ENERGY AGENCY
OF THE REPUBLIC OF SERBIA

2015

2015 ENERGY AGENCY ANNUAL REPORT

ENERGY AGENCY
OF THE REPUBLIC OF SERBIA

2015 ENERGY AGENCY REPORT

Serbian Energy Sector Report

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Annual and Financial Report

Belgrade, May 2015

CONTENTS

INTRODUCTORY REMARKS

In line with the provisions of the Energy Law ("Official Gazette of RS", no. 145/14), hereinafter: Law, the Council president and members are accountable for their work and the work of the Energy Agency of the Republic of Serbia to the National Assembly of the Republic of Serbia. They submit the report to the National Assembly once a year as it is done hereby. 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.

To the extent necessary to enable full understanding of the Report content, the Report also presents some of the provisions of the Law, as well as the changes arising from the Law, including the expansion of Agency jurisdiction. Since its establishment, the Agency tended to build, strengthen and sustain a high level of its own professional capacities. It is ever important to do it now, bearing in mind the necessity to address the areas of jurisdiction and obligations as efficiently as possible.

In line with the Law, all decisions within the scope of the Agency's work are adopted by the Council of the Agency. In 2015, the Council held 37 sessions during which decisions, approvals, certificates and other acts in the field of price regulation, energy market establishment and monitoring, license issuance and withdrawal, internal organisation and work code of the Agency and other issues within the jurisdiction of the Council were adopted.

In 2015, the Agency was fulfilling its obligations arising from the Law which are relevant for the enforcement of the new law, and Serbian energy market functioning. The Agency played an important role in the work of Energy Community (EnC) institutions and also offered its support to other national institutions in the activities on both national and international level.

The security of electricity, natural gas and oil derivatives supply in 2015 was at a satisfactory level. Increased reliability and production in coal mines and thermal power plants in comparison to 2014 contributed to the security of electricity supply, while the increased capacity of the underground storage Banatski Dvor contributed significantly to the security of natural gas supply.

Electricity consumption was increased by 3.1%, the least in households. More reliable operation of thermal power plants in 2015 enabled restoration of electricity export of around net 450 GWh. Natural gas consumption increased by 3%. Consumption increased in district heating companies and households, while it decreased in the industry. Consumption growth in households indicates that natural gas is becoming a competitive source again because of its price decrease.

In 2015, for the first time, households were also entitled to choose their supplier in the open market. 37% of electricity and 85% of natural gas were purchased at market prices.

On December 4, 2015, the National Assembly adopted the Energy Sector Development Strategy until 2025. Electricity consumption forecast of less than 1% annually in that period 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 and the conditions for its realisation have been created. In line with the target of 27% of production from renewable energy sources in gross final consumption until 2020, over 3,500 GWh should be provided from power plants fuelled by renewable energy sources.

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. In the future, this may have a significant impact on the costs of electricity production in thermal power plants and to its further development.

New gas interconnection is the most important condition for the provision of natural gas security of supply, market development and avoidance of risks which Serbia used to face, which are still likely to repeat and which may be even greater in the future. Niš – Sofia gas pipeline is the project which is most likely to be realized under the current conditions and the one with well-advanced preparation works.

An important condition for the sustainable development of energy systems is the adequate long-term policy of regulated prices, predictable both for customers and investors. An increase in electricity prices in 2015, which was a decision made by the PE EPS and approved by the Agency Council, represents a step towards reaching the market level of wholesale price and the justified level of electricity distribution and transmission use-of-system charges. Such electricity prices and network service prices ensure necessary funds for investments in existing energy companies and they stimulate new investors. They also encourage an increase in energy efficiency which is at a very low level in our country. In 2015, electricity excise duty was introduced.

An obligatory prerequisite for the increase in electricity price for households is the establishment of more efficient mechanism for the protection of socially vulnerable customers which has been applied since May 2013. However, the number of protected customers in 2015 was several times lower than the number of customers who should be protected, in line with the register of authorised institutions. This requires special attention of authorised bodies, especially due to the low standard of living of the population.

Since September 2013, natural gas public supply price covers all the justified costs of gas procurement and it changes in line with market conditions. In 2015, transmission and distribution use-of-system charges in some companies were adjusted.

A very important component of pricing policy is the rationalisation of operational costs in energy companies. When giving approval of regulated prices, the Council of the Agency insists on the approval of justified costs only. Therefore, unjustified costs are not included in the approved electricity and natural gas prices. Electricity losses in the distribution network represent one of the highest costs and the Agency tends to approve these at the lower level than the actual one, bearing in mind the loss reduction plan. In 2015, the losses sustained downward trend (they were reduced from 14.4% to 14.1%), but they are still very high in comparison to the losses justified in technical terms. There is still a considerably big problem with electricity theft, which needs to be settled more efficiently, by stronger control of metering points, apart from using other methods. It is necessary to intensify investments in the electricity distribution network and to have more efficient replacement of metering devices.

In 2015, in line with the provisions of the Law, additional steps were made towards the reform of the sector and electricity and natural gas market opening, more in legislative terms. However, there were also delays in the implementation and the deadlines prescribed by the Law were not complied with. After legal unbundling of the electricity distribution system operator from electricity supply and other activities, functional unbundling has not been fully realised. The restructuring of PE Srbijagas has been initiated in line with the concept which was defined by the Government. In mid-2015, transmission and distribution system operators were established but they did not start operating, and, therefore, legal and functional unbundling have not been fully realised.

PE EMS is taking actions in order to participate in coordinated cross-border capacity allocation. In 2015, organised market was established - SEEPEX – power exchange.

There was a follow-up of activities within EnC on the development of regional electricity market. In parallel with making connections and with future integration into the European Union market, it is also necessary to provide an adequate participation of the institutions of the Republic of Serbia (regulatory ones as well) in the relevant EU institutions so as to protect the state interests adequately.

In 2015, the electricity market concentration in Serbia, in terms of realized trading activities, remained on the similar level as in 2014.

In 2015, technical indicators of electricity quality were improved in comparison to 2014 when they were on the significantly lower level due to vis major (freezing rain and floods). Continuity indicators were on the regional level, but, on the other hand, considerably worse if compared to the European average.

The gas sector is still characterized by a low level of household gasification (around 10% of the total number of households) and a large number of small distribution companies. It is extremely important for further gas market development to accelerate the procurement and instalment of adequate metering equipment.

The number of customers', i.e. system users' appeals submitted to the Agency is still slightly growing and these appeals relate to the operation and actions of energy entities, almost all of them in the electricity sector.

In line with the new Law, in the future, ever growing part of activities of the Agency will be directed to the energy entities' treatment of customers and protection of energy customers' rights and interests.

The Council of the Energy Agency of the Republic of Serbia

May 2016

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 2014 amounted to around 13.3 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 (over 50%) which is dominantly used for electricity generation. A great share of local lignite enables a relatively high energy independence of the country, in comparison to other countries and relatively lower and more stable costs of electricity production. On the other hand, the use of lignite in electricity production increases its negative impact to the environment. In the long run, this fact also increases the risk of growing costs of carbon dioxide emission, i.e. the greenhouse gases.

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

The energy net import dependence of Serbia recorded 27.9% in 2014, which is lower than in the vast majority of European countries (the European Union 53.2%). Import dependence in Serbia was reduced in comparison to the previous decade mainly thanks to the increased local production of oil and natural gas. In 2015, the costs of net energy imports amounted to € 1.51 billion which is 45% lower than the maximum import costs in 2008. These costs present 35% of the net import and export trading balance of the Republic of Serbia in 2015.

Table 1-1: Energy sector of Serbia (without APKM) – some indicators for 2011 - 2014

	Measurement unit	Year			
		2011	2012	2013	2014
Population number, in midyear	thousands	7,234	7,199	7,182	7,147
GDP per capita, per spending power parity	Fixed $ from 2011	12,571	12,505	12,892	12,717
Primary energy consumption	Million toe	16.19	14.53	14.91	13.34
Final energy consumption	Million toe	9.25	8.51	8.19	7.67
Import dependence	%	30.3%	27.7%	24.1%	27.9

Data: RZS, World Bank, MRE, AERS

Compared to the European Union (Figure 1-1), gross domestic product of Serbia per purchasing power parity (which reflects the level of development and standard in a more realistic manner) in 2013 was on the level of 37%, consumption of total primary energy per capita – 63% and final electricity consumption – 69%.

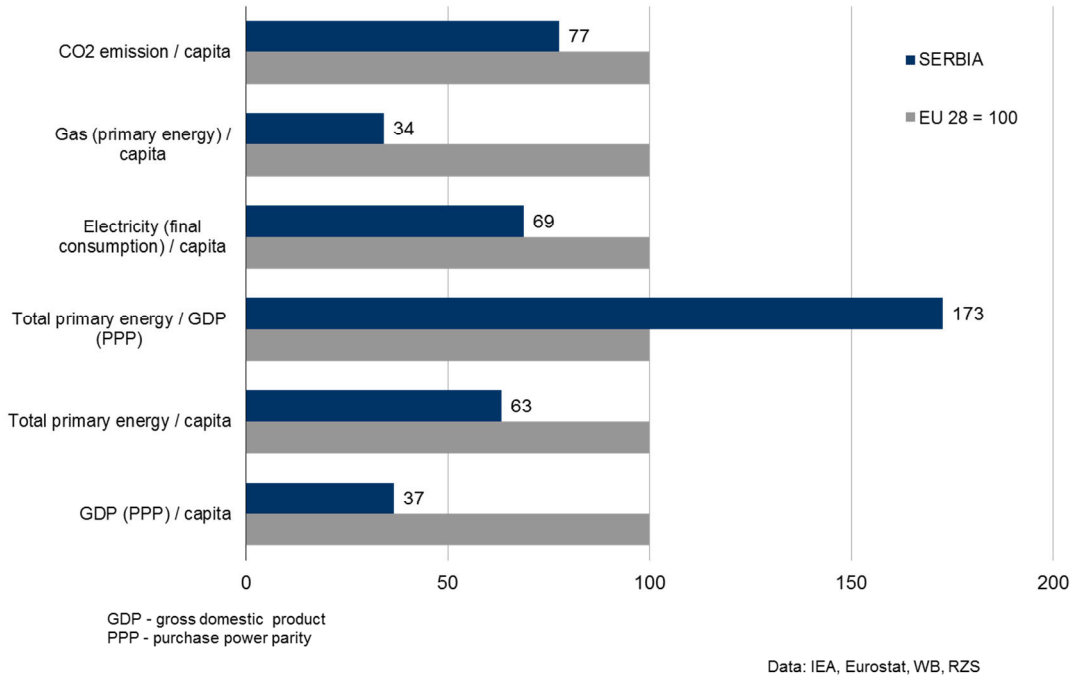


Figure 1-1: Comparative indicators of Serbia and the European Union in 2013 (CO_2 emission in 2012)

[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 1.7 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 34% 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 much higher energy consumption share in transport in the EU (Figure 1-2). In addition, one should bear in mind that industrial consumption in Serbia is much lower than in the end of 80s.

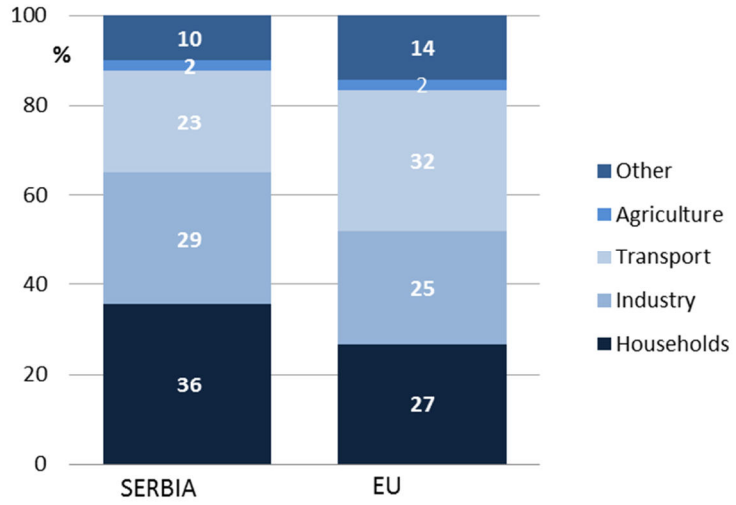


Figure 1-2: Final consumption structure (without non-energy-related consumption) in 2013

2. ELECTRICITY AND NATURAL GAS MARKETS IN 2015

Electricity market in Serbia in 2015 was marked by intensive suppliers' activities in the wholesale market, first of all in the area of the use of cross-border capacities, transit through Serbia, trade with other suppliers and further opening of the retail market. As of 2015, foreign legal persons are entitled to participate in the wholesale market in Serbia. In addition, PE EPS participates in the wholesale market in the EU via its daughter company "EPS Trgovanje", established in Slovenia.

