ENERGY AGENCY
OF THE REPUBLIC OF SERBIA

2020

# 2020 ENERGY AGENCY ANNUAL REPORT

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## Serbian Energy Sector Report

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## Annual and Financial Report

Belgrade, May 2021

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# 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 2020, 40 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 organisation of the Agency and other issues within the jurisdiction of the Council were adopted. In 2020, 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 2020 was on the satisfactory level which was particularly important in pandemia conditions. The total electricity consumption in 2020 was on the same level to the one in 2019. Households consumption increased by 2.8% and the consumption with high voltage consumption increased by 0.6%. Consumption in industry was reduced as well as in case of medium voltage customers by 0.4% and in case of low voltage by 5.8% and of consumption for generation purposes in thermal power plants and hydro power plants decreased by 8.1%. Total power generation in 2020 was by 2% higher than in 2019 (with by around 5% higher generation in coal-fired thermal power plants, with by 4.7% lower power production in hydro power plants connected to the transmission system due to unfavourable hydrological conditions, with 9% of power production originating from wind power plants connected to the transmission system and with by 13.2% higher power production in power plants connected to the distribution system). In 2020, electricity export was by 264 GWh higher than the import volume. Natural gas consumption increased by 6.7% in 2020 in comparison to 2019. Natural gas consumption grew with all consumption categories with the biggest increase recorded in households, i.e. by 18.8%. Consumption growth in households indicates that natural gas is a competitive energy source.

In 2020, out of the total sales scale, in the open market, at market prices, 48.6% of electricity (49.2% in 2019) and 82.9% of natural gas (84.1% in 2019) were sold. Households exercised their right to select their supplier and purchase energy sources in the open market to a negligible extent (148 metering points) 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. There were no new wind power plants connected to the transmission network during 2020 which is why in the end of the year the installed capacity of wind power plants connected to the transmission system remained the same and amounted to 373 MW. On the other hand, there were 328 small power plants with installed capacity of 212 MW were connected to the distribution network. In 2020, electricity quantities produced from renewable energy sources connected to the transmission and distribution systems amounted to 10,872 GWh which accounts for 32.1% of gross power consumption.

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. Following the preliminary certification of *Gastrans d.o.o*. as an independent transmission operator and the Opinion of the Energy Community Secretariat, on February 21, 2020, the Council of the Agency adopted a final decision by which *Gastrans d.o.o*. is certified as an independent natural gas transmission operator. In 2020, this interconnection gas pipeline was completed to the greatest extent and connected to the transmission system in Bulgaria and to the transmission system of *Transportgas* in Serbia. The first gas quantities meant

for the market in Serbia from Bulgaria were transmitted via this gas pipeline in early 2021. This gas interconnection is the most important condition for the provision of long-term more stable natural gas supply and market development and for the prevention of risks which Serbia used to face.

Under the current conditions, Niš – Sofia gas pipeline is the project which is supported by the EU institutions. In 2019, Energy permit was obtained, expertise control of the feasibility study and preliminary design were completed, construction permit and main design were obtained while there were not important activities on the realisation of this gas pipeline during 2020.

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 2020.

Adequate long-term policy of regulated prices, predictable for both customers and investors is very important for the sustainable development of energy systems. 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 2020 who exercised the right to bill reduction amounted to around 72,000 while the number of them who could exercise this rights amounts to more than 300,000 according to the assessment of competent 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 2020, distribution network losses increased by 0.20% in comparison to 2019 and they amount to 11.95% of electricity withdrawn into the distribution system which is very high in comparison to the losses justified on the technical ground. 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 2020, PE *EMS* JSC continued their activities aiming at system development and strengthening cross-border capacities and participation in coordinated cross-border capacity auctions. In 2020, the scale of trade in the organised market SEEPEX – electricity exchange was increased by 11%. Activities continued to be taken so as to develop regional electricity market. The integration into the EU market also requires 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 2020, indicators of for unplanned interruptions of electricity delivery in the transmission and distribution systems worsened slightly in comparison to 2019. The delivery continuity indicators are still considerably worse than the European average.

The collection of data on natural gas delivery quality was organized in 2020 as well and all energy entities provided and submitted required data to the Agency. There were no unplanned interruptions within the transmission systems in 2020 while the greatest number of unplanned interruptions within distribution systems was due to third party actions.

In 2020, 356 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 expanding.

We would like to strongly indicate the fact that the Agency secured that all prescribed procedures are implemented within the legal deadline under the conditions of the state of urgency and during the implementation of measures for the prevention of the spread of contagious disease COVID-19 and that the Agency performed all other activities within its jurisdiction in due time.

Council of the Energy Agency of the Republic of Serbia

*May 2021*

# 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 2019 amounted to around 15.42 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.

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 (mainly for 2019) and the comparisons with the European Union.

The energy net import dependence of Serbia recorded 35.6% in 2019, which is lower than in the vast majority of European countries (the European Union 57.8%). 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 2020, net energy import costs amounted to 1.3 billion € which is by 38% less than in 2019. Such a trend in 2020 is a result of a lower scale of import of coal and oil derivatives on one hand and of an increased level of electricity export on the other had. These costs account for 21.9% of the total import and export balance of the Republic of Serbia in 2020 which is by 34% lower than in 2019.

**Table 1-1: Energy sector of Serbia (without APKM) – some indicators for 2012 - 2019**

| | Measurement unit | Year | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 |
| Population number, in midyear | thousands | 7,201 | 7,167 | 7,132 | 7,095 | 7,058 | 7,021 | 6,983 | 6,964 |
| GDP per capita, per spending power parity | Fixed $ from 2011 | 12,899 | 13,295 | 14,025 | 14,345 | 14,903 | 15,289 | 16,035 | 12,637 |
| Primary energy consumption | Mtoe | 14.53 | 14.91 | 13.34 | 14.8 | 15.72 | 15.93 | 15.37 | 15.42 |
| Final energy consumption | Mtoe | 8.41 | 8.20 | 7.67 | 8.08 | 8.67 | 8.70 | 8.47 | 8.36 |
| Import dependence | % | 27.7 | 24.1 | 27.9 | 27.7 | 30.3 | 34.4 | 34.8 | 35.6 |

*Data: RZS, World Bank, MRE, AERS*

Compared to the European Union (Figure 1-1), gross domestic product of Serbia per citizen was calculated in line with the purchasing power parity (which reflects the level of development and standard in a more realistic manner) in 2019 was on the level of 47%, consumption of total primary energy per capita – 69% and final electricity consumption – 74%.

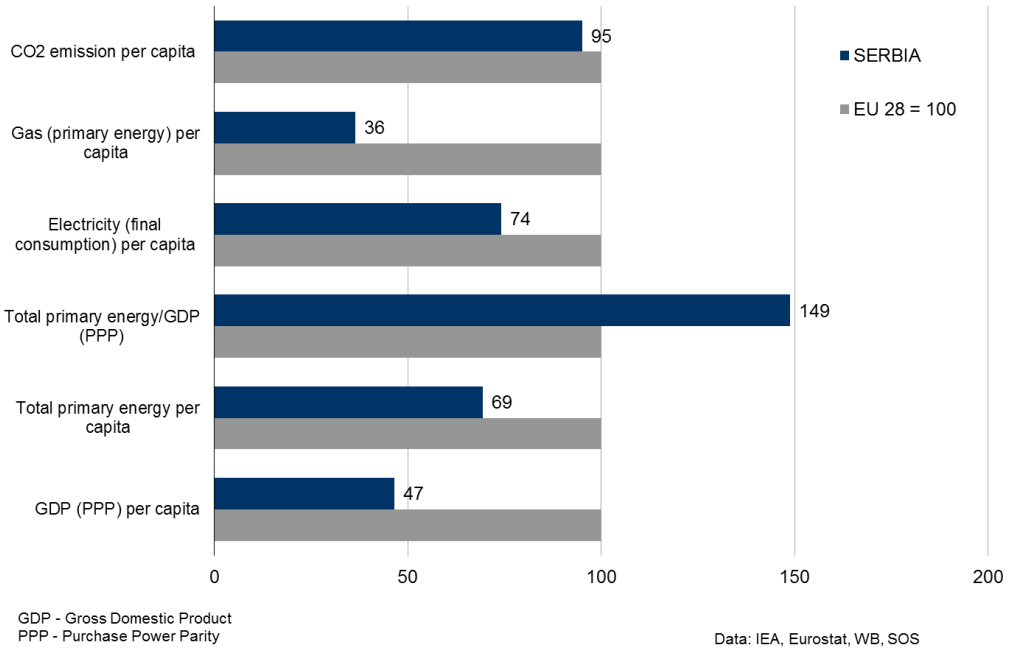


**Figure 1-1: Comparative indicators of Serbia and the European Union in 2019**

[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 1.49 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 36% 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).

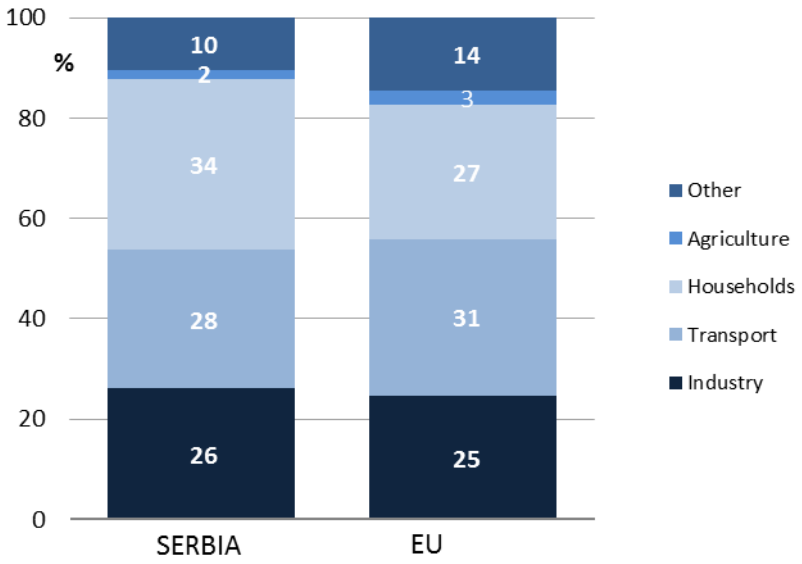


**Figure 1-2: Final consumption structure (without non-energy consumption) in 2019**

# 2. ELECTRICITY AND NATURAL GAS MARKET IN 2020

## 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 2020, 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 was an ongoing procedure for the award of the licence for distribution and distribution system operation to the company in 2020.

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 2020, 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 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 2020, 35.54 TWh of electricity were produced in Serbia, while gross electricity consumption amounted to 33.85 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 provided by electricity suppliers, 4.4 TWh were imported in 2020 which is on the last year level while 4.7 TWh were exported which is 0.75TWh more than in 2019. As a consequence of the highest monthly consumption and lower production in thermal power plants and reduced hydrology, import was the highest in January with 583 GWh and in December with 517 GWh of imported electricity while it amounted to between 200 and 400 GWh during other months. Electricity export was considerable in August with 575 GWh and in October with 590 GWh of exported electricity while export during other months amounted to between 250 GWh and 350 GWh except in March and September when it was slightly higher and amounted to around 460 GWh of electricity.

The highest daily gross consumption in Serbia without APKM of 121,114 MWh was recorded on January 17, 2020 while the maximum hourly load amounted to 5,484 and was recorded on January 13, 2020 at 6 p.m.

***Wholesale***

In 2020, suppliers mainly traded between themselves in the wholesale electricity market because there are no big independent producers who would offer electricity since big wind parks as privileged producers sell electricity to PE EPS which is obliged to purchase this energy at feed-in tariffs as the guaranteed supplier. 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 2020, it amounted to around 14.7 TWh. The right to nominate working schedules based on a relevant contract signed with EMS JSC in 2020 was awarded to 64 electricity market players. There were 57 active market players and 11 suppliers dealing with final customers supply in the open market.

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 22 participants registered in 2020 on an organized day-ahead electricity market/power exchange which is three participants more than in 2019. 18 participants were actively involved in the trade amounting to the same number as last year.

The total electricity quantity traded in 2020 on SEEPEX amounted to 2,816 GWh which is around 300 GWh more than in 2019. 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 2020, 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. In 2020, the highest monthly trade scale of 311,732 MWh was recorded in October while the daily maximum was recorded on October 2 with the trade scale of 13,978 MWh. The lowest trade scale was recorded in July and it amounted to 191,179 MWh which is by 13% more than the minimum monthly trade scale in 2019. The highest hourly price was recorded on December 17 at 5 p.m. and it amounted to 165.6 €/MWh. Average basic price on the annual level amounted to 39 €/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. 51.4% of final customers' consumption is supplied at regulated prices which includes households and small customers' consumption.

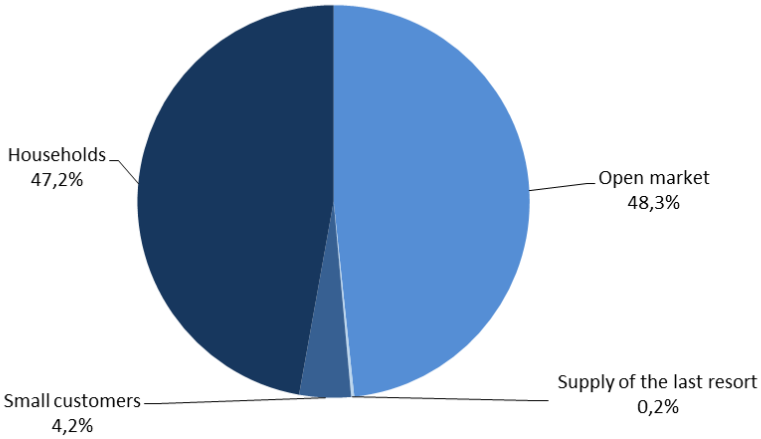


**Figure 2-1: Electricity sales in the open and regulated markets in 2020**

Only those customers who are not entitled to guaranteed supply purchase electricity in the open market and 48.6% of electricity consumed by final customers in total was sold during 2020. Out of the amount, only 0.2% 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 2020, there were 64 energy entities licenced for electricity supply in the open market. Out of the number, only 11 were active. PE *EPS* is still the dominant supplier in the open market with the share of 95.5% of electricity sold to final customers in the open market and 96.9% of the total final customers' consumption (in the open and regulated markets).

In 2020, a supplier was switched on around 11.2 thousand metering points (0.3% of the total number of metering points) with consumption slightly lower than 565.3 GWh which amounts to 2.25% of the total final customers' consumption.

***Security of supply***

In 2020, the security of supply was on the satisfactory level. Investments within several years into revitalization and modernisation of production, transmission and partly distribution capacities increase the 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 as well as in case of the distribution system, the indicators were 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 continued in 2020 as well as the construction of the combined heat and power plant Pančevo of 190 MW in condensed regime (the investors are *Naftna industrija Srbije a.d*. and Gasprom energoholding, Russia). It is planned to construct thermal power plants of considerable capacity fuelled by renewable energy sources. There were no new generation capacities connected to the transmission system during 2020 while there were new 11 MW connected to the distribution system. In the end of 2020, there were 328 small power plants with total installed capacity of 212 MW connected to the distribution system.

## 2.3 Natural gas market development

***Unbundling of the operator***

In 2020, natural gas transmission was performed by two energy entities on the territory of Serbia: *Transportgas d.o.o*., Novi Sad and Yugorosgaz-Transport, LLC Niš.

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 as well as during most of 2020 which is why natural gas transmission was still performed by its founder PE Srbijagas in that period. Since October 2020, transmission system operator Transportgas Srbija LLC started fully performing natural gas transmission and transmission system operation. *Distribucijagas* Srbija LLC has not started operating in 2020.

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. On December 22, 2019, the competent body in line with obligations arising from ratified international treaties (Energy Community Secretariat) submitted its Opinion on the Preliminary Decision on Certification of GASTRANS d.o.o. Following this, the Council of the Agency adopted the final decision thereby issuing a certificate to GASTRANS d.o.o. as to an independent natural gas transmission operator within legal deadline on February 21, 2020. Basically, Preliminary Decision of August 2019 was confirmed by this final decision and the same obligation prescribed in the Preliminary Decision was established for GASTRANS d.o.o in the final decision.

In 2020, gross natural gas consumption amounted to 2,505 million $m^3$, by 7% higher than in 2019. The consumption in industry increased by 2%, in district heating companies by 6% and in households by almost 19%. Local production covered only 10.7% 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 *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. Therefore, capacity allocation in line with the Transmission Network Code was not realised even in 2020.

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 2020, PE *Srbijagas* was the supplier of public suppliers.

***Retail***

Total final customers' consumption to 2,235 million $m^3$. In addition, NIS consumed 248 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 65 licensed suppliers) who dealt with retail, i.e. with the supply of final customers in 2020 while there were 31 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.

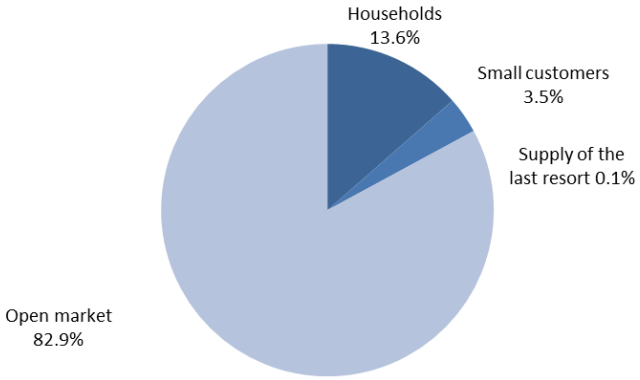


**Figure 2-2: Sale of natural gas in the open and regulated markets in 2020**

In 2020, around 83% 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 2020, the supply of the last resort was exercised by 35 customers with 1.2million $m^3$ delivered to them in total, i.e. slightly over 0.5% 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 17 metering points in total, with the consumption of 3.6 million $m^3$, which amounts to 0.16% 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 382 million $m^3$ i.e. 17% of the total gas quantities procured in the market (without *NIS* consumption from its own production).

***Security of supply***

In 2020, 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 directions. In the end of 2020, the interconnector which is being guilt from the Bulgarian-Serbian border to the Serbian-Hungarian border was connected to the transmission system in Bulgaria which 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 d.o.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. In 2020, the gas pipeline is mostly completed and connected to the transmission system in Bulgaria and the Transmission System of *Transportgas* in Serbia. The gas pipeline is expected to be completed until October 2021 when conditions will be created for its connection to the transmission system in Hungary. The first gas quantities meant for the market in Serbia via Bulgaria were delivered in early 2021. The construction of this gas pipeline provided for the compliance with the infrastrucure supply standard N-1 in the Republic of Serbia since it increased 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*) which was established for electricity transmission and into a vertically-integrated PE *EPS* which was established for electricity production, wholesale supply and retail supply (of final customers) and distribution. On July 14, 2015, *EMS* JSC established SEEPEX JSC Belgrade – power exchange. It was established on the basis of partnership with EPEX SPOT. According to the Energy Law, SEEPEX has an obligation to organise and administer organised electricity market and to connect it with organised electricity markets of other countries.

The structure of the power sector in the end of 2020 is indicated in Figure 3-1.

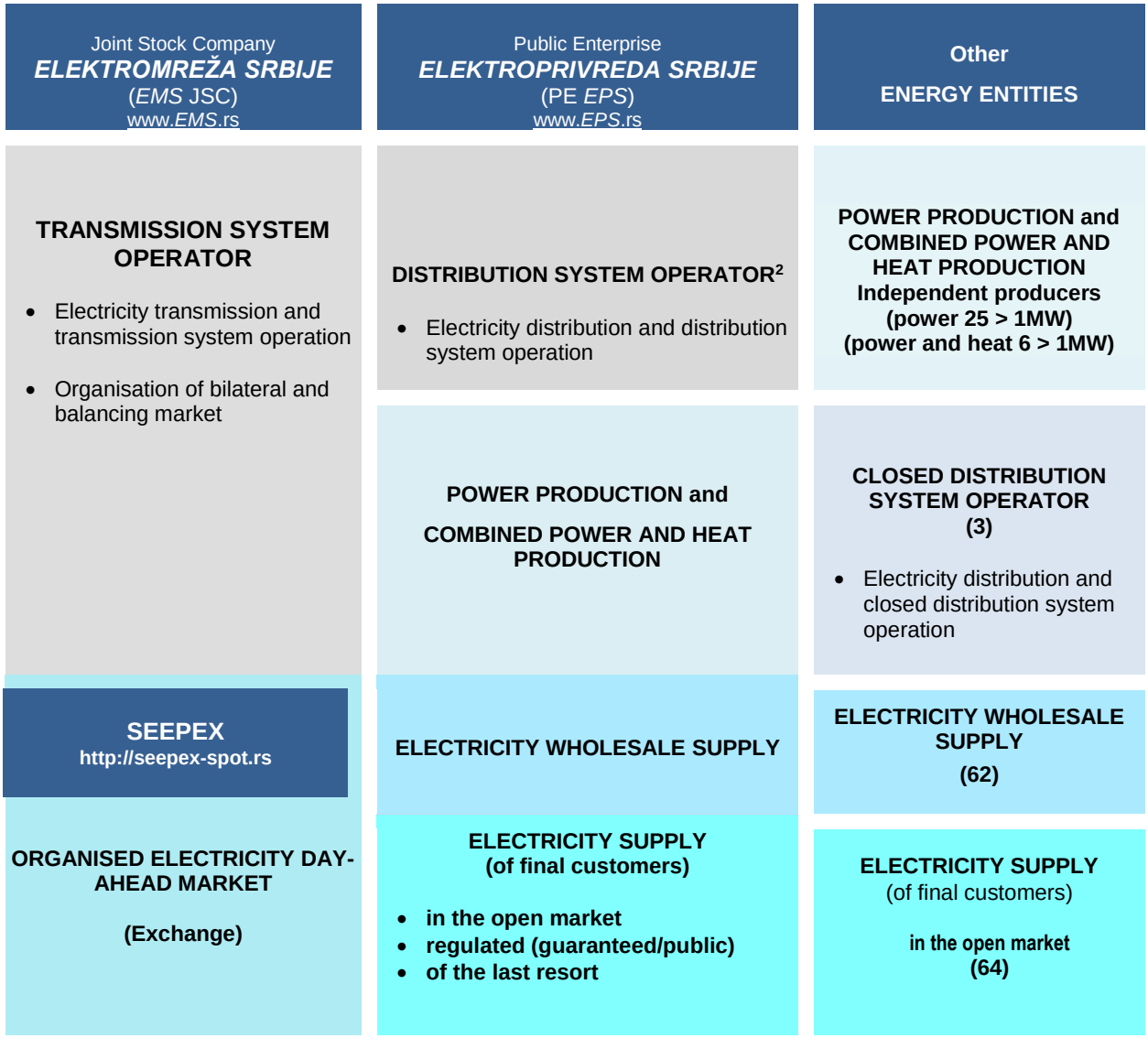


**Figure 3-1: Organisational structure of the power sector in the end of 2019**

2 In the end of 2020, Distribution System Operator "EPS Distribucija" d.o.o. Beograd was unbundled from the vertically-integrated PE EPS (on 31/12/2020, the Serbian Business Registry Agency registered Distribution System Operator "EPS Distribucija" d.o.o. Beograd with the Government of RS as its founder)

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 (93.4% 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 supplier of households and small customers it supplies at regulated prices. Out of total 29 TWh of final customers' consumption, PE *EPS* sells 96.9% of electricity (all under regulated supply regime and over 95.5% 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 2020, DSO did not fully start operating in line with the Law.[3]

In the end of 2020, there were 328 small power plants with total capacity of 213 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 310 of them are owned by independent power producers with the capacity of 172 MW). In addition to PE EPS, the licence for power production was also held by 28 energy entities, while the licence for combined power and heat production was held by 8 energy entities (including PE EPS) with production facilities with capacity of over 1 MW.

In the end of 2020, energy licence for electricity distribution and for closed distribution system operation were held by three energy entities – "BELGRADE AIRPORT" d.o.o. Beograd, 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), JSC, Novi Sad and "Limited Liability Company for Energy and Fluids Production and Distribution and Service Provision "ENERGETIKA", Kragujevac.

There is a great number of electricity suppliers licenced in Serbia. In the end of 2020, there were 64 licenced suppliers entitled to deal in wholesale and retail supply and 62 suppliers entitled only for wholesale trade. Out of the number, 57 of them were active, while there were 11 suppliers who dealt in final customers' supply in the open market.

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.

### 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 8,286, 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*.

**Table 3-1: Electricity production capacities in 2020 (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 | 171 |
| **TOTAL INSTALLED CAPACITY** | **8,286** |

3 The Distribution System Operator was established on 31/12/2020 as a single-member company under title "Elektrodistribucija Srbije" d.o.o. Beograd which is the moment when it starts operating independently from the vertically-integrated PE EPS.

Apart from the production capacities of PE *EPS*, production capacities of independent producers are connected to the transmission and distribution networks. During 2020, no new wind farms 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 remained the same as in 2019, i.e. it amounted to 373 MW. On the other hand, in the end of 2020, 310 small power plants which are owned by other legal and natural persons with total installed capacity of 171 MW were connected to the power distribution company network.

The structure of production capacities, 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 57.4%, while the hydro power plants (HPPs) connected to the transmission system cover 35.5%. 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%. 2.6% of installed capacities are covered by small power plants connected to the distribution system.

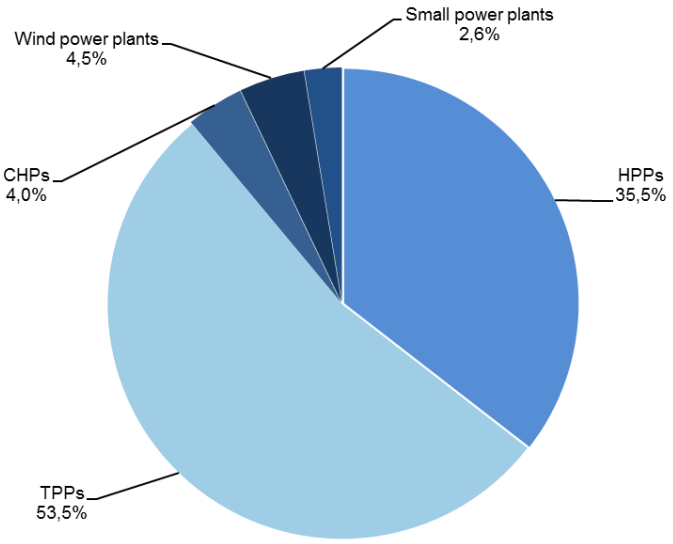


**Figure 3-2: Production capacity structure in 2020 (without APKM)**

Apart from PE *EPS* which is the biggest and the dominant electricity producer, the licence for the production of electricity is held by 28 energy entities, while the licence for combined heat and power production is also held by 8 energy entities (independent electricity producers) which own small production facilities connected to the distribution network.

**Table 3-2: Power production capacities connected to the transmission system in 2020 (without APKM)**

| | Number of power plants | Installed capacity MW | Delivered to network MWh |
|---|---|---|---|
| Hydro power plants | 12 | 2,941 | 9,418,532 |
| Run-of-river hydro power plants | 5 | 1,980 | 8,077,384 |
| Storage hydro power plants | 6 | 347 | 626,948 |
| Pumped-storage hydro power plants | 1 | 614 | 714,200 |
| Thermal power plants | 7 | 4,429 | 24,331,520 |
| CHPs | 2 | 330 | 192,186 |
| Wind power plants | 4 | 373 | 904,659 |
| Solar power plants | 0 | 0 | 0 |
| Other power plants | 0 | 0 | 0 |
| **TOTAL** | **25** | **8,073** | 34,846,897 |

**Table 3-3: Power production capacities connected to the distribution system in 2020 (without APKM)**

| | Number of power plants | Installed capacity MW | Delivered to network MWh |
|---|---|---|---|
| Small hydro power plants | 138 | 109 | 282,854 |
| Biomass-fired power plants | 2 | 3 | 22,927 |
| Biogas-fired power plants | 30 | 31 | 166,978 |
| Power plants fired by landfill gas and gas from plants for treatment of public utility waste water | 0 | 0 | 0 |
| Wind-fired power plants | 4 | 25 | 61,920 |
| Solar power plants | 137 | 12 | 13,262 |
| Solar power plants on ground | 16 | 6 | 8,373 |
| Solar power plants on facilities | 121 | 5 | 4,889 |
| Geothermal energy-fired power plants | 0 | 0 | 0 |
| Combined production fossil fuels-fired power plants | 15 | 29 | 133,681 |
| Waste-fired power plants | 0 | 0 | 0 |
| Other power plants | 2 | 3 | 11,015 |
| **TOTAL** | 328 | 213 | 692,637 |

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, "*MK-FINTEL WIND" AD* with wind park *Košava* of 69 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 16,025 MVA (27 of them with installed capacity of 15,231 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 9,988 km (9,803 km of overhead line owned by *EMS* JSC). In comparison to 2019, capacities within the transmission system of *EMS* JSC were decreased by around 150 MVA because of dismantling of the transformer in TS Srbobran. In addition, four 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 17 within the reconstruction process, 400/220 kV/kV in Obrenovac, 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.

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 2021.

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 3-4: 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 | 1,783 |
| 110 kV – network length | km | 6,221 |
| Number of transformers (including TS 110/x kV/kV owned by *EMS* JSC) | | 75 |
| 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 2020, 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 37,375 transformer stations with total installed capacity of 32,234 MVA and 171,109 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 35,919 transformer stations owned by DSO with total installed capacity of 30,783 MVA and 164,489 km of distribution lines of all voltage levels. Their structure is indicated in Table 3-5. 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 3-5: Length of lines owned by DSO in the end of 2020 (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 | 1,029 | 965 | 2,287 | 1,801 | 732 | 6,814 |
| 20 kV | 8,805 | 0 | 1,720 | 0 | 0 | 10,525 |
| 10 kV | 410 | 6,974 | 12,545 | 9,573 | 4,167 | 33,669 |
| 0.4 kV | 14,136 | 17,859 | 47,863 | 21,214 | 12,401 | 113,473 |
| **Total** | **24,380** | **25,804** | **64,415** | **32,588** | **17,302** | **164,489** |

## 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 more than in 2019.

In the last ten years, as the dominant producer, PE *EPS* reached maximum power production level of almost 37.5 TWh in 2013. In 2020, in PE EPS production facilities, slightly less than 34 TWh of power were produced which is by 0.5 TWh more than in 2019. Production in coal-fired thermal power plants amounted to 24.33 TWh which is around 5% higher than last year. Due to unfavourable hydrological conditions during the whole of 2020, generation in hydro power plants was by 0.05 TW, i.e. 0.5% lower than in 2019 during which hydrological conditions were also poor. In comparison to 2018, production was by 1.62 TWh lower, i.e. by 14.6%. Combined heat and power production plants operated during wintertime and produced 192 TW, by 43% less power than in 2019. 18 small power plant owned by PE EPS were connected to the distribution network and they produced 67 GWh in total which is by 27.2% less than in 2019.

Generation of other producers has been increasing year by year. Other producers include small power plants connected to the distribution network and there were 310 of them in 2019 where around 626 GWh of power were produced in total. Along with small power plants connected to the distribution network, other producers also include four wind power plants connected to the transmission network. These four wind power plants produced around 905 GWh of power and therefore, in 2020, the production from power plants of other independent producers was over 11.8% higher than in 2019.

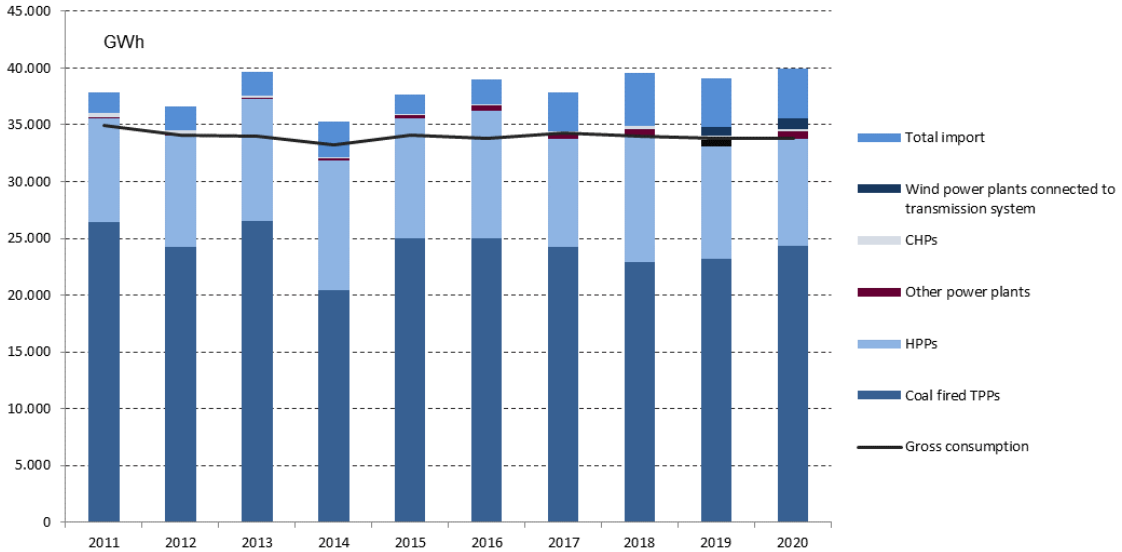


**Figure 3-3: Production, import and gross consumption in Serbia in 2020 (without APKM)**

In 2020, 35,540 GWh were produced in total in power plants in the Republic of Serbia. Out of that number, coal-fired thermal power plants produced 68.6%, hydro power plants connected to the transmission system 26.5%, combined heat and power plants 0.5%, wind power plants connected to the transmission system – 2.5% while other power plants (small power plants connected to the distribution system) produced 1.9% of the total electricity production.

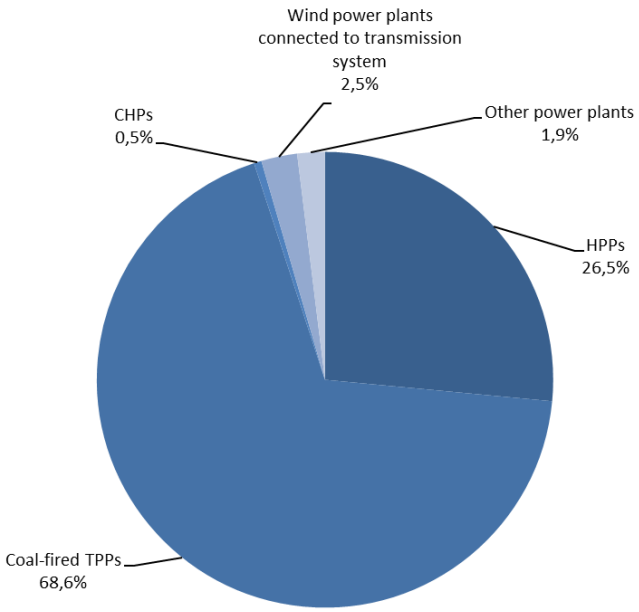


**Figure 3-4: Generation structure in 2020 (without APKM)**

**Table 3-6: Electricity production and consumption in 2011 – 2020 (without APKM)**

GWh

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|
| **GENERATION** | | | | | | | | | | |
| Hydro power plants | 9,145 | 9,808 | 10,729 | 11,366 | 10,529 | 11,227 | 9,477 | 11,031 | 9,884 | 9,419 |
| Coal fired thermal power plants | 26,462 | 24,275 | 26,537 | 20,455 | 25,017 | 25,016 | 24,240 | 22,954 | 23,169 | 24,331 |
| Combined heat and power plants | 408 | 390 | 167 | 63 | 45 | 90 | 185 | 238 | 337 | 192 |
| Wind PPs connected to trans.sys. | | | | | | | | 85 | 830 | 905 |
| Other power plants | 46 | 73 | 104 | 267 | 321 | 448 | 538 | 642 | 612 | 693 |
| **Total generation** | **36,061** | **34,546** | **37,537** | **32,151** | **35,912** | **36,781** | **34,441** | **34,950** | **34,832** | **35,540** |
| Other (UNMIK) | 184 | 144 | 0 | 0 | 15 | 69 | 143 | 94 | 12 | 3 |
| ***EPS'* and of suppliers' import for the purpose of trade in Serbia** | **1,800** | **2,039** | **2,148** | **3,180** | **1,732** | **2,225** | 3,397 | 4,582 | 4,280 | 4,444 |
| **TOTAL AVAILABLE QUANTITY** | **38,045** | **36,729** | **39,685** | **35,331** | **37,659** | **39,075** | **37,981** | **39,626** | **39,124** | **39,987** |
| **EPS' and suppliers' export – of power produced and purchased in Serbia** | **2,064** | **1,592** | **4,475** | **1,021** | **2,142** | **3,578** | 2,186 | 4,246 | 3,940 | 4,708 |
| Pumping | 860 | 875 | 1,007 | 902 | 1,102 | 1,034 | 944 | 1,070 | 1,102 | 1,082 |
| Other (UNMIK) | 199 | 196 | 207 | 180 | 300 | 445 | 458 | 313 | 275 | 337 |
| **Gross consumption** | **34,928** | **34,059** | **34,000** | **33,228** | **34,115** | **34,018** | **34,320** | **33,997** | **33,807** | **33,853** |
| Transmission network losses | 1,096 | 1,022 | 1,013 | 948 | 932 | 892 | 852 | 868 | 806 | 798 |
| Distribution network losses | 4,747 | 4,586 | 4,482 | 4,215 | 4,236 | 3,917 | 3,953 | 3,664 | 3,527 | 3,587 |
| **Total losses** | **5,843** | **5,602** | **5,499** | **5,163** | **5,168** | 4,808 | **4,805** | **4,532** | **4,333** | **4,385** |
| Losses to gross consumption ratio | 16.7% | 16.4% | 16.2% | 15.5% | 15.4 | 14.1% | 13.9% | 13.3% | 12.8% | 13.0% |
| Final consumption * | **29,085** | **28,457** | **28,501** | **28,065** | **28,947** | **29,210** | **29,515** | **29,465** | **29,474** | **29,468** |

***** *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 2020 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;
- adoption of the rules for the cross-border transmission capacities allocation in 2021, 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. Only after amendments were made, the proposed Code was approved. In April 2020, the Council of the Agency approved a new draft of the Code which was prepared by EMS AD in order to harmonise it with technical requirements arising from European network connection codes, with requirements for system operation under regular and emergency circumstances with mandatory technical acts of ENTSO-E Association (European Network of Transmission System Operators for Electricity) and with a new concept of technical operation system of EMS JSC.

### 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 instalment 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. Charges were not modified in 2020.

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 3-7: Trend of annual level of average approved transmission use-of-system charges[4]**

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 2020 are listed in Table 3-8.

**Table 3-8: Transmission use-of-system charges valid as of 01/11/2019**

RSD

| Tariff element | Calculation element | Unit | Charges as of 01/11/2019 |
|---|---|---|---|
| Power | Accounting power | kW | 48.0148 |
| | Extra power | kW | 192.0592 |
| Active energy | Higher day-time | kWh | 0.3822 |
| | Lower day-time | kWh | 0.1911 |
| Reactive energy | Reactive energy | kvarh | 0.1942 |
| | Extra reactive energy | kvarh | 0.3885 |

During 2020, the Agency Council adopted a decision on amendment to the Methodology for Setting Electricity Transmission Use-of-System Charge, where, in chapter XII APPLICATION OF METHODOLOGY, the application of paragraph 6 was extended and an exception was given in paragraph 7.

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

In 2020, 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 0.50 RSD/kWh.

**Table 3-9: Average transmission use-of-system charges**

RSD /kWh

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|
| Realised transmission use-of-system charges | 0.33 | 0.35 | 0.42 | 0.43 | 0.43 | 0.43 | 0.48 | 0.49 | 0.49 | 0.50 |

Transmission use-of-system charges (VAT and duties free) in European countries and their structure are given in line with 2020 ENTSO-E data in the Figure 3-5.

[4] 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.

