорношћу, Београд
24. AXPO друштво са ограниченом одговорношћу, Београд
25. „RITAM ENERGY" доо, Београд
26. Привредно друштво „ЕПЦГ" д.о.о. Београд
27. „ENERGY SUPPLY EOOD", Бугарска
28. EFT TRADE д.о.о., Београд
29. Предузеће "ENERGY DELIVERY SOLUTIONS" д.о.о., Београд
30. "STRATEGIC ENERGY TRADING SOCIETE ANONYME", Атина, Грчка
31. "MVM Partner Energiakereskedelmi Zártkörűen Müködő Részvénytársaság", Budimpešta, Mađarska „ENSCO ENERGY SERVICES COMPANY AG", Cham, Švajcarska
32. "GEN-I", trgovanje in prodaja električne energije, d.o.o., Krško, Slovenija
33. "HOLDING SLOVENSKE ELEKTRARNE" доо, Љубљана
34. "ReNGRY Trading Group SR" доо, Београд
35. GREEK ENVIRONMENTAL & ENERGY NETWORK S.A. - "GRE.EN", Pirej, Grčka
36. "FREEPOINT COMMODITIES EUROPE LLP", Рединг, Велика Британија
37. Привредно друштво "ENERGY HARBOR" доо, Београд
38. "ENERGI DANMARK A/S", Архус, Данска
39. ЕЛЕКТРОПРИВРЕДА ЦРНЕ ГОРЕ АД - НИКШИЋ, НИКШИЋ
40. Привредно друштво "SENTRADE RS" доо, Београд
41. ХРВАТСКА ЕЛЕКТРОПРИВРЕДА д.д., Загреб
42. "GRAND ENERGY DISTRIBUTION", Софија, Бугарска
43. Друштво са ограниченом одговорношћу за трговину и услуге MVM PARTNER SERBIA д.о.о., Београд
44. "ENERGO-PRO TRADING JSC", Бугарска
45. "STATKRAFT MARKETS Gmbh", Дизелдорф
46. Предузеће "С.О.К." ДОО, Краљево
47. "MET SRB" д.о.о. Београд

This is the list of suppliers which purchased energy from other suppliers in the bilateral electricity market:

1. Јавно предузеће "Електропривреда Србије" Београд
2. "ENERGY FINANCING TEAM (SWITZERLAND) AG", St. Gallen, Švajcarska
3. Предузеће "ENERGY DELIVERY SOLUTIONS" д.о.о., Београд
4. Привредно друштво "ENERGIA GAS AND POWER" д.о.о. Београд (Нови Београд)
5. ALPIQ ENERGY SE, Prag
6. "HSE BALKAN ENERGY" д.о.о. Друштво за инжењеринг и трговину
7. GEN-I друштво са ограниченом одговорношћу Београд
8. ИНТЕРЕНЕРГО доо, Љубљана
9. "HOLDING SLOVENSKE ELEKTRARNE" доо, Љубљана
10. Привредно друштво "NETWORK FOR TRADING" доо, Београд
11. „JAS Budapest" d.o.o. Subotica
12. Друштво за истраживање, производњу, прераду, дистрибуцију и промет нафте и нафтних деривата и истраживање и производњу природног гаса "Нафтна индустрија Србије" а.д. Нови Сад
13. "AYEN ENERGY TRADING" доо Београд-Врачар
14. Привредно друштво "LC ELECTRICITY SUPPLY AND TRADING" доо, Београд
15. "GROUP TRANS ENERGY OOD", Софија, Бугарска
16. ПЕТРОЛ, Словенска енергетска дружба, д.д., Љубљана
17. GREEK ENVIRONMENTAL & ENERGY NETWORK S.A. - "GRE.EN", Pirej, Grčka
18. Привредно друштво за трговину електричном енергијом ENERGY MARKET доо, Пирот
19. "ČEZ SRBIJA" DOO BEOGRAD
20. "GEN-I", trgovanje in prodaja električne energije, d.o.o., Krško, Slovenija

21. Green Energy Trading д.о.о. Београд (Савски венац)
22. “NOVA COMMODITIES“ друштво са ограниченом одговорношћу, Београд
23. "ENERGO-PRO TRADING JSC", Бугарска
24. Привредно друштво ЕНЕКОД доо, Ниш
25. "FREEPOINT COMMODITIES EUROPE LLP", Рединг, Велика Британија
26. EFT TRADE д.о.о., Београд
27. „ENERGY SUPPLY EOOD", Бугарска
28. ПЕТРОЛ друштво за трговину нафтом и нафтним дериватима д.о.о. Београд
29. Привредно друштво „ЕПЦГ“ д.о.о. Београд
30. Привредно друштво за производњу промет и услуге "НОЛЕКО ДОО", ЧАЧАК
31. АХРО друштво са ограниченом одговорношћу,Београд
32. ENERGY SUPPLY & TRADE доо, Београд - Савски венац
33. Привредно друштво "TERNA ENERGY TRADING" доо, Нови Београд
34. DANSKE COMMODITIES A/S", Архус, Данска
35. Предузеће "С.О.К." ДОО, Краљево
36. „ČEZ A.S", Праг, Чешка Република
37. Привредно друштво "ELMAKO-ENERGY" доо, Београд
38. ЕЛЕКТРОПРИВРЕДА ЦРНЕ ГОРЕ АД - НИКШИЋ, НИКШИЋ
39. "EZPADA S.R.O.", Праг
40. "TWINFIN TESLA" доо, Београд
41. "ENERGI DANMARK A/S", Архус, Данска
42. ХРВАТСКА ЕЛЕКТРОПРИВРЕДА д.д., Загреб
43. "STRATEGIC ENERGY TRADING SOCIETE ANONYME", Атина, Грчка
44. Привредно друштво "SENTRADE RS" доо, Београд
45. Јединствено акционарско друштво "EVN TRADING SOUTH EAST EUROPE", Софија, Бугарска
46. "GRAND ENERGY DISTRIBUTION", Софија, Бугарска
47. „RESTART ENERGY" доо Београд-Нови Београд
48. „ENSCO ENERGY SERVICES COMPANY AG", Cham, Švajcarska
49. "MVM Partner Energiakereskedelmi Zártkörűen Működő Részvénytársaság", Budimpešta, Mađarska
50. "ReNGRY Trading Group SR" доо, Београд

This is the list of suppliers which imported electricity:

1. Мјешовити холдинг "ЕЛЕКТРОПРИВРЕДА РЕПУБЛИКЕ СРПСКЕ", Требиње
2. ALPIQ ENERGY SE, Prag
3. "ENERGY FINANCING TEAM (SWITZERLAND) AG", St. Gallen, Švajcarska
4. ČEZ A.S, Праг, Чешка Република
5. GEN-I друштво са ограниченом одговорношћу Београд
6. Јавно предузеће "Електропривреда Србије" Београд
7. ПЕТРОЛ, Словенска енергетска дружба, д.д., Љубљана
8. ИНТЕРЕНЕРГО доо, Љубљана
9. "CENTRICA ENERGY TRADING A/S", Данска
10. "HOLDING SLOVENSKE ELEKTRARNE" доо, Љубљана
11. "STATKRAFT MARKETS Gmbh", Дизелдорф
12. Привредно друштво "TERNA ENERGY TRADING" доо, Нови Београд
13. Привредно друштво "ELMAKO-ENERGY" доо, Београд
14. Привредно друштво "NETWORK FOR TRADING" доо, Београд
15. „DANSKE COMMODITIES A/S", Архус, Данска
16. Привредно друштво за трговину електричном енергијом ENERGY MARKET доо, Пирот
17. "ENERGI DANMARK A/S", Архус, Данска
18. ХРВАТСКА ЕЛЕКТРОПРИВРЕДА д.д., Загреб
19. ДРУШТВО ЗА ТРГОВИНУ "НЕР-ENERGIJA" ДОО БЕОГРАД
20. Друштво за истраживање, производњу, прераду, дистрибуцију и промет нафте и нафтних деривата и истраживање и производњу природног гаса "Нафтна индустрија Србије" а.д. Нови Сад
21. "MVM Partner Energiakereskedelmi Zártkörűen Működő Részvénytársaság", Budimpešta, Mađarska
22. ENERGY SUPPLY & TRADE доо, Београд - Савски венац
23. Green Energy Trading д.о.о. Београд (Савски венац)
24. “NOVA COMMODITIES“ друштво са ограниченом одговорношћу, Београд
25. „RITAM ENERGY" доо, Београд
26. Привредно друштво „ЕПЦГ“ д.о.о. Београд
27. „JAS Budapest” d.o.o. Subotica
28. АХРО друштво са ограниченом одговорношћу, Београд

29. "AYEN ENERGY TRADING" доо Београд-Врачар
30. "FREEPOINT COMMODITIES EUROPE LLP", Рединг, Велика Британија
31. Предузеће "ENERGY DELIVERY SOLUTIONS" д.о.о., Београд
32. "GROUP TRANS ENERGY OOD", Софија, Бугарска
33. „ENSCO ENERGY SERVICES COMPANY AG", Cham, Švajcarska
34. GREEK ENVIRONMENTAL & ENERGY NETWORK S.A. - "GRE.EN", Pirej, Grčka
35. Привредно друштво "ENERGY HARBOR" доо, Београд
36. "ReNGRY Trading Group SR" доо, Београд
37. Привредно друштво "SENTRADE RS" доо, Београд
38. ЕЛЕКТРОПРИВРЕДА ЦРНЕ ГОРЕ АД - НИКШИЋ, НИКШИЋ
39. "MET SRB" д.о.о. Београд

This is the list of suppliers which exported electricity:

1. Јавно предузеће "Електропривреда Србије" Београд
2. ALPIQ ENERGY SE, Prag
3. "ENERGY FINANCING TEAM (SWITZERLAND) AG", St. Gallen, Švajcarska
4. GEN-I друштво са ограниченом одговорношћу Београд
5. ИНТЕРЕНЕРГО доо, Љубљана
6. "CENTRICA ENERGY TRADING A/S", Данска
7. "MVM Partner Energiakereskedelmi Zártkörűen Müködő Részvénytársaság", Budimpešta, Mađarska
8. Предузеће "ENERGY DELIVERY SOLUTIONS" д.о.о., Београд
9. ČEZ A.S, Праг, Чешка Република
10. "HOLDING SLOVENSKE ELEKTRARNE" доо, Љубљана
11. "STATKRAFT MARKETS Gmbh", Дизелдорф
12. "ENERGI DANMARK A/S", Архус, Данска
13. ПЕТРОЛ, Словенска енергетска дружба, д.д., Љубљана
14. „JAS Budapest" d.o.o. Subotica
15. „DANSKE COMMODITIES A/S", Архус, Данска
16. "ReNGRY Trading Group SR" доо, Београд
17. Привредно друштво "NETWORK FOR TRADING" доо, Београд
18. Мјешовити холдинг "ЕЛЕКТРОПРИВРЕДА РЕПУБЛИКЕ СРПСКЕ", Требиње
19. GREEK ENVIRONMENTAL & ENERGY NETWORK S.A. - "GRE.EN", Pirej, Grčka
20. "AYEN ENERGY TRADING" доо Београд-Врачар
21. ХРВАТСКА ЕЛЕКТРОПРИВРЕДА д.д., Загреб
22. "ENERGO-PRO TRADING JSC", Бугарска
23. Green Energy Trading д.о.о. Београд (Савски венац)
24. Привредно друштво „ЕПЦГ" д.о.о. Београд
25. Привредно друштво "TERNA ENERGY TRADING" доо, Нови Београд
26. АХРО друштво са ограниченом одговорношћу, Београд
27. ENERGY SUPPLY & TRADE доо, Београд - Савски венац
28. Друштво за истраживање, производњу, прераду, дистрибуцију и промет нафте и нафтних деривата и истраживање и производњу природног гаса "Нафтна индустрија Србије" а.д. Нови Сад
29. "NOVA COMMODITIES" друштво са ограниченом одговорношћу, Београд
30. Привредно друштво за трговину електричном енергијом ENERGY MARKET доо, Пирот
31. "GROUP TRANS ENERGY OOD", Софија, Бугарска
32. "EZPADA S.R.O.", Праг
33. "STRATEGIC ENERGY TRADING SOCIETE ANONYME", Атина, Грчка
34. Привредно друштво "ELMAKO-ENERGY" доо, Београд
35. „ENSCO ENERGY SERVICES COMPANY AG", Cham, Švajcarska
36. "FREEPOINT COMMODITIES EUROPE LLP", Рединг, Велика Британија
37. Привредно друштво "SENTRADE RS" доо, Београд
38. "GRAND ENERGY DISTRIBUTION", Софија, Бугарска
39. Јединствено акционарско друштво "EVN TRADING SOUTH EAST EUROPE", Софија, Бугарска

This is the list of suppliers which operated in the field of electricity transit:

1. GEN-I друштво са ограниченом одговорношћу Београд
2. „DANSKE COMMODITIES A/S", Архус, Данска
3. "ENERGY FINANCING TEAM (SWITZERLAND) AG", St. Gallen, Švajcarska
4. ALPIQ ENERGY SE, Prag
5. ПЕТРОЛ, Словенска енергетска дружба, д.д., Љубљана
6. Друштво са ограниченом одговорношћу за трговину и услуге MVM PARTNER SERBIA д.о.о., Београд

7. ИНТЕРЕНЕРГО доо, Љубљана
8. "HOLDING SLOVENSKE ELEKTRARNE" доо, Љубљана
9. "MVM Partner Energiakereskedelmi Zártkörűen Müködő Részvénytársaság", Budimpešta, Mađarska
10. ПЕТРОЛ, Словенска енергетска дружба, д.д., Љубљана
11. Предузеће "ENERGY DELIVERY SOLUTIONS" д.о.о., Београд
12. Привредно друштво "NETWORK FOR TRADING" доо, Београд
13. "STATKRAFT MARKETS Gmbh", Дизелдорф
14. "AYEN ENERGY TRADING" доо Београд-Врачар
15. Green Energy Trading д.о.о. Београд (Савски венац)
16. Привредно друштво „ЕПЦГ“ д.о.о. Београд
17. "EZPADA S.R.O.", Праг
18. GREEK ENVIRONMENTAL & ENERGY NETWORK S.A. - "GRE.EN", Pirej, Grčka
19. „ENSCO ENERGY SERVICES COMPANY AG", Cham, Švajcarska
20. Јединствено акционарско друштво "EVN TRADING SOUTH EAST EUROPE", Софија, Бугарска
21. АХРО друштво са ограниченом одговорношћу, Београд
22. ENERGY SUPPLY & TRADE доо, Београд - Савски венац
23. "ENERGO-PRO TRADING JSC", Бугарска
24. EVN Trading д.о.о. Београд
25. Привредно друштво "TERNA ENERGY TRADING" доо, Нови Београд
26. "GROUP TRANS ENERGY OOD", Софија, Бугарска
27. Друштво за истраживање, производњу, прераду, дистрибуцију и промет нафте и нафтних деривата и истраживање и производњу природног гаса "Нафтна индустрија Србије" а.д. Нови Сад
28. Привредно друштво "ELMAKO-ENERGY" доо, Београд
29. "MET SRB" д.о.о. Београд
30. ПЕТРОЛ друштво за трговину нафтом и нафтним дериватима д.о.о. Београд
31. ХРВАТСКА ЕЛЕКТРОПРИВРЕДА д.д., Загреб
32. "ReNGRY Trading Group SR" доо, Београд
33. "HSE BALKAN ENERGY" д.о.о. Друштво за инжењеринг и трговину
34. Друштво са ограниченом одговорношћу за трговину и услуге „VERBUND – Austrian Power Trading Sr“ д.о.о. Београд
35. "ENERGI DANMARK A/S", Архус, Данска
36. „JAS Budapest” d.o.o. Subotica
37. Привредно друштво "LC ELECTRICITY SUPPLY AND TRADING" доо, Београд
38. ENEL TRADE SERBIA доо Београд (Врачар)
39. Привредно друштво "GROUP TRANS ENERGY" д.о.о. Београд - Нови Београд
40. “NOVA COMMODITIES“ друштво са ограниченом одговорношћу, Београд
41. "FREEPOINT COMMODITIES EUROPE LLP", Рединг, Велика Британија
42. Привредно друштво за трговину електричном енергијом ENERGY MARKET доо, Пирот
43. ДРУШТВО ЗА ТРГОВИНУ "HEP-ENERGIJA" ДОО БЕОГРАД

This is the list of suppliers supplying final customers:

1. Јавно предузеће "Електропривреда Србије" Београд
2. Привредно друштво "ENERGIA GAS AND POWER" д.о.о. Београд (Нови Београд)
3. ДРУШТВО ЗА ТРГОВИНУ "HEP-ENERGIJA" ДОО БЕОГРАД
4. Друштво за истраживање, производњу, прераду, дистрибуцију и промет нафте и нафтних деривата и истраживање и производњу природног гаса "Нафтна индустрија Србије" а.д. Нови Сад
5. Привредно друштво за производњу промет и услуге "НОЛЕКО ДОО", ЧАЧАК
6. “NOVA COMMODITIES“ друштво са ограниченом одговорношћу, Београд
7. EFT TRADE д.о.о., Београд
8. Предузеће "С.О.К." ДОО, Краљево
9. ПЕТРОЛ друштво за трговину нафтом и нафтним дериватима д.о.о. Београд
10. Предузеће "ENERGY DELIVERY SOLUTIONS" д.о.о., Београд
11. "TWINFIN TESLA" доо, Београд
12. Привредно друштво ЕНЕКОД доо, Ниш
13. „RESTART ENERGY" доо Београд-Нови Београд

In 2019, based on the data submitted by electricity suppliers, transit was increased by 14% in comparison to 2018 (commercial data), export was decreased by 7%, while import was decreased by 6% in comparison to the previous year. Export was meaningful in March when slightly less than a quarter of total energy exported during the whole year was exported. The import was on the highest level in January 2019 and it was around twice as high as the import during any other month.

The scale of import, export and transit realised by suppliers for each month of 2019 is indicated in Figure 3-9.

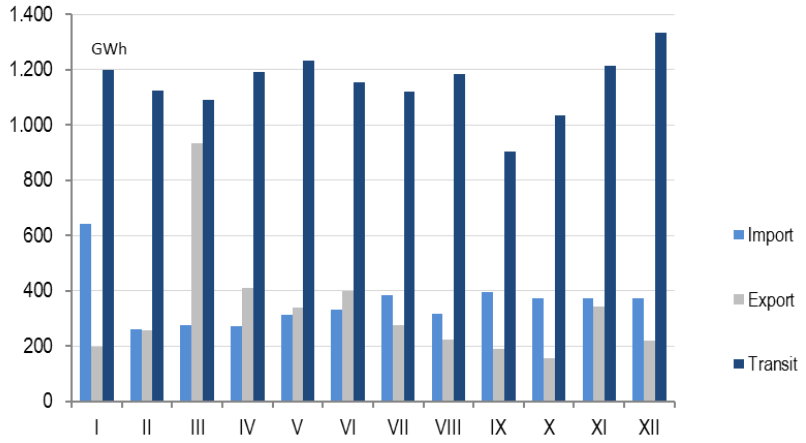

Figure 3-9: Import, export and transit of suppliers in 2019

Figure 3-10 indicates electricity purchase/sale between suppliers, purchase of PE *EPS* from other suppliers and sales of PE *EPS* to other suppliers. In 2019, the level of purchase of PE EPS from other suppliers was not significant, except in January when 325 GWh were purchased. During the whole year, PE EPS' sale of electricity to other suppliers faded completely except in March and April when PE EPS' sale amounted to almost 400 GWh. The trade between other suppliers was on a high level during the whole year and it was the most intensive in March when 576 GWh of electricity were traded.

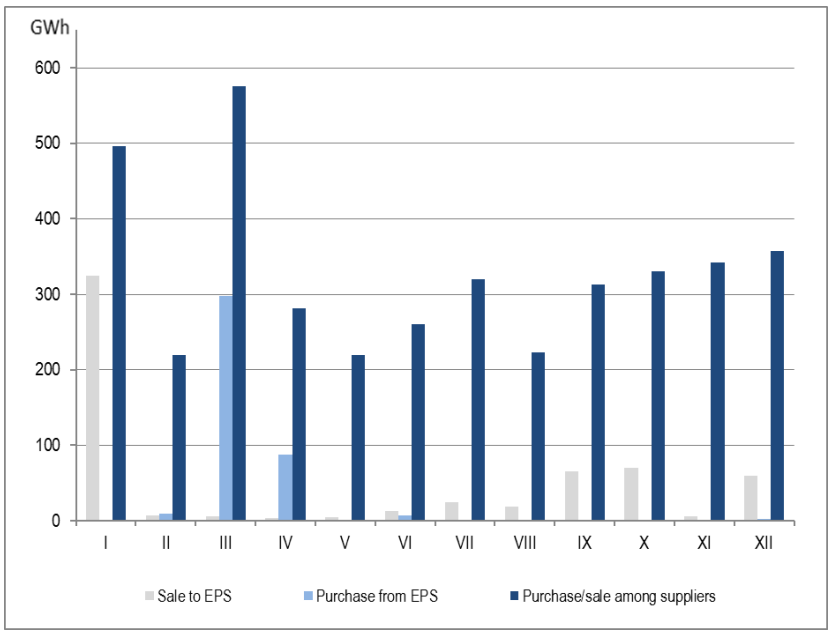

Figure 3-10: Purchase/sales between suppliers, i.e. between suppliers and PE *EPS* in 2019

Relevant indicators of development level and electricity market concentration in Serbia (without APKM) in 2019 are given in Table 3-24. The following data are given for each of indicated supplier's activities:

- total electricity quantity;
- electricity share traded by three suppliers with the biggest scale of trade activities in total electricity quantity per each activity;
- value of Herfindahl-Hirschman Index (HHI), indicating realised level of market concentration[6] and
- evaluation of market concentration level per individual activities[7].

[6] Herfindahl-Hirschman Index is defined as the sum of squares of share of a single company in the market. The lower the value, the more developed is market competition.

[7] Market concentration limits are the following:

Table 3-24: Electricity market concentration level in Serbia in 2019

Supplier's activity in 2018	Electricity quantity (GWh)	Share of three suppliers with the greatest trading scale [%]		Herfindahl-Hirschman Index - HHI	Market concentration level
	(GWh)	(%)	(GWh)		
Trade in organised market (exchange)					
Sale	2,528	45	1,127	1,067	Moderate
Purchase	2,292	41	946	1,015	Moderate
Trade between suppliers in bilateral market					
Sale	3,938	40	1,564	823	Low
Purchase	3,938	38	1,513	798	Low
Sale of electricity to final customers in open market					
Sale	13,573	99	13,473	9,155	High

Out of 61 active suppliers, 5 suppliers are among three dominant ones in each activity. The market concentration level remained the same as last year. Trade in organized market is on the same level as last year which indicates that the market is more stable in contrast to big changes in the scale of trade in the past two years. It is important to mention that the total energy quantity which was traded in within the exchange in each of sale directions, i.e. purchase directions amounted to 2,528 GWh. However, a part of the energy was not subject to suppliers' trade but the transmission system operator purchased a part of electricity to recover losses in the organized market. The transmission system operator also sold extra electricity in the organized market for loss recovery which was purchased via auction platform. The trade in bilateral market was on the level of trade last year with a trend of market concentration reduction. Retail market concentration is very high. There is even slight increase of concentration in comparison to 2018 which is a consequence of the dominant position of PE EPS in the retail market.

3.6.1.2 Retail market

3.6.1.2.1 Electricity quantities delivered to final customers

In 2019, 29,007 GWh were sold and delivered to final customers (without the power plants consumption meant for production), which is 0.4% less that the total quantities delivered in 2017 when the greatest quantity of electricity was delivered in the past ten years. Table 3-25 indicates electricity consumption in Serbia (without APKM) in the period 2010-2019, including electricity producers withdrawn from the transmission system in order to meet their own demand.

Table 3-25: Electricity consumption structure in the period 2010-2019

GWh

Consumption category	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2019/2018
Households	14,645	14,666	14,517	14,147	13,802	14,062	13,931	13,815	13,415	13,340	99.4
Other customers connected to low	5,534	5,640	5,585	5,580	5,322	5,546	5,665	5,746	5,756	5,707	99.1
Customers connected to low voltage in total	**20,179**	**20,305**	**20,102**	**19,727**	**19,124**	**19,608**	**19,596**	**19,561**	**19,171**	**19,047**	**99.4**
Customers connected to medium voltage (10,	5,317	5,553	5,570	5,856	5,985	6,254	6,550	6,865	7,069	7,311	103.4
Customers connected to high voltage (110 kV)	2,555	2,751	2,312	2,415	2,555	2,669	2,673	2,695	2,798	2,649	94.7
Electricity delivered to final customers	**28,051**	**28,609**	**27,984**	**27,998**	**27,664**	**28,531**	**28,819**	**29,121**	**29,038**	**29,007**	**99.9**
TPP and HPP consumption to cover	436	476	473	503	401	416	391	394	427	467	109.4
Total consumption	**28,487**	**29,085**	**28,457**	**28,501**	**28,065**	**28,947**	**29,210**	**29,515**	**29,465**	**29,474**	**100.0**

HHI < 1000 – not concentrated
1001 < HHI < 2000 - moderately concentrated
HHI >2001 - highly concentrated market

In comparison to 2018, final customers consumption (without the consumption of power plants for production purposes) in 2019 was lower by 0.1% which is due to the decrease in the consumption of customers connected to the low voltage by 0.6% (around 124 GWh) and of customers connected to the high voltage which was reduced by 5.3% (149 GWh). In contrast to these customers, the consumption of customers connected to the medium voltage was increased by 3.4% (242 GWh). As far as low voltage is concerned, households consumed by 75 GWh less, while other customers connected to low voltage consumed 49 GWh less electricity than last year. One of the causes of reduction of annual electricity consumption in households is lower consumption due to more mild winter, i.e. due to higher temperatures during the winter period in comparison to 2018. The Agency will continue monitoring the consumption of households during winter in the future and analyze the necessity of introduction of additional measures so as irrational consumption of electricity for heating purposes could be destimulated more efficiently. Producers withdrew 9.4% more electricity to cover their own demand (consumption of power plants for production purposes) than last year. When analyzing the data during the surveyed ten-year period, one would take into account the fact that there was a large number of interruptions in the supply of customers in 2014 due to weather disasters – floods and icy rain which some of the regions in the Republic of Serbia faced several times during 2014.

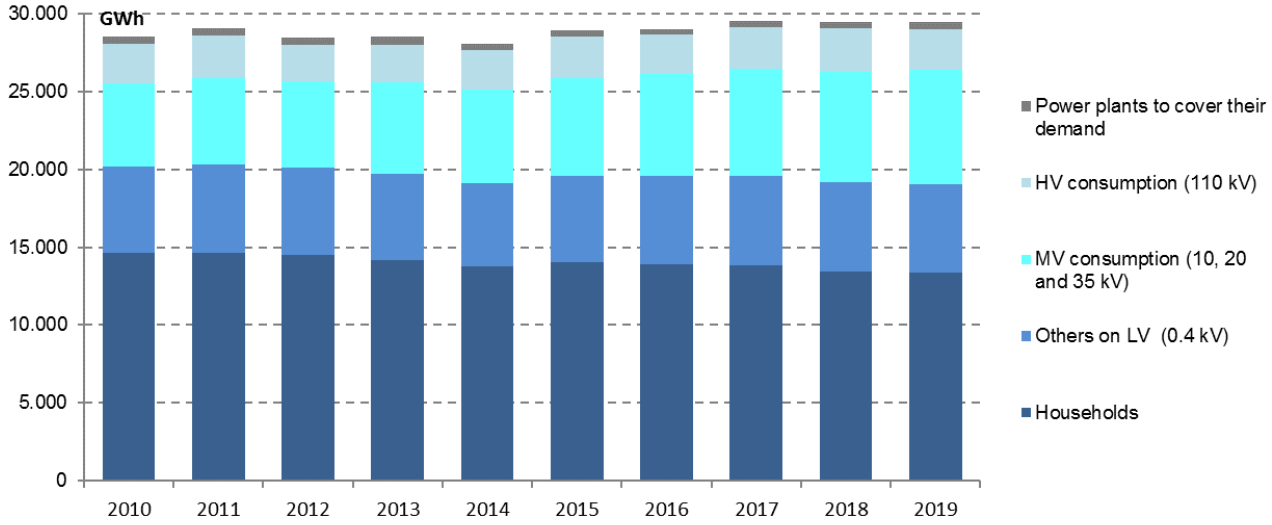

Figure 3-11: Electricity consumption structure in Serbia in the period 2010-2019 (without APKM)

The total number of metering points for customers' delivery in the Republic of Serbia without APKM (without metering points of facilities within Železnice Srbije/Serbian Railroad – there are 42 of them on the transmission system) at the end of 2019 amounted to 3,663,689. Compared to 2018, the number was increased by 0.3%.

Table 3-26: Number of metering points in 2018 and 2019

Consumption category	2018	2019	2019/2018
Households	3,250,468	3,261,631	100.3
Other customers connected to low voltage (0.4 kV)	395,825	396,945	100.3
Customers connected to medium voltage (10, 20 and 35 kV)	4,822	5,055	104.8
Customers connected to high voltage (110 kV)	54	58	107.4
Total number of metering points	**3,651,169**	**3,663,689**	**100.3**

3.6.1.2.2 Electricity sale in the regulated market

In 2019, electricity was purchased in the regulated market only by households and small scale customers (that, in order to be awarded with a small customer status, in addition to the requirement related to the annual income and the number of employees, also have a limit of 30,000 kWh of consumption in the previous calendar year and a requirement imposing that all their facilities have to be connected to the network of less than 1 kV voltage). The established legal limit had a dominant effect to the reduction of supply in the regulated market until 2019. In 2019, 50.4% of electricity which was consumed by final customers in total were delivered in the regulated market, which is only 1.5% less than in 2018 (in 2018, 4.8% less energy was delivered in the regulated market in comparison to 2017). Electricity quantities delivered in the regulated market for each consumption category for the period 2015-2019 are indicated in Table 3-27. In the end of 2019, electricity was delivered to final customers at regulated prices to over 3.5 million metering points.

Pursuant to the 2004 Energy Law, regulated electricity prices for final customers were applied on January 1, 2008 for the first time, upon the positive opinion of the Energy Agency on the PE *EPS* proposal and the approval given by the Government of the Republic of Serbia.

The current electricity price for guaranteed supply of final customers was approved on December 1, 2019.

The current regulated electricity prices for final customers are available on the Agency's website (www.aers.rs).

In 2019, average market, i.e. wholesale price, which is set on the basis of the trend of the so called "futures" in the neighbouring power exchanges for the following year and which cannot contain transmission and distribution costs amounted to average 57.95 €/MWh in on the Hungarian exchange (HUPX) for base load, i.e. 70.00 €/MWh for peak load. Wholesale price for the procurement of electricity, which serves as the base for setting the price for guaranteed supply of final customers when the approval is given to the price on December 1, 2019, amounted to 3.30 RSD/kWh, i.e. 26.81 €/MWh, calculated with the average € exchange rate for 2019. This corresponds to the purchase price which served as the basis for the calculation of the maximum allowed revenue of the public supplier when approval of the Agency was given to the prices which were valid since October 1, 2016.

Table 3-27: Electricity quantities delivered in the regulated market

Consumption category	Electricity quantities delivered in the regulated market (GWh)				
	2015	2016	2017	2018	2019
Low voltage (0.4 kV I grade)	1,521	830	526	321	247
- 0.4 kV II grade	1,454	1,307	1,212	1,101	1,048
- households	14,058	13,926	13,808	13,401	13,326
Public lighting	187	76	48	28	16
TOTAL guaranteed supply	**17,220**	**16,139**	**15,594**	**14,851**	**14,637**

Table 3-28 represents the trend of average realised annual prices for customers entitled to guaranteed (public) supply, i.e. to electricity being purchased at regulated prices. The level and trend of given average prices (VAT and duties free) for each year separately depend primarily from the dynamics and electricity quantities consumed by certain customers' categories and groups during the year and on the date of application of approved prices.

Table 3-28: Average annual regulated prices for final customers (VAT and duties free)

RSD/kWh

Consumption category	Realised average annual price				
	2015	2016	2017	2018	2019
Low voltage (0.4 kV I grade)	9.58	10.08	10.50	11.31	11.43
- 0.4 kV II grade	8.19	8.55	8.84	8.91	8.96
- households	6.26	6.49	6.73	6.84	6.88
Public lighting	5.91	6.39	6.55	6.53	6.56
Total low voltage	6.71	6.84	7.02	7.09	7.10
TOTAL AVERAGE guaranteed supply (as universal service)	**6.71**	**6.84**	**7.02**	**7.09**	**7.10**

Figures 3-12 and 3-15 indicate the comparison of electricity prices for reference customers from two categories -households and industry in Serbia, EU countries and the region. The prices were applied in the first half of 2019 and calculated in line EUROSTAT methodology and given in their reports. One should bear in mind that the reference average annual electricity consumption in households which is used in EUROSTAT methodologies between 2,500 and 5,000 kWh and that it is in line with the European average and standards, while the average annual consumption in households in Serbia is higher. The given prices in Serbia for reference customers from the household category are the lowest, both with and without VAT and duties, not only in comparison to developed European countries, but also in comparison to the countries in the region. VAT for electricity in Serbia amounts to 20% while the excise amounts to 7.5%.

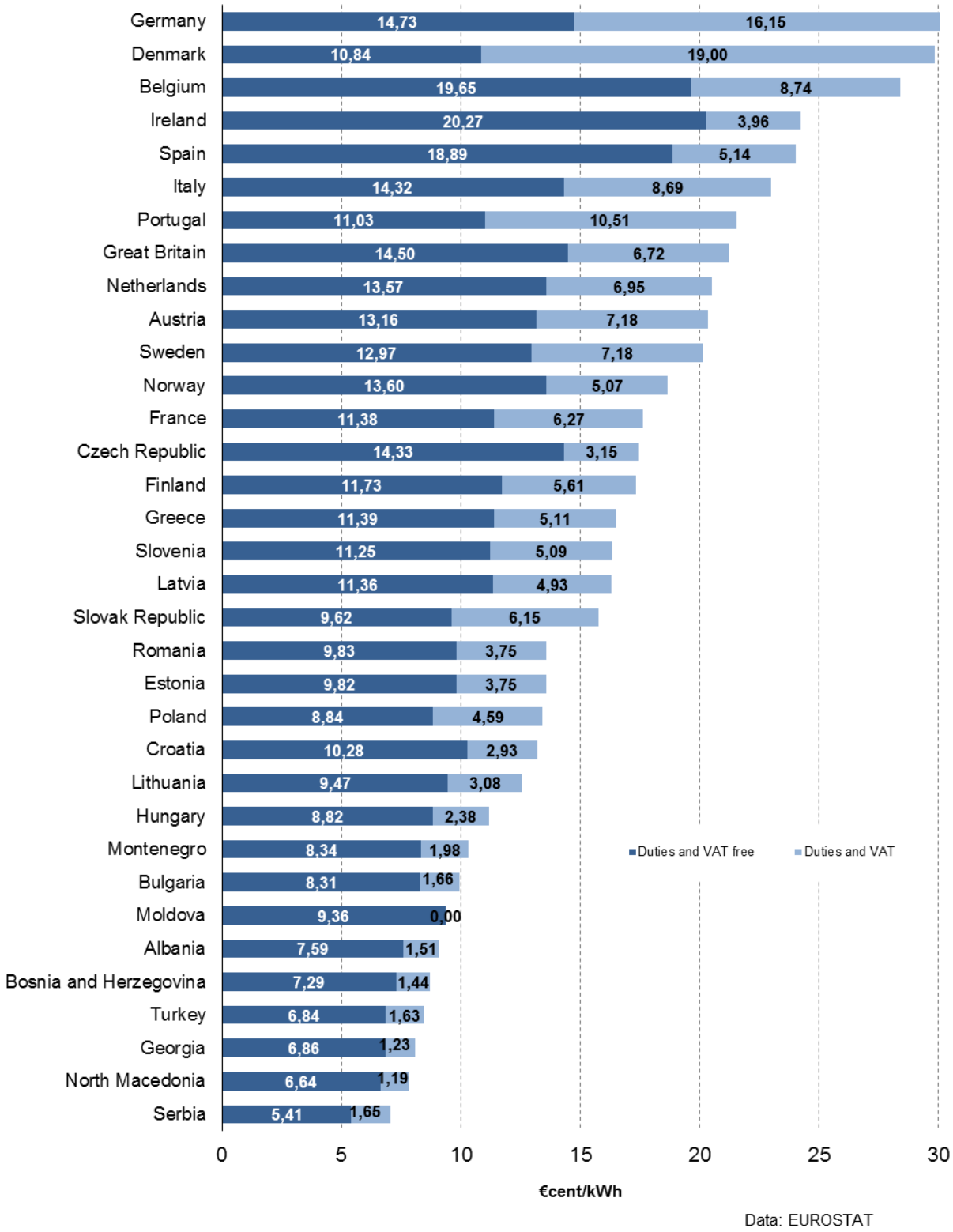

Figure 3-12: Electricity prices for households – first half of 2019

Figure 3-13 indicates a more detailed structure of retail electricity price for households in some of European capitals in December 2019. The data indicate that the energy price in Belgrade is the lowest while the (transmission and distribution) use-of-system charges recorded in Belgrade are among the lowest ones (the charges in Sofia and Athens are lower).

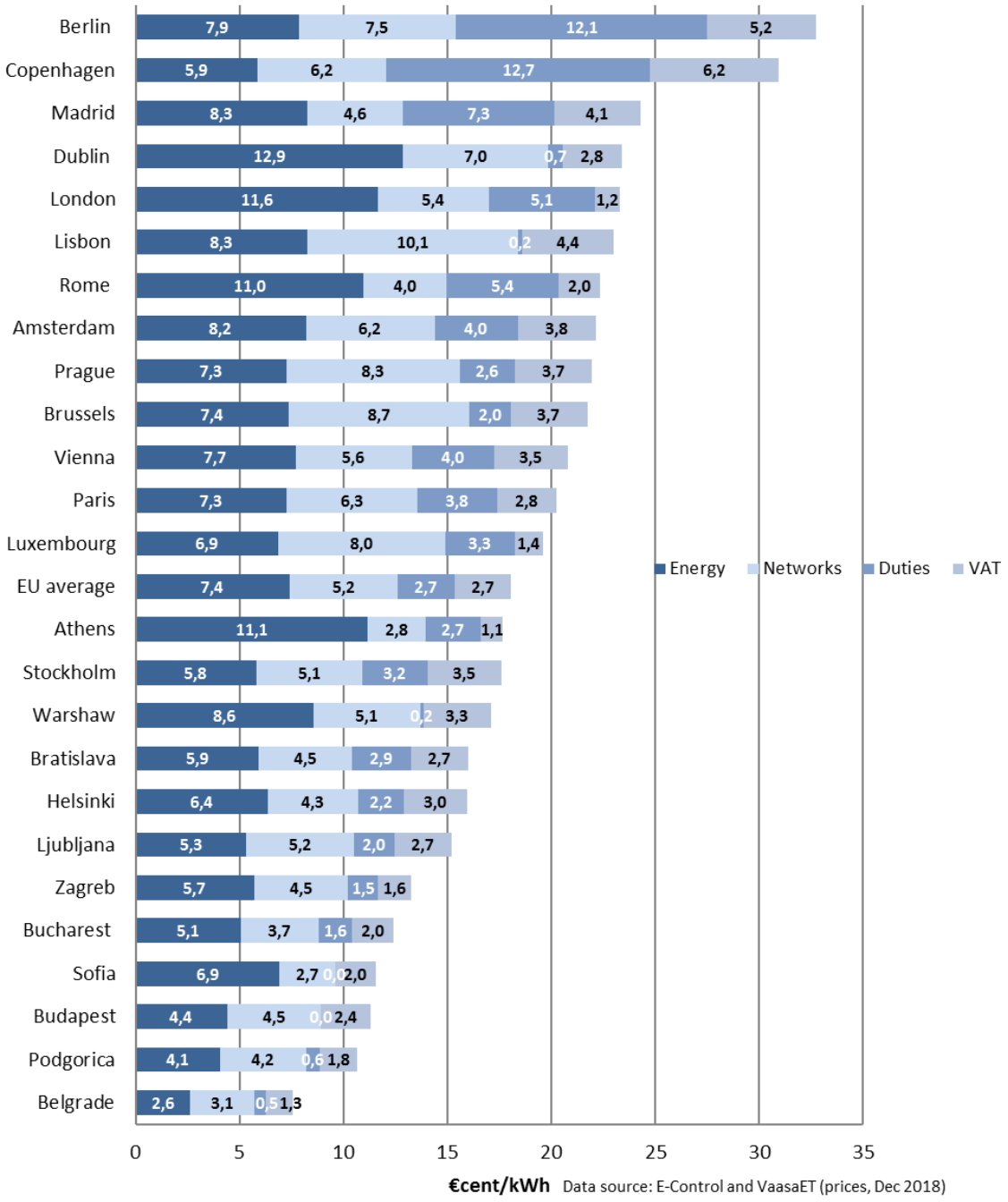

Figure 3-13: Structure of retail electricity price for households in some of European capitals in December 2019

So as to make a better comparison between electricity household prices, figure 3-14 indicates the structure of electricity final price for households at purchase power parity in come of European capitals in December 2019. In such a way, the differences in living standards which exist between different European countries were taken into account. In this case, electricity household prices in Belgrade were not the lowest ones in comparison to prices in other European capitals since, in Helsinki and Stockholm, the ratio between salaries and electricity price is more favourable than in Serbia.

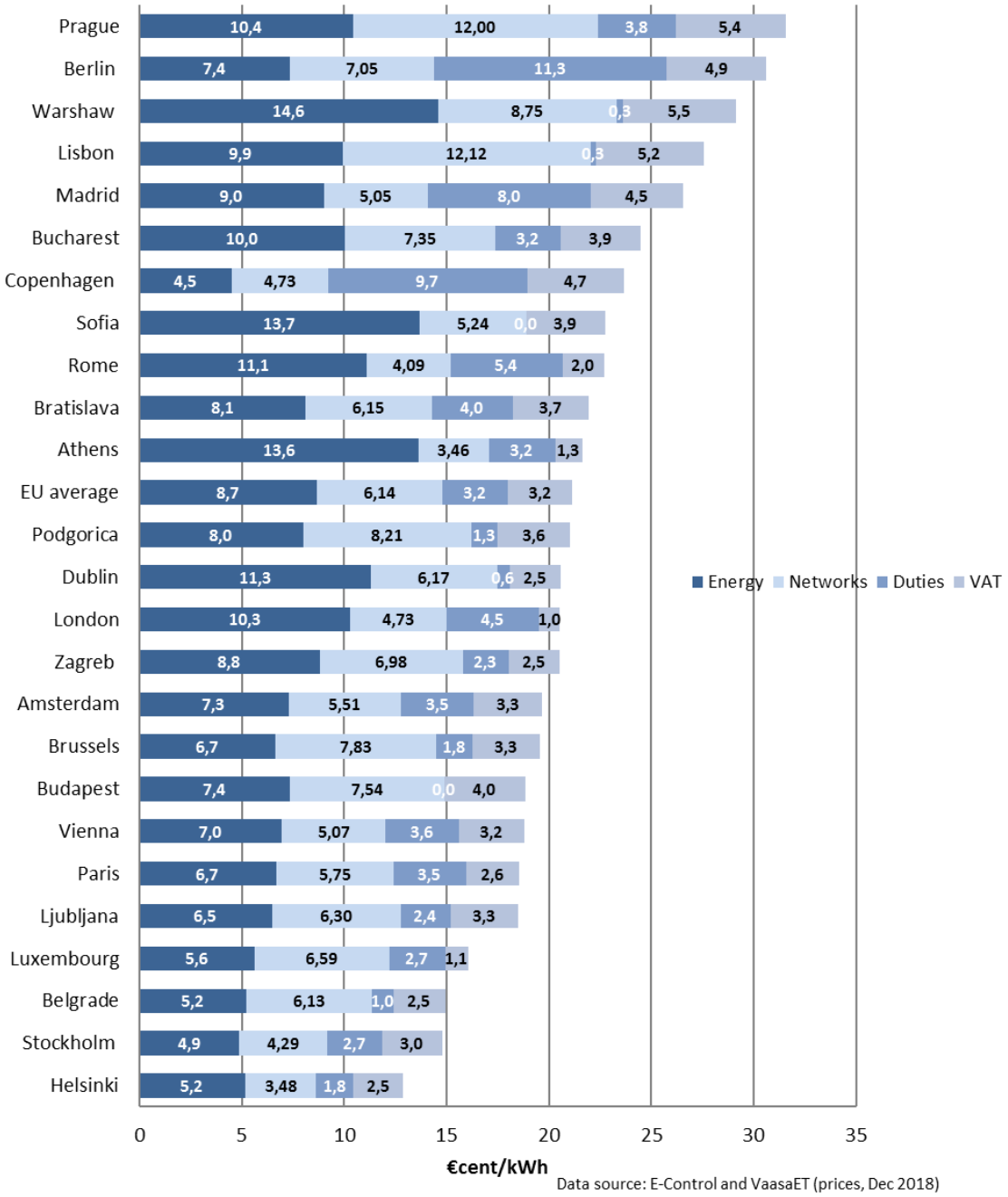

Figure 3-14: Electricity final price structure for households in some European capitals in December 2019 at purchase power parity

In 2019, the given prices in Serbia for reference customers for industry are higher in comparison to some of the countries in the region (Bosnia and Herzegovina and North Macedonia), to some of the countries of the former Soviet Union (Georgia and Moldova), Turkey as well as to the EU member states – Finland, Sweden and the Czech Republic.