The development of the natural gas market is limited significantly by its dependence on import, availability of only one gas pipeline for import via Hungary and the dominant share of one supplier. Vertically integrated public enterprises Elektroprivreda Srbije (PE EPS) and PE Srbijagas are dominant on both markets.

Bilateral market is being developed in both sectors, while in case of electricity sector, balancing and organised markets (power exchange) are being developed.

Balancing electricity market was established on January 1, 2013 and it operates in line with the Law, Electricity Network Code which was approved by the Agency and with the Methodology for Calculation of Compensation for Balancing Group Deviations. In 2015, 46 electricity market players had a contract on balancing responsibility with PE EMS, which is, as the transmission system operator, responsible for the provision of system services within its control area. Since the beginning of balancing market operation, PE EMS publishes hourly values of activated balancing energy and the settlement price. In April 2015, PE EMS signed an agreement on the use of common control reserve within the control block with competent transmission system operators in Montenegro and Macedonia, which is extremely important for the stability of system operation.

On July 14, 2015, as an energy entity licenced for the organisation of electricity market, PE EMS established SEEPEX JSC, Belgrade, – power exchange (www.seepex-spot.com), established via partnership with EPEX SPOT (https://www.epexspot.com). SEEPEX operates organised market with standardised products in day-ahead market and it started operating in February 2016.

In 2015, there were 86 licenced electricity suppliers and 60 licenced natural gas suppliers for open market supply, but a great number of them were inactive. There were 38 electricity suppliers and only one natural gas supplier which dealt in cross-border exchange. Final customers in the open market were supplied by 8 electricity suppliers (PE EPS remained dominant with 97% share of total energy sold in the open market) and by 28 natural gas suppliers (PE Srbijagas dominant with 73% share).

2.1 Level of market opening in 2015 and expected tempo of further development

Market openness in 2015 amounted to 37.4%, in case of electricity and to 85.3% in case of natural gas within the total amounts of energy sold to final customers in the market. Relevant data were given in the following table and in Figure 2-1.

Table 2-1: Electricity and natural gas market openness

	Electricity		Natural gas	
	TWh	%	million m^3	%
Total consumption of final customers	28,531		1,775*	
Quantities sold in the open market	10,683	37.4	1,514	85.3
Quantities sold in the regulated market	17,848	62.8	261	14.7
to households	14,062	49.3	190	10.7
to small customers	3,786	13.3	71	4.0
Market openness level		**37.4**		**85.3**
Quantities sold to cover losses under market conditions	5,168		16	

* Total consumption of final gas customers amounted to 2,041 million m^3, 266,000 m^3 of it was not in the market since NIS produced these and spent them.

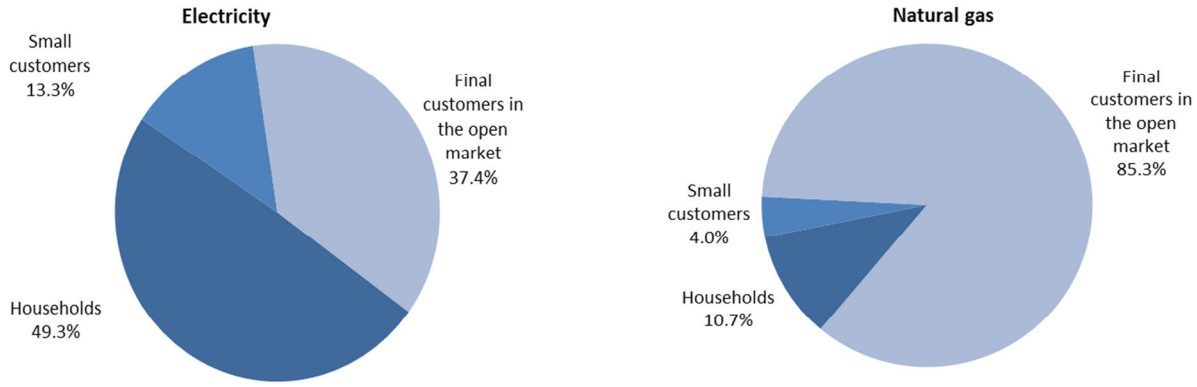


Figure 2-1: Electricity and natural gas market shares

Due to the obligation to launch public procurement procedure and due to unwillingness of customers to launch energy purchase in the open market, a share of electricity and natural gas customers exercised their right to the supply of the last resort during the period of market entrance.

2.2 Conditions for market functioning

The bylaws necessary for the functioning of the market were adopted by competent bodies. Some of them were harmonised with the Law and some of them will have their amendments prepared so as to have them harmonised with the Law and mutually harmonised.

The following bylaws are applicable:

- Rules on conditions for the issuance, modification and withdrawal of the energy licence;
- Decrees on conditions for electricity and natural gas delivery and supply (have not been harmonised with the Law);
- Electricity Transmission Network Code (applied as of 2008 and amended several times, including in 2015) and electricity Distribution Network Code (applied as of the beginning of 2010 and harmonised with the Law and market requirements during 2013, 2014 and 2015);
- Natural Gas Transmission Network Code of PE Srbijagas which also includes the necessary natural gas market rules (the newly drafted and harmonised version has not been submitted to the Agency for approval);
- Natural Gas Transmission Network Code of Yugorosgaz (approved by the Agency in January 2015);
- Natural Gas Distribution Network Code (of PE Srbijagas was approved by the Agency in December 2014, and of most of other distribution companies in early 2015);
- Rules on the allocation of cross-border transmission capacity with joint auctions on 5 borders (with Hungary, Romania, Bulgaria, Croatia and Bosnia and Herzegovina) for the allocation of 50% of cross-border capacities on 3 borders (with Macedonia, Montenegro and Albania);
- Electricity market rules;
- Supplier switching rules;
- Rules on monitoring technical and commercial indicators and on regulating quality of electricity and natural gas delivery and supply;
- methodologies for setting electricity, i.e. natural gas transmission and distribution use-of-system charges (the methodology for setting natuarl gas storage access price was also adopted but it will be applicable to new storages that will be built in the future);
- methodologies for setting regulated price of electricity and natural gas supply of households and small customers which are not supplied in the open market and
- methodologies for setting electricity, i.e. natural gas transmission and distribution connection charges.

Electricity transmission use-of-system charges have been regulated since 2008, while the distribution ones have been regulated since 2010. Natural gas transmission use-of-system charges have been regulated since 2008, while the distribution ones have been regulated since 2009. The current regulated transmission and distribution use-of-system charges and regulated supply prices are analysed in relevant chapters below and they are available on the Agency website www.aers.rs.

Principles and procedure for price regulation

Regulated and open market prices

The reforms of the energy sector defined by the Energy Law enabled the development of the electricity and natural gas markets. Energy activities are classified as market activities (production and trade/supply) and regulated natural monopolies (electricity and natural gas transmission and distribution, i.e. network systems).

If a customer wants to be supplied by either electricity or natural gas, the customer is supposed to buy energy from a supplier and pay the transmission and distribution service, i.e. delivery of the purchased electricity/gas all the way into his facility.

As of 01/01/2015, all customers select their suppliers and negotiate electricity and natural gas prices under market conditions, while households and small customers are still in a position to purchase electricity and natural gas at regulated prices. They will be able to exercise this right up until conditions are made for price regulation cease in case of these customers as well.

All customers pay the transmission and distribution service at a regulated price which is charged in line with adopted methodologies.

Price regulation principles

The regulation of prices of products and services in the energy sector is based on general principles which enable the coverage of legitimate costs and fair revenue efficiently invested funds. It provides:

- Short-term and long-term security of supply, i.e. sustainable system development, as well as its safe operations;
- Rational use, via stimulation of economic and energy efficiency;
- Non-discrimination and
- Prevention of mutual subsidising between certain activities, as well as among certain customer categories and groups.

How regulated prices of energy and services are established

The Agency adopts methodologies for price regulation which include tariff systems.

The methodologies establish the method for calculation of maximum allowed revenue arising from a certain regulated activity as well as the method for the allocation of maximum allowed revenue to tariff elements, i.e. tariffs. Maximum allowed revenue – MOP – represents the amount of revenue of an energy entity which compensates for all legitimate costs during the regulatory period arising from regulated energy activity, including the adequate revenue related based on regulated funds. Tariff elements represent physical values which correspond to the value of a product, i.e. service. They serve to make more fair allocation of costs between certain customer categories and groups, depending on the costs they create in the system, i.e. depending on the volume and purpose of their consumption.

Price setting procedure

An energy entity performing a regulated activity adopts a decision on prices, in line with the relevant methodology and submits it to the Agency for approval. Based on the documents and verified data which energy entities are obliged to submit along with the decision on prices, the Agency assesses whether the prices are set in line with the methodology as well as whether costs and funds which were used in price calculation are justified. In addition, in line with the Law, the Agency is authorised to send a request on the modification of regulated prices to energy entities if the Agency concludes that conditions are met for such a modification. In case an energy entity does not act in line with the Agency request, the Agency may adopt a decision by which regulated price is set temporarily.

2.2.1 Certification

It is important to create conditions for equal access to network systems to all market players for electricity and natural gas markets functioning. Certification is a legal obligation arising from the 3rd EU Energy Package, it is a step before licencing and it is aimed at confirming the independence of the electricity transmission system operator and natural gas transmission system operator from market participants. In 2015, rounds of consultations were made in order to prepare for the certification process.

In order to achieve transmission system operators' independence, it is necessary to secure that the state body controlling production and supply does not also control system operators and that, in case control is performed by different entities, i.e. state bodies, these bodies are not controlled by the same third body.

Certification process is initiated upon an application of a legal person which owns transmission, i.e. transport system, upon the Agency's request if the legal person does not submit an application for certification or upon a reasoned application of the Energy Community (EnC) Secretariat.

The certification procedure which is implemented by the Agency has to be completed in 4 months and the Agency adopts the certification decision. In line with the Law, upon the adoption of the decision, an EnC Secretariat is asked for an opinion. Upon the issuance of the opinion, the Agency is obliged to adopt the final decision on the certification of the system operator, bearing the opinion in mind. The decision of the Agency and the opinion of the Secretariat are published together in the "Official Gazette of the Republic of Serbia" and on the websites of the system operator and the Agency. If the final decision of the Agency is not in line with the opinion of the Secretariat, a statement of reasons which served for the adoption of such decision is also published along with the decision and the opinion.

If the Agency does not adopt a decision in line with the deadline prescribed by the law, it is considered as if the decision has been adopted.

The certified system operator is obliged to inform the Agency on all planned changes which may require new assessment of the compliance with certification conditions.

The Agency is also competent for the certification of an operator controlled by a third country person/entity.

2.3 Rules on Supplier Switching

The Rules on Supplier Switching, adopted by the Agency, are the same for electricity and natural gas markets. They are applied in case when supplier switching is requested by a final customer who has had concluded a full supply contract. Supplier switching is free of charge and, in line with the Law, it may not last longer than 21 days. In practice, it takes much less time than that.

Once a final customer selects a new supplier and submits an application for supplier switch with the new supplier, all further activities are taken by the new supplier and the system operator to which the customer is connected to.