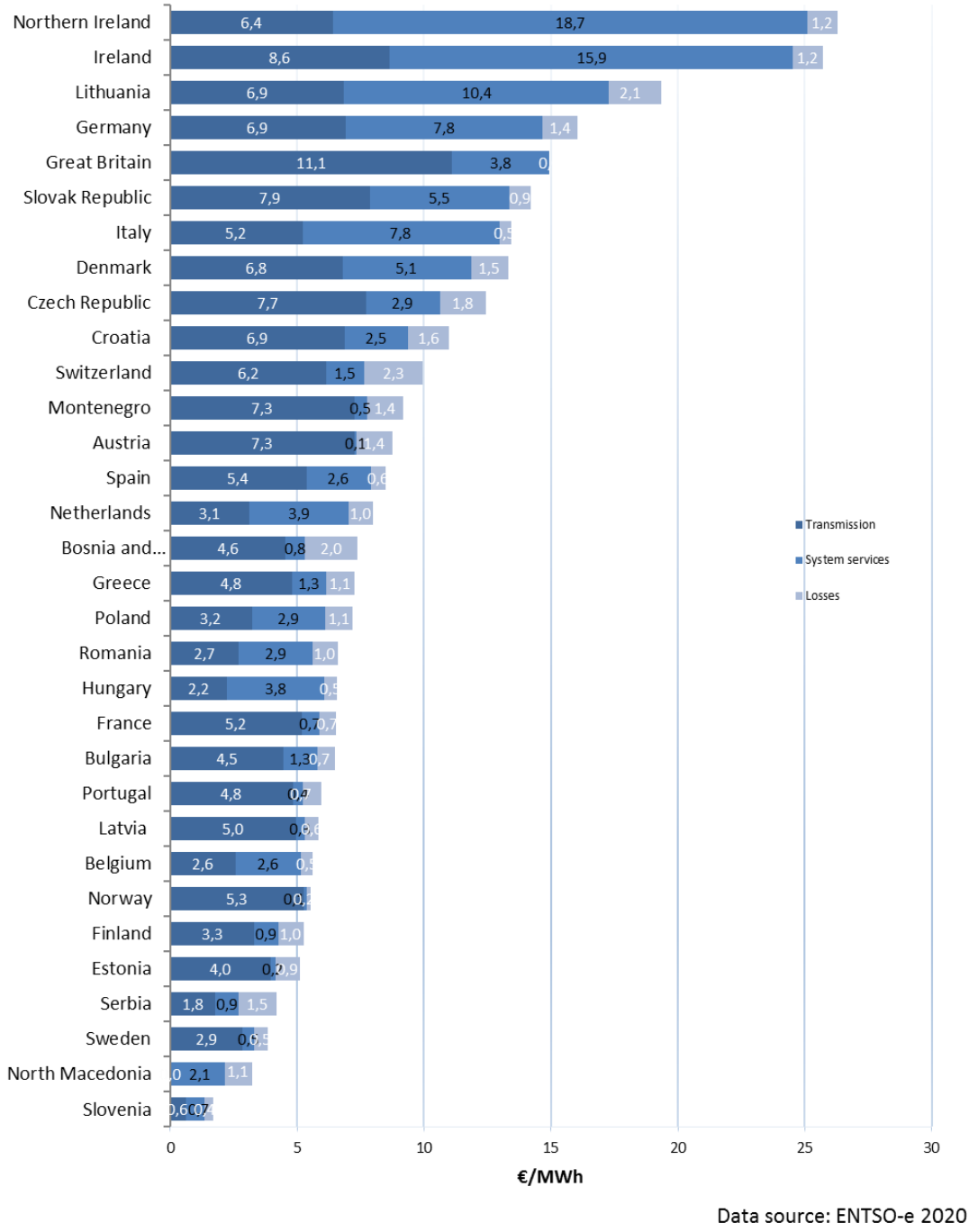


**Figure 3-5: Transmission use-of-system charge (€/MWh) in 2020**

#### 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[5] for continuous production, i.e. consumption (baseload) on relevant electricity exchanges.

The prices of 2020 capacity reserve for the purpose of secondary control were set on the level of 1,505 RSD/MW and of tertiary control of 474 RSD/MW in case capacity was supposed to be increased. The service of tertiary control in case capacity is supposed to be reduced and primary control are free of charge.

#### 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 2020, the prices of ancillary services for the voltage regulation and reactive power amounting to RSD 370,444,000 and for the service of black start amounting to RSD 8,667,000 were set. They are billed in equal monthly instalments set as one twelfth of the given amount.

Total allowed annual levels for the provision of system and ancillary services in the last 5 years are indicated in Table 3-10.

**Table 3-10: Total annual level for the provision of system and ancillary services**

000 RSD

| Year | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|
| Total annual value | 2,625,261 | 2,746,403 | 2,822,709 | 3,583,388 | 3,707,962 |

#### 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 2020 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, on Serbian – North Macedonian border since 2017 and on Serbian-Montenegrin border since 2020, joint explicit auctions have been organised for the allocation of 100% of available capacity. On the border with Albania, *EMS* JSC and the neighbouring transmission system operator 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***

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

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 operator of the Republic of Serbia and the transmission system operators of Hungary, Romania, Bulgaria, Bosnia and Herzegovina, Croatia, North Macedonia and Montenegro 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 2020 were approved by the Agency Council in the end of 2019.

### *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 3-11 and 3-12 indicate average monthly amounts of net cross-border transmission capacities (NTC) on all borders in both directions.

**Table 3-11: Average monthly level of NTS for entry into Serbia in 2020**

MW

| Border/months | I | II | III | IV | V | VI | VII | VIII | IX | X | XI | XII |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Hun---> Ser | 700 | 700 | 677 | 653 | 700 | 540 | 700 | 700 | 700 | 700 | 567 | 700 |
| Rom---> Ser | 800 | 700 | 626 | 533 | 468 | 540 | 460 | 406 | 402 | 492 | 620 | 600 |
| Bul ---> Ser | 350 | 350 | 350 | 350 | 350 | 350 | 350 | 421 | 315 | 287 | 423 | 350 |
| Mac---> Ser | 250 | 450 | 450 | 400 | 450 | 400 | 377 | 396 | 700 | 450 | 400 | 400 |
| Alb---> Ser | 0 | 250 | 250 | 91 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Mon---> Ser | 200 | 400 | 368 | 300 | 400 | 400 | 700 | 450 | 400 | 471 | 400 | 400 |
| BosHer--- Ser | 500 | 450 | 323 | 500 | 355 | 400 | 358 | 600 | 463 | 274 | 600 | 450 |
| Cro---> Ser | 500 | 450 | 389 | 500 | 329 | 400 | 326 | 600 | 472 | 581 | 600 | 450 |

**Table 3-12: Average monthly level of NTS for exit from Serbia in 2020**

MW

| Border/months | I | II | III | IV | V | VI | VII | VIII | IX | X | XI | XII |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ser --->Hun | 800 | 800 | 774 | 747 | 800 | 600 | 800 | 800 | 800 | 800 | 800 | 800 |
| Ser --->Rom | 800 | 700 | 800 | 495 | 513 | 510 | 439 | 339 | 557 | 594 | 623 | 700 |
| Ser --->Bul | 300 | 300 | 300 | 300 | 300 | 300 | 300 | 371 | 270 | 252 | 373 | 300 |
| Ser --->Mac | 300 | 600 | 620 | 380 | 355 | 300 | 489 | 358 | 465 | 550 | 483 | 400 |
| Ser --->Alb | 0 | 250 | 226 | 91 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ser --->Mon | 300 | 600 | 289 | 483 | 405 | 200 | 427 | 450 | 465 | 550 | 483 | 350 |
| Ser --->BosHer | 600 | 350 | 595 | 282 | 574 | 600 | 479 | 560 | 425 | 350 | 600 | 600 |
| Ser --->Cro | 600 | 600 | 595 | 368 | 503 | 600 | 527 | 600 | 500 | 539 | 600 | 600 |

In 2020, *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 2020, in line with the Rules for the Cross-Border Transmission Capacity Allocation, *EMS* JSC allocated 50% of the available capacity on the monthly and weekly level, by organizing explicit auctions on Serbian-Albanian border. 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 operator of Albania. *EMS* JSC also organised intraday allocation of cross-border transmission capacity on this border by the method „first come – first served“ (in line with the application time).

In 2020, the right to participate in the auctions on 50% of available capacity was on disposal of 35 market players. 27 of them actively participated in the auctions. Annual auctions on the border 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 2020 on the border with Albania. The data on the given annual auctions are given in Table 3-13. Weekly explicit auctions were organized on Serbian – Albanian border using the “marginal price” charging method.

**Table 3-13: Data on realised monthly auctions for the allocation of 50% of available cross-border transmission capacity in 2020**

| 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 | 262 | 4 / 13 | 11 - 13 | 0.11 – 0.36 |
| Srb -Alb | 262 | 6 / 15 | 13 - 15 | 0.87 – 3.51 |

In 2020, *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 50 participants on all auctions organised by *EMS* JSC while there were 50 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 21 participants on all auctions organised by *EMS* JSC, while there were 42 of them entitled to participate.

In 2020, 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 on Serbian – Croatian border (9 participants involved out of 34 registered participants and on the Serbian – Bulgarian border (10 participants involved out of 32 registered participants in total) by using the method „first come-first served".

In 2020, EMS JSC organised annual and monthly explicit auctions for the allocation of 100% of available. by method "first come-first served" 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 25 participants in the auctions organised by *EMS* JSC while there were 40 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 41 participants involved in the capacity allocation organised by EMS JSC out of 41 entitled participants.

In 2020, EMS JSC organised annual and monthly explicit auctions for the 100% available capacity allocation on Serbian-Montenegrin border by using the method of "marginal price", while, using the same method the transmission system operator of Montenegro (CGES) organised daily explicit auctions and organised intraday capacity allocation by using the method "first come-first served". There were 29 participants involved in the auctions organised by EMS JSC out of 40 entitled participants.

The data on the joint annual auctions for 2020 are given in Table 3-14.

**Table 3-14: Data on joint annual auctions for the allocation of cross-border transmission capacities in 2020**

| Border – direction | Number of auction participants entitled to capacity | Marginal price (EUR/MWh) |
|---|---|---|
| Hungary – Serbia* | 10 | 0.72 |
| Serbia – Hungary* | 8 | 0.76 |
| Romania – Serbia* | 8 | 0.56 |
| Serbia – Romania | 10 | 0.82 |
| Bulgaria – Serbia** | 8 | 1.31 |
| Serbia – Bulgaria** | 11 | 0.71 |
| Croatia – Serbia** | 10 | 0.83 |
| Serbia – Croatia** | 10 | 0.30 |
| BiH - Serbia | 13 | 0.25 |
| Serbia - BiH | 12 | 0.05 |
| North Macedonia – Serbia* | 8 | 0.40 |
| Serbia – North Macedonia* | 9 | 1.00 |
| Montenegro - Serbia | 15 | 0.51 |
| Serbia – Montenegro | 16 | 0.49 |

** Data gathered from the neighbouring transmission system operator*

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

The data on joint monthly auctions in 2020 are given in Table 3-15.

**Table 3-15: Data on joint monthly auctions for the allocation of cross-border transmission capacities in 2020**

| 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* | 0 | 12 / 12 | 10 – 15 | 0.23 – 0.87 |
| Serbia – Hungary* | 0 | 12 / 12 | 12 – 16 | 0.10 – 0.31 |
| Romania – Serbia* | 5 | 56 / 57 | 3 – 10 | 0.03 – 0.50 |
| Serbia – Romania* | 5 | 42 / 43 | 4 – 10 | 0.11 – 2.30 |
| Bulgaria – Serbia** | 12 | 15 / 15 | 8 – 16 | 0.11 – 0.77 |
| Serbia – Bulgaria** | 12 | 15 / 15 | 6 – 19 | 0.35 – 1.67 |
| Croatia – Serbia** | 6 | 12 / 12 | 8 – 16 | 0.31 – 0.68 |
| Serbia – Croatia** | 6 | 12 / 12 | 8 – 16 | 0.06 – 0.20 |
| BiH - Serbia | 5 | 25 / 26 | 11 – 16 | 0.09 – 0.47 |
| Serbia - BiH | 0 | 15 / 28 | 8 – 12 | 0.01 – 0.07 |
| North Macedonia – Serbia* | 0 | 8 / 14 | 6 – 14 | 0.10 – 0.40 |
| Serbia – North Macedonia* | 0 | 23 / 23 | 4 – 18 | 0.60 – 6.50 |
| Montenegro - Serbia | 0 | 15 / 15 | 11 – 17 | 0.02 – 0.57 |
| Serbia – Montenegro | 0 | 26 / 26 | 15 – 21 | 0.06 – 1.76 |

** Data gathered from the neighbouring transmission system operator*

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

In the end of 2020, EMS JSC concluded agreements on the organization of common allocation/auctions for 2021 with those neighbouring transmission system operators that had them organized in 2020 as well. 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 2020 (with APKM) amounted to 17,971 GWh – entrance, i.e. 18,815 GWh – exit from the market area of Serbia. The scale of internal transactions[6] amounted to 26,272 GWh. Table 3-16 indicates the scale of nominated and confirmed internal and cross-border transactions in the period 2011-2020.

**Table 3-16: Cross-border and internal transactions in the market area of Serbia 2011 - 2020**

GWh

| Year | Cross-border transactions – entry | Cross-border transactions – exit | Internal transactions |
|---|---|---|---|
| 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 |
| 2020 | 17,971 | 18,815 | 26,272 |

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

In comparison to the previous year, in 2020, the scale of cross-border transactions increased slightly in the entrance and exit direction which is a consequence of lower production due to unfavourable hydrological situation most of the year and of a lack of possibility to trade in big electricity quantities on exchanges in the region. The scale of internal exchange was increased by 27% in comparison to last year thanks to increased electricity trade in the organised electricity market in Serbia. Apart from the transactions indicated in Table 3-16, a segment of cross-border exchange was realised via island operations of distribution system of Serbia and Bosnia and Herzegovina, amounting to 5.03 GWh in direction from Serbia towards Bosnia and Herzegovina and 1.11 GWh in the opposite direction.

Table 3-17 indicates the scale of cross-border transactions for each border for 2020.

**Table 3-17: Entry and exit nominated cross-border transactions for each border for 2020**

GWh

| Border with | Entry into Serbia | Exit from Serbia |
|---|---|---|
| Romania | 931 | 2,765 |
| Bulgaria | 1,114 | 1,831 |
| North Macedonia | 1,358 | 3,802 |
| Montenegro | 324 | 1,559 |
| Albania | 2,238 | 2,826 |
| BiH | 3,546 | 1,325 |
| Croatia | 2,322 | 1,045 |
| Hungary | 6,138 | 3,662 |
| **On all borders** | **17,971** | **18,815** |

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

In 2020, *EMS* JSC generated revenue from capacity allocation amounting to around €19 million in line with the following structure:

**Table 3-18: Revenue from cross-border capacity allocation in 2020**

| Allocation | Revenue (€) |
|---|---|
| Annual | 6,270,509 |
| Monthly | 7,836,353 |
| Daily | 3,034,560 |
| Total | 19,061,768 |

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 3-19 indicates the transmitted electricity quantities and transmission system losses in 2020 in comparison to the quantities planned for 2020 in the balance sheet. In comparison the balance sheet planned data, transmitted energy quantities were by around 3% lower while the losses were around 3% lower than the planned ones.

**Table 3-19: Basic indicators of transmission plan realisation (without APKM)**

| | 2020 | | |
|---|---|---|---|
| | Balance | Realised | Real./Bal. |
| Entry (GWh) | 41,109 | 39,928 | 97.13 |
| Losses (GWh) | 840 | 798 | 95.00 |
| Losses (%) | 2.04% | 2.00% | 98.04 |
| Exit (GWh) | 40,269 | 39,129 | 97.17 |

Realised physical electricity transit in 2020, 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 4,532 GWh. The physical transit per month is indicated in table 3-20.

**Table 3-20: Electricity transit by months of 2020 (physical flows)**

| Month | I | II | III | IV | V | VI | VII | VIII | IX | X | XI | XII |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Transit (GWh) | 354 | 410 | 334 | 384 | 381 | 354 | 411 | 299 | 393 | 373 | 427 | 412 |

On a part of the system without APKM, 39,928 GWh of electricity were withdrawn in total. Out of the number, 33,943 GWh were withdrawn from hydro power plants, thermal power plants and combined heat and power production plants connected to the transmission system, 905 GWh were withdrawn from wind power plants connected to the transmission system,4,847 GWh were withdrawn from neighbouring systems, while 221 GWh were withdrawn from the APKM territory. Because of the production of power plants connected to the distribution system which exceeded the demand in these parts of the distribution system, around 12 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 3-21: Transmitted energy, maximum load and losses (without APKM)**

| | Unit | 2019 | 2020 | 2020/2019 |
|---|---|---|---|---|
| Transmitted electricity | GWh | 39,640 | 39,928 | 100.7 |
| Maximum daily gross consumption | GWh | 121.47 | 121.11 | 99.7 |
| Maximum hourly load | MW | 5,472 | 5,436 | 99.3 |
| Transmission system losses | GWh | 806 | 798 | 99.0 |
| Transmission system losses (as % of transmitted electricity) | % | 2.03 | 2.00 | 98.5 |

In 2020, without APKM, electricity losses in the transmission system of Serbia amounted to 798 GWh, which represents 2.00% 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 2020. In a bilateral market, they purchased 68.52% and in SEEPEX 31.48% of electricity to cover losses in the transmission system. EMS JSC compensated for imbalance 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 2020, in Serbia, without APKM, average daily consumption which greatly depends on the average daily temperature amounted to 100,097 MWh. The highest daily gross consumption amounted to 121,114 MWh on January 17, 2020. On January 13, at 6 p.m., maximum 2020 hourly load was reached – 5,484 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 2020 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 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;
- activities on 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.

The DSO had an obligation prescribed 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 by the end of 2020 but they did not comply with it. Since these devices and equipment are a part of the distribution system, the DSO intensified activities on the takeover/transfer of this equipment which is why it is expected that this obligation will be complied with in the upcoming period.

***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 issues important for the operation of the distribution system. 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. There were no activities on the amendments to this Code in 2020.

### 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.

In 2020, electricity distribution on the territory of the Republic of Serbia was 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 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 2020 which is why the Agency Council did not approve the Annual Report on Implementation of Compliance Programme for Non-Discriminatory Behaviour for 2018 and 2019 by its decisions from September 2019 and January 2020.

In the end of 2020, in line with the Plan for Realisation of Activities Aimed at PE EPS Reorganisation, the Government and PE EPS agreed on the transfer of share within the distribution system operator – “*EPS Distribucija” d.o.o.* from PE EPS to the Government of RS on December 29, 2020. Following this, on 31/12/2020, the Government established a single member company “*Elektrodistribucija Srbije” d.o.o.* which will operate as the distribution system operator which is fully independent from the vertically-integrated PE EPS.

### 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 instalment 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 2020 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 2020, 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.

#### 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. During the whole 2020, the price established on November 8, 2019 was applicable.

**Table 3-22: 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 2020 for all customers amounted to 3.00 RSD/kWh (Table 3-23).

Table 3-23: Applied average distribution use-of-system charges

RSD/kWh

| Consumption category | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|
| 35 kV | 1.35 | 1.35 | 1.46 | 1.32 | 1.28 | 1.25 | 1.24 | 1.25 | 1.24 | 1.20 |
| 10 kV | 1.36 | 1.39 | 1.53 | 1.59 | 1.50 | 1.46 | 1.38 | 1.39 | 1.40 | 1.41 |
| Low voltage (0.4 kV I grade) | 3.22 | 3.19 | 3.68 | 4.22 | 4.12 | 3.95 | 3.86 | 3.81 | 3.79 | 3.84 |
| - 0.4 kV II grade | 2.63 | 2.72 | 3.16 | 3.75 | 3.71 | 3.81 | 3.82 | 3.82 | 3.84 | 4.02 |
| - households | 2.31 | 2.39 | 2.86 | 3.29 | 3.27 | 3.38 | 3.42 | 3.45 | 3.48 | 3.55 |
| Public lighting | 1.83 | 1.89 | 2.48 | 3.10 | 3.08 | 2.86 | 2.82 | 2.82 | 2.81 | 2.81 |
| AVERAGE | 2.23 | 2.14 | 2.66 | 3.01 | 2.96 | 2.98 | 2.96 | 2.95 | 2.95 | 3.00 |

Figure 3-6 indicates realized average electricity distribution use-of-system charges (VAT and duties free) for Serbia (without APKM) per customer category in 2020.

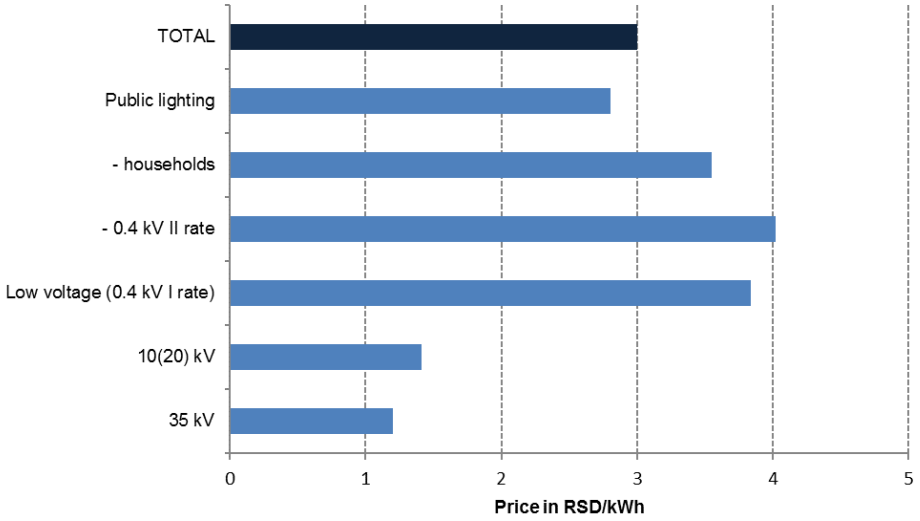


Figure 3-6: Average applied annual distribution use-of-system charge in 2020

In 2020, the Council of the Agency adopted a decision on the amendment to the Methodology for Setting Distribution Use-of-System Charge which enabled the extension of the validity of paragraphs 5 and 6 in Chapter XII APPLICATION OF METHODOLOGY as well as the exemption given in paragraph 7 of the Chapter.

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. These prices did not change and they were valid in 2020 as well.

### 3.4.3 Distributed electricity quantities

The electricity delivered to customers through the distribution system was mainly 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. The energy withdrawn from the power plants connected to the distribution system in 2020 amounted to by 13.2% more than in 2019. Because of production in power plants connected to the distribution system in areas with low electricity consumption, around 12 GWh of electricity were delivered from the distribution system into the transmission system which is by 7 GWh more, i.e. by 240% more than in 2019.

If one compares the percentages in 2020 and in 2019, electricity losses within the distribution system are higher in 2020 and they still exceed the technically justified ones. Increased losses in comparison to 2019 were due to changes in the operation of the whole power sector as a consequence of the COVID-19 virus pandemia which is why the availability of people working on the spot was reduced which lead to the lower level of regular maintenance, removal of defects, control and thereby to loss increase. 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. However, high losses were also due to a great number of 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 3-24: Electricity quantities distributed in 2011 – 2020**

GWh, %

| | | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2011 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Distributed - Total electricity withdrawn by the distribution system** | | **30,607** | **30,258** | **30,068** | **29,351** | **30,131** | **30,162** | **30,503** | **30,040** | **30,607** | **30,027** |
| | 29,922 | 30,183 | 29,965 | 29,078 | 29,778 | 29,712 | 29,964 | 29,397 | 29,922 | 29.333 | 29,389 |
| | 3.1 | 3.6 | 0.1 | 6.4 | 32.2 | 2.0 | 1.0 | 1.0 | 3.1 | 1,0 | 1.0 |
| | 48 | 73 | 104 | 267 | 321 | 448 | 538 | 642 | 48 | 693 | 612 |
| **Total delivered electricity quantities from the distribution system** | | **25,859** | **25,673** | **25,584** | **25,136** | **25,894** | **26,246** | **26,549** | **26,376** | **25,859** | **26,440** |
| | 25,857 | 25,677 | 25,586 | 25,130 | 25,863 | 26,147 | 26,425 | 26,240 | 25,857 | 26.374 | 26,358 |
| | 2.1 | 0.6 | 0.5 | 27.4 | 32.3 | 98.6 | 121 | 128 | 2.1 | 54 | 113 |
| | | | | | | | 3 | 8 | | 12 | 5 |
| **Losses in the distribution system** | | **4,747** | **4,586** | **4,482** | **4,215** | **4,236** | **3,917** | **3,953** | **3,664** | **4,747** | **3,587** |
| **Losses in the distribution system (as % of total withdrawn energy)** | | **15.5** | **15.1** | **14.9** | **14.4** | **14.1** | **13.0** | **13.0** | **12.2** | **15.5** | **11.95** |

## 3.5 Closed distribution systems

In the end of 2020, there were three energy entities holding a licence for electricity distribution and closed distribution system operation – the closed distribution system operator:

- closed distribution system operator “BELGRADE AIRPORT” d.o.o. Beograd,
- closed distribution system operator – 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), JSC, Novi Sad and
- closed distribution system operator “Limited Liability Company for Energy and Fluids Production and Distribution and Service Provision “ENERGETIKA”, Kragujevac, (ENERGETIKA).

Closed distribution system which is operated by the operator “BELGRADE AIRPORT” d.o.o. Beograd 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 2020, in total, the closed distribution system “BELGRADE AIRPORT” d.o.o. Beograd withdrew from the distribution system 21.8 GWh of electricity. Out of the quantity, 8.7 GWh were delivered to customers connected to the system while 13.1 GWh of electricity in total were consumed to cover the system demand and losses within the closed distribution system.

Closed distribution system which is operated by the system operator NIS is connected to the transmission system to 220 kV voltage level. The closed distribution system of NIS includes:

- 1 transformer station of 220/6 kV/kV with two transformers with total installed capacity of 63 MVA,

- 1 transformer station 35/6 kV/kV without a transformer since it keeps only 6 kV voltage level,
- 11 transformer stations of 6/0.4 kV/kV with 44 transformers with total installed capacity of 106 MVA,
- 0.15 km of overhead lines of 220 kV voltage level,
- 137 km of cables of 6 kV voltage level and
- 1,979 km of cables of 0.4 kV voltage level.

In 2020, NIS closed distribution system did not start operating.
Closed distribution system which is operated by the system operator "ENERGETIKA" is connected to the transmission system to 110 kV voltage level. The closed distribution system of "ENERGETIKA" includes:

- 1 transformer station of 110/35 kV/kV with two transformers with total installed capacity of 126 MVA,
- 1 transformer station 35/6 kV/kV with installed capacity of 36 MVA,
- 18 transformer stations of 6/0.4 kV/kV with total installed capacity of 55.7 MVA,
- 2.4 km of overhead lines of 35 kV voltage level,
- 19 km of cables of 35 kV of voltage level,
- 42 km of overhead lines of 6 kV voltage level and
- 30 km of cables of 6 kV voltage level.

In 2020, "ENERGETIKA" closed distribution system did not start operating.

## 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 2020 is given in figure 3-7.

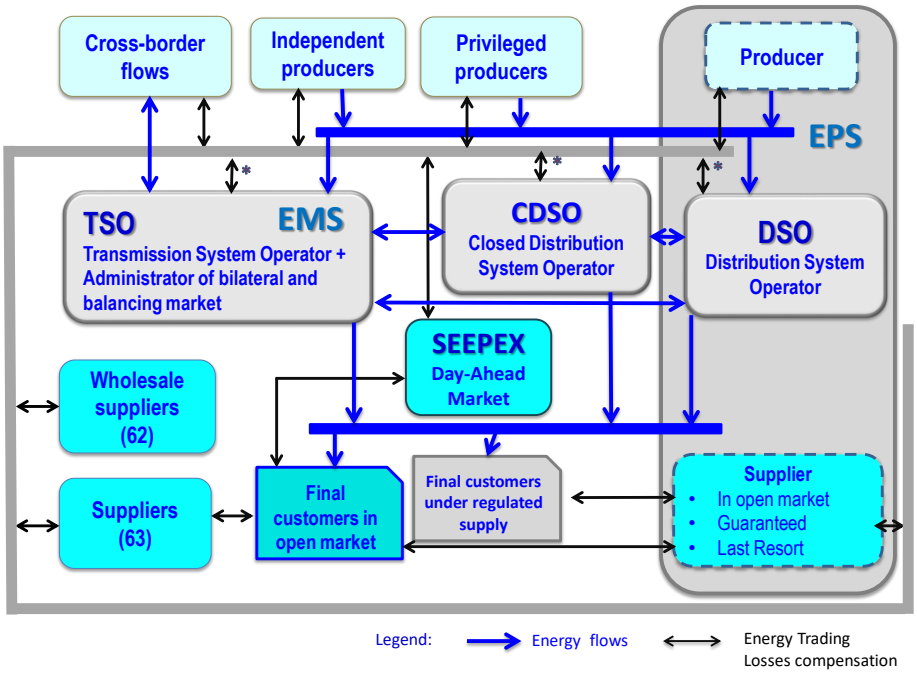


**Figure 3-7: Electricity market scheme in 2020**

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 2020, 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 2020, electricity import meant for customers' demand in Serbia was slightly lower than export. Export was dominant in March, August and September when it was almost 2 times higher than import. 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 was being decreased since the beginning of operation of organised electricity market, this trend was no longer present in 2020, which is why the scale of trade in bilateral market was 2.3 times higher than on the organised market (in 2019, the scale of trade in bilateral market was 1.5 times higher than in the organised market). The energy sale to final customers in the open market decreased slightly, i.e. by 1.02% in comparison to 2019.

The participation in the auctions for cross-border capacity allocation was facilitated by the organization of joint auctions with neighbouring system operators on most borders even entities which are not licenced in Serbia have access to cross-border capacities.

The right to nominate scheduling plans based on a relevant contract signed with EMS JSC in 2020 was held by 64 electricity market players which is by 12 participants less than in 2019. One of the causes of the reduction is the cease of the status of balancing responsible party of participants which each held two companies registered in our market area (one of them holding a code issued in Serbia, the other one with an international code). There were 57 active market participants which was 4 less than in 2019. Out of the number, there were 11 suppliers operating in the field of final customers' supply which is 2 suppliers fewer than during the previous year.

**Table 3-25: Number of market players entitled for scheduling 2011 - 2020**

| Year | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|
| Number of market players | 35 | 45 | 37 | 47 | 51 | 60 | 65 | 68 | 76 | 64 |

Total engaged balancing energy in 2020 meant for balancing daily scheduling of suppliers amounted to 935 GWh. Total weighted settlement price amounted to 35.1 €/MWh which is 9.2 €/MWh less than during the previous year. Taking into account the direction of balancing entities involvement, weighted settlement prices amounted to 56.7 €/MWh for upward engagement and 12.2 €/MWh for downward engagement.

Figure 3-8 indicates electricity quantities for each of suppliers' activities in 2019 and 2020.[7]

[7] All the data given in tables were submitted until February 15, 2021 and are entitled to modification in line with the Electricity Market Rules.

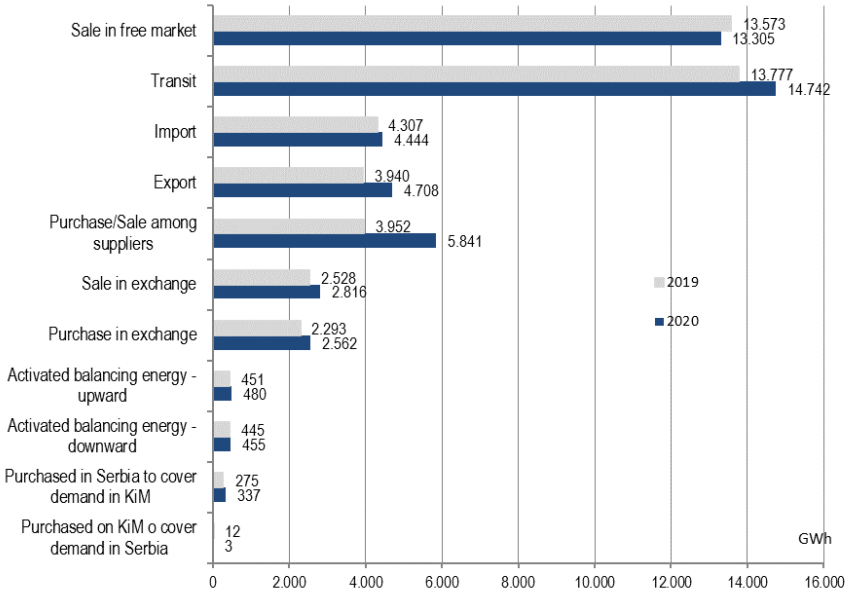


**Figure 3-8: Electricity quantities for each supplier activity in 2019 and 2020**

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. ALPIQ ENERGY SE, Prag
2. "HOLDING SLOVENSKE ELEKTRARNE" doo, Љубљана
3. Привредно друштво "ELMAKO-ENERGY" doo, Београд
4. Привредно друштво "NETWORK FOR TRADING" doo, Београд
5. Јавно предузеће "Електропривреда Србије" Београд
6. "ReNGRY Trading Group SR" doo, Београд
7. Привредно друштво "ENERGIA GAS AND POWER" д.о.о. Београд (Нови Београд)
8. "GROUP TRANS ENERGY OOD", Софија, Бугарска
9. Привредно друштво "TERNA ENERGY TRADING" doo, Нови Београд
10. GEN-I друштво са ограниченом одговорношћу Београд
11. "ENERGY FINANCING TEAM (SWITZERLAND) AG", St. Gallen, Švajcarska
12. STRATEGIC ENERGY TRADING SOCIETE ANONYME", Атина, Грчка
13. 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
14. ИНТЕРЕНЕРГО doo, Љубљана
15. Предузеће "ENERGY DELIVERY SOLUTIONS" д.о.о., Београд
16. "MVM Partner Energiakereskedelmi Zártkörűen Müködő Részvénytársaság", Budimpešta, Mađarska
17. ENERGY SUPPLY & TRADE doo, Београд - Савски венац
18. „ENERGY SUPPLY EOOD", Бугарска
19. „DANSKE COMMODITIES A/S", Архус, Данска
20. "AYEN ENERGY TRADING" doo Београд-Врачар
21. АХРО друштво са ограниченом одговорношћу, Београд
22. ПЕТРОЛ, Словенска енергетска дружба, д.д., Љубљана
23. "GRAND ENERGY DISTRIBUTION", Софија, Бугарска
24. “NOVA COMMODITIES“ друштво са ограниченом одговорношћу, Београд
25. GREEK ENVIRONMENTAL & ENERGY NETWORK S.A. - "GRE.EN", Pirej, Grčka
26. "ENERGI DANMARK A/S", Архус, Данска
27. „JAS Budapest” d.o.o. Subotica
28. ČEZ A.S, Праг, Чешка Република
29. EFT TRADE д.о.о., Београд
30. FREEPOINT COMMODITIES EUROPE LLP", Рединг, Велика Британија
31. "HSE BALKAN ENERGY" д.о.о. Друштво за инжењеринг и трговину
32. Привредно друштво за трговину електричном енергијом ENERGY MARKET doo, Пирот
33. Привредно друштво "ENERGOVIA EOOD", Софија, Бугарска
34. "ENEKO ENERGY" doo за производњу и трговину електричном енергијом, Кађ

35. Јединствено акционарско друштво "EVN TRADING SOUTH EAST EUROPE", Софија, Бугарска
36. „RESTART ENERGY" доо Београд-Нови Београд
37. "L-NRG Energiakereskedelmi ZRt", Будимпешта, Мађарска
38. ХРВАТСКА ЕЛЕКТРОПРИВРЕДА д.д., Загреб
39. Привредно друштво „ЕПЦГ“ д.о.о. Београд
40. GEN-I друштво са ограниченом одговорношћу Београд "
41. Предузеће "С.О.К." ДОО, Краљево

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

1. Привредно друштво "ENERGIA GAS AND POWER" д.о.о. Београд
2. Привредно друштво "NETWORK FOR TRADING" доо, Београд
3. "HOLDING SLOVENSKE ELEKTRARNE" доо, Љубљана
4. Привредно друштво "ELMAKO-ENERGY" доо, Београд
5. "ReNGRY Trading Group SR" доо, Београд
6. GEN-I друштво са ограниченом одговорношћу Београд "
7. Привредно друштво за трговину електричном енергијом ENERGY MARKET доо, Пирот
8. Привредно друштво "TERNA ENERGY TRADING" доо, Нови Београд
9. ALPIQ ENERGY SE, Праг
10. Јавно предузеће "Електропривреда Србије" Београд
11. ЕЛЕКТРОПРИВРЕДА ЦРНЕ ГОРЕ АД - НИКШИЋ, НИКШИЋ
12. "MVM Partner Energiakereskedelmi Zártkörűen Müködő Részvénytársaság", Будимпешта, Мађарска
13. “NOVA COMMODITIES“ друштво са ограниченом одговорношћу, Београд
14. 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
15. GEN-I друштво са ограниченом одговорношћу Београд
16. ИНТЕРЕНЕРГО доо, Љубљана
17. "AYEN ENERGY TRADING" доо Београд-Врачар
18. GREEK ENVIRONMENTAL & ENERGY NETWORK S.A. - "GRE.EN", Пиреј, Грчка
19. ENERGY SUPPLY & TRADE доо, Београд - Савски венац
20. „ENERGY SUPPLY EOOD", Бугарска
21. Привредно друштво "LC ELECTRICITY SUPPLY AND TRADING" доо, Београд
22. „RESTART ENERGY" доо Београд-Нови Београд
23. DANSKE COMMODITIES A/S", Архус, Данска
24. Привредно друштво за производњу промет и услуге "НОЛЕКО ДОО", ЧАЧАК
25. АХРО друштво са ограниченом одговорношћу,Београд
26. "ENERGY FINANCING TEAM (SWITZERLAND) AG", St. Gallen, Швајцарска
27. EFT TRADE д.о.о., Београд
28. ПЕТРОЛ, Словенска енергетска дружба, д.д., Љубљана
29. "ENERGI DANMARK A/S", Архус, Данска Предузеће "ENERGY DELIVERY SOLUTIONS" д.о.о., Београд
30. "FREEPOINT COMMODITIES EUROPE LLP", Рединг, Велика Британија
31. "Предузеће "С.О.К." ДОО, Краљево
32. "HSE BALKAN ENERGY" д.о.о. Друштво за инжењеринг и трговину
33. "MET SRB" д.о.о. Београд
34. АХРО друштво са ограниченом одговорношћу,Београд
35. GSA ENERGY доо, Београд
36. Привредно друштво „ЕПЦГ“ д.о.о. Београд
37. „JAS Budapest” d.o.o. Subotica
38. "GRAND ENERGY DISTRIBUTION", Софија, Бугарска
39. Привредно друштво "ENERGOVIA EOOD", Софија, Бугарска
40. "ENEKO ENERGY" доо за производњу и трговину електричном енергијом, Каћ
41. EVN Trading д.о.о. Београд
42. ТИТАН ЦЕМЕНТАРА КОСЈЕРИЋ друштво са ограниченом одговорношћу, Косјерић
43. ХРВАТСКА ЕЛЕКТРОПРИВРЕДА д.д., Загреб
44. Привредно друштво "SENTRADE RS" доо, Београд

This is the list of suppliers which imported electricity:

1. Мјешовити холдинг "ЕЛЕКТРОПРИВРЕДА РЕПУБЛИКЕ СРПСКЕ", Требиње
2. ALPIQ ENERGY SE, Праг
3. "HOLDING SLOVENSKE ELEKTRARNE" доо, Љубљана
4. Привредно друштво "ELMAKO-ENERGY" доо, Београд