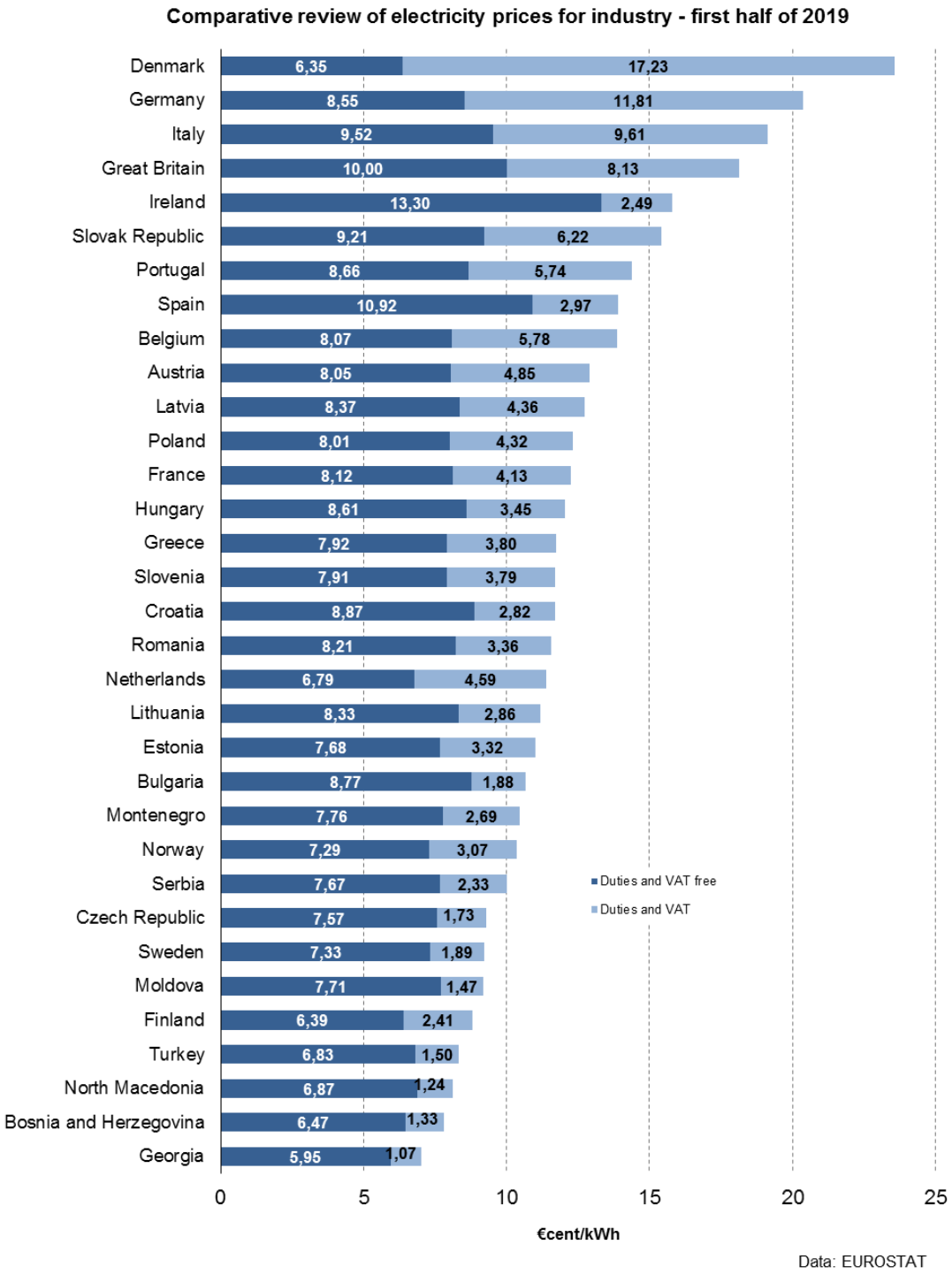

Figure 3-15: Electricity prices for industry – first half of 2019

3.6.1.2.3 Electricity sale in the open market

Since 2015, all final customers are entitled to purchase electricity in the open market. In 2019, 14,261 GWh of electricity were delivered in the open market which, excluding the energy delivered via supply of the last resort amounts to 49.2% of final customers' consumption. To customers in the open market, among which households account for 1.9 thousands (apartments owned by companies which purchase electricity in the open market), electricity was delivered to 139 thousand metering points. Out of 68 energy entities which were licenced for electricity supply in the end of 2019, 13 of them were active in the open retail market. Beside a slight decrease in the share of 0.5% in comparison to 2018, PE EPS remained the dominant supplier with a share of 95.9% of the total electricity sold to final customers in the open market and with a share of 97.9% of the total final consumption.

Table 3-29: Electricity quantities delivered in the open market

Consumption category	Electricity quantities delivered in the open market (GWh)				
	2015	2016	2017	2018	2019
High voltage (110 kV)	2,613	2,474	2,696	2,798	2,637
35 kV	954	1,051	1,049	1,006	1,101
10 kV	4,886	5,341	5,737	6,022	6,176
Total high and medium voltage	**8,453**	**8,866**	**9,482**	**9,826**	**9,914**
Low voltage (0.4 kV I grade)	1,445	2,219	2,555	2,788	2,863
- 0.4 kV II grade	471	683	799	918	979
- households	4	5	7	13	14
Public lighting	310	465	465	472	491
Total low voltage	**2,230**	**3,372**	**3,826**	**4,191**	**4,374**
TOTAL open supply	**10,683**	**12,238**	**13,308**	**14,017**	**14,261**

Electricity was delivered to final customers in the open market on over 85 thousand metering points (with public lighting, it amounts to 102 thousands). Households represent a negligible number of customers in the open market. Out of 60 companies which were licensed for electricity supply in the end of 2016, there were 14 of them active in the open retail market. PE *EPS* was still the dominant supplier in the open market with 95% of the total electricity quantities sold to final customers in the open market and with 97% of the total final consumption.

Table 3-30: Average annual retail prices in the open market for final customers (VAT and duties free)

RSD/kWh

Consumption category	Average annual price				
	2015	2016	2017	2018	2019
High voltage (110kV)	5.71	5.51	5.33	5.69	6.05
35 kV	6.87	6.42	6.07	6.52	8.87
10 kV	6.85	6.60	6.35	6.91	7.44
Total high and medium voltage	6.58	6.34	6.07	6.56	7.29
Low voltage (0/4 kV I grade)	9.04	9.02	8.76	9.30	10.24
- 0.4 kV II grade	9.24	8.44	8.54	9.02	9.94
- households	8.63	9.03	8.82	8,97	9.86
Public lighting	7.98	7.57	7.35	7.51	8.14
Total low voltage	8.93	8.70	8.54	9.03	9.93
TOTAL AVERAGE	7.09	7.01	6.80	7.33	8.13

The structure of retail prices in the open market in 2019 is given in the table below.

Table 3-31: Structure of realised average annual retail price in the open market for final customers

Elements	Price RSD/kWh
HIGH VOLTAGE - (110 kV) on transmission	
Total price	6.1
Transmission price	0.5
Electricity price	5.5
MEDIUM VOLTAGE (35 kV + 10 (20)kV)	
Total price	7.7
Distribution price	1.4
Electricity price	6.3
MEDIUM VOLTAGE - (35 kV)	
Total price	8.9
Distribution price	1.6
Electricity price	7.3
MEDIUM VOLTAGE - (10/20 kV)	
Total price	7.4
Distribution price	1.3
Electricity price	6.1
LOW VOLTAGE (0.4 kV I rate)	
Total price	10.2
Distribution price	3.6
Electricity price	6.7
MASS CONSUMPTION	
Total price	9.9
Distribution price	3.3
Electricity price	6.6
MC (Mass c.) – Commercial and other (0.4 kV II rate)	
Total price	9.9
Distribution price	3.3
Electricity price	6.6
MC - household	
Total price	9.9
Distribution price	3.2
Electricity price	6.6
PUBLIC LIGHTING	
Total price	8.1
Distribution price	2.8
Electricity price	5.3
TOTAL SALE ON DISTRIBUTION NETWORK	
Total price	8.5
Distribution price	2.1
Electricity price	6.4
TOTAL ON TRANSMISSION AND DISTRIBUTION NETWORK	
Total price	8.1
Network price	1.9
Electricity price	6.2

Being the supplier of the last resort, PE *EPS* delivered 109 GWh of electricity to customers, i.e. 0.4% of the total electricity delivered to final customers. Electricity quantities delivered within the supply of the last resort regime for each consumption category for the period 2015-2019 are given in Table 3-32.

Table 3-32: Electricity quantities delivered under the supply of the resort regime

Consumption category	Electricity quantities delivered under the supply of the resort regime (GWh)				
	2015	2016	2017	2018	2019
High voltage (110kV)	55	5	0	0	12
35 kV	49	16	6	0	0
10 kV	366	142	72	40	34
Total high and medium voltage	**470**	**163**	**78**	**40**	**46**
Low voltage (0/4 kV I grade)	83	48	72	54	31
- 0.4 kV II grade	31	19	27	25	15
- households	0	0	0	0	0
Public lighting	45	18	40	50	17
Total low voltage	**159**	**85**	**139**	**129**	**63**
TOTAL SUPPLY OF THE LAST RESORT	**629**	**248**	**217**	**169**	**109**

The structure of the realised average price of supply of the last resort for each voltage level separately and for customer categories and groups is given in the Table 3-33.

Table 3-33: Average annual price of the supplier of the last resort for final customers (VAT and duties free)

RSD/kWh

Consumption category	Average annual price				
	2015	2016	2017	2018	2019
High voltage (110kV)	7.92	8.28	-	-	9.12
35 kV	9.28	9.64	8.66	8.48	10.47
10 kV	9.55	9.77	8.75	8.70	10.17
Total high and medium voltage	9.36	9.71	8.74	8.69	9.91
Low voltage (0/4 kV I grade)	11.59	12.03	10.96	10.76	12.40
- 0.4 kV II grade	10.94	10.86	10.34	10.50	12.17
- households	-	12.07	10.38	10.79	12.11
Public lighting	10.48	10.42	9.59	9.63	11.20
Total low voltage	11.13	11.39	10.48	10.31	12.02
TOTAL AVERAGE	9.86	10.34	9.85	9.88	11.12

The total realised average electricity price in the retail market in Serbia which relates to all types of trade in electricity amounts to 7.61 RSD/kWh or 6.46 €c/kWh, if calculated in line with the average Euro exchange rate for 2019. The structure of this total average price for each voltage level, customer category and group separately is given in the table below:

Table 3-34: Total average annual prices for regulated market, open market and supply of the last resort (VAT and duties free)

RSD/kWh

Consumption category	Average annual price				
	2015	2016	2017	2018	2019
High voltage (110kV)	5.76	5.52	5.33	5.69	6.07
35 kV	7.19	6.47	6.08	6.52	8.87
10 kV	6.99	6.66	6.37	6.92	7.45
Total high and medium voltage	6.71	6.39	6.09	6.57	7.31
Low voltage (0/4 kV I grade)	9.38	9.35	9.10	9.53	10.36
- 0.4 kV II grade	8.47	8.54	8.74	8.98	9.45
- households	6.26	6.49	6.73	6.84	6.88

Public lighting	7.47	7.50	7.40	7.60	8.19
Total low voltage	6.99	7.18	7.34	7.53	7.76
TOTAL AVERAGE	6.91	6.94	6.94	7.22	7.61

Except for the electricity meant to meet the demand of final customers, open market also provided for the energy meant for the recovery of losses in the transmission network.

The table below reviews all the realised average annual electricity prices for each activity in the electricity market in Serbia separately.

Table 3-35: Review of realised average annual prices for each activity in 2019

Activity	Structure	Price RSD/MWh
Wholesale market	Sale to other suppliers	6.72
	Sale on the exchange	5.73
	Export	5.36
	Total wholesale price	5.99
Transmission	Access to the transmission network	0.26
	Losses in the transmission network	0.12
	Ancillary services and capacity reserve	0.11
	Transmission – total	0.49
Distribution	Access to the distribution network	2.01
	Losses in the distribution network	0.93
	Distribution – total	2.94
Retail	Public supply at regulated prices	7.10
	Supply of the last resort	11.12
	Supply of eligible customers at market prices	8.13
	Retail – total	7.61
Other	Additional costs (taxes and duties)	2.35
Final customers - average		9.95
- industrial customers (out of the total number)		10.79
- households (out of the total number)		9.01

3.6.1.2.4 Supplier switching

Supplier switching procedure implies any voluntary switch of the final customer with the selected supplier in line with the Law and Rules on Supplier Switching. The procedure when final customers had to quit regulated public supplier “by the rule of the law” and select a supplier is not considered to be a supplier switching procedure since customers had to switch to the supply of the last resort before they selected their supplier.

Table 3-36: Supplier switching for metering points separately in 2019

Consumption category	Number of metering points			Electricity delivered (MWh, %)		
	Total	With the supplier switch	%	Total	At metering points with new supplier	%
High voltage (110 kV)	44	0	0	1,394,767	0	0
Medium voltage (35 kV)	134	4	2.99	1,100,969	3,542	0.32
Medium voltage (10 and 20 kV)	4,921	320	6.50	6,209,896	403,861	6.50
Low voltage - (0.4kV I grade)	41,978	2,188	5.21	3,140,474	201,679	6.42
Mass consumption – Commercial and other (0.4kV II grade)	331,970	8,405	2.53	2,042,749	80,272	3.93
Public lighting	22,997	4,408	19.17	524,214	85,536	16.32

Households	3,261,631	378	0.01	13,340,165	1,594	0.01
Total	**3,663,675**	**15,703**	**0.43**	**27,753,234**	**776,483**	**2.80**

The legal deadline for the completion of the supplier switching procedure amounts to 21 days as defined by the Rules on Supplier Switching. For those customers with facilities connected to the distribution system, for the supplier switching procedure, it practically took the whole legal deadline of twenty-one days to complete the supplier switching procedure. In comparison to 2018, the total number of supplier switching procedures per delivery point decreased from 0.48% to 0.43%, while the percentage of the share of electricity quantity which was subject to supplier switching decreased from 3.41% to 2.80%. Identically as last year, there were no supplier switching procedures initiated by customers whose facilities are connected to the transmission system (110 kV voltage level in 2019. There was a significant drop in supplier switching on the distribution level with public lighting category where delivered electricity on points which were subject to supplier switching decreased from 23.4% in 2018 to 16.32% in 2019 of the total electricity volume delivered to this customer category.

3.6.2 Electricity balancing market

The Energy Law and relevant amendments to the Rulebook on Energy Licensing and Certification, foreign companies were also allowed to obtain electricity wholesale licence and thereby gain the right to be registered as a balancing responsible party. In the end of 2019, there were 62 electricity market participants that had a Contract on Balancing Responsibility signed with the transmission system operator (EMS JSC) and that were awarded thereby with the status of a balancing responsible party (*BOS*). In 2019, the balancing group members were modified 115 times which was initiated by contracts on full supply between final customers and suppliers, contracts on transfer of balancing responsibility between suppliers and final customer and contracts on transfer of balancing responsibility between *BOS* and suppliers.

In 2019, in line with the Contract on Ancillary Services and the Contract on Participation in Balancing Mechanism which *EMS* JSC signed with PE *EPS*, *EMS* JSC engaged balancing entities for secondary and tertiary control within its control area in order to maintain balance between total production, consumption and nominated electricity block exchange. In addition, they calculated deviations between balancing groups which served for financial settlement between EMS JSC and balancing responsible parties on monthly level. In addition, in 2019, *EMS* JSC worked on the so-called cross-border balancing by engaging balancing energy in order to balance its control area in line with contracts on the exchange of cross-border tertiary control energy (*PTRE*) with neighbouring transmission system operators which included the engagement of manual cross-border frequency restoration reserve (emergency energy) and engagement of balancing reserve within settlement accounting period based on contracts with the transmission system operators of Montenegro (CGES) and Bosnia and Herzegovina (NOSBiH) on purchase and sale of tertiary control energy for system balancing purposes.

In 2019, together with SMM members (Serbia-Montenegro-North Macedonia) control block, EMS JSC worked on the establishment of CMM GCC (Grid Control Cooperation), i.e. on the netting of unwelcome deviations of control areas within the CMM control block. In 2020, operational work is expected to be initiated.

In 2019, total engaged balancing energy during all calculation periods amounted to 903.6 GWh[8], for which the total weighted settlement price amounted to 44.3 €/MWh. It amounts to 3.5 €/MWh less than last year. Bearing in mind the direction of activated balancing entities, the weighted settlement price amounted to 67.1 €/MWh for upward activation and 21.8 €/MWh for downward activation.

3.6.3 Organised electricity market

Pursuant to the Energy Law, organisation and administration of the organised electricity market and making connection between it and organised electricity markets of other countries is performed by the market operator. Market operator's organisation and operation, conditions and the manner of business operation of players within the organised electricity market and other conditions which provide for electricity market functioning in line with the Law is regulated in more detail by the Government of the Republic of Serbia. On July 14, 2015, *EMS* JSC established SEEPEX JSC Belgrade – power exchange. It was established on the basis of partnership with EPEX SPOT. It was decided that in the beginning of operation SEEPEX will operate the organised market with standardized products in the "day-ahead" market.

The organised market (exchange) started operating in February 2016 and the review of its activities is available on the website www.seepex-spot.com. In 2019, there were 19 participants registered in the power exchange which means that there was one more participant than in 2018. 18 participants were active in the trade, the same case as in 2018. Day-ahead auctions product is available on the exchange and there are two methods for bidding: individual and block bid. Individual bid includes up to 256 price/quantity combinations for each individual hour of the following day, where prices have to be between 0.0 €/MWh and 3,000 €/MWh. Block bid, which was introduced on SEEPEX on March 22, 2017, is the bid which connects several hours in line with the principle "all or nothing" which means that the bid is either accepted for all the hours or it is completely rejected. It is possible to insert different electricity quantities for each block hour while there is one price offered for the whole block.

Since 2018, EMS JSC has been purchasing electricity for loss recovery via auctions which are organized by EMS JSC on the electronic platform i.e. so-called Auction Platform. Missing quantities are purchased on organized day-ahead electricity market in Serbia – SEEPEX exchange. Auction participants are companies licenced for electricity supply which complied

[8] Data received until February 15, 2019 and subject to modification in line with Electricity Market Rules.

with conditions prescribed by EMS JSC beforehand and which had a framework contract concluded with EMS JSC. In addition, during some periods, in line with the Law, due to lower loss levels than expected, EMS JSC sold extra electricity meant for loss recovery which was purchased via auction platform on the power exchange – SEEPEX.

The total electricity volume which was subject to trade on SEEPEX in 2019 amounted to 2,528,201 MWh which is 9% more than in 2018. The share of electricity which was traded on the power exchange in comparison to the electricity volume which was delivered to all final electricity customers was 8.7% while 18.7% is the exchange share in comparison to electricity volume delivered to final customers supplied in the open market (open retail market). On the wholesale market, the exchange share amounts to 22.7%. The wholesale market in this sense implies bilateral market (electricity purchase and sale between electricity suppliers) and purchase, i.e. sale of electricity in the exchange (organized market). In 2019, the greatest monthly scale of trade was recorded in November – 260,895 MWh. The maximum daily scale was reached on March 11 with the trade scale of 13,483 MWh. The lowest monthly trade scale was recorded in February, the same as last year, and it amounted to 168,968 MWh which is 1.76 times higher than last year. The maximum hourly price was recorded on August 19 at 9 p.m. and it amounted to 153.5 €/MWh. Average base price on the annual level amounted to 50.5 €/MWh.

3.6.4 Transparency

In line with the Treaty establishing the Energy Community and with the decision of the Permanent High Level Group Ministerial Council of June 24, 2015, the Republic of Serbia assumed an obligation to transpose the EU Transparency Regulation 543/2013 into national legislation. This Regulation defines the data and deadlines within which these data should be published in order to increase the electricity market transparency. In line with the Energy Law, this Regulation is transposed into our legal framework by having the Assembly of the Joint Stock Company "Elektromreza Srbije" Beograd adopted Rules on Publication of Key Market Data which were approved by the Agency Council on the session held on December 9, 2016. These rules establish obligations of the electricity transmission system operator, electricity distribution system operator, closed electricity distribution system operator, electricity producer and final customer related to the publication of all relevant data on consumption, transmission, production and balancing market. All key market data, except for those defined in transitory and final provisions, are published on the ENTSO-E transparency platform (EMFIP – Electricity Market Fundamental Information Platform on the website https://transparency.entsoe.eu) in line with deadlines defined by these Rules. In 2019, EMS JSC submitted 99% of the total number of data defined by the EU Regulation 543/2013 on transparency on the EMFIP platform (only data on production per generator are still not published). In 2019, Rules on the Publication of Key Market Data were harmonized with amendments to guidelines for the implementation of the EU Regulation 543/2013 which were adopted by ENTSO-E. In August 2019, Agency Council approved amended Rules on Publication of Key Market Data which were published on the website of EMS JSC and of the Agency and which came into force on September 1, 2019.

3.6.5 Regional coupling

A set of activities relevant for the whole region are organised within the Energy Community (EnC), with active participation of the Agency representatives.

Wholesale market

In line with new European market network code for Capacity Allocation and Congestion Management – CACM which were published within the EU Regulation 1222/2015 which entered into force in the EU in August 2015 and with the grounds and objectives of the so called "Berlin Process" (the process for 6 Western Balkans participants – WB6), in 2019, the ECRB Electricity Working Group observed the work of EU regulators on the organisation of enforcement of this Regulation with accompanying methodologies and considered possibilities for early enforcement of this code in EnC Contracting Parties. In April 2019, within early enforcement of market network codes, with a lack of validity of these rules within the EnC, with reference to short-term (day-ahead and intradaily) cross-border transmission capacity allocation (CACM), the Energy Community Regulatory Board (ECRB) adopted Recommendations for Adoption of Regulatory Measures Supporting Early Implementation of Day-Ahead Market Coupling in the EnC Contracting Parties. The Recommendations list methods and procedures which may be taken by regulatory agencies or other competent bodies from Contracting Parties in order to appoint nominated electricity market operators (NEMO) which is an indispensable condition for market coupling in line with the EU Regulation 1222/2015 (CACM). In 2019, proposed recommendations were discussed in detail. It was concluded that neither the Energy Agency nor other bodies of the Republic of Serbia hold legal jurisdiction for the proposed proceedings given in the Recommendations. Therefore, it is not possible to implement them. It was also concluded that, in addition to the lack of NEMO, Contracting Parties do not comply with another set of other conditions for potential market coupling with EU member states markets. These conditions are prescribed by the MRC (Multi Regional Coupling) platform, i.e. by SDAC (Single Day-Ahead Coupling). ECRB Electricity Working Group also considered the draft ECRB Recommendation for Adoption of Regulatory Measures Supporting Early Implementation of Coordinated Calculation of Cross-Border Transmission Capacity in EnC. These recommendations were not harmonised within the Working Group. Upon harmonisation, their adoption is expected in 2020. There was also active cooperation between the ECRB and the Agency for the Cooperation of Energy Regulators (ACER) via two joint workshops dedicated to these issues. In 2019, regulatory bodies of EnC Contracting Parties advocated a common position and proposals during meetings of the management board for day-ahead market integration (DAMI PSC) within the WB6 initiative. National regulatory authorities harmonised their positions within the ECRB Electricity Working Group beforehand.

During 2019, the ECRB Electricity Working Group observed the compliance with requirements prescribed by the EU Regulation 543/2013 on the publication of data which is valid for the EnC Contracting Parties. In April, the ECRB report on

transparency for 2017/2018 was published. The ECRB Electricity Working Group plans to prepare reports in the future by observing the compliance with requirements prescribed by the EU Regulation 543/2013 on data publication via Internet application which will be uploaded on the EnC Secretariat's server and which will be updated interactively by the representatives of Contracting Parties' regulatory authorities based on information gained from their transmission system operators.

The project on the establishment of the Coordinated Auction Office in the SEE, aimed at harmonisation of the allocation rules and nomination of rights for the use of cross-border capacity on both long-term and short-term level in the eighth region[9] was developed since 2008 in several phases. The Office was established in April 2014 in Podgorica and it gathers founders – transmission system operators from BiH (NOS BiH), Croatia, (HOPS), Montenegro (CGES), Kosovo* (KOSTT), Albania (OST), North Macedonia (MEPSO), Greece (IPTO) and Turkey (TEIAS). The Office covers cross-border capacity allocation on seven borders. The Transmission System Operator of Serbia (*EMS*, JSC) did not participate in the establishment of the Office. During previous years, bilateral negotiations between PE *EMS* and the Coordinated Auction Office in 2016 on the conditions for participation were initiated. During 2019, negotiations were continued but there was not progress made in this matter.

In April 2019, the ECRB report on balancing mechanisms within the EnC was published, as well as the report on methods for the establishment of electricity disbalance settlement price for 2018 based on the analysis of the Electricity Working Group in order to indicate plans for the implementation of the balancing mechanism market concept in each Contracting Party. Within the WB6 initiative, the work of the management board for balancing (XB PSC) as a common activity of transmission system operators, regulators and ministries within regional balancing initiative was continued in order to start early enforcement of network codes for balancing in the EnC Contracting Parties.

In April 2019, the ECRB report on the status of electricity intradaily markets in the EnC Contracting Parties was published in order to identify applied mechanisms, especially plans for the introduction of intraday market and so as to identify potential obstacles.

In October 2019, the ECRB report on the status of long-term (bilateral) electricity market in the EnC Contracting Parties was published so as to identify the level of openness of the long-term market and its potential in order to use the conclusions for setting and implementing measures both on national and regional level as a support to liquidity of long-term electricity markets.

The Transmission System Operator *EMS* JSC concluded contracts on the exchange of emergency energy or the exchange of cross-border tertiary control energy (*PTRE*) in cases when the safety of operations of the power system and/or supply of customers in the country is endangered, on natural exchange basis or on commercial basis. In 2019, *EMS* JSC concluded multiannual contracts on commercial basis with transmission system operators of Hungary (MAVIR), Croatia (HEP-OPS) and Romania (Transelectrica). In 2019, contracts on emergency energy exchange signed on natural basis for indefinite period of time between *EMS* JSC and Bulgarian and Greek transmission system operators were valid. Contracts on the exchange of cross-border tertiary control energy (PTRE) between EMS JSC signed with Montenegro (CGES) and Bosnia and Herzegovina (NOS BiH) were valid. These contracts imply a possibility to have five-minute energy activation within an hour for the control in both directions with a price which depends on the bids within the national balancing mechanism.

EMS JSC concludes one-year agreements on cross-border transmission capacity related to the calculation method, harmonization and mutual cross-border transmission capacity allocation with all neighbouring transmission system operators. These agreements were signed for 2019 as well with all neighbouring transmission system operators but in different formats. With the transmission system operators of Albania (OST) and Montenegro (CGES) a separate NTC Memorandum was signed. On all other borders, agreements were signed as parts of contracts regulating common cross-border transmission capacity allocation. The harmonization of cross-border electricity exchange within transmission system operation planning and calculation of exchanged electricity became a narrow expert field which is regulated by separate agreements (Scheduling Agreement and Accounting Agreement). In 2019, EMS JSC concluded a new Scheduling Agreement with the transmission system operator of Hungary (MAVIR).

Market monitoring

In EnC, great attention is paid to the development of tools and data bases for electricity and natural gas market monitoring. As early as in 2015, there were negotiations between ACER and EnC Secretariat on the types of cooperation between ACER and ECRB working groups in order to follow the activities in the EU more easily and implement the EU mechanisms in the EnC Contracting Parties. Although the Memorandum of Understanding between ACER and EnC Secretariat which implies that electricity wholesale and retail market monitoring in Contracting Parties would be a part of the ACER report was signed in 2016, ACER abandoned an idea to include the data from EnC Contracting Parties in their report. For this reason, ECRB Working Groups for electricity, customers and retail market decided that they should continue market monitoring within their activities and in line with the indicators used by ACER to the greatest extent possible.

In 2019, within the activities of the ECRB Electricity Working Group, there was a follow up on the work on drafting report on electricity market monitoring in the EnC Contracting Parties for 2017 and 2018. The draft is prepared based on the same indicators which are used for market monitoring which is implemented by the ACER in the EU. It was established that some of the indicators for electricity market monitoring which are applied by the ACER are not currently applicable to all Contracting

[9] One of 8 European regions within which regional electricity markets are developed which are being integrated in the EU market. The region includes Albania, Bosnia and Herzegovina, Serbia, Montenegro, Kosovo*, Macedonia, Slovenia, Croatia, Hungary, Romania, Bulgaria, Greece and Italy with the future undersea cable.

Parties due to different level of market development in the EnC in comparison to the EU countries. The publication of this report is expected in early 2020.

Based on the Guidelines for Regulatory SEE Market Monitoring which were approved by the ECRB in 2014, during 2019, there were periodical assessments on whether the market was functioning in line with the adopted rules and on the basis of transparency and non-discrimination principles in terms of calculation of available cross-border capacity and organised allocation procedures. The implementation of these Guidelines aims at the establishment of a harmonised approach to regulatory tasks and an introduction of a possibility for regional market monitoring. However, the Guidelines are not legally binding. The Guidelines also include recommendations to regulators from the region for the collection of necessary data for monitoring use of cross-border capacities.

In terms of electricity market monitoring in SEE, the members of the ECRB Electricity Working Group continued using software on the SEEAMMS Internet platform in order to detect deviations of indicators and draft a semi-annual report. In October 2019, ECRB published a semi-annual report for the second half (July-December) of 2018 on cross-border capacity monitoring. It was decided that this report would be drafted once a year in the future. It was also agreed that the rotation of Contracting Parties as SEEAMMS platform administrators will be organised every two months in the future.

In 2019, within the ECRB Working Group for Customers and Retail Market (CRM), data were collected and a report was made on retail electricity market monitoring based on data from 2018. A joint working group consisting of the representatives of the ECRB Working Group for Customers and Retail Market (CRM) and the CEER Customers Working Group was established in order to make a comparative analysis of observation of quality of electricity and natural gas delivery in the EU and in the EnC. The Group report will be completed in 2020. In 2019, the working group worked on the preparation of the report. The objective is to make a survey of the legislation in the EnC Contracting Parties in terms of customers who can also produce electricity (prosumers).

By the adoption of the Regulation 1227/2011 on Integrity and Transparency of Wholesale Energy Market ("Light REMIT"), by the Decision of the Energy Community Ministerial Council in November 2018, ECRB established a new working group. The main tasks of the group imply the preparation of regulators for new jurisdiction both on the national level and on the Energy Community level in line with the REMIT Regulation. In 2019, in addition to activities on the organization of the work of the working group, activities were launched on the definition of a questionnaire which will serve as the basis for a report on the needs of national regulatory authorities related to the implementation of the REMIT Regulation.

3.7 Monitoring and regulation of the quality of delivery and supply

The Council of the Agency adopted Rules on Monitoring Technical and Commercial Indicators and on Regulating Quality of Electricity and Natural Gas Delivery and Supply (Rules on Quality) in 2013. Rules on Quality were adopted on the basis of the gathered experience in data collection and monitoring electricity delivery and supply quality indicators as well as of international practice in the quality monitoring of services provided by energy entities. The Rules are established in order to define more closely the indicators of technical and commercial quality of delivery and commercial quality of electricity supply, the method of registering data and calculation of indicators, method and deadlines for the submission of data and reports to the Agency, harmonisation the method of data registering and calculation of quality indicators which enables the establishment of a base of complete, reliable and comparable data and calculated indicators in order to compare and regulate them. The collected data and calculated indicators should provide the prescription of the method of setting required values of certain indicators as well as the method of assessing results achieved by monitoring the reached results in comparison to the required indicators values of quality in future amendments of the Rules on Quality. Upon that, the procedure in case of deviation from demanded indicators' values will be also defined afterwards as it is defined in the Energy Law. In 2019, the data on quality of delivery and supply which were submitted by energy entities during previous years which will be used as the basis for the amendment of the Rules and their harmonisation with the Law. The collection of data on delivery and supply quality was established in line with the Rules on Quality by defining the type, scale and format of the data and indicators on technical and commercial aspects of quality as well as the deadlines for the submission of them by energy entities to the Agency. As is was the case in the past when the practice and infrastructure necessary for registering data, indicators calculation and reporting on quality was improved, in 2019, the distribution system operator continued with these activities, especially in the field of registering continuity of delivery.

3.7.1 Continuity of electricity delivery

Electricity transmission and distribution system operators monitor the continuity of electricity delivery regularly and these data indicate the number and duration of planned and unplanned delivery interruption. The entities submit monthly reports for all interruptions in the transmission and distribution network longer than 3 minutes. These reports are submitted to the Agency and the data on interruptions present the basis for the calculation of annual interruption indicators from the transmission and distribution network, for planned and unplanned interruptions and in total in the 2010-2019 period.

3.7.1.1 Transmission network continuity of delivery

Indicators of discontinuity of delivery from the transmission network which are monitored and calculated are the following:

- Power failure – undelivered power [MW] – total failed power on all measuring points where supply was interrupted;
- ENS [MWh] – total undelivered electricity;
- ENS [%] – a share of undelivered electricity in total delivered electricity;

- AIT [min] – average interruption duration in minutes, a quotient of undelivered electricity and average power.

Table 3-37: Indicators of discontinuity in delivery within the transmission network in the period 2010 - 2019

Interruptions		Power failure – undelivered power	ENS	ENS
		MW	MWh	%
2010				
	Planned	131	473	0.001
	Unplanned	2,790	1,418	0.004
	Total	2,921	1,891	0.005
2011				
	Planned	392	1,875	0.005
	Unplanned	3,212	3,364	0.008
	Total	3,604	5,239	0.013
2012				
	Planned	129	757	0.002
	Unplanned	2,390	1,395	0.004
	Total	2,519	2,152	0.005
2013				
	Planned	161	618	0.002
	Unplanned	1,770	747	0.002
	Total	1,931	1,365	0.004
2014				
	Planned	115	110	0.0003
	Unplanned	1,905	3,496	0.0104
	Total	2,020	3,605	0.0107
2015				
	Planned	359	1,543	0.0046
	Unplanned	2,292	1,659	0.0049
	Total	2,351	3,202	0.0095
2016				
	Planned	167	547	0.0016
	Unplanned	1,693	1,317	0.0039
	Total	1,860	1,864	0.0055
2017				
	Planned	306	1,496	0.0044
	Unplanned	1,980	1,418	0.0042
	Total	2,286	2,914	0.0086
2018				
	Planned	350	1,552	0.0024
	Unplanned	1,059	826	0.0013
	Total	1,409	2,378	0.0037
2019				
	Planned	429	1,065	0.0032
	Unplanned	832	595	0.0017
	Total	1,261	1,660	0.0049

In comparison to 2018, the indicators for unplanned interruptions are significantly better in 2019, both in terms of undelivered electricity as well as in terms of power failure, where indicators were lower by one third in comparison to the last year level. The indicators for planned interruptions are worse but they are on the level of last five-year average level. The increase in the sphere of power failure, and, thereby, in the reduction in the amount of undelivered electricity due to planned interruptions is a consequence of planned works on the transmission system, connection of new elements of the transmission system and overhaul in existing elements of the transmission system.

The values of the most frequent indicator of discontinuity within the transmission network AIT are given in Figure 3-16, separately for planned and unplanned interruptions and in total.

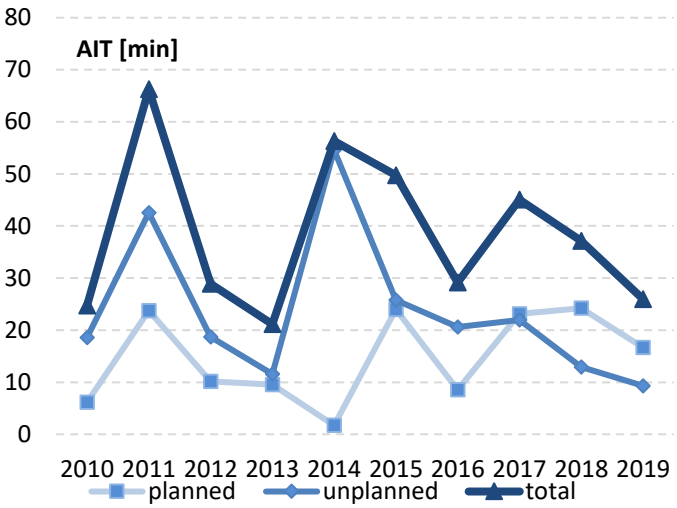

Figure 3-16: Average duration of supply interruption

In 2019, there was a reduction in the average duration of planned interruptions which was reduced from 24.12 minutes to 16.66 minutes. Average duration of unplanned interruption is considerably lower than last year and it amounts to 9.31 minutes which is by 28% shorter than 12.9 minutes which was the case last year.

Figure 3-17 indicates all the causes of unplanned interruptions and their share in the quantities of undelivered energy due to unplanned interruptions in 2019.

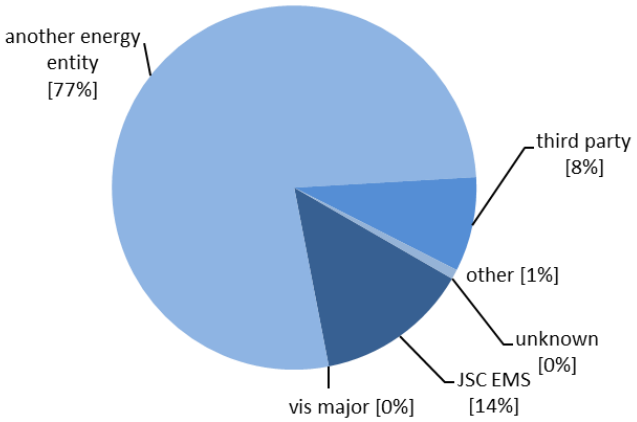

Figure 3-17: Causes of unplanned interruptions and their share in undelivered energy due to unplanned interruptions in 2019

3.7.1.2 Distribution network continuity of delivery

The indicators for the estimation of discontinuity of delivery from the distribution network are the following:

- SAIFI[10] – average frequence of interruptions per each user, and
- SAIDI[11] – average duration of interruptions in minutes per user.

The indicators of continuity of delivery in the distribution network for the period 2015-2019, separately for planned and unplanned interruptions and jointly are given in Figure 3-18.

[10] calculated as a quotient of the cumulative number of interruptions and total number of users [number of interruptions/user]

[11] calculated as a quotient of cumulative duration of interruption and total number of users [min/user]

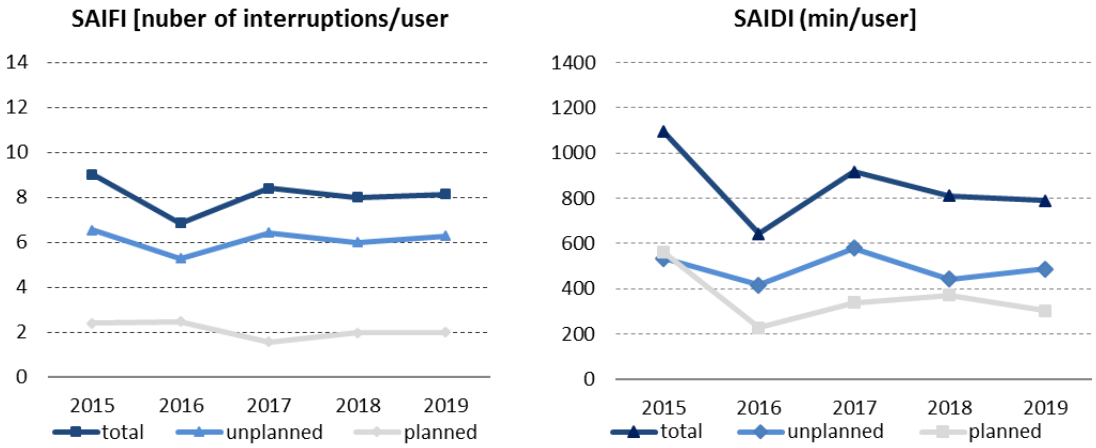

Figure 3-18: SAIFI and SAIDI for the period 2015 - 2019

There was slight deterioration with continuity indicators for unplanned interruptions in the distribution network in Serbia in 2019. Average frequency of unplanned interruptions was increased from 6 to 6.29 interruptions per user, while average duration of unplanned interruptions per user was increased by 45 minutes, from 441 to 486 minutes. Average frequency of planned interruptions was reduced from 1.99 to 1.85 interruptions per user while the average duration of planned interruptions per user was reduced by 67 minutes, from 369 to 302 minutes. Indicators values are on the level of last five years which is significantly higher than in the EU countries[12]. This indicates that it is necessary to analyse the reasons for such situation in the distribution level more seriously. In line with the results of such an analysis, necessary measures aiming and the reduction of the number and of the duration of supply interruptions should be implemented. The causes of unplanned interruptions and their share in the total number and duration of interruptions are indicated in Figure 3-19.

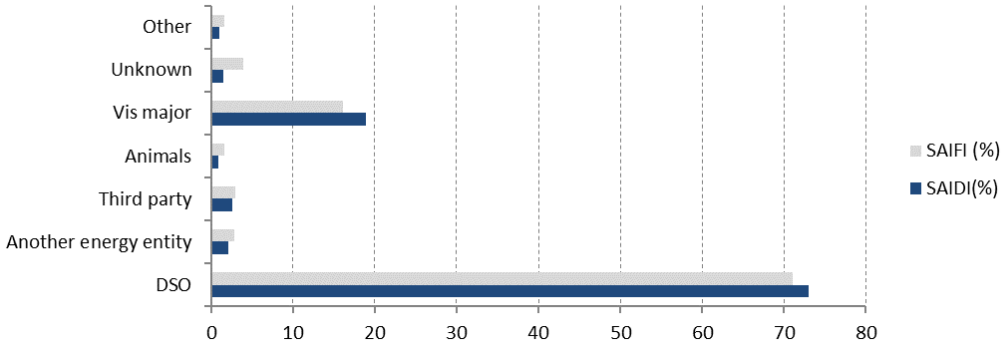

Figure 3-19: Share of causes of unplanned interruptions in SAIFI and SAIDI for 2019

The share of certain causes of interruptions in the number and duration of unplanned interruptions differs in comparison to 2018. The share of unplanned interruptions caused by vis major and another energy entity is higher than last year and these are interruptions the DSO could not have had influence on. The number of unplanned interruptions caused by the DSO was slightly reduced. A share of causes defined as “unknown” and “other” is still considerable, although it is smaller than in 2018. It indicates that the identification of the causes of interruptions is improved but a more efficient identification is still necessary which is a prerequisite for the implementation of more adequate measures for the removal of causes of interruptions and for the reduction of their number and duration.