Figure 2-2 indicates the scheme of supplier switching procedure upon a customer's request**.**

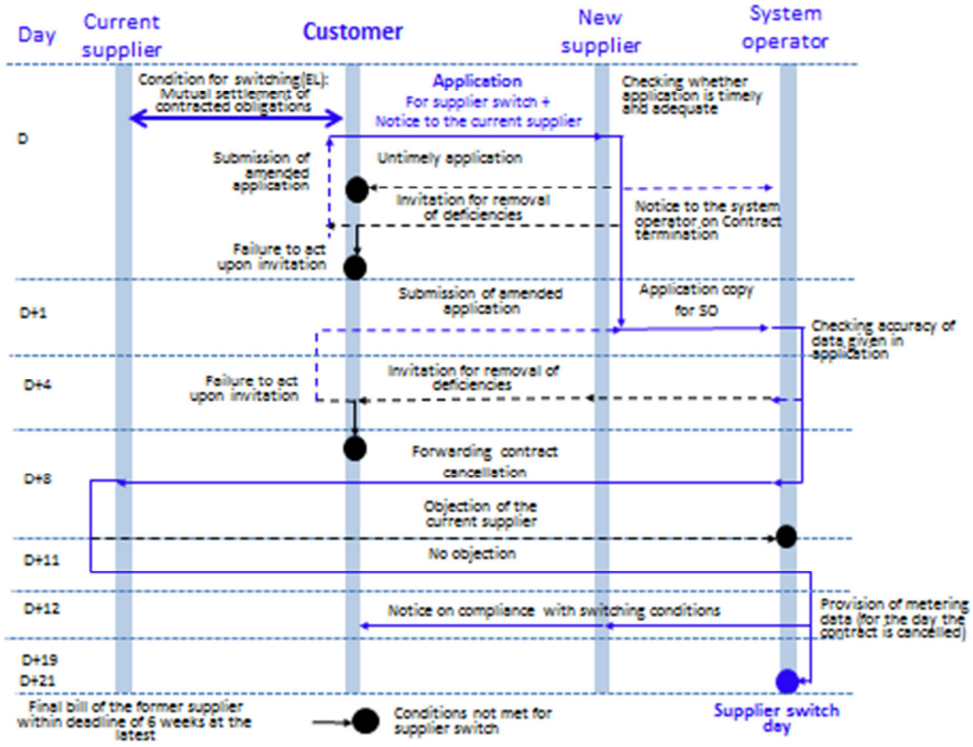


Figure 2-2: Scheme of supplier switching procedure upon customer's request

Customers should bear in mind the possible duration of the supplier switching procedure especially if the contract with the current supplier is terminating. Each phase of the procedure envisages checking the validity of the data and information pieces, and, if necessary, their modification is asked. Once all the deficiencies are removed and the system operator establishes that the final customer complies with the prescribed conditions for supplier switching and that the customer has settled all due financial liabilities with the current supplier, the system operator will inform all the involved parties and read the current consumption level on the day when the supply with the current supplier is ended. On the same day, the new supplier starts supplying based on the contract (the supplier switching day) and the balancing responsibility for the final customer's delivery point is assumed by the new supplier.

2.4 Security of Electricity and Natural Gas Supply

In 2015, the security of electricity and natural gas supply was on the satisfactory level. This is concluded on the basis of the data available to the Working Group for Analysis and Supervision over Security of Electricity and Natural Gas Supply which was established by the Ministry and which includes the representatives of the Agency. Increased availability of facilities within open pit mines and thermal power plants influenced higher security of electricity supply, while the security of natural gas supply was considerably improved by the utilisation of the underground storage Banatski Dvor with the withdrawal capacity of 5 million m^3/day.

The conditions for secure supply of customers are better in case of electricity since it is produced from domestic resources and imported only during winter season, with domestic production exceeding the demand on the annual level. Import dependence in the field of natural gas amounts to 84.6% gross consumption and import is realized via only one connection, via Hungary.

The Law prescribes a set of activities performed by state bodies in order to provide for short-term and long-term security of electricity and natural gas supply:

- The Ministry in charge of energy sector prepares a report on security of electricity and natural gas supply every year;
- The Government of RS specifies the conditions for electricity and natural gas delivery and supply, as well as the measures which should be taken in case of endangered security of electricity and natural gas supply to customers due to disruptions in energy system operations or market disruptions
- In case of endangered security of customers supply or energy system operations due to insufficient demand in the energy market or due to other extraordinary circumstances, the Government prescribes measures on electricity or natural gas restriction or special measures on import or export of certain energy sources, the manner and conditions for price establishment and control, the obligation to deliver energy to certain customers only or special conditions for energy activities with minimum energy market disruption in the region;
- Separate measures are planned for natural gas. Namely, the Government of RS adopts:
  - Prevention action plan so as to provide for the security of natural gas supply which includes risk assessment in terms of security of supply and measures for mitigation of certain risks related to necessary transmission capacity which would meet total demand and secure supply for certain groups of final natural gas customers and
  - Crisis plan which establishes measures, energy entities which will be obliged to provide for the security of transmission system operations and security of supply of certain groups of final customers, natural gas quantity and capacity, in case of general shortage of natural gas overall natural gas shortage.

The Working Group which was established by the Ministry held regular sessions in 2015 and took adequate measures in line with the situation on site, especially during the period of increased demand.

3. ELECTRICITY

3.1 Sector structure and capacities

3.1.1 Organisational and ownership structure of the electricity sector

The basic structure of the electricity sector was established in 2005 upon the adoption of the Energy Law in 2004 ("Official Gazette of RS", No. 84/04) by unbundling and internal reorganisation of a common vertically integrated PE EPS and the establishment of PE "Elektromreže Srbije" (EMS).

The structure of the electricity sector at the end of 2015 is indicated in Figure 3-1.

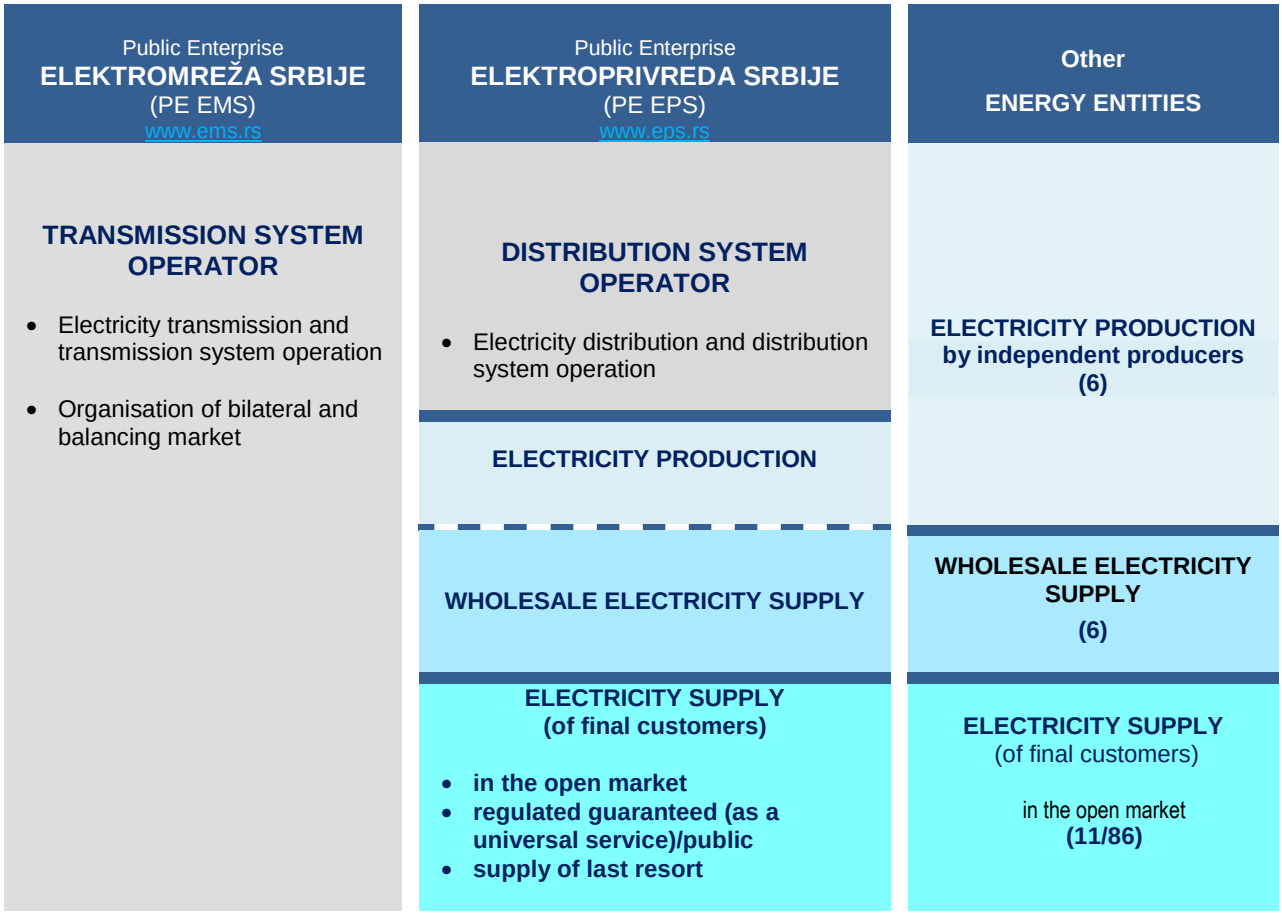


Figure 3-1: Organisational structure of the power sector

Public enterprises PE EMS and PE EPS were established on July 1, 2005 by the decision of the Government of the Republic of Serbia and both of them are 100% owned by the Republic of Serbia.

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

Transmission and transmission system operation has been performed by PE EMS since 2005.

PE EPS, as a parent company, performs electricity production, including production from renewable energy sources, wholesale electricity supply and supply of final customers within the EPS group. In addition, it trades in electricity on the SEEPEX power exchange on day-ahead market and participates in the wholesale market in the EU through its daughter company "EPS Trgovanje" which is established in Slovenia.

PE EPS includes legally unbundled two daughter companies which perform activities of:

- Distribution system operator (DSO), performing distribution and distribution system operation and
- Electricity supply, performing supply of final customers in both open and regulated markets (guaranteed (as a universal service)/public supply) and supply of the last resort for customers which are not entitled to regulated supply.

EPS Snabdevanje was appointed by the Government of RS as a public and guaranteed electricity supplier of final customers entitled to guaranteed supply as well as a supplier of the last resort in 2015. In 2015, PE EPS initiated the transformation process which will result in having these two activities performed by the parent company.

Other energy entities have a small share in the market and they deal in electricity production and electricity supply.

In 2015, there was an extremely high number of licenced electricity suppliers (86). Approximately half of them performed the activity, mainly through cross-border trade for the sake of transit and trade among the very suppliers, including PE EPS. Only eight suppliers were involved in final customers' supply, while EPS Snabdevanje (EPS Supply) was the dominant player.

Pursuant to the new Law, all suppliers are obliged to decide whether in the future they will deal only with wholesale supply only or also in the supply of final customers. They are also supposed to file an application with the Agency in order to obtain relevant licences. Until the end of 2015, there were 6 wholesale electricity suppliers licenced and 11 electricity suppliers.

3.1.2 Unbundling power activities and independence of the operator

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

The Law also defines a set of measures which secure the independence of DSO, especially in terms of the adoption of decisions on funds necessary for operation. The parent PE may only approve annual financial plans and set liability level limits for the system operator. However, it cannot give instructions for everyday operation. The Law prescribes that a DSO functioning within the vertically-integrated company should adopt a Programme for the Provision of Non-Discriminatory Behaviour, the content of which is set by the Law and to appoint a person responsible for the supervision of the Programme. DSO prepared the Programme and submitted to the Agency for approval and it is expected to be adopted in 2016.

3.1.3 Generation, transmission and distribution capacities

The total net installed capacity of the power plants in Serbia amounts to 8,364 MW, including power plants on the territory of APKM, which are under UNMIK jurisdiction. Within PE EPS, the dominant electricity producer, in lignite-fired thermal power plants, the installed capacity amounts to 5,171 MW, in hydro power plants – 2,835 MW, in natural gas-fired or heat oil-fired thermal power plants - 353 MW, in small hydro power plants – 22.3 MW. The lignite used in thermal power plants is produced in open pits which belong to PE EPS.

The total net installed capacity of the power plants in Serbia without those on APKM, including small power plants of independent producers amounts to 7,192 MW (table 3-1).