5. Привредно друштво "NETWORK FOR TRADING" доо, Београд
6. "ENERGY FINANCING TEAM (SWITZERLAND) AG", St. Gallen, Швајцарска
7. ХРВАТСКА ЕЛЕКТРОПРИВРЕДА д.д., Загреб ČEZ A.S, Праг, Чешка Република
8. ИНТЕРЕНЕРГО доо, Љубљана
9. „DANSKE COMMODITIES A/S", Архус, Данска
10. Привредно друштво "TERNA ENERGY TRADING" доо, Нови Београд
11. "STATKRAFT MARKETS Gmbh", Дизелдорф
12. "MVM Partner Energiakereskedelmi Zártkörűen Müködő Részvénytársaság", Будимпешта, Мађарска
13. "STRATEGIC ENERGY TRADING SOCIETE ANONYME", Атина, Грчка
14. Предузеће "ENERGY DELIVERY SOLUTIONS" д.о.о., Београд
15. "ENERGI DANMARK A/S", Архус, Данска
16. ЕЛЕКТРОПРИВРЕДА ЦРНЕ ГОРЕ АД - НИКШИЋ, НИКШИЋ
17. "CENTRICA ENERGY TRADING A/S", Данска
18. ПЕТРОЛ, Словенска енергетска дружба, д.д., Љубљана
19. "FREEPOINT COMMODITIES EUROPE LLP", Рединг, Велика Британија
20. ENERGY SUPPLY & TRADE доо, Београд - Савски венац
21. Привредно друштво "ENERGOVIA EOOD", Софија, Бугарска
22. АХРО друштво са ограниченом одговорношћу, Београд
23. 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
24. ČEZ A.S, Праг, Чешка Република
25. "AYEN ENERGY TRADING" доо Београд-Врачар
26. "GRAND ENERGY DISTRIBUTION", Софија, Бугарска
27. ДРУШТВО ЗА ТРГОВИНУ "HEP-ENERGIJA" ДОО БЕОГРАД
28. Јавно предузеће "Електропривреда Србије" Београд
29. “NOVA COMMODITIES“ друштво са ограниченом одговорношћу, Београд
30. AXPO SOLUTIONS AG", Baden, Švajcarska
31. „JAS Budapest” d.o.o. Subotica
32. "ReNGRY Trading Group SR" доо, Београд
33. Привредно друштво "SENTRADE RS" доо, Београд
34. "MET SRB" д.о.о. Београд
35. "ENEKO ENERGY" доо за производњу и трговину електричном енергијом, Кањ
36. EVN Trading д.о.о. Београд
37. Привредно друштво „ЕПЦГ“ д.о.о. Београд
38. Предузеће "WATT AND VOLT" ДОО, Београд

This is the list of suppliers which exported electricity:

1. Јавно предузеће "Електропривреда Србије" Београд
2. Привредно друштво за трговину електричном енергијом ENERGY MARKET доо, Пирот
3. "STRATEGIC ENERGY TRADING SOCIETE ANONYME", Атина, Грчка ALPIQ ENERGY SE, Праг
4. "ENERGY FINANCING TEAM (SWITZERLAND) AG", St. Gallen, Швајцарска
5. Привредно друштво "NETWORK FOR TRADING" доо, Београд
6. Привредно друштво "TERNA ENERGY TRADING" доо, Нови Београд
7. Мјешовити холдинг "ЕЛЕКТРОПРИВРЕДА РЕПУБЛИКЕ СРПСКЕ", Требиње
8. ХРВАТСКА ЕЛЕКТРОПРИВРЕДА д.д., Загреб
9. "HOLDING SLOVENSKE ELEKTRARNE" доо, Љубљана
10. "CENTRICA ENERGY TRADING A/S", Данска
11. ИНТЕРЕНЕРГО доо, Љубљана
12. "ReNGRY Trading Group SR" доо, Београд
13. ALPIQ ENERGY SE, Праг
14. „DANSKE COMMODITIES A/S", Архус, Данска
15. "STATKRAFT MARKETS Gmbh", Дизелдорф
16. "MVM Partner Energiakereskedelmi Zártkörűen Müködő Részvénytársaság", Будимпешта, Мађарска
17. "ENERGI DANMARK A/S", Архус, Данска
18. ПЕТРОЛ, Словенска енергетска дружба, д.д., Љубљана
19. GREEK ENVIRONMENTAL & ENERGY NETWORK S.A. - "GRE.EN", Пирej, Грчка
20. Привредно друштво "ENERGOVIA EOOD", Софија, Бугарска
21. "AYEN ENERGY TRADING" доо Београд-Врачар
22. "FREEPOINT COMMODITIES EUROPE LLP", Рединг, Велика Британија
23. Привредно друштво "ELMAKO-ENERGY" доо, Београд
24. ЕЛЕКТРОПРИВРЕДА ЦРНЕ ГОРЕ АД - НИКШИЋ, НИКШИЋ

25. “NOVA COMMODITIES“ друштво са ограниченом одговорношћу, Београд
26. ČEZ A.S, Праг, Чешка Република
27. ENERGY SUPPLY & TRADE доо, Београд - Савски венац
28. „RESTART ENERGY" доо Београд-Нови Београд
29. AXPO друштво са ограниченом одговорношћу, Београд
30. AXPO SOLUTIONS AG", Баден, Швајцарска
31. Предузеће "ENERGY DELIVERY SOLUTIONS" д.о.о., Београд
32. 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
33. "ENEKO ENERGY" доо за производњу и трговину електричном енергијом, Кањ
34. Привредно друштво "SENTRADE RS" доо, Београд
35. GEN-I друштво са ограниченом одговорношћу Београд
36. "MET SRB" д.о.о. Београд
37. „JAS Budapest” d.o.o. Суботица
38. Привредно друштво „ЕПЦГ“ д.о.о. Београд

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

1. STRATEGIC ENERGY TRADING SOCIETE ANONYME", Атина, Грчка
2. "HOLDING SLOVENSKE ELEKTRARNE" доо, Љубљана
3. „DANSKE COMMODITIES A/S", Архус, Данска
4. "ENERGY FINANCING TEAM (SWITZERLAND) AG", St. Gallen, Швајцарска
5. ИНТЕРЕНЕРГО доо, Љубљана
6. "MVM Partner Energiakereskedelmi Zártkörűen Működő Részvénytársaság", Будимпешта, Мађарска
7. ALPIQ ENERGY SE, Праг
8. Предузеће "ENERGY DELIVERY SOLUTIONS" д.о.о., Београд
9. GREEK ENVIRONMENTAL & ENERGY NETWORK S.A. - "GRE.EN", Пирej, Грчка
10. ПЕТРОЛ, Словенска енергетска дружба, д.д., Љубљана
11. AXPO друштво са ограниченом одговорношћу, Београд
12. "STATKRAFT MARKETS Gmbh", Дизелдорф
13. "AYEN ENERGY TRADING" доо Београд-Врачар
14. AXPO SOLUTIONS AG", Baden, Швајцарска
15. Привредно друштво „ЕПЦГ“ д.о.о. Београд
16. Привредно друштво "ELMAKO-ENERGY" доо, Београд
17. EVN Trading д.о.о. Београд
18. „ENSCO ENERGY SERVICES COMPANY AG", Cham, Швајцарска
19. ХРВАТСКА ЕЛЕКТРОПРИВРЕДА д.д., Загреб
20. “NOVA COMMODITIES“ друштво са ограниченом одговорношћу, Београд
21. ENERGY SUPPLY & TRADE доо, Београд - Савски венац
22. Предузеће "WATT AND VOLT" ДОО, Београд
23. "ENERGI DANMARK A/S", Архус, Данска
24. "EZPADA S.R.O.", Праг
25. Привредно друштво "NETWORK FOR TRADING" доо, Београд
26. "GRAND ENERGY DISTRIBUTION", Софија, Бугарска
27. "ReNGRY Trading Group SR" доо, Београд
28. "FREEPOINT COMMODITIES EUROPE LLP", Рединг, Велика Британија
29. 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
30. Привредно друштво за трговину електричном енергијом ENERGY MARKET доо, Пирот
31. "ENERGO-PRO TRADING JSC", Бугарска
32. "ENEKO ENERGY" доо за производњу и трговину електричном енергијом, Кањ
33. "ELPETRA ENERGY" AD, Софија, Бугарска
34. Привредно друштво "ENERGOVIA EOOD", Софија, Бугарска
35. "MET SRB" д.о.о. Београд
36. „JAS Budapest” d.o.o. Суботица
37. Друштво за трговину "HEP-ENERGIJA" д.о.о. Београд

In 2020, based on the data submitted by electricity suppliers (commercial data), transit was increased by 7%, export was icreased by 19% and import was increased by 0.3% in comparison to the previous year. Export was meaningful in March, August, September and October when almost twice as high quantities of energy were exported than during other months. The import was on the highest level in January and December 2020 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 2020 is indicated in Figure 3-9.

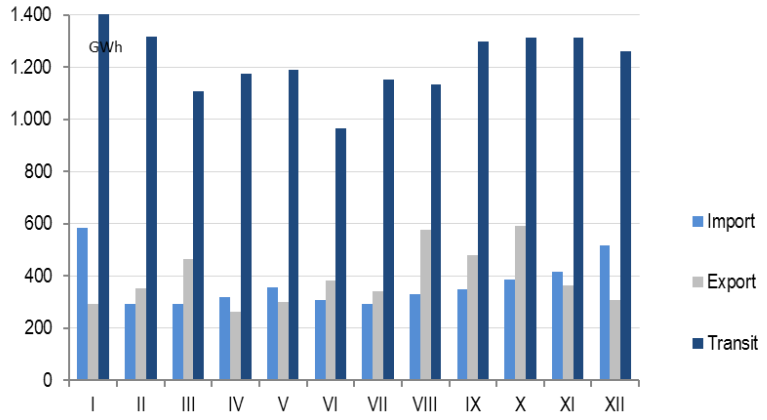


**Figure 3-9: Import, export and transit of suppliers in 2020**

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 2020, the level of purchase of PE EPS from other suppliers was not significant, except in January and December when 295 GWh were purchased. During the whole year, PE EPS' sale of electricity to other suppliers was meaningless except in March and August when PE EPS' sale amounted to 121 GWh, i.e. 71 GWh. The trade between other suppliers was on a high level during the whole year and it was the most intensive in December when 700 GWh of electricity were traded.

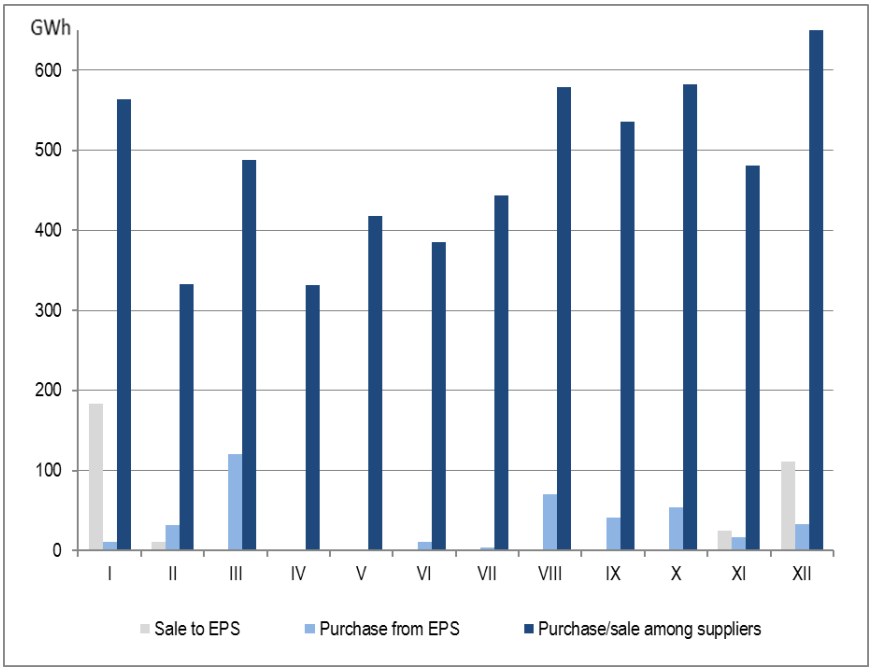


**Figure 3-10: Purchase/sales between suppliers, i.e. between suppliers and PE *EPS* in 2020**

Relevant indicators of development level and electricity market concentration in Serbia (without APKM) in 2020 are given in Table 3-26. 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[8] and
- evaluation of market concentration level per individual activities[9].

[8] 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.

[9] Market concentration limits are the following:

HHI < 1000 – not concentrated

**Table 3-26: Electricity market concentration level in Serbia in 2020**

| 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 | 2,816 | 42 | 1,191 | 938 | Low |
| Purchase | 2,562 | 42 | 1,083 | 892 | Low |
| **Trade between suppliers in bilateral market** | | | | | |
| Sale | 5,840 | 45 | 2,645 | 935 | Low |
| Purchase | 5,838 | 31 | 1,797 | 647 | Low |
| **Sale of electricity to final customers in open market** | | | | | |
| Sale | 13,305 | 99 | 13,214 | 9,125 | High |

Out of 57 active suppliers, 5 suppliers (*Привредно друштво "NETWORK FOR TRADING" доо, Београд, "HOLDING SLOVENSKE ELEKTRARNE" доо, Љубљана "ENERGY FINANCING TEAM (SWITZERLAND) AG", St. Gallen, Швајцарска, Привредно друштво "ELMAKO-ENERGY" доо, Београд и ALPIQ ENERGY SE, Праг*) 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 during the first two years of power exchange operation. 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 by one third higher than last year. Retail market concentration is very high. There is even slight decrease of concentration in comparison to 2019 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 2020, 29,039 GWh were sold and delivered to final customers (without the power plants consumption meant for production), which is 0.3% less that the total quantities delivered in 2017 when the greatest quantity of electricity was delivered in the past ten years. Table 3-27 indicates electricity consumption in Serbia (without APKM) in the period 2011-2020, including electricity producers withdrawn from the transmission system in order to meet their own demand.

**Table 3-27: Electricity consumption structure in the period 2011-2020**

GWh

| Consumption category | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2020/2019 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Households | 14,666 | 14,517 | 14,147 | 13,802 | 14,062 | 13,931 | 13,815 | 13,415 | 13,340 | 13,718 | 102.8 |
| Other customers connected to low | 5,640 | 5,585 | 5,580 | 5,322 | 5,546 | 5,665 | 5,746 | 5,756 | 5,707 | 5,376 | 94.2 |
| Customers connected to low voltage in total | **20,305** | **20,102** | **19,727** | **19,124** | **19,608** | **19,596** | **19,561** | **19,171** | **19,047** | **19,094** | **100.2** |
| Customers connected to medium voltage (10, | 5,553 | 5,570 | 5,856 | 5,985 | 6,254 | 6,550 | 6,865 | 7,069 | 7,311 | 7,280 | 99.6 |
| Customers connected to high voltage (110 kV) | 2,751 | 2,312 | 2,415 | 2,555 | 2,669 | 2,673 | 2,695 | 2,798 | 2,649 | 2,665 | 1106 |
| Electricity delivered to final customers | **28,609** | **27,984** | **27,998** | **27,664** | **28,531** | **28,819** | **29,121** | **29,038** | **29,007** | **29,039** | **100.1** |
| TPP and HPP consumption to cover | 476 | 473 | 503 | 401 | 416 | 391 | 394 | 427 | 467 | 429 | 91.9 |
| **Total consumption** | **28,487** | **29,085** | **28,457** | **28,501** | **28,065** | **28,947** | **29,210** | **29,515** | **29,465** | **29,474** | **100.0** |

1001 < HHI < 2000 - moderately concentrated
HHI >2001 - highly concentrated market

In comparison to 2019, final customers consumption (without the consumption of power plants for production purposes) in 2020 was higher only by 0.1% (it was identical to 2018 consumption). Households consumption increased by 2.8% (378 GWh) and consumption of customers on high level by 0.6% (16 GWh). On the other hand, in comparison to previous year, there was a considerable drop of consumption with other customers connected to low level of 5.8% (331 GWh) while the consumption of customers connected to the medium voltage was lower by 0.4% (31 GWh). One may assume that the cause of the increase in electricity consumption in households and, on the other hand, of the decrease in consumption with other customers connected to the low voltage was the crisis as a result of COVID – 19 virus pandemia. The reason for an increased household consumption was the introduction of emergency measures from March till May 2020 in Serbia which is why a great share of population spent most of the day at their homes, especially in case of service sector. In addition, work at home was common during most of the 2020. On the other hand, a great number of small and medium-size companies, especially in the service sector did not work with full capacity which resulted in the reduction of consumption of other customers connected to the low voltage. Weather did not affect the consumption in households to a great extent since winter temperatures were approximately the same as in 2019 but due to longer stay at homes in comparison to 2019 there was an increase in consumption in winter months in 2020. Producers withdrew 8.1% less 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.

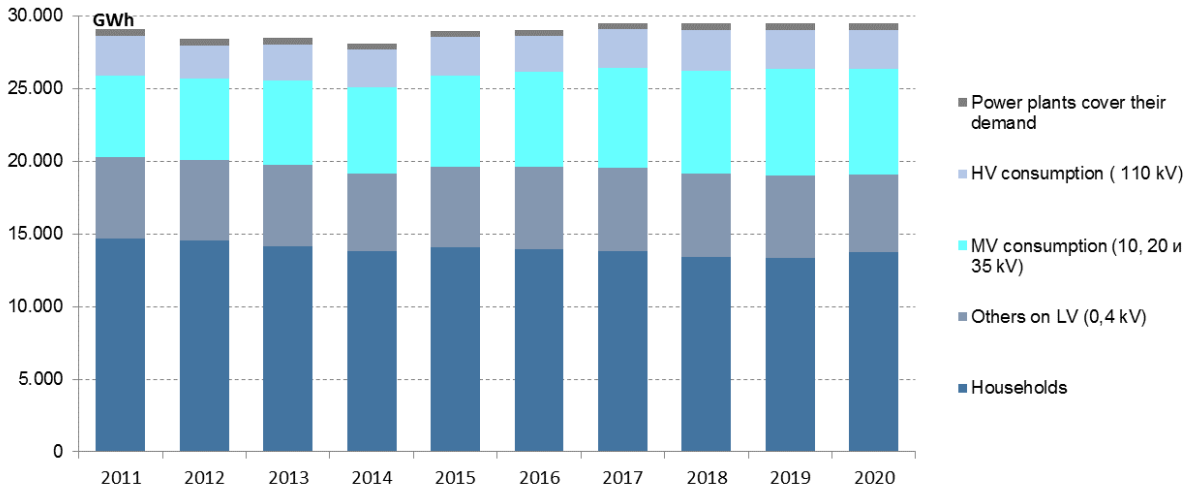


**Figure 3-11: Electricity consumption structure in Serbia in the period 2011-2020 (without APKM)**

The total number of delivery 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 2020 amounted to 3,690,708. Compared to 2019, the number was increased by 0.7%.

**Table 3-28: Number of metering points in 2019 and 2020**

| Consumption category | 2019 | 2020 | 2020/2019 |
|---|---|---|---|
| Households | 3,261,631 | 3,281,525 | 100.6% |
| Other customers connected to low voltage (0.4 kV) | 396,945 | 403,891 | 101.7% |
| Customers connected to medium voltage (10, 20 and 35 kV) | 5,055 | 5,240 | 103.7% |
| Customers connected to high voltage (110 kV) | 58 | 52 | 89.7% |
| **Total number of metering points** | **3,663,689** | **3,690,708** | **100.7%** |

#### 3.6.1.2.2 Sale of electricity to final customers

Since 2014, all customers except for households and small customers have been obliged to purchase electricity in the open market. The market was fully open in 2015 when 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 to purchase electricity at regulated prices. The right to guaranteed supply is given to small customers and households.

**Table 3-29: Electricity sale in retail market in 2020**

GWh

| | 2019 | 2020 | 2020/2019 |
|---|---|---|---|
| Regulated market | 14,637 | 14,935 | 102.0% |
| Open market | 14,370 | 14,104 | 98.1% |
| Supply at open prices | 14,261 | 14,032 | 98.4% |
| Supply of the last resort | 109 | 72 | 66.1% |
| **Total sale** | **29,007** | **29,039** | **100.1%** |

Total sale of electricity sold to final customers (without power plants consumption for generation purposes) in 2020 amounted to 29,039 GWh. In comparison to 2019, it was increased by 0.1% (32 GWh). On the regulated market, 2% (298 GWh) more electricity was sold while 1.9% (266 GWh) less electricity was sold in the open market in comparison to 2019 (out of the number 37 GWh less electricity was sold via the supply of the last resort in comparison to 2019).

Supplies who supplies final customers in the open market:

1. Јавно предузеће "Електропривреда Србије", Београд
2. Привредно друштво "ENERGIA GAS AND POWER" доо, Београд
3. "NOVA COMMODITIES" друштво са ограниченом одговорношћу, Београд
4. Друштво за трговину "HEP-ENERGIJA" доо. Београд
5. Привредно друштво за производњу промет и услуге "НОЛЕКО ДОО", Чачак
6. EFT TRADE доо, Београд
7. „RESTART ENERGY" доо, Београд
8. "TWINFIN TESLA" доо, Београд
9. 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
10. Предузеће "С.О.К." ДОО, Краљево
11. ПЕТРОЛ друштво за трговину нафтом и нафтним дериватима доо, Београд

#### 3.6.1.2.3 Electricity sale in the regulated market

In 2020, 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 2020. In 2019, 51.1% of electricity which was consumed by final customers in total were delivered in the regulated market, which is 0.7% more than in 2019 (in 2019, 1.5% less energy was delivered in the regulated market in comparison to 2018). Electricity quantities delivered in the regulated market for each consumption category for the period 2015-2020 are indicated in Table 3-30. In the end of 2020, 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 2020, 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 50.36 €/MWh in on the Hungarian exchange (HUPX) for base load, i.e. 60.33 €/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. 28.07 €/MWh, calculated with the average € exchange rate for 2020. 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 3-30: Electricity quantities delivered in the regulated market**

| Consumption category | Electricity quantities delivered in the regulated market (GWh) | | | | |
|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 |
| Low voltage (0.4 kV I grade) | 830 | 526 | 321 | 247 | 231 |
| - 0.4 kV II grade | 1,307 | 1,212 | 1,101 | 1,048 | 990 |
| - households | 13,926 | 13,808 | 13,401 | 13,326 | 13,701 |
| Public lighting | 76 | 48 | 28 | 16 | 13 |
| **TOTAL guaranteed supply** | **16,139** | **15,594** | **14,851** | **14,637** | **14,935** |

Table 3-31 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 3-31: Average annual regulated prices for final customers (VAT and duties free)**

RSD/kWh

| Consumption category | Realised average annual price | | | | |
|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2019 |
| Low voltage (0.4 kV I grade) | 10.08 | 10.50 | 11.31 | 11.43 | 12.21 |
| - 0.4 kV II grade | 8.55 | 8.84 | 8.91 | 8.96 | 9.39 |
| - households | 6.49 | 6.73 | 6.84 | 6.88 | 7.14 |
| Public lighting | 6.39 | 6.55 | 6.53 | 6.56 | 6.80 |
| Total low voltage | 6.84 | 7.02 | 7.09 | 7.10 | 7.36 |
| TOTAL AVERAGE guaranteed supply (as universal service) | **6.84** | **7.02** | **7.09** | **7.10** | **7.36** |

Prices of active energy for mass consumption which includes households and small customers did not change in 2020 and they remained on the same level as in December last year. Based on consumption of this category achieved in 2020, 64% of energy spent in the green zone, 34% in the blue zone and 2% in the red zone.

**Table 3-32: Prices for mass consumption customer category for each consumption zone**

| Customer category | | Consumed active energy | Prices* |
|---|---|---|---|
| **Mass consumption** | | **(MWh)** | **(RSD/kWh)** |
| Public supplier's expenditure | | | 137.93 |
| Calculation power | | | 44.196 |
| Active energy | | | |
| HT green | up to 350 kWh | 4,844,719 | 6.196 |
| LT green | up to 350 kWh | 2,452,923 | 1.549 |
| ST green | up to 350 kWh | 2,104,174 | 5.421 |
| HT blue | 351-1600 kWh | 2,584,365 | 9.294 |
| LT blue | 351-1600 kWh | 1,623,674 | 2.323 |
| ST blue | 351-1600 kWh | 813,076 | 8.132 |
| HT red | over 1600 kWh | 145,235 | 18.588 |
| LT red | over 1600 kWh | 84,961 | 4.647 |
| ST red | over 1600 kWh | 38,251 | 16.264 |
| **Total** | | **14,691,378** | |

*Prices are given without VAT (20%) and duty (7.5%)
HT (High Tariff)
LT (Low Tariff)
ST (Single Tariff)

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 2020 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%.

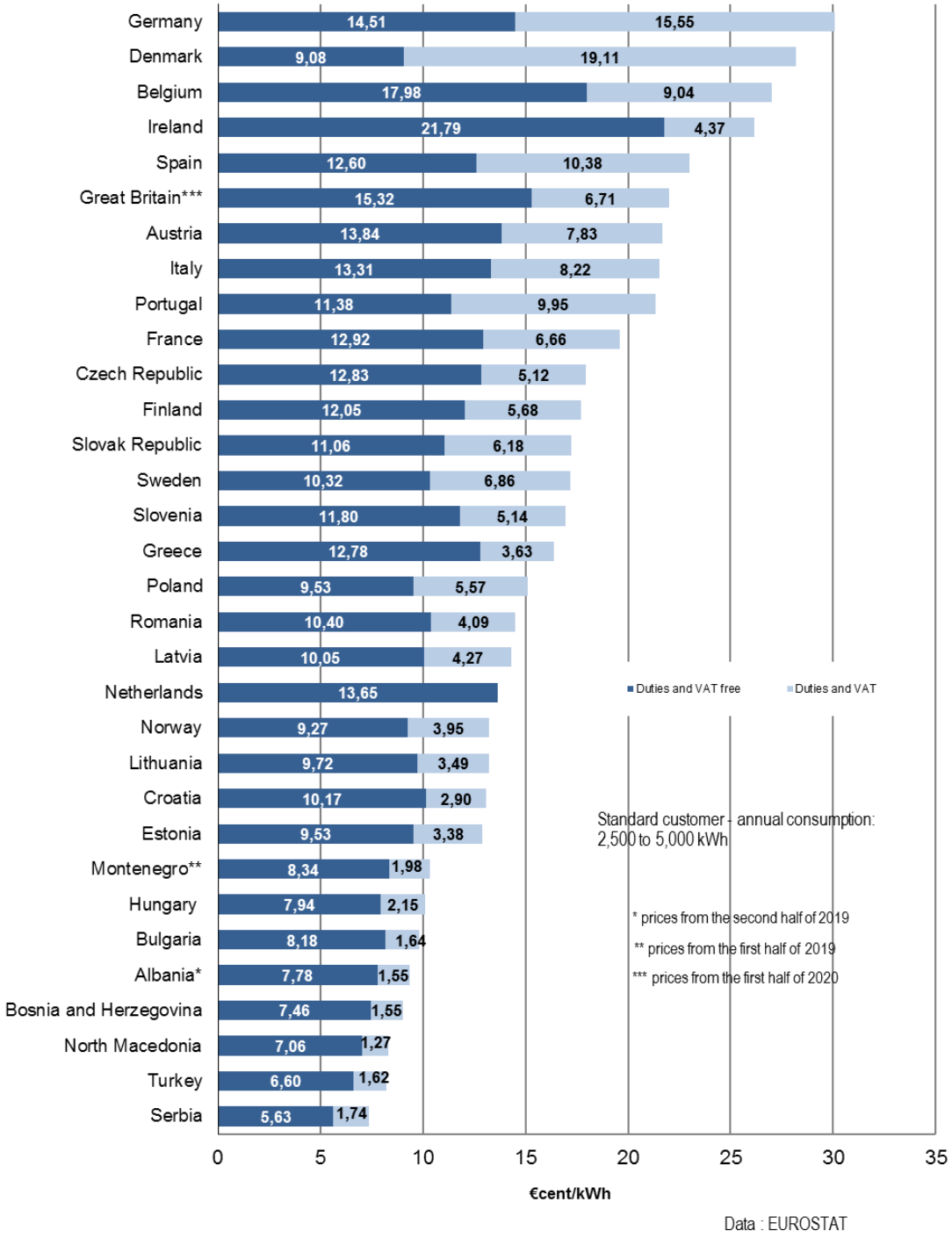


**Figure 3-12: Electricity prices for households – second half of 2020**

Figure 3-13 indicates a more detailed structure of retail electricity price for households in some of European capitals in December 2020. 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).

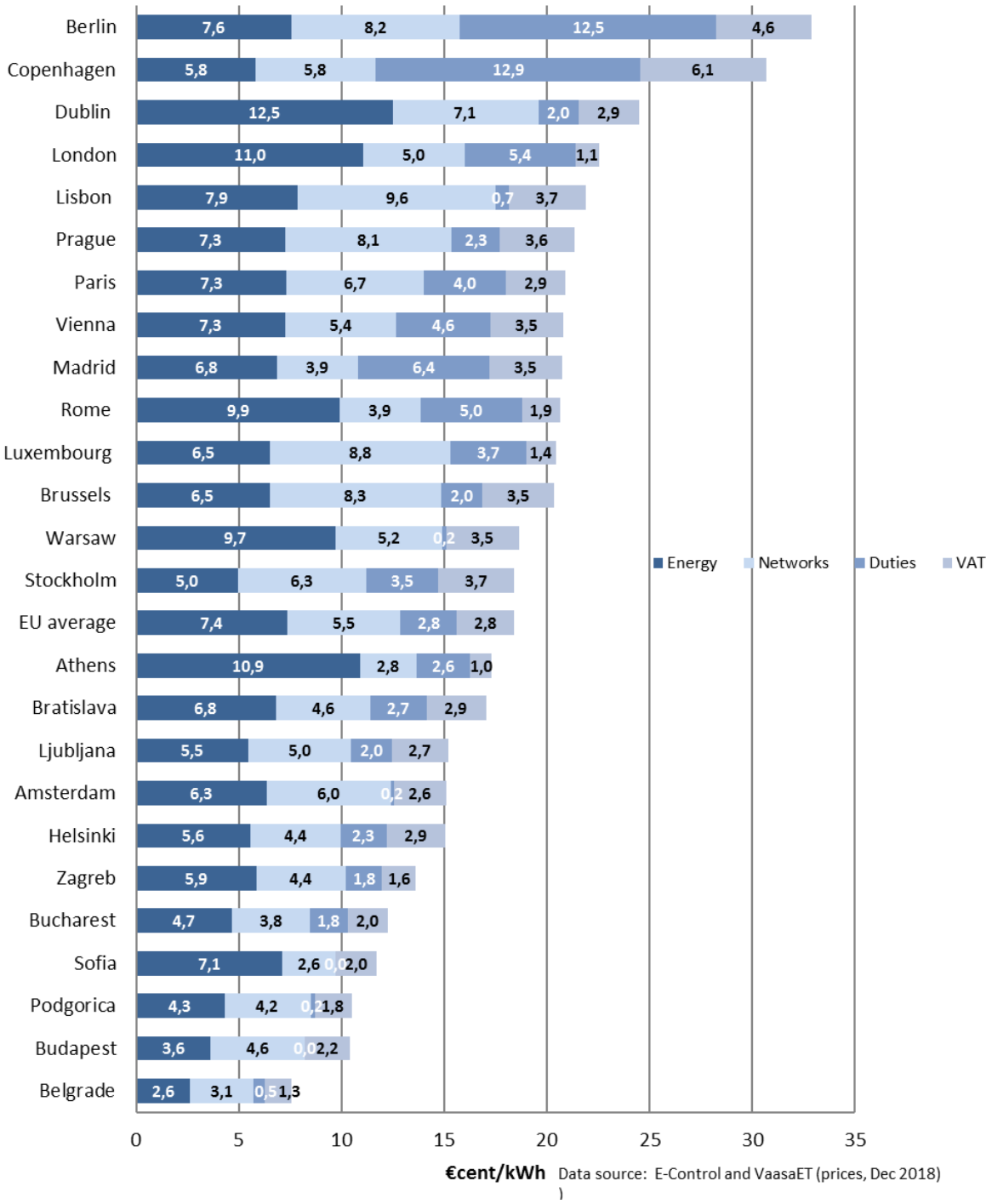


**Figure 3-13: Structure of retail electricity price for households in some of European capitals in December 2020**

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 2020. 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, Amsterdam and Stockholm, the ratio between salaries and electricity price is more favourable than in Serbia.

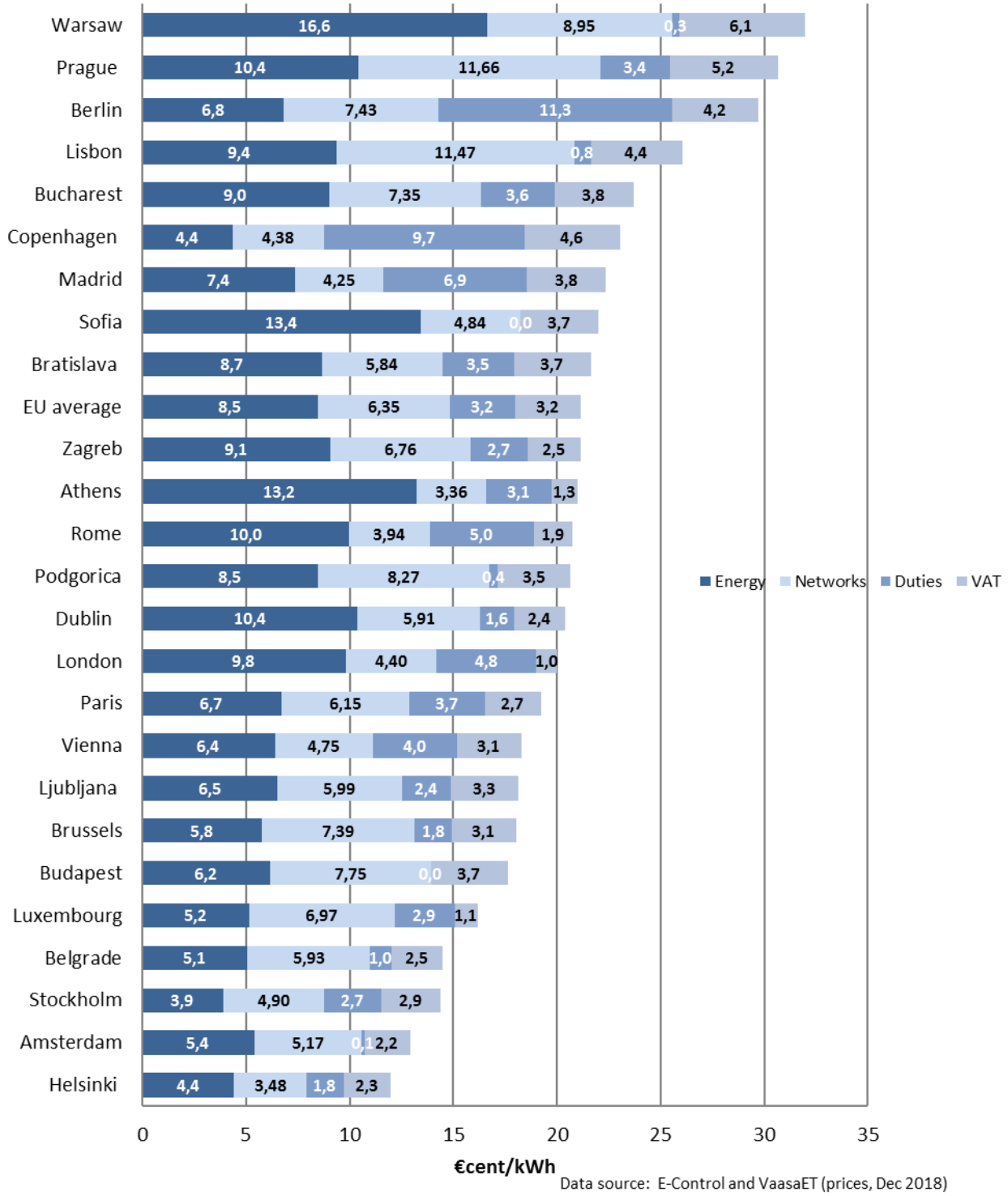


**Figure 3-14: Electricity final price structure for households in some European capitals in December 2020 at purchase power parity**

In 2020, 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), Norway, Turkey as well as to the EU member states – Finland, and Sweden.

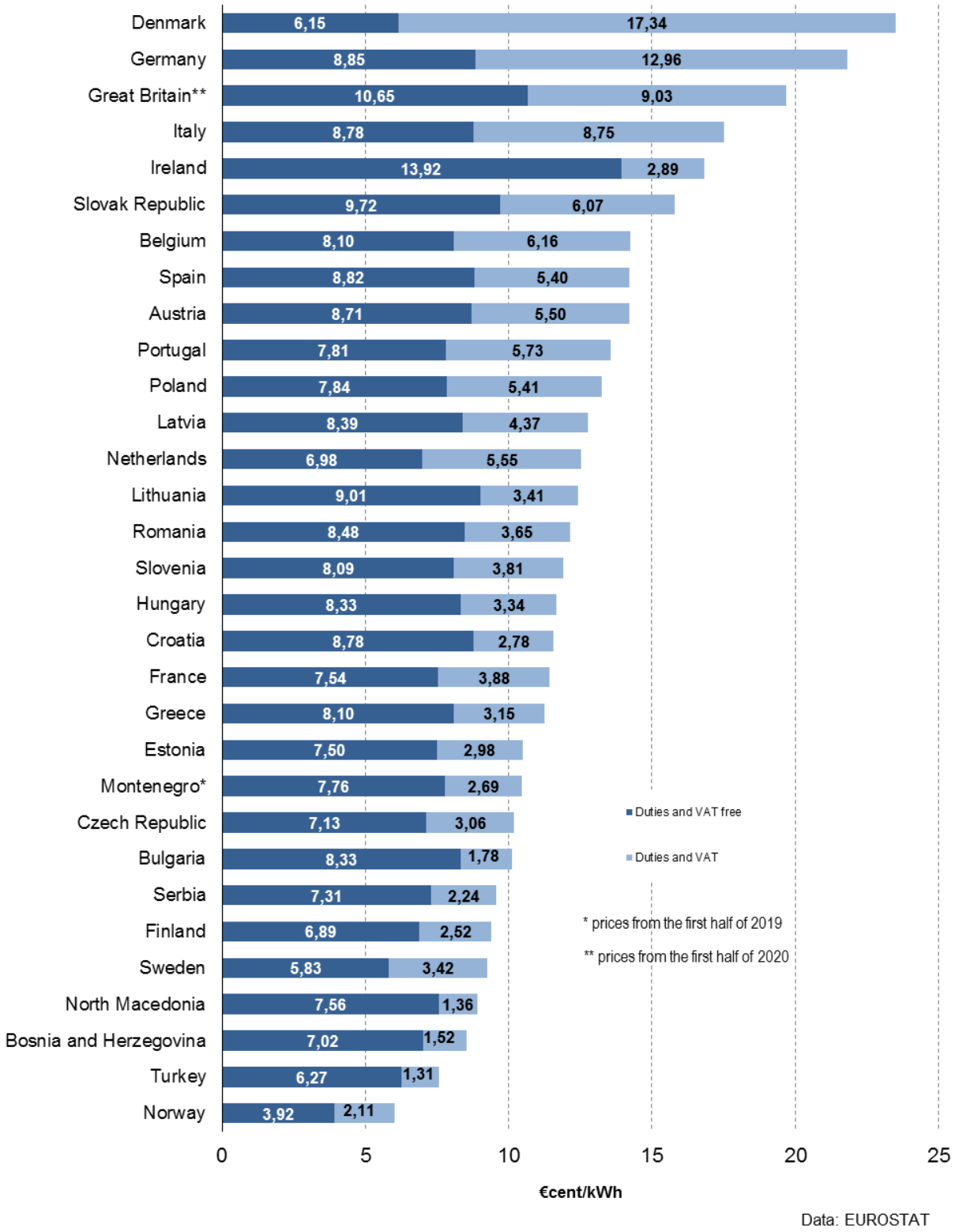


**Figure 3-15: Electricity prices for industry – second half of 2020**

#### 3.6.1.2.4 Electricity sale in the open market

Since 2015, all final customers are entitled to purchase electricity in the open market. In 2020, 14,032 GWh of electricity were delivered in the open market, excluding the energy delivered via supply of the last resort, which amounts to 48% of final customers' consumption. To customers in the open market, among which households account for 2.3 thousands (apartments owned by companies which purchase electricity in the open market), electricity was delivered to 137 thousand metering points.