3.7.2 Quality of electricity

The Rules on Quality defined the obligation of the system operators to record disruptions in the operations which cause the voltage and frequency to exceed the limits prescribed by the Decree on Electricity Delivery and Supply Conditions and transmission, i.e. distribution network code. In practice hitherto, system operators did not submit the reports on bad voltage conditions within the grid to the Agency, except in terms of users’ appeals which are being monitored within commercial quality area.

[12] 6th CEER Benchmarking Report on the Quality of Electricity and Gas 2016.

3.7.3 Commercial quality

Rules on Quality Monitoring define the data which system operators, i.e. suppliers register so as to enable commercial quality monitoring, i.e. monitoring compliance with the prescribed obligations as regards an energy entity's obligations towards customers, i.e. services users.

Based on Agency's request, energy entities submitted reports on commercial aspects of quality to the Agency regularly. That has provided the data for the calculation of some indicators of commercial quality on national level since 2009. After the market was opened in 2013 for customers connected to the transmission system and in 2014 for all customers, except households and small customers, there has been significant change in the necessity of monitoring commercial quality since the data on commercial quality are submitted to the Agency by all suppliers who supply final customers apart from by the system operator. In 2019, for the purpose of commercial quality monitoring, DSO, electricity suppliers and guaranteed/public supplier submitted quarterly reports and final annual report with available data to the Agency.

In terms of commercial quality monitoring, DSO has improved the method of data recording considerably, but, even so, registering data on commercial quality has not still reached the expected level of reliability and accuracy which could provide a relevant analysis of the indicators in the national and international framework, especially in the field of data on call centers and metering device control. By having a greater number of customers entering the market, a necessity to monitor commercial quality introduced with licensed electricity suppliers as well was recognized. Further improvement of quality monitoring is also necessary with electricity suppliers, in particular with reference to customer care and the establishment of call centers.

For analytical purposes, the collected data were grouped in four main categories of biggest importance for customers which describe commercial quality. They include:

1) connection, load shedding and disconnection;
2) metering and billing;
3) removal of technical obstacles in delivery and
4) customer services.

The given data, especially those on average time for the performance of certain obligation are of indicative character since they were calculated on the basis of the available sets of data submitted by the distribution system operator. The analysis of these data proved that they do not include the whole territory of the distribution system since the data on the time of settling or removal of some of problems for certain segments of the distribution system (reflecting former distribution companies) are not available.

3.7.3.1 Connection, loadshedding and disconnection

The DSO data on applications for connection to the system in 2019 are given in Table 3-38 for different voltage levels, for medium voltage (MV), low voltage (LV) separately and in total.

Table 3-38: Connection applications by voltage levels and in total in 2019

Connection applications			MV	LV	Total
Number	of submitted applications		391	24,323	24,714
	of settled applications	Approving connection	295	16,962	17,257
		Denying connection	3	150	153
		Settled differently	90	4,993	5,058
		Total	388	22,105	22,493
		Within 15 days for final customers, 30 days for producers	201	12,197	12,388
%	Settled applications in comparison to the submitted ones		93	91	91
	Applications approving connection in comparison to the number of settled ones		75	70	70
	Settled applications within 15 days for final customers, 30 days for producers		51	50	50
Average time	Necessary for settlement – given in days (final customers/producers)		23/41	20/23	20/30

In comparison to last year - 2018, the number of submitted applications for connection, as well as the number of decisions approving connections is by 20% lower for connections to the low voltage network, while there was a slight increase on the medium voltage network. Average time necessary for settling applications for connection for final customers amounts to between 20 and 23 days depending on the voltage level stated in the application which is considerably beyond the legal deadline for settling connection applications for final customers which amounts to 15 days.

Table 3-39: Connection of facilities/metering points by voltage levels in 2019

Connection		MV	LV	Total
Number	of connected facilities/metering points	192	34,558	34,750
	of facilities connected/metering points within 15 days' period	174	30,427	30,601

%	of facilities connected/metering points within 15 days' period	91	88	88
Average time – given in days	Necessary for connection since the day all the conditions are met	5	7	7

In 2019, around 3,500 facilities/metering points fewer were connected than in 2018. Indicators describing connection of facilities/metering points (Table 3-39) were considerably improved on medium voltage. 91% of connections were performed within 15 days (around 20% more than in 2018) with average time necessary for connection since the day conditions are met two days longer and it amounts to 5 days. On low voltage, indicators describing connection of facilities/metering points (Table 3-39) were considerably improved. 88% of connections were performed within 15 days (15% more than in 2018). The average time necessary for connection since the day conditions are met was one day longer and it amounts to 7 days.

In 2019, there were 63,315 disruptions upon suppliers' request, registered due to unsettled liabilities as regards electricity in the prescribed deadline, which is by 42% less than in 2018. The average time of reconnection upon the removal of causes of disruption/disconnection amounted to 2.2 days, i.e. upon unjustified disruption/disconnection, it amounted to 1.3 days on the level of the distribution system operator, while in different areas which correspond geographically to prior electricity distribution companies, it amounted to between 1 and 4 days and it is corresponds to the values in the previous year.

3.7.3.2 Metering and calculation

Regular control of meters were planned for 3,589,443 meters in 2019 (which accounts for 99.35% out of total 3,667,241 of metering devices) and 175,571 of them were checked, i.e. 5% of the planned checks. Out of the number, with 25,473 meters, i.e. 14.5% of them, irregularities were recorded. 196,116 extraordinary checks of metering points were requested by customers and energy entities. The checks were performed for 190,382 metering points (which represents around 97% of requested checks, while a certain number of checks was performed based on last year requests). Out of the number of extraordinary checks of 190,382 metering points, irregularities were notices on 13% of them, i.e. on 24,790 metering points and irregularities were removed in 23,367 cases. These indicators are alarming. There is a high percentage of noticed irregularities per metering points. The distribution system operator still does not comply with their obligation to organize regular checks of all metering devices once a year. The control of metering devices should be improved significantly and the number of noticed irregularities confirms the necessity of their urgent replacement.

Upon registering the disappearance, restraints or damage of meters, in 84% of cases, proper metering was provided within 2 days upon registration. Average time necessary to provide proper metering since the moment of occurrence, restraints or damage of meters within the categories of high, medium and low voltage (metering points where active energy, reactive energy and maximum active power are metered) amounted to between 1 and 2 days, depending on the voltage level.

In 2019, 1% out of total number of issued bills – 43,673,895 were revised. 57% of revised bills were due to improper reading. Average time necessary for complaints settlement amounted to 3 days. The reasons for bill corrections and their share in the total number of revised bills are given in Figure 3-20.

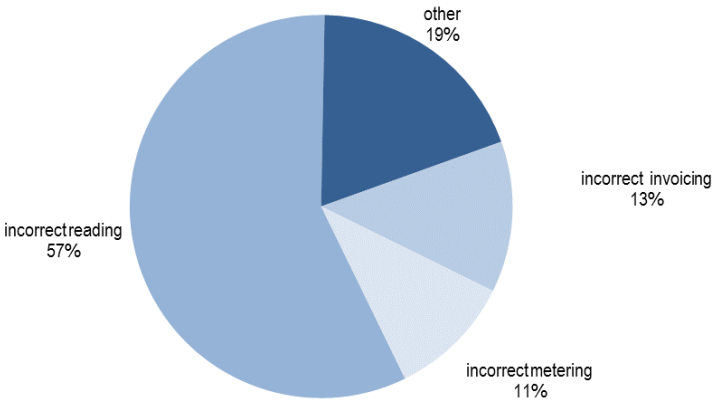

Figure 3-20: Reasons for bills corrections and their share in the total number of revised bills in 2019

3.7.3.3 Removal of technical disturbances in delivery

In 2019, there were 950 customers' requests for the removal of voltage disruptions which repeat in a longer time period. 77%, i.e. 729 requests were justified. Voltage disruptions were removed in 540, i.e. 74% of cases when the request was justified which is on the same level as in 2018.

The register of the data on average time necessary for a distributer to address the request of a customer for the removal of voltage disruptions, i.e. the time since the submission of the application until voltage is checked on the spot and informing the customer as well as on the average time since the voltage disruption establishment till its removal should be improved so as one could get a more realistic picture of the quality of such service.

3.7.3.4 Customer services

Despite the progress that has been made on the improvement in providing services to customers in customers' and contact centres (call centres), data which could serve for the assessment of the quality of services in these centres are still unavailable in most cases due to the lack of adequate information support for data monitoring and registration. In their future activities on customer services quality monitoring, all energy entities, especially suppliers licenced for the supply of final customers as well, will have to start registering, i.e. improving the registration of these data. Since 2017, the distribution system operator has been submitting the data on the work of call centres. In 2019, the total number of registered calls addressed to the call centre of the distribution system operator was 449,576 which is 3% lower than last year. Out of the total number of calls addressed to the call centre, 75% (335,291 calls) were made by phone. Average time spent waiting for the operator was 12 minutes which is 7 minutes longer than in 2018. The number of phone calls addressed to services on call for failure registration amounted to 243,503.

3.8 Security of electricity supply

The reliability and efficiency of the power system in the Republic of Serbia have been increased by investments into revitalization and modernisation of production, transmission and partly distribution capacities for several years. Even without new production capacities, the security of electricity supply was considerably higher. The construction of new transmission and distribution capacity units will further increase the security of electricity supply in the Republic of Serbia.

3.8.1 Consumption forecast

In line with the Energy Sector Development Strategy until 2025, with projections until 2030, annual increase of less than 1% in electricity consumption is expected. Such expectations are based on GDP projections and the consumption increase in the industrial sector, as well as on the implementation of energy efficiency measures in all consumption sectors.

3.8.2 Generation adequacy/prospects

Out of the total electricity production in the Republic of Serbia, under average hydrological circumstances, around 2/3 of electricity is produced in coal-fired thermal power plants and 1/3 from hydro potential. Since the end of 2018, considerable wind plants capacities were connected to the transmission system. Their share in the total electricity production becomes more and more considerable and it amounted to around 2.4% in 2019.

The Energy Sector Development Strategy until 2025 with projections until 2030 and the National Action Plan for Use of Renewable Energy Sources of the Republic of Serbia indicate the plan to have considerable increase in renewable energy sources. By 2020, the share of energy from renewable sources in gross final energy consumption should amount to 27%, i.e. production from renewable sources is planned to amount to around 3.5 TWh.

All thermal units in PE *EMS* are subject to the requirements of the Large Combustion Plants Directive 2001/80/EC (Large Combustion Plants Directive - LCPD) and the Industrial Emission Directive 2010/75/EU Industrial Emissions Directive - IED to the extent of limitation of the emission of polluting substances in the air – sulphur dioxide (SO_2), nitrogen oxides (NO_x) and powder substances. On October 24, 2013, the Energy Community Ministerial Council adopted decisions D/2013/05/MC-EnC and D/2013/06/MC-EnC which include rules for operation of large combustion plants which impose for PE *EPS* to reduce the emission of polluting substances into the air from existing combustion plants as of January 1, 2018 and by December 31, 2027 at the latest.

In the end of 2015, a preliminary National Emission Reduction Plan for key polluting matters arising from old big combustion plants (NERP) was submitted to the Energy Community with a plan for the adjustment of the emission of polluting substances in the air for plants subject to the above mentioned Directives. The final NERP draft was adopted by the EnC in 2016. However, NERP was not adopted by the Government of the Republic of Serbia and its adoption is expected in 2020. By this plan, the Republic of Serbia will be obliged to make significant moves in terms of reduction of emissions of polluting matters from large power plants. Its implementation aims at having emissions from large combustion plants harmonised with limit levels of emissions defined by the Directive on Industrial Emissions 2010/75/EU by December 31, 2027. According to NERP, it is planned to have gradual withdrawal of the oldest and the least energy-efficient thermal units until the end of 2027 due to old technology, high production costs and environment protection. In February 2019, the construction of desulphurisation plant in the Nikola Tesla A Thermal Power Plant in four units (A3, A4, A5 and A6) was initiated. Thereby, the emission of sulphur gases will be reduced nine times. In the previous years, activities were taken to reduce pollution by the construction of electric filters on all units in the Nikola Tesla A Thermal Power Plant and thereby, the emissions of powder matter, i.e. PM (Particulate Matter) particles were considerably lower. In addition, the emission of nitrogen oxides within units A3 and A5 was reduced. In 2019, activities were taken in order to reduce the emission of nitrogen oxides within unit A4.

At the same time, within PE EPS which is the dominant power producer in the Republic of Serbia, activities on revitalization and modernization of existing power plants are permanently realized. This will enable the increase both in terms of energy efficiency and installed capacity.

The most important activities during 2019 are the following:

- Works on the construction of new thermal unit B3 in TPP Kostolac B with 350 MW capacity, fueled by Kostolac lignite (PE EPS is the investor);
- Preparation for the construction of the first wind park owned by PE EPS with 66 MW in Kostolac;

- Follow-up of the “Green Project” in the Mining Basin Kolubara which implies the procurement of new equipment which will secure safe supply of thermal power plants in lignite and compliance with regulations in the field of environment protection. In the end of 2019, the “Green Project” started operating with half capacity while full capacity is expected to start to function in 2020.
- In early March 2019, the construction of a combined power and heat production plant CHP Pančevo with simultaneous head and power production was initiated. It has the maximum capacity of 190 MWe in condensed regime (*Naftna industrija Srbije* (Petroleum Industry of Serbia), JSC and Gasprom energoholding, Russia are the investors).
- Activities on revitalization and modernization of the hydro power plant Đerdap 1 – in November 2019, revitalised generator A2 was commissioned. In the past, four generators were revitalised. Once the revitalisation of the sixth generator is completed, the hydro power plant Đerdap 1 will have 180 MW higher installed capacity for the production of clean electricity;
- Revitalisation of the fourth generator of the hydro power plant Zvornik. In the past, the remaining three generators were revitalised. The end of complete revitalisation is expected in early 2020 and thereby, the installed capacity will be around 30% higher than the former one which amounted to 96 MW prior to revitalisation;
- Preparation activities for revitalisation of HPP Potpeć, HPP Bistrica, HPP Vlasinske and HPP Đerdap 2.

3.8.3 Use of renewable energy sources

The Decree on Incentive Measures for Electricity Generation through the use of renewable energy sources and combined electricity and heat energy generation prescribes incentive measures for electricity generation through the use of renewable energy sources and for energy purchase – feed-in tariff in more detail. Incentive measures include setting procurement prices based on power plant type where electricity is produced through the use of renewable energy sources and based on installed capacity. Privileged producers have no balancing responsibility which is an additional incentive measure and this may have a negative effect to their aptitude and competence for planning their production.

The conditions for obtaining the privileged producer status are prescribed in the Decree on conditions for obtaining the privileged electricity producer status and criteria for evaluation of these conditions. The implementation of the given decree, as well as the implementation of other decrees which are related to this field (Decree on Power Purchase Agreement, Decree on Incetive Fee for Privileged Producers, etc.) is in the jurisdiction of the ministry in charge of energy issues (www.mre.gov.rs). 2019 final prices for privileged electricity producers are given in the Table 3-40.

Table 3-40: Final prices for privileged electricity producers

No.	Type of power plant	Installed capacity (MW)	Incentive price (c€ / kWh)					
			2014	2015	2016	2017	2018	2019
1	Hydro power plants							
1.1		Up to 0.2	12.57	12.62	12.60	12.74	12.92	13.132
1.2		from 0.2 to 0.5	13.92	13.97	13.933 – 6.667*P	14.086 – 6.740*P	14.283 – 6.6834*P	14.512 – 6.943*P
1.3		from 0.5 to 1	10.54	10.6	10.6	10.72	10.87	11.04
1.4		from 1 to 10	10.747 – 0.337*P	10.790 – 0.337*P	10.944 – 0.344*P	11.064 – 0.348*P	11.219 – 0.353*P	11.399 – 0.359*P
1.5		from 10 to 30	7.48	7.51	7.50	7.58	7.69	7.81
1.6	With the existing infrastructure	Up to 30	5.98	6.01	6.00	6.07	6.15	6.25
2	Biomass-fired power plants							
2.1		Up to 1	15.47	19.54	13.26	13.41	13.60	13.82
2.2		From 1 MW to 10 MW	14.013 – 0.56*P	14.069 – 0.56*P	13.82 – 0.56*P	13.97 – 0.57*P	14.17 – 0.58*P	14.40 – 0.59*P
2.3		Over 10	8.34	8.37	8.22	8.31	8.43	8.56
3.	Biogas-fired power plants							
3.1		From 0 - 2			18.333 – 1.111*P	18.535 – 1.123*P	18.794 – 1.139*P	19.095 – 1.157*P
3.2		from 2 to 5			16.85 – 0.370*P	17.035 – 0.374*P	17.273 – 0.379*P	17.549 – 0.385*P
3.3		Over 5			15.00	15.165	15.377	15.62
4.	Power plants fired by landfill gas and gas from plants for treatment of public utility waste water		7.01	7.03	8.44	8.53	8.65	8.79
5.	Wind powered power plants		9.33	9.37	9.20	9.30	9.43	9.58
6.	Solar power plants							
6.1	Roof-mounted	Up to 0.03	20.95	21.03	14.60 - 80*P	14.76 – 80.88*P	14.97 – 82.01*P	15.21 – 83.32*P
6.2	Roof-mounted	From 0.03 to 0.05	21.243 – 9.383*P	21.319 – 9.383*P	12.404 – 6.809*P	12.540 – 6.884*P	12.716 – 6.980*P	12.919 – 7.092*P
6.3	Ground-mounted		16.48	16.54	9.00	9.10	9.23	9.38
6.4		from 0.2 to 2	C_0 = 10.821– 1.333*P	C_0 = 10.860– 1.333*P	9.00	9.10	9.23	9.38
6.5		from 2 to 10	C_0 = 8.32	C_0 = 8.35	9.00	9.10	9.23	9.38
7.	Geothermal power plants							
7.1		Up to 1	9.81	9.84	8.2	8.29	8.41	8.54
7.2		from 1 to 5	10.503 – 0.688*P	10.545 – 0.688*P	8.2	8.29	8.41	8.54
7.3		Over 5	7.02	7.04	8.2	8.29	8.41	8.54
8.	Waste fired power plants		**8.69**	**8.72**	8.57	8.66	8.78	8.92
9.	Natural gas-fired combined cycle power plants							
9.1		Up to 0.5			8.20	8.29	8.41	8.54
9.2		from 0.5 to 2			8.447 – 0,493*P	8.540 – 0.498*P	8.660 – 0.505*P	8.799 – 0.513*P
9.3		from 2 to 10			7.46	7.54	7.65	8.77

Table 3-41: Structure of prices and applied prices (VAT and duties free) of electricity withdrawn from privileged producers in 2019

Privileged producers category		Quantity	Amount	Price
		MWh	000 RSD	RSD/MWh
1	Small hydro power plants	230,298	2,566,147	11.14
2	Biogas-fired power plants	136,070	2,627,412	19.31
3	Wind-fired power plants	892,994	7,065,447	7.91*
4	Solar power plants	10,941	280,544	25.64
4.1	Ground-mounted solar power plants	6,874	180,618	26.28
4.2	Roof-mounted solar power plants	4,067	99,926	24.57
5	Fossil fuel-fired combined heat and power plants	91,501	1,081,195	11.82
5.1	Gas-fired power plants	91,017	1,075,475	11.82
5.2	Coal-fired power plants	484	5,720	11.82
6	TOTAL	1,361,804	13,620,745	10.00

*Average price of procurement of electricity from wind powers is lower than the price prescribed in the Decree since some power plants have the status of temporarily privileged producer and, in this case, the procurement price amounts to 50% of the feed in tariff (paragraph (7) Article 4 of the Decree).

In 2019, final electricity customers paid a separate fee for stimulating privileged electricity producers in the amount of 0.093 RSD/kWh.

Table 3-42: Incentive fee for privileged electricity producers 2013 – 2019

RSD/kWh

	2013	2014	2015	2016	2017	2018	2019
RES incentive fee	0.044	0.081	0.093	0.093	0.093	0.093	0.093

Table 3-43: Level of collected privileged producers' incentive fee

	Collected (000 RSD, VAT free)
Revenue from electricity sale at acknowledged price	4,333,780
Revenue based on invoiced fee	2,746,098
- *EPS Snabdevanje*	2,571,301
- Other suppliers	174,797
Reduction of revenue for acknowledged irrecovery of 2%	-141,598
Total	6,938,280

Electricity quantities withdrawn from privileged producers in the last three years are presented in Table 3-42.

Table 3-44: Electricity withdrawn from privileged producers 2014-2019

MWh

Renewable energy source/ Fuel for combined production	2015	2016	2017	2018	2019
Water flow	151,223	192,453	183,233	265,917	230,298
Fossil fuels (coal, heating oil (mazoute) and natural gas) – combined production	44,265	78,188	112,446	105,814	91,501
Biogas	21,984	34,048	71,255	95,494	136,070
Solar energy	10,006	11,100	11,100	10,521	10,941
Other	417	26,237	48,457	150,419	892,994
TOTAL	**227,895**	**342,026**	**426,491**	**628,165**	**1,361,804**

In line with the obligations arising from EnC Treaty, Contracting Parties are obliged to reach certain percentages of increased share of renewable energy in gross final energy consumption until 2020. Therefore, Serbia assumed the commitment to have 27% of gross energy final consumption provided from renewable energy sources.

The Agency has no specific authority in the field of renewable energy sources, except for license issuance for the facilities with installed capacity of 1 MW or more.

3.8.4 Construction of new transmission capacities

In 2019, activities were taken on regular maintenance and overhaul as well as on facilities' reconstruction within the transmission system. Main investment activities in 2019 were related to the management of projects on investment construction, upgrade, reconstruction and modernization of existing facilities of the transmission system operator EMS JSC. In addition to the above mentioned, investment activities also included realization of projects on producers' and buyers' facilities connections and projects on connections among systems.

In 2019, EMS JSC obtained an Occupancy Permit for Section 1 of the first phase of TransBalkans Corridor (double-circuit) overhead line 400 kV TS Pančevo 2 – border with Romania) the construction of which was completed in 2017. Since the works on the construction of the overhead line on the Romanian side are not completed, one system of the overhead line temporarily operates under 110 kV from the direction TS Pančevo 2 and it was used to provide supply for the area of south Banat ("SouthBanat knot") while the other system operates 400 kV but it is not connected to the Romanian system until the border with Romania. The construction of this overhead line represents the beginning of the project of connecting eastern and western Europe via the territory of the Republic of Serbia by 400 kV lines which will additionally increase the security of supply of users in the Republic of Serbia as well. In addition, in 2019, EMS JSC participated in the activities related to the construction of other sections of the first phase of the TransBalkans Corridor such as the publication of the tender for equipment and works for Section 2 (overhead line 400 kV TS Kragujevac 2 – TS Kraljevo 3 with the reconstruction of TS Kragujevac). In addition, the realization of the project which is financed from the EU grant via WBIF (Western Balkans Investment Framework), grant for Section 3 (double-circuit overhead line 400 kV TS Obrenovac – TS Bajina Bašta) and for the Section 4 (interconnection between the Republic of Serbia, Bosnia and Herzegovina and Montenegro).

The most important investment works in the transformer stations during 2019 included the follow-up of the works on the reconstruction of TS 400/220/100 kV/kV/kV Smederevo 3 where complete equipment was replaced in the 110 kV facility in both bar systems 110 kV and this transformer station was commissioned in late 2019. In TS Srbobran 220/110 kV/kV, TS Kruševac 1 220/110/35 kV/kV/kV and TS Bistrica 220/110 kV/kV reconstruction works were continued. Other works of smaller scale in TS Beograd 5, TS Beograd 4, TS Beograd 17, TS Beograd 8, etc. were executed.

In 2019, the most important investment works on overhead lines included: construction of 400 kV overhead line No. 401/1 Beograd 8 – Drmno which connected TS Smederevo 3 to the 400 kV network. The construction of two-system 110 kV overhead line TS Bor 1 – TS Bor 2 was completed. The Construction of 110 kV overhead line Bela Crkva – Veliko Gradište was initiated. Works on reconstruction of 110 kV overhead line TS Valjevo 3 – HPP Zvornik and 110 kV overhead line TS Beograd 3 – TPP Kostolac A were continued. There were also other works of smaller scale. In addition to this, there was a considerable progress made in the activities on the construction of high voltage cables. The construction of the 110 kV cable TS Beograd 17 – TS Beograd 23 was completed and provided for TS Beograd 23 to be connected to the transmission system. The complete branch of cable 110 kV TS Kruševac 1 – TS Kruševac 3 was realized which represents the first high voltage cable of 110 kV out of Belgrade and the commission of it is expected in 2020. The works on the realization of the project Belgrade Waterfront were continued, i.e. on the construction of 110 kV cable TS Beograd 23 – TS Beograd 45 and of cable TS Beograd 45 – CHP Novi Beograd.

In 2019, EMS JSC issued numerous legal acts with a purpose of producers' and buyers' facilities connections and connections among systems s to the transmission system. Out of the of projects on producers' and buyers' facilities connections, the most important was the of connections of wind power plants Košava and Kovačica. Out of the projects on projects on connections among systems to the transmission system, the most important was the realisation of the connection of distribution transformer stations TS 110/20 kV/kV Krnješevci, TS 110/35/10 kV/kV/kV Niš Beograd 23, TS 110/35 kV/kV Gornji Milanovac and mobile TS installed into the TS Beograd 2.

The Law prescribes that the transmission system operator is obliged to adopt a transmission system development plan every year for the following 10-year period and to adopt a plan on investments into the transmission system for the following three-year period. The development plan is based on the amended version of the former one, in line with new insights and requirements, bearing in mind the experience in transmission network operation and maintenance. The plan is being harmonised with the plans of neighbouring distribution system operators and plans of transmission system operators. The position of the Serbian transmission system within a synchronised area of "Continental Europe" is considered and there is active participation in the preparation of a Ten Years Network Development Plan as well as the Regional Investment Plan within ENTSO-E. The goals of Pan-European ten-year development plan are to provide transparency related to transmission network development as well as the support to decision-making process on regional and European level which may happen in the future.

On January 3, 2019, EMS JSC submitted the Transmission System Development Plan of the Republic of Serbia for the period 2019-2028 and the Plan on Investments into Transmission System of the Republic of Serbia for the period 2019-2021 to the Agency and they were approved by the Agency. These plans are harmonized with the provisions of the Energy Law and harmonized with the ENTSO-E criteria. Pan-European Ten-Year Transmission System Development Plan and regional investment plans were also complied with.

Analysing the state of play in the transmission network within the Transmission System Development Plan, taking into consideration consumption forecast and expected commission of new generation units, *EMS* JSC proposed the construction of new facilities within the transmission network, i.e. rehabilitation or upgrade of existing ones. Thereby, existing and expected congestions could be removed and the efficiency of transmission system operations could be increased. The development plan was harmonised with the planned distribution system development, in line with the data submitted by DSO to *EMS* JSC during the Development Plan draft preparation phase.

As far as the 400 kV voltage level transmission network is concerned, the Development Plan defined interconnection projects and internal network projects. These projects are of regional and Pan-European importance for electricity transmission and they contribute directly to the long-term energy security of the Republic of Serbia. However, bearing in mind the results of the feasibility study, it is necessary to provide as many grants for these facilities as possible and, therefore, the issue of the source of financing of the construction of these facilities is open.

- The most important planned project of new interconnection within the Development Plan is the interconnection between the Republic of Serbia, Bosnia and Herzegovina and Montenegro, which represents Section 4 of the first phase of the Trans Balkans Corridor.

The following planned projects for internal 400 kV network may be highlighted:

- construction of new overhad line 400 kV TS Kragujevac 2 – TS Kraljevo 3 with the reconstruction of TS Kragujevac which represents Section 2 of the first phase of the Trans Balkans Corridor;
- in the western Serbia region, the upgrade of 220 kV network to 400 kV voltage level – the upgrade of hub Bajina Bašta to 400 kV voltage level and construction of new double-circuit 400 kV overhead line between TS Obrenovac and TS Bajina Bašta which represents Section 3 of the first phase of the Trans Balkans Corridor;
- construction of 400 kV facility instead of 220 kV in TS Srbobran and construction of lines for connection of TS Srbobran;
- new TS 400/110 kV in the south Banat region and
- reconstruction of TS Kragujevac 2, TS Pančevo, TS Bor 2, switching station for Đerdap 1.

Bearing in mind planned demand, construction of new electricity sources, planned development of regional and European network, new projects would contribute to the security of supply and reliability of system operations. The realization will also depend on financing conditions, especially as far as the construction of the section of Trans Balkans Corridor which relates to the interconnection between Serbia, Montenegro and Bosnia and Herzegovina is concerned.

In terms of the transmission network of 220 kV voltage level, the *EMS* JSC has a strategic plan to withdraw this network gradually, i.e. to increase its voltage level to 400 kV within the Trans Balkans Corridor Project. However, until this is completed, activities are taken on the construction of new switching station for CHP Pančevo, new TS 220/110 kV/kV Bistrica. It is also planned to increase the installed capacity in TS 220/110/35 kV/kV/kV Kruševac 1. Other projects on necessary adaptations and reconstructions of facilities on this voltage level are also planned.

In terms of the development of the 110 kV transmission network, the Development Plan offers solutions for the existing areas with insufficient security of electricity supply, first of all, for the area of Raška and south Banat, as well as for radially supplied areas. The 110 kV development is particularly important in order to harmonise with the distribution system development plan in order to enable the realisation of projects on connection between facilities of the transmission and distribution system as well.

The Investment Plan for the three-year period gives a review of investments for each year and describes investment demand from national, regional and European aspect. The realization of these investments considerably influences the increase of transmission capacities in the regional transmission network and, thereby, the electricity market development in Europe. From the national aspect, the Plan reviews the necessity to construction power infrastructure which will enable the increase in transmission capacity, market development on the national level, increase in transmission system reliability and increase in the security of customers' supply as well as the increased possibility to connect new conventional and renewable electricity sources.

The Energy Law defines that the Agency observes and assesses the realization of the ten-year transmission system development plan and includes the assessment of realized investment in the annual report. The Agency executed the observation process for 2019. In the Investment Plan for 2019-2021 which was approved by the Agency, the transmission system operator planned 90 projects for 2019 which include 39 new facilities, 50 reconstructions, adaptations and upgrades and 1 investments represents other investments into the transmission system.

Table 3-45 indicates the total planned and realized level of investments of the transmission system operator classified into different types of activities for 2019 in line with adopted Investment Plan.

Table 3-45: Planned and achieved level of investments into transmission network development for different types of activities for 2019

(€)

Type of activity	Planned level	Achieved level	Index

Construction of a new facility	14,827,000	14,589,000	98
Reconstruction, adaptation and upgrade	10,188,000	8,760,000	86
Other investments into the transmission system	3,922,000	4,088,000	104
Total	**28,937,000**	**27,437,000**	**95**

Table 3-46 indicates total planned and achieved level of investments of the transmission system operator for different voltage levels for 2019 in line with the adopted Investment Plan.

Table 3-46: Planned and achieved level of investments into transmission network development for different voltage levels for 2019

(€)

Voltage level	Planned level	Achieved level	Index
110 kV	16,194,000	12,888,000	80
220 kV	3,722,000	4,563,000	123
400 kV	5,099,000	5,898,000	116
All voltage levels – implementation of remote control	3,922,000	4,088,000	104
Total	**28,937,000**	**27,437,000**	**95**

3.8.5 Distribution system operator's investment activities

In line with the Law, the Distribution System Operator is obliged to adopt the distribution system development plan and the plan on investments into the distribution system which would be harmonised with the transmission system development plan and applications for the connection of customers' and producers' facilities to the distribution system. During 2019, the DSO was preparing these plans but they did not submit them to the Agency.

In 2019, DSO realised the activities on the revitalisation or replacement of existing old-fashioned equipment, especially in transformer stations 110/x kV/kV which were transferred from EMS JSC. Other measures on modernisation of DSO facilities were also taken.

Within the distribution system, the following works were either completed or initiated:

- On transformer stations:
  - Construction of new transformer stations, expansion and reconstruction of existing transformer stations. The most important activity is commissioning transformer stations TS 110/10 kV/kV Beograd 23 (Autokomanda) and TS 110/10 kV/ kV Beograd 45 (Savski amfiteatar). In 2019, EPS Distribucija obtained four mobile transformer stations from the EU and these will be used during reconstructions of existing transformer stations 110/35 kV/kV and in emergency situations in cases of extreme weather and natural disasters such as floods and fire. The biggest of the four transformer stations with 20 MWA capacity will be commissioned in trial operation in TS Beograd 2. Other mobile TSs during trial operation will supply some customers of Kruševac, Požarevac and Zlatibor and following this, they will be allocated in the distribution area of Kraljevo, Niš and Kragujevac;
  - on distribution lines:
    - Construction and reconstruction of a set of distribution lines within the distribution medium voltage network;
    - Construction of low voltage network, in line with the local growth in electricity consumption and transmission capacities development as well as with the need to upgrade quality of supply;
  - metering and management:
    - Upgrade of metering devices and further development of remote reading system has not been done to the planned scale.

The Law prescribes that, in addition to the distribution system development plan and plan on investments into the distribution system, the DSO is obliged to adopt and submit the plan of transfer of metering devices, metering and switching boards, installation and equipment in metering and switching boards, connection lines and other devices which are within the connection of customers' facilities, i.e. producers' facilities to the Agency for approval. The DSO complied with this obligation and on June 19, 2019, the DSO submitted the Plan for Transfer of Metering Devices for period 2019-2020 to the Agency as well as the report on achieved transfer in the period 2015-2018. On August 22, 2019, the Agency approved this plan. Based on Report on Realisation of the Plan for Transfer of Metering Points for 2019, it was concluded that the DSO did not implement the activities in line with the plan since only 3.19% of metering points planned to be transferred from the customers and none of metering points planned to be transferred from producers in 2019.

3.8.5.1 Smart grids

The Law prescribes that the DSO makes a plan on implementation of economically justified types of smart grid systems and submits it to the Agency for opinion-giving purposes. During 2019, the DSO did not submit the plan on implementation of economically justified types of smart grid systems to the Agency. The results of this plan should be an integral part of the distribution system development plan and investment plan.

In the future, it is necessary for the DSO to comply with this legal obligation. Smart grids and measurement systems will enable high reliability and quality level of delivered electricity. They will stimulate better consumption management and more dynamic market, as well as considerate reduction of technical and commercial electricity losses.

3.8.5.2 Reduction of electricity losses in the distribution network

In 2019, there was a reduction of losses in the distribution network which were reduced by 0.45% in comparison to 2018 losses and they amount to 11.75% of electricity withdrawn into the distribution system. The activities on the reduction of losses have to be intensified in the future since losses should be limited to technically acceptable level. Regular activities on the metering devices checks and on the transfer of metering devices and connection lines have to be performed in line with legal obligations and adopted plans. In 2019, checks were made only on 5% of planned metering points.

In the future, it is necessary to implement measures which should contribute to loss reduction and which are also envisaged by the DSO loss reduction plan and which include:

- construction of new network facilities, overhead lines and transformer stations;
- transfer of metering devices, switchboards, connection lines, installation and equipment in the switchboard and other devices within the connection in the facilities of existing customers and their operation in line with technical regulations and distribution system code;
- procurement and installation of new meters with most of customers;
- modernisation of the remote measuring system and consumption management;
- improvement of technical and business system for calculation and collection of electricity bills;
- activating existing devices and construction of new ones for reactive power compensation and
- improvement of cooperation with state bodies as regards electricity theft prevention.

4. NATURAL GAS

4.1 Sector structure and capacities

4.1.1 Organisational and ownership structure

Gas sector organisational structure at the end of 2019 is given in Figure 4-1. *Naftna industrija Srbije* (Petroleum Industry of Serbia) JSC, Novi Sad (hereafter NIS JSC) is the only natural gas producer. Gas production is not a regulated activity.

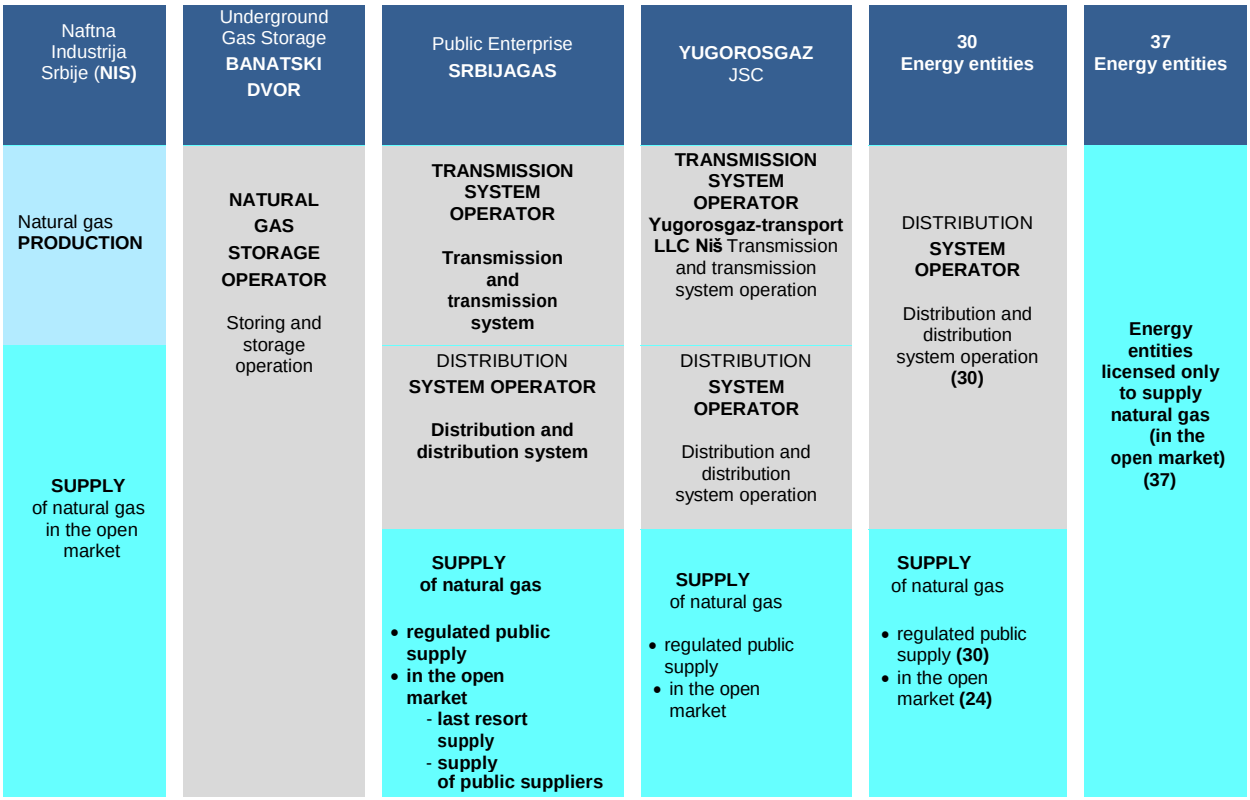

Figure 4-1: Organisational structure of the natural gas sector at the end of 2019

In Serbia, natural gas transmission and transmission system operation are performed by two transmission system operators (TSO): PE *Srbijagas*, Novi Sad and Yugorosgaz-Transport LLC, Niš. In 2015, TSO Yugorosgaz-Transport LLC completed legal and functional unbundling from a vertically-integrated company „Yugorosgaz" JSC Belgrade in line with the independent system operator model. In PE *Srbijagas*, decisions on legal and functional unbundling of TSO – *Transportgas Srbija* LLC from the parent company were adopted. In the end of 2019, *Transportgas Srbija* LLC started performing some of the segments of their activities.

Natural gas distribution and distribution system operation are performed by 32 distribution system operators (DSO). One energy entity holding a licence does not perform this activity. Apart from DSO PE *Srbijagas* and Yugorosgaz JSC, this activity is performed by another 30 companies. Most of them are owned by municipalities and towns, some of them are public-private partnership, and some of them are private companies. All DSOs have less than 100,000 connected final customers, they are also entitled to perform supply, in the regulated market and in the open market and they are not obliged to unbundle the system operator and supplier (pursuant to the Article 259 of the Law). In 2015, PE *Srbijagas* adopted a decision on the establishment of a daughter company for the performance of natural gas distribution – Distribucija Srbija LLC Novi Sad which has not started operating until the end of 2019. For this reason, natural gas distribution is still performed by its founder - PE *Srbijagas*.

In the end of 2019, there were 64 energy entities licenced for the supply in the open gas market. Out of the number, 26 suppliers were active. There were 32 public suppliers performing natural gas public supply of final customers at regulated prices and these companies also deal in natural gas distribution.

In line with the Law, for 2019, the Government of the Republic of Serbia appointed PE *Srbijagas* as the supplier of public suppliers and supplier of the last resort of final customers who are entitled to it by the Law.

Storage operator performs natural gas storage and storage operation. There is only one storage, Natural Gas Underground Storage Banatski Dvor, LLC, founded and owned by PE *Srbijagas* (49%) and Gazprom Germania (51%). This was defined on the basis of the Agreement of the Republic of Serbia and the Government of the Russian Federation on Cooperation in Oil and Gas Industry (Law on Confirmation of the Agreement of the Republic of Serbia and the Government of the Russian

Federation on Cooperation in Oil and Gas Industry “Official Gazette of RS – International Agreements, No. 83/08) concluded in January 2008. The agreement on the realisation of the joint project was signed in October 2009.

4.1.2 Production, transmission, distribution and storage capacities

4.1.2.1 Production

Natural gas production in Serbia is realized in Vojvodina area and the only natural gas producer is Company for Exploration, Production, Processing and Trade in Oil and Oil Derivatives and Exploration and Production of Natural Gas *Naftna Industrija Srbije* (Petroleum Industry of Serbia, hereafter: NIS). After preparation process which makes produced gas applicable to final customers, produced gas is delivered to 10 points into the transmission system while much smaller quantities (around 3.1% of produced volume) are delivered to 4 points into the distribution system. The total annual production which was delivered to the transmission and distribution system in 2019 amounted to 293 million m^3 which is 12.5% less than last year production volume. After significant growth in 2011 and 2012, production has been constantly decreasing.

Table 4-1: Natural gas production in Serbia in period 2010 - 2019

Production/Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Delivered to transmission system	331	441	466	451	453	422	388	366	327	284
Delivered to distribution system	21	21	18	17	14	10	11	7	8	9
Total production (million m^3)	352	462	484	468	467	432	399	373	335	293
Variation in comparison to (n-1) year		31.3	4.8	-3.3	-0.2	-7.5	-7.6	-6.5	-10.2	-12.5

Out of the total volume delivered into the transmission and distribution system in 2019, 51.8 million m^3 (17.6%) of natural gas was sold to other suppliers and final customers, while larger volume of natural gas was spent by NIS to cover its own demand, mostly in Pančevo oil refinery.

4.1.2.2 Transmission

At the end of 2019, the length of the transmission system where PE *Srbijagas* performs the activity amounted to 2,339 km in north and central Serbia, while the length of the Yugorosgaz transport LLC transmission system amounted to 125 km in southeast Serbia (Table 4-2). PE *Srbijagas* operates 95% of the gas transmission network, while Yugorosgaz –Transport LLC operates the remaining 5% of gas transmission lines.

Table 4-2: : Length of the transmission network in Serbia in 2010 - 2019

Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Network length, km	2,258	2,321	2,391	2,398	2,423	2,423	2,423	2,459	2,464	2,464

Around 5 million people or around 70% of Serbian population live in areas with developed transmission grid and which provides for the potential for further development of the gas system and natural gas consumption growth.