Table 3-1: Electricity generation capacities in 2015 (without APKM)

Technology	Installed capacity MW
Hydro power plants	2.835
Thermal power plants (coal)	3.905
Combined heat and power plants (gas, fuel oil)	353
Gas fired power plants	-
Nuclear power plants	-
Other sources (renewable sources) – small PE EPS power plants	22
Small power plants – independent producers	77
TOTAL INSTALLED CAPACITY	**7.192**

The structure of production capacities of PE EPS, without 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 60%, while the hydro power plants (HPPs), including small HPPs cover 40%. There is also one pumped-storage hydro power plant among hydro power plants within PE EPS with 2x307 MW capacity which is very important for system operation, apart from covering an important energy share.

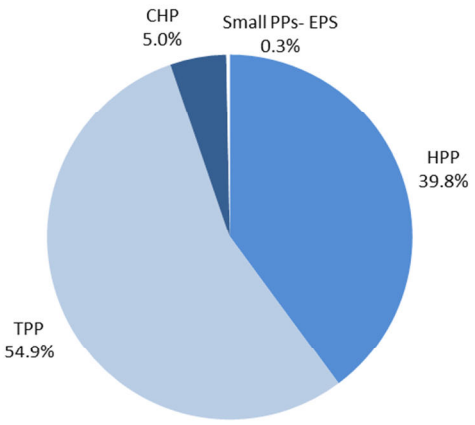


Figure 3-2: PE EPS production capacities structure in 2015 (without APKM)

In the first half of 2015, production capacities were organised within five daughter companies (DC) of PE EPS: DC HPP Đerdap, llc, DC, Drinsko-Limske HPP, llc, DC Panonske CHPs, llc, DC TPP Nikola Tesla, llc and DC TPP and pits Kostolac, llc. Until mid-2015, mall distribution HPPs EPS were within daughter companies for electricity distribution Elektrosrbija, llca and Jugoistok, llc and since July 1, 2015, production in these facilities is performed by PE EPS, based on the contract on facility lease. Within the PE EPS reorganisation follow-up, on January 4, 2015, there was a change of status, i.e. prduction capacities in small distribution HPPs were transfered to PE EPS as a parent company. Apart from production capacities of PE EPS, 185 small power plants with total installed capacity of 76.6MW owned by other legal and natural persons were also connected to the power distribution grid.

The licence for electricity production or for combined power and heat production is also held by the company Milan Blagojević-Namenska, llc, Lučani, ALLTECH SERBIA fermentation industry JSC Senta, GREEN WASTE llc Belgrade, ECO ENERGO GROUP llc Novi Beograd, SOLAR MATAROVA llc Novi Sad, Company for Electricity Production "W&W ENERGY" llc Kragujevac, ENERGO RAS llc Kraljevo and the Company for Exploration, Production, Processing, Distribution and Trade in Oil and Oil Derivatives and Exploration and Production of Natural Gas "Naftna Industrija Srbije" ("Petroleum Industry of Serbia"), JSC Novi Sad. All of them have small-scale generation facilities connected to the distribution grid.

3.1.3.1 Transmission

The transmission system, without a part of it on APKM, includes 35 transformer stations (TS) of 400/x and 220/xkV/kV with installed capacity of 16, 669 MVA (30 transformer stations with 16,181 MVA of installed capacity are owned by PE EMS), 13 switchgear plants (9 of them owned by PE EMS) and lines of 400, 220 and 110 kV with total length of 9,712 km (9,493 km owned by PE EMS). In comparison to 2014, there has been considerable increase of PE EMS facility capacities since the newly-constructed transformer station Beograd 20 was commissioned and since there was an increase in some of existing transformer stations. There are also 6 transformer stations 110/x kV/kV with the total installed capacity of 808 MVA owned by PE EMS.

In line with the law, the handover of overhead lines and cables 110 kV between PE EMS and PE EPS which started in 2013 is still ongoing. There is one overhead line left to be handed over and all cable lines 110 kV which are still owned by DSO. The handover of 52 of 53 transformer stations 110/x kV/kV was completed last year. There is an ongoing procedure for the handover of the remaining transformer station since there are unsettled ownership issues.

The PE EMS transmission system is connected with the neighbouring power systems via 26 interconnection overhead lines of 400, 220 and 110 kV, while 22 of them are active.

Table 3-2: PE EMS transmission system data in the end of 2015 (without APKM)

Transmission system elements	Unit	
Network length per voltage levels, total	km	9,493
400 kV	km	1,630
220 kV	km	1,846
110 kV	km	6,018
Number of transformers (including TS 110/x kV/kV owned by PE EMS)		85
Number of transformer stations and switchgear plants (including 110 kV voltage level - owned by PE EMS)		45
Number of (active) interconnections		22

3.1.3.2 Distribution

In the first half of 2015, electricity distribution on the territory of Serbia without APKM was performed within five DCs for electricity distribution: Elektrovojvodina LLC Novi Sad, Elektrodistribucija Beograd LLC Beograd, Elektrosrbija LLC Kraljevo, Jugoistok LLC Niš and Centar LLC Kragujevac. On July 1, 2015, PE EPS was reorganised and these 5 DCs were united and a daughter company Distribution System Operator "EPS Distribucija" (DSO) was established. It performs electricity distribution and distribution system operation. The distribution system without the territory of APKM includes around 35,900 transformer stations with the total installed capacity of around 30,350 MVA and around 165,600 km of distribution lines, with voltage of 110, 35, 20, 10 and 0.4 kV through which electricity is distributed to final customers.

DSO owns 34,671 transformer stations with the total installed capacity of 29,365 MVA and 159,860 km of distribution lines of all voltage levels. The structure of these lines is given in Table 3-3. In line with the law, transformer stations 110/x kV/kV were handed over by PE EMS. Therefore, in the end of 2015, there was only one transformer station which is not handed over.

Table 3-3: Length of lines owned by DSO in the end of 2015 (without APKM)

km

Voltage level	DSO in different areas of distribution daughter companies					Total DSO
	Elektrovojvodina	EDB	Elektrosrbija	Jugoistok	Centar	
110 kV	0	33	0	0	2	35
35 kV	1,294	939	2,161	1,709	720	6,823
20 kV	7,824	0	1,564	0	0	9,388
10 kV	551	6,611	12,124	9,413	3,997	32,696
0,4 kV	13,843	17,039	46,744	21,015	12,277	110,918
Total	**23,512**	**24,620**	**62,593**	**32,137**	**16,997**	**159,860**

3.2 Consumption and generation

Electricity consumption amounted to 28.5 TWh, 1.65% higher than in 2014. Detailed consumption overview is given in item 3.5.1.2.

In the past ten years, PE EPS has increased its production from the existing capacities, while in 2013 there was maximum production of almost 37.5 TWh. Although the production in hydro power plants in 2014 was above the average, there was a reduction of the total production to 32.1 TWh due to limited exploitation of coal necessary for the operation of thermal power plants due to May 2014 floods. For this reason, thermal power plants produced about 23% less electricity than in 2013. In 2015, production amounted to 35.9 TWh. Combined power plants operated in line with the heat demand in wintertime.

The production in small power plants connected to the distribution grid is relatively low, but, since there are new capacities connected to it, regardless of hydrological circumstances variation, their production has been increasing as the time passes. Their production in 2015 amounted to 321 GWh, which is around 20% higher than in 2014. The highest increase in their production was recorded in 2014 when their production amounted to 2.5 times higher than in 2013, which was mainly due to the fact that transmission and distribution grid were divided in line with the new Law. For this reason, the whole annual production in hydro power plants "Ovčar Banja" and „Međuvršje" was included in the production of power plants connected to the distribution system which was not the case in the past.

An active participation of a great number of suppliers in the electricity market increases the scale of cross-border electricity trade. On the basis of the available data provided by the suppliers, around 1,730 GWh was imported in Serbia. In comparison to 2014 import, electricity import was half of it because the operations of mines and thermal power plants was normalised. The increased production of PE EPS enabled export of over 2,000 GWh of electricity. Since there were favourable hydrological circumstances, export was intensive in the period between April and July.

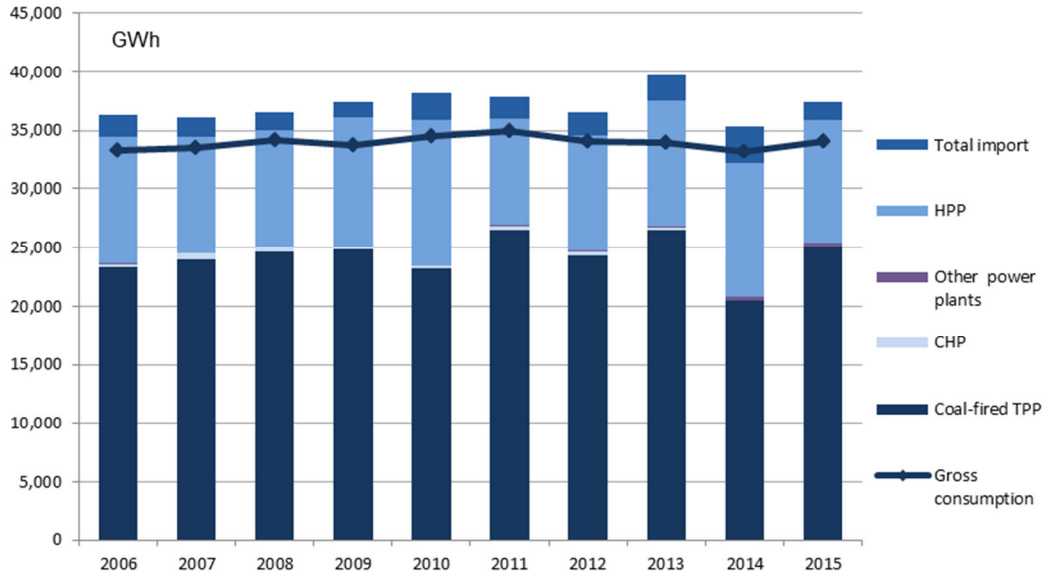


Figure 3-3: Generation, import and gross consumption in Serbia in 2015 (without APKM)

In 2015, 35,912 GWh were produced in total in power plants in Serbia. Out of that number, coal-fired thermal power plants produced 69.7%, hydro power plants 29.3%, combined heat and power plants 0.1% and other small power plants connected to the distribution system 0.9% of the total electricity production.

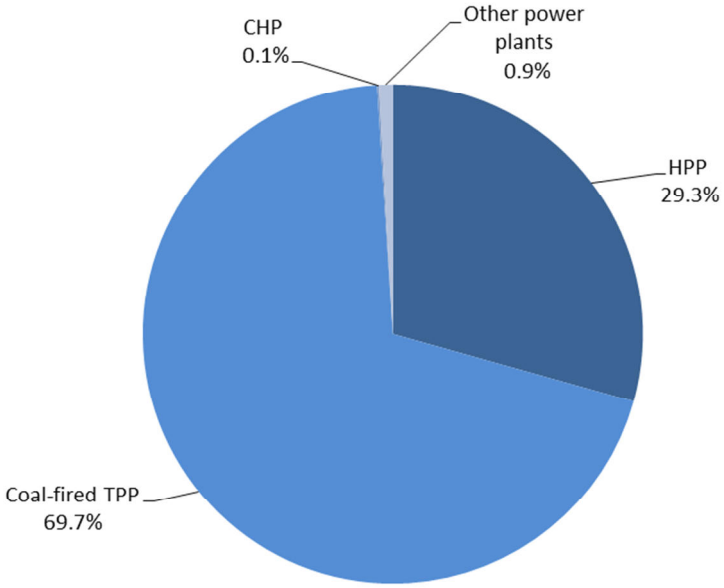


Figure 3-4: Generation structure in 2015 (without APKM)

Table 3-4: Electricity generation and consumption in 2005 – 2015 (without APKM)