**Table 3-33: Electricity quantities delivered in the open market in 2020**

| Consumption category | Electricity quantities delivered in the open market (GWh) | | | | |
|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 |
| High voltage (110 kV) | 2,474 | 2,696 | 2,798 | 2,637 | 2,653 |
| 35 kV | 1,051 | 1,049 | 1,006 | 1,101 | 1,148 |
| 10 kV | 5,341 | 5,737 | 6,022 | 6,176 | 6,105 |
| **Total high and medium voltage** | **8,866** | **9,482** | **9,826** | **9,914** | **9,906** |
| Low voltage (0.4 kV I grade) | 2,219 | 2,555 | 2,788 | 2,863 | 2,680 |
| - 0.4 kV II grade | 683 | 799 | 918 | 979 | 951 |
| - households | 5 | 7 | 13 | 14 | 17 |
| Public lighting | 465 | 465 | 472 | 491 | 478 |
| **Total low voltage** | **3,372** | **3,826** | **4,191** | **4,374** | **4,126** |
| **TOTAL** open supply | **12,238** | **13,308** | **14,017** | **14,261** | **14,032** |

Out of 64 energy entities which were licenced for electricity supply in the end of 2020, 11 of them were active in the open retail market.

**Table 3-34: Electricity quantities sold to final customers in the open market - for each supplier in 2020**

| Supplier | Quantity (GWh) | Share (%) |
|---|---|---|
| Јавно предузеће "Електропривреда Србије" Београд | 12,702 | 95.47% |
| Привредно друштво "ENERGIA GAS AND POWER" д.о.о. Београд (Нови Београд) | 444 | 3.34% |
| "NOVA COMMODITIES" друштво са ограниченом одговорношћу, Београд | 68 | 0.51% |
| ДРУШТВО ЗА ТРГОВИНУ "HEP-ENERGIJA" ДОО БЕОГРАД | 27 | 0.20% |
| Привредно друштво за производњу промет и услуге "НОЛЕКО ДОО", ЧАЧАК | 25 | 0.19% |
| EFT TRADE д.о.о., Београд | 13 | 0.10% |
| RESTART ENERGY" доо Београд-Нови Београд | 8 | 0.06% |
| "TWINFIN TESLA" доо, Београд | 5 | 0.04% |
| 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 | 4 | 0.03% |
| Предузеће "С.О.К." ДОО, Краљево | 4 | 0.03% |
| ПЕТРОЛ друштво за трговину нафтом и нафтним дериватима д.о.о. Београд | 2 | 0.02% |

PE EPS remained the dominant supplier with a share of 95.5% of the total electricity sold to final customers in the open market (without energy sold within vertically integrated company) and with a share of 96.9% of the total final consumption.

**Table 3-35: Average annual retail prices in the open market for final customers (VAT and duties free)**

RSD/kWh

| Consumption category | Average annual price | | | | |
|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 |
| High voltage (110kV) | 5.51 | 5.33 | 5.69 | 6.05 | 6.43 |
| 35 kV | 6.42 | 6.07 | 6.52 | 8.87 | 6.94 |
| 10 kV | 6.60 | 6.35 | 6.91 | 7.44 | 7.97 |
| Total high and medium voltage | 6.34 | 6.07 | 6.56 | 7.29 | 7.50 |
| Low voltage (0/4 kV I grade) | 9.02 | 8.76 | 9.30 | 10.24 | 10.24 |
| - 0.4 kV II grade | 8.44 | 8.54 | 9.02 | 9.94 | 10.15 |
| - households | 9.03 | 8.82 | 8,97 | 9.86 | 10.19 |
| Public lighting | 7.57 | 7.35 | 7.51 | 8.14 | 7.98 |
| Total low voltage | 8.70 | 8.54 | 9.03 | 9.93 | 9.95 |
| TOTAL AVERAGE | 7.01 | 6.80 | 7.33 | 8.13 | 8.25 |

The structure of retail prices in the open market in 2020 is given in the table below.

**Table 3-36: 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 | 6.4 |
| Transmission price | 0.5 |
| Electricity price | 5.9 |
| MEDIUM VOLTAGE (35 kV + 10 (20)kV) | |
| Total price | 7.8 |
| Distribution price | 1.4 |
| Electricity price | 6.4 |
| MEDIUM VOLTAGE - (35 kV) | |
| Total price | 6.9 |
| Distribution price | 1.2 |
| Electricity price | 5.7 |
| MEDIUM VOLTAGE - (10/20 kV) | |
| Total price | 8.0 |
| Distribution price | 1.4 |
| Electricity price | 6.6 |
| LOW VOLTAGE (0.4 kV I rate) | |
| Total price | 10.2 |
| Distribution price | 3.5 |
| Electricity price | 6.7 |
| MASS CONSUMPTION | |
| Total price | 10.2 |
| Distribution price | 3.4 |
| Electricity price | 6.7 |
| MC (Mass c.) – Commercial and other (0.4 kV II rate) | |
| Total price | 10.2 |
| Distribution price | 3.4 |
| Electricity price | 6.7 |
| MC - household | |
| Total price | 10.2 |
| Distribution price | 3.4 |
| Electricity price | 6.8 |
| PUBLIC LIGHTING | |
| Total price | 8.0 |
| Distribution price | 2.8 |
| Electricity price | 5.2 |
| **TOTAL SALE ON DISTRIBUTION NETWORK** | |
| **Total price** | 8.6 |
| Distribution price | 2.1 |
| Electricity price | 6.5 |
| **TOTAL ON TRANSMISSION AND DISTRIBUTION NETWORK** | |
| **Total price** | 8.2 |
| Network price | 1.9 |
| Electricity price | 6.4 |

Being the supplier of the last resort, PE *EPS* delivered 72 GWh of electricity to customers, i.e. 0.2% 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 2016-2020 are given in Table 3-37.

**Table 3-37: Electricity quantities delivered under the supply of the resort regime**

| Consumption category | Electricity quantities delivered under the supply of the resort regime (GWh) | | | | |
|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 |
| High voltage (110kV) | 5 | 0 | 0 | 12 | 12 |
| 35 kV | 16 | 6 | 0 | 0 | 0 |
| 10 kV | 142 | 72 | 40 | 34 | 27 |
| **Total high and medium voltage** | **163** | **78** | **40** | **46** | **39** |
| Low voltage (0/4 kV I grade) | 48 | 72 | 54 | 31 | 18 |
| - 0.4 kV II grade | 19 | 27 | 25 | 15 | 4 |
| - households | 0 | 0 | 0 | 0 | 0 |
| Public lighting | 18 | 40 | 50 | 17 | 11 |
| **Total low voltage** | **85** | **139** | **129** | **63** | **33** |
| **TOTAL SUPPLY OF THE LAST RESORT** | **248** | **217** | **169** | **109** | **72** |

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 below:

**Table 3-38: Average annual price of the supplier of the last resort for final customers (VAT and duties free)**

RSD/kWh

| Consumption category | Average annual price | | | | |
|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 |
| High voltage (110kV) | 8.28 | - | - | 9.12 | 9.01 |
| 35 kV | 9.64 | 8.66 | 8.48 | 10.47 | - |
| 10 kV | 9.77 | 8.75 | 8.70 | 10.17 | 9.96 |
| Total high and medium voltage | 9.71 | 8.74 | 8.69 | 9.91 | 9.65 |
| Low voltage (0/4 kV I grade) | 12.03 | 10.96 | 10.76 | 12.40 | 11.95 |
| - 0.4 kV II grade | 10.86 | 10.34 | 10.50 | 12.17 | 12.38 |
| - households | 12.07 | 10.38 | 10.79 | 12.11 | 12.63 |
| Public lighting | 10.42 | 9.59 | 9.63 | 11.20 | 11.16 |
| Total low voltage | 11.39 | 10.48 | 10.31 | 12.02 | 11.75 |
| TOTAL AVERAGE | 10.34 | 9.85 | 9.88 | 11.12 | 10.55 |

The total realised average electricity price in the retail market in Serbia which relates to all types of trade in electricity amounts to 7.79 RSD/kWh or 6.63 €c/kWh, if calculated in line with the average Euro exchange rate for 2020. The structure of this total average price for each voltage level, customer category and group separately is given in the table below:

**Table 3-39: 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 | | | | |
|---|---|---|---|---|---|
| | 2016 | 2017 | 2018 | 2019 | 2020 |
| High voltage (110kV) | 5.52 | 5.33 | 5.69 | 6.07 | 6.45 |
| 35 kV | 6.47 | 6.08 | 6.52 | 8.87 | 6.94 |
| 10 kV | 6.66 | 6.37 | 6.92 | 7.45 | 7.98 |
| Total high and medium voltage | 6.39 | 6.09 | 6.57 | 7.31 | 7.50 |
| Low voltage (0/4 kV I grade) | 9.35 | 9.10 | 9.53 | 10.36 | 10.41 |
| - 0.4 kV II grade | 8.54 | 8.74 | 8.98 | 9.45 | 9.77 |
| - households | 6.49 | 6.73 | 6.84 | 6.88 | 7.14 |
| Public lighting | 7.50 | 7.40 | 7.60 | 8.19 | 8.01 |
| Total low voltage | 7.18 | 7.34 | 7.53 | 7.76 | 7.92 |
| TOTAL AVERAGE | 6.94 | 6.94 | 7.22 | 7.61 | 7.79 |

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 3-40: Review of realised average annual prices for each activity in 2020**

| Activity | Structure | Price |
|---|---|---|
| | | RSD/MWh |
| Wholesale market | Sale to other suppliers | 5.54 |
| | Sale on the exchange | 4.62 |
| | Export | 5.00 |
| | Total wholesale price | 5.15 |
| Transmission | Access to the transmission network | 0.26 |
| | Losses in the transmission network | 0.12 |
| | Ancillary services and capacity reserve | 0.11 |
| | Transmission – total | 0.50 |
| Distribution | Access to the distribution network | 2.14 |
| | Losses in the distribution network | 0.86 |
| | Distribution – total | 3.00 |
| Retail | Public supply at regulated prices | 7.36 |
| | Supply of the last resort | 10.40 |
| | Supply of eligible customers at market prices | 8.25 |
| | Retail – total | 7.79 |
| Other | Additional costs (taxes and duties) | 2.40 |
| Final customers - average | | 9.95 |
| - industrial customers (out of the total number) | | 10.79 |
| - households (out of the total number) | | 9.01 |

#### 3.6.1.2.5 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 3-41: Supplier switching for metering points separately in 2020**

| Consumption category | Number of metering points | | | Electricity delivered (MWh, %) | | |
|---|---|---|---|---|---|---|
| | Total | With the supplier switch | % | Total | At metering points with new supplier | % |
| High voltage | 52 | 1 | 1.92 | 2,874,000 | 61,998 | 2.18 |
| Medium voltage (35 kV) | 140 | | 2.86 | 1,148,389 | 3,813 | 0.33 |
| Medium voltage (10 and 20 kV) | 5,100 | 292 | 5.73 | 6,131,718 | 346,346 | 5.65 |
| Low voltage - (0.4kV I grade) | 41,867 | 1,654 | 3.95 | 2,928,437 | 129,110 | 4.41 |
| Mass consumption – Commercial and other (0.4kV II grade) | 338,825 | 5,252 | 1.55 | 1,945,798 | 44,563 | 2.29 |
| Public lighting | 23,199 | 3,837 | 16.54 | 501,667 | 69,843 | 13.92 |
| Households | 3,281,525 | 148 | 0 | 13,718,126 | 641 | 0 |
| Total | **3,690,708** | **11,188** | **0.3** | **29,221,136** | **656,314** | **2.25** |

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 2019, the total number of supplier switching procedures per delivery point decreased from 0.43% to 0.30%, while the percentage of the share of electricity quantity which was subject to supplier switching decreased from 2.80% to 2.25%. In contrast to last year, there was one supplier switch in 2020 with customers with facilities connected to the transmission system (110 kV voltage level). There was a more significant drop in supplier switching on the distribution level with all customer categories.

### 3.6.2 Guarantee of origin

Guarantees of origin are electronic documents which have an exclusive function to provide evidence to a final customer that the given share or energy quantity which was delivered by a supplier was produced from the renewable sources. They include the piece of information on the characteristics of production for MWh of electricity and they are used for determination of the structure of sources which are used to provide the consumed electricity. Guarantees of origin provide electricity customers to express their interest for “green” energy and to stimulate power generation which contributes to power system development under environment-friendly conditions from their side.

In 2017, the Decree on Guarantees of Origin entered into force and a Rulebook on Method of Calculation and Presentation of Share of All Energy Sources in Electricity Sale was adopted. In December 2017, EMS AD Beograd adopted Rules on Issuance of Guarantees of Origin for the Republic of Serbia. On December 22, 2017, the Council of the Energy Agency of the Republic of Serbia approved the Decision on Fee for Issuance, Transfer and Cease of Validity of Guarantee of Origin which created all conditions for the beginning of a new market process – Issuance and Administration of Guarantees of Origin for Electricity in Control Area of the Republic of Serbia. During the General Assembly of the members of the Association of Issuing Bodies (AIB) which was held on September 27, 2019 in Reykjavik, EMS AD was awarded with the full-member status in AIB. In November 2020, after complying with all the conditions for full membership and following the provision of necessary insurance, EMS AD was connected to the AIB system (AIB HUB) and, thereby, both the export of guarantees of origin from Serbia into the countries which are the Association members and the import of the guarantees of origin into Serbia were enabled. Hereby, Serbia became the first Energy Community Contracting Party which became the member of the Association of Issuing Bodies.

Thereby power producers in Serbia were given an opportunity to sell the guarantees of origin all around Europe while, on the other hand, suppliers, who are obliged to provide insight into data on the share of all types of energy sources and on the data on total electricity quantities which were sold to a final customer, can provide guarantees of origin abroad, too.

EMS AD Beograd registers participants in the system of guarantees of origin and organizes informative presentations in order to provide all necessary pieces of information to interested parties and to make them familiar with new market process. The current structure of registered participants in the Registry of Guarantees of Origin reads:

- Eligible producer, supplier and wholesale supplier – 2
- Supplier and wholesale supplier – 6
- Eligible producer – 2

The total number of issued guarantees of origin in the period from the first issued guarantee of origin (November 2018) until January 2020 amounted to 207,509, while there were 200,087 guarantees of origin issued only in 2020. The number of imported guarantees of origin in the period since import was enabled via AIB until the end of 2020 amounted to 84,449 while there have been no exported guarantees of origin so far.

### 3.6.3 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 2020, there were 60 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 2020, the balancing group members were modified 129 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 2020, 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 2020, *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 the end of 2020, a new Contract on Operation of SMM Block was signed and harmonized with the most recent European regulations. During the whole 2020, 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, total engaged balancing energy during all calculation periods amounted to 935.4 GWh[10], for which the total weighted settlement price amounted to 35.1 €/MWh. It amounts to 9.2 €/MWh less than last year. Bearing in mind the direction of activated balancing entities, the weighted settlement price amounted to 56.7 €/MWh for upward activation and 12.2 €/MWh for downward activation.

### 3.6.4 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 the activities in this market is available on the website www.seepex-spot.com. In 2020, there were 22 participants registered in the power exchange which means that there were three more participants than in 2019. 18 participants were active in the trade, the same case as in 2019. 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 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 2020 amounted to 2,816,007 MWh which is 11% more than in 2019. 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 9.7% while 21.2% 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 32.5%. 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 2020, the greatest monthly scale of trade was recorded in October – 311,732 MWh. The maximum daily scale was reached on October 2 with the trade scale of 13,978 MWh. The lowest monthly trade scale was recorded in July and it amounted to 191,179 MWh which is by 13% higher than in the minimum month of the last year. The maximum hourly price was recorded on December 17, at 5 p.m. and it amounted to 165.6 €/MWh. Average base price on the annual level amounted to 39 €/MWh.

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

### 3.6.5 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 2020, 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). As of September 1, 2019, Rules on the Publication of Key Market Data which are harmonized with amendments to guidelines for the implementation of the EU Regulation 543/2013 which were adopted by ENTSO-E are applicable.

### 3.6.6 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 2020, 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. 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 intraday) cross-border transmission capacity allocation (CACM), it was reviewed whether and how EnC Contracting Parties apply the Recommendations for Adoption of Regulatory Measures Supporting Early Implementation of Day-Ahead Market Coupling in the EnC Contracting Parties which were adopted by the Energy Community Regulatory Board in April 2019. In 2020, it was not possible to apply their Recommendations in the Republic of Serbia since 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. 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 did not consider additionally the draft ECRB Recommendation for Adoption of Regulatory Measures Supporting Early Implementation of Coordinated Calculation of Cross-Border Transmission Capacity in EnC which was proposed by the Energy Community Secretariat in 2019. In the end of 2020, an Energy Community Ministerial Council meeting was held and proposed amendments to the Energy Community Treaty were not adopted. Thereby, critical issues on reciprocity and competence of ACER towards the Energy Community Contracting Parties were not removed. Until further notice, the implementation of the EU market network codes (CACM) in the Energy Community Contracting Parties was disabled. The Energy Community Secretariat presented a proposal of an alternative plan for early implementation of the EU market network codes (CACM) in the Energy Community Contracting Parties by creating two parallel structure of daily and intraday coupled market (EU SDAC and in the EnC) with a separate bilateral contract to be concluded in cases of market coupling between an Energy Community Contracting Party and an EU member state. In 2020, the ENTSO-E working group for the southeastern Europe considered this proposal of the Energy Community Secretariat and concluded that such a solution could send wrong signals in the EU and Energy Community Contracting Parties markets. There was also active cooperation between the ECRB and the Agency for the Cooperation of Energy Regulators (ACER) via the fourth joint workshop dedicated to issues related to the electricity market integration and to the application of the EU Regulation 1222/2015 (CACM). In 2020, no activity of the management board for day-ahead market integration (DAMI PSC) within the WB6 initiative was recorded which is why regulatory bodies did not harmonise their positions within the ECRB Electricity Working Group.

During 2020, 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 interactively via a new automatized platform within the Energy Community Secretariat website which facilitated the data update procedure greatly, as well as the access of interested parties to these pieces of information.

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[11] 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),

[11] 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.

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 2020, negotiations were continued but there was not progress made in this matter.

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. *EMS* JSC concluded multiannual contracts on emergency energy exchange on commercial basis with transmission system operators of Hungary (MAVIR) in 2019, Croatia (HEP-OPS) in 2018 and Romania (Transelectrica) in 2017. In 2020, the contract on emergency energy exchange signed on natural basis for indefinite period of time between *EMS* JSC and the Bulgarian transmission system operator was valid. Contracts on the exchange of cross-border tertiary control energy 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.

In 2020, EMS JSC concluded 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. 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). The Scheduling Agreement from 2019 with the transmission system operator of Hungary (MAVIR) which is being harmonized is valid. In 2020 a Scheduling Agreement was concluded with the transmission system operators of Montenegro (CGES) and North Macedonia (MEPSO).

***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. The Memorandum of Understanding between ACER and EnC Secretariat was signed in 2016 and according to it, electricity wholesale and retail market monitoring in Contracting Parties would be a part of the ACER report but ACER abandoned an idea to include the data on wholesale market from EnC Contracting Parties in their report. For this reason, in the period from 2016 to 2020, ECRB Working Groups for electricity, customers and retail market performed market monitoring within their activities in line with the indicators used for market monitoring which are used by ACER in the EU to the extent which is currently applicable to all Energy Community Contracting Parties but in line with different level of market development in comparison to the EU member States with ECRB publishing an annual report. In 2020, an agreement was reached between the ECRB and ACER on having data from Contracting Parties on the electricity wholesale market monitoring included in the ACER report on market monitoring in the agreed scale and structure.

Based on the Guidelines for Regulatory SEE Market Monitoring which were approved by the ECRB in 2014, during 2020, 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 an annual report. In November 2020, ECRB published the annual report for 2019 on cross-border capacity monitoring. In 2020, the rotation of Contracting Parties as SEEAMMS platform administrators was organised each two months.

In 2020, within the ECRB Working Group for Customers and Retail Market, data were collected and a report was made on retail electricity market monitoring based on data from 2019. In 2020, there was a follow-up in the work of the joint working group between the representatives of the ECRB and the CEER on drafting a report on result of monitoring electricity and natural gas delivery quality in the EU countries and in the EnC Contracting Parties. It is expected that this report will be completed by mid-2021. In 2020, the report with a review of legislation in the EnC Contracting Parties in terms of prosumers was completed.

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 "Light REMIT" Regulation. In 2020, three REMIT working group meetings were held. A Procedural Act was drafted by the working group, i.e. regulatory recommendation was drafted and the Energy Community Regulatory Board adopted it on August 7, 2020. The purpose of this regulatory recommendation is to: 1) establish the ground for the coordination of national regulatory bodies of the Contracting Parties in the field of their tasks arising from the "Light REMIT" Regulation; define the cooperation process via ECRB; 3) harmonise formats used by regulators; 4) make a draft of actions to be taken by the ECRB and 5) settle issues of confidentiality related to the data and information exchange.

## 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 2020, 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 2020, 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 2011-2020 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.

In comparison to 2019, the unplanned interruptions indicators considerably deteriorated in 2020, both in terms of undelivered electricity as well as of power failure where indicators were increased even three times in comparison to last year level. The causes of this are the disruptions in the transmission system during 2020: first of all, the disruption in TS Pančevo 2 on 03/06/2020 and the failure on the overhead line 106AB in February as well as the disruption in TS Smederevo 3 on 06/07/2020. The indicators for planned interruptions deteriorated considerably. Power failure was 3.4 times higher than last year. The increase in the power failure and thereby in the undelivered electricity due to planned interruptions is a consequence of planned works within the transmission system, the connection of new transmission system elements and the overhaul of existing ones.

The indicators for power failure and undelivered electricity for unplanned interruptions in the last ten-year period are given in table 3-42.

**Table 3-42: Indicators of discontinuity in delivery within the transmission network in the period 2011 - 2020**

| Interruptions | | Power failure – undelivered power | ENS | ENS |
|---|---|---|---|---|
| | | MW | MWh | % |
| **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 |
| **2020** | | | | |
| | Planned | 676 | 1,162 | 0.0035 |
| | Unplanned | 2,856 | 978 | 0.0029 |
| | Total | 3,535 | 2140 | 0.0064 |

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.

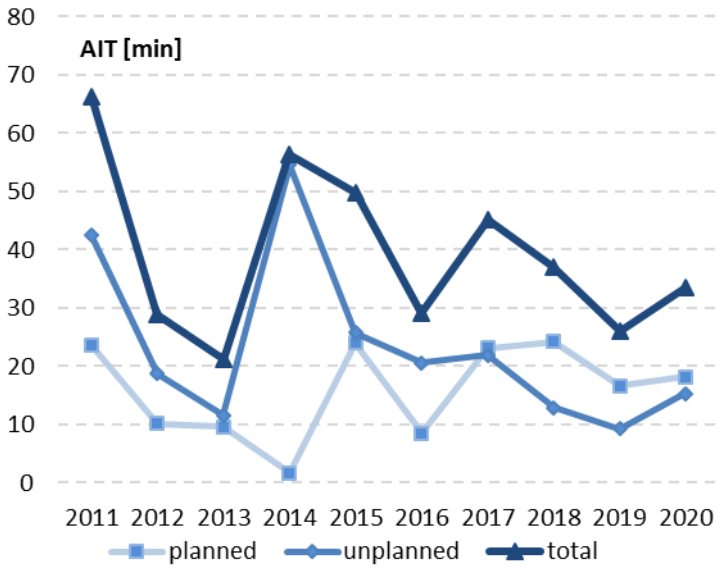


**Figure 3-16: Average duration of supply interruption**

In 2020, there was an increase in the average duration of planned interruptions from 16.66 minutes to 18.22 minutes. Average duration of unplanned interruption was considerably higher than last year and it amounts to 15.34 minutes which is 1,64 times longer than 9.31 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 2020. Unplanned interruptions which were caused by transmission system operator were considerably greater than last year due to disruptions within the transmission system during 2020: first of all, the disruption in TS Pančevo 2 on 03/06/2020 and the failure on the overhead line 106AB in February as well as the disruption in TS Smederevo 3 on 06/07/2020.

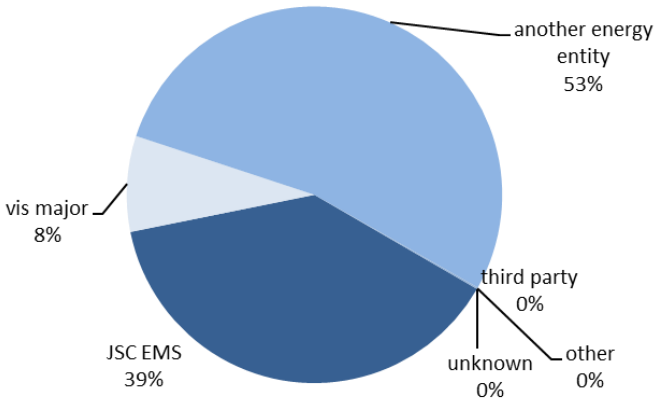


**Figure 3-17: Causes of unplanned interruptions and their share in undelivered energy due to unplanned interruptions in 2020**

#### 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[12] – average frequency of interruptions per each user, and
- SAIDI[13] – average duration of interruptions in minutes per user.

The indicators of continuity of delivery in the distribution network for the period 2016-2020, separately for planned and unplanned interruptions and jointly are given in Figure 3-18.

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

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

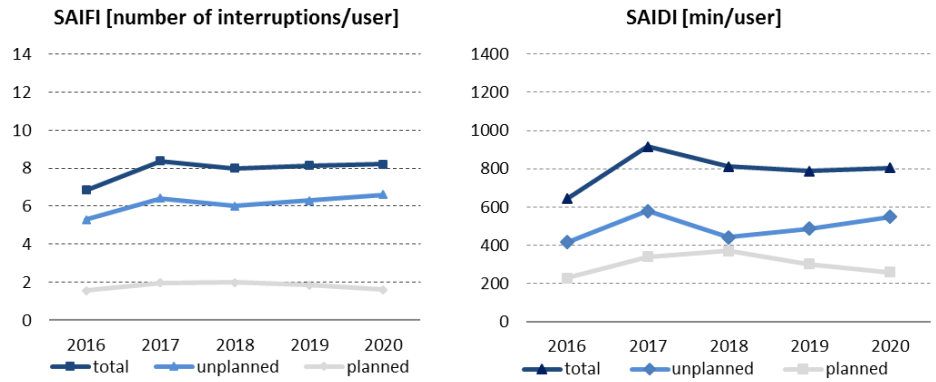


**Figure 3-18: SAIFI and SAIDI for the period 2016 - 2020**

There was slight deterioration with continuity indicators for unplanned interruptions in the distribution network in Serbia in 2020. Average frequency of unplanned interruptions was increased from 6.29 to 6.61 interruptions per user, while average duration of unplanned interruptions per user was increased by 60 minutes, from 486 to 547 minutes. Average frequency of planned interruptions was reduced from 1.85 to 1.60 interruptions per user while the average duration of planned interruptions per user was reduced by 43 minutes, from 302 to 252 minutes. Indicators values are on the level of last five years which is significantly higher than in the EU countries[14]. 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.

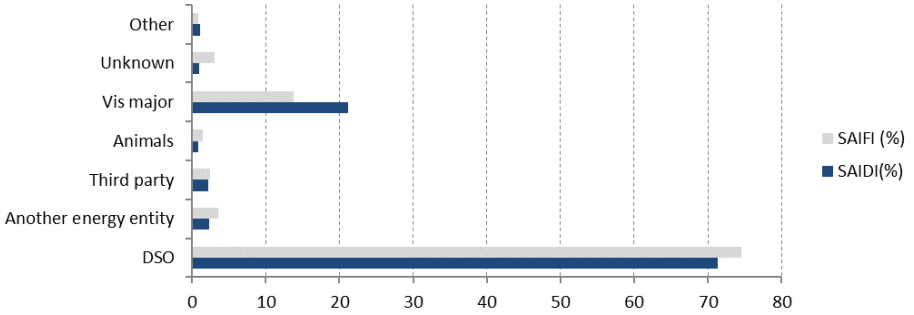


**Figure 3-19: Share of causes of unplanned interruptions in SAIFI and SAIDI for 2020**

The share of certain causes of interruptions in the number and duration of unplanned interruptions differs in comparison to 2019. The share of unplanned interruptions caused by vis major and another energy entity is slightly 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 2019. 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.

### 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.

[14] 6th CEER Benchmarking Report on the Quality of Electricity and Gas 2016.

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 2020, 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 centres.

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 2020 are given in Table 3-43 for different voltage levels, for medium voltage (MV), low voltage (LV) separately and in total.

**Table 3-43: Connection applications by voltage levels and in total in 2020**

| Connection applications | | | MV | LV | Total |
|---|---|---|---|---|---|
| Number | of submitted applications | | 476 | 24,705 | 25,181 |
| | of settled applications | 383 | 16,898 | 17,281 | 17,257 |
| | | 4 | 337 | 341 | 153 |
| | | 58 | 4,790 | 4,848 | 5,058 |
| | | 445 | 22,025 | 22,470 | 22,493 |
| | | 215 | 1,534 | 13,749 | 12,388 |
| % | Settled applications in comparison to the submitted ones | | 93 | 89 | 89 |
| | Applications approving connection in comparison to the number of settled ones | | 86 | 77 | 77 |
| | Settled applications within 15 days for final customers, 45 days for producers | | 48 | 61 | 61 |
| Average time | Necessary for settlement – given in days (final customers/producers) | | 23/40 | 18/28 | 20/30 |

In comparison to last year - 2019, the number of submitted applications for connection, as well as the number of decisions approving connections is by 20% higher for connections to the medium voltage network, while there was a slight increase on the low voltage network. Average time necessary for settling applications for connection for final customers amounts to between 18 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 3-44: Connection of facilities/metering points by voltage levels in 2020**

| Connection | | MV | LV | Total |
|---|---|---|---|---|
| Number | of connected facilities/metering points | 176 | 32,463 | 32,639 |
| | of facilities connected/metering points within 8 days' period | 170 | 27,525 | 27,695 |
| % | of facilities connected/metering points within 8 days' period | 97 | 85 | 85 |
| Average time – given in days | Necessary for connection since the day all the conditions are met | 5 | 8 | 8 |

In 2020, around 2,111 facilities/metering points fewer were connected than in 2019. Indicators describing connection of facilities/metering points (Table 3-43) were considerably improved on medium voltage. 97% of connections were performed

with average time necessary for connection since the day conditions are met two days longer and it amounts to 7 days. On low voltage, indicators describing connection of facilities/metering points deteriorated by 3%. 85% of connections were performed within 15 days. The average time necessary for connection since the day conditions are met was one day longer and it amounts to 8 days.

In 2020, there were 26,893 disruptions upon suppliers' request, registered due to unsettled liabilities as regards electricity in the prescribed deadline, which is by 68% less than in 2019. The average time of reconnection upon the removal of causes of disruption/disconnection amounted to 1.6 days, i.e. upon unjustified disruption/disconnection, it amounted to 1.1 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 3,664,600 meters in 2020 (which accounts for 99.25% out of total 3,692,183 of metering devices) and 167,994 of them were checked, i.e. 5% of the planned checks. Out of the number, with 16,989 meters, i.e. 10% of them, irregularities were recorded. 222,789 extraordinary checks of metering points were requested by customers and energy entities. The checks were performed for 207,090 metering points (which represents around 93% of requested checks, while a certain number of checks was performed based on last year requests). Out of the number of extraordinary checks of 207,090 metering points, irregularities were notices on 11% of them, i.e. on 22,607 metering points and irregularities were removed in 22,338 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 95% 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 2020, 0.6% out of total number of bills issued regularly – 42,691,390 were revised. 56% 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.

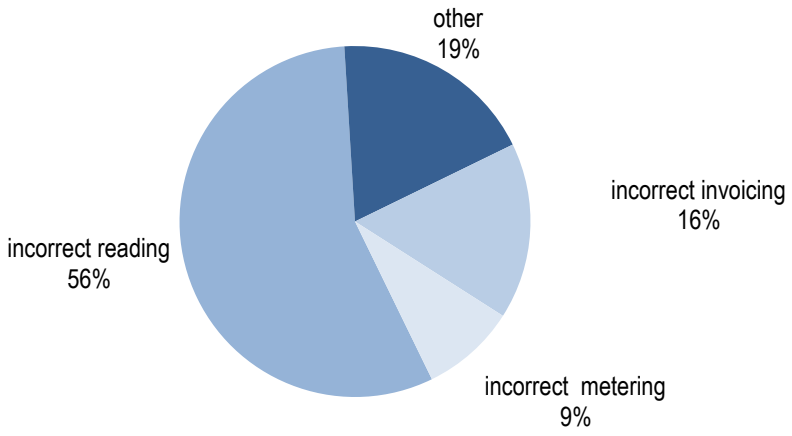


**Figure 3-20: Reasons for bills corrections and their share in the total number of revised bills in 2020**

#### 3.7.3.3 Removal of technical disturbances in delivery

In 2020, there were 1988 customers' requests for the removal of voltage disruptions which repeat in a longer time period. 90%, i.e. 1795 requests were justified. Voltage disruptions were removed in 1641, i.e. 91% of cases when the request was justified.

Average timeframe from the moment a request is filed until voltage is checked on the spot and until a customer is informed amounts to 5.9 days while the average timeframe from the moment voltage disruptions are acknowledged until they are removed amounts to 8.83 days.

#### 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 2020, the total number of registered calls

addressed to the call centre of the distribution system operator was 575,459 which is by 28% lower than last year. Out of the total number of calls addressed to the call centre, 73% (419,805 calls) were made by phone. Average time spent waiting for the operator was 7 minutes which is 5 minutes less than in 2019. The number of phone calls addressed to services on call for failure registration amounted to 275,028.

## 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. Regular investments in 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 2.5% in 2020.

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. The aim is to have, the share of energy from renewable sources in gross final energy consumption amounting to 27% by 2020, i.e. production from renewable sources is planned to amount to around 3.5 TWh. The Program for the Realisation of the Energy Sector Development Strategy of the Republic of Serbia until 2025 with projections until 2030 envisages that further realisation of the projects in the field of renewable energy sources in the period 2021-2030 will increase the contribution of renewable energy sources in the greenhouse gas emission and that it will be possible to estimate the final share of renewable energy sources in gross final consumption and projected greenhouse gas emission reduction only after the adoption of new action plans in this sector.

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 together 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 adopted by the Government of the Republic of Serbia as late as in February 2020. By this plan, the Republic of Serbia was 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 2020, the works on this plant were continued and it is expected to make it functional until May 2023. It is planned to implement a tender for the construction of the desulphurisation plant for the remaining two blocks within the Thermal Power Plant Nikola Tesla A (A1 and A2), too. In December 2020, a cornerstone was laid for the construction of a desulphurisation of steam gases for the Thermal Power Plant Nikola Tesla B.

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, A4 and A5 was reduced.

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 2020 are the following:

- Works on the construction of new thermal unit B3 in TPP Kostolac B with 350 MW capacity, fuelled by Kostolac lignite (PE EPS is the investor);

- Overhaul of blocks B1 and B2 in TPP Kostolac B;
- 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. In 2020, works were continued while full capacity is expected to start to function in 2021;
- the construction of a combined power and heat production plant CHP Pančevo with simultaneous head and power production was continued. It has the maximum capacity of 190 MW 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 were continued. Since 2009, five generations were revitalised. Once the revitalisation of the sixth generation 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 is completed. As of 2016, all four generators were revitalised. The total installed capacity after the revitalisation amounts to 125.6 MW which is 30% higher than the capacity prior to the revitalisation and
- 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 Incentive Fee for Privileged Producers, etc.) is in the jurisdiction of the ministry in charge of energy issues (www.mre.gov.rs). 2020 final prices for privileged electricity producers are given in the Table 3-45.

**Table 3-45: Final prices for privileged electricity producers**

| No. | Type of power plant | Installed capacity (MW) | Incentive price (c€ / kWh) | | | | |
|---|---|---|---|---|---|---|---|
| | | | 2016 | 2017 | 2018 | 2019 | 2020 |
| **1** | Hydro power plants | | | | | | |
| 1.1 | | Up to 0.2 | 12.60 | 12.74 | 12.92 | 13.132 | 13.30 |
| 1.2 | | from 0.2 to 0.5 | 13.933 – 6.667*P | 14.086 – 6.740*P | 14.283 – 6.6834*P | 14.512 – 6.943*P | 14.701 – 7.033*P |
| 1.3 | | from 0.5 to 1 | 10.6 | 10.72 | 10.87 | 11.04 | 11.18 |
| 1.4 | | from 1 to 10 | 10.944 – 0.344*P | 11.064 – 0.348*P | 11.219 – 0.353*P | 11.399 – 0.359*P | 11.547 – 0.364*P |
| 1.5 | | from 10 to 30 | 7.50 | 7.58 | 7.69 | 7.81 | 7.91 |
| 1.6 | With the existing infrastructure | Up to 30 | 6.00 | 6.07 | 6.15 | 6.25 | 6.33 |
| **2** | Biomass-fired power plants | | | | | | |
| 2.1 | | Up to 1 | 13.26 | 13.41 | 13.60 | 13.82 | 14.00 |
| 2.2 | | From 1 MW to 10 MW | 13.82 – 0.56*P | 13.97 – 0.57*P | 14.17 – 0.58*P | 14.40 – 0.59*P | 14.59 – 0.60*P |
| 2.3 | | Over 10 | 8.22 | 8.31 | 8.43 | 8.56 | 8.67 |
| **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 | 19.343 – 1.172*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 | 17.777 – 0.390*P |
| 3.3 | | Over 5 | 15.00 | 15.165 | 15.377 | 15.62 | 15.82 |
| **4.** | Power plants fired by landfill gas and gas from plants for treatment of public utility waste water | | 8.44 | 8.53 | 8.65 | 8.79 | 8.90 |
| **5.** | Wind powered power plants | | 9.20 | 9.30 | 9.43 | 9.58 | 9.70 |
| **6.** | Solar power plants | | | | | | |
| 6.1 | Roof-mounted | Up to 0.03 | 14.60 - 80*P | 14.76 – 80.88*P | 14.97 – 82.01*P | 15.21 – 83.32*P | 15.41 – 84.40*P |
| 6.2 | Roof-mounted | From 0.03 to 0.05 | 12.404 – 6.809*P | 12.540 – 6.884*P | 12.716 – 6.980*P | 12.919 – 7.092*P | 13.087 – 7.184*P |
| 6.3 | Ground-mounted | | 9.00 | 9.10 | 9.23 | 9.38 | 9.50 |
| 6.4 | | from 0.2 to 2 | 9.00 | 9.10 | 9.23 | 9.38 | 9.50 |
| 6.5 | | from 2 to 10 | 9.00 | 9.10 | 9.23 | 9.38 | 9.50 |
| **7.** | Geothermal power plants | | | | | | |
| 7.1 | | Up to 1 | 8.2 | 8.29 | 8.41 | 8.54 | 8.65 |
| 7.2 | | from 1 to 5 | 8.2 | 8.29 | 8.41 | 8.54 | 8.65 |
| 7.3 | | Over 5 | 8.2 | 8.29 | 8.41 | 8.54 | 8.65 |
| **8.** | Waste fired power plants | | 8.57 | 8.66 | 8.78 | 8.92 | 9.04 |
| 9. | Natural gas-fired combined cycle power plants | | | | | | |
| 9.1 | | Up to 0.5 | 8.20 | 8.29 | 8.41 | 8.54 | 8.65 |
| 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 | 8.913 – 0.520*P |
| 9.3 | | from 2 to 10 | 7.46 | 7.54 | 7.65 | 8.77 | 7.87 |

**Table 3-46: Structure of prices and applied prices (VAT and duties free) of electricity withdrawn from privileged producers in 2020**

| Privileged producers category | | Quantity | Amount | Price |
|---|---|---|---|---|
| | | MWh | 000 RSD | RSD/MWh |
| 1 | Small hydro power plants | 221,283 | 2,533,308 | 11.45 |
| 2 | Biogas-fired power plants | 179,897 | 3,575,447 | 19.87 |
| 3 | Wind-fired power plants | 835,168 | 9,259,879 | 11.09 |
| 4 | Solar power plants | 9,043 | 232,015 | 25.66 |
| 4.1 | Ground-mounted solar power plants | 5,712 | 150,134 | 26.29* |
| 4.2 | Roof-mounted solar power plants | 3,332 | 81,881 | 24.58 |
| 5 | Fossil fuel-fired combined heat and power plants | 100,062 | 1,016,980 | 10.16 |
| 5.1 | Gas-fired power plants | 99,481 | 1,011,075 | 10.16 |
| 5.2 | Coal-fired power plants | 581 | 5,905 | 10.16 |
| 6 | TOTAL | 1,345,454 | 16,617,629 | 12.35 |

*Average purchase price of electricity sold by solar power plants is higher than the current price prescribed by the Decree since most of privileged producers producing electricity in these power plants concluded contracts until 2016 when the purchase price amounted to more than 20 c€ / kWh.