Table 4-3: Important technical characteristics of the transmission system

Important technical characteristics of the transmission system	PE *Srbijagas*	Yugorosgaz-transport LLC
Capacity, mill. m3/day	≈ 18	≈ 2.2
Pressure, bar	16 - 75	16 - 55
Length, km	2,339	125
Diameter	DN 150 - DN 750	DN 168 - DN 530
Compressor station, power, MW	4.4	-
Number of entries into the transmission system	12	1
From another transmission system	1	1
From production fields – domestic gas	10	-
From the storage	1	
Number of exits from the transmission system	247	5
Metering and regulating stations on transmission system exit	244	5
Overtaking stations	2	-
Entry into Yugorosgaz transmission system	1	-
Interconnector towards Bosnia and Herzegovina	1	-
Natural gas storage	1	

Table 4-3 indicates the most important technical characteristics of the transmission system of PE *Srbijagas* and of the system managed by Yugorosgaz transport LLC.

Transmission system operators were obliged as early as of 2011 to provide automatic collection and processing of the data on natural gas flows with collection interval of 24 hours or shorter for all delivery points from the transmission system. Such metering and data acquisition equipment is necessary for market functioning and development. So far, it has been installed in all exits on the system which is operated by Yugorosgas-transport LLC and on 35% of the total number of exits from PE *Srbijagas* transmission system and on 62% of the total number of exits from the PE Srbijagas transmission system. Since adequate metering and data acquisition equipment was installed on 35% of the total number of exits in the end of 2016 and since in the end of 2017 it was installed on 61% of exits from the PE Srbijagas transmission system, one may conclude that the activities on the replacement of inadequate metering and data acquisition equipment on the PE Srbijagas transmission system slowed down in the past two years. The percentage of natural gas quantities which are delivered from exits from the transmission system with daily metering in comparison to the total quantity of natural gas is even higher since adequate metering equipment is installed first on exits where greater natural gas quantities are delivered.

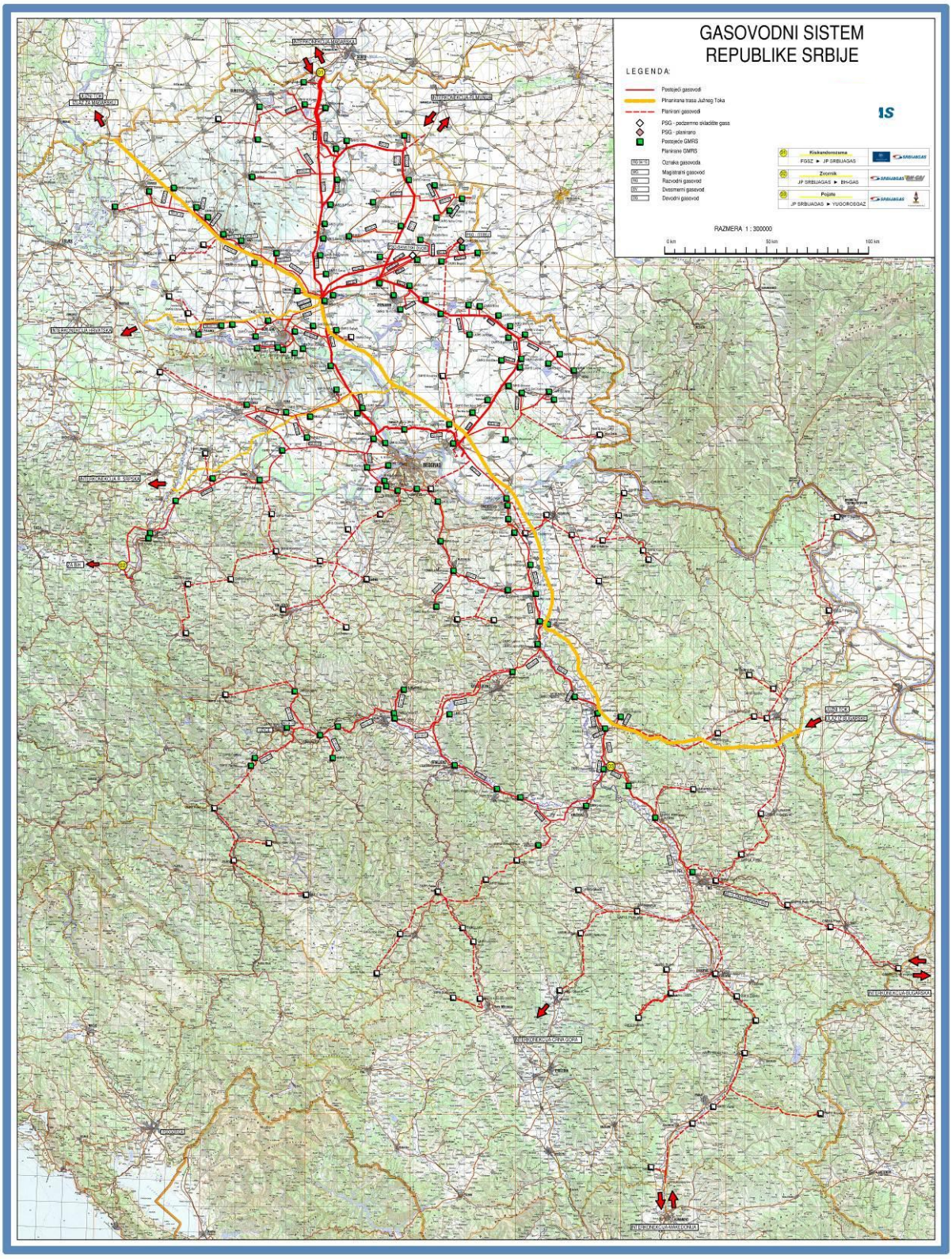

Figure 4-2: Natural gas transmission system of the Republic of Serbia

4.1.2.3 Distribution

In the beginning of 2019, 32 distribution system operators performed natural gas distribution and distribution system operation. There is one more licenced distribution system operator but it has not started performing the activity yet. The length of the distribution network in Serbia has increased from 2013 till the end of 2019 by 21.76%, i.e. to 19,286 km (without connections) thus creating the conditions for the connection of new customers. In comparison to the 2018, the network was extended by 864 km which amounts to 4.69% increase which represents a low level of investments in distribution networks. The greatest percentage of increase in distribution network length in 2019 was with the DSO *Srbijagas* (which performs the activity on 54.38% of the total distribution network in Serbia) and it amounted to 8.58%. The second largest increase in the length of the distribution network was realised with the DSO Užice-gas and it amounted to 7.39%. With 17 DSOs, there were no changes in the length of the distribution network in comparison to 2018.

Table 4-4: Length of the distribution network in Serbia in 2013 - 2019

	2012	2013	2014	2015	2016	2017	2018	2019
Length of the distribution network	15,348	15,839	16,363	16,532	16,653	16,961	18,422	19,286

The number of active connections (delivery points) within distribution networks amounts to 282,997. In comparison to the previous year, it has been increased by 6,479 connections (i.e. by 2.34%).

Table 4-5: Length of distribution network and number of delivery points in the end of 2019

No.	Natural gas distributor	Distribution grid length, m	Number of active connections
1	7. Oktobar, Novi Kneževac	54,354	1,576
2	Beogas, Belgrade (with merged Rodgas)	435,902	11,323
3	Beogradske elektrane, Novi Beograd	331,420	4,226
4	Boss construction, Trstenik	29,438	96
5	Čoka, Čoka	27,195	807
6	Drugi oktobar, Vršac	198,443	12,685
7	Elgas, Senta	61,500	1,888
8	Gas – Feromont, Stara Pazova	489,989	15,254
9	Gas – Ruma, Ruma	472,714	7,651
10	Gas, Bečej	198,197	1,864
11	Gas, Temerin	266,500	6,904
12	Graditelj, Srbobran	150,200	2,361
13	Gradska toplana, Zrenjanin	512,651	21,768
14	Ingas, Inđija	362,074	10,381
15	Interklima, Vrnjačka Banja	109,075	1,059
16	Komunalac, Novi Bečej	121,158	2,364
17	Kovin – Gas, Kovin	333,094	4,087
18	Loznica - Gas, Loznica	182,498	1,921
19	Novi Sad – Gas,Novi Sad	2,376,156	47,666
20	Polet, Plandište	239,300	3,537
21	Resava Gas, Svilajnac	62,737	433
22	Cyrus energy, Belgrade	21,460	2,000
23	Sigas, Požega	19,987	333
24	Sombor – Gas, Sombor	172,000	2,115
25	*Srbijagas*, Novi Sad	10,487,687	94,132
26	Srem - Gas, Sr*EM*Ska Mitrovica	276,074	5,503
27	Standard, Ada	42,140	1,037
28	Suboticagas, Subotica	419,174	10,678
29	Toplana – Šabac, Šabac	170,381	2,834
30	Užice – gas, Užice	165,778	1,717
31	Vrbas – Gas, Vrbas	186,388	1,724
32	Yugorosgaz, Beograd	310,107	1,073
	TOTAL	19,285,771	282,997

Plan for the transfer of metering devices, i.e. metering and regulation stations

The Law prescribed the obligation of a DSO to adopt a plan for transfer of metering devices, i.e. metering and regulation stations (MU/MRS) in the facilities of current customers, i.e. producers and to report to the Ministry of Mining and Energy and the Agency twice a year on planned and taken activities on the realisation of the transfer plan. The goal is to transfer (take over) all MD/MRS until December 31, 2020.

Following the entry into force of the Law, out of 33 DSOs, all MD/MRS in 17 of them are owned by the operator. In the remaining 16 DSOs, around 47% of MU/MRS (90,958 out of 195,000) were not owned by DSOs. One DSO is under bankruptcy and it does not perform DSO activity, 14 of them submitted their transfer plans which were approved by the Agency while the plan of the PE "*Srbijagas*" was not submitted for approval purposes to the Agency officially.

Table 4-6 summarises the MD/MRS transfer plan for 2015 - 2018 as well as the transfer plan for period 2020 and the number of MD/MRS which the operators should take over in total. Based on submitted data, the number of MD/MRS which were transfered in 2015 – 2018, in 2019 were presented, as well as the percentage of realisation of the plan for the 2015-2019 period. In the period from 2015 till 2019, 50,339 MD/MRS were transferred, around 62.5% of 80,664 MD/MRS planned to be transferred in this period. There was a deviation from the plan since a certain number of DSOs transferred significantly lower number of MD/MRS than planned. If significant changes are not made in this area within DSO activities, the legal obligation of DSO to take over all MD/MRS inscripted into its ownership will not be realized by 2020.

Table 4-6: Plans of MD/MRS transfer and realisation

No.	Distributer	MD/MRS transfer plan per year				MD/MRS transfer plan realisation per year				
		2015-2018	2019	2020	Total	2015-2018	2019	2015-2018 (%)	2019 (%)	Total 2015-2019(%)
1	"*Srbijagas*" Novi Sad	6,051	2,016	2,016	10,083	20	0	0.33	0.00	0.25
2	"Novi Sad Gas" Novi Sad	36,416	7,826	537	44,779	28,535	1,043	78.36	13.33	66.86
3	"Gas-feromont" S. Pazova	4,804	1,500	1,335	7,639	3,311	1,024	68.92	68.20	68.77
4	"Ingas" Inđija	2,041	1,557	195	3,793	3,146	1,021	154.14	65.58	115.81
5	"Gas Ruma" Ruma	1,026	319	313	1,658	338	314	32.94	98.43	48.48
6	"GAS" Temerin	3,900	1,300	1,042	6,242	3,066	206	78.62	15.85	62.92
7	"Polet" Plandište	1,734	578	574	2,886	1,886	583	108.77	100.87	106.79
8	"Kovin Gas" Kovin	1,710	570	571	2,851	1,068	573	62.46	100.53	71.97
9	"Graditelj" Srbobran	1,377	450	450	2,277	656	849	47.64	188.67	82.38
10	"Komunalac" Novi Bečej	1,368	450	441	2,259	86	20	6.29	4.44	5.83
11	PE "Vrbas-Gas" Vrbas	398	133	98	629	0	0	0.00	0.00	0.00
12	"Sombor-Gas" Sombor	253	84	84	421	257	85	101.58	101.19	101.48
13	"Gas-Bečej" Bečej	966	321	317	1,604	132	4	13.66	1.25	10.57
14	"Loznica-Gas" LLC Loznica	15	1	1	17	15	1	100.00	100.00	100.00
15	"Srem-gas", S.Mitrovica	0	1,500	2,320	3,820	0	2,100	0.00	140.00	140.00
	Total:	**62,059**	**18,605**	**10,294**	**90,958**	**42,516**	**7,823**	**68.51**	**42.05**	**62.41**

The number of MU/MRS – 90,958 - which should be transferred should be extended by 4,061 additional ones since they belong to the distribution network of ZIP (handcraft –installation company) "Sloga" Kanjiža which went bankrupt and where PE "*Srbijagas*" Novi Sad performs energy activities of general interest in line with the Conclusion of the Government of the Republic of Serbia but has no right to become the owner of metering devices.

4.1.2.4 Storage

Underground gas storage Banatski Dvor is very important for the security of natural gas supply. It is located on the depleted gas deposit whose capacity used to amount to 3.3 billion m3 of natural gas. Total area of the storage amounts to around 54 km^2. The operational volume of the storage amounts to 450 million m^3 of natural gas while the maximum storage withdrawal capacity amounts to 5 million m^3/day.

Banatski Dvor storage was commissioned in November 2011. Bidirectional gas pipeline Gospođinci – Banatski Dvor enables unhindered and full connection of the underground gas storage with the transmission system of PE *Srbijagas*. The basic data on this gas pipeline are the following:

- length 42.5 km
- nominal diameter DN 500
- maximum working pressure: pmax=75 bar
- maximum gas flow:
  - withdrawal from UGS B. Dvor Q=415,000 m^3/h (10 million S m^3/day) and
  - injection into UGS B.Dvor Q=230,000 m^3/h (5.5 million S m^3/day).

After the second development phase, the operational storage volume will be increased to 800 million m^3 of natural gas. The underground storage is connected by two gas pipelines to the gas pipeline junction point in Elemir.

In 2019, maximum technical capacity of injection was 2.7 million m^3/day and maximum withdrawal capacity (from the storage) was 5.0 million m^3/day.[13] Maximum daily injection quantities in 2019 amounted to 2.7 million m^3/day and maximum daily withdrawn quantities recorded 4.9 million m^3/day.

In 2019, the cushion gas quantity in the storage did not change and it amounted to 530 million m^3.

In 2019, more natural gas was injected into the storage than withdrawn from it. In the beginning of 2019, there were 374 million m^3 of commercial gas. 315 million m^3 of gas was injected from the transmission system into the storage, out of which 4.4 million m^3 were spent to cover the storage demand. The remaining 311 million m^3 of commercial gas were injected for commercial purposes. Users withdrew from the storage 112 million m^3 from the storage, and this is also the volume injected into the transmission system. In the end of 2019, 572 million m^3 of commercial gas were stored in the storage.

4.2 Natural gas consumption and supply sources

In 2019, 2,609 million m^3 of natural gas were available from: import, local production and underground storage. 2 million m^3 in total were available for consumption and 2,325 million m^3 of natural gas were consumed.

Most of natural gas quantities are provided through import from the Russian Federation based on the long-term contract. The company Yugorosgas JSC (shareholders: Gazprom 50%, PE *Srbijagas* 25% and Central ME Energy and Gas, Vienna 25%) procures natural gas from Gazprom for customers in Serbia.

In 2019, natural gas import from the Russian Federation in line with a long-term contract and other contracts amounted to 2,197 million m³. Whole imported volume was withdrawn from the Hungarian transmission system.

In 2019, local production of 293 million m³ could meet only 12.6% of the demand.

Table 4-7: Natural gas supply sources and consumption in 2018 and 2019

	2018 million m^3	2019 million m^3	2018/2019 Index
Local production	**335**	**293**	**87**
Import from the Russian Federation – via long-term contract	2,069	1,756	85
Import from other sources – via other contracts	135	441	326
Total import	**2,204**	**2,197**	**99**
Quanities withdrawn from the underground storage	241	119	49
TOTAL AVAILABLE QUANTITIES	**2,780**	**2,609**	**94**
Injected into the storage	218	258	131
Gross consumption	2,562	2,351	92
Transmission system losses and consumption	25	10	40
Distribution network losses and one's own demand	18	16	89
For final consumption	**2,519**	**2,325**	**92**

The number of delivery points in 2019 was increased by 6,479 in comparison to 2018. At the end of 2019, it amounted to 283,060. There were 63 of them on the transmission system and 282,997 delivery points on the distribution system. Out of the number, households accounted for 268,911 or 95%, i.e. only around 11% of all households in Serbia.

[13] Technical capacity of the storage was set on 20°C and pressure of 1.01325 bar, while the value of maximum withdrawn and injected quantities are set at temperature of 15°C and pressure of 1.01325 bar, with heat value of Hd= 33,338.35 kJ/m^3.

Table 4-8: Number of delivery points at the end of 2018 and 2019

Consumption category	2018	2019	Variation 2019-2018
Households	262,814	268,911	6,097
District heating companies	133	141	8
Industry and other	13,634	14,008	785
Total	**276,581**	**283,060**	**6,479**

In 2019, 2,325 million m³ of natural gas was consumed. It amounts to 8% less than in 2018. Consumption in households increased by around 5%. In district heating companies, it dropped by slightly less than 9%, while in industry, it dropped by more than 9%.

Consumption structure for different categories is given in Table 4-9.

Table 4-9: Consumption structure in 2018 and 2019

Consumption category	2018 million m³	2019 million m³	2019/2018 Index
Households	243	255	104.9
District heating companies	547	500	91.4
Industry and other	1,729	1,570	90.8
Total	**2,519**	**2,325**	**92.3**

Households consumption accounts for 11% of final natural gas consumption in 2019. Disctrict heating companies consumption accounted for 22%, while industry and other customers covered 67% (this consumption includes the quantities purchased in the market and the quantities NIS spent from its local production).

The structure of the final natural gas conusmption in 2019 is given in Figure 4-3.

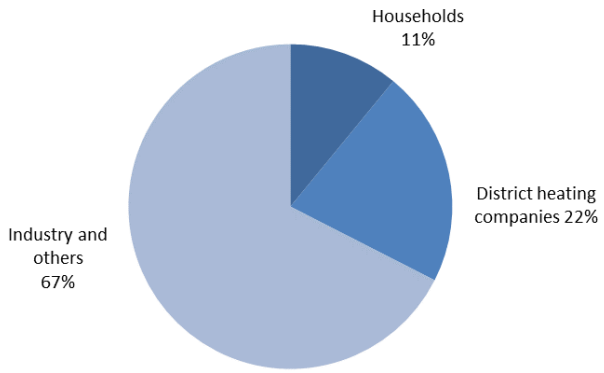

Figure 4-3: Structure of natural gas consumption in Serbia in 2019

Average annual natural gas consumption per connected household amounted to 948 m³ in 2019 (including active delivery points for households which did not consume gas during 2019) which amounts to 2% more than in 2018. If one only takes into account the households which consumed natural gas during 2019 (there were 247,937 of them), average annual consumption per household amounted to 1,028 m³.

4.3 Regulation of the transmission system operator

The transmission system operator *Transportgas Srbija* LLC is a company which started performing some of its activities in the end of 2019, which is why natural gas transmission and transmission system operation is still performed by its founder – PE *Srbijagas*.

In 2013, “Yugorosgaz-transport” LLC is the transmission system operation which completed legal and functional unbundling from its founder - the vertically-integrated company “Yugorosgaz” JSC and obtained the licence for transmission and transmission system operation in line with the law regulating the energy sector at that time.

PE *Srbijagas* Transmission Network Code was adopted and published in the Official Gazette of RS in August 2013 and it is still applicable. New code was drafted and harmonized with the Law, but it was not submitted officially to the Agency for approval purposes in 2019.

"Yugorosgaz" JSC submitted a draft of the Natural Gas Transmission Network Code in December 2014. The Agency approved the Code in January 2015 and the Code is in force. The Code should be harmonised with the Law and the Code of *Transportgas Srbija* LLC once it is adopted.

4.3.1 Unbundling of the Transmission System Operator

In the end of 2014, the Government of the Republic of Serbia adopted a Conclusion on Grounds for Restructuring of PE *Srbijagas* which defined that the transmission and distribution system operators should be legally unbundled entities from PE *Srbijagas* while owned by PE *Srbijagas*. The Plan was also harmonized with the Energy Community thereby representing a feedback to the invitation of the Energy Community Ministerial Council sent to Serbia in September 2014 asking Serbia to comply with its obligations arising from the Treaty establishing the Energy Community regarding the unbundling of the transmission system operator.

PE *Srbijagas* Supervisory Board adopted a decision on the establishment of *Transportgas Srbija* LLC as well as the decision on the establishment of Distribucijagas Srbija LLC on June 22, 2015. On the session held on June 27, 2015, the Government of the Republic of Serbia approved these decisions. These companies were established on August 22, 2015 and registered in the registry of companies as active companies but they did not start operating.

By the Decision of November 19, 2015, the Government of the Republic of Serbia enabled the companies *Transportgas Srbija* LLC and Distribucija Srbija LLC to perform the activities of general interest, transmission and transmission system operator and distribution and distribution system operation under PE *Srbijagas* licence until the licence validity period expires. The Government also recommended that all necessary activities are taken in order to obtain relevant licences as soon as possible.

In addition, by the Conclusion of December 23, 2016, the Government of the Republic of Serbia enabled PE *Srbijagas* to continue performing the activity of general interest – transmission and transmission system operation either independently or via the company *Transportgas Srbija* LLC until the licence for the performance of this activity is obtained. The Government recommended to *Transportgas Srbija* LLC to take all necessary actions in order to obtain this licence as soon as possible.

In line with the EU regulations, the 2014 Energy Law defined three models of organization, i.e. unbundling of the transmission system, i.e. as: transmission system operator in line with ownership unbundling model, independent system operator and independent transmission operator.

On November 22, 2018, Transportgas Srbija LLC submitted an application for certification according to the independent transmission operator (ITO model) model, but this application was denied by the Agency in February 2019 since the company did not submit the prescribed documentation in the legal time framework and did not thereby prove the compliance with the conditions prescribed for certification according to ITO model.

Transportgas Srbija LLC resubmitted the ITO model certification application on May 31, 2019 but this application was also denied for the same reasons by the Agency on September 20, 2019.

The Transmission System Operator Yugorosgaz-Transport LLC was legally unbundled from Yugorosgaz JSC which is the owner of it. On September 2013, Yugorosgaz-Transprot LLC obtained licence for natural gas transmission and transmission system operation. Legal and functional unbundling was performed prior to Law adoption and the certification of this operator and licencing was performed in line with the Law.

Acting within the legal timeframe for certification, in August 2016, Yugorosgaz-Transport LLC submitted an application for certification according to the Independent System Operator (ISO model) model to the Agency. Bearing in mind the ownership structure of this company and its mother company, this application was also treated as an application for the certification of a transmission system operator related to third countries.

By adopting a decision in December 2016, the Agency certified Yugorosgaz – Transport LLC Niš as an independent system operator but under the condition that wihtin a year the company should harmonise its organisation and operation in a way providing for the compliance with conditions related to the independence ofthe system operation in line with the given model. Otherwise, the certificate will be withdrawn. The harmonisation implies the harmonisation of ratified international treaties concluded with the Russian Federation and the EU, i.e. the countries of the Southeastern Europe which should be done beforehand. In addition, the system operator is instructed to submit the ten-year transmission system development plan, the programme for non-discriminatory treatment and an act signedwith the transmission system ownerwhich provides for the guarantees which will enable financing of the transmission system development within the same deadline.

The final certification decision was adopted following a procedure prescribed by the law, with the participation of a competent body which issues its opinion on this in line with the obligations arising from ratified international treaties. Namely, by the Decision of the Agency Council of June 2017, Yugorosgaz-Transport LLC was certified as an Independent System Operator with an obligation to harmonise its organization and operation in a manner providing for the compliance with conditions related to independence. They were also obliged to submit the compliance programme and evidence on natural gas procurement meant for recovery of losses within the transmission system. The deadline for the compliance with the conditions was one year. Otherwise, the certificate would be withdrawn. From all the above given, the first condition is beyond the jurisdiction of the Agency and its compliance depends exclusively from competent state authorities.

In line with the Decision of the Agency Council, since 13/07/2019, Yugorosgaz-Transport LLC was awarded with an additional one-year period for the compliance with the certification conditions according to the Independent System Operator model with an obligation to inform the Agency once in two months on the activities taken to that end. Since Yugorosgaz-

Transport LLC did not submit all the evidence on the compliance with the conditions set in the Final Certification Decision to the Agency after the prescribed deadline, on July 15, 2019, the Agency Council adopted a decision on the withdrawal of the certificate issued by the final certification decision of June 2017 to Yugorosgaz-Transport LLC.

Acting in line with the 2014 Law and the Decision of the Energy Agency of the Republic of Serbia on Exemption of New Natural Gas Interconnector ("Official Gazette of RS", No. 15/19), the Limited Liability Company GASTRANS LLC, Novi Sad submitted a certification application on June 25, 2019.

By the decision of August 15, 2019 (Preliminary Decision), the Agency Council certified GASTRANS LLC conditionally as an Independent Transmission Operator to the extent it is in compliance with the approved exemption (ad hoc ITO model) with an obligation to submit all occupancy permits or to register ownership rights over the transmission system facilities and to submit evidence confirming its independent operation and operation over the built transmission system. The deadline for the compliance was 6 months. Otherwise, the certificate would be withdrawn.

The body competent in line with obligations arising from ratified international treaties (Energy Community Secretariat) submitted their Opinion on the Preliminary Decision on Certification of GASTRANS LLC on December 22, 2019. In line with the Law, the Agency is obliged to adopt a final decision on certification 2 months following the receipt of the opinion. The procedure launched upon the GASTRANS LLC application for certification is ongoing.

4.3.2 Price regulation

4.3.2.1 System connection costs

Transmission system connection costs are set by TSO on the basis of elements from the connection application and on the Methodology for Setting Costs of Connection to Natural Gas Transmission and Distribution System ("Official Gazette of RS", No. 42/16; valid as of 01/05/2016) which is adopted by the Agency. The Methodology sets types of costs: design and collection of necessary documentation, procurement of devices, equipment and material, execution of works, as well as the method of calculation of all costs. After connection costs are set in the connection decision, the TSO is obliged to use market price of goods, works and services.

The applicant for connection bears the costs of connection to the transmission system. Connection service costs are set by the TSO in line with true costs of individual connection and prescribed segment of cost which was caused by the connection of an applicant's facility to the system.

Since connections on the transmission system cannot be standardized and since each of them is a project of its own, the TSO is obliged to comply with the principles with publicity and non-discrimination and to give the applicant, upon his/her request, insight into the documents which serve as the basis for setting the level of connection costs and for the method of calculation of these costs. The applicant has to cover true connection costs and a part of costs for system development which arose from this connection which depend on characteristics of that connection.

4.3.2.2 Use-of-system charges

The natural gas transmission use-of-system charges were not modified in 2019.

Table 4-10: Average approved natural gas transmission use-of-system charge[14]

RSD/m^3

Transmission system operator	31/12/2018	31/12/2019
Srbijagas	2.70	2.70
Yugorosgaz-Trasnport	0.76	0.76

Current charges and chronological review of the natural gas transmission use-of-system charges are available on the website of the Agency (www.aers.rs).

4.3.2.3 Prices of Non-Standard Services

The Law prescribes that in addition to providing services to customers and system users which are charged via use-of-system charge or via connection costs, upon a customer's, i.e. system user's request, the transmission system operator also provides services which are not included in the above stated prices. In addition, the operator provides services when necessary in order to remove the consequences arising from a customer's or system user's acts which are contrary to regulations. Since these services are individual and occurring from occasionally upon a customer's or system user's request, they are called non-standard services.

[14] Average approved charge is the quotient of the maximum approved revenue and approved natural gas quantities

4.3.3 Access to cross-border capacities

The Republic of Serbia has two interconnections with gas pipeline systems of neighbouring countries (one entry and exit point):

- Hungary – Serbia (Kiskundorozsma) – entry point and
- Serbia – Bosnia and Herzegovina (Zvornik) – exit point.

Both interconnections are a part of PE *Srbijagas* transmission system, while there are no gas pipelines connected with the transmission systems of neighbouring countries within the Yugorosgaz JSC transmission system.

In line with PE *Srbijagas* Transmission Network Code which was adopted in 2013 and which is still applied, the first annual capacity allocation was supposed to be organized in early 2014 for the gas year starting in July 2014. The first capacity allocation was postponed for 2015, and afterwards for 2016, but since legal unbundling of the transmission system operator from PE Srbijagas was not performed in line with this code, the allocation was not organized in the years that followed as well.

New code was prepared, harmonized with the Law. The code includes a modification in comparison to the ruling code implying that the capacity allocation on the transmission system should be organized for the gas year beginning in October, but it will be possible to apply the code once Transporgas Srbija LLC starts performing transmission and transmission system operation and obtains the approval of the Agency of this code.

4.3.3.1 Capacity allocation on interconnection lines and congestion management

As it is mentioned, both interconnections are a part of the transmission system of PE *Srbijagas* and the transmission system operator of PE *Srbijagas* in its network code defines the rules for the allocation of all transmission capacity, cross-border capacity included as well as the rules for congestion management. The latest amendment to the PE Srbijagas Transmission System Operation Code envisaged that the first capacity allocation was supposed to be organised in early 2016 for the gas year which begins on July 1, 2016. However, the allocation was not organised then and it was not organised in 2017 and 2018 either. The right to use capacity on interconnection gas pipelines is awarded by PE *Srbijagas*, i.e *Transportgas Srbija* LLC. However, the transmission system operator did not organise the allocation in 2019 either in line with the transmission network code since the unbundling of the operator from its owner was not completed.

On the entry point Hungary – Serbia (Kiskundorozsma), capacity was used by: PE *Srbijagas*, Gazprom Export and Gas Production and Transport Company BH – Gas LLC Sarajevo while the exit capacity on the interconnection towards Bosnia and Herzegovina was used by BH – Gas, Gazprom Export and PE Srbijagas. In 2019, there was no capacity congestion. There were sufficient free capacity on interconnectors even during winter months.

In 2019, the utilisation rate of the entry firm capacity on Serbian-Hungarian border amounted to average 52.69% which is the same as in 2018 with 540,000 m^3/hour (13 million m^3/day to cover the demand in Serbia and Bosnia and Herzegovina), but it is important to bear in mind that natural gas consumption depends on the season and therefore, it is uneven. For this reason, capacity utilisation is considerably lower during summer. The highest daily quantity withdrawn into the transmission system on the entry from Hungary amounted to 12.56 million m^3/day in December 2019. Out of the volume, 11.20 million m^3/day was used by customers in Serbia, while 1.35 million m^3/day were intended for Bosnia and Herzegovina. With the available interconnector capacity of 13 million m^3/day and the interconnector usage rate of 90%, annual transport of around 4.27 billion m^3 is viable. This is considerably higher than 2.5 billion m^3 which were the quantities transported on the interconnector Hungary – Serbia in 2019.

In March 2019, as a project company, GASTRANS LLC organized capacity allocation for the period of maximum 20 years on interconnection points on the border with Bulgaria as the point of entry into the future transmission system and on exit points in Serbia and towards Hungary. Out of the total gas pipeline capacity which amounts to 12.66 billion m^3 (15ºC)/annually, slighly less than 90% were allocated and contracted in the long-run. Capacity on the entry point on the border with Bulgaria and exit points in Serbia is expected to start being used in 2020, while the exit point Hungary is expected to start being used in 2021. The Transmission Network Code of Gastrans LLC will also include the rules for short-term capacity allocation and for congestion management. Gas pipeline capacity which is not contracted will be allocated via auctions as quarterly, monthly, daily and intradaily capacity in line with the EU Commission Regulation 2017/459. Congestion management will be regulated in line with the EU Commission Decision of August 24, 2012 which amends the Annex I of the Regulation 715/2009.

Transmitted natural gas quantities

In 2019, 2,896 million m^3 of natural gas were withdrawn into PE *Srbijagas* transmission system. These quantities were transmitted so as to meet the demand on the side: customers, transit for Bosnia and Herzegovina, storage, transmission and distribution systems for gas losses recovery and compressor operations. Transmission was reliable and safe, with remote control and control of parameters of transmission system situation from control centers which are located in Belgrade and Novi Sad.

Table 4-11: Transmitted natural gas quantities in 2015 - 2019

Transmitted volumes	2015 million m^3	2016 million m^3	2017 million m^3	2018 million m^3	2019 million m^3	2019/2018 index
Production on the transmission system	422	388	366	327	284	87
Entry into system to meet Serbia's demand	1,740	1,795	2,182	2,146	2,257	105
Entry into system to meet Bosnia and Herzegovina's demand	223	232	265	304	243	80
Total	2,386	2,415	2,813	2,777	2,784	100
From storage	113	254	227	298	112	38
Total	**2,499**	**2,669**	**3,040**	**3,075**	**2,896**	**94**

4.3.4 Balancing

Pursuant to the Law, transmission system operators are responsible for natural gas system balancing in the Republic of Serbia. The operator is obliged to procure gas for balancing purposes and so as to provide secure system operation and recover losses in the transmission system, in line with the principles of minimum costs, transparency and non-discrimination.

Transmission system users are obliged to transfer into the system and withdraw from it the same natural gas volume on daily level. Being natural gas market participants, they are obliged to regulate their balancing responsibility by concluding the contract on transmission which regulates the financial responsibility for the variation between the natural gas volume delivered on entries into the transmission system and withdrawn on exits from the transmission system.

In 2019, system balancing is realised by changing nominated imported natural gas quantities and by using the gas from the very system (line pack) during the day, as well as using natural gas from the storage. When natural gas demand on exit points exceeds the capacity contracted on entry points, the transmission system operator may interrupt a part of capacity on the exit points to the customers who have an option to use alternative fuel so as to reach balance in the system. However, there was no need to do that in 2019.

Natural gas transmission system operator is responsible for the establishment and realisation of balancing responsibility of market players and for keeping balancing responsibility registry, in line with the Transmission Network Code and Supplier Switching rules. The Transmission Network Code prescribes the TSO's obligation to conclude a contract with a supplier who will provide the natural gas for balancing purpose when there is lack of it in the system, i.e. who will withdraw extra gas when there is a surplus of it in the system. The application of balancing responsibility for transmission system users was supposed to start as of July 1, 2016, but that did not happen. Therefore, transmission system users did not bear financial consequences of disbalance in 2016, 2017, 2018 and 2019. During 2017, 2018 and 2019, the transmission system operator calculated disbalance per system user, calculated it financially and informed system users on these results. Disbalance was not charged because the objective was to inform the system users on the consequences of the difference between quantities delivered on the entry and quantities withdrawn on the exit from the transmission system in order to make as low disbalance in the future as possible. Disbalance is set on daily level. Based on 2019 data of the transmission system operator, system users had negative disbalance (the quantities they delivered to transmission on entries were lower than the quantities they withdrew on exits) amounting to 69.2 million m^3 of natural gas. In 2019, the transmission system operator acknowledged positive disbalance of system users (the quantities they delivered to transmission on entries were higher than the quantities they withdrew on exits) amounting to 77.3 million m^3 of natural gas. The total disbalance which is a sum of positive and negative disbalance amounted to 146.5 million m^3 which is 5.6% of the total transmitted quantities, which is the same percentage as in 2018. The amount of disbalance in the absolute amount in 2019 is lower than in 2018 when it amounted to 172 million m^3 but it is still high. Disbalance is expected to reduce as the number of installed daily meters on exits from the transmission system increase since there are points where these are not installed and they will enable more precise definition of disbalance as well as timely insight of system users into their disbalance level. The possibility to have natural gas traded after the gas day between users who had a positive disbalance with users who had negative disbalance during the same day will also contribute to disbalance reduction. In addition, disbalance charge will for sure stimulate system users to plan their daily natural gas demand better and this will additionally reduce the disbalance.

4.4 Regulation of the distribution system operator

In early 2019, 32 distribution system operators performed natural gas distribution and distribution system operation. The license is also held by another company which has not started operating.

Natural gas distribution sector has one dominant feature, i.e. great fragmentation. For this reason, there is no economy of scale and therefore, charges for the use of these networks are higher. Generally speaking, the initiative that would lead to enlargement is not strong enough.

The Methodology for Setting Natural Gas Distribution Use-of-System Charge and the Methodology for Setting Costs of Connection to the Natural Gas Transmission System which were amended in 2016 by the agency in order to harmonise them with the Energy Law are valid. In 2019, these Methodologies were not amended.

4.4.1 Unbundling of Distribution System Operator

Distribution companies in Serbia have their natural gas distribution activities and distribution system operation unbundled in terms of accounting from supply and other energy related and non-energy related activities. Except in accounting terms, the Distribution System Operator which is a part of a vertically-integrated company has to be independent from other activities which are not related to distribution and distribution system operation in terms of legal form, organization and decision-making process.

In line with the Law (Article 257), the independence of the Distribution System Operator is ensured by having persons responsible for the Distribution System Operator management cannot participate in management bodies of vertically-integrated company which are directly or indirectly responsible for natural gas production, transport or supply as well as by taking measures which will secure that persons responsible for the Distribution System Operator management act professionally in order to provide their independence in operation. In addition, Distribution System Operator should adopt decisions independently from vertically-integrated company in terms of funds necessary for operation, network maintenance and development if these are within the limits of the approved financial plan. Also, the Distribution System Operator which is a part of a vertically-integrated company is obliged to adopt the Compliance Programme for Non-Discriminatory Behaviour which includes measures for the prevention of discriminatory behavior, the method of monitoring the implementation of these measures and obligations of employees aiming at the achievement of set goals.

In line with Article 259 of the Law, the given provisions do not apply to distribution system operators with less than 100,000 final customers connected to the system.

In the end of 2019, there were 32 distribution system operators performing distribution and distribution system operation. Apart from the distribution system operators PE Srbijagas and Yugorosgaz JSC, distribution and distribution system operation was performed by 28 companies among which most of them are owned by municipalities and cities, some of them are partly owned by private and public owners and some of them are private companies. Since all distribution system operators have less than 100,000 connected final customers, they are also entitled to deal in supply in both regulated and open market and they are not obliged to unbundle the Distribution System Operator and supplier legally (in line with Article 259 of the Law). In 2015, PE *Srbijagas* adopted a decision on the establishment of a daughter company for natural gas distribution – Distribucijagas Srbija LLC Novi Sad which did not start operating which is why natural gas distribution is still performed by PE *Srbijagas*.

4.4.2 Price regulation

4.4.2.1 System connection costs

Distribution system connection costs are set by DSO on the basis of elements from the connection application and on the Methodology for Setting Costs of Connection to Natural Gas Transmission and Distribution System ("Official Gazette of RS", No. 42/16; valid as of May 1, 2016) which is adopted by the Agency. The Methodology sets types of costs: design and collection of necessary documentation, procurement of devices, equipment and material, execution of works, as well as the method of calculation of all costs. In addition, the DSO is obliged to use market prices of goods, works and services when setting connection costs in the connection decision. The DSO is obliged to comply with the principles with publicity and non-discrimination and to give the applicant, upon his/her request, insight into the documents which serve as the basis for setting the level of connection costs and for the method of calculation of these costs.

The applicant for connection bears the costs of connection to the distribution system. Connection service costs are set by the DSO and they correspond to average costs of construction of standard connection (i.e. to true costs of construction of other types of connections) and prescribed segment of cost which was caused by the connection of an applicant's facility to the system.

The connections on low pressure are grouped into different types in the Methodology and therefore the DSO document on the level of costs of connection of standard connections also includes the level of:

- cost of construction of standard connection for each category of standard connection;
- cost of construction of connection in case of simultaneous construction of network and standard connection for each category of standard connection;
- unit variable cost and
- cost of part of the system.

If, based on submitted data as well as on the data which Agency may request in line with the Law, the Agency estimates that the document on the level of connection costs was not adopted by the DSO in line with the Methodology, the Agency will demand that a new harmonized document is sent by the DSO 30 days since the day the receipt of the written request is sent by the Agency.

4.4.2.2 Use-of-System Charges

In 2019, new natural gas distribution use-of-system charges were applied for two DSOs: 1) Beogas LLC, Beograd due to status change, i.e. merge with Rodgas LLC, Bačka Topola in order to comply with legal obligation arising from Article 23, paragraph 9 of the Law which defines that 90 days since the award of the licence at the longest, energy entity can apply regulated prices of the energy entity which performed that activity until the status change and 2) Cyrus Energy LLC, Beograd which calculated prices for the first time in line with Methodology for Setting Natural Gas Distribution Use-of-System Charge. Average weighted approved distribution use-of-system charge for all distribution networks in Serbia on 31/12/2019 amounted to 4.37 RSD/m^3. The variation in distribution use-of-system charges with different DSOs is the result of the size and features of the distribution systems, the structure and number of customers, the age of the distribution system and other factors.

Table 4-12: Average approved natural gas distribution use-of-system charge[15]

No.	Distribution system operator	31/12/2018 RSD	31/12/2019 RSD
1	*7 Oktobar, Novi Kneževac*	10.15	10.15
2	*Beogas, Belgrade*	7.87	7.11
3	*Beogradske elektrane, Novi Beograd*	5.63	5.63
4	*Cyrus Energy, Belgrade*		7.10
5	*Čoka, Čoka*	6.86	6.86
6	*Drugi oktobar, Vršac*	6.91	6.91
7	*Elgas, Senta*	7.30	7.30
8	*Gas – Feromont, Stara Pazova*	5.69	5.69
9	*Gas – Ruma, Ruma*	6.30	6.30
10	*Gas, Bečej*	11.24	11.24
11	*Gas, Temerin*	8.71	8.71
12	*Graditelj, Srbobran*	6.26	6.26
13	*Gradska toplana, Zrenjanin*	7.33	7.33
14	*Ingas, Inđija*	5.96	5.96
15	*Interklima, Vrnjačka banja*	7.03	7.03
16	*Komunalac, Novi Bečej*	7.14	7.14
17	*Kovin – Gas, Kovin*	4.86	4.86
18	*Loznica – Gas, Loznica*	9.00	9.00
19	*Novi Gas – Gas, Novi Sad*	6.14	6.14
20	*Polet, Plandište*	7.53	7.53
21	*Resava Gas, Svilajnac*	6.49	6.49
22	*Sigas, Požega*	12.56	12.56
23	*Sombor – Gas, Sombor*	5.87	5.87
24	*Srbijagas, Novi Sad*	3.80	3.80
25	*Srem – Gas, Sremska Mitrovica*	4.98	4.98
26	*Standard, Ada*	8.87	8.87
27	*Suboticagas, Subotica*	6.02	6.02
28	*Toplana – Šabac, Šabac*	6.43	6.43
29	*Užice – gas, Užice*	5.87	5.87
30	*Vrbas – Gas, Vrbas*	5.28	5.28
31	*Yugorosgaz, Belgade*	2.28	2.28
	AVERAGE	**4.35**	**4.37**

[15] In 2019, BOSSConstruction, Trstenik applies natural gas distribution use-of-system charges on the same level as of Srbijagas, Novi Sad.

The current natural gas distribution system use-of-system charges and the chronological review of these charges are available on the Agency's website (www.aers.rs).

4.4.2.3 Prices of Non-Standarad Services

The Energy Law prescribes that in addition to providing services to customers and system users which are charged via use-of-system charge or via connection costs, upon a customer's, i.e. system user's request, the transmission system operator also provides services which are not included in the above stated prices. In addition, the operator provides services when necessary in order to remove the consequences arising from a customer's or system user's acts which are contrary to regulations. Since these services are individual and occurring from occasionally upon a customer's or system user's request, they are called non-standard services. In 2019, Gas LLC, Bečej and PE Kovin-gas, Kovin established price lists for non-standard services which were approved by the Agency in October 2019 and these price lists define all positions of non-standard services and unit prices.

4.4.3 Distributed natural gas quantities

Natural gas quantities are withdrawn into the distribution systems mostly from the natural gas transmission system. Some distribution systems withdraw natural gas from another distribution system, too. Only small natural gas quantities are provided from natural gas production facilities connected to the distribution system. In 2019, only PE *Srbijagas* withdraw gas directly from production facilities. Table 4-13 indicates natural gas quantities withdrawn into natural gas distribution systems and distributed in 2017-2019.