GWh

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
GENERATION										
Hydro power plants	10,850	9,930	10,011	11,045	12,420	9,145	9,808	10,729	11,366	10,529
Coal fired thermal power plants	23,361	24,016	24,661	24,880	23,162	26,462	24,275	26,537	20,455	25,017
Combined heat and power plants	180	483	367	139	222	408	390	167	63	45
Other power plants	53	40	40	48	61	46	73	104	267	321
Total generation	**34,444**	**34,469**	**35,079**	**36,112**	**35,865**	**36,061**	**34,546**	**37,537**	**32,151**	**35,912**
Other (UNMIK)	21	88	0	44	93	184	144	0	0	15
IMPORT										
Import by EPS and suppliers' import meant to cover customers' demand in Serbia	853	792	616	121	755	1,106	1,170	640	2,869	1,677
Long-term contract with EP Montenegro	993	647	797	1,116	1,463	630	737	1,294	0	0
Annual contracts	0	249	121	85	86	64	125	218	311	55
Import – total import of EPS and for supply purposes	**1,846**	**1,688**	**1,534**	**1,322**	**2,304**	**1,800**	**2,032**	**2,152**	**3,180**	**1,732**
TOTAL AVAILABLE QUANTITY	**36,311**	**36,245**	**36,613**	**37,478**	**38,262**	**38,045**	**36,722**	**39,687**	**35,331**	**37,659**
EPS – export and sales to suppliers for export	812	249	173	1,442	1,286	764	251	3,140	936	2,086
Long-term contract with EP Montenegro	1,201	1,235	1,220	1,184	1,204	1,210	1,214	1,235	0	0
Annual contracts	23	246	115	94	69	90	127	100	85	56
Total – EPS export and sales to suppliers for export	**2,036**	**1,730**	**1,508**	**2,720**	**2,559**	**2,064**	**1,592**	**4,475**	**1,021**	**2,142**
Pumping	852	864	878	903	1,049	860	875	1,007	902	1,102
Other (UNMIK)	99	133	59	71	145	199	196	207	180	300
Gross consumption	**33,324**	**33,518**	**34,168**	**33,784**	**34,509**	**34,928**	**34,059**	**34,000**	**33,228**	**34,115**
Transmission network losses	1,295	1,286	1,224	1,106	1,065	1,096	1,022	1,013	948	932
Distribution network losses	4,434	4,583	4,671	4,864	4,957	4,747	4,580	4,486	4,215	4,236
Total losses	**5,729**	**5,869**	**5,895**	**5,970**	**6,022**	**5,843**	**5,602**	**5,499**	**5,163**	**5,168**
Losses to gross consumption ratio	17.2%	17.5%	17.3%	17.7%	17.5%	16.7%	16.4%	16.2%	15.5%	15.4
Final consumption	**27,595**	**27,649**	**28,273**	**27,814**	**28,487**	**29,085**	**28,457**	**28,501**	**28,065**	**28,947**

** Final consumption in this Report included both the total consumption of all final customers and the consumption of hydro power plants and thermal power plants for production purposes.*

3.3 Regulation of the transmission system operator

PE EMS is the holder of licences for energy operations such as transmission, transmission system operation, organisation and administration of bilateral and balancing electricity market.

Transmission system operator is responsible for:

- secure, reliable and safe operations of the transmission system and electricity delivery quality;
- provision of adequate transmission capacity to create grounds for security of supply;
- transmission system operation and the operation of a part of distribution system of 110 kV which includes coupling bays 110 kV, bars 110 kV and line bays 110 kV, in a manner providing for the security of electricity delivery;
- non-discriminatory and transparent access to the transmission system and reasonable background in case of access denial;
- transmission system development providing for long-term capability of the transmission system to comply with rational requirements in terms of electricity transmission, bearing in mind environment protection;
- construction of connection to the transmission system;

- coordinated operations of the transmission system of the Republic of Serbia with interconnected transmission systems, i.e. with distribution systems in the Republic of Serbia;
- operation of power flows, bearing in mind exchanges with other interconnected systems, provision of necessary ancillary services, including the service of demand operation, to the extent where such availability is independent from any other transmission system with which the system is interconnected;
- system balancing;
- determination of technical and technological requirements as well as other necessary requirements for the connection of power facilities, devices and plants into a common system;
- accuracy and reliability of electricity measurements on delivery points from and into the transmission system;
- regulation and administration of electricity market within their jurisdiction and
- efficient and functional connection of electricity market in the Republic of Serbia with neighbouring electricity markets, in cooperation with the electricity market operators in the Republic of Serbia, as well as with the transmission system operators and market operators from neighbouring countries, in line with internationally-based principles and assumed obligations.

The most important activities of the transmission system operator in 2015 were as follows:

- drafting ten-year transmission system development plan;
- amendments to the Transmission Network Code in order to harmonise it with the Law;
- amendments to the Electricity Market Rules in order to harmonise it with the Law;
- drafting Rules on Publication of Key Market Data;
- adoption of the electricity market rules;
- adoption of the rules for the cross-border transmission capacities allocation in 2016, general and bilateral ones with the transmission system operators of Hungary, Romania, Bulgaria, Bosnia and Herzegovina and Croatia;
- procurement of energy for the recovery of transmission network losses in the tender procedure;
- 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;
- 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 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;
- in the first half of the year, preparation for the establishment of an organised electricity market and
- other activities which improve the security, efficiency and transparency in the operations of the transmission system and market functioning.

3.3.1 Transmission Network Code

Transmission Network Code regulates technical aspects of transmission network operations and relations between PE Ems as the transmission system operator and system users. The Code is available on websites of both PE EMS and the Agency. The enforcement of the PE EMS Network Code began in May 2008, upon the Agency's approval. The Code was amended upon PE EMS initiative in December 2011. In 2013 and in the beginning of 2014, new Transmission Network Code was drafted which was approved by the Council of the Agency in July 2014.

Upon the adoption of the new Energy Law in December 2014, expert teams of PE EMS and Agency were preparing amendments to the Code. On the session held on 03/11/2015, the Agency Council adopted a decision on the approval of the Transmission Network Code harmonised with the new Law. Prior to the adoption, there was a public consultation on it which included interested institutions and transmission system users organised by PE EMS.

3.3.2 Regulation of electricity transmission use-of-system charges

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 four times. In 2015, there were no changes in charges and the charges approved in March 2013 were applicable.

The trend of the annual level of approved electricity transmission use-of-system charges are given in the table below:

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

RSD/kWh

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

** 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 quantities.*

The charges applicable in 2015, which have been valid since March 1, 2013 are listed in Table 3-6.

Table 3-6: Transmission use-of-system charges valid as of 01/03/2013.

RSD

Tariff element	Calculation element	Unit	Charge as of 01/03/2013
Power	Accounting power	kW	37.5638
	Extra power	kW	150.2554
Active energy	Higher day-time	kWh	0.3303
	Lower day-time	kWh	0.1651
Reactive energy	Reactive energy	kvarh	0.1399
	Extra reactive energy	kvarh	0.2798

In 2015, by the application of ruling charges to actual quantities, average transmission use-of-system charge was realised. It amounted to 0.429 RSD/kWh.

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

RSD/kWh

	2008	2009	2010	2011	2012	2013	2014	2015
Average transmission use-of-system charges	0.25	0.26	0.28	0.33	0.35	0.42	0.43	0.43

Transmission use-of-system charges and their structure are given in line with 2015 ENTSO-E data in the Figure 3-5.

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

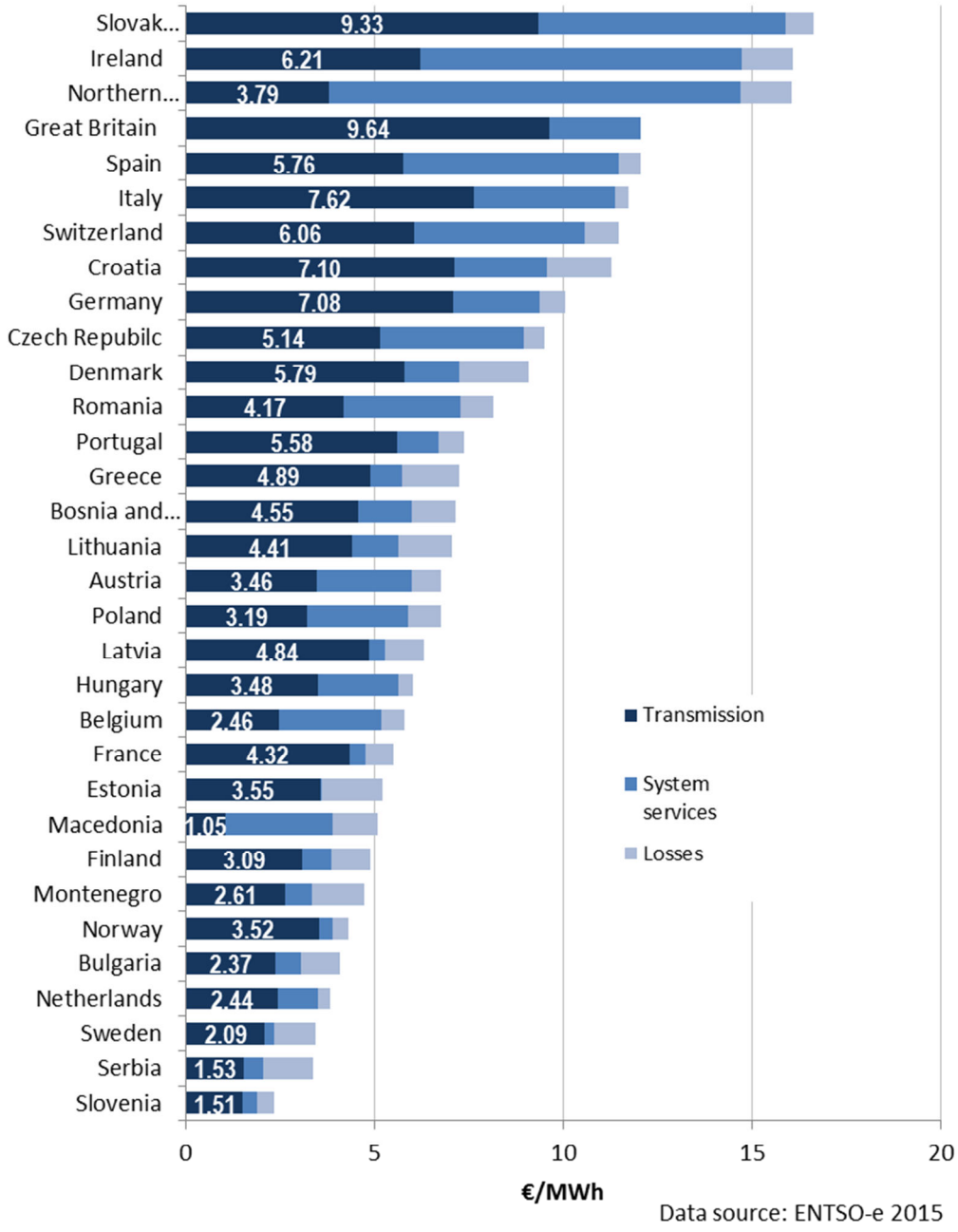


Figure 3-5: Transmission use-of-system charge (€/MWh) in 2015

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

3.3.3 Transmitted electricity quantities

Table 3-8 indicates the transmitted electricity quantities in 2015 in comparison to the quantities planned for 2015 and transmitted electricity quantities in 2014. In comparison to 2014, there was 7.71% more electricity (3,000 GWh) entered the transmission system while the exit from the transmission system in 2015 is higher than 2014 exit by 7.95% (3,016 GWh).

Table 3-8: Basic indicators of transmission plan realisation without APKM

	2014	2015		
	Realised	Balance	Realised	Real./Bal.