In 2020, final electricity customers paid a separate fee for stimulating privileged electricity producers in the amount of 0.093 RSD/kWh.

**Table 3-47: Incentive fee for privileged electricity producers 2016 – 2020**

RSD/kWh

| | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|
| RES incentive fee | 0.093 | 0.093 | 0.093 | 0.093 | 0.093 |

**Table 3-48: Level of collected privileged producers' incentive fee in 2020**

| | Collected (000 RSD, VAT free) |
|---|---|
| Revenue from electricity sale at acknowledged price | 4,442,690 |
| Revenue based on invoiced fee | 2,747,461 |
| - *EPS Snabdevanje* | 2,571,154 |
| - Other suppliers | 176,307 |
| Reduction of revenue for acknowledged recovery of 2% | -143,803 |
| Total | 7,046,347 |

**Table 3-49: Electricity withdrawn from privileged producers 2016-2020**

MWh

| Renewable energy source/ Fuel for combined production | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|
| Water flow | 192,453 | 183,233 | 265,917 | 230,298 | 221,283 |
| Fossil fuels (coal, heating oil (mazoute) and natural gas) – combined production | 78,188 | 112,446 | 105,814 | 91,501 | 100,062 |
| Biogas | 34,048 | 71,255 | 95,494 | 136,070 | 179,897 |
| Solar energy | 11,100 | 11,100 | 10,521 | 10,941 | 9,043 |
| Other | 26,237 | 48,457 | 150,419 | 892,994 | 835,168 |
| **TOTAL** | **342,026** | **426,491** | **628,165** | **1,361,804** | **1,345,454** |

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 2020, activities on regular maintenance and overhaul of existing facilities of the transmission system operator EMS AD were performed. On the other hand, basic investment activities in 2020 related to the construction of new facilities as well as to the reconstruction and modernization of existing facilities. In addition, investment activities included the realization of projects on connection and coupling.

In 2020, EMS AD participated in the activities related to the construction of sections 2, 3 and 4 of the first phase of the TransBalkans Corridor. Prior to this, 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 customers' supply in the Republic of Serbia.

For the Section 2 (overhead line 400 kV TS Kragujevac 2 – TS Kraljevo 3, with an increase of the voltage level in TS Kraljevo 3 to 400 kV), during 2020, contracts were signed for the performance of works on the: construction of the OHL 400kV Kragujevac 2 – Kraljevo 3, upgrade and reconstruction of 400kV overhead line bay in TS 400/110 kV/kV Kragujevac 2 and the construction of 400 kV switching station and transformation in 400/220 kV in TS Kraljevo 3. For the Section 3, for a segment of OHL 2x400 kV Bajina Bašta – Obrenovac, a Spatial Plan of Special Purpose Area was adopted in March 2020 by the Government of the Republic of Serbia. In November 2020, location requirements were complied with.

For the Section 3 (overhead line 2x400 kV TS Obrenovac – TS Bajina Bašta, with an increase of the voltage level in TS Bajina Bašta to 400 kV), for the segment Construction of Switching Station 400 kV in TS Bajina Bašta. In August 2020, positive report of the Audit Commission for feasibility study and preliminary design for the connection of the accession road and for the reconstruction and upgrade of TS Bajina Bašta were obtained. For the Section 3, for the part of OHL 2x400 kV Bajina Bašta - Obrenovac, a Spatial Plan of Special Purpose Area was adopted in March 2020 by the Government of the Republic of Serbia. In November 2020, location requirements were complied with.

For the Section 4 (Interconnector overhead line 2x400 kV between Serbia, BiH and Montenegro), the realization of the project was initiated in 2020 funded via an EU grant via WBIF13 package. The realization of this project implies the draft of the complete technical documentation for the construction of the overhead line (Project for Construction Permit, Project for Execution as well as for Update of the Feasibility Study for Section 3 and Section 4 of the TransBalkans Corridor).

The most important investment work in high-voltage facilities (transformer stations and switching stations) in 2020 included: the completion of works and commissioning and trial work of reconstructed facilities TS 400/220/100 kV/kV/kV Smederevo 3, TS 400/220/100 kV/kV/kV Sremska Mitrovica 2, TS 400/220/100 kV/kV/kV Novi Sad 3, TS 220/110/35 kV/kV/kV Belgrade 5, TS 220/100 kV/kV Belgrade 3 and Switching Station 110 kV Drmno. In addition, investment activities related to the reconstruction were taken in TS 220/110 kV/kV Srbobran, TS 220/110/35 kV/kV/kV Kruševac 1 and TS 400/220 kV/kV Obrenovac and to the construction of a new TS 220/110 kV/kV Bistrica.

In 2020, the most significant investment works on overhead lines included: the completion of works on the reconstruction of 110 kV overhead line TS Valjevo 3 – HPP Zvornik, 110 kV overhead line TS Belgrade 3 – TPP Kostolac A, two-system 110 kV overhead line TS Bor 1 – TS Bor 2 and the completion of works on the construction of new cables 110kV TS Kruševac 1 – TS Kruševac 3, 110 kV TS Belgrade 23 – TS Belgrade 45 and new 110 kV overhead line Bela Crkva – Veliko Gradište. In addition to the works which were completed, there were also works on the construction of a new cable 110 kV TS Belgrade 45 – CHP Novi Beograd, 110 kV of overhead lines near TS Srbobran and the introduction of 400 kV overhead line No. 44 in TS Srbobran, reconstruction of line 148/2 Bor 2 - Zaječar 2, overhead line 220 kV and 110 kV for TS Bistrica and new cable 110 kV Novi Sad 5 – Novi Sad 7.

In 2020, EMS AD issued numerous acts for the purpose of connection/coupling of facilities to the transmission system. Out of the projects on connection of energy entities to the transmission system, the most important was the realization of connection of distribution transformer stations, i.e.: TS 110/35/10 kV/kV/kV Lapovo, TS 110/35 kV/kV Gornji Milanovac, TS 220/110/35 kV/kV/kV Kruševac 1, TS 110(35)/10 kV/kV Kruševac 3, TS 110/35/10 kV/kV/kV Loznica 2, TS 110/10 kV/kV Belgrade 23, TS 110/10 kV/kV Belgrade 45, TS 110/20 kV/kV Bela Crkva and TS 110/20 kV/kV Šabac 5.

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 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. Since the transmission

System Operator of the Republic of Serbia belongs to the a synchronised area of “Continental Europe”, their active participation in the preparation of a Ten Years Network Development Plan as well as the Regional Investment Plan which are drafted within ENTSO-E is mandatory. The goal of Pan-European ten-year development plan is 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.

In November 2019, EMS JSC submitted the Transmission System Development Plan of the Republic of Serbia for the period 2020-2029 which was amended after public hearing and comments of the Agency. On October 15, 2020, they submitted a new Transmission System Development Plan of the Republic of Serbia for the period 2020-2029 and the Plan on Investments into Transmission System of the Republic of Serbia for the period 2020-2022 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;
- reconstruction of TS 220/110 kV Smederevo 3 in TS 400(220)/110 kV/kV;
- new TS 400/110 kV/kV in the south Banat region and
- reconstruction of TS Kragujevac 2, TS Pančevo, TS Bor 2, switching station for Đerdap 1.

All new projects will contribute to the security of supply and reliability of the operations of the whole power system of the Republic of Serbia and the realization of planned projects 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 which will be performed to a great extent within the Trans Balkans Corridor Project. In addition, activities are taken on the construction of new switching station for CHP Pančevo and 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 theTen-Year Transmission System Development Plan and includes the assessment of realized investment in the annual report. The Agency executed the observation process for 2020. In the Investment Plan for 2020-2022 which was approved by the Agency, the transmission system operator planned 101 investments, i.e. 73 projects for 2020 which include 42 investments – construction of a new facility, 55 reconstructions, adaptations and upgrades and 4 investments represent other investments into the transmission system.

Table 3-50 indicates the total planned and realized level of investments of the transmission system operator classified into different types of activities for 2020 in line with adopted Investment Plan.

**Table 3-50: Planned and achieved level of investments into transmission network development for different types of activities for 2020**

(€)

| Type of activity | Planned level | Achieved level | Index |
|---|---|---|---|
| Construction of a new facility | 18,481,000 | 12,423,000 | 67 |
| Reconstruction, adaptation and upgrade | 11,373,000 | 8,545,000 | 75 |
| Other investments into the transmission system | 2,688,000 | 3,601,000 | 134 |
| **Total** | **32,542,000** | **24,569,000** | **76** |

Table 3-51 indicates total planned and achieved level of investments of the transmission system operator for different voltage levels for 2020 in line with the adopted Investment Plan.

**Table 3-51: Planned and achieved level of investments into transmission network development for different voltage levels for 2020**

(€)

| Voltage level | Planned level | Achieved level | Index |
|---|---|---|---|
| 110 kV | 14,672,000 | 12,678,000 | 86 |
| 220 kV | 3,827,000 | 2,813,000 | 74 |
| 400 kV | 11,385,000 | 5,481,000 | 48 |
| All voltage levels – implementation of remote control | 2,658,000 | 3,596,000 | 135 |
| **Total** | **32,542,000** | **24,569,000** | **76** |

### 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 Distribution System Investment Plan which would be harmonised with the Transmission System Development Plan and applications for the connection of customers' and producers' facilities to the distribution system. They are also obliged to submit them to the Agency for approval. During 2020, the DSO was preparing these plans but they did not submit them to the Agency.

In 2020, DSO realised the activities on the construction of new facilities as well as on the reconstructions and modernisation of existing facilities.

Within the distribution system, the following works were either completed or initiated in 2020:

- On transformer stations:
  - Construction of new transformer stations, expansion and reconstruction of existing transformer stations. The most important activity is commissioning new transformer stations TS 110/35/10 kV/kV/kV Loznica 2 and TS 110/35/10 kV/kV/kV Kruševac 3 and three new transformer stations TS 35/10/kV/kV Zlatibor1, TS 35/10 kV/kV Čučuge and TS 35/10 kV/kV Loznica 5. In 2019, EPS Distribucija obtained four mobile transformer stations from the EU and these are 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. In 2020, all four mobile transformer stations were successfully connected to the distribution system and they are currently installed in: TS 110/35 kV/kV Belgrade 2, TS 35/10 kV/kV Požarevac Centar, TS 35/10 kV/Kv Kruševac 4 and TS 35/10 kV/kV Zlatibor 1. This represents the first connection of equipment of this type to the distribution system of the Republic of Serbia;
  - 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 was performed but not to the planned scale.

The Law prescribes that, in addition to the Distribution System Development Plan and Distribution System Investment Plan, 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 in May, 2020, the DSO submitted the Plan for Transfer of Metering Devices for 2020 to the Agency as well as the report on achieved transfer in the period 2015-2019. On May 29, 2020, the Agency approved this plan. Based on Report on Realisation of the Plan for Transfer of Metering Points for 2020, it was concluded that the DSO did not implement the activities in line with the plan since only 1.35% of metering points planned to be transferred from the customers and none of metering points planned to be transferred from producers in 2020.

### 3.8.6 Reduction of losses within the distribution network

In 2020, there was an increase in losses in the distribution network which were increased by 1.6% in comparison to 2019 losses and they amount to 11.95% of electricity withdrawn into the distribution system. The activities on the reduction of losses have to be intensified in the future since it is necessary to bring losses 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 2020, checks were made only on 4.58% 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.

### 3.8.7 Smart metering systems

The Law prescribes that the transmission system operator and the distribution system operator draft a plan for the implementation of economically justified types of advanced metering systems and they submit it to the Agency for the purpose of issuance of an opinion.

Since the transmission system operator has smart (digital) meters installed on all delivery points, they did not draft this plan and submit it to the Agency.

Table 3-52 indicates the total number of meters owned by the transmission system operator. All meters are digital with following functionalities: remote reading by the TSO, remote reading by a user via adequate application, two-direction metering (production and consumption), tariff management and data preservation.

**Table 3-52: Meters within the transmission system**

| Voltage level | 400kV | 220kV | 110kV |
|---|---|---|---|
| Number of meters installed at customers' facilities | 0 | 6 | 84 |
| Number of meters installed at producers' facilities | 11 | 11 | 36 |
| Number of meters installed at the TSO and closed DS | 0 | 0 | 421 |
| Number of meters installed on interconnectors | 8 | 5 | 13 |
| **Total** | **19** | **22** | **554** |

In 2020, the distribution system operator did not submit the plan for the implementation of economically justified types of advanced metering systems to the Agency. In line with the Law, the results of this plan should be an integral part of the development plan and the distribution system investment plan.

Table 3-53 indicates the total number of meters owned by the distribution system operator. The total percentage of digital meters installed at customers' facilities amounts to 1.6% (for all voltage levels), while the total percentage of digital meters installed at producers' facilities amounts to 99% (for all voltage levels).

In case of customers' facilities, most digital meters can only provide remote reading by the DSO and such meters account for 0.8% of the total number of meters installed at customers' facilities. 0.5% of the total number of meters installed at customers' facilities include all the three functionalities, while only 0.3% of meters include seven functionalities (remote reading by the DSO, remote reading by a customer (buyer), remote turn on/off, remote consumption control, tariff management, house display and data preservation).

In case of producers, the greatest number of meters include three functionalities and such meters account for 46/3% out of the total number of all meters installed at producers' facilities. 32.9% of the total number of all installed meters for producers include only remote reading by the DSO. 2.1% of the total number of meters installed at producers' facilities include only remote reading by customers (producers) while 17.7% of meters includes five functionalities (remote reading by the DSO, remote reading by a customer (producer), remote turn on/off, two-direction metering and data preservation).

**Table 3-53: Meters within the distribution system**

| | | | | | 0.4kV | | |
|---|---|---|---|---|---|---|---|
| | **Voltage level** | | **110kV** | **35, 20, 10kV** | **Customers whose capacity is metered** | **Customers whose capacity is not metered** | **Households** |
| **Meters installed at customers' facilities** | Electromechanical | Number of meters | 0 | 935 | 25,006 | 342,492 | 3,263,708 |
| | Digital | Number of meters | 0 | 4,070 | 17,119 | 7,860 | 29,275 |
| | Total | Number of meters | 0 | 5,005 | 42,125 | 350,352 | 3,292,983 |
| | Percentage of digital meters in comparison to the total number | % | 0 | 81.3 | 40.6 | 2.2 | 0.9 |
| **Meters installed at producers' facilities** | Voltage level | | **35kV** | **20kV** | **10kV** | **0.4kV** | |
| | Electromechanical | Number of meters | 0 | 0 | 4 | 0 | |
| | Digital | Number of meters | 26 | 41 | 106 | 151 | |
| | Total | Number of meters | 26 | 41 | 110 | 151 | |
| | Percentage of digital meters in comparison to the total number | % | 100 | 100 | 96.4 | 100 | |

It is essential that the distribution system operator complies with the given legal obligation in the future and to adopt the plan for the implementation of economically justified types of advanced metering systems. Advanced metering systems and advanced networks will enable higher reliability and quality of electricity delivery. They will also stimulate better consumption management and more dynamic market and thereby reduce technical and commercial electricity losses to a great extent.

# 4. NATURAL GAS

## 4.1 Sector structure and capacities

### 4.1.1 Organisational and ownership structure

Gas sector organisational structure at the end of 2020 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. Natural gas production is not a regulated activity.

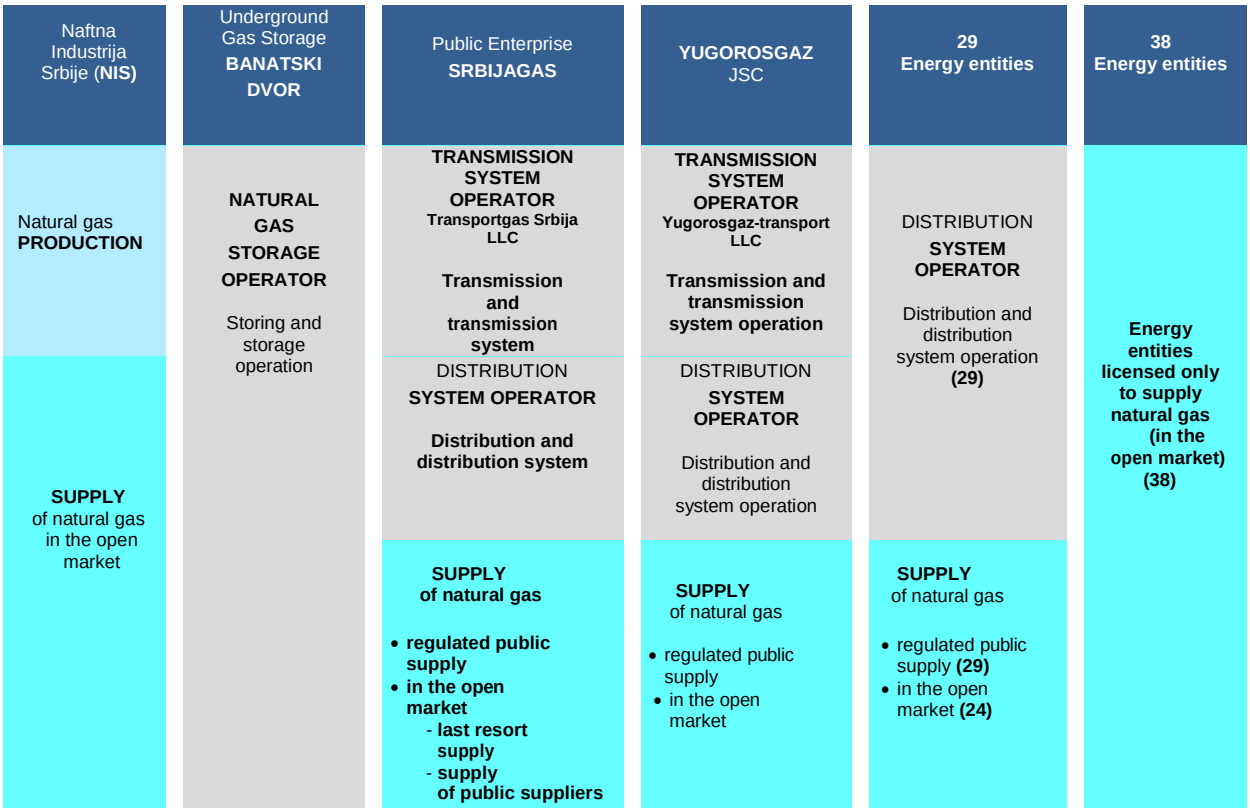


**Figure 4-1: Organisational structure of the natural gas sector at the end of 2020**

In Serbia, natural gas transmission and transmission system operation are performed by two transmission system operators (TSO): Transportgas Srbija LLC and Yugorosgaz-Transport LLC, Niš. In 2015, TSO Yugorosgaz-Transport LLC completed legal unbundling from a vertically-integrated company „Yugorosgaz" JSC Belgrade. In PE *Srbijagas*, decisions on legal and functional unbundling of TSO – *Transportgas Srbija* LLC from the parent company were adopted. In 2020, *Transportgas Srbija* LLC performed natural gas transmission and transmission system operation.

Distribution and distribution system operation are performed by 31 distribution system operators (DSOs). The number of DSOs reduced by one since *JKP Gradska Toplana Zrenjanin* ceased to perform natural gas distribution and PE Srbijagas continued performing the activity on this system. In addition to PE *Srbijagas*, and *Yugorosgaz* JSC, natural gas distribution and distribution system operation are performed by other 29 companies among which most of them are owned by municipalities and towns, some of them are with miscellaneous ownership and some of them are private. One energy entity holding a valid licence does not perform this activity. All DSOs, except for DSO – PE *Srbijagas*, in addition to performing natural gas distribution, also perform natural gas supply at regulated prices and supply in the open market since they have less than 100,000 connected final customers which is why they are still not obliged to execute legal unbundling between distribution and supply.

In the end of 2020, there were 65 energy entities holding licence for natural gas supply in total and 24 of them were active. Natural gas public supply of final customers at regulated prices was performed by 31 public suppliers which also perform natural gas distribution.

In line with the law, the Government of the Republic of Serbia appointed PE *Srbijagas* to be the supplier of public suppliers and the natural gas supplier of the last resort for 2020.

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 concluded in January 2008 (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).

### 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 9 points into the transmission system while much smaller quantities (around 3.4% 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 2020 amounted to 265 million $m^3$ which is 9.55% less than last year production volume. After significant growth in 2011 and 2012, natural gas production has been decreasing year after year.

**Table 4-1: Natural gas production in Serbia in period 2011 - 2020**

| Production/Year | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|
| Delivered to transmission system | 441 | 466 | 451 | 453 | 422 | 388 | 366 | 327 | 284 | 256 |
| Delivered to distribution system | 21 | 18 | 17 | 14 | 10 | 11 | 7 | 8 | 9 | 9 |
| **Total production** (million $m^3$) | 462 | 484 | 468 | 467 | 432 | 399 | 373 | 335 | 293 | 265 |
| 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 | -9.6 |

Out of the total volume delivered into the transmission and distribution system in 2020, 8.7 million $m^3$ (3.3%) of natural gas was sold to other suppliers and final customers, while the remaining quantity 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 2020, the length of the transmission system where *Transportgas Srbija* LLC performs the activity amounted to 2,414 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). *Transportgas Srbija* LLC 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 2011 - 2020**

| Year | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|---|
| Network length, km | 2,321 | 2,391 | 2,398 | 2,423 | 2,423 | 2,423 | 2,459 | 2,464 | 2,464 | 2,539 |

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 | Transportgas Srbija LLC | Yugorosgaz-transport LLC |
|---|---|---|
| Capacity, mill. m3/day | ≈ 18 | ≈ 2.2 |
| Pressure, bar | 16 - 75 | 16 - 55 |
| Length, km | 2,414 | 125 |
| Diameter | DN 150 - DN 750 | DN 168 - DN 530 |
| Compressor station, power, MW | 4.4 | - |
| Number of entries into the transmission system | 11 | 1 |
| From another transmission system | 1 | 1 |
| From production fields – domestic gas | 9 | - |
| From the storage | 1 | |
| Number of exits from the transmission system | 241 | 6 |
| Metering and regulating stations on transmission system exit | 238 | 6 |
| 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 managed by *Transportgas Srbija* LLC and 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 67% of the total number of exits transmission system operated by *Transportgas Srbija* LLC and on 67% 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 transmission system operated by *Transportgas Srbija* LLC, one may conclude that the activities on the replacement of inadequate metering and data acquisition equipment on the transmission system operated by *Transportgas Srbija* LLC slowed down in the past three 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.

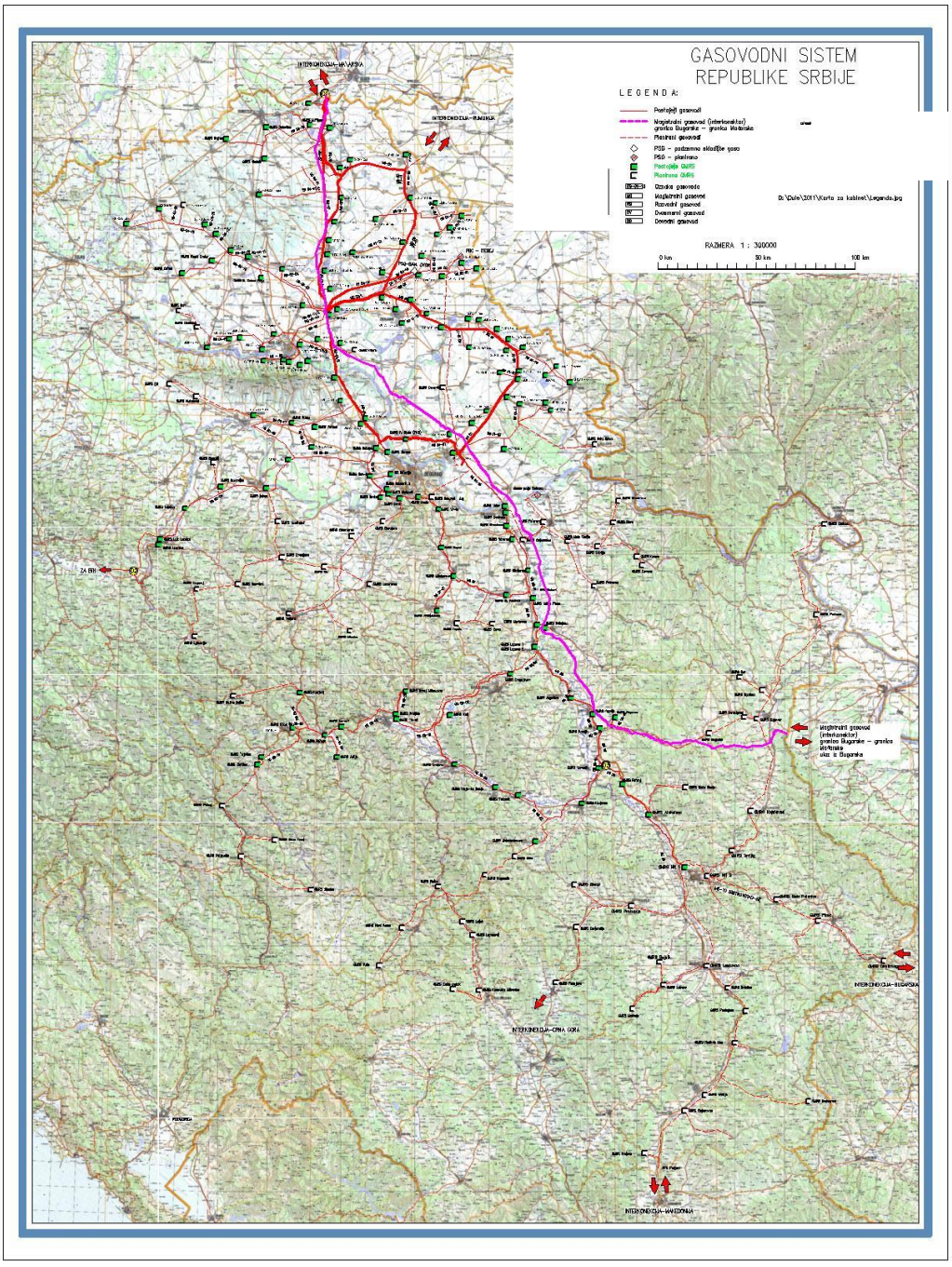


**Figure 4-2: Natural gas transmission system of the Republic of Serbia**

#### 4.1.2.3 Distribution

In the beginning of 2020, 31 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 2020 by 25.53%, i.e. to 19,883 km (without connections) thus creating the conditions for the connection of new customers. In comparison to 2019, the network was extended by 597 km which amounts to 3.10% increase which represents a low level of investments in distribution networks. The greatest percentage of increase in distribution network length in 2020 was recorded by the DSO *Srbijagas* which performs the activity on 57.87% of the total distribution network in Serbia. The increase amounted to 9.72% which is partially since new network was constructed and partially since the distribution network of the former DSO Gradska Toplana Zrenjanin was taken over and stopped performing distribution in 2020. The second largest increase in the length of the distribution network was realised with the DSO Užice-gas and it amounted to 7.52%. the third largest extension of the distribution network was realized with DSO Beogas and it amounted to 5.99%. With 14 DSOs, there were no changes in the length of the distribution network in comparison to 2019.

**Table 4-4: Length of the distribution network in Serbia in 2013 - 2020**

| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|---|---|
| Length of the distribution network | 15,348 | 15,839 | 16,363 | 16,532 | 16,653 | 16,961 | 18,422 | 19,286 | 19,883 |

The number of active connections (delivery points) within distribution networks amounts to 293,523. In comparison to the previous year, it has been increased by 10,526 connections (i.e. by 3.72%).

**Table 4-5: Length of distribution network and number of delivery points in the end of 2020**

| No. | Natural gas distributor | Distribution grid length, m | Number of active connections |
|---|---|---|---|
| 1 | 7. Oktobar, Novi Kneževac | 54,354 | 1,581 |
| 2 | Beogas, Belgrade (with merged Rodgas) | 461,999 | 11,901 |
| 3 | Beogradske elektrane, Novi Beograd | 332,890 | 4,402 |
| 4 | Boss construction, Trstenik | 29,438 | 125 |
| 5 | Čoka, Čoka | 27,195 | 811 |
| 6 | Drugi oktobar, Vršac | 200,563 | 12,897 |
| 7 | Elgas, Senta | 62,350 | 1,965 |
| 8 | Gas – Feromont, Stara Pazova | 497,715 | 15,762 |
| 9 | Gas – Ruma, Ruma | 472,714 | 8,056 |
| 10 | Gas, Bečej | 198,197 | 1,987 |
| 11 | Gas, Temerin | 266,500 | 7,034 |
| 12 | Graditelj, Srbobran | 150,200 | 2,419 |
| 13 | Ingas, Inđija | 362,649 | 10,678 |
| 14 | Interklima, Vrnjačka Banja | 109,075 | 1,125 |
| 15 | Komunalac, Novi Bečej | 121,158 | 2,423 |
| 16 | Kovin – Gas, Kovin | 333,094 | 4,172 |
| 17 | Loznica - Gas, Loznica | 185,273 | 2,137 |
| 18 | Novi Sad – Gas,Novi Sad | 2,386,557 | 48,825 |
| 19 | Polet, Plandište | 239,300 | 3,558 |
| 20 | Resava Gas, Svilajnac | 63,829 | 470 |
| 21 | Cyrus energy, Belgrade | 22,078 | 2,031 |
| 22 | Sigas, Požega | 20,685 | 355 |
| 23 | Sombor – Gas, Sombor | 172,000 | 2,341 |
| 24 | *Srbijagas*, Novi Sad | 11,507,133 | 120,159 |
| 25 | Srem - Gas, Sr*EM*Ska Mitrovica | 283,174 | 5,882 |
| 26 | Standard, Ada | 43,280 | 1,089 |
| 27 | Suboticagas, Subotica | 428,149 | 11,219 |
| 28 | Toplana – Šabac, Šabac | 170,381 | 3,029 |
| 29 | Užice – gas, Užice | 178,242 | 2,080 |
| 30 | Vrbas – Gas, Vrbas | 186,388 | 1,795 |
| 31 | Yugorosgaz, Beograd | 316,756 | 1,215 |
| | TOTAL | 19,883,316 | 293,523 |

***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 (92,641 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 harmonised with the Agency but it was not submitted for approval purposes to the Agency officially.

Table 4-6 summarises the MD/MRS transfer plan for 2015 - 2019 as well as the plan for 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 – 2019, the percentage of realization of the plan in 2020 were presented, as well as the percentage of realisation of the plan for the 2015-2020 period. In the period from 2015 till 2020, 54,839 MD/MRS were transferred while the plan was to transfer in this period 92,641 MD/MRS since a certain number of DSOs transferred significantly lower number of MD/MRS than planned. Analysing the following table, one can acknowledge that only three DSOs complied with their legal obligation and transferred all MDs/MRSs.

**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 | | | |
|---|---|---|---|---|---|---|---|---|
| | | 2015-2019 | 2020 | Total | 2015-2019 | 2020 | 2020 (%) | Total 2015-2020 (%) |
| 1 | "*Srbijagas*" Novi Sad | 8,067 | 2,016 | 10,083 | 20 | 14 | 0.69 | 0.34 |
| 2 | "Novi Sad Gas" Novi Sad | 44,242 | 537 | 44,779 | 29,578 | 1,068 | 198.88 | 68.44 |
| 3 | "Gas-feromont" S. Pazova | 6,304 | 1,335 | 7,639 | 4,335 | 731 | 54.76 | 66.32 |
| 4 | "Ingas" Inđija | 3,598 | 1,354 | 4,952 | 4,167 | 1,049 | 77.47 | 105.33 |
| 5 | "Gas Ruma" Ruma | 1,345 | 313 | 1,658 | 652 | 29 | 9.27 | 41.07 |
| 6 | "GAS" Temerin | 5,200 | 1,042 | 6,242 | 3,272 | 163 | 15.64 | 55.03 |
| 7 | "Polet" Plandište | 2,312 | 574 | 2,886 | 2,469 | 333 | 58.01 | 97.09 |
| 8 | "Kovin Gas" Kovin | 2,280 | 571 | 2,851 | 1,641 | 379 | 66.37 | 70.85 |
| 9 | "Graditelj" Srbobran | 1,827 | 900 | 2,727 | 1,505 | 136 | 15.12 | 60.18 |
| 10 | "Komunalac" Novi Bečej | 1,818 | 441 | 2,259 | 106 | 53 | 12.02 | 7.04 |
| 11 | PE "Vrbas-Gas" Vrbas | 531 | 98 | 629 | 0 | 0 | 0.00 | 0.00 |
| 12 | "Sombor-Gas" Sombor | 337 | 89 | 426 | 342 | 89 | 100.00 | 101.17 |
| 13 | "Gas-Bečej" Bečej | 1,287 | 316 | 1,603 | 136 | 2 | 0.63 | 8.61 |
| 14 | "Loznica-Gas" LLC Loznica | 16 | 1 | 17 | 16 | 1 | 100.00 | 100.00 |
| 15 | "Srem-gas", S.Mitrovica | 1,500 | 2,390 | 3,890 | 1,262 | 1,291 | 54.02 | 65.63 |
| | **Total:** | **80,664** | **11,977** | **92,641** | **49,501** | **5,338** | **44.59** | **59.20** |

The number of MU/MRS – 92,641 - 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 *Transportgas Srbija*. 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 2020, 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.[15] Maximum daily injection quantities in 2020 amounted to 2.7 million $m^3$/day and maximum daily withdrawn quantities recorded 4.9 million $m^3$/day.

In 2020, the cushion gas quantity in the storage did not change and it amounted to 530 million $m^3$.

In 2020, more natural gas was injected into the storage than withdrawn from it. In the beginning of 2020, there were 471 million $m^3$ of commercial gas. 299 million $m^3$ of gas was injected from the transmission system into the storage, out of which 3.5 million $m^3$ were spent to cover the storage demand. The remaining 296 million $m^3$ of commercial gas were injected for commercial purposes. Users withdrew from the storage 300 million $m^3$ from the storage, and this is also the volume injected into the transmission system. In the end of 2020, 401 million $m^3$ of commercial gas were stored in the storage.

## 4.2 Natural gas consumption and supply sources

In 2020, 2,708 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 2,483 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 2020, natural gas import from the Russian Federation in line with a long-term contract amounted to 1,384 million $m^3$. in 2020, PE *Srbijagas* imported natural gas from another four suppliers and the whole imported volume was withdrawn from the Hungarian transmission system.

In 2020, local production of 265 million $m^3$ could meet only 10.7% of the demand.

**Table 4-7: Natural gas supply sources and consumption in 2019 and 2020**

| | 2019 million $m^3$ | 2020 million $m^3$ | 2019/2020 Index |
|---|---|---|---|
| **Local production** | **293** | **265** | **90** |
| Import from the Russian Federation – via long-term contract | 1,756 | 1,384 | 79 |
| Import from other sources – via other contracts | 441 | 760 | 172 |
| **Total import** | **2,197** | **2,144** | **98** |
| Quanities withdrawn from the underground storage | 119 | 299 | 251 |
| **TOTAL AVAILABLE QUANTITIES** | **2,609** | **2,708** | **104** |
| Injected into the storage | 258 | 203 | 79 |
| **Gross consumption** | 2,351 | 2,505 | 107 |
| Transmission system losses and consumption and delivery into the transmission system of Gastrans LLC | 10 | 7 | 40 |
| Distribution network losses and one's own demand | 16 | 15 | 94 |
| **For final consumption** | **2,325** | **2,483** | **107** |

The number of delivery points in 2020 was increased by 10,527 in comparison to 2019. At the end of 2020, it amounted to 293,587. There were 64 of them on the transmission system and 293,523 delivery points on the distribution system. Out of the number, households accounted for 278,947 or 95%.

[15] 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 2019 and 2020

| Consumption category | 2019 | 2020 | Variation 2020-2019 |
|---|---|---|---|
| Households | 268,911 | 278,947 | 10,036 |
| District heating companies | 141 | 149 | 8 |
| Industry and other | 14,008 | 14,491 | 483 |
| Total | **283,060** | **293,587** | **10,527** |

In 2020, 2,482 million m³ of natural gas was consumed. It amounts to 7% more than in 2019. Consumption in households increased by 18.8%. In district heating companies, it increased by 16%, while in industry, it increased by 19%.

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

Table 4-9: Consumption structure in 2019 and 2020

| Consumption category | 2019 million m³ | 2020 million m³ | 2020/2019 Index |
|---|---|---|---|
| Households | 255 | 303 | 118.8 |
| District heating companies | 500 | 581 | 116.2 |
| Industry and other | 1,570 | 1,599 | 101.8 |
| Total | **2,325** | **2,483** | **106.7** |

Households consumption accounts for 12% of final natural gas consumption in 2020. Disctrict heating companies consumption accounted for 24%, while industry and other customers covered 64% (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 2020 is given in Figure 4-3.

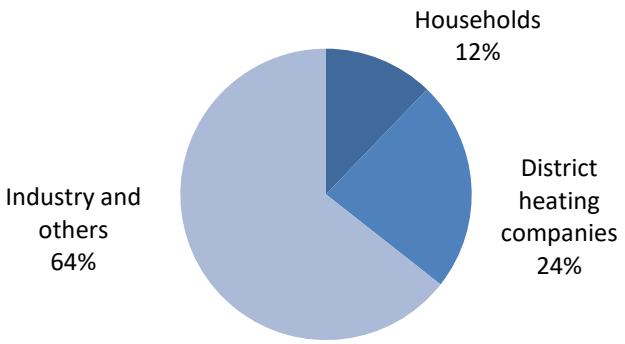


Figure 4-3: Structure of natural gas consumption in Serbia in 2020

Average annual natural gas consumption per connected household amounted to 1,086 m³ in 2020 (including active delivery points for households which did not consume gas during 2020) which amounts 14.56% more than in 2019. If one only takes into account the households which consumed natural gas during 2020 (there were 2454,595 of them), average annual consumption per household amounted to 1,190 m³.

## 4.3 Regulation of the transmission system operator

The transmission system operator *Transportgas Srbija* LLC is a company which, in the end of 2019 and during 2020 to a great extent, started taking over the activities on natural gas transmission. Since October 2020, the company fully took over natural gas transmission and transmission system operation.

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.

The transmission system operator *Transportgas Srbija* LLC did not submit the Transmission Network Code to the Agency for approval in 2020 which is why the PE *Srbijagas* Code should be still applicable. The Code was adopted and published in the Official Gazette of RS in August 2013.

"*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.