Table 4-13: Distributed natural gas quantities in 2017-2019

	2017 million m3	2018 million m3	2019 million m3	2019/2018 index
Total distributed quantities	1,523	1,506	1,458	95.9
withdrawn from the transmission system	1,416	1,396	1,347	96.5
withdrawn from distribution systems	101	102	102	100.0
withdrawn from production facilities	6	8	9	112.5
losses	13	14	13	92.9
	0.85%	0.93%	0.89%	95.7

4.5 Natural gas market

In the natural gas sector, only bilateral market is developed. Market players include:

- producer (1);
- suppliers (64);
- public suppliers (32);
- final customers (280,916 using regulated supply and 1,140 in the open market);
- TSOs (2);
- DSOs (33), one of them does not perform the activity and
- storage operator (1).

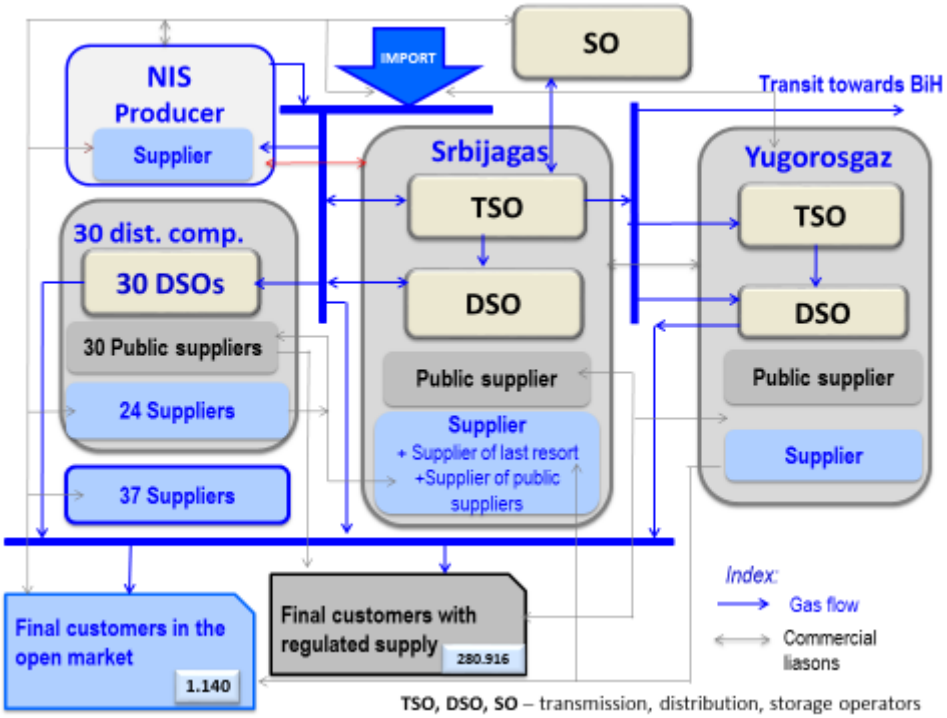

Figure 4-4: Natural gas market scheme in the end of 2019

Being a supplier in the open market, PE *Srbijagas* was also defined as the supplier of public supplier and the supplier of the last resort in line with the Law. On the wholesale market, participants traded in natural gas at free prices, while on retail market, supply was organized at free and regulated prices since all customers except households and small customers had to procure natural gas in the open market in 2019. Households and small customers had an option to select a supplier in the open market although they can always return to the public supplier.

By Decisions of December 7, 2018 and of June 21, 2019, The Government of the Republic of Serbia appointed PE *Srbijagas* to be the supplier of natural gas public suppliers in 2019 and PE Srbijagas was obliged to supply all the public suppliers demanding it including the public supplier PE Srbijagas with natural gas under the same conditions and at the same price. The method for modification of this price was set by the Government of the Republic of Serbia. PE Srbijagas will have the same role in the first half of 2020 based on the decision of the Government of the Republic of Serbia of December 4, 2019.

4.5.1 Wholesale market

In the wholesale natural gas market, purchase and sale are performed directly between market participants. In 2019, wholesale natural gas market was based on trade among natural gas suppliers and natural gas suppliers and natural gas producers. In 2019, three suppliers participated in this market (PE Srbijagas, King gas LLC and Cestor Veks LLC) and NIS as the producer.

4.5.1.1 Supply of public suppliers

Except for gas purchase for public suppliers' sake, the wholesale natural gas market was based on bilateral contracts between suppliers themselves and between producers and suppliers. In 2019, there were three companies in the wholesale market which sold natural gas to suppliers and to public suppliers in order to meet the final customers' demand. The average weighted wholesale price at which natural gas was sold by suppliers to other suppliers in 2019 amounted to 34.51 RSD/m^3. It is by 11% higher than the one last year. Out of it, average weighted wholesale price at which suppliers sold natural gas to public suppliers in 2019 amounted to 31.79 RSD/m^3. It is by 11.5% higher than the price last year.

4.5.1.2 Regional coupling

The Transmission System Operator from Hungary developed a platform for capacity allocation and booking on interconnectors and this platform is also used by the Transmission System Operators in Romania, Bulgaria and Greece for all their interconnectors, while Austria and Croatia uses it for interconnectors towards Hungary. The Transmission System Operator in Serbia is still not using the platform for capacity allocation and booking on interconnectors which was developed by the Hungarian Transmission System Operator but this is expected to happen once the capacity allocation of Gastrans LLC company will be organized via this platform.

4.5.2 Retail market

In 2019, final customers procured and spend 2,083 million m^3 in the market. In addition, NIS spent 241 million m^3 of gas they produced and this quantity was not placed in the market. 1,140 customers procured gas in the open market, while 8 of

them were also using supply of the last resort. In total, 1,751 million m^3 were delivered to customers in the open market (supply of the last resort covered 2.1 million m^3), i.e. 84% of the total gas volume delivered to final customers. 26 suppliers were selling gas to them (PE *Srbijagas* with the greatest share - 80%). In 2019, households and small customers with annual consumption lower than 100,000 m^3 and with all facilities connected to the distribution system were entitled to regulated public supply. 332 million m^3 were delivered to them.

The natural gas volumes delivered in order to provide supply in the open market and in the regulated market are presented in Table 4-14.

Table 4-14: Total natural gas consumption (in open and regulated markets)

	2018 million m^3	2019 million m^3	2019/2018 index
Consumed in the open market	1,881	1,751	93
Consumed in the regulated market	321	332	103

Based on the data provided by natural gas suppliers and public suppliers, average weighted retail price in the open market in 2019, including transmission and distribution use-of-system charges amounted to 40.51 RSD/m^3. In was by 15.9% higher than the price last year. The average weighted retail price in the regulated market amounted to 36.98 RSD/m^3. For small customers' group which also includes households, the price amounted to 34.71 RSD/m^3. It was by 0.3% lower than last year. For customers from the small consumption group which also includes households, the price amounted to 35.00 RSD/m^3 and it was by 0.3% lower than last year.

PE Srbijagas was the supplier of the last resort selected by the Government of the Republic of Serbia in line with the Law for the supply of the last resort of final customers who are not entitled to public supply. Average realised retail price of the supply of the last resort amounted to 45.38 RSD/m^3. It was by 24.3% higher than last year.

In 2019, only 5 DSOs delivered more than 30 million m^3 to customers, while 21 of them delivered less than 10 million m^3.

The greatest share of natural gas, i.e. 1,691 million m^3 (81%) of total quantities was sold to customers by PE *Srbijagas* in 2019. The second greatest share was sold by DC Novi Sad Gas sold 73 million m^3 of gas, i.e. around 3.5% and Yugorosgaz JSC with 50 million m^3, i.e. 2.4% of total consumed quantities in 2019. Individual share of other suppliers amounts to around 2% or below 2% of total quantities.

Natural gas volumes sold to final customers by suppliers (excluding the gas both produced and consumed by NIS) in 2018 and 2019 are given in Table 4-15.

Table 4-15: Natural gas sale to final customers in 2018 and 2019

No.	Supplier	2018 (000 m³)				2019 (000 m³)				2019/2018			
		Househ.	DHC	Industry and others	Total	Househ.	DHC	Industry and others	Total	Househ	DHC	Industry and others	Total
1	*7 Oktobar, Novi Kneževac*	784	0	300	1,084	852	0	275	1,127	109	0	92	104
2	*Beogas, Belgrade*	13,796	364	14,525	28,685	13,602	346	14,991	28,939	99	95	103	101
3	*Beogradske elektrane, Novi Beograd*	2,905	0	831	3,736	2,991	0	1,031	4,022	103	0	124	108
4	*Boss petrol, Trstenik*	24	0	286	310	33	0	314	347	138	0	110	112
5	*Čoka, Čoka*	311	0	276	587	333	0	255	588	107	0	92	100
6	*Drugi oktobar, Vršac*	8,461	0	13,728	22,189	8,838	0	13,146	21,984	104	0	96	99
7	*Elgas, Senta*	1,282	0	687	1,969	1,352	0	642	1,994	105	0	93	101
8	*Gas – Feromont, Stara Pazova*	14,665	683	9,780	25,128	15,346	0	9,579	24,925	105	0	98	99
9	*Gas – Ruma, Ruma*	5,852	673	13,251	19,776	6,265	596	13,733	20,594	107	89	104	104
10	*Gas, Bečej*	1,512	0	1,517	3,029	1,592	0	1,456	3,048	105	0	96	101
11	*Gas, Temerin*	6,006	0	1,855	7,861	6,382	0	1,927	8,309	106	0	104	106
12	*Graditelj, Srbobran*	1,293	0	1,015	2,308	1,369	0	572	1,941	106	0	56	84
13	*Toplana, Zrenjanin*	14,318	0	3,573	17,891	15,271	0	3,217	18,488	107	0	90	103
14	*Ingas, Inđija*	8,340	0	10,321	18,661	9,146	0	11,711	20,857	110	0	113	112
15	*Interklima, Vrnjačka banja*	836	0	1,535	2,371	865	0	1,828	2,693	103	0	119	114
16	*Komunalac, Novi Bečej*	1,251	0	831	2,082	1,305	0	812	2,117	104	0	98	102
17	*Kovin – Gas, Kovin*	3,365	1,028	3,920	8,313	3,555	958	2,942	7,455	106	93	75	90
18	*Loznica – Gas, Loznica*	1,697	3,423	5,202	10,322	1,821	3,069	4,880	9,770	107	90	94	95
19	*Naftna Industrija Srbije, Novi Sad*	0	0	3,824	3,824	0	0	4,161	4,161	0	0	109	109
20	*New Europe Gas*	0	0	17,091	17,091	0	0	0	0	0	0	0	0
21	*Novi Sad – Gas, Novi Sad*	45,801	586	26,158	72,545	47,522	962	24,942	73,426	104	164	95	101
22	*Polet, Plandište*	1,779	0	2,697	4,476	1,820	0	2,657	4,477	102	0	99	100
23	*Resava Gas, Svilajnac*	440	0	1,913	2,353	461	0	1,063	1,524	105	0	56	65
24	*Cyrus Energy*	2,322	0	248	2,570	2,171	0	253	2,424	93	0	102	94
25	*Sigas, Požega*	226	0	92	318	251	0	95	346	111	0	103	109
26	*Sombor – Gas, Sombor*	1,876	0	3,854	5,730	1,970	0	4,377	6,347	105	0	114	111
27	*Srbijagas, Novi Sad*	81,002	505,457	1,191,917	1,778,376	85,179	463,871	1,141,516	1,690,566	105	92	96	95
28	*Srem – Gas, Sremska Mitrovica*	5,598	882	13,238	19,718	5,930	0	14,046	19,976	106	0	106	101
29	*Standard, Ada*	721	0	1,295	2,016	741	0	1,202	1,943	103	0	93	96
30	*Suboticagas, Subotica*	9,728	0	14,074	23,802	9,964	0	13,392	23,356	102	0	95	98
31	*Toplana – Šabac, Šabac*	3,003	0	730	3,733	3,054	0	695	3,749	102	0	95	100
32	*Užice – gas, Užice*	1,445	4,687	1,945	8,077	1,947	4,387	1,957	8,291	135	94	101	103
33	*Vrbas – Gas, Vrbas*	1,841	0	4,359	6,200	1,899	0	3,712	5,611	103	0	85	91
34	*Yugorosgaz, Belgrade*	905	26,346	24,549	51,800	1,025	24,060	25,275	50,360	113	91	103	97
35	*CESTOR-VEKS, Kruševac*	0	1,032	2,142	3,174	0	2,266	4,125	6,391	0	220	193	201
36	*Elgras Energy Trading, Belgrade*	0	0	17,389	17,389	0	0	0	0	0	0	0	0
37	*King gas, Beograd*	0	1,527	939	2,466	0	0	1,157	1,157	0	0	123	47
	Total:	**243,385**	**546,688**	**1,411,887**	**2,201,960**	**254,852**	**500,515**	**1,327,936**	**2,083,303**	**105**	**92**	**94**	**95**

4.5.2.1 Sale of natural gas on regulated market

In 2019, new natural gas prices for public supply for two public suppliers were applied 1) Beogas LLC, Beograd due to status change, i.e. merge with Rodgas LLC, Bačka Topola in order to comply with legal obligation arising from Article 23, paragraph 9 of the Law which defines that 90 days since the award of the licence at the longest, energy entity can apply regulated prices of the energy entity which performed that activity until the status change and 2) Cyrus Energy LLC, Beograd which calculated prices for the first time in line with Methodology for Setting Natural Gas Distribution Use-of-System Charge. Average weighted approved natural gas price for all customers entiteled to public supply in Serbia on 31/12/2019 amounted to 32.02 RSD/m^3 while, for small consumption group which also includes households, it amounted to 35.43 RSD/m^3.

Table 0-1: Average approved natural gas public supply price[16]

RSD/m^3

No.	Natural gas public supplier	All customers		Small customers	
		31/12/2018	31/12/2019	31/12/2018	31/12/2019
1	*7 Oktobar, Novi Kneževac*	39.06	39.06	39.64	39.64
2	*Beogas, Belgrade*	36.95	37.71	37.35	38.10
3	*Beogradske elektrane, Novi Beograd*	33.48	33.48	34.16	34.16
4	*Cyrus Energy, Belgrade*		35.58		35.62
5	*Čoka, Čoka*	36.33	36.33	38.88	38.88
6	*Drugi oktobar, Vršac*	34.93	34.93	37.15	37.15
7	*Elgas, Senta*	35.76	35.76	35.90	35.90
8	*Gas – Feromont, Stara Pazova*	33.56	33.56	34.42	34.42
9	*Gas – Ruma, Ruma*	37.82	37.82	38.66	38.66
10	*Gas, Bečej*	41.74	41.74	42.01	42.01
11	*Gas, Temerin*	36.16	36.16	36.34	36.34
12	*Graditelj, Srbobran*	35.06	35.06	36.67	36.67
13	*Gradska toplana, Zrenjanin*	37.33	37.33	37.65	37.65
14	*Ingas, Inđija*	33.39	33.39	35.00	35.00
15	*Interklima, Vrnjačka banja*	33.87	33.87	35.01	35.01
16	*Komunalac, Novi Bečej*	35.58	35.58	36.37	36.37
17	*Kovin – Gas, Kovin*	32.91	32.91	36.06	36.06
18	*Loznica – Gas, Loznica*	39.82	39.82	39.82	39.82
19	*Novi Sad – Gas, Novi Sad*	34.04	34.04	35.03	35.03
20	*Polet, Plandište*	36.06	36.06	38.35	38.35
21	*Resava Gas, Svilajnac*	36.39	36.39	36.96	36.96
22	*Sigas, Požega*	44.89	44.89	45.13	45.13
23	*Sombor – Gas, Sombor*	36.76	36.76	37.19	37.19
24	*Srbijagas, Novi Sad*	31.40	31.40	34.37	34.37
25	*Srem – Gas, Sremska Mitrovica*	32.41	32.41	34.21	34.21
26	*Standard, Ada*	37.64	37.64	38.63	38.63
27	*Suboticagas, Subotica*	33.30	33.30	34.68	34.68
28	*Toplana – Šabac, Šabac*	33.88	33.88	33.96	33.96
29	*Užice – gas, Užice*	34.23	34.23	34.97	34.97
30	*Vrbas – Gas, Vrbas*	32.79	32.79	34.93	34.93
31	*Yugorosgaz, Belgade*	28.63	28.63	30.89	30.89
	AVERAGE	**31.98**	**32.02**	**35.36**	**35.43**

The current natural gas public supply prices and the chronological review of these charges are available on the Agency's website (www.aers.rs).

Figure 4-5 indicates the change of average approved natural gas price for all customers entitled to public supply and for small consumption which also includes households separately.

[16] In 2019, Boss petrol, Trstenik and BOSS Construction, Trstenik applied natural gas public supply prices on the level of those of *Srbijagas*, Novi Sad.

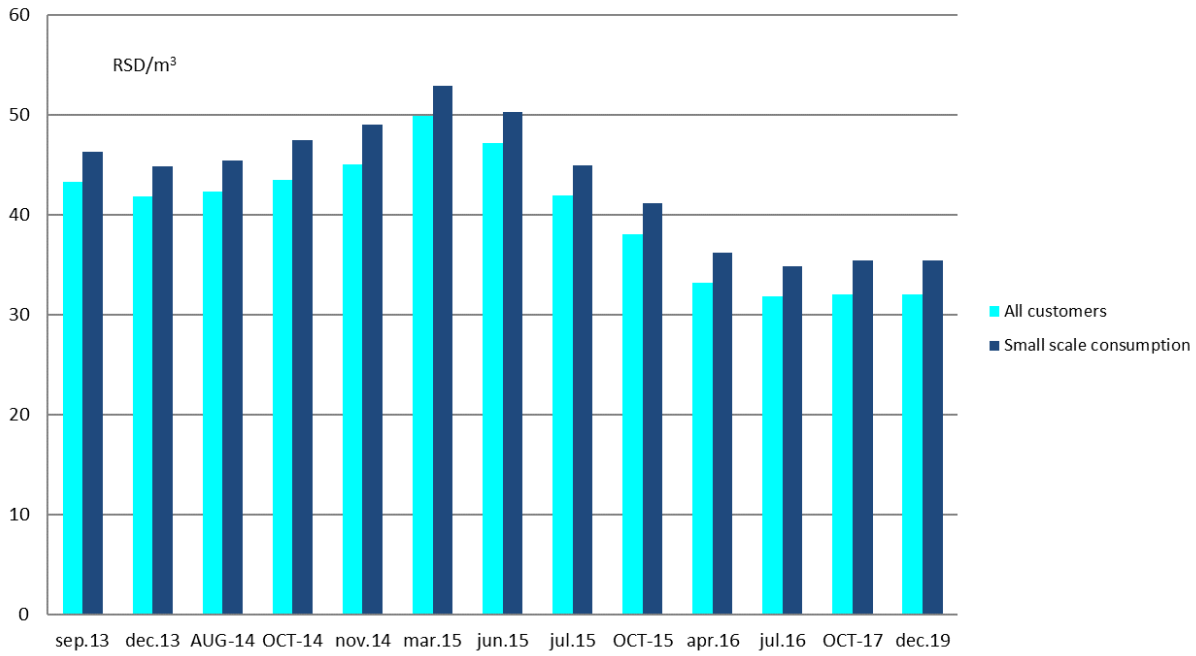

Figure 0-1: Change of average approved public supply natural gas price

The costs of natural gas purchase represent the dominant share within natural gas public supply tariff with all public suppliers. On December 31, 2019, the costs of natural gas procurement account for around 80% of the total average approved price of public suppliers. Figure 4-6 indicates the structure of average regulated natural gas public supply tariff of PE *Srbijagas* of 31.40 RSD/m³ which was applied on December 31, 2019.

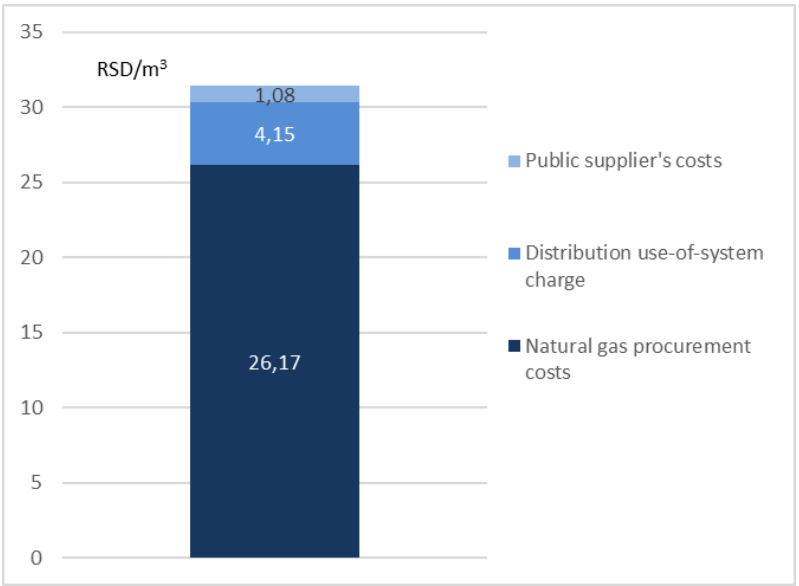

Figure 0-2: Structure of average approved natural gas public supply price of PE *Srbijagas* on 31/12/2019

Figure 4-7 indicates the comparison between natural gas prices in Serbia and in other EU countries and in the region for reference customers from the houshold category.

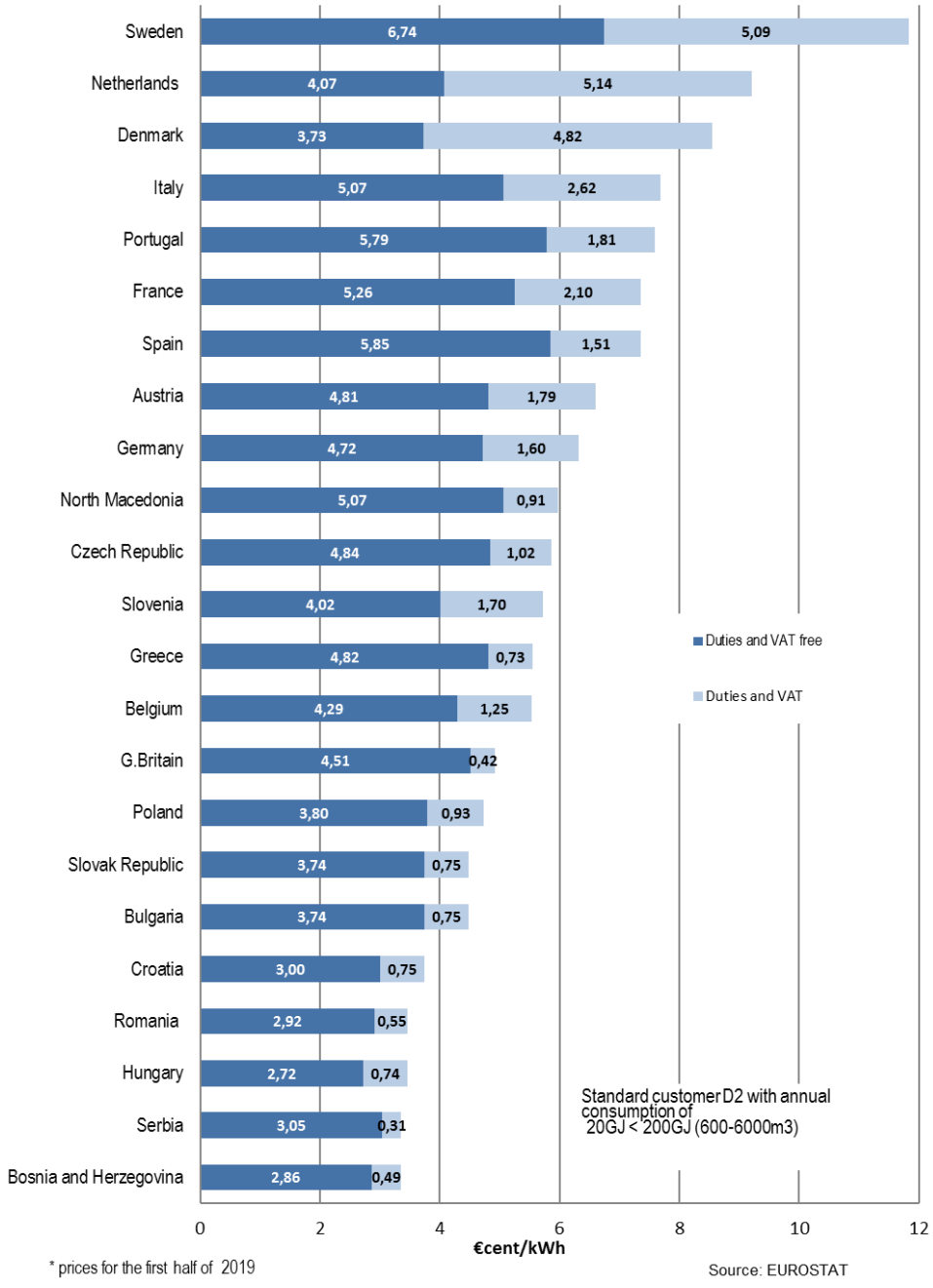

Figure 0-3: Natural gas prices for households – first half of 2019

Figure 4-8 indicates a more detailed structure of elements of the natural gas household prices in some of European capitals in December 2019. Based on the given structure of natural gas price, one can notice that the share of use-of-system charges (which are subject to regulation) in the total natural gas price for households in Serbia are among the lowest ones, and they amount to around 24%, while the European average amounts to around 28%. It is also evident that there is also a considerably lower share of costs of taxes and duties.

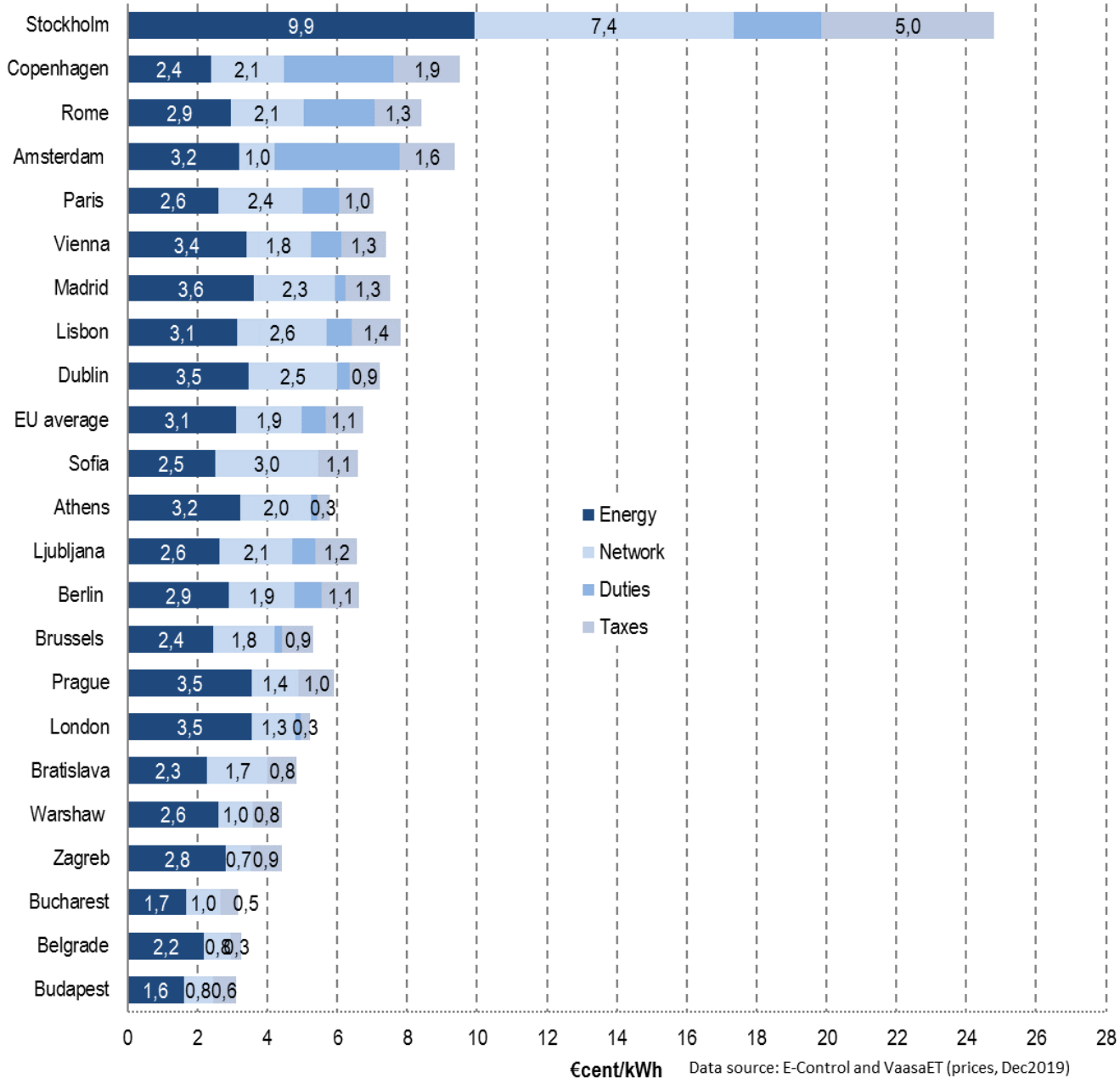

Figure 0-4: Structure of natural gas household prices in some of European capitals in December 2019

Figure 4-9 indicates the structure of the final natural gas price for households in some European capitals in December 2019 given in purchase power parity. Thereby, when comparing prices, one also took into consideration the differences in salaries, living standard and wealth between European countries. In this case, natural gas prices for households in Belgrade are slightly lower in comparison to the average price in other European capitals, which is primarily the result of a different living standard in European countries.

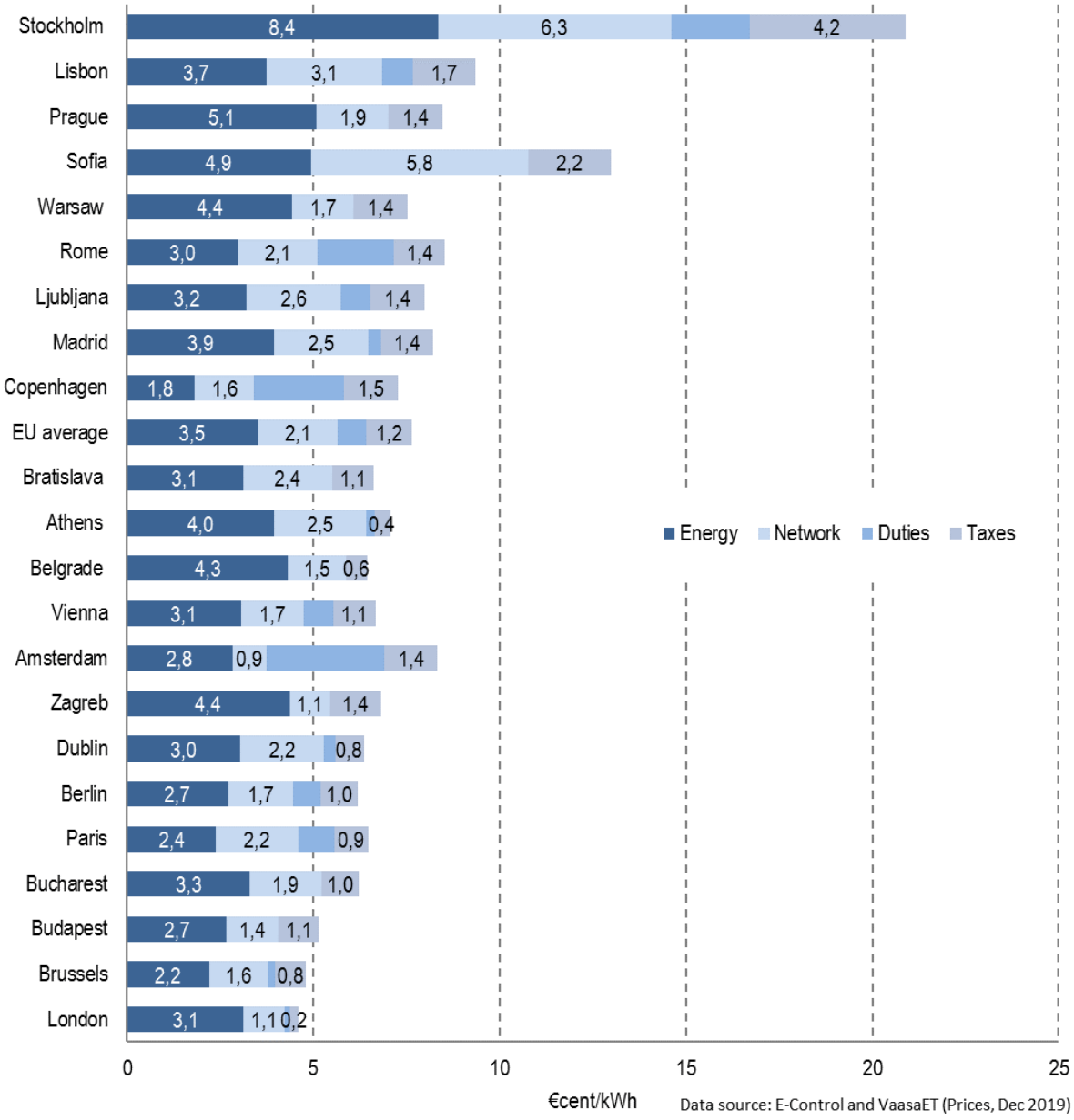

Figure 0-5: Structure of natural gas household prices in some of European capitals in December 2019 given in purchase power parity

Figure 4-10 indicates the comparison between the natural gas prices for a reference customer from the category – industry in Serbia and in other countries, either from the EU or from the region, in the first half of 2019. The variation between prices is greatly influenced by different tax policy, i.e. different duties and taxes borne by industrial consumers.

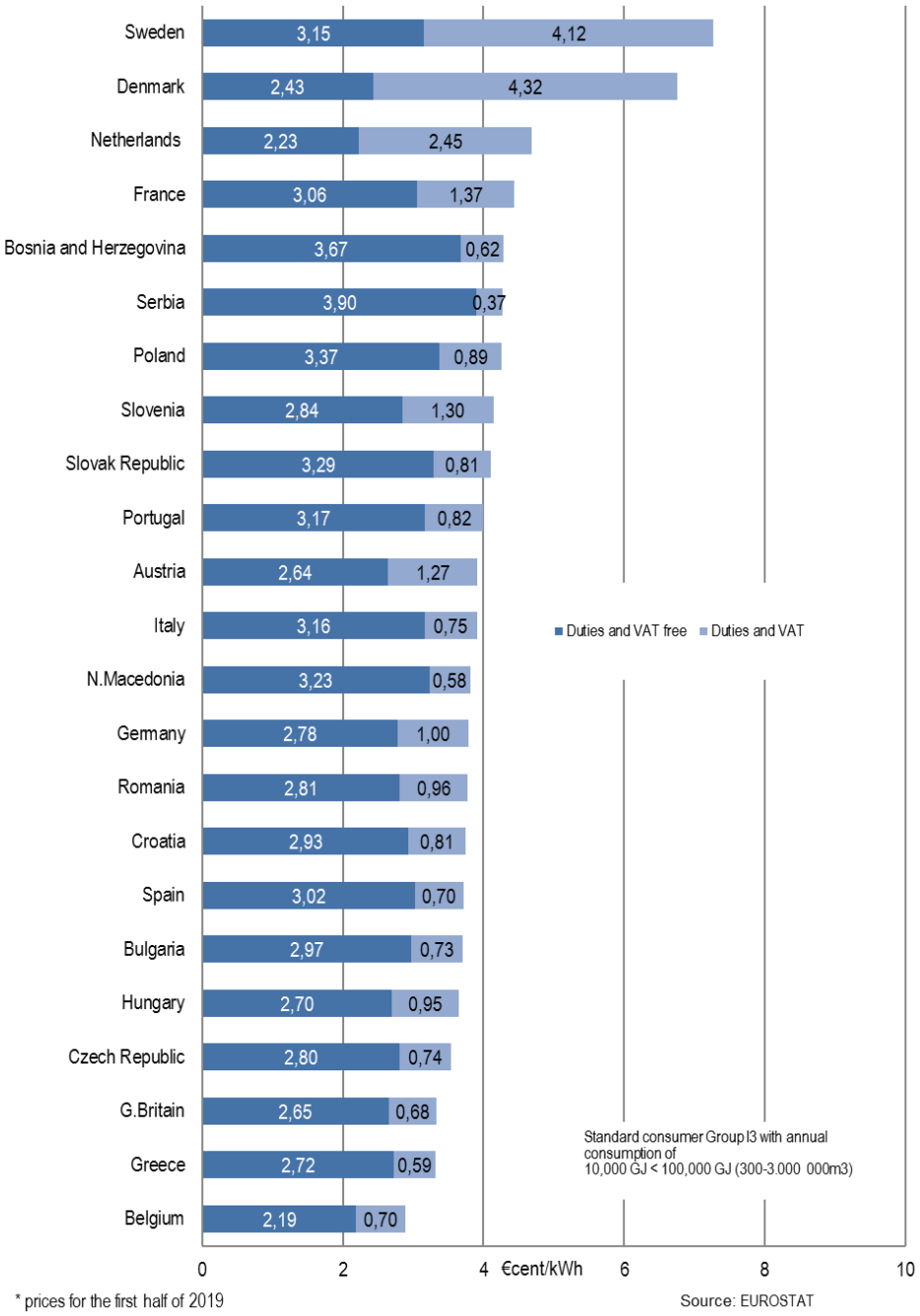

Figure 0-6: Natural gas prices for industry – first half of 2019

4.5.2.2 Supplier switching

Rules on Supplier Switching were adopted in July 2015. Based on experience in the enforcement, amendments of the Rules were prepared in 2016 and adopted in early 2017. These Rules regulate conditions and procedure for the switch of a supplier supplying final customers in line with the contract on full natural gas supply. In order to monitor this procedure, the Agency collected data on supplier switching from TSO and DSO in 2016, too and analysed difficulties suppliers and customers faced in realisation. The data on supplier switching on the transmission system relate to the metering systems which are within the PE *Srbijagas* system, since there are no final customers connected to the transmission system of Yugorosgaz-Transport LLC.

Within the transmission system, out of 63 metering points for final customers, no suppliers were switched on any of metering points in 2019.

Most of DSOs stated that there was supplier switch within their systems. There was no supplier switch only on 6 out of 32 distribution systems. On the distribution level, the total number of delivery points for final customers in the end of 2016 amounted to 282,997. Out of that number, suppliers were switched on 207 metering points, where 7.4 million m^3 were delivered. It amounts to 0.51% of natural gas quantities out of total 1,445 million m^3 delivered from distribution systems.

In total, in 2019, suppliers were switched on 207 of total 283,060 metering points for final customers within both transmission and distribution system. Out of total consumption in the market (without consumption of NIS covered from quantities from their own production which were not in the market), 0.36% natural gas quantities were subject to gas supplier switch.

4.6 Monitoring and regulation of quality of delivery and supply

As the Law prescribes, the Agency adopts the Rules on Monitoring Technical and Commercial Indicators and on Regulating Quality of Electricity and Natural Gas Delivery and Supply. The Agency Council adopted these rules in December 2013 and they entered into force in early 2014. The Rules prescribe the method and deadlines for the collection of data from energy entities operating in the field of natural gas transmission, distribution and supply, in order to establish the system of delivery and supply quality regulation.

Reliability of system operations and natural gas quality are defined as technical indicators of quality, while timely compliance with prescribed obligations which affect the quality of natural gas delivery and supply were set as commercial indicators of quality.

These rules define that the energy entities gather the data on the indicators of natural gas delivery and supply in a systematic and the same way and inform the Agency on this once a year.

Data collection is performed on annual level. It was initiated in 2015 and continued in 2016, 2017, 2018 and 2019 in order to enable the Agency to monitor the quality of delivery and supply and compare the results of energy entities which perform the same energy activity based on submitted data and reports. As it was the case during previous years, not all energy entities provided the requested data and submitted them to the Agency in 2019 either.

4.6.1 Continuity of delivery

The continuity of natural gas delivery is set on the basis of the number and duration of interruptions in natural gas delivery and it is monitored both on the transmission and distribution system. The data on continuity of delivery on the distribution system were submitted by 29 DSOs (data were not submitted by DSO Srbijagas, DSO Gradska toplana Zrenjanin and DSO Kovin-gas). Based on the submitted data, annual indicators of continuity of delivery were calculated.

4.6.1.1 **Continuity of delivery from transmission** systems

The data on the continuity of delivery within transmission systems which are monitored are the following:

- number of planned and unplanned interruptions;
- duration of interruptions and
- time of announcement.

In 2016, natural gas transmission system operators submitted data on the number and duration of planned and unplanned interruptions in line with the causes of interruptions and these data are given in Table 4-17. Within the transmission system of PE *Srbijagas*, there were no unplanned interruptions while there were planned interruptions which lasted 44 hours in total and, in line with the rules, planned pipe replacement and other interventions on system maintenance and expansion were stated as their cause. On the transmission system of Yugorosgaz-Transport, there were no circumstances which would lead to natural gas delivery interruption.

Table 0-2: Interruptions within transmission systems by causes

TSO	Interruption causes					
	planned interruptions		unplanned interruptions		vis major	
	number of interruptions	total duration (min)	number of interruptions	total duration (min)	number of interruptions	duration
Srbijagas	11	118	2	79	0	0
Yugorosgaz-Transport	0	0	0	0	0	0

In 2019, natural gas transmission system operators submitted data on the number and duration of planned and unplanned interruptions in line with the causes of interruptions and these data are given in Table 4-17. Within the transmission system of PE *Srbijagas*, there were planned interruptions which lasted 118 minutes and, in line with the rules, planned works on restoration or removal of the gas pipeline which were activities of the system operator are stated as the cause. As far as the administrative cause is concerned, it was stated that the given gas pipeline removal due to the construction of railway Beograd – Novi Sad was the cause. There were no events causing natural gas delivery interruptions within the transmission system of Yugorosgaz-Transport LLC.

4.6.1.2 **Continuity of delivery from distribution** systems

Natural gas distribution system operators submitted data on the number and duration of interruptions for 2019 according to the causes which led to interruptions longer than 60 minutes, and these served for the calculation of delivery continuity indicators SAIFI[17] and SAIDI[18] both for planned and unplanned interruptions. The data were given in total for all distribution system for which data were obtained and maximum and minimum SAIFI and SAIDI realised in single distribution system. Summary data on the continuity of delivery from distribution system refer to 163,010 out of total 282,977 delivery points, i.e. on 57.6% delivery points.

Table 0-3: Summary indicators of continuity of distribution systems for unplanned interruptions

Interruption cause	Unplanned interruptions				
	Number of interruptions	SAIFI (number of interruptions/user)	SAIDI (min/user)	Maximum reached SAIFI	Maximum reached SAIDI
Delivery reduction from upstream system	0	0.00	0.00	0.00	0.00
Gas leak	27	0.01	1.71	0.21	18.09
Third party	185	0.03	6.16	2.00	360.00
Inadequate network capacity	0	0.00	0.00	0.00	0.00
Other reasons	0	0.00	0.00	0.00	0.07
Total	**212**	**0.04**	**7.87**	**2.21**	**378.09**

As it was the case in 2018, the data show that there were no unplanned interruptions caused by inadequate network capacity or by reduction on the upstream system. Therefore, as it was the case in the past three years, the greatest number of unplanned interruptions in 2019 was caused by the third party operation.