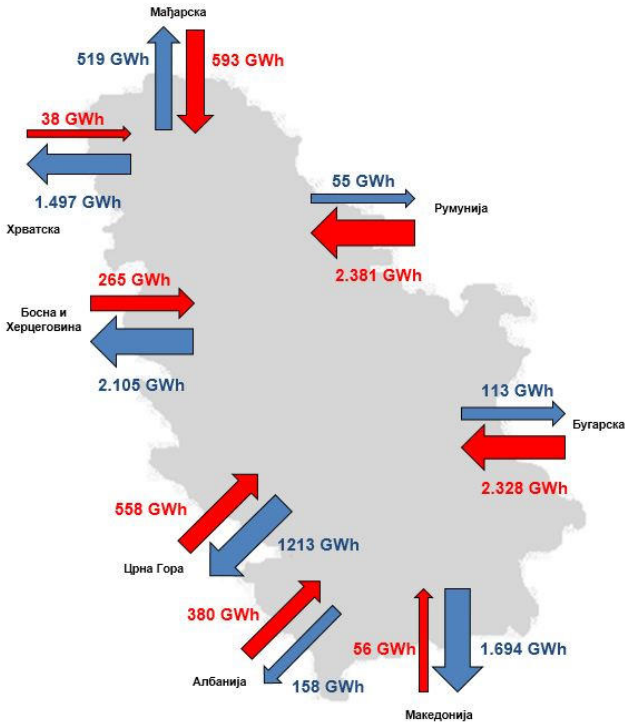
	1	2	3	3/2
Entry (GWh)	38,891	40,978	41,891	102.2
Losses (GWh)	948	979	932	95.2
Losses (%)	2.44%	2.39%	2.22%	93.3
Exit (GWh)	37,943	39,999	40,959	102.4

Realised physical electricity transit in 2015, 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 5,677 GWh. The physical transit per month is indicated in table 3-9.

Table 3-9: : Electricity transit by months of 2015 (physical flows)

Month	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Transit (GWh)	454	403	418	463	169	268	633	600	367	538	646	718

Including APKM, 47,781 GWh were transmitted in total. 41,182 GWh were produced in the power plants connected to the transmission system while 6,599 GWh were withdrawn from the neighbouring systems. Physical flows of electricity on the borders of the control area of Serbia in 2015 are given in Figure 3-6.



Мађарска – Hungary, Румунија – Romania, Бугарска – Bulgaria, Македонија – Macedonia, Албанија – Albania, Црна Гора – Montenegro, Босна и Херцеговина - Bosnia and Herzegovina, Хрватска - Croatia

Figure 3-6: Total physical flows of electricity on the borders of the Serbian control area in 2015

On a part of the system without APKM, 41,891 GWh were transmitted, while 35,591 GWh out of these were produced outside the plants on APKM, 6,027 GWh were withdrawn from the neighbouring systems and the remaining 273 GWh were withdrawn from the territory of APKM. The greatest share of transmitted energy was delivered to electricity distribution systems. The second largest share was transmitted to final customers, neighbouring systems and pumped-storage HPP facilities for pumping purposes.

Table 3-10: Transmitted energy, maximum load and losses (without APKM)

	Unit	2014	2015	2015/2014
Transmitted electricity	GWh	38,891	41,891	107.7
Maximum daily gross consumption	GWh	127.6	119.5	93.7
Maximum hourly load	MW	6,247	5,777	92.4
Transmission system losses	GWh	948	932	98.3
Transmission system losses (as % of transmitted electricity)	%	2.44	2.22	91.0

In 2015, without APKM, electricity losses in the transmission system of Serbia amounted to 932 GWh, which represents 2.22% of electricity withdrawn into the transmission system. The loss reduction trend continued, i.e. the losses were reduced both on percentage level and as the numerical value in comparison to 2014.

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 2015 winter period, in Serbia, without APKM, average daily consumption which greatly depends on the average daily temperature amounted to 110,000 MWh. The highest daily gross consumption amounted to 119,467 MWh on January 8, 2015. The maximum 2015 hourly load was reached – 5,777 MW on December 31, 2015.

3.3.4 Use of cross-border transmission capacities

The Republic of Serbia borders with eight countries and there are eleven interconnection overhead lines (400kV and 220kV) where PE EMS 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 and on Serbian-Bosnian and Herzegovinian border since 2014, joint explicit auctions have been organised for the allocation of 100% of available capacity. On the borders with Albania, Macedonia and Montenegro, PE EMS and neighbouring transmission system operators allocate 50% of cross-border transmission capacities each.

3.3.4.1 Rules for the cross-border transmission capacity allocation

Being the transmission system operator in Serbia, PE EMS 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 (PE EMS) and the transmission system operators of Hungary, Romania, Bulgaria, Bosnia and Herzegovina and Croatia 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 2015 were approved by the Agency Council in the end of 2014.

3.3.4.2 Allocation of cross-border capacity

Being the transmission system operator, PE EMS 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).

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 amounts of NTC for entry into Serbia in 2015

MW

Border/months	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Hun--->Ser	700	700	700	700	700	700	700	700	677	700	700	700
Rom---> Ser	600	461	398	533	413	452	331	545	403	540	500	550
Bul ---> Ser	300	250	300	500	390	383	300	456	387	206	300	350
Mac---> Ser	300	300	300	300	300	300	300	300	240	300	300	300
Alb---> Ser	250	250	250	0	210	210	210	210	196	250	250	250
Mon---> Ser	650	700	700	700	700	700	700	700	700	700	700	700
BiH--- Ser	500	600	376	485	518	477	600	400	600	600	600	600
Cro---> Ser	500	600	376	485	498	477	600	400	360	600	600	600

Table 3-12: Average monthly amounts of NTC for exit from Serbia in 2015

MW

Border/months	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Ser --->Hun	800	800	800	800	800	793	648	800	773	800	800	800
Ser --->Rom	408	475	411	398	365	307	477	445	320	590	800	500
Ser --->Bul	200	200	200	150	200	150	150	150	135	106	200	200
Ser --->Mac	700	600	555	590	600	500	490	537	422	632	607	700
Ser --->Alb	250	230	234	0	210	210	210	206	188	250	250	250
Ser --->Mon	700	561	623	597	600	585	539	603	700	700	700	700
Ser --->BiH	600	600	600	435	369	490	355	511	530	513	600	600
Ser --->Cro	600	600	600	435	360	490	355	529	290	513	600	600

In 2015, PE EMS 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 2015, in line with the “Rules for the Cross-border transmission capacity allocation on the Borders of the PE EMS Control Area for the Period 01/01/2015 – 31/12/2015”, PE EMS allocated 50% of the available capacity on annual (only on the border with Montenegro), monthly and weekly level, by organizing explicit auctions on the following borders:

Serbia-Albania, Serbia-Montenegro and Serbia-Macedonia. In case of congestion, reservation was charged at marginal price. The allocation of the other half of transmission capacity quantities was organised by the transmission system operators of neighbouring countries. In line with their rules, PE EMS also organised intradaily allocation of cross-border transmission capacity on these borders by the method „first come – first served"(in line with the application time).

In 2015, the right to participate in the auctions on 50% of available capacity was on disposal of 48 market players. 26 of them actively participated in the auctions.

Annual auctions for the allocation of 50% of the available cross-border transmission capacity for 2015 were held on November 26, 2014 only on the border with Montenegro with 17 participants. The auctions on the borders with Macedonia and Albania were not organised since it was not possible to guarantee annual capacity in case KOSTT area is established in 2015. The data on the given annual auctions are given in Table 3-13.

Table 3-13: data on annual auctions for the allocation of 50% of available cross-border transmission capacities in 2015

Border-direction	Number of auction participants	Price of the last successful bid in case of congestion EUR/MWh
Montenegro – Serbia	12	0.10
Serbia – Montenegro	17	0.26

In 2015, PE EMS organised monthly auctions for the allocation of 50% of available capacity for each month, on all the above given borders and in both directions. The number of participants on monthly auctions per each month is given in Table 3-14. The data on monthly auctions are given in the Table 3-15.

Table 3-14: Number of participants in monthly auctions for 2015

Month	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Number of participants	20	20	20	21	22	22	21	22	22	22	22	21

Table 3-15: General data on monthly auctions for the allocation of 50% of available cross-border transmission capacities in 2015

Border – direction	No. of days with "0" capacity	Number of congestions/total number of auctions	Number of participants in auctions (min.-max.)	Range of prices of the last successful bid in case of congestion EUR/MWh
Alb-Srb	32	11 / 13	6 - 12	0.01 – 0.61
Mon- Srb	0	12 / 12	11 - 15	0.02 – 0.09
Mac- Srb	6	13 / 14	9 - 14	0.02 – 0.45
Srb -Alb	32	18 / 20	7 - 12	0.53 – 8.35
Srb -Mon	0	25 / 25	11 - 15	0.03 – 0.19
Srb -Mac	6	25 / 26	11 - 16	0.17 – 3.64

In 2015, in contrast to 2014, weekly auctions were also organised. On the border with Albania, there were six auctions organised, one with Montenegro and two with Macedonia.

In 2015, PE EMS organised annual and monthly 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. allocated the available capacity on daily level, charging in line with the last successful price ("marginal price"). There were 40 participants on all these auctions while there were 59 of them entitled to participate.

For the allocation of 100% of available capacity on Serbian-Romanian border, PE EMS organised annual and monthly auctions charging in line with the last successful price ("marginal price"), while the Romanian transmission system operator CNTEE Transelectrica S.A. allocated the available capacity charging in line with the last successful price ("marginal price"), as well as on the intraday market, by organizing explicit auctions (6 4-hour sessions). There were 37 participants on all these auctions, while there were 56 of them entitled to participate.

In 2015, the Croatian transmission system operator HOPS, organised annual and monthly auctions for the allocation of 100% of available capacity on the Serbian-Croatian border charging in line with the last successful price ("marginal price"), while PE EMS used the same method to allocate the available capacity on daily level and using „first come-first served" method on intraday level. There were 15 participants on all these auctions, while there were 36 of them entitled to participate.

On the Serbian-Bulgarian border, the Bulgarian transmission system operator Elektroenergien Sistemen Operator EAD organised both annual and monthly auctions for the allocation of 100% of available capacity, while PE EMS allocated the available capacity on daily level. Both operators use the charging method - the last successful price ("marginal price"). There were 24 participants on all these auctions, while there were 44 of them entitled to participate. Intraday auctions were not organised due to technical problems of the Bulgarian transmission system operator.

In 2015, PE EMS organised long-term (annual and monthly) explicit auctions for the allocation of 100% of available capacity on Serbian-Bosnian and Herzegovinian border charging in line with the last successful price ("marginal price"), and the same method was used by the Bosnia and Herzegovina transmission system operator (NOSBIH) which organised daily auctions. NOSBIH also organised intraday auctions by using the method „first come-first served".

The data on the joint annual auctions for 2015 are given in Table 3-16.

Table 3-16: Data on joint annual auctions for the allocation of 50% of available cross-border transmission capacities in 2015

Border – direction	Number of auction participants	Marginal price (EUR/MWh)
Hungary - Serbia	19	0.31
Serbia – Hungary	22	0.15
Romania - Serbia	26	4.60
Serbia – Romania	12	0.01
Bulgaria – Serbia*	8	2.73
Serbia – Bulgaria*	4	0.81
Croatia – Serbia**	5	0.18**
Serbia – Croatia**	7	0.07**
BiH - Serbia	14	0.17
Serbia - BiH	13	0.05

** Data gathered from the neighbouring transmission system operator*

*** The price is set in Croatian kuna and then calculated and given in EUR*

The data on joint monthly auctions in 2015 are given in Table 3-17.

Table 3-17: Data on joint monthly auctions for the allocation of cross-border transmission capacities in 2015

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 EUR/MWh
Hungary - Serbia	1	12 / 12	15 - 21	0.06 – 0.26
Serbia – Hungary	1	12 / 12	15 - 25	0.01 – 0.51
Romania - Serbia	19	52 / 56	15 - 24	1.45 – 5.51
Serbia – Romania	19	6 / 60	3 - 7	0.01 – 0.04
Bulgaria – Serbia*	12	18 / 18	3 – 11	0.11 – 4.20
Serbia – Bulgaria*	12	12 / 12	2 – 8	0.15 – 3.22
Croatia – Serbia**	5	14 / 18	3 – 8	0.01**
Serbia – Croatia**	5	21 / 24	3 – 8	0.07**
BiH - Serbia	0	9 / 12	10 – 15	0.01 – 0.05
Serbia - BiH	0	5 / 12	8 - 12	0.01 – 0.02

** Data gathered from the neighbouring transmission system operator*

*** The price is set in Croatian kuna and then calculated and given in EUR*

3.3.4.3 Annual exchange within and across the borders of coltrol areas

The total scale of cross-border transactions in 2015 (with APKM) amounted to 16,165 GWh – entrance, i.e. 16,910 GWh – exit from the market area of Serbia. The scale of internal transactions[3] amounted to 9,835 GWh. Table 3-18 indicates the scale of nominated and confirmed internal and cross-border transactions in the period 2009-2015.