The transmission system operator "*Gastrans*" submitted the Transmission Network Code which regulates the conditions for the access to available transmission capacity and conditions for the use of gas transmission service. The Council of the Agency approved the Code on the session held on May 15, 2020.

### 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 the vertically integrated company *Yugorosgaz* JSC which is the owner of it. On September 2013, *Yugorosgaz-Transprot* LLC obtained licence for natural gas transmission and transmission system operation. By the adoption of the Law in the end of 2014, conditions were created for the execution of certification procedure upon the request of this operator in line with the Law.

Acting within the timeframe for certification prescribed by the Law, 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 within a year the company should harmonise its organisation and operation in a way providing for the compliance with prescribed conditions related to the independence of the 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 signed with the transmission system owner which 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 is authorised to issue their opinion on the decision of the Agency on certification in line with the obligations arising from ratified international treaties. By this final 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 adopted by the Agency Council of 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 to the Agency 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. Following this, within the legal timeframe, on February 21, 2020, the Council of the Agency adopted the final decision by which *GASTRANS* llc is awarded with a certificate as to an independent natural gas transmission operator. Basically, by this decision, the Preliminary Decision of August 2019 was confirmed since the Agency prescribed the same obligations to GASTRANS llc as it was the case in the Preliminary Decision.

### 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) 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 prices 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 2020.

**Table 4-10: Average approved natural gas transmission use-of-system charge[16]**

RSD/m$^3$

| Transmission system operator | 31/12/2019 | 31/12/2020 |
|---|---|---|
| *Srbijagas/Transportgas Srbija* | 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

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

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 2020, *Transportgas Srbija* llc, Novi Sad adopted a decision on non-standard service prices which defined the types of non-standard services and their prices and this decision was approved by the Council of the Agency in October 2020.

### 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 the transmission system operated by *Transportgas Srbija* LLC, while there are no gas pipelines connected with the transmission systems of neighbouring countries within the transmission system operated by the *Yugorosgaz transport* LLC.

In line with PE *Srbijagas* Transmission Network Code which was adopted in 2013 and which is still applied by *Transportgas Srbija* LLC in certain segments, 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 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 submits it officially 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 operated by Transportgas Srbija LLC which applies certain segments of the PE Srbijagas Code. The 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, 2018 and 2019 either. As of October 1, 2019, the right to use capacity on interconnection gas pipelines is awarded by *Transportgas Srbija* LLC. However, in 2020, neither did the transmission system operator organise the cross-border capacity allocation for interested parties in line with the PE Srbijagas transmission network code nor in any other manner.

In 2020, 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 PE Srbijagas, Gazprom Export and BH – Gas. In 2020, there was no physical capacity congestion. There were sufficient free capacity on interconnectors even during winter months.

In 2020, the utilisation rate of the entry firm capacity on Serbian-Hungarian border amounted to average 49.70% which is less than 52.69% which was the case in 2019 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 12.59 million $m^3$/day in December 2020. Out of the volume, 11.40 million $m^3$/day was used by customers in Serbia, while 1.19 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 2.365 billion $m^3$ which were the quantities transported on the interconnector Hungary – Serbia in 2020.

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, slightly 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 was used for the first time on January 1, 2021, while the exit point Hungary is expected to start being used on October 1, 2021. The Agency approved the Transmission Network Code of *Gastrans* LLC on May 15, 2020. The Code is harmonized with the EU network codes. It also includes 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 intraday 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 2020, 2,920 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 2016 - 2020**

| Transmitted volumes | 2016 million $m^3$ | 2017 million $m^3$ | 2018 million $m^3$ | 2019 million $m^3$ | 2020 million $m^3$ | 2020/2019 index |
|---|---|---|---|---|---|---|
| Production on the transmission system | 388 | 366 | 327 | 284 | 256 | 90 |
| Entry into system to meet Serbia's demand | 1,795 | 2,182 | 2,146 | 2,257 | 2,144 | 95 |
| Entry into system to meet Bosnia and Herzegovina's demand | 232 | 265 | 304 | 243 | 221 | 91 |
| Total | 2,415 | 2,813 | 2,777 | 2,784 | 2,622 | 100 |
| From storage | 254 | 227 | 298 | 112 | 299 | 267 |
| **Total** | **2,669** | **3,040** | **3,075** | **2,896** | **2,920** | **101** |

### 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 2020, 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 contracted interruptible capacities 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 2020.

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 imbalance in 2016, 2017, 2018, 2019 and until September 30, 2020. During 2017, 2018, 2019 and during the first nine months of 2020, the transmission system operator calculated imbalance per system user, calculated it financially and informed system users on these results. Imbalance 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 imbalance in the future as possible. Imbalance is set on daily level. Based on the data provided by the transmission system operator, in the period from October 1 until December 31, 2020, the operator took the following actions meant for balancing purposes: based on the annual contract on gas procurement for balancing purposes, they procured 14.6 million $m^3$. They sold 18.3 million $m^3$ (7.6 million $m^3$ for first-level imbalance, 8.9 million $m^3$ for second-level imbalance and 1.8 $m^3$ for third-level imbalance) to system users who had lower quantities of natural gas on entry points than on exit points on daily level. In addition, during the same period, they purchased 5.6 million $m^3$ (4.1 million $m^3$ first-level imbalance и 1.5 million $m^3$ second-level imbalance) from system users who had higher quantities of natural gas on entry points than on exit points on daily level. In order to perform the analysis of effects of the Code to imbalance calculation, it is necessary to calculate it on the commercial level along a considerable timeframe. Based on imbalance charging level, in the last three months of 2020, it is evident that system users managed to plan their daily natural gas demand better and thereby reduced imbalance within the transmission system in comparison to the period when imbalance was not charged.

## 4.4 Regulation of the distribution system operator

In early 2020, 31 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. An exception was the case of takeover of the distribution network of former DSO *JKP Gradska Toplana – Zrenjanin* by the DSO – *Srbijagas* in 2020.

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 2020, 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 in order to secure that persons responsible for the Distribution System Operator management act professionally and independently 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 behaviour, 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 2020, there were 31 distribution system operators performing distribution and distribution system operation. Apart from the distribution system operators PE Srbijagas and Yugorosgaz JSC, this activity was performed by 29 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. Except for PE Srbijagas, all distribution system operators have less than 100,000 connected final customers which is why 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). Since PE *Srbijagas* overtook the distribution and distribution system operation from the distribution system operator *Gradska toplana Zrenjanin*, they had 120,159 delivery points in the end of 2020. 119,012 of them were for public supply and the remaining 1,088 were supplied at unregulated prices. 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) 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 2020, natural gas distribution use-of-system charges were not modified. Average weighted approved distribution use-of-system charge for all distribution networks in Serbia on 31/12/2020 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[17]**

| No. | Distribution system operator | 31/12/2019 RSD | 31/12/2020 RSD |
|---|---|---|---|
| 1 | *7 Oktobar, Novi Kneževac* | 10.15 | 10.15 |
| 2 | *Beogas, Belgrade* | 7.11 | 7.11 |
| 3 | *Beogradske elektrane, Novi Beograd* | 5.63 | 5.63 |
| 4 | *Cyrus Energy, Belgrade* | 7.10 | 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 | |
| 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** | **4.37** | **4.31** |

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 2020, *JKP Standard Ada, JKP Suboticagas, Subotica, JKP 7. Oktobar, Novi*

[17] In 2020, BOSS Construction, Stari Trstenik applies natural gas distribution use-of-system charges on the same level as of Srbijagas, Novi Sad.

*Kneževac, Resava-gas doo, Svilajnac, JP Polet, Plandište, Boss Construction doo, Stari Trstenik, JKP Graditelj, Srbogran, Loznica-gas doo, Loznica and JKP Drugi oktobar, Vršac* adopted decisions on prices of non-standard services which define types of non-standard services and their prices. The Council of the Agency approved the decisions.

### 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 2020, 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 2018-2020.

**Table 4-13: Distributed natural gas quantities in 2018-2020**

| | 2018 million m3 | 2019 million m3 | 2020 million m3 | 2020/2019 index |
|---|---|---|---|---|
| **Total distributed quantities** | 1,506 | 1,458 | 1,601 | 109.8 |
| withdrawn from the transmission system | 1,396 | 1,347 | 1,501 | 111.4 |
| withdrawn from distribution systems | 102 | 102 | 91 | 92.8 |
| withdrawn from production facilities | 8 | 9 | 9 | 100 |
| losses | 14 | 13 | 15 | 115.4 |
| | 0.93% | 0.89% | 0.94% | 105.6 |

## 4.5 Natural gas market

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

- producer (1);
- suppliers (65);
- public suppliers (31);
- final customers (291,292 using regulated supply and 1,125 in the open market);
- TSOs (2);
- DSOs (32), one of them does not perform the activity and
- storage operator (1).

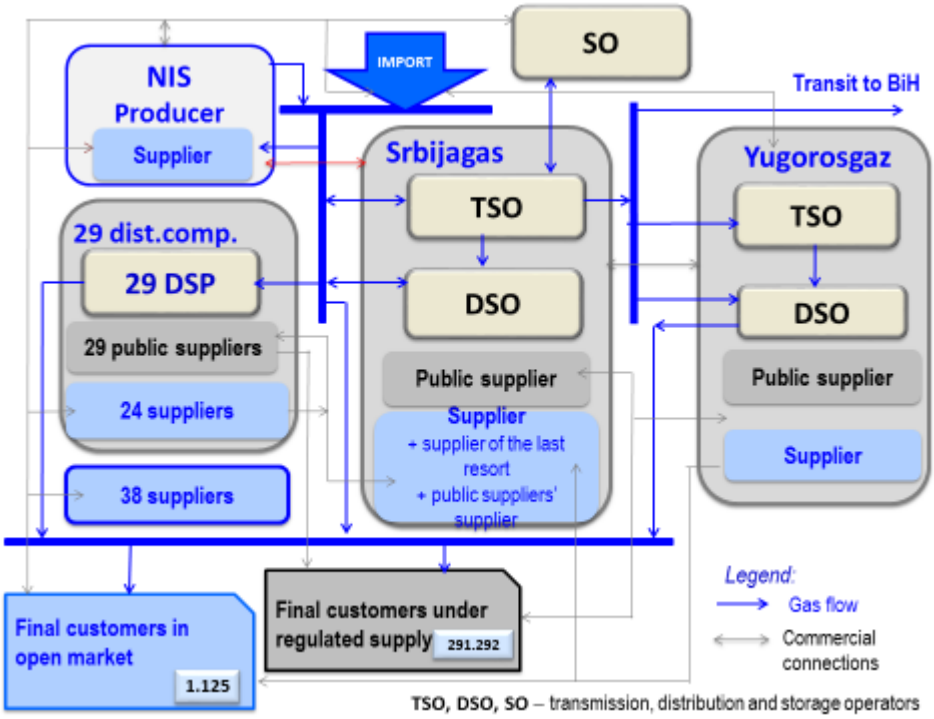


**Figure 4-4: Natural gas market scheme in the end of 2020**

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 2020. 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 4, 2019 and of June 29, 2020, The Government of the Republic of Serbia appointed PE *Srbijagas* to be the supplier of natural gas public suppliers in 2020 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 2021 based on the decision of the Government of the Republic of Serbia of December 11, 2020.

If one reviews each distribution system in Serbia, Table 4-14 indicates the ratio between the regulated and open market depending on the number of delivery points which are supplied either on the open market or on the regulated one.

**Table 4-14 Ratio between regulated and open markets for each distribution system depending on the number of delivery points**

| No. | Natural gas distributer | % of delivery points in the open market | % of delivery points in the regulated market |
|---|---|---|---|
| 1 | *7. Oktobar, Novi Kneževac* | 0.6% | 99.4% |
| 2 | *Beogas, Belgrade* (with merged *Rodgas)* | 0.6% | 99.4% |
| 3 | *Beogradske elektrane, Novi Beograd* | 0.1% | 99.9% |
| 4 | *Boss construction, Trstenik* | 26.4% | 73.6% |
| 5 | *Čoka, Čoka* | 0.4% | 99.6% |
| 6 | *Drugi oktobar, Vršac* | 0.5% | 99.5% |
| 7 | *Elgas, Senta* | 0.2% | 99.8% |
| 8 | *Gas – Feromont, Stara Pazova* | 0.3% | 99.7% |
| 9 | *Gas – Ruma, Ruma* | 0.5% | 99.5% |
| 10 | *Gas, Bečej* | 1.4% | 98.6% |
| 11 | *Gas, Temerin* | 0.2% | 99.8% |
| 12 | *Graditelj, Srbobran* | 0.4% | 99.6% |
| 13 | *Ingas, Inđija* | 0.2% | 99.8% |
| 14 | *Interklima, Vrnjačka banja* | 2.7% | 97.3% |
| 15 | *Komunalac, Novi Bečej* | 0.2% | 99.8% |
| 16 | *Kovin – Gas, Kovin* | 0.6% | 99.4% |
| 17 | *Loznica – Gas, Loznica* | 6.1% | 93.9% |
| 18 | *Novi Sad – Gas, Novi Sad* | 0.4% | 99.6% |
| 19 | *Polet, Plandište* | 0.9% | 99.1% |
| 20 | *Resava Gas, Svilajnac* | 0.4% | 99.6% |
| 21 | *Cyrus energy, Belgrade* | 0.0% | 100.0% |
| 22 | *Sigas, Požega* | 0.8% | 99.2% |
| 23 | *Sombor – Gas, Sombor* | 1.0% | 99.0% |
| 24 | *Srbijagas, Novi Sad* | 0.9% | 99.1% |
| 25 | *Srem – Gas, Sremska Mitrovica* | 0.5% | 99.5% |
| 26 | *Standard, Ada* | 0.9% | 99.1% |
| 27 | *Suboticagas, Subotica* | 0.9% | 99.1% |
| 28 | *Toplana - Šabac, Šabac* | 0.1% | 99.9% |
| 29 | *Užice-gas, Užice* | 0.6% | 99.4% |
| 30 | *Vrbas – Gas, Vrbas* | 0.8% | 99.2% |
| 31 | *Yugorosgaz, Belgrade* | 9.5% | 90.5% |

According to the data on the percentage of delivery points in the open and regulated markets for each distribution system, it is evident that there is still a small number of delivery points where natural gas is delivered at free, market prices.

If one reviews delivered quantities, Figure 4-5 indicates the ratio between regulated and open market for each distribution system depending on the level of delivered quantities for delivery points which are supplied either in the open or regulated market.

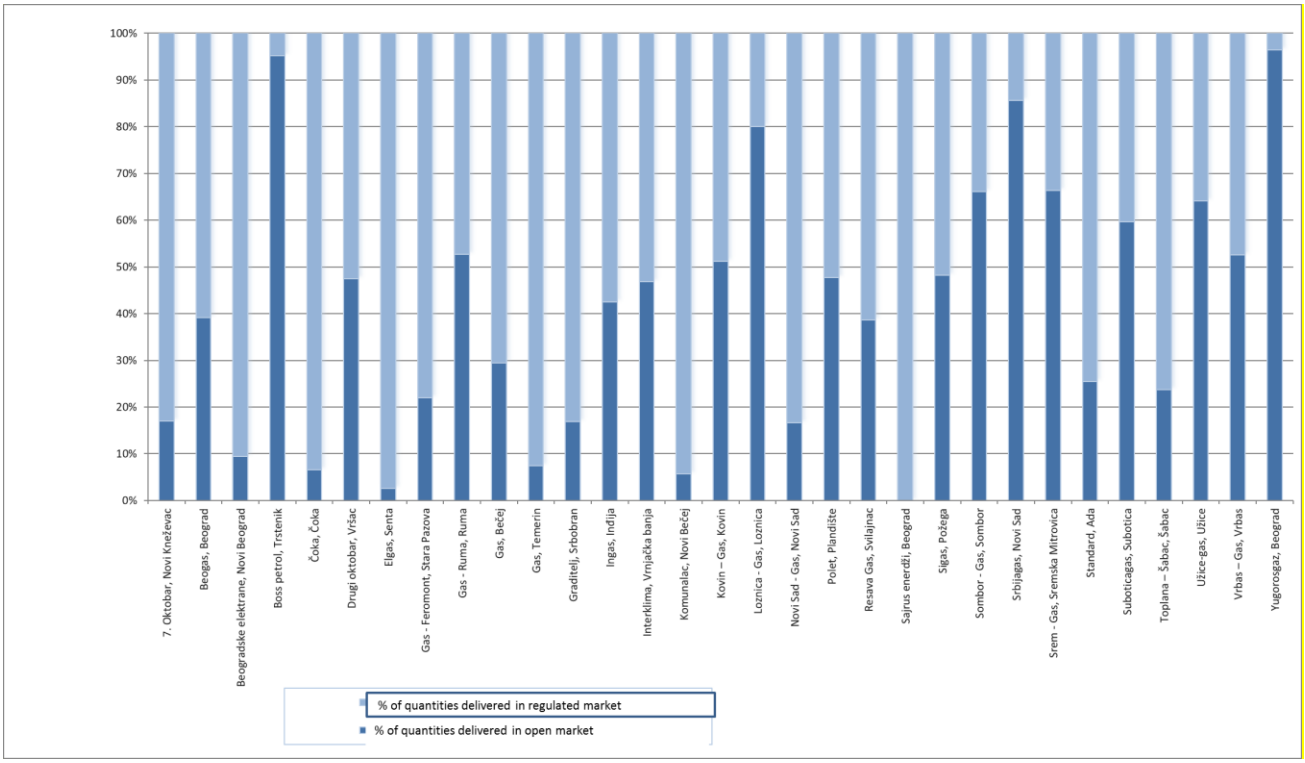


**Figure 4-5: Ratio between regulated and open market for each distribution system depending on the level of delivered quantities**

### 4.5.1 Wholesale market

In the wholesale natural gas market, purchase and sale are performed directly between market participants. In 2020, wholesale natural gas market was based on trade among natural gas suppliers and natural gas suppliers and natural gas producers. In 2020, 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 2020, 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 2020 amounted to 28.93 RSD/m$^3$. It is by 16.2% lower than the one last year. Out of it, average weighted wholesale price at which suppliers sold natural gas to public suppliers in 2020 amounted to 28.00 RSD/m$^3$. It is by 11.9% lower 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 2020, final customers procured and spend 2,235 million m$^3$ of natural gas in the market. In addition, NIS spent 248 million m$^3$ of gas they produced and this quantity was not placed in the market. 1,125 customers procured gas in the open market, while 35 of them were also using supply of the last resort. In total, 1,853 million m$^3$ were delivered to customers in the open market (supply of the last resort covered 1.2 million m$^3$), i.e. 83% of the total gas volume delivered to final customers. 24 suppliers were selling gas to them (PE *Srbijagas* with the greatest share - 80%). In 2020, 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. 382 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 4-15: Total natural gas consumption (in open and regulated markets)**

| | 2019 million $m^3$ | 2020 million $m^3$ | 2020/2019 index |
|---|---|---|---|
| Consumed in the open market | 1,751 | 1,853 | 106 |
| Consumed in the regulated market | 332 | 382 | 115 |
| **Total in the market** | **2,083** | **2,235** | **107** |

Based on the data provided by natural gas suppliers and public suppliers, average weighted retail price in the open market in 2020, including transmission and distribution use-of-system charges amounted to 31.57 RSD/$m^3$. In was by 22.1% lower 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 34.66 RSD/$m^3$. It was by 0.1% lower than last year. For customers from the small consumption group which also includes households, the price amounted to 34.86 RSD/$m^3$ and it was by 0.4% 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 36.45 RSD/$m^3$. It was by 19.7% lower than last year.

In 2020, only 5 DSOs delivered more than 30 million $m^3$ to customers, while 19 of them delivered less than 10 million $m^3$.

The greatest share of natural gas, i.e. 1,807 million $m^3$ (81%) of total quantities was sold to customers by PE *Srbijagas* in 2020. The second greatest share was sold by Novi Sad Gas sold 83 million $m^3$ of gas, i.e. around 3.7% and Yugorosgaz JSC with 65 million $m^3$, i.e. 2.9% of total consumed quantities in 2019. Individual share of other suppliers amounts to below 2% of total quantities.

Natural gas volumes sold to final customers by suppliers (excluding the gas both produced and consumed by NIS) in 2019 and 2020 are given in Table 4-16.

## Table 4-16: Natural gas sale to final customers in 2019 and 2020

| No. | Supplier | 2019 (000 m³) | | | | 2020 (000 m³) | | | | 2020/2019 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Househ. | DHC | Industry and others | Total | Househ. | DHC | Industry and others | Total | House h | DHC | Industry and others | Total |
| 1 | *7 Oktobar, Novi Kneževac* | 852 | 0 | 275 | 1,127 | 1,032 | 0 | 273 | 1,305 | 121 | 0 | 99 | 116 |
| 2 | *Beogas, Belgrade* | 13,602 | 346 | 14,991 | 28,939 | 16,047 | 367 | 15,861 | 32,275 | 118 | 106 | 106 | 112 |
| 3 | *Beogradske elektrane, Novi Beograd* | 2,991 | 0 | 1,031 | 4,022 | 3,693 | 0 | 652 | 4,365 | 123 | 0 | 63 | 108 |
| 4 | *Boss petrol, Trstenik* | 33 | 0 | 314 | 347 | 62 | 0 | 184 | 246 | 188 | 0 | 59 | 71 |
| 5 | *Čoka, Čoka* | 333 | 0 | 255 | 588 | 416 | 0 | 231 | 647 | 125 | 0 | 91 | 110 |
| 6 | *Drugi oktobar, Vršac* | 8,838 | 0 | 13,146 | 21,984 | 10,745 | 0 | 11,673 | 22,418 | 122 | 0 | 89 | 102 |
| 7 | *Elgas, Senta* | 1,352 | 0 | 642 | 1,994 | 1,617 | 0 | 579 | 2,196 | 120 | 0 | 90 | 110 |
| 8 | *Gas – Feromont, Stara Pazova* | 15,346 | 0 | 9,579 | 24,925 | 17,877 | 0 | 10,267 | 28,144 | 116 | 0 | 107 | 113 |
| 9 | *Gas – Ruma, Ruma* | 6,265 | 596 | 13,733 | 20,594 | 7,501 | 897 | 13,512 | 21,920 | 120 | 151 | 98 | 106 |
| 10 | *Gas, Bečej* | 1,592 | 0 | 1,456 | 3,048 | 1,928 | 0 | 1,328 | 3,256 | 121 | 0 | 91 | 107 |
| 11 | *Gas, Temerin* | 6,382 | 0 | 1,927 | 8,309 | 7,465 | 0 | 2,040 | 9,505 | 117 | 0 | 106 | 114 |
| 12 | *Graditelj, Srbobran* | 1,369 | 0 | 572 | 1,941 | 1,634 | 460 | 632 | 2,726 | 119 | 0 | 110 | 140 |
| 13 | *Toplana, Zrenjanin* | 15,271 | 0 | 3,217 | 18,488 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 14 | *Ingas, Inđija* | 9,146 | 0 | 11,711 | 20,857 | 10,496 | 0 | 14,246 | 24,742 | 115 | 0 | 122 | 119 |
| 15 | *Interklima, Vrnjačka banja* | 865 | 0 | 1,828 | 2,693 | 1,033 | 0 | 1,353 | 2,386 | 119 | 0 | 74 | 89 |
| 16 | *Komunalac, Novi Bečej* | 1,305 | 0 | 812 | 2,117 | 1,705 | 0 | 868 | 2,573 | 131 | 0 | 107 | 122 |
| 17 | *Kovin – Gas, Kovin* | 3,555 | 958 | 2,942 | 7,455 | 4,356 | 1,094 | 3,141 | 8,591 | 123 | 114 | 107 | 115 |
| 18 | *Loznica – Gas, Loznica* | 1,821 | 3,069 | 4,880 | 9,770 | 2,176 | 3,387 | 5,016 | 10,579 | 119 | 110 | 103 | 108 |
| 19 | *Naftna Industrija Srbije, Novi Sad* | 0 | 0 | 4,161 | 4,161 | 0 | 0 | 3,568 | 3,568 | 0 | 0 | 86 | 86 |
| 20 | *Novi Sad – Gas, Novi Sad* | 47,522 | 962 | 24,942 | 73,426 | 55,768 | 1,101 | 25,538 | 82,407 | 117 | 114 | 102 | 112 |
| 21 | *Polet, Plandište* | 1,820 | 0 | 2,657 | 4,477 | 2,129 | 0 | 2,694 | 4,823 | 117 | 0 | 101 | 108 |
| 22 | *Resava Gas, Svilajnac* | 461 | 0 | 1,063 | 1,524 | 539 | 0 | 1,000 | 1,539 | 117 | 0 | 94 | 101 |
| 23 | *Cyrus Energy* | 2,171 | 0 | 253 | 2,424 | 2,463 | 0 | 303 | 2,766 | 113 | 0 | 120 | 114 |
| 24 | *Sigas, Požega* | 251 | 0 | 95 | 346 | 298 | 0 | 202 | 500 | 119 | 0 | 213 | 145 |
| 25 | *Sombor – Gas, Sombor* | 1,970 | 0 | 4,377 | 6,347 | 2,435 | 0 | 4,117 | 6,552 | 124 | 0 | 94 | 103 |
| 26 | *Srbijagas, Novi Sad* | 85,179 | 463,871 | 1,141,516 | 1,690,566 | 120,208 | 538,151 | 1,148,854 | 1,807,213 | 141 | 116 | 101 | 107 |
| 27 | *Srem – Gas, Sremska Mitrovica* | 5,930 | 0 | 14,046 | 19,976 | 7,151 | 881 | 17,017 | 25,049 | 121 | 0 | 121 | 125 |
| 28 | *Standard, Ada* | 741 | 0 | 1,202 | 1,943 | 920 | 0 | 1,346 | 2,266 | 124 | 0 | 112 | 117 |
| 29 | *Suboticagas, Subotica* | 9,964 | 0 | 13,392 | 23,356 | 11,367 | 0 | 12,974 | 24,341 | 114 | 0 | 97 | 104 |
| 30 | *Toplana – Šabac, Šabac* | 3,054 | 0 | 695 | 3,749 | 3,615 | 0 | 765 | 4,380 | 118 | 0 | 110 | 117 |
| 31 | *Užice – gas, Užice* | 1,947 | 4,387 | 1,957 | 8,291 | 2,630 | 4,935 | 1,919 | 9,484 | 135 | 112 | 98 | 114 |
| 32 | *Vrbas – Gas, Vrbas* | 1,899 | 0 | 3,712 | 5,611 | 2,232 | 0 | 723 | 2,955 | 118 | 0 | 19 | 53 |
| 33 | *Yugorosgaz, Belgrade* | 1,025 | 24,060 | 25,275 | 50,360 | 1,398 | 27,646 | 36,238 | 65,282 | 136 | 115 | 143 | 130 |
| 34 | *CESTOR-VEKS, Kruševac* | 0 | 2,266 | 4,125 | 6,391 | 0 | 2,492 | 9,916 | 12,408 | 0 | 110 | 240 | 194 |
| 35 | *King gas, Beograd* | 0 | 0 | 1,157 | 1,157 | 0 | 0 | 1,263 | 1,263 | 0 | 0 | 109 | 109 |
| | **Total:** | **254,852** | **500,515** | **1,327,936** | **2,083,303** | **302,936** | **581,411** | **1,350,293** | **2,234,640** | **119** | **116** | **102** | **107** |

### 4.5.2.1 Sale of natural gas on regulated market

In 2020, natural gas prices for public supply were not modified. Average weighted approved natural gas price for all customers entiteled to public supply in Serbia on 31/12/2020 amounted to 31.95 RSD/m$^3$ while, for small consumption group which also includes households, it amounted to 35.29 RSD/m$^3$.

**Table 4-17: Average approved natural gas public supply price[18]**

RSD/m$^3$

| No. | Natural gas public supplier | All customers | | Small customers | |
|---|---|---|---|---|---|
| | | 31/12/2019 | 31/12/2020 | 31/12/2019 | 31/12/2020 |
| 1 | *7 Oktobar, Novi Kneževac* | 39.06 | 39.06 | 39.64 | 39.64 |
| 2 | *Beogas, Belgrade* | 37.71 | 37.71 | 38.10 | 38.10 |
| 3 | *Beogradske elektrane, Novi Beograd* | 33.48 | 33.48 | 34.16 | 34.16 |
| 4 | *Cyrus Energy, Belgrade* | 35.58 | 35.58 | 35.62 | 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 | | 37.65 | |
| 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** | **32.02** | **31.95** | **35.43** | **35.29** |

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 4-6 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.

[18] In 2020, Boss Construction, Stari Trstenik applied natural gas public supply prices on the level of those of *Srbijagas*, Novi Sad.

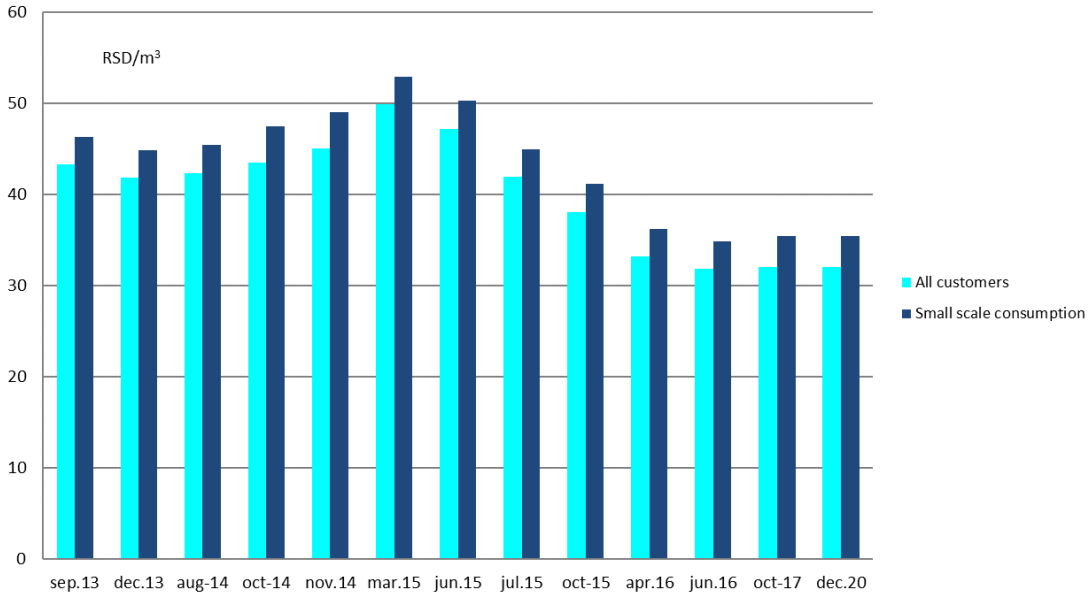


**Figure 4-6: Change of average approved public supply natural gas price**

The costs of natural gas purchase represent the dominant share within natural gas public supply tariff with all public suppliers. On December 31, 2020, the costs of natural gas procurement account for around 80% of the total average approved price of public suppliers. Figure 4-7 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, 2020.

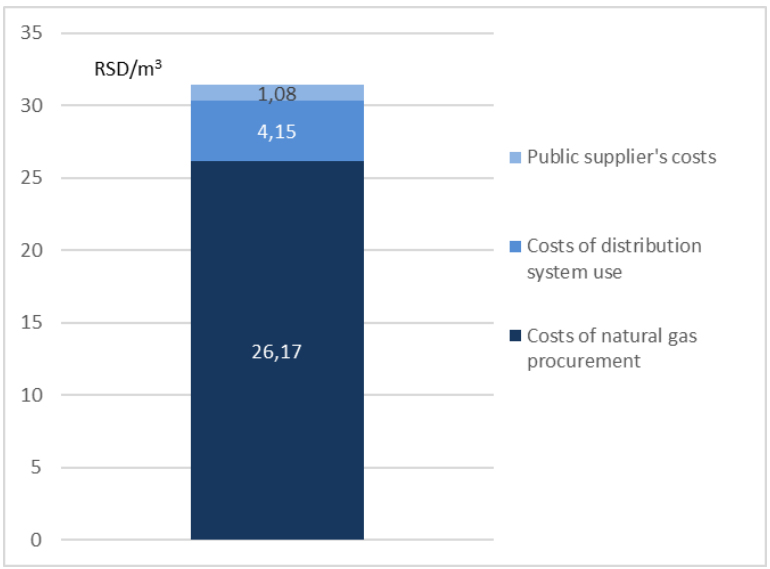


**Figure 4-7: Structure of average approved natural gas public supply price of PE *Srbijagas* on 31/12/2020**

Figure 4-8 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.

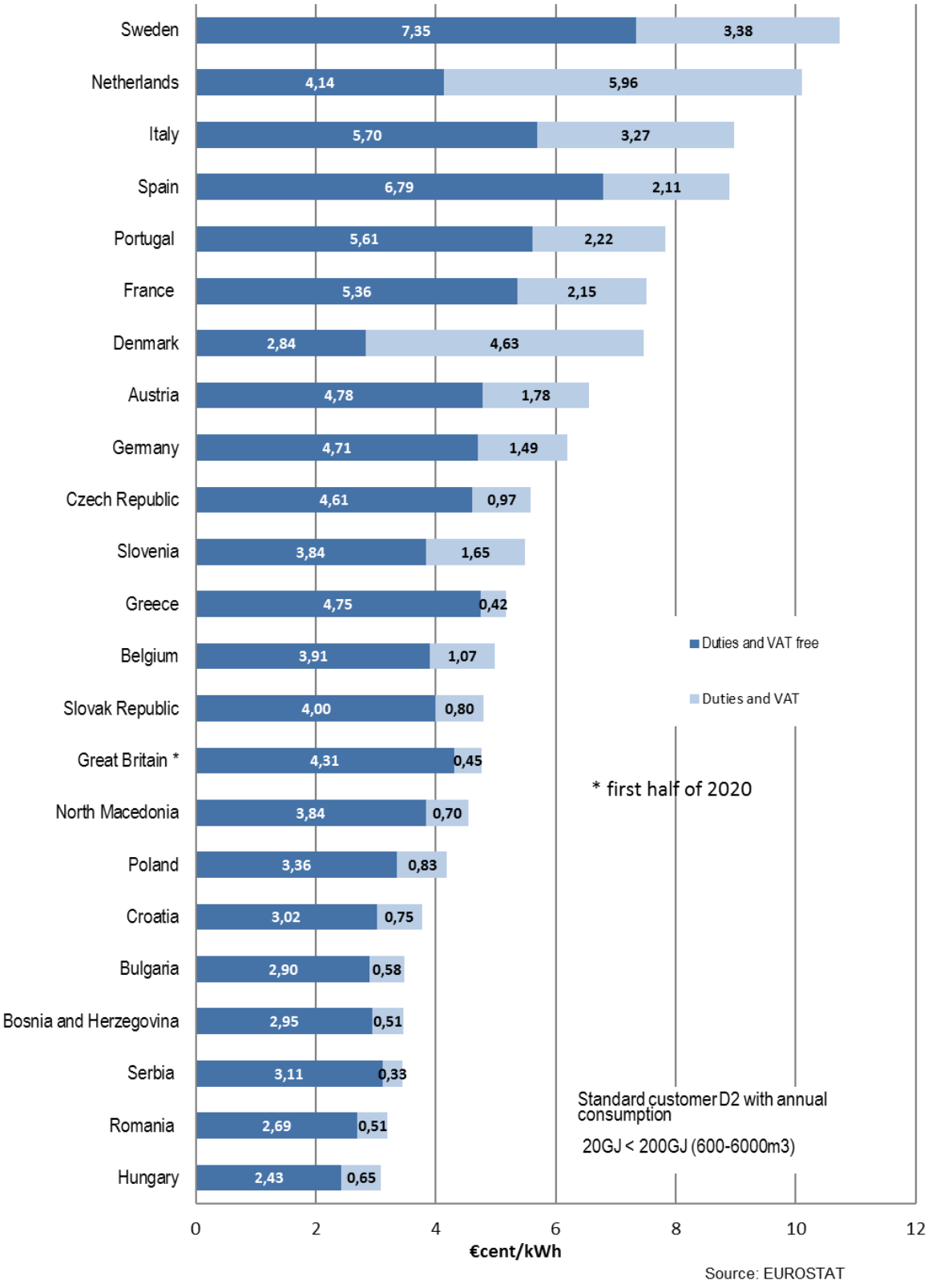


**Figure 4-8: Natural gas prices for households – second half of 2020**

Figure 4-9 indicates a more detailed structure of elements of the natural gas household prices in some of European capitals in December 2020. 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 33%. It is also evident that there is also a considerably lower share of costs of taxes and duties.

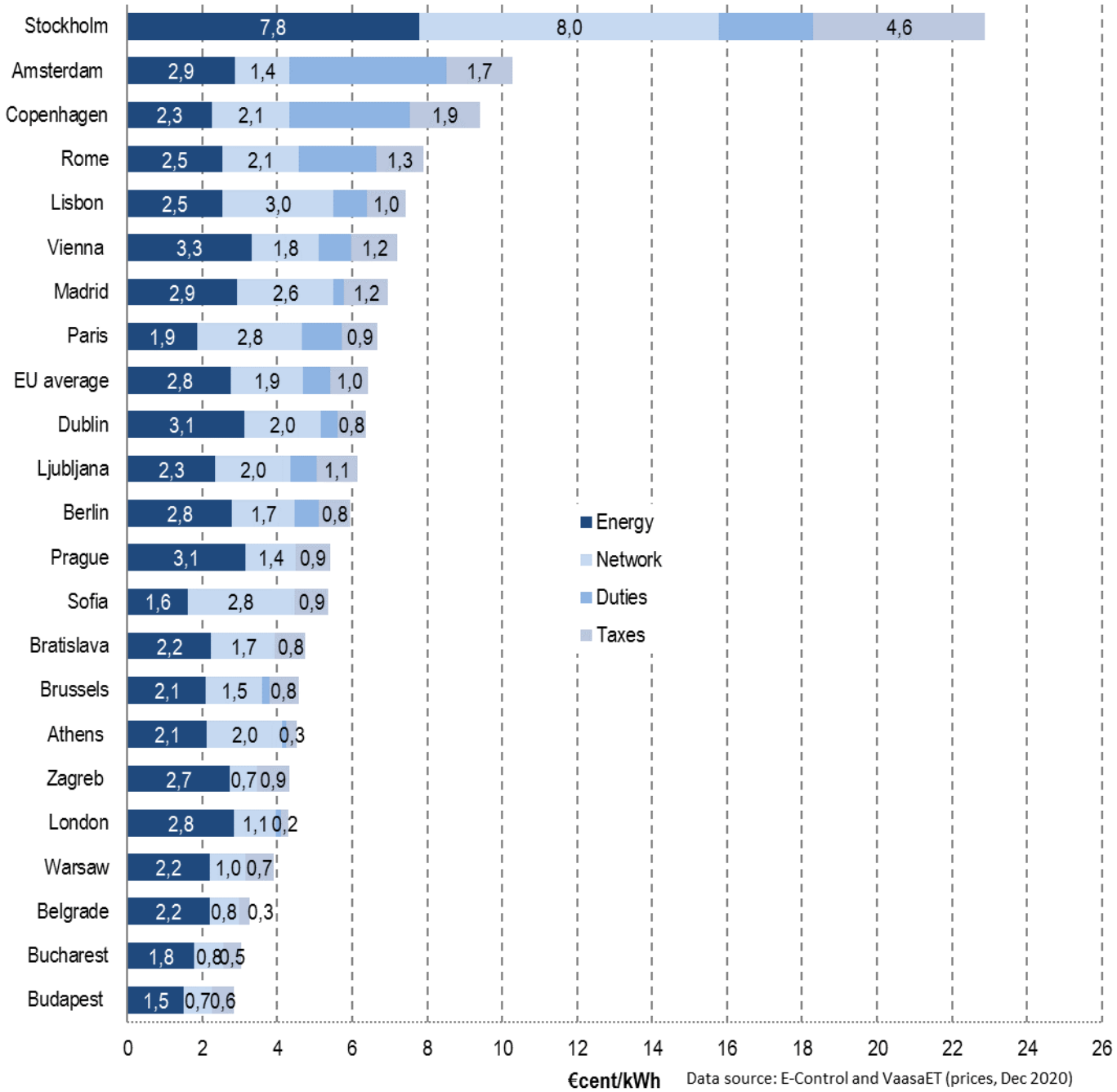


**Figure 4-9: Structure of natural gas household prices in some of European capitals in December 2020**

Figure 4-10 indicates the structure of the final natural gas price for households in some European capitals in December 2020 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.