Table 0-4: Summary indicators of continuity of distribution systems for planned interruptions

Interruption cause	Planned interruptions				
	Number of interruptions	SAIFI (number of interruptions/user)	SAIDI (min/user)	Maximum reached SAIFI	Maximum reached SAIDI
Cause within a system connected to it	10	0.12	108.33	0.4	370.47
Administrative interruption	2	0.02	9.12	0.06	31.2

[17] SAIFI (number of interruptions/delivery point) - average frequence of interruptions per each user; it is calculated as a quotient of the cumulative number of interruptions and total number of users

[18] SAIDI (min/user) - average duration of interruptions in minutes per user and it is calculated as a quotient of cumulative duration of interruption and total number of users

Operator's interruption	18	0.05	20.77	1.00	540.00
Uncategorized interruption	2	0.01	7.40	0.81	509.92
Total	**32**	**0.19**	**145.62**	**2.27**	**1,451.59**

When continuity indicators SAIFI and SAIDI for planned interruptions are analysed, calculated based on available data, in terms of interruption duration per user, as it was the case during previous years, interruptions caused by distribution system operator's activities and interruptions with a cause on a connected system had the greatest impact on customers.

Summary data on delivery continuity within all distribution systems for which data were submitted both in terms of planned and unplanned interruptions are given in Table 4-20.

Table 0-5: Summary continuity indicators of distribution systems

Type of interruptions	Summary continuity indicators		
	Number of interruptions	SAIFI (number of interruptions/user)	SAIDI (min/user)
Planned interruptions	32	0.19	145.63
Unplanned interruptions	212	0.04	7.87
Total	**244**	**0.23**	**153.5**

4.6.2 Commercial quality

Rules on monitoring quality also define the data which system operators and suppliers have to register in order to enable monitoring commercial quality.

The data which are collected are grouped in four areas which describe commercial quality:

1) connection, suspension and disconnection;
2) access to the system;
3) metering and charging and
4) customer service.

In 2019, the data on commercial quality were collected on the annual level and it still takes time for them to achieve adequate level of reliability and accuracy. Out of 32 DSOs (which performed the activity in the end of 2019), data were submitted by 29 operators (data were not submitted by DSO Srbijagas, DSO Gradska toplana Zrenjanin and DSO Kovin gas) which deliver natural gas to 57.6% of delivery points (163,010 out of 282,997).

4.6.2.1 Connection, disruption and disconnection

The data related to settling applications for connection are given in total in Table 4-21.

Table 0-6: Application for connection

Applications for connection			
Number	of filed applications		4,850
	of settled applications	approving connection	4.650
		denying connection	84
		settled otherwise	88
		Total	4,826
		within 15 days	4,513
%	of settled applications in comparison to the number of filed ones		99.5
	of applications approving connection in comparison to the number of settled ones		96.4
	of settled applications within 15-day deadline		93.5
Average time	necessary for settling an application – days		9

After the connection is constructed and all conditions for connection are met, operators have a 15-day deadline to connect the facility to the distribution system. The data on the connection of facilities are given in total in Table 4-22.

Table 0-7: Connection of facilities

Connection		
Number	of connected facilities	4,577
	of facilities connected within a 15-day deadline	4,577
%	of facilities connected within a 15-day deadline	100
Average time - days	Necessary for connection since the day all conditions are met	6

4.6.2.2 Access to the system

Since natural gas market has become open for all customers since the beginning of 2015, one could expect that customers' suppliers which entered the market will be submitting applications for the access to the systems to which the facilities of these customers are connected. However, DSOs did not keep adequate registries on applications for the access to the system and, therefore, no good-quality and reliable data on commercial quality were gathered.

4.6.2.3 Metering and billing

Justified objections which were submitted against billings included the following causes: inaccurate reading 96%, inaccurate billing (energy section) 1%, inaccurate invoicing 1%, inaccurate metering 1%, and other 1%. In 2019, average time necessary for settling objections to billing lasted between 1 and 6 days depending on the distribution system operator.

The total number of filed applications filed by users – final customers for extraordinary check of metering equipment in 2019 amounted to 60 and all checks were performed. During these checks, there were 10 noticed irregularities (17% of checks made) and 8 of them irregularities removed. The number of extraordinary checks of metering equipment which were done within the prescribed deadline of 10 days amounted to 12 (20%).

4.6.2.4 Call center

Although efforts were made in order to organised data collection on this aspect of commercial quality as well, the data on call centres are still not available.

4.7 Security of natural gas supply

So as to provide long-term security of natural gas supply, it is extremely important to plan the system development adequately. As transmission system operators, *Transportgas Srbija* LLC and Yugorosgaz-transport LLC were obliged to draft and submit ten-year transmission system development plans to the Agency for approval. In 2019, *Transportgas Srbija* LLC did not submit the ten-year transmission system development plan to the Agency. The transmission system operator Yugorosgaz-transport LLC submitted the ten-year plan in June 2019. The Agency organised public consultations and there were no objections during these. Therefore, in July 2019, the agency Council approved the Yugorosgaz-transport LLC Transmission System Development Plan for the period 2019-2028.

4.7.1 Natural gas consumption forecast

To a great extent, future natural gas consumption will depend on its price, gross domestic product growth in the Republic of Serbia, position and activities of state authorities of the Republic of Serbia in the field of ecology and the natural gas share in power generation. Natural gas consumption increase will be provided by low prices, connection of new industrial plants and construction of new distribution networks in areas which have not been gasified yet as well as by the use of natural gas in district heating companies and households which used other fossil fuels as heat producing source in the past.

A more considerable consumption growth will be also fostered by the construction of capacities for natural gas-fired electricity production, cogeneration plants in the first place. It is planned to have a CHP Pančevo start operating in 2020. It will be gas-fuelled with the capacity of 190 MW of electricity.

4.7.2 Projects aimed at the increase of security of supply

The security of natural gas supply is considerably increased by commissioning the operation in the underground storage Banatski Dvor with maximum withdrawal capacity amounting to 5.1 million m3/day at the moment.

There are ongoing preparations for the construction of a interconnector with Bulgaria. It is planned on the basis of the Agreement on the Construction of Gas Pipeline Niš-Dimitrovgrad-Sofia and it would contribute greatly to the increase in the security of supply. The Agreement was signed in 2012 while the Memorandum of Understanding between the Government of the Republic of Serbia and the Government of the Republic of Bulgaria was signed in January 2017.

The gas pipeline is expected to be around 150 km long and the capacity should amount to 1.8 billion m^3 annually. A grant from EU IPA funds amounting to 49,6 million € was provided for the construction of the gas pipeline section in the Republic of Serbia. The gas pipeline is expected to be operable in 2022.

Following the final decision on the exemption of the Agency in March 2019, Gastrans LLC successfully organised capacity allocation and then started the construction of the gas pipeline – interconnector of 402 km length from the border with Bulgaria near Zaječar to the border with Hungary near Horgoš. The gas pipeline is planned to be fully completed during 2020. By the construction of this gas pipeline, the infrastructure supply standard N-1 in the Republic of Serbia will be met since it will be increased from 33.8% to 114%.

Connections with gas pipeline systems with other neighbouring countries can be also important for the increase in the security of supply, especially with those countries which have a more developed gas infrastructure and additional options for natural gas provision, such as Romania and Croatia.

5. CRUDE OIL, OIL DERIVATIVES, BIOFUELS AND COMPRESSED NATURAL GAS

5.1 Sector structure and capacities

Adopting the Energy Law in 2014, in line with the energy policy objectives, competition development was fostered in the field of oil, oil derivatives, biofuels and compressed natural gas in the Republic of Serbia so as to increase the efficiency of this sector via market mechanisms. In line with the Law, licenced energy activities in the field of oil, oil derivatives, biofuels and compressed natural gas include:

- oil derivatives production;
- oil transport through oil pipelines;
- oil derivatives transport through product lines;
- trade in oil, oil derivatives, biofuels and compressed natural gas;
- trade in motor fuels and other types of fuels on petrol stations;
- storage ofoil, oil derivatives, biofuels and compressed natural gas;
- biofuels production;
- bioliquids production;
- trade in fuels outside petrol stations;
- filling vessels for liquid petroleum gas, compressed and liquified natural gas;
- trade in fuels meant for vessels and
- blending biofuels with fuels of oil origin.

5.1.1 Organisational and ownership structure of the oil sector

The Company for Exploration, Production, Processing, Distribution and Trade of Oil and Oil Derivatives *Naftna industrija Srbije* JSC (hereinafter: *NIS*) is the dominant oil and oil derivatives market player in Serbia. Vertically integrated company *NIS* has been on the stock exchange since 2010. It is owned by the Russian company "Gasprom Njeft" with the share slightly higher than 56%, by the Republic of Serbia with slightly less than 30%, while around 14% are owned by a great number of small shareholders. *NIS* deals in refinery processing of crude oil, owns the greatest retail network and the greatest storage capacities for all motor fuels and crude oil. In retail of motor fuels and other types of fuels, a considerable share is also held by companies Lukoil, OMV, MOL Serbia, ECO-Serbia, Knez Petrol, Petrol and smaller independent retail systems Euro Petrol, business system Mihajlović, Art Petrol, AVIA, etc.

Joint Stock Company for Oil Transport via Oil Pipelines and Oil Derivatives Transport via Product Lines *Transnafta* Pančevo (hereafter Transnafta) transports oil through oil pipelines and was awarded with the licence for the performance of this activity for the second ten-year period in 2016.

In 2019, status change of the Transnafta company occurred, i.e. it ceased to be a public company and it became a joint stock company.

In the Republic of Serbia, there is no infrastructure for public transport of oil products through product lines except in those companies which use this means of transport for their own purposes.

5.2 Production and transport capacities

5.2.1 Production of oil, oil derivatives and biofuels

Production of oil derivatives also includes all those technological processes which result in standardized products with prescribed quality apart from the process of production of oil derivatives by refining crude oil, by degasification or by separation of light liquefied hydrocarbons.

Until the end of 2019, there were six energy entities licensed for oil derivatives production: *NIS* which obtained the licence for this activity in 2016 for the second ten-year period, Standard gas LLC Novi Sad, Petrol LPG LLC from Belgrade, VML LLC from Jakovo, Energreen MTV LLC from Novi Sad and Euro gas from Subotica.

In addition, the Law defined biofuels production as a separate activity and, therefore, licenced activity – biofuels production now includes the processes of obtaining standardized motor fuels meant for vehicles, while the licenced activity – bio liquids production includes processes of obtaining standardized energy fuels of bio origin meant for heating and cooling.

The right to blend biofuels with fuels of oil origin is given to those energy entities owning specific energy facilities for homogenisation of these fluids and which were awarded with a licence for the performance of these activities. In the same way, activities such as filling vessels with liquid oil gases which are used for energy purposes, such as propane and propane-butane blend as well as filling vessels with compressed, i.e. liquifed natural gas are introduced.

Biogor Oil LLC from Sukovo is the only energy entity licensed for biofuel production and bioliquid production as of 2016. This company and *NIS* are the only entity also licensed for biofuel blending with fuels of oil origin. Until the end of 2019, there were 19 energy entities licenced for filling containers with liquid oil gases which are used for energy purposes. Therefore, the number of energy entities licenced for this activity increased by three entities during 2019.

In line with the Law, oil derivatives and biofuels which are placed in the market have to comply with conditions defined by regulations on the quality of liquid oil fuels and biofuels, as well as technical regulations and other regulations which refer to oil derivatives and biofuel trade.

Crude oil production, import and refinery processing in Serbia are performed exclusively by *NIS*. Total crude oil and semi-products consumption from local production, import and reserves in 2019 in Serbia amounted to 3.37 million tons which is by around 12% lower than in 2018. The reduction of scale of processing in 2019 is the consequence of capital overhaul in the Pančevo Oil Refinery and the reconstruction of the facility for light hydrocracking and hydroprocessing MHC/DHT. Crude oil production is performed by *NIS* (Exploration and Production Unit) on 63 oil fields with 666 wells both in Serbia. In 2019, additional 45 development wells and 11 exploratory wells were drilled. In 2019, around 0.859 million tons (25.47% of the total consumption) were produced in Serbia and around 2.514 million tons (74.53%) were imported, equally from Iraq (oil type Kirkuk) and from Russia (oil types REB and Novy Port). Crude oil processing is performed in the oil refinery in Pančevo.

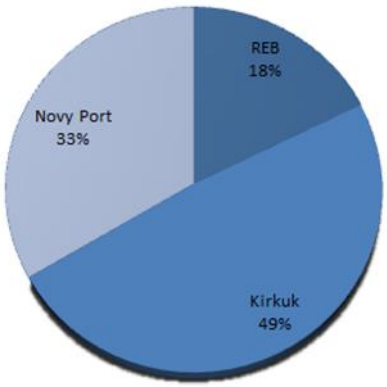

Figure 5-1: Types of imported crude oil in 2019

Crude oil processing is performed in the oil refinery in Pančevo.

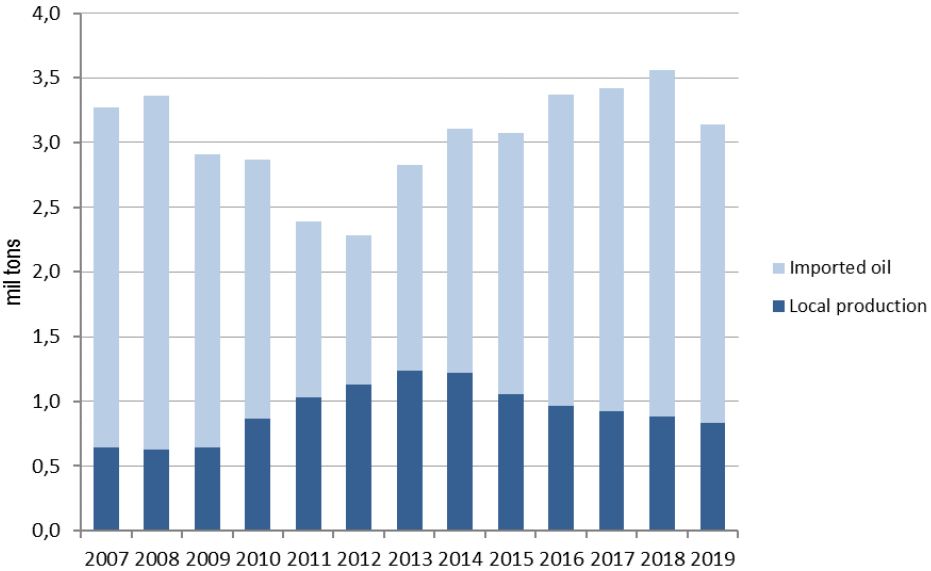

Figure 5-2: Crude oil refinery processing in Serbia in 2007 - 2019

After the completion of the first modernisation cycle in Pančevo Refinery in 2013 (light hydrocracking and hydro processing modules and production of motor fuels with “Euro 5” quality exclusively), crude oil refinery processing in

2019 reduced the scale of oil and semi-products processing by 12% in comparison to last year as a consequence of capital overhaul in the Pančevo Refinery. In 2017, Pančevo Refinery was awarded with IPCC permit (permit for integrated prevention and control of environment pollution) which confirmed that the production process in this refinery is fully in line with local and European standards in the field of environment protection. In addition, in 2018, the construction of a facility for deep processing with the technology of delayed coking was initiated in the Pančevo Refinery and the construction was continued in 2019. Use of this facility in its full capacity is announced for 2020 which will be followed by the increase in the share of oil derivatives which get better value in the market and it will also be followed by the achievement of quality of all produced motor and energy fuels harmonized with the Directive (EC) 2016/802 on the reduction of Sulphur in liquid fuels.

Local crude oil production reached its maximum in 2013. In comparison to that year, in 2019, crude oil production was lower by almost one third (32.33%) which represents a follow-up of the decrease in the local production of crude oil trend. The import of crude oil and semi products dropped for the first time after eight years by 14% in comparison to 2018. The share of local crude oil in total refinery processing amounted to 18.6% in 2008, around 49.5% in 2012 and 24.76% in 2019 which is around 2% more than last year.

In Serbia, apart from being produced in Pančevo refinery, oil derivatives, or, more precisely liquid oil gases, are produced in *NIS* factory for stabilization, i.e. preparation of natural gas for transport in Elemir (propane and gas condensate) as well as in the facilities of the energy entity Standard Gas and Energreen MTV (propane and butane, as well as pentane-hexane fraction, i.e.), where imported gas condensate, a wide light hydrocarbons fraction is used as raw material. The production of propane-butane blend and autogas, based on blending components is performed by Petrol LPG in their plant in Smederevo, by company VML in their plant in Jakovo and by company Euro gas in their plant in Subotica.

Oil derivatives, as final products, except from refinery processing are also provided from import and from reserves. In 2019, 1.218 million tons of derivatives were imported which is by around 31% more than in 2018. Drastic growth of oil derivatives import is the consequence of reduced crude oil processing due to capital overhauls of refinery on one side and growth of motor fuels market on the other side which is the consequence of increased number of vehicles and increased transport level. In addition, retail market grew since the wholesale market reduced as a consequence of business decisions of some transport companies to supply their fleet by fuel on stations via the use of corporation cards of motor fuel distributers. Also, a segment of diesel fuel consumption form the grey zone was shifted into legal flows and the main drivers of consumption of diesel, bitumen and coke are construction and road industry as well as favourable agricultural season. Euro diesel (with quality harmonised with SRPS EN 590) and LPG were predominantly imported as well as low volumes of unleaded petrol (with quality harmonised with SRPS EN 228). In 2019, 0.9 million tons of derivatives were exported which is by around 2% lower than last year. Negative consumption trend was also recorded with primary petrol due to overhaul in Petrohemija and with mazoute due to lower consumption for heating purposes.

Total motor fuels consumption in 2019 amounted to around 2.46 million tons which is around 4.6% more than last year - 2018. Within the structure of consumption of motor fuels, petrol types accounted for 17.4%, gas oils for 75.6%, LPG-autogas for 7.0%. total petrol consumption was increased by 2% in comparison to 2018. The consumption of gas oil – euro diesel and gas oil 0.1 is by 6.5% higher. The consumption of extra lights euro L gas oil is by 2.2 % higher while the consumption of liquid oil gases including autogas was lower by even 6.6%.

This is the seventh year in a row with autogas consumption drop, which is a consequence of abandonment of use of this alternative fuel in vehicles due to relatively greater increase in the price of this fuel in comparison to other fuels as well as due to higher costs of the issuance of certification of validity of the vehicle machinery using LPG (every five years). The use of autogas is cost-reflective only for vehicles which are driven for a large number of kilometres annually. There are no precise data on the consumption of compressed natural gas (CNG) for vehicles.

In addition, according to the data available to the public, there are around 2.5 million vehicles registered in the Republic of Serbia. Out of the number, only 200 vehicles are electricity-fuelled and the same number accounts for hybrid-fuelled vehicles. Therefore, one may say that this type of transport does not influence the total motor fuel consumption so far.

Requirements in terms of quality of oil derivatives which are in the market, as well as the procedure for assessment of harmonisation of quality with the prescribed one are regulated in the rules on technical requirements and other requirements for liquid fuels of oil origin, i.e. in the rules on technical requirements and other requirements for liquid petroleum gas. These Rules also define labelling of installations used for oil derivatives trade.

The Decree on Oil Derivatives Authentication (“Official Gazette of RS”, No.51/15 and 5/17) closely prescribes the conditions, methods and procedure of authentication of oil derivatives which are traded within the market.

5.2.2 Oil and oil derivatives transport

Oil is transported mainly through the oil pipeline between the Adriatic Sea port Omisalj through Sotin in the Republic of Croatia. The connection point of the pipeline in Serbia is in Bačko Novo Selo on the River Danube and it goes to the refinery in Pančevo through Novi Sad. Oil pipeline from Omišalj to Pančevo was commissioned as a unique functional whole in 1979. A part of it in the Republic of Croatia is operated by the company Janaf, while a part of it in the Republic of Serbia is operated by Transnafta. In addition to the branch Sotin-Novi Sad of 63km length and the

branch Novi Sad- Pančevo of 91 km length, Novi Sad terminal is also an integral part of this system, equipped with the pump and metering station and with two technological tanks of 10,000 m^3 each which are used operationally for crude oil transport as well as two tanks of 10,000 m^3 each and two tanks of 20,000 m^3 each which are used as crude oil storage.

Transnafta is the company licensed for oil transport through oil pipelines which is a regulated energy activity. A smaller scale of imported crude oil is transported by barges by the River Danube, while the local oil is also transported by road tankers from the local fields to oil refineries (these types of transport are not licensed energy activities).

Since 2005, when PE Transnafta was established, until the end of 2019, around 39 million tons of oil was transported in total. Transport of imported oil was lower during the period of the first refinery modernisation cycle in 2011 and 2012. In 2019, 0.637 million tons of local oil and 2.302 million tons of imported oil were transported. It represents a decrease of local oil transport by around 4.8% and a decrease of imported oil transport by around 14.2% in comparison to last year. In the past ten years, the highest local oil transport was recorded in 2013 when it was by 55% higher than in 2019. The lowest imported oil transport was recorded in 2012 when it was by around 50% lower than in 2019.

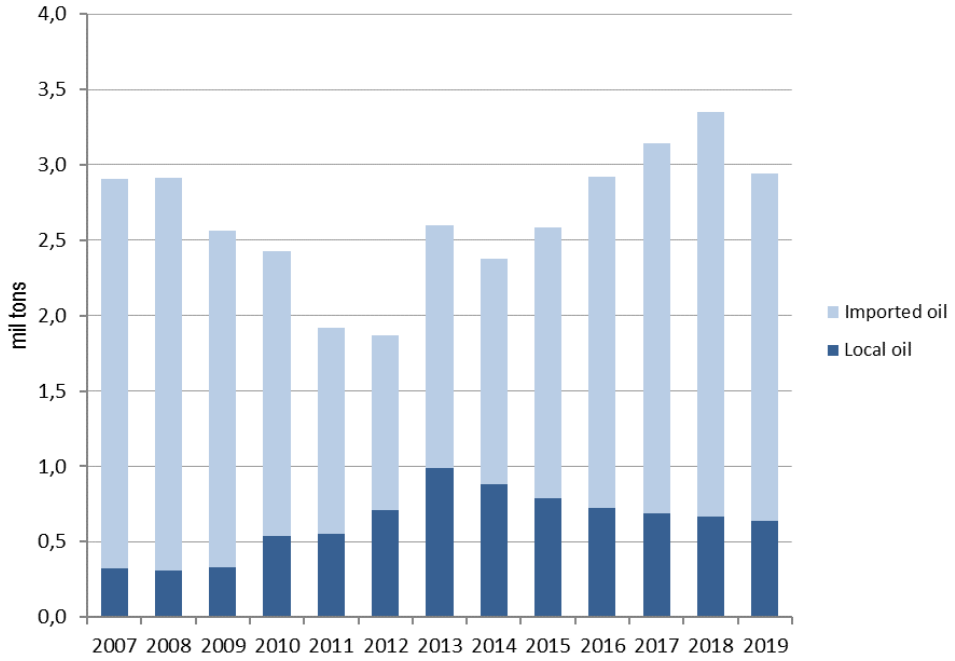

Figure 5-3: Crude oil quantities transported by oil pipeline of "Transnafta" in the period 2007 – 2019

If we consider the period starting from the point when the regulation of this activity started (Figure 5-3), around 12.3% less crude oil was transported in 2019 than last year. This is primarily the consequence of lower quantities of crude oil processed oil due to capital overhaul of refinery in Pančevo. In comparison to 2012, total crude oil transport via oil pipeline in 2019 was higher by around 57.5%.

5.3 Regulation of energy entity for transport of oil and oil derivatives

5.3.1 Unbundling of energy entity for transport of oil and oil derivatives

Transport of oil via oil pipelines as regulated activity of general interest is performed by Transnafta at regulated prices and under prescribed and publicly announced conditions in line with principles of non-discrimination, separately from other energy-related and non-energy-related activities.

Legal unbundling is not obligatory in case of pipeline transport of oil. In case of Transnafta, there was unbundling in terms of accounting between crude oil transport and other activities for which this energy entity is licensed (trade in oil and oil derivatives, compressed natural gas and biofuels and storage of oil, oil derivatives and biofuels).

5.3.2 Access to the system for oil and oil derivatives transport

The access to the system for oil pipeline transport is prescribed by the Law. The rights and obligations of the entity performing oil transport via oil pipeline as well as the rights and obligations of system users are regulated in more detail by the Oil Transport Network Code. The same code also prescribed physical-chemical characteristics of crude

oil which may be transported via pipeline system, technical conditions for safe system functioning; rules of procedure in case of emergency; metering method, functional requests and meter accuracy classes. In 2010, with the approval of the Agency, Transnafta adopted Oil Transport Network Code. This Code was applied even after the Law entered into force without significant amendments necessary to be made. In 2017, a commission for monitoring the enforcement of the code on oil transport via oil pipelines was appointed. Since that moment the Commission has been considering the necessity for Code amendments. Since there are still no product lines publicly used, the conditions were not created for the adoption of the relevant code.

In line with the Law, energy entities performing oil transport via oil pipelines or oil derivatives transport via product lines are obliged to set the dynamics of construction of new transport capacities and of reconstruction of existing ones, the sources of funds and other conditions for the development of the system for oil transport via oil pipelines within the development plan. In addition, they should set the programmes and measures for the reduction of losses within this system and they are responsible for the realization of the development plan. The Agency approves the development plan of the system for transport of oil via oil pipelines and oil derivatives via product lines. In 2019, Transnafta did not submit the development plan to the Agency for approval purposes.

In the previous five-year development plan, at the time when the Agency was not legally obliged to give approval to it, Transnafta envisaged product line construction in several phases. After the completion of the final phase, oil derivatives will be transported on the route from Sombor via Novi Sad, Pančevo, Smederevo, Jagodina to Niš including an independent branch towards Belgrade. The construction of the line would enable pipeline connection between Serbian refineries with storage installations and create conditions for safer, more secure and more environment friendly supply of the market in motor fuels. Activities on the preparation of technical documentation for the section of the product line – Pančevo-Smederevo which were ongoing during 2015 were in the final phase in the end of 2016 when the procedure for the award of construction permit was initiated. However, this project was not awarded with the energy permit in 2019 either and the energy permit is a precondition for the award of the construction permit.

International project pipeline Constanza – Trieste (PEOP) is on standby.

5.3.3 Use-of-system charge

In 2019, Transnafta did not modify the level of use-of-system charge of the system for oil transport via oil.

Table 5-1: Use-of-system charges

Transnafta	Oil pipeline branch	31/12/2018	31/12/2019
Tariff “energy source” (RSD/t/100 km)	Sotin – Novi Sad	224.39	224.39
	Novi Sad – Pančevo	156.46	156.46

The current charges and chronological review of oil pipeline use-of-system charges are available on the website of the Agency (www.aers.rs).

5.4 Oil and oil derivatives market

Energy trading activities in the field of oil derivatives and biofuels were primarily regulated by the regulations in the field of trade and in the field of energy. Apart from traditional trade in motor fuels and other fuels on petrol stations, the Energy Law recognises trade in fuels out of petrol station as retail in fuels, i.e. fuels which are not used for vehicles, except for sport planes. In such a way, the supply of sport planes with jet fuels and direct supply of final customers with fuels for heating and cooling, such as heating oil, heating bio oil, propane, propane butane blend, etc. is also defined as retail trade. The same regulations regulate the trade in oil, oil derivatives, biofuels and compressed natural as a traditional wholesale activity which, in case of some fuels, except for general qualitative conditions prescribed, also has quantifying conditions defined, i.e. certain storage capacities which are used in order to trade in these fuels. Energy entities holding his licence are entitled to perform trade on the local and foreign level and they complied with minimum technical conditions for this. The trade in fuels meant for vessels is defined as specific wholesale category and it is regulated also by regulations in the field of fire protection as well as in the field of trade. The status of an energy entity which performs this activity can be awarded to companies which were awarded with the status of an operator of port activities exclusively in line with the regulations which regulate port activities and sale in national waters (considerable amendments to the Law on Sale and Ports in National Waters entered into force in 2018 while additional amendments were also made in 2019). Thereby, the supply of big ships for local cruise and technical vessels in ports and water flows in the Republic of Serbia was regulated by the law.

In the regulations in the field of trade, the storage of oil, oil derivatives and biofuels are no longer recognised as trade services, but they are still licensed activities. Energy entities holding this licence are entitled to offer the service of storing fuels owned by traders, final customers, the Energy Reserves Authority – appointed to establish mandatory oil and oil derivatives reserves. They store fuels in adequate tanks.

The Law defines the competences of the energy inspector who, among other things, has a task to check if energy entities which perform energy activities comply with prescribed conditions for the performance of these activities upon the award of the licence, i.e. the inspector has a task to monitor energy activities performance in line with the Law and to monitor facilities in the oil field which are not monitored by the inspector of high-pressure vessels. Transitional and final provisions of the Law define that until conditions are created for the work of an energy inspector, his tasks will be temporarily performed by a high-pressure vessels inspector which may last one year at most since the day the Law enters into force. This inspection service was not established in 2019 either.

There is free import of oil derivatives and the volume, as well as the necessary structure of storage capacities for each of oil derivatives and biofuels type which are imported or traded within the Serbian market by traders are defined by regulations which arise from the law regulating trade (Rulebook on Minimum Technical Conditions for Oil Derivatives and Biofuels Trade ("Official Gazette of RS", No. 68/13 and 81/15). These regulations also regulate minimum technical conditions for the trade in motor fuels and other fuels on petrol stations (stations for the supply of vehicles, trade in fuels meant for vessels and trade in fuels out of petrol stations). There is full liberalisation of all energy activities in Serbia.

The development of oil and oil derivatives market was greatly influenced by the new Law on Commodity Reserves ("Official Gazette of RS", No. 104/13, 145/14 and 95/2018) and enabled the implementation of the Directive 2009/119/EC in the local legislation. This Directive refers to the provision of minimum mandatory oil and oil derivatives reserves.

The Directive (EC) 2009/28 which refers to renewable energy sources aiming at the reduction of greenhouse gases, in its segment related to the mandatory content of biofuels in motor fuels is implemented in the local legislation in 2019 since the following documents were adopted: Decree on Biofuel Market Share ("Official Gazette of RS", No. 71/2019), Rulebook on Technical and Other Requirements for Biofuels and Bioliquids ("Official Gazette of RS", No. 73/2019) and Decree on Biofuels Sustainability Criterion ("Official Gazette of RS", No. 83/2019). By the Action Plan for Construction of New Renewable Energy Sources – Based Capacities, the obligation to reach 10% of biofuels share in motor fuels until 2020 was assumed but the biofuel share in the oil derivatives market in 2019 was still negligible.

In 2019, the Rulebook on Immobile Tanks ("Official Gazette of RS", No. 50/2019) entered into force and it, among other things, sets requirements and labelling of these facilities, equipment characteristics and the compliance with these requirements as well as the conditions for immobile tanks verification.

Based on Commodity Reserves Law, the Government of the Republic of Serbia adopted a Decree on Setting Programme of Measures in Case of Endangered Security of Energy and Energy Sources Supply – Crisis Plan ("Official Gazette of RS", No. 63/2019). Crisis Plan includes procedures and criteria for the definition of disturbances in the supply and procedures for normalization of market supply in the Republic of Serbia. The Programme also includes procedures in case a decision on the release of mandatory reserves into the market is adopted on the international level.

5.4.1 Wholesale market

Until the beginning of 2020, the licence for trade in oil, oil derivatives, biofuels and compressed natural gas was held by 50 energy entities, i.e. only two licences more than last year as it is indicated in figure 5-4. In the period between 2010 and 2014, the main reasons for the reduction of the number of licenced energy entities for this energy were stricter regulations in the field of trade which regulate the minimum technical requirements for this activity in 2011 and in 2013, as well as the full implementation of these regulations in 2014, when licenses were withdrawn most often for these reasons upon the proposal of market inspectors. In the second phase which includes 2015 and 2016, there was a follow-up of slight annual trend of reduction of number of licenced entities for trade and then there was a slight growth from 2017 until 2019 which is a result of natural fluctuation of the number of energy entities present in the oil, oil derivatives, biofuels and compressed natural gas market under set conditions. One may conclude that the number of market participants is relatively stable in the past six years. In the period from the adoption of the Energy Law in the end of 2014, until the end of 2019, 2017 licences for the performance of this activity were permanently revoked which is a relevant indicator of market consolidation. The reduction of the number of wholesalers facilitates monitoring and control both of market players and of quality of motor and energy fuels which are placed on that market.

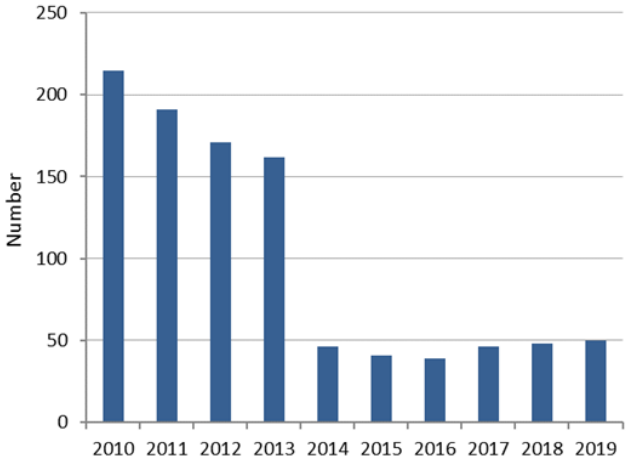

Figure 5-4: Number of active licenses for trade in oil, oil derivatives, CNG and biofuels

The Law on Sale and Ports within Local Waters ("Official Gazette of RS", No. 73/10, 121/12, 18/15, 96/15 – other law, 92/16, 104/16 – other law, 41/18, 95/18 – other law and 37/19 – other law) envisages that shippers, port operators and Directorate for Water Flows should harmonise their activities with the provisions of the Law on Sale and Ports within Local Waters until December 31, 2018 at the latest. This deadline was extended twice. Until the end of 2019, not all companies storing oil derivatives in tanks within river terminals harmonise their activities with ruling regulations in an adequate manner. The first licence for trade in oil for watercrafts was awarded to the company Siber Invest LLC from Požarevac in 2019 for bunker station in Veliko Gradište on the River Danube.

The number of energy entities licensed for the storage of oil, oil derivatives and biofuels increased by four entities. *NIS* has the largest storage capacities out of 25 licence holders. The second, third and fourth largest storage holders include Transnafta, Mitan oil and Naftachem.

5.4.2 Retail market

The 2014 Energy Law changed the term of retail in motor fuels and other fuels on petrol stations. Namely, apart from oil derivatives, the fuels such as biofuels, gas oils and compressed natural gas are included in the term motor fuels. Apart from encompassing road vehicles, the term vehicles also includes small vessels. The sale of heating oils on petrol stations is forbidden as of early 2015. In 2017, the Rulebook on technical norms for the security against fire and explosion in fuel stations for vehicles, small watercrafts, small agricultural and sport planes ("Official Gazette of RS", No. 54/2017) entered into force. The Rulebook predefined technical norms for safe installment as well as for the security against fire and explosion for the construction of new facilities and for upgrade, adaptation, reconstruction and sanation of existing stations for the supply in fuels of vehicles, in road transportation, small watercrafts, small agricultural and sports planes. It also defined procedures and technical norms for devices, installation and equipment for safe fuel storing and cross-feed on these stations. There were 370 energy entities licensed for retail by the end of 2011. The highest number of them was recorded in the end of 2016 – 470 of them, while there were 455 of them holding that licence in the end of 2019 which is 7 licences more than in 2018. The increase in the number entities licensed for the performance of this activity in the period 2011-2016 is to a small extent the result of construction of new petrol stations as well as to sporadic transformation of internal stations into public stations, and to a larger extent due to follow-up of a several-year trend of the lease of a greater number of petrol stations from *NIS* and Lukoil system to new leaseholders. Thereby, the number of market players was increased by using practically the same number of petrol stations, i.e. slightly higher number of petrol stations, as well as due to intensified activities of the ministry's control department which is authorized for trade. As a result of an intensified inspection, most of participants in this market applied for the license, even those who used to operate illegally. On the other hand, the dominant reason affecting the reduction of the number of participants in retail market is the revocation of licences from companies performing this activity on one station or on a small number of stations for vehicle supply upon their request due to lack of cost-effectiveness. Following the change of legal basis of their use, in most cases, energy entities performing this activity on a larger number of stations continued performing this activity on these stations. Therefore, operational cost optimization is the cause of market consolidation.

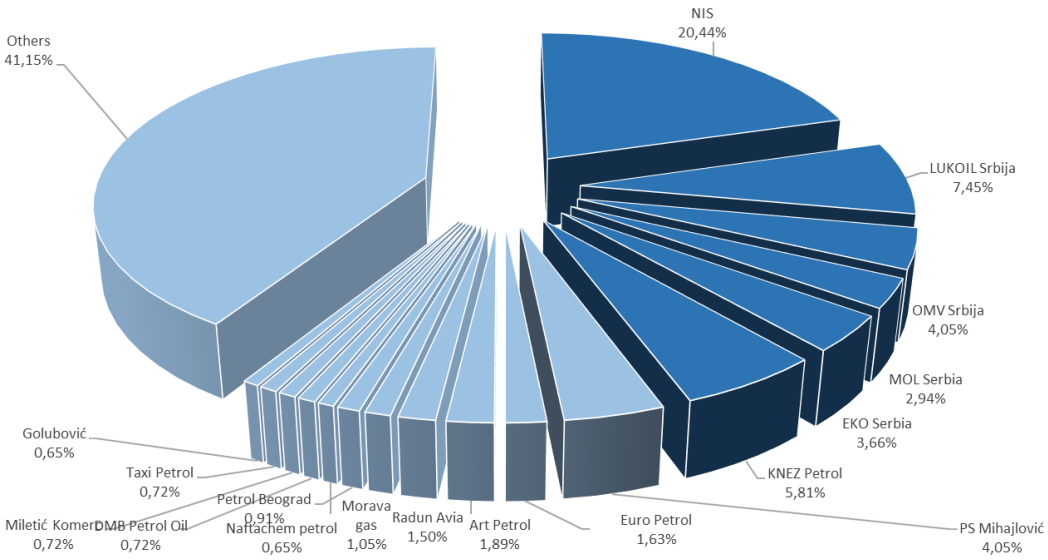

Figure 5-5: Share of companies in retail motor fuel market according to the number of stations in 2019

Figure 5-5 indicates the share of the biggest companies in retail motor fuel market in 2019. The given data do not refer to the motor fuel quantities placed on the market of the Republic of Serbia but to the relative share that oil companies hold in the market according to the number of petrol stations they use either as owners or as tenants, excluding the stations of other licenced entities using franchise trademark of these companies. In addition, the diagram has incorporated brands operating within the same business group (e.g. stations operating under brand NIS Petrol and Gazprom are incorporated in NIS section etc.) while the section "other" includes all companies with less than ten stations. Average number of stations per energy entity in the Republic of Serbia amounts to 3.4. However, if we exclude business group NIS performing this activity on more than 300 stations from the statistical data, this factor drops to 2.7. If we also exclude Lukoil using more than 100 stations, the average level drops to 2.4. In the end, if we exclude all energy entities with more than ten stations from the analysis as it is indicated in Figure 5-5, the average number of stations per energy entity amounts to 1.43. This average level refers to 96.7% of all licenced energy entities which perform motor fuel trade on over 40% of total retail facilities in the Republic of Serbia. The biggest increase in the number of stations in 2019 was recorded with the business group Knez Petrol (6), business system Mihajlović (6) and MOL Serbia (4) while the biggest drop was recorded with business group NIS (4) and Euro Petrol (5).

The increase in the number of compressed natural gas (CNG) traders as well as of the number of petrol stations is an indicator of expansion of use of this energy source which substitutes other types of motor fuels. By the end of 2019, 7 licences were issued for retail for 8 stations for the supply in compressed natural gas and 15 issued for wholesale exclusively for compressed natural gas which is by 4 more than in 2018. A lack of regulations and defined competence of inspectors, inability to supervise CNG consumption as of motor fuel (some CNG quantities are used for industrial purposes) and the fact that this type of motor fuel has not been burdened by excise duties and taxes so far, in contrast to fuels which serve as competitive motor and energy fuels are some of the features of this energy source market.

There are six energy entities licensed for trade in fuels outside petrol stations and they deal in trade in gaseous energy fuels primarily. They also trade in gas oil extra light EL type Euro.

There is still no energy entity dealing in the trade in motor fuels for sport airplanes.

6. ACTIVITIES OF GENERAL INTEREST AND CUSTOMERS PROTECTION

6.1 Activities of general interest

Legal framework for the performance of activities of general interest, i.e. for the provision of public service in the energy sector of Serbia is set by two laws: Energy Law and Law on Public Enterprises.

The Law on Public Enterprises ("Official Gazette of RS" No, 15/2016 and 88/2019) regulates the activities of general interest in several branches of economy, energy being one of them. On the other hand, definition of an activity of general interest in the energy field and the supply of electricity (guaranteed supply) and natural gas (public supply) is regulated by the Energy Law. Electricity production is not an activity of general interest. Guaranteed electricity supply is not a specific activity, but a public service offered by a supplier appointed by the Government of the Republic of Serbia in line with the Energy Law. The Law on Public Enterprises defines that an activity of general interest can be performed by a public enterprise. It can also be performed by corporations with a public enterprise, Republic of Serbia, autonomous province or local self-government unit as the only owner. A daughter company with such corporation as the only owner of it may also perform these activities. In addition, in line with the Law on Public Enterprises, these activities may be performed by other corporations or entrepreneurs appointed by the competent body.

The main objective of the establishment and operation of public enterprises is to secure continuous performance and development in performance of activities of general interest and regular compliance with the demand of customers in terms of products and services, secure technical and economic harmonisation of the system and its harmonisation of its development, with adequate profit and gaining any other interest prescribed by the law.

The 2014 Energy Law defines 29 energy activities with 8 of them defined as the activities of general interest. In the field of electricity, they include the following: electricity transmission and transmission system operation, electricity distribution and distribution system operation. In the field of natural gas, they include: natural gas transmission and transmission system operation, natural gas storage and natural gas storage operation, natural gas distribution and distribution system operation and natural gas public supply. In the oil field, they include: oil transport by oil pipelines and oil derivatives transport by product lines.

6.2 Customer protection

The protection of electricity and natural gas customers who use the services of general economic interest in provided more generally by the Law on Customer Protection ("Official Gazette of RS", No. 62/14, 6/16 – other law and 44/18 – other law) which provides protection to customers who are natural persons. In more detail, the protection of all customers is also provided by the Energy Law and bylaws adopted on the basis of this Law which regulate in more detail: general conditions for electricity and natural gas delivery and supply, regulation of price of electricity transmission and distribution, natural gas transmission and distribution and price of regulated supply of households and small customers, as well as the provision of administration-legal protection of customers with administrative procedures related to the connection of facilities to the system and administrative procedure related to the approval of access to the system.

Monitoring enforcement of documents adopted by the Agency

In line with the jurisdiction set by the Energy Law, in 2019, the Agency estimated the regularity of enforcement of methodologies adopted by the Agency and the regularity of setting regulated use-of-system charges and regulated electricity and natural gas prices. It is a precondition for the Agency approval of a legal act on use-of-system charges and legal acts on prices of guaranteed and public supply. When giving approval, the Agency provided for the adoption of prices set by energy entities in line with the Energy Law within the timeframe prescribed by the law regulating customer protection and the Energy Law. Except for the implementation of general mechanisms for final customers protection, the Agency analysed the regularity of implementation of prescribed tariffs in separate cases, acting upon complaints of customers and system users. In their files submitted to the Agency, they denied the regularity of stating prescribed tariffs or their amount indicated in suppliers' and system operators' bills, denied also the regularity of classifying customers in groups and categories of customers prescribed by methodologies adopted by the Agency, etc.

6.2.1 Regulation of price of supply of households and small-scale customers

One of the measures of protection of households and small-scale customers in electricity and natural gas markets is set by the Energy Law, i.e. the supplier to whom such final customers may return (universal service) is provided and the price of such supply is regulated. Electricity and natural gas market in the Republic of Serbia was opened in several stages and only households and small electricity and natural gas customers are entitled to regulated guaranteed/public supply as of 01/01/2015. Guaranteed/public supplier is appointed by the Government of RS in a manner, within a procedure and within deadlines set by the Law.