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

Table 3-18: Cross-border and internal transactions in the market area of Serbia 2009 - 2015

GWh

Year	Cross-border transactions – entry	Cross-border transactions – exit	Internal transactions
2009	6,883	8,681	3,679
2010	10,551	11,581	5,835
2011	11,171	11,481	10,004
2012	10,781	10,769	7,815
2013	10,094	13,939	11,711
2014	16,637	14,416	11,574
2015	16,165	16,910	9,835

In 2015, cross-border exchange in the exit direction was increased, while internal exchange decreased which indicates that the sale of electricity produced in Serbia in foreign market was higher.

Apart from the transactions indicated in Table 3-18, a segment of cross-border exchange was realised via island operations of distribution system of Serbia and Bosnia and Herzegovina, amounting to 49.2 GWh in direction from Serbia towards BiH and 3.8 GWh in the opposite direction.

Table 3-19 indicates the scale of cross-border transactions for each border for 2015.

Table 3-19: Entry and exit nominated cross-border transactions for each border for 2015

GWh

Border with	Entry into Serbia	Exit from Serbia
Romania	4,135	449
Bulgaria	2,510	811
Macedonia	424	2,822
Montenegro	309	1,354
Albania	792	2,106
BiH	1,278	2,052
Croatia	1,324	2,363
Hungary	5,394	4,953
On all borders	**16,166**	**16,910**

3.4 Regulation of the distribution system operator

In the first half of 2015, there were five distribution system operators which were daughter companies within PE EPS, holding licenses for the performance of electricity distribution and distribution system operation. As of July 1, 2015, PE EPS was reorganised and a daughter company Distribution System Operator “EPS Distribucija” was established. It continued performing the activity of electricity distribution and distribution system operation on the territory of Serbia without APKM.

The transmission system operator is responsible for:

- safe and reliable distribution system operations and the quality of electricity delivery;
- operation transformer bays 110 kV in distribution transformer stations 110/x kV and the operation of the distribution system of medium and low voltage, in a manner providing the security of electricity supply;
- non-discriminatory and transparent access to the distribution system;
- distribution system development providing for long-term capability of the distribution system to comply with rational requirements in terms of electricity distribution;
- construction of the connection of the distribution system user;
- determination of technical and technological requirements for connection of power facilities, devices and plants into a common system;
- provision of the information relevant for an efficient access to the distribution system to energy entities and distribution system users, based on principles of transparency and non-discrimination;
- provision of information on future electricity demand and other information necessary to the transmission system operator and to the Agency and
- accuracy and reliability of electricity measurements on delivery points from and into the distribution system.

The most important activities of the distribution system operator in 2015 which provided the compliance of its work with the commitments arising from the Law and electricity market opening are as follows:

- organisational changes in order to establish a single distribution system operator;
- preparation for the establishment of a national dispatching center for distribution system operation;
- unbundling from the supply operations;
- implementation of measures for energy system loss reduction, which are above the technically justified level;
- drafting the five years' distribution system development plan and harmonisation with the transmission system development plan and applications for the connection of facilities of producers and customers which are not completed;
- drafting a plan for connections transfer;
- drafting single Electricity Distribution Network Code;
- preparations for market opening for households and small customers who will be entitled to resign public supply in 2015;
- cooperation with PE EMS and suppliers on the preparation of the type of data and format which is submitted by the distribution system operator to the transmission system operator and to suppliers 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;
- submission of the data which are to be incorporated into the report on security of energy supply to the Ministry in charge of energy;
- takover of tranformer stations 110/x kV/kV from PE EMS and transfering the lines 110kV to PE EMS;
- procurement of energy meant for distribution grid loss recovery and
- other activities which improve the security, efficiency and transparency of the distribution system operations as well as market functioning.

By mid-2021, the distribution system operator is obliged by the Law to take over metering devices, switchboards, connection lines, installation and equipment in the switchboard and other devices within the connection in the facilities of existing customers or producers since these devices and equipment are part of the distribution system. The plan for the transfer has not been adopted yet. The plan is supposed to be drafted upon making an analysis of the situation with metering devices, switchboards, connection lines, installation and equipment in the switchboard and upon determining the necessity to replace them or adjust them to the requirements stipulated by technical regulations and distribution system code. However, there is a delay in the realisation with this obligation mainly due to the distribution systems' reorganisation.

3.4.1 Distribution Network Code

Upon the approval of the Agency's Council, the Distribution Network Code has been enforced in all the five companies for electricity distribution since early 2010. The Code regulates technical conditions for connection of customers to the system, technical and other conditions for safe operation of the distribution system and for the provision of reliable and continuous delivery of electricity to customers, procedures in case of crisis, rules on third party access to the distribution system, functional requirements and the category of measuring devices, electricity measuring method and other conditions.

In 2013 and 2014, the Code was amended in the field of power plants connection to the distribution system and the definition of consumption profile, i.e. the method for setting hourly load for customers whose electricity consumption is metered on monthly level. In 2014, amendments were being drafted regarding the definition of a consumption profile for households and small customers who became entitled to select an electricity supplier in the open market in 2015. In the beginning of 2015, the Agency Council approved this amendment.

The Distribution Network Code was supposed to be harmonised with the 2014 Energy Law and with the 2013 Decree on Conditions for Electricity Delivery and Supply. The work on harmonisation was initiated in the beginning of 2015. It became more serious after the establishment of one DSO but it has not been completed. The Code is expected to be submitted to the Agency for approval in the first half of 2016.

3.4.2 Regulation of the electricity distribution use-of-system charges

Distribution companies started applying regulated distribution use-of-system prices on March 1, 2010 upon positive opinion of the Agency on the charge proposal and upon the approval of the Government. The distribution use-of-system charges were modified on April 1, 2011 and on August 1, 2013. These prices were still valid in 2015 for those customers entitled to guaranteed supply. The distribution use-of-system charges are available on the Agency website (www.aers.rs).

In the end of 2013, 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 all customers whose facilities connected to the distribution network and 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 distribution system operator

was established – “EPS Distribucija”. It performes distribution and distribution system operation on the whole territory of the Republic of Serbia. Therefore, DSO will adopt a single distribution use-of-system charge which is subject to the approval of the Agency.

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

RSD/kWh

Consumption category	Annual level of approved charge		
	As of 01/03/2010	As of 01/04/2011	As of 01/08/2013
Medium voltage - total	1.17	1.385	1.56
Low voltage (0.4 kV I grade)	2.71	3.19	3.53
Mass consumption - total	2.11	2.43	3.27
- 0.4 kV II grade	2.38	2.72	3.75
- households	2.08	2.39	3.20
Public lighting	1.61	1.90	3.06
Total low voltage	2.20	2.54	3.30
AVERAGE	1.82	2.30	2.93

Figure 3-7 indicates average realized electricity distribution use-of-system charges for Serbia (without APKM) by customers’ categories in 2015.

The average distribution use-of-system charge (access to all distribution networks) in 2015 for all customers amounted to 2.96 RSD/kWh (Table 3-21).

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

RSD/kWh

Consumption category	2010	2011	2012	2013	2014	2015
35 kV	1.24	1.35	1.35	1.46	1.32	1.28
10 kV	1.20	1.36	1.39	1.53	1.59	1.50
Low voltage (0.4 kV I grade)	2.89	3.22	3.19	3.68	4.22	4.12
- 0.4 kV II grade	2.41	2.63	2.72	3.16	3.75	3.71
- households	2.14	2.31	2.39	2.86	3.29	3.27
Public lighting	1.63	1.83	1.89	2.48	3.10	3.08
AVERAGE	2.03	2.23	2.14	2.66	3.01	2.96

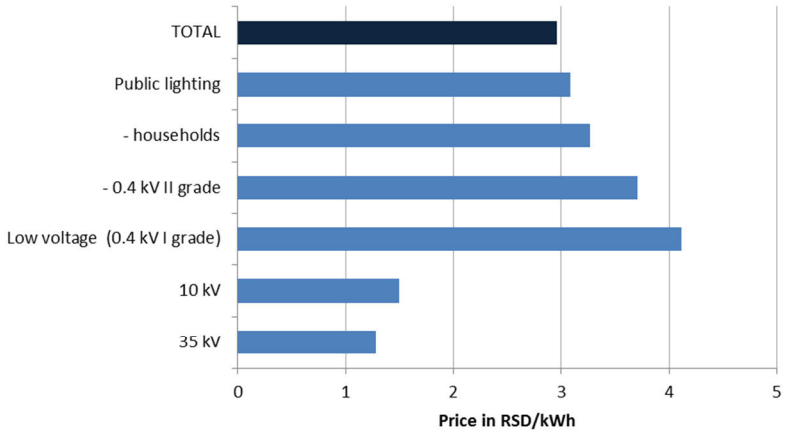


Figure 3-7: Average achieved annual distribution use-of-system charge in 2015

In 2015, the Agency Council adopted a decision on amendment to the Methodology for Setting Electricity Distribution Use-of-System Charges.

Upon the establishment of DC EPS Snabdevanje in 2013, the greatest part of activities related to supply is still performed by distribution system operators as additional activities, under service contracts. Such relations between daughter companies considerably burden the activities of the Agency in terms of distribution use-of-system charges, even public supply, to the extent these activities are within the jurisdiction of the Agency since it is more difficult to have insight into the costs arising from these contracts and the assessment of their legitimacy.

3.4.3 Distributed electricity quantities

The electricity delivered to customers through the distribution system is almost fully withdrawn from the electricity transmission system. A smaller portion of energy is provided from the power plants connected to the distribution system but this portion is increasing year by year. In 2015, the energy taken from the power plants connected to the distribution system was 20% higher than in 2014 when it was 2.5 times higher than in 2013. It is due to the connection of new power plants to the distribution network, more favourable hydrological conditions and presenting the production of hydro power plants "Ovčar banja" and „Međuvršje" as the production on the distribution system, after the separation of transmission and distribution network in the Law.

Table 3-22: Electricity quantities distributed in 2005 – 2015

GWh, %

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Distributed - Total electricity withdrawn by the distribution system	29,030	29,355	29,942	29,970	30,453	30,604	30,256	30,069	29,345	30,099
Withdrawn from the transmission network (excluding customers connected to 110 kV)	28,977	29,315	29,902	30,392	30,558	29,922	30,183	29,965	29,078	29,778
Generation from power plants connected to the distribution system	53	40	40	61	46	48	73	104	267	321
Total delivered electricity quantities (excluding customers connected to 110 kV)	24,596	24,772	25,271	25,106	25,496	25,857	25,677	25,586	25,130	25,863
Distribution system losses	4,434	4,583	4,671	4,864	4,957	4,747	4,579	4,486	4,215	4,236
Distribution system losses (as % of total withdrawn energy)	15.3	15.6	15.6	16.2	16.3	15.5	15.1	14.9	14.4	14.1

Electricity losses within the distribution system exceed the technically justified ones. In comparison to the EU countries, such level of losses can only partially be justified by inevitable technical losses due to a high relative share of low voltage consumption. High losses are primarily due to unauthorised connections to the distribution network and unauthorised withdrawal (theft) of electricity. In addition, losses are increased due to long-term low investments into the distribution network. Another problem includes a big delay in terms of replacement of meters. In line with plans for loss recovery, in 2015, distribution system operators continued with the activities on losses reduction, mainly by greater control of metering points so as electricity theft could be identified. These activities, as well as higher electricity on medium voltage by around 4.5% with slightly lower consumption on low voltage in comparison to 2014 led to the reduction of loss percentage from 14.4% in 2014 to 14.1% of the total withdrawn energy in 2015. It may be concluded that the realized reduction of losses is lower than the planned one. Therefore, the activities on the reduction of losses have to be intensified, especially in terms of electricity theft findings and the takeover of connection lines and metering equipment and bringing them in technically proper condition. When prices are being approved, percentages envisaged by loss reduction plans are used as a legitimate level of network losses and this level is lower than the one in reality.

3.5 Electricity market

Electricity market in Serbia includes:

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

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.