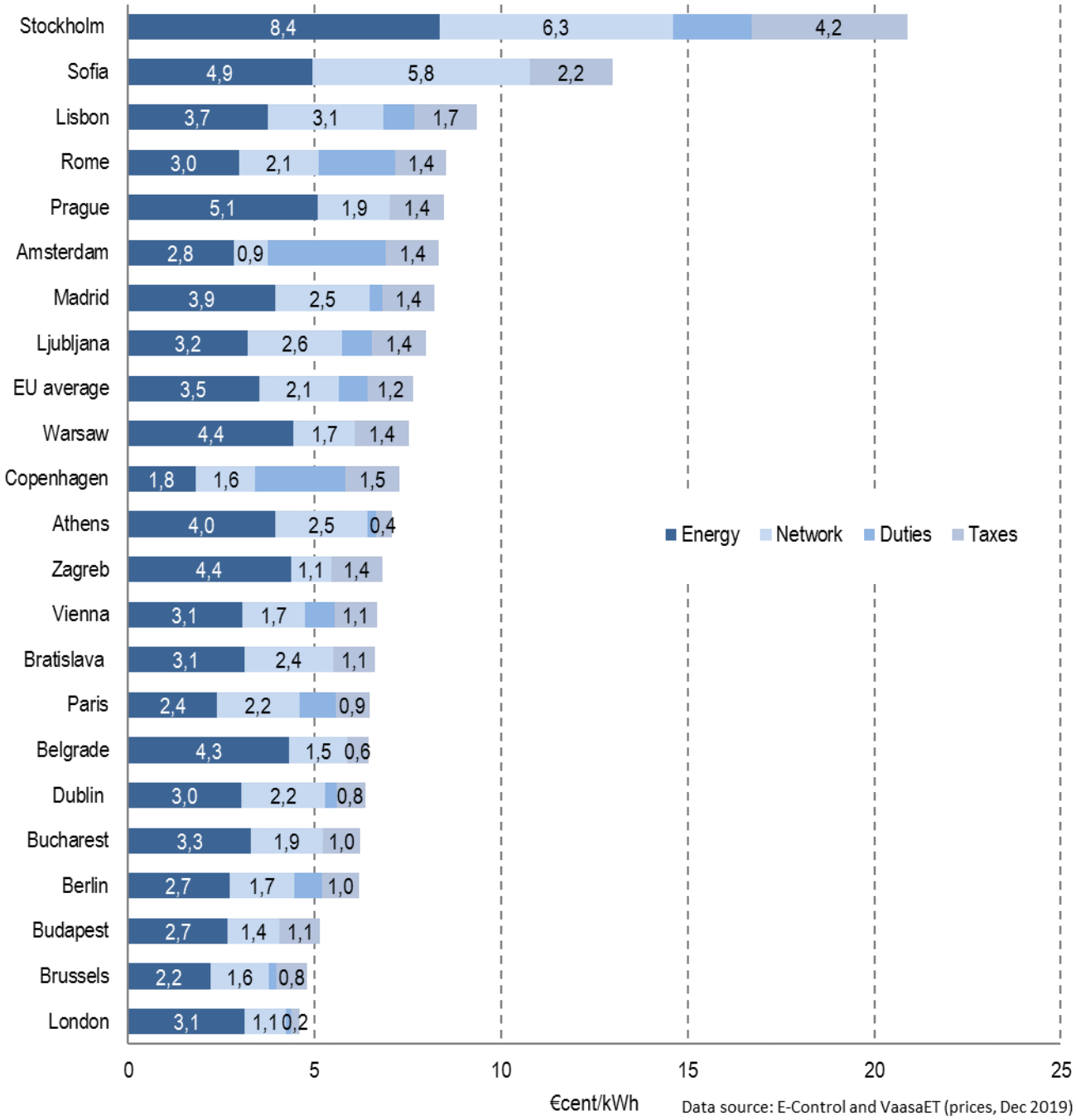


**Figure 4-10: Structure of natural gas household prices in some of European capitals in December 2020 given in purchase power parity**

Figure 4-11 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 2020. The variation between prices is greatly influenced by different tax policy, i.e. different duties and taxes borne by industrial consumers.

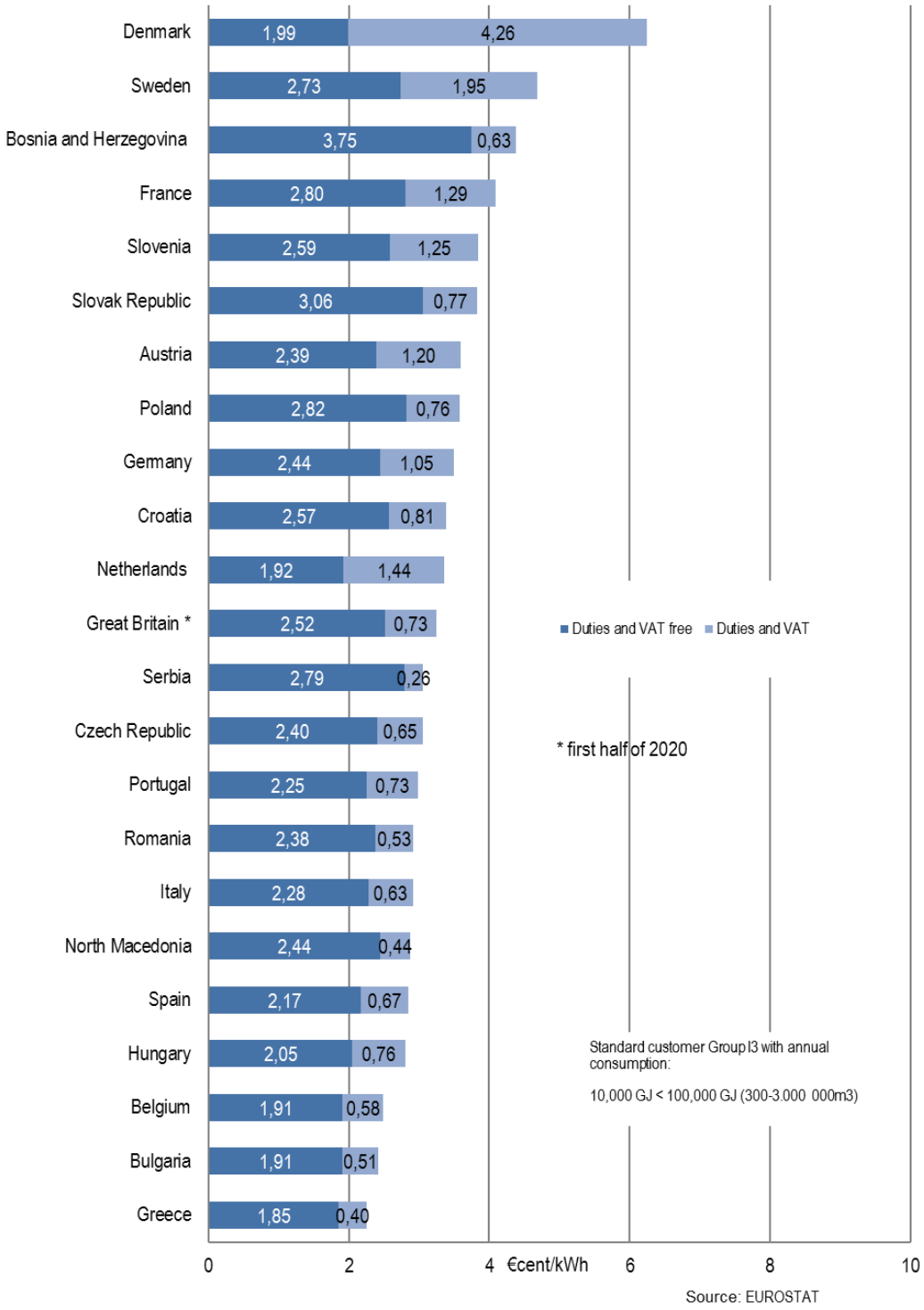


**Figure 4-11: Natural gas prices for industry – second half of 2020**

#### 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 *Transportgas Srbija* system, since there are no final customers connected to the transmission system of *Yugorosgaz-Transport* LLC.

Within the transmission system, out of 64 metering points for final customers, no suppliers were switched on any of metering points in 2020.

With 6 DSOs, there was supplier switch within their systems in 2020. On the distribution level, the total number of delivery points for final customers in the end of 2020 amounted to 293,523. Out of that number, suppliers were switched on 17 metering points, where 3.6 million $m^3$ were delivered. It amounts to 0.21% of natural gas quantities out of total 1,578 million $m^3$ delivered from distribution systems, i.e. 0.16% of 2,235 million $m^3$ of natural gas which was spent in the market (without consumption of NIS from their own production).

In total, in 2020, suppliers were switched on 17 of total 293,587 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), 0.15% of 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, 2019 and in 2020 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. In contrast to previous years, all energy entities provided the requested data and submitted them to the Agency in 2020.

### 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 31 DSOs. 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 4-18: 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 |
| *Transportgas Srbija* | 3 | 1,890 | 0 | 0 | 0 | 0 |
| *Yugorosgaz-Transport* | 0 | 0 | 0 | 0 | 0 | 0 |

In 2020, 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 *Transportgas Srbija*, there were planned interruptions which lasted 1,890 minutes and, in line with the rules, planned works on the gas pipeline which were activities of the system operator are stated as the cause. There were no unplanned interruptions during 2020. There were no events causing natural gas delivery interruptions within the transmission system of *Yugorosgaz-Transport*.

#### 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 2020 according to the causes which led to interruptions longer than 60 minutes, and these served for the calculation of delivery continuity indicators SAIFI[19] and SAIDI[20] both for planned and unplanned interruptions. The data were given in total for all distribution system and maximum and minimum SAIFI and SAIDI realised in single distribution system. Summary data on the continuity of delivery from distribution system refer to 295,920 delivery points, i.e. on 100% delivery points.

**Table 4-19: 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 | 1 | 0.00 | 0.00 | 0.00 | 0.00 |
| Gas leak | 68 | 0.06 | 22.22 | 0.14 | 53.07 |
| Third party | 272 | 0.02 | 5.34 | 0.1 | 11.25 |
| Inadequate network capacity | 0 | 0.00 | 0.00 | 0.00 | 0.00 |
| Other reasons | 4 | 0.01 | 3.89 | 0.2 | 9.57 |
| **Total** | **345** | **0.09** | **31.45** | **0.44** | **73.89** |

As it was the case in 2019, the data show that there were no unplanned interruptions caused by inadequate network capacity but there was one short interruption with a low number of impacted points due to reduction on the upstream system. As it was the case in the years in the past, the greatest number of unplanned interruptions in 2020 was caused by the third party operation.

**Table 4-20: 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 | 54 | 0.13 | 63.06 | 0.32 | 155.06 |
| Administrative interruption | 18 | 0.02 | 8.51 | 0.05 | 20.91 |
| Operator's interruption | 91 | 0.09 | 22.36 | 0.34 | 56.64 |
| Uncategorized interruption | 1 | 0.00 | 0.01 | 0.03 | 3.4 |
| **Total** | **164** | **0.24** | **93.94** | **0.74** | **236.01** |

[19] 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

[20] 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

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 4-21.

**Table 4-21: 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 | 164 | 0.24 | 93.94 |
| Unplanned interruptions | 345 | 0.09 | 31.45 |
| Total | 164 | 0.24 | 93.94 |

### 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 2020, 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 31 DSOs which performed the activity in 2020, data were submitted by all distributers.

#### 4.6.2.1 Connection, disruption and disconnection

The data related to settling applications for connection are given in total in Table 4-22.

**Table 4-22: Application for connection**

| Applications for connection | | | |
|---|---|---|---|
| Number | of filed applications | | 9,939 |
| | of settled applications | approving connection | 9,338 |
| | | denying connection | 92 |
| | | settled otherwise | 509 |
| | | Total | 9,939 |
| | | within 15 days | 9,829 |
| % | of settled applications in comparison to the number of filed ones | | 100.0 |
| | of applications approving connection in comparison to the number of settled ones | | 93.95 |
| | of settled applications within 15-day deadline | | 98.89 |
| 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 4-23. The data indicate that all connections in 2020 were performed in compliance with the deadline.

**Table 4-23: Connection of facilities**

| Connection | | |
|---|---|---|
| Number | of connected facilities | 8,954 |
| | of facilities connected within a 15-day deadline | 8,954 |
| % | 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. Although the supplier switch is still not that common, there was not DSO appealing against an act of the system operator on the access to the system.

#### 4.6.2.3 Metering and billing

Justified objections which were submitted against billings included the following causes: inaccurate reading 86%, inaccurate billing (energy section) 1%, inaccurate invoicing 1%, inaccurate metering 9%, and other 1%. In 2020, time necessary for settling objections to billing lasted between 1 and 7 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 2020 amounted to 780 and 765 checks were performed. During these checks, there were 604 noticed irregularities (79% of checks made) and all of 604 irregularities were removed. The number of extraordinary checks of metering equipment which were done within the prescribed deadline of 10 days amounted to 537 (70%).

#### 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. *Transportgas Srbija* LLC submitted the ten-year transmission system development plan to the Agency and the Agency organised public consultations for the submitted development plan in the period from July 29 till August 28, 2020. The Council of the Agency adopted a decision on the approval of the ten-year Transmission System Development Plan of *Transportgas Srbija* LLC on December 31, 2020.The transmission system operator *Yugorosgaz-transport* LLC submitted the ten-year plan. The Agency organised public consultations for the submitted development plan from May 27 to June 18, 2020. On August 28, 2020, the Agency Council adopted a decision on the approval of the ten-year *Yugorosgaz-transport* LLC Transmission System Development Plan.

### 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 mid 2021. 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 started operating on January 1, 2021 and the gas pipeline is planned to be fully completed on October 1, 2021. By the construction of this

gas pipeline, the infrastructure supply standard N-1 in the Republic of Serbia is met since it 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, Radun 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 2020, 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 Novi Sad, Petrol LPG from Belgrade, VML from Jakovo, Energreen MTV 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. In 2020 as well as in 2019, there were 19 energy entities licenced for filling containers with liquid oil gases which are used for energy purposes.

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*. Crude oil production is performed by Exploration and Production Unit on 64 oil fields with 796 wells in Serbia. In addition to these, additional 38 development wells and 3 exploratory wells were drilled in 2020.

Total crude oil and semi-products consumption from local production, import and reserves in 2020 in Serbia amounted to 3.299 million tons which is by 0.3% more than in 2019. In 2020, around 0.861 million tons of crude oil (26.10% of the total consumption) were produced in Serbia and 2.438 million tons (73.90%) were provided from import, with 2/3 of crude oil originating from Iraq (oil type Kirkuk) and the rest from Russia (oil types REB and Novy Port) and Kazahstan (SRS).

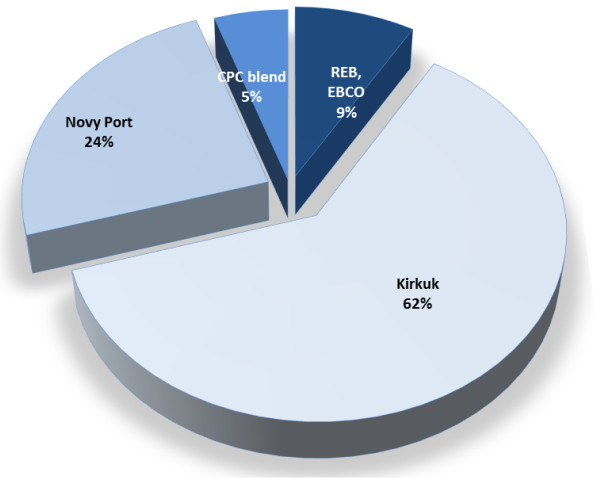


**Figure 5-1: Types of imported crude oil in 2020**

Crude oil processing is performed in the oil refinery in Pančevo where modernisation began in 2009 and the first cycle of modernisation was completed in 2013 (light hydrocracking and hydro processing modules and production of motor fuels with “Euro 5” quality exclusively). In November 2020, the deep processing plant with delayed coking was commissioned. The construction of the plant began in 2018. The successful completion of this project enables NIS to have an increased production of fuels which are highly valorised in the market – diesel, petrol and liquid oil gas as well as to start producing oil coke. In addition, energy efficiency of the refinery was improved and local oil coke started to be produced. The Deep Processing Project also created ecological benefits, first of all the cease of production of mazoute with a high content of sulphur. In such a manner, the quality of all produced motor and energy fuels is harmonised with the EP Directive 2016/802 which is how conditions were created for amendments in the local legislation and, in 2020, a new Rulebook on Technical Requirements and Other Requirements for Liquid Fuels of Oil Origin (“Official Gazette of RS”, No. 150/20) was adopted. In addition, the emission of sulphur and nitrogen oxides as well as powder particles were reduced to a great extent which improves the ecological sphere additionally.

Despite pandemia, there was the same scale of crude oil and semi-products processing in 2020 as last year which indirectly affected the decrease in oil derivatives import as final products.

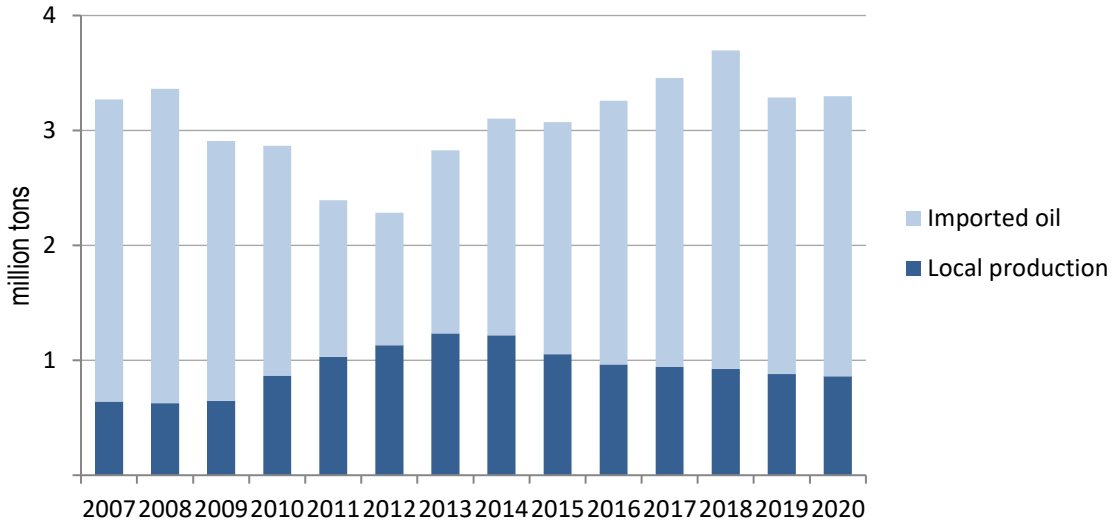


**Figure 5-2: Crude oil refinery processing in Serbia in 2007 - 2020**

Local crude oil production reached its maximum in 2013. In comparison to that year, in 2020, crude oil production was lower by around 30% which represents a follow-up of the decrease in the local production of crude oil trend. The import of crude oil and semi products was on the same level as in 2019. The share of local crude oil in total refinery processing amounted to 18.6% in 2008, around 49.5% in 2012 and 26.1% in 2020 which is around 0.7% less 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. Despite extraordinary circumstances caused by global pandemia which was the framework for the functioning of economy and the whole society during most of 2020, the supply of oil derivatives was stable. In 2020, 0.928 million tones of derivatives was imported which is by around 24% less than in 2019. 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 2020, 0.75 million tons of derivatives were exported which is by around 7% more than last year.

Retail in oil derivatives decreased by 7.1%, first of all as a consequence of lower mobility of population and lower transit of passengers in international transport. Negative consumption trend was recorded with all oil derivatives. In line with drastic reduction of air transport, the biggest drop was recorded by avio fuel – even by around 47%. The lowest consumption drop was recorded with diesel and it amounted to 4.1%.

Total motor fuels consumption in 2020 amounted to around 2.32 million tons which is around 5.7% less than last year. Within the structure of consumption of motor fuels, petrol types accounted for 17%, gas oils for 76.9%, LPG-autogas for 6.1%. The total petrol consumption decreased by 7.9% in comparison to 2019. The consumption of gas oil – euro diesel and gas oil 0.1 is by 4.1% lower. The consumption of extra lights euro L gas oil is by 1.8 % lower while the consumption of liquid oil gases including autogas was lower by even 18%.

This is the eighth year in a row with autogas consumption drop, which is a consequence of abandonment of use of this alternative fuel in vehicles (6% lower number of registered vehicles which use autogas in comparison to 2019, i.e. by 25% lower in comparison to 2016), due to relatively high 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. The consumption of compressed natural gas (CNG) for running vehicles is growing but there are no precise statistical data on this. In addition to natural gas from the gas pipeline, natural gas which was imported in compressed format (around 10,000 t of natural gas was imported in compressed format in 2020) was used for this purpose.

The first quantities of liquefied natural gas (LNG) which can be used for running vehicles were imported in the end of 2020. However, there are neither supply stations for this energy source in the Republic of Serbia nor legislation regulating this trade.

According to the data available to the public, there are around 2.7 million vehicles registered in the Republic of Serbia. Out of the number, only a low number of vehicles are electricity-fuelled or hybrid-fuelled vehicles. Therefore, this type of transport has not been influencing the total motor fuel consumption structure to a great extent 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 ("Official Gazette of RS", No. 150/20), i.e. in the Rules on Technical Requirements and Other Requirements for Liquid Petroleum Gas ("Official Gazette of RS", No. 97/2010, 123/2012 and 63/2013). 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, primarily with a purpose of storing mandatory reserves.

*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 2020, around 43 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 2020, 0.621 million tons of local oil and 2.549 million tons of imported oil were transported. It represents a decrease of local oil transport by 2.62% and an increase of imported oil transport by around 10.74% in comparison to last year. In the past ten years, the highest local oil transport was recorded in 2013 when it was by 59.21% higher than in 2020. The lowest imported oil transport was recorded in 2012 when it was by around 55% lower than in 2020.

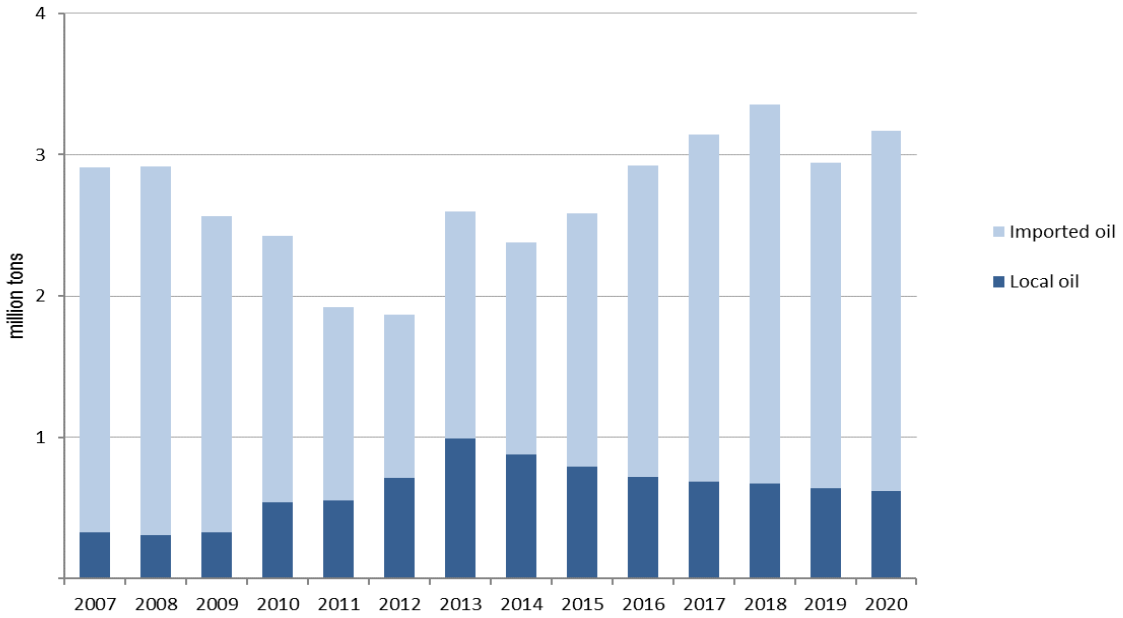


**Figure 5-3: Crude oil quantities transported by oil pipeline of "Transnafta" in the period 2007 – 2020**

7. 84% more crude oil was transported in 2020 than last year which is primarily a consequence of greater volumes of processed crude oil following the reduced processing due to capital overhaul of the refinery in Pančevo in 2019. If

one reviews the time period since regulation was introduced for this activity (Figure 5-3), in comparison to 2012 when there was minimum transport of crude oil via oil pipeline, crude oil transport in 2020 was higher by almost 70%.

## 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 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. *Transnafta* made a draft of the Oil Transport Development Plan for 2021-2025 in 2020.

### 5.3.3 Use-of-system charge

In 2020, the Council of the Agency approved the decision on the oil transport use-of-system charge of *Transnafta* JSC which has been valid since 01/07/2020.

**Table 5-1: Use-of-system charges**

| ***Transnafta*** | **Oil pipeline branch** | **31/12/2019** | **31/12/2020** |
|---|---|---|---|
| Tariff “energy source” (RSD/t/100 km) | Sotin – Novi Sad | 224.39 | 149.69 |
| | Novi Sad – Pančevo | 156.46 | 125.11 |

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 2020 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/EP in the local legislation. This Directive refers to the provision of minimum mandatory oil and oil derivatives reserves.

The Directive (EP) 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 as of 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). A Rulebook on Calculation of Renewable Energy Sources Share ("Official Gazette of RS", No. 37/2020) was adopted in 2020. Among other things, the Rulebook prescribes in more detail the energy content of fuel in transport sector and the manner of calculation of the impact of biofuels and bioliquids and their comparable fossil fuels on the emission of greenhouse gases. 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 2020 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 2021, the licence for trade in oil, oil derivatives, biofuels and compressed natural gas was held by 55 energy entities, i.e. by 10% more than last year as it is indicated in figure 5-4. In the period after 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 2020 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. Since 2015, the number of market participants is relatively stable. In the period from the adoption of the Energy Law in the end of 2014, until the end of 2020, 209 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.

Analyzing licences issued for oil, oil derivatives, biofuels and compressed natural gas trade, it is important to highlight:

- In 2020, 21 energy entities were holding licence for the performance of given activity which includes compressed natural gas trade which is 5 entities more than in 2019 and it corresponds to the nominal increase of the number of wholesale traders in 2020;
- In 2020, the trade in liquefied natural gas was recorded within the licence for the performance of this activity, i.e. in the licence of PAN-LEDI ENERGY, Pančevo;
- For the trade in motor fuel gas oil 0.1 which is used for running machines and tractors, prescribed minimum technical conditions were only complied by NIS for years in the past. In the end of 2020, upon NIS request the licence was amended and now no energy entities comply with necessary requirements for the wholesale of this type of motor fuel in the market of the Republic of Serbia.

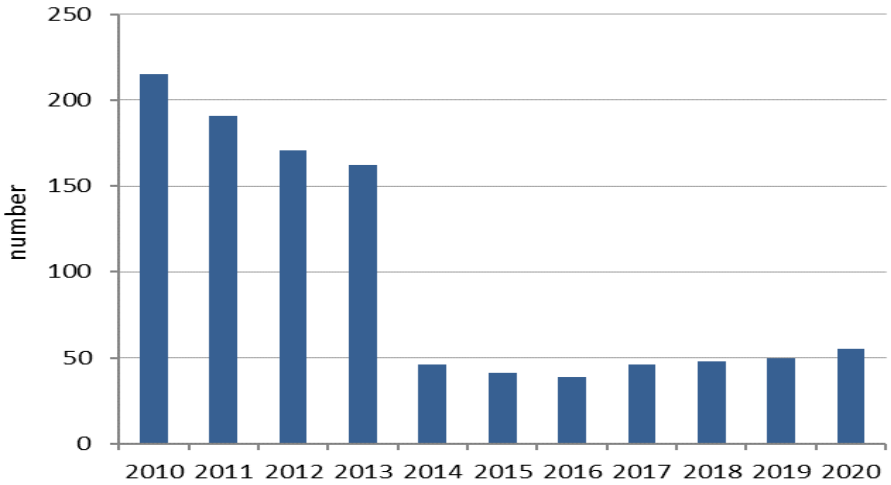


**Figure 5-4: Number of active licenses for trade in oil, oil derivatives, CNG and biofuels**

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 2020, not all companies storing oil derivatives in tanks within river terminals harmonise their activities with ruling regulations in an adequate manner. The licence for trade in oil for watercrafts was held by the company Siber Invest from Požarevac and by NIS. Both companies have 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 one entity. *NIS* has the largest storage capacities out of 26 licence holders. The second, third and fourth largest storage holders include *Transnafta*, PE EPS, Mitan oil, MOL Serbia 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 instalment 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 446 of them holding that licence in the end of 2020 which is 9 licences more than in 2019. 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. It is confirmed by the fact that the number of licenced entities dropped by around 5% in the period 2016-2020.

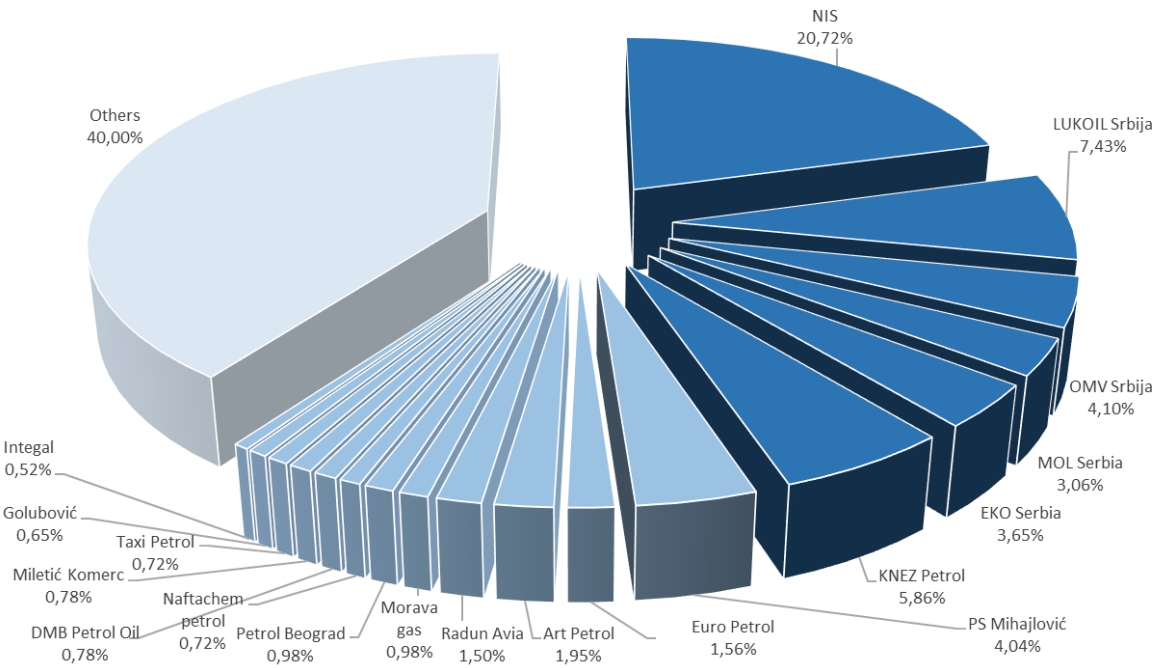


**Figure 5-5: Share of companies in retail motor fuel market according to the number of stations in 2020**

Figure 5-5 indicates the share of the biggest companies in retail motor fuel market in 2020. 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 2.5. 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 1.42. This average level refers to 96.6% of all licenced energy entities which perform motor fuel trade on over 40% of total retail facilities in the Republic of Serbia. These traders are given in Figure 5-5 in the collective category "others" and their share in the total number of stations was reduced by around 1.5% in 2020 which confirms the thesis on the local market consolidation. The biggest increase in the number of stations in 2020 was recorded with the business group Knez Petrol (7) and MOL Serbia (6) while the biggest drop was recorded with business group Euro Petrol (6).

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. Until the beginning of 2021, 14 licences were issued for retail in CNG (which is twice as higher than in the end of 2019) and thereby the supply in compressed natural gas was performed on 17 stations in total. The 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 retail 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 of 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 2020, 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 and acted 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' or 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.

In 2020, natural gas public supply was performed by 31 public supplier out of 32 licenced energy entities (one energy entity holds a licence but does not perform the activity). 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.

The prices of guaranteed and public supply are approved by the Agency in line with the Law. The content of the bill issued to final customers is prescribed in more detail by bylaws by which the Government of RS prescribed in more detail conditions of electricity, i.e. natural gas delivery and supply.

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

Following market opening, a final electricity and natural gas consumer becomes interested in obtaining full data on their consumption since without these data a potential supplier with whom a customer negotiates cannot make a precise price offer. In line with the Law, a final customer is entitled to ask directly or to authorize their potential supplier to ask for and obtain all necessary data from the system operator on customer's consumption on the delivery point which the system operator is obliged to indicate in an unambiguous and timely manner. The Law prescribes that a customer may authorize any supplier (not only the current one) to ask for and obtain the data on their 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 which are 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 91/18) 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, 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. Achieved indicators are referred to in more detail in subsections 3.7 and 4.6.

### 6.2.5 Settling complaints and assistance in mediation procedure

The Agency also performs entrusted activities of administrative and legal protection of final customers. In 2020, as the second-instance body, the Agency adopted decisions against appeals filed by customers against acts of system operators on denial of system connection application. In most cases, appeals were filed due to a failure of a competent energy entity to adopt decisions in the first instance within the timeframe prescribed by the Law (the so-called "administrative silence") but also due to contesting set technical requirements and costs of connection service. In 2020, final customers filed appeals only against acts of electricity distribution system operator's acts while there were no appeals filed against natural gas distribution system operator's acts.

Acting upon filed complaints, in 2020, the Agency mostly revoked decisions of system operators adopted within the first-instance procedure upon applications for connection to the distribution system mainly due to established violation of process law and violation of material regulations. Bearing in mind that the number of complaints slightly decreased in 2020 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 2020.

In addition to being authorised to receive appeals in the field of administrative affairs related to system connections, the Agency is also authorised to settle complaints of system users filed against acts of system operator by which they adopted decisions on system access for the purpose of using the service of electricity and natural gas transmission or distribution.

Customers and system users are also entitled to have administrative-court protection against second-instance administrative decisions of the Agency regardless of the fact whether they were adopted within an appeal procedure where the Agency settles complaints against acts on denial of connection or within an appeal procedure where the Agency settles a complaint filed against an act by which a system operator denied an application and denied access to the system.

The number of complaints to the Constitutional Court of RS filed within the second instance procedure against decisions of the Agency decreased significantly in 2020 in comparison to last year.

Even in 2020, 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 2020, 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 2020, 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 in line with the Rulebook on Setting Harmonised Level of Realised Monthly Income of Household which enables the award of the status of energy vulnerable customer until and after December 1, 2020 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 2020**

| For a household with the following number of members | Total monthly income up to _ RSD | |
|---|---|---|
| | until November 30 | as of December 1 |
| 1 | 14,571.74 | 14,848.60 |
| 2-3 | 21,216.14 | 21,619.25 |
| 4-5 | 27,856.18 | 28,385.45 |
| 6 and above 6 | 35,030.72 | 35,696.30 |

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) $m^3$ 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 2020 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[21] | 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 2020, 77.3% of energy-wise vulnerable customers had consumption which enabled them to have 100% of rights for reduced monthly bill. 7.2% of energy-wise vulnerable customers were entitled to 50% discount, while 1.6% 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% in different months. With 13.9% 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

[21] MPU = Maximum electricity consumption pursuant to the Decree on Energy-Wise Vulnerable Customer

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 2020 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 2020 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 2020**

| | Customers entitled to reduction | |
|---|---|---|
| | Number of customers | Annual amount 000 RSD |
| Electricity | 71,993 | 1,210,215 |
| Natural gas | 87 | 455 |
| Total | **72,080** | **1,210,670** |

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 2020, the number of customers who were exercising their right to bill discount for delivered electricity and natural gas decreased in comparison to last year (around 6%). If we have a look at separate months, in the field of electricity, the number amounted to between 65,054 in January and 71,993 in October 2020.

Based on the data filed by PE “Elektroprivreda Srbije”, the number of beneficiaries in line with the Electricity Decree for different months in 2020 amounted to the following levels:

**Table 6-5: Survey of energy-wise vulnerable electricity customers during different months of 2020**

| 2020 month | Number of energy-wise vulnerable customers | Level of reduction within electricity bill RSD |
|---|---|---|
| January | 65,054 | 90,812,715.91 |
| February | 70,005 | 99,195,825.39 |
| March | 70,955 | 98,141,566.80 |
| April | 70,790 | 99,991,414.40 |
| May | 70,637 | 103,659,831.80 |
| June | 70,062 | 102,554,813.30 |
| July | 70,549 | 104,101,583.71 |
| August | 70,088 | 104,029,241.53 |
| September | 71,014 | 106,588,446.35 |
| October | 71,993 | 104,746,695.98 |
| November | 71,352 | 100,291,385.57 |
| December | 69,964 | 96,101,571.22 |
| **TOTAL** | | **1,210,215,091.96** |

The total amount of benefits achieved by energy-wise electricity vulnerable customers in 2020 amounted to RSD 1,210,215,091.96. 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 2020, there were oscillations depending on the season which indicate that some customers use electricity for heating purposes. For example, in January 2020, 73.9% of these customers who were awarded with the vulnerable customer status met the condition for 100% reduction. Additional 10.8% were entitled to 50%, while 4.0% of households exceeded the consumption limit and were not entitled to bill discount. In January 2020, the number of households with reductions higher than the bill amount accounted for 11.3% of the total number of households who were entitled to bill discount. During summer months, the statistics is much better since e.g. in July, 84.1% of all households who were entitled to the vulnerable customer status met the condition for 100% of discount, 3.8% were entitled to 50%, while only 0.5% were not entitled to discount due to consumption exceeding the limit.

The number of electricity vulnerable customers in 2020 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 2019, in Serbia, poverty risk rate amounted to 23.2% and, in comparison to 2018, it was lower by 1.1 percentage point. The analyses show that a large number of households is exposed to energy poverty risk. Around 9.9% of total population in Serbia cannot provide adequate heating temperature in their apartments[22]. 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 25.8% of the total population. In addition, 18.0% 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 2020, the number amounts to around 250,000 households[23] 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 300,000 – 400,000 households[24].

**Table 6-6: Review of beneficiaries of social care allowance in 2020**

| Number of family members | Number of families | Persons in total | Amount 000 RSD |
|---|---|---|---|
| 1 | 36,574 | 36,574 | 324,316 |
| 2 | 17,834 | 35,668 | 200,697 |
| 3 | 9,368 | 28,104 | 124,835 |
| 4 | 9,954 | 39,816 | 151,965 |
| 5 | 6,098 | 30,490 | 107,340 |
| 6 and above 6 | 5,272 | 31,632 | 105,073 |
| **Total** | **85,100** | **202,284** | **1,014,226** |

**Table 6-7: Review of beneficiaries of children allowance in 2020**

| For a child | | Number | Amount 000 RSD |
|---|---|---|---|
| First-born | | 104,239 | 346,415 |
| Second-born | | 88,177 | 286,874 |
| Third-born | | 41,152 | 133,088 |
| Fourth-born | | 16,792 | 55,302 |
| **Total** | **children** | **250,360** | **821,678** |

[22] https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_mdes01&lang=en

[23] This number bears in mind that there is an overlap of families who are beneficiaries of both allowances.