PE *EPS* is the guaranteed electricity supplier for the whole territory of Serbia. By mid-2016, guaranteed supply was provided by "*EPS Snabdevanje*" LLC Belgrade as a daughter company established by PE *EPS* in March 2013. In June 2015, by the change of status, the company was merged with PE *EPS*. From that moment, PE *EPS* continues

supplying households and small-scale customers at regulated prices. PE *EPS* has rights and obligations of the guaranteed supplier until a guaranteed supplier is appointed by the Government of the Republic of Serbia. The change of status was registered on June 1, 2016 in the Registry of economic entities.

Natural gas public supply is performed by 32 public suppliers. Each of them is on the territory of the natural gas distribution company which it constitutes the same legal person (natural gas distribution companies have less than 100,000 customers each). In the second half of 2012, the statute of PE *Srbijagas* was amended and a contract on the transfer of activity of natural gas public supply was signed with several companies and enterprises. This enabled the Government of RS to appoint energy entities which may perform this activity. In total, 33 energy entities complied with the conditions in the end of 2012 and in early 2013 and were licensed by the agency for the performance of natural gas public supply. However, in 2018, this number reduced to 32 public suppliers due to a merger of two energy entities. In 2019 there were 32 energy entities performing natural gas public supply, too.

The prices of guaranteed and public supply are approved by the Agency in line with the Law. Bylaws also regulate the content of the bill for regulated supply.

6.2.2 Rights of final customer to access to data on one's own consumption

Following market opening, the final electricity and natural gas customer became interested in having himself/herself as well as all his/her potential suppliers with the purpose of drafting supply offer informed upon request on all the necessary data on customer's consumption on the delivery point, the data being indicated in a uniform and timely manner. The law prescribes that the customer may authorize any supplier (not only the current one) to ask and receive the data on his/her consumption from the operator.

The decision on the procedure for the exercise of the right of final customer to have access to the data on one's own electricity and natural gas consumption was adopted by the Agency in July 2016 in line with its jurisdiction arising from the Energy Law. A part of this decision includes the templates for indicating data on a final customer's consumption so as interested suppliers could have the same data indicated and in the same way, too.

The operator is obliged to indicate the requested data free of charge within the defined deadline using the same template, in line with the defined template and submit them to the customer and a potential supplier if the customer appoints him as a data addressee. Final customers are thus enabled to receive comparable offers from potential suppliers since these offers are now established on the basis of reliable data on the customer's consumption in the long-run (for the last 24 months). The types of data are standardized as well as their template.

This procedure is expected to be more efficient after more broad implementation of advanced metering systems. Direct access to the data will be available with relevant codes for authorized persons. This is already in function with the electricity Transmission System Operator.

6.2.3 Supplier switch

The Rules on Supplier Switching ("Official Gazette of RS", No. 65/15) which were adopted in 2015 regulate conditions and procedure for supplier switching in case a final customer has a contract on full supply concluded. Acting upon complaints filed with this Agency during 2016 and 2017 directly by customers who failed to switch supplier or filed via a new supplier, the Agency asked for declarations and gave instructions in order to provide for regular implementation of these rules in each concrete case. In 2016, the Agency organized consultations with energy entities twice and based on the results of these consultations, the Agency prepared amendments to the Rules which entered into force in early 2017. In line with the jurisdiction set by the Law, the Agency also drafted templates with instructions both for customers on how to launch the procedure and for other participants in order to provide regular implementation of the Rules and more efficient procedure realization. New amendments of these Rules enabled the launch and completion of the supplier switching procedure upon a request of a customer losing their supplier even in less than 21 day. Thereby, procedure participants are urged to act urgently in settling a certain number of cases in order to reduce the number of customers who would otherwise be exposed to higher costs of supply of the last resort which is limited to 60 days at most. The adoption of a Decision on Amendments to Rules on Supplier Switching ("Official Gazette of RS", No. 10/17) enabled considerable progress in registration and organization of data bases of system operators on final customers metering points.

6.2.4 General terms and quality of delivery and supply

The Decree for Conditions of Electricity Delivery and Supply ("Official Gazette of RS", No. 63/13) and the Decree on Conditions for Natural Gas Delivery and Supply ("Official Gazette of RS", No. 47/06, 3/10, and 48/10) which are adopted by the Government of the Republic of Serbia on the basis of the Energy Law serve to define general conditions of delivery and supply in more detail. They also regulate: the content of the contract, rights and obligations of market players: energy customers, suppliers and deliverers, content of delivery bill and supply bill, depending on supply conditions, conditions under which some customers cannot be disconnected from the network in case of unsettled liabilities for the withdrawn as well as other elements prescribed by the Law.

The Agency monitors the quality of delivery and supply and the quality of electricity and natural gas in line with the Rules on Monitoring Technical and Commercial Indicators and Regulating Quality of Electricity and Natural Gas

Delivery and Supply which was adopted in the beginning of 2014. The Agency collects the relevant data, analyses relevant indicators, works on the upgrade of data quality with energy entities and prepares periodical reports in line with the Law. In the next phase, the following will be prescribed: the method of setting required quality indicators and requested level, method of estimating results achieved by supervising achieved results when compared to targeted levels of technical and commercial quality indicators. Achieved indicators are referred to in more detail in subsections 3.6 and 4.6.

6.2.5 Settling complaints and assistance in mediation procedure

The Agency also performs entrusted activities related to administrative-legal protection of customers by settling complaints in line with the Law. In 2019, the Agency settled customers' complaints against documents adopted by system operator. These documents were on denial, i.e. on failure to adopt a decision upon an application for the connection of a facility to the system. The most common complaints were filed due to failure of a competent energy entity to adopt a decision within the first instance procedure (the so-called "administrative silence") but also due to dissatisfaction in terms of defined technical conditions and connection costs. In 2019, there were only complaints filed against electricity distribution system operator's legal acts. On the other hand, there were no complaints against the legal acts of the natural gas distribution system operator.

Acting upon filed complaints, in 2019, the Agency mostly revoked decisions adopted within the first-instance procedure due to violation of process law and due to material regulations. Bearing in mind that the number of complaints increased in 2019 in comparison to last year, as well as that there is still a trend of revocation of a great number of decisions adopted within the first-instance procedure due to strong violations of procedure, a necessity to educate the staff working on administrative-legal issues of system connections of facilites is indicated. This is particularly important in the field of implementation of a new law on general administrative procedure. The full implementation of this law was initiated in 2017 and this is one of the reasons of an increased number of approved complaints due to strong violations of procedure in 2019.

In addition to their right to file a complaint to the Agency, customers are also entitled to administrative-judicial protection against second-instance decisions of the Agency within the appeal procedure in the field of administrative procedures related to the connection to the system and access to the system. There was a negligible number of filed complaints to the Constitutional Court of RS against decisions of the Agency increased in 2019 in comparison to last year.

Even in 2019, as well as in the previous years, in line with the jurisdiction, the Agency offered all necessary clarifications and issued opinions on the enforcement of the regulations adopted by the Agency. The Agency acted upon complaints of customers who deny the regularity of actions undertaken by energy entities when complying with obligations prescribed by the Energy Law. The Agency also acted upon other customers' and system users' files, regardless of the fact whether natural or legal persons file them.

In addition, in case of dispute between energy entities or between an energy entity and a system user, which is settled pursuant to the law regulating mediation, the Agency offers expertise to dispute parties as well as the available data so as necessary documentation is prepared for the mediation procedure.

In 2019, there were no mediation procedures where the Agency participated upon request of any of the parties.

6.2.6 Special modes of protection of most energy-wise vulnerable customers

The Law defines conditions and method of award of special modes of protection of energy-wise vulnerable customers from the household category (conditions for the reduction of monthly bill for final customers within this category) on the basis of criteria set by the Government of the Republic of Serbia in detail. Apart from general norms related to the protection of all electricity and natural gas customers, the Law also recognises the category of "energy (-wise) protected" customer which is a broader term than the "energy (-wise) vulnerable customer" since it covers, apart from customers entitled to social care, customers who need not be members of this category but still may have their lives or health endangered in case of electricity or natural gas supply disruption or limitation.

In 2019, the assistance to most energy-wise vulnerable customers in the Republic of Serbia was offered in line with the Decree on Energy-Wise Vulnerable Customer (*EUK*) which was adopted by the Government of RS on December 31, 2015 and which entered into force on January 1, 2016. In 2018, a Decree on Amendments to the Decree on Energy-Wise Vulnerable Customer was adopted and it entered into force on August 8, 2018. In contrast to the former Decree, the aim of the amendments to this Decree is to create conditions to include as high number of customers as possible and to increase the level of protection of vulnerable population categories via simplification of procedures for the award of the status of energy-wise vulnerable customer.

Conditions for the reward of the energy vulnerable customer status

The Decree defines criteria and: conditions for the award of the energy vulnerable customer status, content of the application for the award of the status and evidence accompanying the application, procedure, deadlines, manner of issuance and content of decision on the award of the status, content and scale of right to reduced monthly bill, award of the status due to health condition, method of registration of these customers as well as the method of provision of funds for the protection of energy vulnerable customers.

The funds necessary for customers' protection are provided from the budget of the Republic of Serbia. The protection of the most vulnerable customers from the budget creates conditions for a prompter energy market development.

The Decree on Energy-Wise Vulnerable Customer defined that the status of energy vulnerable customer is awarded to a customer who belongs to household category (individual, family) living in one housing unit with one metering point where electricity, i.e. natural gas is metered. This customer consumes maximum electricity or natural gas quantity in line with this Decree. The status is also awarded to a household with a member who can have his health or life endangered by electricity or natural gas delivery suspension.

Only households which do not own some other housing units, except for the housing unit which corresponds to the needs of the household by its structure and space are entitled to the award of the status of energy vulnerable customer.

The main criteria for obtaining the status of the energy-wise protected customer are the following:

1) total monthly income of the household;
2) number of household members and
3) financial status.

The total monthly income of households represents the condition for the award of the status of energy vulnerable customer ("Official Gazette of RS", No. 88/16). The total monthly income is harmonised twice a year – on April 1 and October 1 of the given year. They are harmonised with the customer price index in the last six months. It is done in line with the data provided by the Serbian Statistical Office. The table below indicates the maximum monthly income which enables the award of the status of energy vulnerable customer until and after December 1, 2019 since when new levels are valid.

Table 6-1: Total monthly income as the condition for the award of the status of energy vulnerable customer in 2019

For a household with the following number of members	Total monthly income up to _ RSD	
	until November 30	as of December 1
1	14,414.34	14,571.74
2-3	20,986.96	21,216.14
4-5	27,555.28	27,856.18
6 and above 6	34,652.31	35,030.72

The Decree on Energy-Wise Vulnerable Customer also prescribes the content of the application for the award of the status of energy vulnerable customer as well as the evidence accompanying the application. If an applicant is a beneficiary of social care allowance and/or children allowance, the customer is automatically awarded with the energy-wise vulnerable customer status based on an act of a competent body awarding him/her one of these rights.

Rights of energy vulnerable customers

Energy vulnerable customer may be awarded with the discount for monthly bill for certain quantities of:

1) kWh of electricity for all months and
2) m³ of natural gas for the following months: January, February, March, October, November and December

as it is indicated in the table below:

Table 6-2: Maximum rights to discount for monthly bill for consumed quantities

For a household with the following number of members	Maximum rights to discount for monthly bill for consumed quantities (MPU)	
	Electricity for all months	Natural gas for: January, February, March, October, November and December
	kWh	m³
1	120	35
2-3	160	45
4-5	200	60
6 and above 6	250	75

Based on 2019 data, 21% of energy-wise vulnerable customers belonged to the one-member household category, 31% were 2-3-member households, 37% were 5-7-member households, while 11% of households were with 6 or more members.

The rights to discount for monthly bill also depends on realized monthly consumption reduced to 30 days in comparison to the quantity for which a certain household has maximum right for discount (MPU) in Table 6-2 in the following manner:

Table 6-3: Right to discount for monthly bill depending on consumption

ELECTRICITY		NATURAL GAS	
Realized monthly consumption given for 30 days OMP	**Bill discount based on quantity**	**Monthly consumption given for 30 days**	**Bill discount based on quantity**
OMP ≤ 4 * MPU	MPU[19]	OMP ≤ 2 * MPU	MPU
4 < OMP ≤ 6.5 * MPU	0.5 * MPU	2 < OMP ≤ 2.5 * MPU	0.5 * MPU
OMP > 6.5 * MPU	0	OMP > 2.5 * MPU	0

In 2019, 80.7% of energy-wise vulnerable customers had consumption which enabled them to have 100% of rights for reduced monthly bill. 4.9% of energy-wise vulnerable customers were entitled to 50% discount, while 1.3% of energy-wise vulnerable customers had consumption exceeding the prescribed level and they were not entitled to reduction of monthly bill. Thereby, out of the total number of energy-wise vulnerable customers entitled to discount and those who did not exercise that rights amounted to between 0.4% to 4.3% in different months. With 13.1% of energy-wise vulnerable customers, bills for delivered electricity were lower than the calculated reduction of the monthly bill.

Energy vulnerable customer is entitled to monthly bill discount for the RSD amount:

1) for electricity – multiplying quantities in kWh for which the customer is entitled to have discount by higher daily tariff from the green zone for customers from category “Mass consumption with two-tariff metering” increased by 10% from the price list on regulated electricity price for the supply of households and small scale customers to which the Council of the Energy Agency of the Republic of Serbia gave approval and which is valid at the moment.
2) for natural gas – multiplying quantities in m³ for which the customer is entitled to have discount by the tariff “energy source” for customers from the category of households which are supplied by PE *Srbijagas* increased by 5% from the public supply price list of PE *Srbijagas* to which the Council of the Energy Agency of the Republic of Serbia gave approval and which is valid at the moment.

If monthly bill is lower than the calculated discount of monthly bill from this Decree, the discount will be calculated to the level of real monthly bill.

One of new provisions of the Decree includes the introduction of the status of energy-wise vulnerable customer due to health condition. The status of energy vulnerable customer to whom health or life may be endangered because of his health condition if electricity in case of electricity delivery suspension is awarded by submitting relevant medical documentation to the self-government units. The electricity distribution system operator cannot suspend electricity delivery if a member of a household which is energy-wise vulnerable customer uses medical equipment necessary for health preservation which requires electricity supply.

Number of energy vulnerable customers in 2019 and realized bill discounts

Based on the data provided by competent departments of the Ministry of Mining and Energy, i.e. by energy entities, the maximum monthly number of energy vulnerable customers who exercised their right to bill discount in 2019 and the annual amount of RSD allocated for these purposes from the budget was the following:

Table 6-4: Exercised right to bill discount in 2019

	Customers entitled to reduction	
	Number of customers	**Annual amount 000 RSD**
Electricity	76,867	1,251,484
Natural gas	68	382
Total	**76,888**	**1,251,866**

[19] MPU = Maximum electricity consumption pursuant to the Decree on Energy-Wise Vulnerable Customer

The enforcement of the Decree on Energy Vulnerable Customer started in January 2016. By the decision of the Constitutional Court defining that households exercise their right as a vulnerable customer within administrative procedure, bill discount could no longer be exercised on the basis of Ministry of Labour, Employment and Social Issues and certificates. All households were obliged to submit an application with local self-administration as of January 1 in order to be awarded with vulnerable customer status. The application is reviewed within the administrative procedure and the status is approved by the issuance of a decision. In total, in 2019, the number of customers who were exercising their right to bill discount for delivered electricity and natural gas did not increase significantly in comparison to last year (2%). If we have a look at separate months, in the field of electricity, the number amounted to between 64,713 in January and 76,867 in May 2019.

Based on the data filed by PE "Elektroprivreda Srbije", the number of beneficiaries in line with the Electricity Decree for different months in 2019 amounted to the following levels:

Table 6-5: Survey of energy-wise vulnerable electricity customers during different months of 2019

2019 month	Number of energy-wise vulnerable customers	Level of reduction within electricity bill RSD
January	64,713	86,752,363.93
February	70,697	94,985,504.79
March	74,441	103,225,442.16
April	76,206	106,821,904.08
May	76,867	108,278,763.78
June	76,361	108,308,298.84
July	76,129	108,165,022.97
August	75,892	108,110,135.40
September	76,100	108,458,858.16
October	76,565	108,123,588.81
November	76,024	105,669,708.39
December	75,387	104,584,277.50
TOTAL		**1,251,483,868.82**

The total amount of benefits achieved by energy-wise electricity vulnerable customers in 2019 amounted to RSD 1,251,865,870. This amount includes the amounts of bills for consumed electricity including excise, VAT and the fee for public broadcasting company.

In the period of Decree enforcement from January till December 2019, there were oscillations depending on the season which indicate that some customers use electricity for heating purposes. For example, in January 2019, 73.8% of these customers who were awarded with the vulnerable customer status met the condition for 100% reduction. Additional 8.2% were entitled to 50%, while 4.3% of households exceeded the consumption limit and were not entitled to bill discount. In January 2019, the number of households with reductions higher than the bill amount accounted for 13.7% of the total number of hoseholds who were entitled to bill discount. During summer months, the statistics is much better since e.g. in August, 84.7% of all households who were entitled to the vulnerable customer status met the condition for 100% of discount, 2.4% were entitled to 50%, while only 0.4% were not entitled to discount due to consumption exceeding the limit.

The number of electricity vulnerable customers in 2019 who were awarded with the right to have discount to the bill is lower than the expected one. According to the data from the EU statistics on income and life conditions (SILC), in 2018, in Serbia, every fourth citizen above 18 years old was exposed to poverty risk. The analyses show that a large number of households is exposed to energy poverty risk. Around 10% of total population in Serbia cannot provide adequate heating temperature in their apartments. If one bears in mind that the average number of household members amounts to 2.7, one may conclude that over 260,000 households are not in a position to provide the heat to their homes adequately. In addition, there is a highlighted problem of undue electricity bill settlement. Delay in public utility liability settlement is present with 28.4% of the total population. In addition, 16.6% of the total population

lives in life space with leaking roof, damp walls or floor or with rotten window frames. Based on all these three indicators and bearing in mind the mentioned average number of household members, one may conclude that between 450 and 500,000 households are facing the energy poverty risk.

The exposure to poverty risk is not the same as the poverty itself (the so-called absolute poverty). Metered via absolute poverty, poverty rate in Serbia metered in line with consumption in the last 2-3 years amounts to 7.2% which means that 7.2% of Serbian citizens (around 500,000 citizens) cannot satisfy even basic needs. According to the records of the competent ministry on the number of families who are beneficiaries of social care allowance and beneficiaries of children allowance in December 2019, the number amounts to around 250,000 – 300,000 households[20] which we can refer to as to energy vulnerable ones. However, if one adds people with the lowest pensions, single breadwinners, beneficiaries of custodial care and assistance as categories who are in most cases and to the greatest extent exposed to energy poverty risk to this number, the number of individuals and families would be much higher. Based on some reviews and data analyses from previous years, one could say that the number is between 300 – 400,000 households[21].

Table 6-6: Review of beneficiaries of social care allowance in 2019

Number of family members	Number of families	Persons in total	Amount 000 RSD
1	36,718	36,718	321,876
2	18,698	37,396	206,388
3	9,939	29,817	129,695
4	10,918	43,672	164,317
5	6,401	32,005	110,798
6 and above 6	5,394	32,364	106,506
Total	**88,068**	**211,972**	**1,039,580**

Table 6-7: Review of beneficiaries of children allowance in 2019

For a child		Number	Amount 000 RSD
First-born		118,139	384,006
Second-born		98,730	314,095
Third-born		43,670	138,447
Fourth-born		16,806	54,566
Total	**children**	**277,345**	**891,114**

[20] This number bears in mind that there is an overlap of families who are beneficiaries of both allowances.

[21] In December 2019, in Serbia, there were 1,708,293 pensioneers with average monthly pension of RSD 26,336. Out of the number, there are 170,582 pensioners who used to work in agriculture with average pension of RSD 11,265. In addition, there are 27.8% of pensioneers (around 475,000) with the pension level which is below 15,000 and 59.4% of pensioneers (over 1,000,000) with the pension level lower than the average one. (http://www.pio.rs/images/dokumenta/statistike/2019/RF%20PIO%20Statisticki%20mesecni%20bilten%20-%20decembar%202019.pdf)

ANNUAL AND FINANCIAL REPORT

7. AGENCY ANNUAL REPORT

7.1 Basic data about the Agency

7.1.1 Establishment of and the scope of work of the Agency

The Energy Agency of the Republic of Serbia (Agency) was established pursuant to the 2004 Energy Law, which provided for the harmonisation of our legislation with the EU regulations at that time.

The Agency was registered at the Commercial Court in Belgrade on June 16, 2005 and started working on August 1, 2005.

Pursuant to the 2011 and 2014 Energy Law, the Agency continued its work of a regulatory body, established so as to improve and guide energy and natural gas market development based on principles of non-discrimination and efficient competition, through the establishment of a stable regulatory framework, as well as so as to perform other activities stipulated by the law.

By the adoption of the 2014 Energy Law, legal norms in the energy field were harmonized with the Third energy package of regulations on internal energy market and the *acquis* of the EU. The role of the Agency was strengthened significantly and its jurisdiction was expanded.

The most important Energy Agency jurisdiction areas divided in groups include the following:

Certification and licencing

- certification of the transmission/transport system operator and
- licence issuance and withdrawal, keeping a licence registry and adoption of a regulation on the level of costs of licence issuance.

Price regulation

- adoption of methodologies for setting:
  - energy network use-of-system charges;
  - prices of regulated electricity and natural gas supply;
  - prices connection to network systems and
  - methodologies for billing electricity which was consumed without authorisation;
- approval of regulated prices;
- setting price of regulated ancillary services;
- monitoring the enforcement of methodologies and approved regulated prices;
- setting the level of compensation paid to a customer due to deviation from the prescribed quality of electricity and natural gas delivery and supply and
- drafting a report on the necessity of having furhter:
  - price regulation in the field of electricity supply of households and small customers;
  - price regulation of capacity reserve for system services – secondary and tertiary control and
  - necessity to maintain supply of the last resort.

Energy market monitoring

- adoption of rules and other documents:
  - supplier switching rules;
  - rules on quality of electricity and natural gas delivery and supply;
  - act on manner, procedure and deadlines for keeping bookkeeping registries for regulation purposes and for the purpose of implementation of account unbundling for different energy activities;
  - regulation on the level of costs of energy licence issuance;
  - regulation on the method of procedure for imposing measures; keeping a registry of imposed measures;
  - regulation on exeption for new interconnector overhead lines and gas infrastructure;
  - procedure of customers' entitlement to access the data on one's own consumption;
  - instructions, recommendations and guidelines for the enforcement of the regulations within the Agency jurisdiction;;
- approval of rules:
  - electricity transmission and distribution network code;
  - natural gas transmission and distribution network code and natural gas storage code;
  - electricity market rules;
  - on cross-border capacity allocation;

- on publication of key market data;

- approval of other regulations:
  - multi-year development plans of transmission, distribution and transport system;
  - bilateral contracts for cross-border transmission capacity allocation;
  - procedure for the connection to the transmission system;
  - harmonisation programmes for non-discriminatory behaviour of the system operator; acts on conditions for appointment, duration of term of office and dismissal of the compliance officer for the programmes for non-discriminatory behaviour and prior approval of the appointment of a candidate nominated as the compliance officer for the programmes for non-discriminatory behaviour;
  - plans for the transfer of metering devices to distribution system operators;
  - regulation of a transmission system operator on the level of fee for the guarantee of origin;
  - regulation of the system operator on the non-standard service prices;
- giving opinion on plans for implementation of smart metering systems;
- monitoring compliance of licenced energy entities with obligations and monitoring market functioning and
- contribution to harmonisation of procedure of the exchange of data relevant for the most important market processes in the region.

Deciding upon appeals and customer protection

- deciding upon appeals:
  - against denial of the access to the system and
  - against a decision of the system operator upon an connection application or against failure to adopt a decision on it;
- considering files submitted against the system operators' and suppliers' failure to comply with obligations;
- providing professional support and data to applicants who settle their disputes via mediation;
- imposing measures and keeping a registry of imposed measures;
- launching offence procedures and economic offence procedures;
- examining circumstances and launching prodecures with competent bodies in case of competition offence and market limitation offence and
- taking measures so as to make the list of practical data on their rights available to system users and customers.

International cooperation

- The Agency cooperates with regulatory authorities from other countires, as well as with other international bodies and organisations in line with the law and ratified international agreements and the decisions of the Council aiming at:
  - development of the regional and Pan-European electricity and natural gas market;
  - encouraging operational agreements ensuring optimal network operation;
  - achievement of equal conditions for all market participants;
  - promoting coupling of organised electricity markets;
  - common cross-border transmission capacity allocation;
  - creating conditions for an adequate level of cross-border capacities in the region and among regions;
  - coordinated implementation of network codes and congestion management rules;
  - contribution to the compatibility of data exchange procedures and
  - improvement of its operations in line with positive international experience and standards.

The Agency provides non-discriminatory access to the systems through effective competition and efficient operations of electricity and natural gas markets.

Within its scope of work, the Agency monitors:

- efficient accounts unbundling in licenced energy entities;
- existance of cross-subsidising among energy entities which deal in different energy activities within the same energy entity;
- compliance with energy entities' obligations prescribed in line with the Law;
- application of the rules for cross-border transmission capacity allocation in cooperation with regulatory bodies from other states;
- publishing the data on cross-border transmission capacities and on system use by transmission and transport system operator;
- enforcement of mechanisms for the removal of congestions in the transmission or transport system;

- conditions and costs for the connection of new electricity producers to the transmission or distribution system, so as objectivity, transparency and non-discrimination could be guaranteed, in particular having in mind the costs and benefits from different technologies for electricity generation from renewable energy sources and combined electricity and heat energy production;
- the time necessary for system operators to connect a facility to the system, i.e. the time necessary to remove breakdown in case of delivery disruption;
- the way reserves are used within the system;
- transparency and competition level, in cooperation with the bodies authorised for competition issues;
- functioning of an organised electricity market as well as the organised market operator's compliance with the principles of transparency and non-discrimination;
- the level of market openness and its efficiency and competence in wholesale (among suppliers) and retail (final customers supply);
- the conditions for access to the storage, linepack and use of other ancillary services in the natural gas sector;
- compliance with customer protection measures defined by this law and
- realisation of development plans.

7.1.2 Organisation of the Agency

The Energy Agency of the Republic of Serbia is independent in performing organisational activities and other activities which enable the performance of the activities stipulated by the law. Pursuant to the Law, the Council of the Energy Agency (hereafter: the Council) adopts all the decisions on the issues under the jurisdiction of the Agency by majority of votes among Council members, except if it is otherwise stipulated by this law or Statute.

Within the Council, there is the President and four members. The Council President stands on behalf of the Agency and represents it, decides on the issues within the scope of work of the Agency as defined in Article 54of the Law, organises the activities of the Agency and manages the activities of the Agency, proposes decisions and other acts adopted by the Council and monitors their implementation, has the director's authority in activities related to exercising rights and obligations of the personnel and performs other activities in line with the law, Statute and Council authorisation.

The Council adopts the Statute which regulated internal Agency organisation and procedures, Rules of Procedure and other general acts pursuant to the law. Agency Statute is approved by the National Assembly of the Republic of Serbia.

Organisational structure of the Agency was established based on elaborate made by the consulting house KPMG and approved by the Ministry of Mining and Energy. Organisation of the Agency is set so as to comply with the requirements in terms of efficiency and rationality in its work. To that end, Agency operates through four departments with a defined scope of work, with necessary level of coordination during the performance of complex duties for which more than one department is responsible.

Basic organisational units include:

- Energy and Technical Department;
- Economics and Finance Department;
- Legal Department and
- Organisational and General Affairs Department.

7.1.3 Independence and responsibility

In the performance of its activities, the Agency is an autonomous legal entity and it is independent from the executive authorities, other state bodies and organisations and legal and natural persons dealing in energy activities. The independence of the Agency does not prejudice its cooperation between the Agency and other national bodies, the implementation of the general policy adopted by the Government of the Republic of Serbia in issues which are not related to the jurisdiction and responsibilities of the Agency.

The Council President and members are responsible for their work to the National Assembly. At least once a year, they submit the financial report and the report on the energy sector to the Assembly. The annual report includes the data on the Agency's work during the previous year, its financial operations and the situation in the energy sector of the Republic of Serbia which is within the Agency's competence.

The independence of the Agency from the executive authorities is also reflected in the fact that, in line with the Law, the president and members of the Council of the Agency are selected by the National Assembly based on a public invitation and the fact that they are selected from a group of prominent experts in the energy field. The president and members of the Council may only be persons who are citizens of the Republic of Serbia, with university degree in technical, legal or economic area and with at least 10 years of working experience in the energy field. The following

list of persons shall not be selected as the president and member of the Council: MPs of the National Assembly, MPs of the Assembly of the Autonomous Province, elected members of city councils, other elected and appointed persons, as well as political party officials; owners or co-owners of energy entities, as well as persons whose spouses, children or relatives in straight line regardless of the degree of kinship, or relatives in lateral line ending with the second degree of kinship, are owners or co-owners of energy entities; persons lawfully convicted for criminal offences against official duty, corruption, fraud or other criminal offences making them unfit to perform the functions they are elected.

In 2017, the selection of AERS Council President and members was initiated in line with the provisions of the new Law for the first time. The selection was completed in March 2018 and in line with this, new AERS Council members commenced their term of office in March 2018.

The Agency has its own financing sources, defined by the Law, separate from the state budget.

The Agency is financed from the revenue arising on the basis of regulation activities from the part of regulated revenues from the system access set by the methodologies adopted by the Agency, on the basis of energy license issuance, as well as from other revenues from the activities within its jurisdiction in line with the law. The Agency may also raise funds from grants, except from the grants from energy entities or persons connected to those entities.

Pursuant to the Article 61 of the Law, the Agency adopts a Financial Plan defining total revenue and expenditure, including contingency funds and elements for full insight into the compensation and employment policy which provide adequate professional personnel. The financial plan is approved by the National Assembly. The financial plan is submitted to the National Assembly at the latest by the end of October of the current year for the following year. Upon the approval of the National Assembly, it is published in the “Official Gazette of the Republic of Serbia”. The Agency submits annual Financial Plan to the National Assembly regularly and within the prescribed deadline to the National Assembly.

The Agency 2020 Financial Plan was adopted by Agency Council within the prescribed timeframe on October 31, 2019 and it was submitted to the National Assembly for adoption purpose on the same day. In February 2020, the Agency 2020 Financial Plan was approved by the National Assembly and this created conditions for further improvement of the Agency work and of its organizational structure and the number of employees.

Annual calculations of revenue and expenditure of the Agency are audited by an authorised auditor. The auditor’s report is also submitted to the National Assembly. If one determines that the annual revenue of the Agency exceeds total expenditure, the deviation amount is transferred into the financial plan as revenue for the following year. However, the sources and the amount of revenue for the following year are harmonised with realistic expenditure of the Agency for that year approved by the National Assembly.

Full independence of the regulatory authority is also one of obligations on the accession of the Republic of Serbia to the European Union and it is subject to the European Commission in the process of accession to the European Union. Criteria of independence of the Energy Agency as regards compliance with obligations arising from the Treaty establishing the Energy Community (“Official Gazette of RS”, No. 62/06), Berlin Process and CESEC Initiative is also monitored by the Energy Community Secretariat. The position and the role of the Energy Agency within the legal system of the Republic of Serbia are defined by the Energy Law which also transposes the provisions of the European energy law (the so-called Third Package of regulations on internal EU energy market) which regulate functional, personal and financial independence of the regulatory authority.

INDICATORS OF INDEPENDENCE OF ENERGY REGULATORY AUTHORITIES

The reasons for the transfer of some of jurisdiction related to economic regulation in the electricity and natural gas sectors from state bodies to independent regulatory authorities may differ, but the common idea behind this is to strive to remove the risks arising from market imperfections (natural and/or factual monopoly in the sector), to remove noted weaknesses of the centralized (state) management of the energy sector (stimulating competition) and to strengthen the credibility of the sector in the eyes of potential investors. Therefore, the objective of most energy regulators is to protect customers and investors, while the main mechanisms to achieve that is to regulate prices, prescribe rules and monitor the actions market participants.

There is mutual link between Agency goals, functions and activities with those of the EU electricity and natural gas regulatory authorities since the EU *acquis communautaire* (directives and regulations) have been implemented in the energy sector. The 2014 Energy Law also transposed the provisions strictly prescribing the regulator's independence into the legal system of the Republic of Serbia, i.e.:

- functional independence;
- personal independence and
- financial independence.

Functional independence

An independent regulatory body has to be free in the selection of instruments used to perform the duties in its jurisdiction. The regulator is not allowed to accept instructions from state institutions or energy entities (companies) and regulator's decisions cannot be subject to approval or annulment by executive authorities.

Personal independence

Personal independence of a regulatory authority is provided by:

- setting strict criteria for the appointment (expertise, lack of conflict of interest) and dismissal (e.g. legally-binding conviction for criminal act, offence against rules on the conflict of interest) of management body members (in Serbia: Council of the Agency);
- establishment of rotation between management body members, by not having all management members' mandate ending at the same time, thus providing the separation between processes of the selection of regulator's management and election cycles on political level and
- autonomy in the human resources recruiting - issues related to organisation and human resources have to be within exclusive jurisdiction of the regulator. Regulatory authority has to have autonomy in making decisions on the engagement and dismissal of employees, as well as on the number of them.

Financial independence

Financial independence of the regulatory authority is provided by:

- full independence from the state budget (as prescribed by the Energy Law) or clear independence of the regulator's budget from other budget beneficiaries within the state budget;
- autonomy in the allocation of approved funds. It implies that the regulatory authority has the exclusive right to make decisions on how the approved budget will be spent, i.e. the regulator may neither ask nor accept instructions on its budget. Namely, procedure prescribed in the Energy Law implying that the National Assembly approves the Financial Plan of the Agency does not contradict the principles of regulatory authority independence. In the opinion of the European Commission expert departments, the role of the legislature authorities (parliament) is to approve general financial allocation (not individual budgetary it*ems*) in order to enable the regulatory authority to perform the duties entrusted to it by the law in an efficient and effective way.

7.2 Activities of the Agency in 2019

In 2019, the Agency Council which manages the Agency held 48 sessions (43 regular ones and 5 extraordinary ones) during which decisions, approvals, certificates and other acts in the fields of: price regulation, issuance of energy licences, electricity and natural gas market monitoring establishment and implementation, internal organisation of the Agency and other issues within the jurisdiction of the Council were adopted.

7.2.1 Licensing energy entities

Activities which the Agency performs as entrusted ones, related to the issuance of licences of energy entities for energy activities are administrative-legal procedures which include:

- issuing licences for energy actvities;
- amendments to issued licences;
- withdrawal, revoking and adoption of decision on withdrawal of the licence by virtue of law;
- monitoring the fullfilment of prescribed requirement by energy entities during the validity period of the licence and
- keeping registry of issued and withdrawn licences.

Requirements for issuance and withdrawal of licenses and keeping registry of issued licenses are prescribed by the Energy Law and the Rulebook on Energy Licence and Certification ("Official Gazette of RS", No. 87/15) regulating the conditions for issuing licenses for energy entities and certification and which are adopted by the ministry in charge of energy issues. These are the main regulations the Agency implements within the licence issuance procedure. The

rulebook on energy licence and certification is available with prescribed forms and proofs which are necessary to be submitted along with the application for energy license on the Agency website.

The registry of issued licenses is a public document and it is both available in the written form and kept in the Agency registry and in the electronic form available on the website of the Agency (www.aers.rs).

In order to perform these duties, in line with its legal jurisdiction, the Agency adopts a regulation on the level of costs for the issuance of energy licences. The act is approved by the Ministry of Finance and published in the "Official Gazette of RS". The act defines the cost of the Agency while assessing the compliance with the conditions for the performance of energy activities for each energy activity separately. The costs are borne by licence applicants. This act is published on the Agency website.

The Council of the Agency adopts a decision on the issuance of a licence for the performance of an energy activity within the administrative procedure. Once the decision enters into force, the Agency includes that licence in the registry of licences.

In 2019, the Agency Council issued licences for 14 energy activities out of 25 energy activities for which licences are issued in line with the 2014 Energy Law.

In 2019, the Agency received 89 licence applications. Along with 2,213 applications received in 2006-2018, it amounts to 2,302 applications in total.

In 2019, unorderly applications from previous years and applications submitted in the previous years were processed in addition to the applications filed during 2019. By the end of the year, the Agency council adopted decision on the issuance of 80 new licences. 15 files were denied, 7 of them by application denial while the procedure was suspended with one file. 2 licences ceased to be valid by the virtue of the law, 6 licences were permanently revoked and 11 decisions on licence issuance were revoked upon energy entities' request. Since licenced energy entities did not file an application for the extension of licences for many licences issued during previous years following the termination of their validity period, in the end of 2019, there were 960 valid licences in total.

In most cases, the applications filed with the Agency did not include all the necessary documents and therefore, they were amended in line with the law regulating administrative procedure by energy entities upon the Agency's request. After noticed inadequacies were removed and application files completed, applications were reassessed in order to check if the conditions for licence issuance are met. Since there was strict compliance with the procedure and prescribed deadlines in the field of file consideration, only 4 files were forwarded from last year.

As of 2008, there was a great number of applications for the amendments of the decisions on issuance of energy licenses, especially in the oil sector – for the activity: trade in motor fuels and other types of fuels on petrol stations and trade in oil, oil derivatives, biofuels and compressed natural gas. Most applications were submitted due to the change of facilities where energy activity is performed. In 2019, the Agency adopted 82 decisions on amendments on decisions mostly for the issuance of license for activities in the oil sector.

The Agency is not responsible for energy entities that did not comply with the conditions for issuing licence. In 2019, not one report of a competent inspector was submitted to the Agency that could be the ground for filing an economic offence against a legal person performing energy activity without a licence.

The number of submitted applications and of licences issued in 2019 (some applications are from 2015 and licences issued in 2019) for each activity are given in Table 7-1.

Table 7-1: Submitted applications and approved licenses in 2019 per each activity

No.	Activity	No. of applications	No. of approved licences
1.	Power production	3	3
2.	Combined power and heat production	1	1
3.	Electricity transmission and transmission system operation	0	0
4.	Electricity distribution and distribution system operation	0	0
5	Electricity distribution and closed system operation	1	1
6.	Electricity supply	2	2
7.	Electricity wholesale supply	7	5
8.	Organised electricity market operation	0	0
9	Natural gas transmission and transmission system operation	0	0
10.	Natural gas storage and storage operation	0	0
11.	Natural gas distribution and distribution system operation	2	3

12.	Natural gas supply	5	4
13.	Natural gas public supply	1	0
14.	Oil derivatives production	1	1
15.	Oil transport through oil pipelines	0	0
16.	Oil derivatives transport through product lines	0	0
17.	Storage of oil, oil derivatives and biofuels	7	5
18.	Trade in oil, oil derivatives, biofuels and compressed natural gas	14	8
19.	Trade in fuels outside petrol stations	1	1
20.	Filling vessels for liquid petroleum gas, compressed and liquefied natural gas	3	3
21	Trade in motor fuels and other fuels on petrol stations	39	42
22.	Trade in fuels meant for vessels	2	1
23.	Biofuels production	0	0
24.	Bio liquids production	0	0
25.	Blending biofuels with fuels of oil origin	0	0
	Total	**89**	**80**

The updated register of licensed energy entities for each energy activity is available on the Agency's website (www.aers.rs).

7.2.2 Price regulation

In January 2019, in the field of price regulation, the Council of the Agency amended methodologies which regulate setting regulated energy entities' prices in line with the Law. The following methodologies were amended: Methodology for Setting Electricity Transmission Use-of-System Charge, Methodology for Natural Gas Transmission, Methodology for Setting Price of Access to Natural Gas Storage and Methodology for Setting Oil and Oil Derivatives Transport Use-of-System Charge via Oil Pipelines and Product Lines Respectively. All methodologies were published in January 2019 in the Official Gazette of RS, No. 4/19.

In 2019, the Agency Council approved the following decisions on prices:

- For electricity
  - Approval of decision on prices of non-standard services of EPS Distribucija LLC Beograd in January;
- For natural gas
  - Approval of decision on prices of non-standard services of LLC GAS Bečej in October;
  - Approval of decision on prices of non-standard services of PE Kovin gas, Kovin in October;
- In November 2019, the Agency Council adopted a report on necessity of regulation of price of capacity reserve for system services of secondary and tertiary control, necessity of a follow-up of electricity supply of the last resort and necessity of electricity price regulation for guaranteed supply.
- In October 2019, the Agency Council approved decision on electricity transmission use-of-system charge adopted by the JSC EMS, of electricity distribution use-of-system charge adopted EPS Distribucija LLC Beograd and of guaranteed supply adopted by PE EPS. Except in the "Official Gazette of Republic of Serbia", all the approved documents are available on the Agency website.

Permanent activities of the Agency related to price regulation include:

- Provision of professional assistance to energy entities as regards the enforcement of methodologies for setting prices and monitoring their adequate implementation;
- Monitoring the enforcement of methodologies for setting costs of connection to electricity transmission and distribution system, i.e. to natural gas transmission and distribution and deciding upon customers' appeals which provides adequate level of customer protection and directly contributes to appropriate implementation of methodologies in practice;
- Provision of professional support to energy entities as regards unbundling their funds and costs into different activities, as well as the control over unbundling;

- Monitoring and analysis of data submitted by energy entities as regards realised costs and regulated prices;
- Half-yearly monitoring and comparison of actual electricity and natural gas prices in the region and in Europe and
- Analysis of solutions and solution proposals as regards price regulation and drafting amendments and improvement of existing legislation.

7.2.3 Monitoring electricity and natural gas market

So as to create conditions for proper market functioning, the Law stipulates the adoption, i.e. harmonisation with the new Law of all the rules prescribed by the Law. In 2012, the Agency Council adopted Rules on Supplier Switching ("Official Gazette of RS", No. 93/12). In 2015, the Council adopted new Rules in order to harmonised them with the 2014 Law and the Rules were amended in 2017.

In late 2013, the Agency Council adopted the Rules for Monitoring Technical and Commercial Indicators and Regulation of Quality of Electricity Supply. In 2017, the Council considered their implementation.

In March 2016, the Council adopted the Rulebook on Method of Procedure and Imposing Measures and Keeping Registry of Imposed Measures which is applied to those market players who do not comply with their obligations prescribed by the Law.

In July 2016, the Agency Council adopted a Decision on Procedure of Exercising Right of Final Customer to Access Data on One's Own Electricity and Natural Gas Consumption.

The remaining rules are adopted by energy companies, upon the Agency's approval.

In November 2019, the Council of the Agency approved the following rules:

- Decsion on Amendments to Rules for Cross-Border Transmission Capacity Allocation of the Transmission System Operator – EMS JSC;
- Rules for Cross-Border Transmission Capacity Allocation on Serbian – Hungarian Border for 2020 ("Agreement between Transmission System Operators of the Republic of Hungary – MAVIR ZRt. Hungarian Independent Transmission Operator Company Ltd. and the Transmission System Operator of the Republic of Serbia – *EMS* JSC Belgrade on the Procedure and Manner of Allocation of Rights to Cross-Border Capacities and Access to Cross-Border Transmission Capacities for 2020");
- Rules for Cross-Border Transmission Capacity Allocation on Serbian – Romanian Border for 2020 ("Agreement between Transmission System Operators of the Republic of Romania C.N.T.E.E. TRANSELECTRICA – S.A.–. and the Transmission System Operator of the Republic of Serbia –*EMS* JSC Belgrade on the Procedure and Manner of Allocation of Rights to Cross-Border Capacities and Access to Cross-Border Transmission Capacities for 2020");
- Rules for Cross-Border Transmission Capacity Allocation on Serbian-Bulgarian Border for 2020 ("Amendment 1 to Agreement between the Transmission System Operator of the Republic of Bulgaria – Elektroenergien Sistemen operator EAD and the Transmission System Operator of the Republic of Serbia – *EMS* JSC Belgrade on the Procedure and Manner of Allocation of Rights to Cross-Border Capacities and Access to Cross-Border Transmission Capacities for 2020");
- Rules for Cross-Border Transmission Capacity Allocation on Serbian-Croatian Border for 2020 ("Amendment to the Agreement between the Transmission System Operator of the Republic of Croatia – Croatian Transmission System Operator HOPS and the Transmission System Operator of the Republic of Serbia – *EMS* JSC Belgrade on the Procedure and Manner of Allocation of Rights to Cross-Border Capacities and Access to Cross-Border Transmission Capacities for 2020");
- Rules for Cross-Border Transmission Capacity Allocation on the Border between Serbia and Bosnia and Herzegovina for 2020 ("Annex 2 to Agreement between the Independent Transmission System Operator in Bosnia and Herzegovina - NOS BiH and the Transmission System Operator of the Republic of Serbia – *EMS* JSC Belgrade on the Procedure and Manner of Allocation of Rights to Cross-Border Capacities and Access to Cross-Border Transmission Capacities for 2020");
- Rules for Cross-Border Transmission Capacity Allocation on Serbian-Macedonian Border for 2020 ("Agreement on Congestion Management on Macedonian – Serbian Border between the Transmission System Operator of the Republic of Macedonia – Macedonian Elektromrenosen sistem operator JSC and the Transmission System Operator of the Republic of Serbia – *EMS* JSC Belgrade which regulates the procedure and manner of cross-border capacity allocation and access to cross-border transmission capacities for 2020") and
- Rules for Cross-Border Transmission Capacity Allocation on Serbian-Montenegrin Border for 2020 ("Agreement between the Transmission System Operator of Monenegro – Crnogorski elektroprenosni sistem a.d. and the Transmission System Operator of the Republic of Serbia – *EMS* JSC Belgrade which regulates the procedure and manner of cross-border capacity allocation and access to cross-border transmission capacities for 2020").

In 2019, the Agency monitored the enforcement of formerly adopted rules by analysing needs and initiatives for amendments of these rules also by participating in the work of commissions appointed to monitor their enforcement.

In the field of electricity, the following commissions for monitoring enforcement of the rules are the following:

- In *EMS* JSC for Transmission Network Code and Market Rules and
- In PE *EPS* for Distribution Network Code.

As an observer, one representative of the Agency participates in all the commissions which have been established so far.

In 2019, the Agency Council approved the following acts:

- Transmission System Development Plan for 2018-2027 and Plan of Investments into Transmission System for 2018-2020 of EMS JSC; in February;
- Rules on Amendments to Electricity Distribution Network Code of EPS Distribucija LLC Beograd; in March;
- Transmission System Development Plan for 2019-2028 and Plan of Investments into Transmission System for 2019-2021 of EMS JSC; in October;
- Transmission System Development Plan of JUGOROSGAS-Transport LLC Niš for 2019-2028; in July;
- Plan for Transfer of Metering Devices, Metering and Switching Boards, i.e. Connection Lines, Installations and Equipment in Metering and Switching Plant and Other Devices in Facilities of Existing Customers, i.e. of Producers within the Distribution System 2019-2020 of EPS Distribucija LLC Beograd; in August;
- Rules on Publication of Key Market Data of EMS JSC; in August.

Programmes for non-discriminatory treatment, which, in line with the law, distribution system operators which are a part of a vertically-integrated company are supposed to adopt are important for energy market monitoring. These programmes are approved by the Agency. In June 2016, the Council of the Agency approved the Compliance Programme for Non-Discriminatory Behaviour of Distribution System *EPS Distribucija* LLC Belgrade. The Council also approved conditions for the appointment and duration of term of the distribution system operator compliance officer. In July 2017, the Agency Council approved the Annual Report on Implementation of Compliance Programme for Non-Discrimination Behaviour for 2016 which was submitted by the compliance officer. By the decision of September 2019, the Agency Council did not approve the Annual Report on Implementation of Compliance Programme for Non-Discrimination Behaviour for 2018 since the Decision on the establishment of the Distribution System Operator EPS Distribucija LLC Beograd was not harmonized with the new Law on Public Enterprises and the Energy Law.

Acting upon the request of the company GASTRANS LLC Novi Sad of February 2018 on the exemption of new gas infrastructure, in line with Article 288 of the Law (which transposed Article 36 of the Directive 2009/73/EC regulating the third party exemption regime for new gas infrastructure), in September, the Agency Council adopted the Decision on Rules and Mechanisms for Transmission Capacity Management of Company GASTRANS LLC. In October 2018, the Agency Council adopted the Preliminary Exemption Decision. In line with prescribed procedure and following the opinion of the Energy Community Secretariat, in March 2019, the Agency Council adopted a Final Decision on New Natural Gas Interconnector Exemption as well as the Decision on Amendments to Decision on Rules for Capacity Allocation and Mechanisms for Transmission System Operation of GASTRANS LLC in order to harmonise it with the final decision on exemption. The final decision on exemption enabled exemption to the company GASTRANS LLC from the obligation of ownership unbundling, third party access rules and application of regulated natural gas transmission prices.

In March 2019, the Agency also approved the following legal acts of company GASTRANS LLC based on the Final Exemption Act in order to implement the mandatory long-term transmission capacity allocation:

- Tariff Methodology for Calculation of Natural gas Transmission Use-of-System Charges;
- Model of long-term contract on natural gas transmission which is concluded between GASTRANS LLC and participants of mandatory phase of long-term capacity allocation for which there is an exemption from third party access approved;
- Non-Discrimination Behaviour Compliance Programme of GASTRANS LLC;
- Decision on Conditions for Appointment of the Non-Discrimination Behaviour Compliance Programme Officer;
- Act on Appointment of Non-Discrimination Behaviour Compliance Programme Officer.

7.2.4 Deciding upon appeals

Pursuant to the Law, deciding upon appeals (second instance administrative procedure) which is performed as entrusted activities includes deciding upon the following appeals against:

- operator's acts upon an application for connection to the system, i.e. if the system operator does not adopt a decision upon application for connection to the system;
- operator's acts on dismissal of access to the system;
- acts of energy entities dealing in oil transport through oil pipelines or energy entity deling in oil derivatives transport through product lines on dismissal of access to the system.

Within the procedure of deciding upon appeals of customers, i.e. system users, a necessary level of customer protection is provided. In addition, there is direct contribution to adequate implementation of methodologies and other regulations.

In 2019, there were 366 files submitted and they mainly dealt with the activities and behaviour of energy entities in different areas of their operations. 239 of them are appeals settled by the Agency in the administrative procedure as entrusted activities, while 127 of them are different petitions and complaints submitted by natural and legal persons or requests related to the issuance of opinion on the enforcement of regulations within the competence of the Agency.

The Agency processed all the submitted complaints and submitted responses to the applicants while forwarding the issues to responsible state bodies for further procedure, when necessary.

As far as the appeals for which the Agency is responsible within the second instance procedure are concerned, all 239 appeals submitted for reasons stipulated by the Law were processed in 2019. The appeals were submitted:

- against failure of a responsible energy entity within the first instance procedure upon application on connection of the facility of the customer or producer to electricity or natural gas distribution system (the so called “administrative silence”);
- against decision of electricity or natural gas distribution system operator dismissing application on connection to the system and
- against electricity distribution system operator’s decision approving connection to the system, but customers complain against connection costs, technical conditions for connection, or against procedural decision of energy entities dealing in electricity distribution on suspension of procedure or dismissal of application.

All appeals were filed against decisions of electricity distribution companies, while there were no appeals filed against a decision adopted by natural gas distribution system operator.

So as to reduce the number of appeals and harmonise the practice of electricity distribution system operator in procedures implying applications on connection of facilities of both legal and natural persons to the power grid, the Agency made an analysis of all appeals submitted to it and of the most common reasons for annulment of decisions on connection within the procedure related to the appeal. In 2019, so as to reduce the number of unlawful decisions adopted by electricity distribution company, upon Agency’s request, meetings with this energy entity were held. During these meetings, the Agency identified the most common breaches of procedural and material-legal regulations which lead to adoption of unlawful decisions and stressed legally binding commitments of energy entities within connection procedure.

The appeals number growth trend followed in 2019 and the Agency will continue working with experts employed with electricity and natural gas distribution operators and who decide on applications on connection to the system will be continued in the years to come.

Since the establishment of the Agency, with 2019 inclusive, there were 90 appeals to the Administrative Court of the Republic of Serbia against the decisions of the Agency within the second-instance procedure (Table 7-2):

Table 7-2: Number of appeals submitted to the Supreme/Administrative Court of RS against the Agency’s decisions adopted within the second-instance procedure

Year	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
Number of appeals	4	2	9	12	7	4	8	7	6	11	5	14	90

7.2.5 International activities

Pursuant to the Energy Law, ratified international agreements and Council decisions, the Agency cooperates with regulatory authorities from other countries, as well as with other international bodies and organisations.

7.2.5.1 The Athens process and the Energy Community Regulatory Board (ECRB)

Signing and ratifying the “Treaty establishing the Energy Community” on October 25, 2005 in Athens which entered into force on July 1, 2006, the Southeast Europe countries (and UNMIK for APKM) and the EU initiated the process of creation of the Energy Community (EnC) aiming at the expansion of the common EU energy market to the Southeast Europe region. The Treaty was signed for a period of 10 years, while the Ministerial Council decision of October 24, 2013 extended its validity period until 2026. In addition, based on Ministerial Council decisions, via the implementation of the Third Energy Package in the Law, certain competences of the EnC Secretariat were introduced in the regulation of the national energy sector.

The Treaty establishing the EnC also defined the institutional framework for EnC functioning: Ministerial Council, Permanent High Level Group, Energy Community Regulatory Board, EnC Secretariat, Electricity Forum and Gas Forum. Subsequently, Oil Forum was founded.

Figure 7-1: Energy Community institutions

Pursuant to the commitments arising from the Treaty establishing the EnC, the Agency participates actively in the work of EnC institutions[22], at the same time taking into account customer interests protection, as well as the position and goals of both power and gas economy of the Republic of Serbia. Cooperation is developed in coordination with state bodies within the Agency's competence defined by the Law. The Agency participates in the work of the EnC Regulatory Board (which is an advisory body to the Energy Community Ministerial Council with possible executive functions), as well as of the Electricity Forum and Gas Forum.

The Agency has considerably contributed to the development of organisation and procedures for the functioning of regional and Pan-European electricity and natural gas markets through an active participation in the work of EnC institutions and their expert teams. An Agency representative was the chairman of the EnC Regulatory Board Working Group for Electricity (ECRB EWG) 2007-2018, while several representatives of the Agency chair some ECRB sub-groups. The efficiency of the work of these bodies could be improved by more prompt preparation and more timely submission of material for their sessions.

In 2019, the Agency participated in the following activities of the EnC Regulatory Board (ECRB):

Strategic and joint activities

- Issuance of opinion on Preliminary Decisions on Transmission System Operators Certification in line with Article 9 of the Energy Community Ministerial Council Decision D/2011/02/MC-EnC on Implementation of Third Package of Regulations on Internal Energy Market;
- cooperation with associations of regulatory bodies in the energy field - Agency for Cooperation of Energy Regulators - ACER, Council of European Energy Regulators - CEER, Energy Regulators Regional Association – ERRA and Mediterranean Regulators – MedReg and
- coopertion with regional distribution system operator platform ECDSO for electricity and natural gas.

Electricity

- support to and monitoring of activities on integration of electricity market in southeastern Europe and its funcional integration into Pan-European electricity market:
  - an integral part of this activity includes: regular monitoring of current affairs and processes related to electricity market integration in the EU; common workshops for ACER And ECRB on the EU CACM Regulation; coordinated regulatory contribution to the work of steering committee for integration of day-ahead market within WB6 initiative; harmonised regulatory surve of rules of the Coordinated Auction Office for Cross-Border Transmission Capacity Allocation on Interconnectors (SEE CAO) and preparation of joint draft rules for the adoption within ECRB; drafting comments to drafts of adapted versions of the EU Regulation 1227/2011 on the implementation of "light" REMIT in the Energy Community Contracting Parties and Methodology for Coordinated Calculation of Cross-Border Capacities in the Energy Community Contracting Parties, Manner of Appointment of Nominated Market Operator in Contracting Parties as Precondition for Electricity Market Coupling of Contracting Parties with the EU Markets – MRC (Multi Regional Coupling) within "early" implementation of the EU Regulation 1222/2015 in the Energy Community Contracting Partieswhich were drafted by the Energy Community Secretariat with the assistance of engaged consultants.
  - In 2019, the ECRB approved: report on trade in long-term electricity market and report on intraday electricity market in the Energy Community Contracting Parties;
  - In 2019, the ECRB electricity working group considered drafts of Recommendation for Designation of Nominated Electricity Market Operator (NEMO) and Recommendation for drafting Methodology for Implementation of Regional Coordinated Calculation of Cross-Border Transmission Capacity Allocation in the Energy Community Contracting Partiesbefore the

[22] Costs of participation of Agency representatives within the Energy Community institutions are compensated by the Energy Community Secretariat

adoption of adapted version of the Regulation 1222/2015 (CACM) which was drafted by the ECRB Section of the Energy Community Secretariat using the drafts of consultants with an idea to transform these drafts into the Recommendation of the Regulatory Board (ECRB) on the Energy Community level, i.e. instructions for regulatory bodies of the Energy Community Contracting Parties on how they can appoint their national exchange for NEMO and implement the Methodology for Regional Coordinated Calculation of Cross-Border Transmission Capacity when there is a lack of implemented adapted Regulation 1222/2015 (CACM). The Agency expressed their position that the proposed recommendations are not legally viable in the Republic of Serbia. In 2019, the Regulatory Board (ECRB) Recommendation for Designation of INominated Electricity Market Operator (NEMO) was adopted while the draft REcommnedation for drafting Methodology for Implementation of Regional Coordinated Calculation of Cross-Border Transmission Capacity was only considered within the electricity working group.

- The first regulatory school of the Energy Community was held related to the issue of coordinated calculation of cross-border transmission capacity on February 13, 2019 in Vienna; the second joint ACER – ECRB workshop related to the implemenation of Regulation 122/2015 (CACM) was held and ACER representatives and members of regulatory working ACER subgroup were present on 27/02/2019 in Vienna.
- Analysis of balancing mechanisms in the Southeastern Europe region and considering options for their improvement: in 2019, ECRB approved report on balancing in the Energy Community Contracting Parties; coordinated contribution to projects on integration of balancing markets wihtin Berlin Process was considered;
- Monitoring and supervistion of electricity market functioning in the Energy Community:
  - Supervision of cross-border electricity trade in the southeastern Europe, in line with the ECRB Guidelines for market monitoring in the southeastern Europe by using the data base for market monitoring and web interface platform (SEEAMMS) the administration of which is organised under the rotation regime among working group members and they draft annual report on market monitoring; the proposal of the Agency to have the new EU Regulation on the obligation of the transmission system operator to offer 70% of the cross-border transmission capacity connected with the SEEAMMS activities was supported since this regulation is the one dealing with inputs for the calculation of the available cross-border transmission capacity;
  - Drafting and approval of report on the compliance of Contracting Parties with requirements arising from the EU Regulation on Transparency 543/2013; the innovation of the model for transparency monitority was considered and accepted – the idea is to make an webpage wihtin the Energy Community Secretariat webiste where the data related to the amendments to data published on the ENTSO-E (EMFIP) would be continually updated;
  - Drafting of the report on wholesale electricity markets monitoring in line with the EU practice (use of ACER indicators to assess the situation in the wholesale electricity market) for 2017/18.
- Drafting and approval of report on the share of the generation component (“G” component) in the ITC (Inter TSO Compensation) mechanism with a review on the fact whether transmission system operators collect funds from generators with the compensation of ITC and whether the “G” component is included in the tariff system in line with the EU Regulation 838/2010.
- In 2019, the Agency initiated the definition of the voting method within the ECRB working groups via an amendment to Internal ECRB Rules which has not been defined so far.

Natural gas

- Report on the status of implementation of the transparency requirements arising from the Third Energy Package in the Energy Community Contracting Parties as well as drafting the report on comparative analysis of transparency requirements existing in the Energy Community and MedReg countries;
- Drafting report on the status of natural gas wholesale market in the Energy Community;
- Drafting report on coordination of the work of transmisison and distribution systems in the Energy Community;
- Drafting questionnaire for the collection of data which will serve as the basis for the report on congestions on interconnectors;
- Collection and submission of data on wholesale market for the purpose of drafting report to ACER on wholesale market monitoring and
- participation in the work of the Gas Regional Initiative South South-East; GRI SS of the European Union. Since 2016, AERS has became the co-chairman regulatory body.

Retail electricity and natural gas market and customers protection

- drafting report on electricity and natural gas retail markets functioning in the Energy Community;
- cooperation was established with the CEER working group which works on the prepration of the report on quality of electricity and natural gas delivery and supply which will include the survey of achieved commercial quality indicators;
- data for the EnC Contracting Parties were also published within CEER report on electricity losses within transmission and distribution system;
- report on survey of legislation in the EnC Contracting Parties on prosumers was drafted;
- in 2019, cooperation of working groups for retail market and customers protection within ECRB, CEER and MedReg was continued. During a joint workshop the role of customers and energy regulators wihtin the Package Clean Energy for All Europeans was considerd as well as procedures for the submission of complaints, dispute settlement and raising the awareness of customers in order to promote the electricity market. They worked together with the representatives of working groups for customer protection within CEER and MedReg;
- support and submission of data to ACER for the purpose of ACER Annual Report drafting and
- the report which includes a comparative review of quality of natural gas delivery and supply was completed.

REMIT Working Group (EC Regulation on Energy Market Integrity and Transparency)

In 2019, under the auspices of the Energy Community Regulatory Board, a REMIT Working Group was established (EC Regulation on Energy Market Integrity and Transparency 1227/2011) and its members include the representatives of national regulatory authorities of the Energy Community Contracting Parties. The aim of this Group is to enable early implementation of the Regulation "Light REMIT" which was adopted on the sixteenth Ministerial Council meeting on November 29, 2018.

In line with the ECRB decision on the establishment of the REMIT Working Group, the working programme of the Group was presented by the programme of four working subgroups:

- Procedural Acts – Within the working sub-group, it is envisaged to have coordination on the drafting of procedural acts necessary for REMIT implementation as well as for notification in case of violation of the REMIT Regulation as well as for assessment of potential misuse in REMIT terms;
- Registration and Central Registry – Within this subgroup, it is envisaged to make a draft of application which should be completed when being registered based on REMIT Regulation both in case of national and for central registries bearing in mind definition of the method of issuance of unique registration codes for registered members;
- Capacity Building and Cooperation with ACER – The aim of the working subgroup is to provide necessary know-how for the implementation of the REMI Regulation via trainings and workshops and for the cooperation between regulatory authorities of the Contracting Parties during the implementation of REMIT Regulation;
- Cyber Security in the context of REMIT actions – Working Subgroup has an aim to improve cooperation between the Energy Community Contracting Parties in the field of provision of safety during data exchange, i.e. to reach a high level of security of information systems which serve for data exchange.

New Energy Community legislation

The Agency representatives participate in the activities of ad hoc groups which aim at provision of expert opinions on regulatory aspects of drafts of new legal acts of the Energy Community institutions (above all, of those adapting EU Network Codes for electricity and natural gas).

In 2019, the Agency participated in the following Energy Community ad hoc working groups:

Energy Community Cybersecurity Coordination Working Group

The Energy Community Cybersecurity Coordination Working Group has an aim to support and facilitate the cooperation between Energy Community Contracting Parties in the provision of safety during data exchange, i.e. in reaching a high level of security of information systems which serve for data exchange. In line with this, the main task of Cyber CG is to define "critical infrastructure" which represents a sum of most important data which are exchanged and which are of great importance for the energy sector. The aim is to protect these data.

Within Cyber CG, it is envisaged to work on the following activities:

- Identification of the most important energy entities which exchange data (transmission system operator, distribution system operator, suppliers, producers, national regulatory authorities, ministry of energy…), identification of data and of critical infrastructure, etc.;
- Provision of strategic guidelines and giving instructions for data protection;
- Exchange of experience between Contracting Parties and other interested parties related to protection during data exchange;
- Provision of assistance to Contracting Parties in capacity building in terms of data safety and critical infrastructure protection etc.;
- Each Energy Community Contracting Party has their representatives within Cyber CG. CyberCG members include: representatives of the ministry of energy of Contracting Parties, representative of national regulatory authority of Contracting Party, representatives of the Energy Community Secretariat, European Commission, European Union Agency for Network and Information Security – ENISA), etc.

Infrastructure

The Agency representatives participate in the activities of working groups for Project of Common Interest for the Energy Community (PECI/PMI groups) which are established in line with provisions of the decision of the Energy Community Ministerial Council on the adoption of the EU Regulation on TransEuropean Energy Networks [23] (Regulation 347/2013 – the so-called TEN-E Regulation) which is aimed at drafting the list of priority gas and power infrastructure projects. Following the adoption of the list by the Ministerial Council[24], these projects are qualified for benefits in terms of permit issuance, as well as for regulatory and financial incentives (to the extent to which TEN-E Regulation are transposed into local legislation).

7.2.5.2 Berlin Process – initiative "Western Balkans 6" (WB6)

Activities related to the energy sector regarding financing priority regional infrastructure projects through IPA multi-beneficiary program, as well as the implementation of reform measures (so-called "soft measures") which stimulate the development of the regional electricity market represent a constituent part of the so-called Berlin Process, initiated on the Western Balkans Summit in August 2014. The most important reform targets of this initiative is the integration of daily (spot) electricity markets (the so-called "market coupling"), integration of balancing markets and maximization of benefits of the existing coordinated auction office (transmission capacities on interconnectors) of the Southeastern Europe.

Within its jurisdiction, the Energy Agency contributes to the realization of the activities defined by this initiative such as: functional unbundling of the distribution system operators, certification of transmission system operators, cooperation with the Agency for Cooperation of Energy Regulators (ACER), coupling daily (spot) electricity markets ("market coupling") with neighbouring markets, etc.

According to the provisions of the Memorandum WB6 (Annexes 1 and 2), in 2016, the Programme Steering Committee for Day-ahead Market Integration (PSC DAMI) and Programme Steering Committee for Cross-border balancing (PSC XB -) were appointed. Their role is programme (project) management of electricity daily and balancing markets coupling in the region and beyond. In 2019, the Agency representatives did not participate in these Committees. In the end of 2019, consultants who were engaged by the Energy Community Secretariat under the auspices of WB6 on drafting a report on balancing and on coordinated calculation of cross-border transmission system completed their work and represented final reports.

7.2.5.3 *CESEC (Central and South Eastern Europe Gas Connectivity) Initiative*

CESEC Initiative was launched by a Memorandum of Understanding between signatories from the Western Balkans, Black Sea region and the EU so as to coordinate support to cross-border trans-European gas infrastructure projects (which provide for the diversification of the natural gas supply in the region) and for the harmonisation of the relevant legislation. Since 2017, the field of operation of CESEC initiative was also extended to the field of electricity, energy efficiency and renewable energy sources.

The activities of CESEC are steered by CESEC High Level Group, HLG, which aims at the acceleration of the completion of the projects on the construction of interconnection lines which are facing difficulties in realization, identification and support to the construction of a limited number of infrastructure projects in central and southeastern Europe, identification of obstacles in the realization of these projects (e.g. obstacles of regulatory nature, permit issuance regime, technical and financial obstacles) as well as the realization of the action plan which includes project-specific technical, financial and regulatory measures in order to remove those obstacles.

Within its competence, the Agency contributes to the realization of the activities defined within this initiative such as: certification of transmission system operator, operationalisation of mechanisms for capacity allocation on

[23] Decision No. D/2015/09/MC-EnC of 16/10/2016
[24] The ruling list of priority infrastructure projects was adopted by the Ministerial Council Decision No. D/2018/11/MC-EnC of 29/11/2018

interconnection points and congestion management mechanisms, cooperation with the Agency for Cooperation of Energy Regulators (ACER), regional gas market integration, etc.

7.2.5.4 Participation in energy regulators' associations

The Agency is a member of the Council of European Energy Regulators – CEER – a body with a mission to contribute to the establishment of a unique, competitive and efficient energy market in the EU via the cooperation between independent energy regulators. The CEER General Assembly accepted the Agency as an Observer within this body on the session held on December 12, 2018 in Brussels.

The Agency is a full member of ERRA (Energy Regulators Regional Association), an expert association of regulators aiming at the improvement of cooperation, exchange of experience and capacity building in member states. ERRA links the regulators from Southeast and East Europe, from former USSR, NARUC – USA regulators association, as well as the regulators of certain countries in Asia and Africa. So as to build capacity and exchange experience with other national regulatory bodies in several fields of regulation theory and practice (price regulation, competition and energy market, licensing, etc.) and to have insight into options for their implementation in Serbia. In 2019, the representatives of the Agency participated in the activities of ERRA Chairmen Committee, Licensing and Competition Committee and Tariff/Pricing Committee.

The Agency is a member and one of founders of the Permanent Advisory Forum of National Regulatory Authorities of Balkans Countries (Advisory BAF Forum). The Advisory BAF Forum which includes the Energy and Water Regulatory Commission of the Republic of Bulgaria (EWRC), the Regulatory Authority for Energy of the Republic of Greece (RAE), the Energy Agency of the Republic of Serbia (AERS), the Energy Regulatory Commission of Macedonia (ERC), the Energy Regulatory Agency of Montenegro (REGAGEN), the Albanian Energy Regulatory Authority (ERE) and the Energy Regulatory Commission of the Republic of Srpska (RERS) will via the Board of Regulators or via ad hoc groups, within their jurisdiction, provide a framework for discussions, exchange of experience, and, when possible, for the drafting of common positions and recommendations on regulatory issues in the field of electricity, natural gas, water and waste water markets in the region. In 2019, an electricity working group was established within BAF. The group worked on drafting a report on activities taken by regulatory authorities in BAF countries related to the electricity wholesale market.

7.2.5.5 European integration

The representatives of the Agency participated in the work of the Board for the implementation of the Stabilisation and Association Agreement – sub board for transport, energy, environment protection, climate changes and regional development where they presented the level of implementation of commitments within its competence, related to regulatory issues in the energy sector and regional integration.

The representatives of the Agency also participated within the subgroup for energy of the Expert group of the coordination body for the preparation and negotiations on Serbia's accession to the European Union (SG 15 – Energy).

In July 2018, the project on technical assistance to the Agency from IPA 2014 Programme was launched. The objective of the project is to harmonise regulatory mechanisms of the Agency with the Third Package of regulation on the EU internal energy market. The value of the project amounts to around 1.5 million euros. The project lasts 21 months.

8. AGENCY'S FINANCIAL REPORT

Financial operations of the Agency in 2019 were in line with the 2019 financial plan which was approved by the National Assembly ("Official Gazette of RS", No. 75/18) as well as with the readjustment of the 2019 Financial Plan approved by the National Assembly ("Official Gazette of RS", No. 13/20).

The plan defines total revenues and expenditures of the Agency and contingency reserves as well as the elements for comprehensive insight into the income and employment policy. In October 2018, in line with the obligations arising from the Energy Law, the Agency submitted its 2019 Financial Plan to the National Assembly for approval and it was approved and adopted in December 2018.

This report illustrates planned and actual utilisation of funds per each purpose from the revenue which, in line with the Law and Financial Plan arises from the costs for the license issuance, part of use-of-system charge – regulatory fee, grants and reimbursements and financial revenues and other revenues.

Table 8-1: Total Agency's revenues in 2019

RSD

No.	Revenues	Realised 2018	Plan 2019	Realised 2019
1	Revenue from licenses	22,438,000	24,570,000	15,937,272
2	Revenue from regulatory fee	164,910,832	164,910,832	168,514,811
3	Transferred extra revenue from last year	0	3,274,857	0
4	Revenue from grants and reimbursements	3,065,121	3,039,600	1,881,992
5	Financial revenues and other revenues	586,797	1,820,000	1,814,794
6	Collected corrected liabilities	33,571,872	33,571,872	33,571,872
	TOTAL REVENUE	**224,572,622**	**231,187,161**	**221,720,741**

NOTES ON REVENUES:

In 2019, **the revenue from licence fee** was calculated in line with the Decision on the Level of Costs for Energy Licence Issuance which was approved by the Ministry of Finance ("Official Gazette of RS", No. 13/2016). In line with this Decision, the level of fee for the issuance of licence for some energy activities was set. This fee is set one-off and it is valid for the whole period of licence validity of 10 years. It is charged when the application is filed.

In line with this, the revenues arising from the fee covering costs of licence issuance for 2019 amounted to total 15,937,272 RSD. Out of the amount, a segment of revenues which refers to the total of 96 submitted and compensated applications for the issuance of energy licence amounts to 12,737,920 RSD. A segment which accounts for the total of 70 applications for amendments of formerly issued licences amounts to 3,199,352 RSD.

In 2019, the revenue arising from fees covering costs of licence issuance is considerably lower in comparison to the planned level by 35%. It is also lower according to the revenue achieved in 2018 by 29% nominally. The reason for this is the reduction of the number of submitted applications for licence issuance and for amendments of existing decisions in 2019.

The revenus arising from the regulatory fee in 2019, i.e. from the part of tariff for access to and use of electricity and natural gas transmission system amounting to RSD 168,514,811 which amounts to 76% of the total revenue of the Agency and to 91% of operational revenues in 2019. It is calculated quarterly in line with the Methodology and defined procedures and it depends on the amount of maximum allowed revenue of energy entities and the date when approved energy entities' decisions on prices are enforced.

There were slight corrections of calculated levelsof regulatory fee in the last quarter of 2019 in comparison to 2019 plan which lead to the total increase of this revenue by 2% primarily due to the modification of the transmission use-of-system charge as of November 1, 2019. Along with this, the increase in the revenue arising from the regulatory fee was also affected by the amendment to the methodologies which implied an increase of the percentage for the calculation of the regulatory fee from 0.9% to 1%.

The revenues from reimbursements are set to the level of proven costs of business trips. In this case, they include reimbursements of some of the costs of business trips abroad which are reimbursed by the EnC Secretariat from Vienna and they amount to RSD 1,408,450 (in line with the Treaty Establishing the Energy Community, the Energy Community covers the costs of accommodation and transport for participants of some of meetings organised by this institution). The amount is by 45% lower than the planned one and by 50% lower than the level achieved in 2018.

Due to less frequent participation of employees in the activities of the Energy Community working groups, revenues based on these grounds are considerably lower in comparison to the 2019 plan as well as in comparison to the achieved level of revenues in 2018. They cover around 52% expenditures related to business trips abroad in 2019.

Revenues from grants include the calculation of undepreciated written off segment of equipment granted from the EU in 2005 in the total amount of RSD 473,542 which is revenue from the equipment obtained from grant.

Financial revenues amounting to RSD 987,238.00 account for revenues arising from the a vista interest rate for deposits in the business bank BANCA INTESA which is calculated on monthly level for RSD funds on the Agency account.

In 2019, two depreciated business cars were sold and the revenue arising from this amounted to RSD 756,398.

Other unoperational and extraordinary revenues, positive currency difference and reimbursement of employees amounted to RSD 71,398 in total.

Revenue from charged corrected liabilities in 2019 amounting to RSD 33,571,872 include corrected liabilities from 2018 for the regulatory fee of PE Srbijagas which were collected in 2019.

Table 8-2: Total Agency expenditure in 2019

RSD

No.	Expenditure	Realised 2018	Planned - READJUSTMENT 2019	Realised 2019
1	**Material, fuel and energy costs**	**3,661,110**	**4,637,786**	**4,154,673**
1.1	- material (operating cost)	1,196,833	1,974,001	1,654,312
1.2	- fuel and energy	2,464,277	2,663,785	2,500,361
2	**Salaries, allowances and other expenditure**	**143,654,574**	**157,926,124**	**148,104,897**
2.1	- salaries and allowances (gross)	113,847,465	126,965,950	120,627,601
2.2	- levies paid by employer	20,095,086	20,713,203	19,949,156
2.3	- fees in line with other contracts	1,059,568	1,069,690	1,087,544
2.4	- other personal expenditure and fees	**8,652,455**	**9,177,281**	**6,440,596**
3	**Production services**	**27,274,535**	**28,772,580**	**25,989,743**
3.1	- transport	1,915,527	2,453,560	1,819,409
3.2	- maintenance	2,257,750	2,499,100	2,146,938
3.3	- lease	19,969,101	20,246,500	18,638,590
3.4	- marketing and advertising material	199,956	223,300	221,124
3.5	- other services	2,932,200	3,350,120	3,163,682
4	**Depreciation and reserves for unplanned expenditure (IPA PROJECT 2018-2020)**	**3,290,786**	**9,112,405**	**11,014,168**
5	**Non-material expenditure**	**11,122,350**	**8,333,025**	**5,802,881**
5.1	- non-production services	9,265,656	5,720,020	3,304,821
5.2	- costs of representation	304,955	365,000	354,552
5.3	- insurance premium	342,188	386,100	453,283
5.4	- payment operations	278,231	297,825	233,345
5.5	- membership	413,045	900,000	894,000
5.6	- taxes and fees	445,905	645,190	532,686
5.7	- other non-material expenditure	72,371	18,890	30,194

	OPERATIONAL EXPENDITURE	**189,003,356**	**208,781,920**	**195,066,362**
6	**Financial expenditure and other expenditure**	**33,647,217**	**22,405,241**	**22,425,340**
	TOTAL EXPENDITURE	**222,650,573**	**231,187,161**	**217,491,702**
7	**Financial result – extra revenues**	**1,922,049**	**0**	**4,229,039**

NOTE ON EXPENDITURE:

In 2019, total expenditure amounted to RSD 217,491,702. Total planned expenditure for 2019 amount to RSD 231,187,161.

Without planned segment of reserve for unplanned expenditure of RSD 4,891,458, which was readjusted to the level of RSD 4,222,945, planned total expenditure to be compared with the level realized for 2019 amount to 226,964,216. Realised total expenditure for 2019 is lower than the planned readjusted expenditure of RSD 9,472,514 in line with the following:

Costs of material, fuel and energy are lower than the planned ones by 10%, i.e. by RSD 483,113. All items within this expenditure are lower than the planned ones and the biggest difference is recorded with the costs of fuel where RSD 180,554 less was spent than it was planned.

Expenditure related to gross salary, employers allowances, contracts on temporary services and other personal expenditure and fees are lower than the planned ones, readjusted salaries and planned other contracts and fees related to personal expenditure by RSD 9,839,074 in line with the following:

- Expenditure related to gross salary, when realized with calculated proportional reduction allocated to the budget (5% reduction) are lower than the planned readjusted expenditures by 5% in total, i.e. by RSD 6,338,399;
- Employer's allowances, when realized with calculated proportional reduction allocated to the budget (5% reduction) are lower than the planned readjusted expenditures by RSD 763,990, i.e. by 4%;
- Planned level of funds allocated to the budget based on salary reduction for 2019 was allocated proportionally by the readjustment – transferred back to planned salary items (net, gross, taxes and allowances) due to comparable salary planning for 2020 without enforcement of the Law on Temporary Reduction of Salary Basis which was annulled on December 31, 2019;
- Other personal expenditure is lower by RSD 2,736,685. In the group – other personal employee expenditure (costs of business trips locally and abroad, commuting, assistance and other allowances offered to employees, abundancy funds and jubilee credits), the biggest discrepancy is with costs of hotel services abroad which are by RSD 1,008,970 lower and the costs of airplane tickets which are by RSD 425,193 lower due to a smaller scale of trips in comparison to 2018. Costs of abundancy funds associated with pensions are by RSD 708,118 due to early retirement case in the end of last year.

One of the biggest problems the Agency has been facing for several years is the lack of highly-qualified personnel (in total, 11 employees have left the Agency since its establishment) and slower new employment procedures which are crucial. For certain, this is due to multiannual fairly slow salaries growth in the Agency in comparison to the public and private sector in the energy field. This fact, along with the limited employment procedures, also has a negative effect to the dynamics of activities within the competence of the Agency. In 2019, additional 2 employees left the Agency. Therefore, in the end of 2019, there were 43 employees in total in the Agency, members of the Council included.

Table 8-3: Qualification structure of permanent employees

Professional qualification	31/12/2018		Plan 2019		31/12/2019	
	No.	Share in %	No.	Share in %	No.	Share in %
PhD (A Doctor of Philosophy)	5	11.1	5	9.1	5	10.9
Master	2	4.5	1	1.8	1	2.2
BSc/BA (Bachelor of Science/Arts)	33	73.3	39	80.0	32	76.1
College degree	0	0.0	0	0.0	0	0.0
Secondary school degree	4	8.9	5	7.3	4	8.7
Primary school degree	1	2.2	1	1.8	1	2.2
Total	**45**	**100.0**	**51**	**100.0**	**43**	**100.0**

There is higher average age of employees in the Agency. Therefore, the average length of service on December 31, 2-19 amounted to 23 years. Such age structure of employees is expected, bearing in mind highly-specialised activities of the Agency as well as the relevant experience requirements when a vacancy is announced.

Table 8-4: Structure of employees in terms of length of service

Length of service	31/12/2018		Plan 2019		31/12/2019	
	No.	Share in %	No.	Share in %	No.	Share in %
up to 5 yrs	1	2.22	3	5.88	1	2.32
from 6 - 10 yrs	1	2.22	5	9.80	3	6.98
from 11 - 15 yrs	8	17.78	7	13.73	7	16.28
from 16 - 20 yrs	6	13.33	10	19.61	6	13.95
from 21 - 25 yrs	13	28.90	9	17.65	9	20.93
from 26 - 30 yrs	5	11.11	4	7.84	4	9.30
from 31 - 35 yrs	5	11.11	8	15.69	8	18.60
> 35 yrs	6	13.33	5	9.80	5	11.63

Costs of production services are lower than the planned ones for 2019 by 10% but they are lower by 5% in comparison to the total realization in 2018. In the absolute amount, they are by RSD 2,782,837 lower. The greatest discrepancy was recorded with the expenditure related to the office rent by RSD 1,607,910 since the contracted rent level was lower than the former one. In addition, transport costs (post office services, telephone services, Internet) are by 14% lower, i.e. by RSD 634,150. The costs of office maintenance and computer equipment and software, public utility services and cost of different services within this group amounted to by RSD 707,976 less than the planned level.

Depreciation costs for equipment and software were calculated in line with accounting politics and ruling rates and they were higher than the planned ones by RSD 160,449 and amounted to RSD 5,049,909. Reserve costs were calculated additionally as accrued charges amounting to RSD 5,964,260 as planned reserve for unplanned expenditure.

Non-material costs include consultancy and healthcare services, professional training costs, subscription, participation fee, audits, official notification, electronic information-flow, insurance of persons and equipment, banking commissions, membership fees, other different taxes, duties and allowances.

Non-material costs are on the level of 70% of the planned ones and they are lower in the sum for the whole group of planned and readjusted ones by RSD 2,541,447 without a segment allocated to the budget which was allocated proportionally to Kto 520 (gross salary) and Kto 521 (employer's allowances) as it was indicated with the segment referring to salaries.

Within this group of costs, we make comments only to those where bigger discrepancies in comparison to the plan are indicated:

Non-production services are lower than the planned ones by 42%, i.e. by RSD 2,415,199. The biggest discrepancy is indicated with consultancy services which are lower by RSD 1,256,000 (the introduction of *FUK* – Financial Management and Control system was not fully realized in 2019 as it was planned) as well as with the costs of professional training which are by RSD 682,425 lower (Florence School was not realized) as well as with the healthcare costs – costs of regular examination of employees was by RSD 258,590 lower.

Financial and other expenditure (correction of liabilities, extraordinary expenditure) were on the level of those planned for 2019 and by 33% lower than the ones realized in 2018. Uncollected liabilities level was corrected for the regulatory fee on 31/12/2019 with the total amount of RSD 22,381,248 based on the Rulebook on Accounting and Accounting Policies. The correction on these grounds amounts to 12% of the calculated revenue arising from the fees for the issuance of licences and calculated regulatory fee. This datum indicates that there is always a risk arising from the liability collection due to constant changes in the operation of energy entities which has been experienced so far. It is likely to expect that this trend will continue in the future as well.

Financial result. On 31/12/2019, the Agency indicated extra revenue in comparison to expenditure amounting to RSD 4, 229,039 and it is not subject to allocation but it is accumulated as profit from previous years.

In line with this, in order to provide continuous and reliable operation of the Agency, the accumulated realized extra revenue from previous years as well as from 2019 is an adequate reserve in operationally available funds and it is the only for of the balance item "Capital". Thereby, certain security in the operation of the Agency is provided while in the given legal framework there are no other financial sources that could be dependable for the operations of the Agency.

Investments in equipment and software. The Agency does not own real estate while the movables include: office furniture, low-scale inventory, IT and vehicles are procured from the grant donated during the process of Agency establishment of from Agency funds. The procurement of immovable from the grant was performed by the European Agency for Reconstruction (EAR) in a manner and within a procedure set by the European Union regulations (public tender). The EAR concluded a contract on their procurement.

In business books of the Agency, these movables are listed as granted equipment and vehicles.

In line with the grant contract, directly from their own funds, in order to meet the demand in the Energy Agency, the European Agency for Reconstruction organized the procurement of most of basic movables in 2005 and 2006.

The Agency procured equipment from its own funds in the period 2007 – 2019 as indicated in Table 8-5. In addition, procurements were realised in 2019, always in line with the procurement plan and the public procurement plan. This was done mainly so as to replace a part of fixed assets which were written down, first of all computer equipment.

Table 8-5: Purchase of different equipment and software in the Agency

RSD

Procurement	2007-2011	2012	2013	2014	2015	2016	2017	2018	2019
Cars	4,913	2,126	0	0	0	0	0	2,694	4,535
Computer equipment, software, network	11,656	2,544	2,479	2,388	2,877	3,637	4,149	2,890	6,662
Office furniture and different equipment	2,153	392	240	445	0	887	321	585	462
Telephone devices, telephone switchboard, access control	880	121	137	446	287	400	302	207	454
Video surveillance, network	1,060	0	0	0	0	0	0	0	0
Total	**20,662**	**5,183**	**2,856**	**3,279**	**3,164**	**4,924**	**4,772**	**6,376**	**12,114**

Unwritten off – current level of material and non-material assets on December 31, 2019 amounts to RSD 23,765,000 which accounts for 69% of the purchase value of active, unwritten off items but also 39% of the purchase value of these items in use disregarding the level of writing off, which, disregarding important procurements in 2019, indicates a high level of depreciation and a necessity to follow the usefulness of equipment and its upgrade.

In line with the legal obligation, in line with the Law, there is an ongoing audit of the 2019 financial report by an authorised auditor.

Contents of tables

Contents of figures

Abbreviations and foreign phrases

ACER	Agency for the Cooperation of Energy Regulators
APKM	Autonomous Province of Kosovo and Metohija
Benchmarking	Comparative analysis of similar (indicators, companies, activities, etc.)
CEER	Council of European Energy Regulators
BiH	Bosnia and Herzegovina
DS	Distribution system
EnC	Energy Community
ECRB	EnC Regulatory Board
HHI	Herfindahl-Hirschman Index – indicator of market concentration level
ITC Agreement	Multi-year Pan-European agreement between transmission system operators on compensation of costs for the utilisation of neighbouring transmission networks
SEE	South-eastern Europe
EMS JSC	*Elektromreža Srbije*, Joint Stock Company
PE *EPS*	Public Enterprise *Elektroprivreda Srbije* (Electric Power Industry of Serbia)
mtoe	Million tons of equivalent oil
NTC	Net Transfer Capacities
REMIT	Regulation on wholesale energy market integrity and transparency, No. 1227/2011, adopted by the European Parliament and the European Council of Ministers
MRE	Ministry of Mining and Energy
NIS	Company for Exploration, Production, Processing, Distribution and Trade in Oil, Oil Derivatives and for Exploration and Production of Natural Gas *Naftna industrija Srbije* (Petroleum Industry of Serbia), JSC
RS	Republic of Serbia
UNMIK	United Nations Interim Administration Mission in Kosovo, established by the Security Council by Resolution 1244 (1999)

Conversion factors for energy equivalents

	kJ	kcal	kWh	kg oe*
1 kJ	1	0.2388	0.000278	0.000024
1 kcal	4.1868	1	0.001163	0.0001
1 kWh	3,600	860	1	0.086
1 kg oe	41,868	10,000	11.63	1

* kilograms of equivalent oil

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