[24] In December 2020, in Serbia, there were 1,692,282 pensioneers with average monthly pension of RSD 27,744. Out of the number, there are 162,183 pensioners who used to work in agriculture with average pension of RSD 11,895. In addition, there are 19.3% of pensioneers (around 325,980) with the pension level which is below 15,000 and 59.8% of pensioneers (over 1,000,000) with the pension level lower than the average one. (http://www.phttps://www.pio.rs/sites/default/files/ostalo%202020/Bilten%202020/stat.%20mesecni%20bilten%20za%20XII%202020.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 2021 Financial Plan was adopted by Agency Council within the prescribed timeframe on October 29, 2020 and it was submitted to the National Assembly for adoption purpose on the same day. On December 2, 2020,on the fifth meeting of the Second Regular Session, the National Assembly adopted a decision on the approval to the 2021 Financial Plan of the Energy Agency of the Republic of Serbia. The adoption of the Financial Plan of the Agency created conditions for further improvement of the Agency work and of its organizational structure and the number of employees. The Decision of the National Assembly of RS on the Approval of the AERS 2021 Financial Plan was published in the Official Gazette No. 145/20 of December 3, 2020.

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 2020, the Agency Council which manages the Agency held 40 sessions (38 regular ones and 2 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 and 44/18 – other law) 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 related to the provision of this public service which implies the establishment of the compliance with the conditions for the performance of energy activities for each energy activity separately. The costs are borne by licence applicants. The Decision on Harmonisation of the Level of Costs for Energy Licence Issuance ("Official Gazette of RS", No. 13/16, 66/19 and 116/20) 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 2020, the Agency Council issued licences for 11 energy activities out of 26 energy activities for which licences are issued in line with the 2014 Energy Law.

In 2020, the Agency received 73 licence applications. Along with 2,298 applications received in 2006-2019, it amounts to 2,372 applications in total.

In 2020, 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 61 new licences. Nine files were denied, one of them by application denial while the procedure was suspended with one file. In 2020, by the virtue of the law the Agency adopted decisions on termporary withdrawal of licence in case of nine files. In seven of them, the Agency adopted a decision on permanent licence withdrawal. Decisions on licence issuance were annulled in 17 cases upon energy entities' requests. 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 2020, there were 858 valid licences in total. Since numerous licences were issued in the past and since licenced energy entities did not apply for the extension of their validity even after their validity period expiration, these licences were erased from the public Registry of Issued Licences which is kept by the Agency *ex officio*. In the end of 2020, there were 858 ruling 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.

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 2020, the Agency adopted 92 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 2020, 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 2020 (some applications are from 2015 and licences issued in 2020) for each activity are given in Table 7-1.

Table 7-1: Submitted applications and approved licenses in 2020 per each activity

| No. | Activity | No. of applications | No. of approved licences |
|---|---|---|---|
| 1. | Power production | 4 | 4 |
| 2. | Combined power and heat production | 2 | 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 | 2 |
| 6. | Electricity supply | 2 | 0 |
| 7. | Electricity wholesale supply | 12 | 11 |
| 8. | Organised electricity market operation | 0 | 0 |
| 9 | Natural gas transmission and transmission system operation | 1 | 0 |
| 10. | Natural gas storage and storage operation | 1 | 0 |
| 11. | Natural gas distribution and distribution system operation | 2 | 3 |
| 12. | Natural gas supply | 3 | 2 |
| 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 | 1 | 2 |
| 18. | Trade in oil, oil derivatives, biofuels and compressed natural gas | 8 | 9 |
| 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 | 38 | 28 |
| 22. | Trade in fuels meant for vessels | 0 | 1 |
| 23. | Biofuels production | 1 | 0 |
| 24. | Bio liquids production | 1 | 0 |
| 25. | Blending biofuels with fuels of oil origin | 0 | 0 |
| | Total | **81** | **68** |

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 December 2020, 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 Setting Electricity Distribution Use-of-System Charge and Methodology for Setting Price of Electricity Guaranteed Supply. All methodologies were published in the Official Gazette of RS, No. 158/20 in December 2020.

On January 23, 2020, the Council of the Agency adopted a decision on prices of system and ancilary services within the power system for 2020. By this decision the Agency set the prices of capacity reservation for system services of secondary and tertiary control which are necessary so as to secure safe, reliable and stable operation of the power system, i.e. for the ability to regulate frequency and exchange capacity. The Agency also set the prices of ancilary services related to voltage regulation, i.e. reactive power and prices of unit running from black start.

On November 26, 2020, the Agency Council also 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 2020, the Council of the Agency approved the following decisions on prices:

- In the field of electricity:

- Approval was given to the decision on electricity prices for guaranteed supply on December 17, 2020. In such a manner the price of guaranteed supply (regulated electricity price for households and small customers) was set on the level which amounts to 7.867 RSD/kWh without taxes and duties upon the request of the guaranteed supplier PE *EPS Beograd*. The new price is higher by 3.4% from the former price.
- Approval was given to the decision on electricity transmission use-of-system charges in December 2020 whereby the electricity transmission use-of-system charge increased by 10%;
- Approval was given to the decision on electricity distribution use-of-system charges in December 2020. Upon the request of the distribution system operator "*EPS Distribucija*" LLC, Belgrade (nowadays *Elektrodistribucija Srbije* LLC), the electricity distribution use-of-system charge increased by 5.52%.

  Acts on prices and approvals of the Agency were published in the "Official Gazette of the Republic of Serbia" while their application was postponed for February 1, 2021.

- In the field of natural gas:
  - Prices of long-term transmission services and prices of access to short-term production capacities
  - Upon request of *Gastrans* llc, in December 2020, the Council of the Agency approved acts on prices of access to a new gas interconnector before the beginning of commercial operation of a new gas interconnector;
  - Prices of non-standard services which are published by system operators and which are also available on the Agency website, i.e.:
  - Prices of non-standard services of the natural gas transmission system operator – "*Transportgas Srbija*" LLC (approval of 15/10/2020);
  - Prices of non-standard services of the natural gas distribution system operators (approvals to pricelists of *JKP Standard Ada* from Ada of 16/01/2020, *Subotica-gas d.o.o.* of 16/01/2020, *JKP 7. Oktobar, Novi Kneževac* of 30/01/2020, *Resava-gas, Svilajnac* of 30/01/2020, *Polet, Plandište* of 15/04/2020, *Boss Construction, Stari Trstenik* of 21/05/2020, *Graditelj, Srbobran* of 04/06/2020, *Loznica gas, Loznica* of 16/07/2020 and *Drugi oktobar, Vršac* of 03/09/2020).

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 ("Official Gazette of RS", No. 65/15 and 10/17).

In late 2013, the Agency Council adopted the Rules for Monitoring Technical and Commercial Indicators and Regulation of Quality of Electricity Supply. In 2020, the Council took care of 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 2020, the Council of the Agency approved the following rules:

- Decision 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 2021");
- 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 2021");
- Rules for Cross-Border Transmission Capacity Allocation on Serbian-Bulgarian Border for 2020 ("Amendment 2 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 2021");
- Rules for Cross-Border Transmission Capacity Allocation on Serbian-Croatian Border for 2020 ("Amendment 2 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 2021");
- Rules for Cross-Border Transmission Capacity Allocation on the Border between Serbia and Bosnia and Herzegovina for 2020 ("Annex 3 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 2021");
- 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 2021") and
- Rules for Cross-Border Transmission Capacity Allocation on Serbian-Montenegrin Border for 2020 ("Annex 1 to the 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 2021").

In 2020, 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.

As an observer, one representative of the Agency participates in all the commissions which have been established so far.

In 2020, the Agency Council approved the following acts:

- Transmission Network Code (approval of the Agency was published in the "Official Gazette of RS", No. 60/20);
- Transmission System Investment Plan for 2020-2022 of *EMS AD* in November 2020;
- Transmission System Development Plan of *YUGOROSGAS-Transport doo Niš* for 2020-2029 in July;
- Transmission System Development Plan of *Transportgas Srbija d.o.o.* for 2020-2029, in December;
- 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 2020-2021 of EPS Distribucija LLC Beograd; 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. One should highlight that in the end of 2020 the Government started activities in

order to perform adequate unbundling of the distribution system operator from the vertically integrated company PE *EPS* (separation of *Elektrodistribucija Srbija d.o.o. Belgrade*).

Acting upon the request of the company GASTRANS LLC Novi Sad in March 2019, the Agency Council adopted a Final Decision on New Natural Gas Interconnector Exemption which 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 for 20 years. In March 2019, the Agency also approved the following legal acts 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 and
- Act on Appointment of Non-Discrimination Behaviour Compliance Programme Officer.

Following this, as early as in February 2020, the Agency certified *Gastrans d.o.o.* as a project company since at that moment the construction of the gas interconnector was ongoing. An obligation was prescribed to Gastrans to submit evidence on the compliance of all the requirements for independent and non-discriminatory performance of natural gas transmission to the Agency following the expiration of the prescribed deadline and once the commercial operation begins.

In May 2020, the Agency approved Transmission Network Code of *Gastrans d.o.o*.

In December 2020, the Agency issued a licence for natural gas transmission and transmission system operation to *Gastrans* company. During the same month, the Agency approved transmission system use-of-system charges of *Gastrans d.o.o.*

### 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 which represents a decision upon an application for connection to the system, i.e. upon appeals filed when the system operator does not adopt a decision upon application for connection to the system in line with the timeframe prescribed by the Law;
- operator's acts on dismissal of access to the system, i.e. appeals filed due to failure to act upon filed request for access to the system within the timeframe prescribed by the Law and
- 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 as well as appeals filed due to failure to settle a request for access to the system within the timeframe prescribed by the Law.

Within the procedure of deciding upon appeals of customers, i.e. system users, the Agency tends to provide the protection of their rights via the provision of legality of decisions adopted by system operators.

In 2020, there were 356 files submitted and they mainly dealt with the activities and behaviour of energy entities in different areas of their operations. 230 of them are appeals settled by the Agency in the administrative procedure as entrusted activities, while 126 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 230 appeals submitted for reasons stipulated by the Law were processed in 2020. 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 2020, 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 regulations which lead to adoption of unlawful decisions and stressed legally binding commitments of energy entities within connection procedure. In 2020, there were 230 appeals which is similar to 2019 (239) which is why 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 2020 inclusive, there were 96 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 | 2020 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of appeals | 4 | 2 | 9 | 12 | 7 | 4 | 8 | 7 | 6 | 11 | 5 | 14 | 7 | 96 |

### 7.2.5 International activities

Pursuant to the Energy Law, ratified international agreements and Council decisions, the Energy Agency of the Republic of Serbia 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 (2008), Legal Forum (2017), Sustainable Development Forum (2017) and Dispute Settlement Forum (2018) were 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[25], 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-

[25] Costs of participation of Agency representatives within the Energy Community institutions are compensated by the Energy Community Secretariat

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 2020, 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 Energy 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.

***Electricity (Electricity Working Group)***

- 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 and FCA Regulation; coordinated regulatory contribution to the work of steering committee for integration of day-ahead market within WB6 initiative (there were no activities of WB6 steering committees in 2020); 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 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 – SDAC (Single Day-Ahead Coupling) within “early” implementation of the EU Regulation 1222/2015 in the Energy Community Contracting Parties which were drafted by the Energy Community Secretariat with the assistance of engaged consultants.
  - In 2020, the ECRB approved: report on trade in long-term electricity market and annual report on cross-border transmission capacity monitoring (SEEAMMS) for 2019;
  - In 2020, the ECRB Electricity Working Group considered measures which were taken by the national regulatory bodies of Contracting Parties in order to mitigate the impact of COVID-19 pandemia on the energy sector which were enlisted in a joint ECRB document; activities of Contracting Parties on the manner of application of recommendations for the appointment of a Nominated Electricity Market Operator (NEMO) within the Energy Community Contracting Parties were observed regularly within early implementation of Regulation 1222/2015 (CACM), which were drafted by the Energy Community Secretariat’s ECRB Section. The Agency expressed their position that the proposed recommendations were not legally viable in the Republic of Serbia. In 2020, neither the formerly elaborated draft of the Recommendation for Drafting Methodology for Application of Regional Coordinated Calculation of Cross-Border Transmission Capacity nor alternative options of early implementation of the EU CACM Regulation were considered. There were not considered because the Ministerial Council decision on the announced adoption of amendments to the Energy Community Treaty was expected. These amendments also included settling the issue of reciprocity and the extension of ACER competences to Contracting Parties related to the early implementation of EU CACM Regulation. All meetings and workshops of the Electricity Working Group during 2020 were organized virtually via Webex Internet application and organized by the Energy Community Secretariat.
- The fourth joint virtual workshop of the ECRB and ACER on the integration of electricity markets of the Energy Community and the EU which was attended by ACER representatives and the members of the Electricity Working Group was organised by the Energy Community Secretariat on 13/07/2020. A virtual workshop was held on 14/07/2020 was held on early implementation of the EU Network Codes (EU CACM and FCA Regulations) where the Energy Community Secretariat presented their proposal for gradual implementation of these regulations in the Contracting Parties;
- The analysis of balaning mechanisms in the southeastern Europe region and consideration of possibilities for their improvement were considered within the working subgroup for the integration of renewable energy sources with an announcement of a joint workshop with MedReg which was postponed for 2021.
- Wihtin the working subgroup for regulatory incentives for investments, it was considered in which manner the tariff system structure can stimulate investment climate. It was agreed with CEER to make a joint report between ECRB and CEER on climate investments based on the questionnaire developed by the CEER in 2021. The monitoring and observation of electricity market functioning within 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; modalities how to connect a new EU Regulation 943 on the obligation of the transmission system operator to offer 70% of the cross-border transmission capacity connected with the SEEAMMS since this regulation is the one dealing with inputs for the calculation of the available cross-border transmission capacity were discussed;
- Instead of the report on the compliance of Contracting Parties with requirements arising from the EU Regulation on Transparency 543/2013, the ECRB Section drafted a model on transparency monitoring wihtin the Energy Community Secretariat webiste where the data related to the amendments to data published on the ENTSO-E (EMFIP) are 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 2019 was postponed because an announcement was made tat since 2021 this report will become a part of ACER report and it will include 2019/20 in order to have a comparative review of indicators.

***Natural gas (Natural Gas Working Group)***

- Collection of data, drafting and adoption of two reports on wholesale natural gas market monitoring within the Energy Community – a report on 2018 and the one on 2019;
- Collection and submission of data on wholesale market for the purpose of drafting report to ACER on wholesale market monitoring;
- Collection of data on the implementation of network code on congestions and drafting and adoption of reports on congestions on interconnectors;
- participation in the work of the Gas Regional Initiative South South-East; GRI SS of the European Union. Since 2016, the Energy Agency of the Republic of Serbia has became the co-chairman regulatory body;
- establishment and work of the subgroup which addresses regulatory incentives for investments together with the subgroup for electricity. A joint report between ECRB and CEER on climate investments based on the questionnaire developed by the CEER in 2021;
- a workshop on the implementation of the network code on congestion management within the transmission system was held in 2020.

***Retail Electricity and Natural Gas Market and Customers Protection Working Group***

- drafting report on electricity and natural gas retail markets functioning in the Energy Community;
- cooperation was continued 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;
- report on survey of legislation in the EnC Contracting Parties on prosumers was drafted;
- in 2020, cooperation of working groups for retail market and customers protection within ECRB, CEER and MedReg was continued but the the situation with COVID-19 pandemia lead to failure to hold a joint workshop where different aspects of customer protection and new trends in the EU related to energy cooperative and for prosumers were planned to be considered;
- a report on the situation with digitalisation of user services which are provided to customers by distribution system operators and suppliers in the Energy Community Contracting Parties was drafted and adopted and
- a report which should address legal, regulatory, technical and economic aspect of e-mobility in the Energy Community Contracting Parties was being drafted and will be completed in 2021.

***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 –Coordination Group 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.
- In 2020, three meetings of the REMIT Working Group were held. Within the Working Group, a Procedural Act was drafted, i.e. regulatory recommendation which was adopted by the Energy Community Regulatory Board on August 7, 2020. It relates to the cooperation and coordination of Energy Community regulatory bodies related to the REMIT Regulation. The purpose of the regulatory recommendation is to: 1) establish the ground for coordination between national regulatory authorities of Contracting parties in the performance of their tasks arising from the REMIT Regulation; 2) define the process of cooperation via the Energy Community Regulatory Board (ECRB); 3) harmonise samples and formats used by the regulators; 4) make a draft for the actions to be taken by the ECRB and 5) settle confidentiality issues related to the data and information exchange.

***Energy Community Coordination Group for Cyber Security and Critical Infrastructure (CyberCG Coordination Group)***

Energy Community Coordination Group for Cybersecurity and Critical Infrastructure 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 information insfrastructure which is most liable to cyber attacks. In addition, a sum of most important data which are exchanged and which are of great importance for the energy sector will be defined within this coordination group. The aim is to protect these data.

Within Cyber CG, it is envisaged to work on the following activities:

- Identification of all energy entities which exchange data (transmission system operator, distribution system operator, suppliers, producers, national regulatory authorities, ministry in charge of energy…), identification of data and of critical infrastructure, etc.;
- Definition of strategic guidelines and giving instructions for data protection;
- Exchange of experience between Energy Community Contracting Parties and other interested parties related to data protection during the exchange of them;
- Provision of assistance to Energy Community Contracting Parties in capacity building in terms of provision 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 ministries in charge of energy and national regulatory bodies of Contracting Parties, of the Energy Community Secretariat, European Commission, European Union Agency for Network and Information Security – ENISA), etc.

Two meetings of the CyberCG Coordination groups were held in 2020 where work on the new network code for cyber security in the energy sector which is under preparation was discussed. The obligations of the coordination group for next year which relate the appointment of a subteam within the CyberCG which addresses data analysis, i.e. the centre for data share and analysis (Information Sharing and Analysis Centre – ISAC) were also discussed as well as the impact of COVID-19 pandemia on cyber security in the energy sector. A 2020 report on cyber security in the Energy Community which refers to all Contracting Parties was presented.

***Infrastructure***

The representatives of the Energy Agency of the Republic of Serbia 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[26] (Regulation 347/2013 – the so-called TEN-E Regulation) which is aimed at drafting the list of priority gas and power infrastructure projects (the so-called PECI/PMI list). This list is drafted every second year. Following the adoption of the list by the Ministerial Council[27], 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). The members of the working group are the representatives of the Energy Community Contracting Parties. For each Contracting Party, there are representatives of the ministry of energy, representatives of the regulatory authorities of the Energy Community Contracting Parties and project promoters (electricity transmission system operators, natural gas transmission system operators, natural gas storage operators, oil transport system operators and owners of smart grid projects).

In 2020, the procedure for drafting PECI/PMI list for 2020 was realized in line with Regulation 347/2013. Three meetings of PECI/PMI electricity and natural gas working groups were held (in January, March and May 2020, via online platform). Where projects candidates from the PECI/PMI list for 2020 which were proposed by project promoters were considered. Project promoters are electricity and natural gas transmissions system operators from the Energy Community Contracting Parties. The consultant engaged by the Energy Community Secretariat made calculations on cost and benefit analysis and multi-criteria analysis for all projects which complied with the criteria defined in Annex 1 of the Regulation 347/2013 and these calculations and analyses were the grounds for the results on the cost-effectiveness of these projects.

Based on these results, a PECI/PMI list draft for 2020 was made and forwarded to the Energy Community Ministerial Council for adoption. The final PECI/PMI list for 2020 was adopted by the Energy Community Ministerial Council in December 2020.

In the electricity field, the project of TransBalkans Corridor – 400 kV interconnector with sections (PECI Project) was included in the PECI/PMI list for 2020:

- 400 kV interconnector Bajina Bašta (RS) – Višegrad (Bosnia) – Pljevlja (Montenegro);
- 400 kV interconnector Pljevlja (Montenegro) – Lašva (Montenegro);

In the field of natural gas, the following projects are on the PECI/PMI list for 2020:

- Interconnector Serbia – North Macedonia (PECI Project);
- Interconnector Bulgaria – Serbia (PECI);
- Interconnector Serbia – Croatia (phase 1, PMI Project).

#### 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.

In 2020, there were activities of the Programme Steering Committees for Cross-Border Balancing and for Daily Market Integration.

#### 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.

[26] Decision No. D/2015/09/MC-EnC of 16/10/2016
[27] The ruling list of priority infrastructure projects was adopted by the Ministerial Council Decision No. D/2018/11/MC-EnC of 29/11/2018

Within its competence, the Energy Agency of the Republic of Serbia 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 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 Energy Agency of the Republic of Serbia 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 Energy Agency of the Republic of Serbia as an Observer within this body on the session held on December 12, 2018 in Brussels.

The Energy Agency of the Republic of Serbia 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 2020, the representatives of the Agency participated in the activities of ERRA Chairmen Committee, Licensing and Competition Committee and Tariff/Pricing Committee.

The Energy Agency of the Republic of Serbia 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 2020, an electricity working group within BAF worked on drafting a report on activities taken by regulatory authorities in Balkans countries related to the electricity wholesale market.

The BAF Working Group for natural gas market liberalization worked on drafting the questionnaire and collection of data on national natural gas markets which will serve for drafting a report on gas sector and gas markets to BAF members.

#### 7.2.5.5 European integration

The representatives of the Energy Agency of the Republic of Serbia 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 Energy Agency of the Republic of Serbia 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 April 2020, the project on technical assistance to the Energy Agency of the Republic of Serbia from IPA 2014 Programme was completed (the project was launched in July 2018). The objective of the project was to harmonise regulatory mechanisms of the Energy Agency of the Republic of Serbia with the Third Energy Package of regulation on the EU internal energy market. The value of the project amounted to around 1,267,990.00 euros. The project lasted 21 months.

# 8. AGENCY'S FINANCIAL REPORT

Financial operations of the Agency in 2020 were in line with the 2020 financial plan which was approved by the National Assembly ("Official Gazette of RS", No.13/14.02.2020).

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 2019, in line with the obligations arising from the Energy Law, the Agency submitted its 2020 Financial Plan to the National Assembly for approval and it was approved and adopted in February 2020.

This report illustrates planned and actual utilisation of funds per each purpose from the revenue which, in line with the Energy 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 2020**

RSD

| No. | Revenues | Realised 2019 | Plan 2020 | Realised 2020 |
|---|---|---|---|---|
| 1 | Revenue from licenses | 15,937,272 | 19,834,960 | 13,440,586 |
| 2 | Revenue from regulatory fee | 168,514,811 | 175,928,924 | 184,045,980 |
| 3 | Transferred extra revenue from last year | 0 | 2,731,331 | 0 |
| 4 | Revenue from grants and reimbursements | 1,881,992 | 1,560,000 | 400,194 |
| 5 | Financial revenues and other revenues | 1,814,794 | 919,760 | 471,973 |
| 6 | Collected corrected liabilities | 33,571,872 | 22,381,248 | 22,381,248 |
| | **TOTAL REVENUE** | **221,720,741** | **223,357,223** | **220,739,981** |

**NOTES ON REVENUES:**

In 2020, **the revenue from licence fee** was calculated in line with the Decision on the Level of Costs for Energy Licence Issuance and for amendments to formerly issued decisions on licence issuance which was approved by the Ministry of Finance ("Official Gazette of RS", No. 13/2016) which was approved by the Ministry of Finance ("Official Gazette of RS", No. 13/16, 66/19, 116/20). This Decision sets the level of fee for licence issuance for certain energy activities as well as the level of fee for amendments to the decision on licencing.

The fee covering costs of licence issuance is set upon filing an application of an energy entity and it covers the whole period of licence validity of 10 years and it is charged once the application is filed.

In line with this, the revenues arising from the fee covering costs of licence issuance and for amendments to decisions for 2020 amounted to total 13,440,586 RSD. There were 127 fees charged upon filed applications for licence issuance or for amendments to formerly issued decisions in the period 01/01-31/12/2020.

In 2020, the revenue arising from fees covering costs of licence issuance was lower in comparison to the planned level by 32%. It was also lower in comparison to the revenue achieved in 2019 by 16% nominally. The reason for this is the constant reduction of the number of submitted applications for licence issuance and for amendments of existing decisions in the period 2016-2020.

The total revenue arising from licence fee reduced in 2020 in comparison to 2016 by 66%.

**The revenue arising from the regulatory fee** in 2020, i.e. from the part of tariff for access to and use of electricity and natural gas transmission system amounting to RSD 184,045,980 which amounts to 83% of the total revenue of the Agency (in 2019, it amounted to 76%) and to 93% of the total operational revenues in 2020 (in 2019, it amounted to 91%). 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 was an increase in the calculated levels of regulatory fee in 2020 in comparison to 2019 by average quarterly 3,882,792 RSD which resulted in the total increase of this revenue of 9.2% if we compare 2020 and 2019. The increase in comparison to the plan for 2020 amounted to 4.6%. the calculation and modification of regulatory fees in 2020 were completed in line with amendments to methodologies for electricity and natural gas transmission where amendments were made and where the percentage for the calculation of the regulatory fee was increased from 0.9% to 1%. In addition, on 01/07/2020, new tariffs were approved to Transnafta for oil transport via oil pipelines which resulted in the increase of the regulatory fee.

**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 amounted to RSD 400,194 (in 2019, they amounted to RSD 1,881,992) which was considerably lower than in 2019.

In line with the Treaty Establishing the Energy Community, the EnC covers the costs of accommodation and transport to the venue of the working groups meetings for participants. Due to less frequent participation of Agency staff in the activities of the EnC working groups, the revenue was lower than the planned and achieved annual level. The revenues arising from this item were considerably lower than the plan for 2020 (76% lower) as well as than the level achieved in 2019 (79% lower) due to epidemic situation in 2020 and suspended business trips from April until the end of the year. Although these revenues were considerably reduced, they cover around 59% of the total expenditure related to business trips abroad in 2020 and which may be refunded according to the EnC rules.

**Revenue from grants** relates to the rest of the part of written off equipment granted from the EU in 2005 upon the establishment of the Agency in the total amount of RSD 1,126 which is remaining revenue from the equipment obtained from grant. There were no other grants or state aid in the Agency.

**Financial revenues** amounting to RSD 457,380 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.

**Other unoperational and extraordinary revenues** and positive currency difference amounted to RSD 14,593 in total.

**Revenue from charged corrected liabilities** from 2019 in 2020 amounting to RSD 22,381,248 include corrected liabilities from 2019 for the regulatory fees of PE Srbijagas which were collected in 2020.

**Table 8-2: Total Agency expenditure in 2020**

RSD

| No. | Expenditure | Realised 2019 | Planned 2020 | Realised 2020 |
|---|---|---|---|---|
| **1** | **Material, fuel and energy costs** | **4,154,673** | **4,866,078** | **3,148,552** |
| 1.1 | - material (operating cost) | 1,654,312 | 2,090,640 | 1,127,555 |
| 1.2 | - fuel and energy | 2,500,361 | 2,775,438 | 2,020,997 |
| **2** | **Salaries, allowances and other expenditure** | **148,104,897** | **156,625,204** | **150,721,430** |
| 2.1 | - salaries and allowances (gross) | 120,627,601 | 126,965,950 | 125,907,653 |
| 2.2 | - levies paid by employer | 19,949,156 | 20,713,203 | 20,143,251 |
| 2.3 | - fees in line with other contracts | 1,087,544 | 1,087,736 | 1,065,638 |
| 2.4 | - other personal expenditure and fees | 6,440,596 | 7,858,315 | 6,440,598 |
| **3** | **Production services** | **25,989,743** | **27,161,928** | **26,064,037** |
| 3.1 | - transport | 1,819,409 | 2,097,235 | 1,590,013 |
| 3.2 | - maintenance | 2,146,938 | 2,995,198 | 2,917,653 |
| 3.3 | - lease | 18,638,590 | 18,550,080 | 18,173,466 |
| 3.4 | - marketing and advertising material | 221,124 | 229,999 | 229,080 |
| 3.5 | - other services | 3,163,682 | 3,289,416 | 3,153,825 |
| **4** | **Depreciation and reserves for unplanned expenditure (IPA PROJECT 2018-2020)** | **11,014,168** | **7,324,825** | **7,524,454** |
| **5** | **Non-material expenditure** | **5,802,881** | **16,163,568** | **8,992,817** |
| 5.1 | - non-production services | 3,304,821 | 13,490,315 | 6,305,862 |
| 5.2 | - costs of representation | 354,552 | 442,750 | 442,404 |
| 5.3 | - insurance premium | 453,283 | 514,371 | 445,478 |
| 5.4 | - payment operations | 233,345 | 221,420 | 191,892 |
| 5.5 | - membership | 894,000 | 907,200 | 888,637 |

| | | | | |
|---|---|---|---|---|
| 5.6 | - taxes and fees | 532,686 | 542,059 | 573,254 |
| 5.7 | - other non-material expenditure | 30,194 | 45,453 | 145,290 |
| | **OPERATIONAL EXPENDITURE** | **195,066,362** | **212,141,603** | **196,451,290** |
| **6** | **Financial expenditure, corrections of liabilities and other expenditure** | **22,425,340** | **11,215,620** | **12,480,956** |
| | **TOTAL EXPENDITURE** | **217,491,702** | **223,357,223** | **208,932,247** |
| **7** | **Financial result – extra revenues** | **4,229,039** | **0** | **11,807,734** |
| | **TOTAL EXPENDITURE = REVENUE** | **221,720,741** | **223,357,223** | **220,739,981** |

**NOTE ON EXPENDITURE:**

In 2020, total expenditure amounted to RSD 208,932,247. Total planned expenditure for 2020 amounted to RSD 223,357,223 which is by RSD 14,424,976 lower or by 6.4%.

Total realized expenditure in 2020 was lower than the planned one in line with the following:

**Expenditure arising from material, fuel and energy** in 2020 was lower by RSD 1,717,526, i.e. by 35.3% in comparison to the planned ones. All items included in this expenditure were lower than the planned ones, i.e. cost of fuel and electricity were lower by 754,442 RSD than the planned ones while the costs of overhead material and other material amounted to by RSD 963,084 less 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 salaries and planned other contracts and fees related to personal expenditure by 3.8% i.e. by RSD 5,903, 774 in line with the following:

- Expenditure related to gross salary, lower than the planned ones, in total by RSD 1,058,288;
- Employer's allowances, lower than the planned ones, in total by RSD 596,951;
- Other personal expenditure, lower than the planned ones, in total by RSD 4,253,427.

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 was recorded with costs of hotel services abroad and costs of transport abroad (which are by RSD 3,334,302 lower than the planned ones, or by 84.4%) due to a smaller scale of business trips in 2020 than the planned ones.

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.

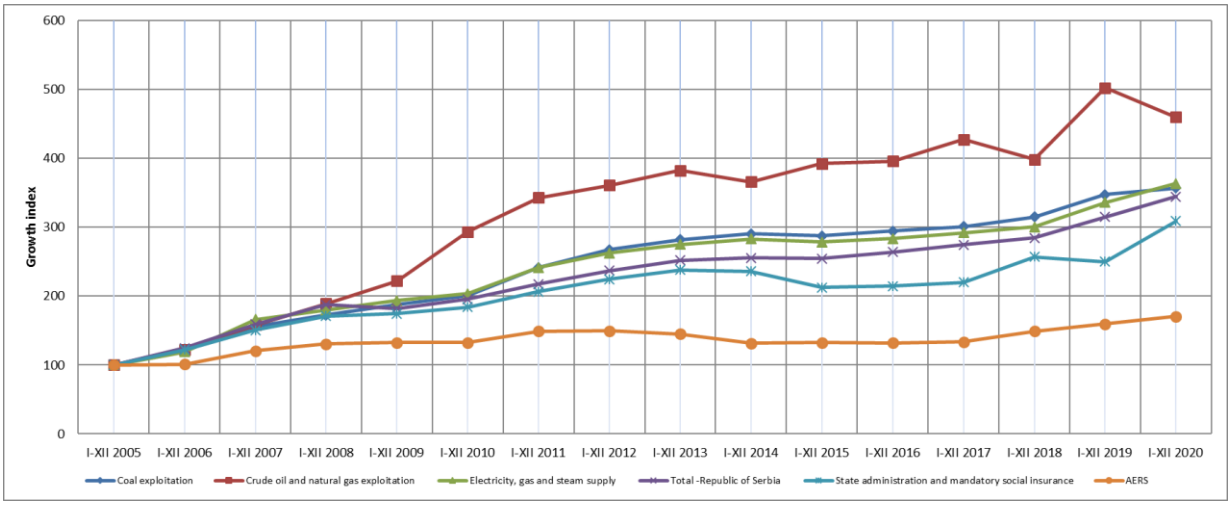


**Figure 8-1: Base index of average annual net salary trend 2005.=100**

In 2020, 2 employees were hired by the Agency. Therefore, in the end of 2020, there were 45 permanent employees in total in the Agency, members of the Council included.

**Table 8-3: Qualification structure of permanent employees**

| Professional qualification | 31/12/2019 | | Plan 2020 | | 31/12/2020 | |
|---|---|---|---|---|---|---|
| | No. | Share in % | No. | Share in % | No. | Share in % |
| PhD (A Doctor of Philosophy) | 5 | 11.6 | 5 | 10.9 | 5 | 11.1 |
| Master | 1 | 2.3 | 1 | 2.2 | 1 | 2.2 |
| BSc/BA (Bachelor of Science/Arts) | 32 | 74.4 | 35 | 76.1 | 34 | 75.6 |
| College degree | 0 | 0.0 | 0 | 0.0 | 0 | 0.0 |
| Secondary school degree | 4 | 8.7 | 4 | 8.7 | 4 | 8.9 |
| Primary school degree | 1 | 2.2 | 1 | 2.2 | 1 | 2.2 |
| **Total** | **43** | **100.0** | **46** | **100.0** | **45** | **100.0** |

In addition to high qualification structure, there is higher average age of employees in the Agency. Therefore, the average length of service on December 31, 2020 amounted to over 25 years. To the extent to which such age structure of employees is expected, bearing in mind highly-specialised activities of the Agency as well as the relevant demand in experience when a vacancy is announced, this age structure also indicates that there is a need to reduce the age level in the future so as to secure the continuity of the Agency operations.

**Table 8-4: Structure of employees in terms of length of service**

| Length of service | 31/12/2019 | | Plan 2020 | | 31/12/2020 | |
|---|---|---|---|---|---|---|
| | No. | Share in % | No. | Share in % | No. | Share in % |
| up to 5 yrs | 1 | 2.32 | 2 | 4.35 | 0 | 0.00 |
| from 6 - 10 yrs | 3 | 6.98 | 3 | 6.52 | 2 | 4.44 |
| from 11 - 15 yrs | 7 | 16.28 | 6 | 13.04 | 2 | 4.44 |
| from 16 - 20 yrs | 6 | 13.95 | 10 | 21.74 | 10 | 22.22 |
| from 21 - 25 yrs | 9 | 20.93 | 10 | 21.74 | 9 | 20.00 |
| from 26 - 30 yrs | 4 | 9.30 | 2 | 4.35 | 10 | 22.22 |
| from 31 - 35 yrs | 8 | 18.60 | 8 | 17.39 | 4 | 8.89 |
| > 35 yrs | 5 | 11.63 | 5 | 11.63 | 8 | 17.78 |

**Costs of production services** are lower than the planned ones for 2020 by 4%, i.e. by RSD 1,097,891. Such expenditure trend was affected mostly by costs of transport services which were reduced by 24%, i.e. by RSD 507,222. In addition, costs of leas of business space were lower than the planned ones by 2%, i.e. by RSD 376,614 in absolute amount. Other services which include equipment and business premises maintenance costs, different public utility services, publishing services, ads publication services and others were lower by RSD 214,055 than the planned ones in total.

**Depreciation and reserves** were calculated in line with adequate accounting policy and ruling rates and they were higher than the planned ones by RSD 199,629 due to higher costs of calculated depreciation of newly purchased equipment and non-material assets according to the planned and realized dynamics of equipment procurement.

**Non-material costs** were lower in the balance for the whole group than the planned ones by RSD 7,170,751 in total, i.e. by 44%. In this group of costs, we make comments only on those with higher discrepancies from the plan:

**Non-production services** were lower than the planned ones by 53.3% in line with the following:

- Costs of consulting services were lower than the expected and planned ones by RSD 6,193,446 since the balance sheet in 2019 made separation between a segment of costs of consulting services – co-financing of the Agency within IPA Project amounting to RSD 5,964,260, which is why the remaining accompanying part of costs of RSD 2,986,482 was calculated for 2020;
- Realisation of IPA Project began in 2018 when the accompanying part of costs of 1% as a share of the Agency in the Project financing was calculated (the total share of the Agency amounts to ERU 126,799 and in line with accounting rates it amounts to RSD 14,938,482). In 2018, 40% of the share of the Agency was

calculated, i.e. the amount of RSD 5,988,027. The Project continues during 2019 but it was not completed as it was defined by the contract which is why accompanying part of costs of the Agency share in the Project of 40% amounting to RSD 55,964,260 was reserved in 2019. In the beginning of 2020, the realization of the Project was extended until mid-2020 by the Annex to the Contract and there was the remaining part of costs of 20% amounting to RSD 2,986,482;

- Costs of health services (annual physical examination of employees) were lower than the expected and planned ones by RSD 426,700;
- Costs of seminars and registration fees were lower than the expected and planned ones by RSD 321,029 due to reduced level of Agency staff participation on expert gatherings;
- Costs of professional capacity building were lower than the expected and planned ones by RSD 129,655 due to planned but cancelled professional training of Agency staff abroad (CEER, Brussels);
- Costs of membership fees, payments, insurance premium were in total lower than the expected and planned ones by RSD 117,331;
- Other non-material costs (fees for engagement of disabled persons, local public utility fees and other fees, other administrative costs) were higher than the expected and planned ones by RSD 131,033.

**Costs of correction of uncollected liabilities** on 31/12/2020 were realised to the amount of RSD 12,434,027.

**Costs of negative exchange rates** and costs of removal from inventory of equipment on 31/12/2020 were realized to the amount of RSD 46,929.

**Operational result:**

On 31/12/2020, there was an extra revenue in comparison to expenditure of RSD 11,607,734 which is transferred to next year as unallocated profit.

In order to provide continuous and reliable operation of the Agency, the accumulated realized extra revenue from previous years as well as from 2020 is an adequate reserve in operationally available funds and it is the only for 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 – 2020 as indicated in Table 8-5. In addition, procurements were realised in 2020, 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 | 2007-2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 |
|---|---|---|---|---|---|---|---|
| Cars | 13,418 | 0 | 0 | 0 | 2,694 | 4,535 | 0 |
| Computer equipment, software, network | 41,298 | 2,877 | 3,637 | 4,149 | 2,890 | 6,662 | 4,726 |
| Office furniture and different equipment | 6,460 | 0 | 887 | 321 | 585 | 462 | 840 |
| Telephone devices, telephone switchboard, access control | 3,697 | 287 | 400 | 302 | 207 | 454 | 531 |
| Video surveillance, network | 1,060 | 0 | 0 | 0 | 0 | 0 | 0 |
| **Total** | **65,934** | **3,165** | **4,924** | **4,772** | **6,376** | **12,113** | **6,097** |

Unwritten off – current level of material and non-material assets on December 31, 2020 amounts to RSD 21,240,677 which accounts for 61% of the purchase value of active, unwritten off items but 35% of the purchase value of these items in use disregarding the level of writing off, which indicates a high level of depreciation and a necessity to follow the usefulness of equipment and its upgrade.

Out of the total 936 items of equipment and software which are used in the Agency, 443 items are not written off in accounting terms.

In line with the legal obligation, in line with the Energy Law, the audit of the 2020 financial report by an authorised auditor was completed. In the opinion of the auditor, the financial report represents the financial position of the Energy Agency of the Republic of Serbia, Belgrade in a true and fair manner in all material respects on December 31, 2020 as well as the financial performance and cash flow for the year that ended on that day in line with accounting regulations applicable in the Republic of Serbia.

## Contents of tables

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## 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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