The scheme of electricity market in the end of 2015 is given in figure 3-8.

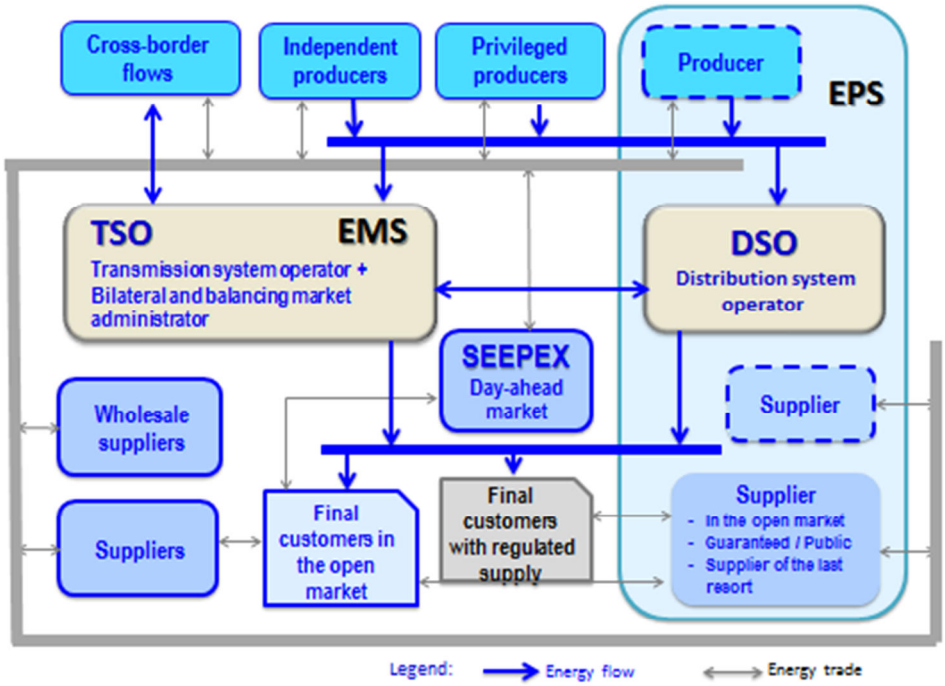


Figure 3-8: Electricity market scheme

A more detailed description of the PE EPS organization and allocation of jurisdiction are given in subchapter 3.1.1.

3.5.1 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 in 2015, all customers except for households and small customers were obliged to purchase electricity in the open market. Households and small customers had an option to select a supplier in the open market, but they could always switch back to the supplier of the last resort/public supplier.

3.5.1.1 Wholesale market

In 2015, wholesale electricity market was based on trade between suppliers since there are almost no 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 2015, electricity export was higher than the import meant to cover the demand of customers in Serbia, due to favourable meteorological and hydrological situation and continual operations of thermal power plants since there were sufficient quantities of coal necessary for their electricity production.

The number of auction participants is rising, year by year. One of the most important reasons for this increase is the fact that by organizing joint auctions with neighbouring system operators on some of the borders even entities which are not licenced in Serbia have access to cross-border capacities via these joint auctions. In 2015, capacity application was submitted by 58 participants in the market on all borders.

Table 3-23: Number of market players 2008 - 2015

Year	2008	2009	2010	2011	2012	2013	2014	2015
Number of market players	30	31	35	35	45	37	47	58

There were 46 electricity market players entitled to nominate operational plans based on a relevant contract signed with PE EMS in 2015, while there were 41 of them actively participate. There were 38 participants dealing with cross-border exchanges, 8 of them dealing with the supply of final customers and one participant was purchasing electricity in the open market to meet its own demand.

Figure 3-9 indicates electricity quantities for each of suppliers' activities in 2014 and 2015.

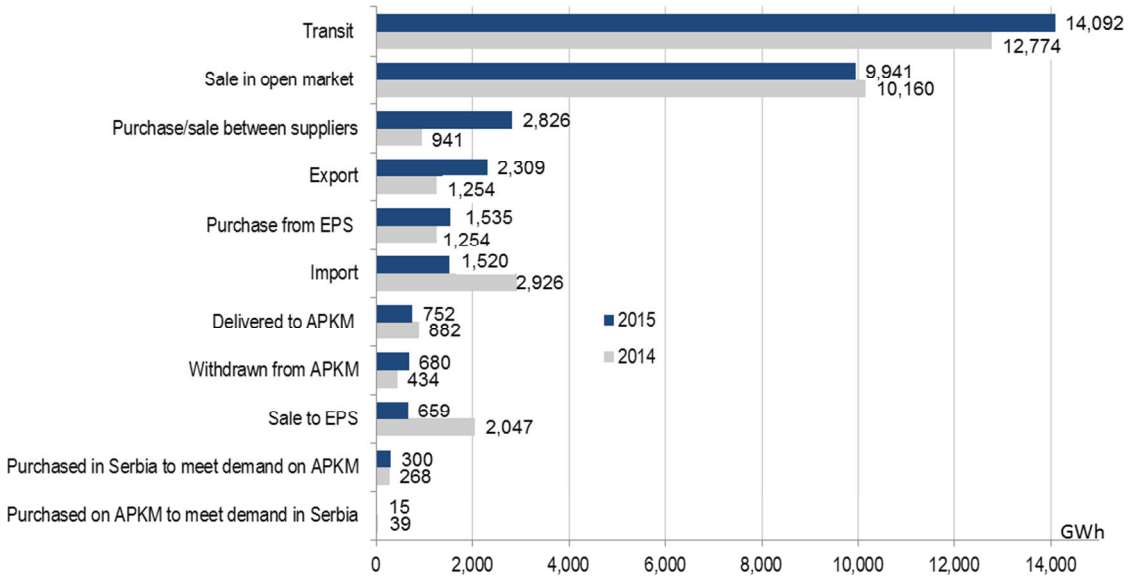


Figure 3-9: Electricity quantities for each supplier activity in 2014 and 2015

The highest energy quantities were traded by the suppliers listed below. The data are given per most intensive activities:

- **Transit**: GEN-I LLC Belgrade, EFT TRADE LLC Belgrade, PLC INTERENERGO LLC, Belgrade and ALPIQ ENERGIJA RS, LLC, Belgrade;
- **Export**: ALPIQ ENERGIJA RS, LLC, Belgrade, EFT TRADE LLC Belgrade, PLC INTERENERGO LLC, Belgrade, GEN-I LLC Belgrade and MVM PARTNER SERBIA LLC, Belgrade;
- **Purchase/sales between suppliers**: GEN-I LLC Belgrade, PETROL LLC, Belgrade, "HSE BALKAN ENERGY", LLC Company for engineering and trade, ALPIQ ENERGIJA RS, LLC, Belgrade, PLC INTERENERGO LLC, Belgrade and EFT TRADE LLC Belgrade.

In 2015, there was an increase in electricity transit (commercial data) in comparison to the one in 2014. There was also a significant growth in the activities between suppliers. During winter months, except in January, import and export of electricity are almost the same. In the middle of the year, from April to July 2015, there was an intensive export since there were favourable hydrological conditions and weather. The scale of import, export and transit realised by suppliers for each month of 2015 is indicated in Figure 3-10.

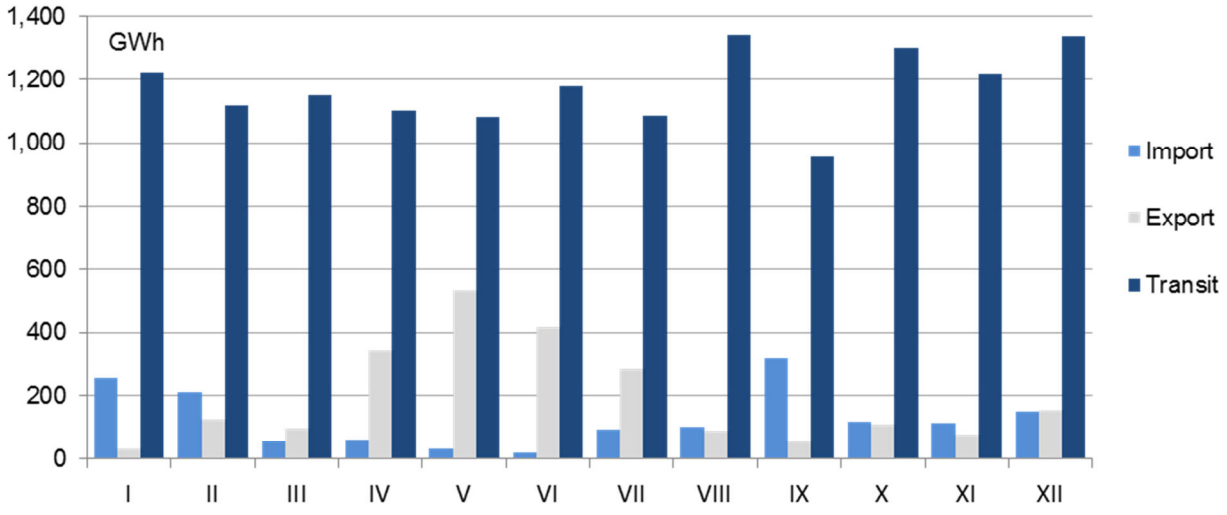


Figure 3-10: Import, export and transit of suppliers in 2015

Figure 3-11 indicates electricity purchase/sale between suppliers (without EPS Snabdevanje), purchase of EPS Snabdevanje from other suppliers and sales of EPS Snabdevanje to other suppliers. The purchase of suppliers from EPS was intensive during spring and summer due to favourable hydrological and meteorological conditions. EPS purchased electricity from other suppliers during winter months, mostly in September when PE EPS production was on the lowest level. The trade between other suppliers was the most intensive during summertime.

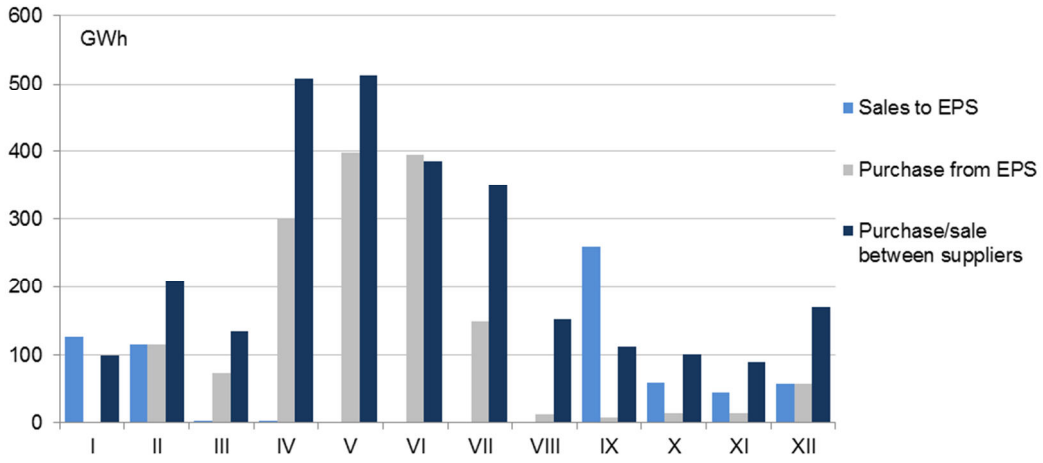


Figure 3-11: Purchase/sales between suppliers, i.e. between suppliers and EPS in 2015

Relevant indicators of development level and electricity market concentration in Serbia (without APKM) in 2015 are given in Table 3-24. In addition, the change in values of these indicators is given in percentages in comparison to their values in 2014. 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[4] and
- evaluation of market concentration level per individual activities [5].

Table 3-24: Electricity market concentration level in Serbia in 2015

Supplier's activity	Electricity quantity (GWh)		Share of three suppliers with the greatest trading scale [%]		Herfindahl-Hirschman Index - HHI		Market concentration level
	2015 (GWh)	2015/2014	2015 (%)	2015/2014	2015	2015/2014	2015
Trade with PE EPS							
sales to EPS	659	32	72	141	2,160	205	High
purchase from EPS	1,535	157	53	135	1,535	200	Moderately high
trade between suppliers							
sales	1,349	143	42	110	852	100	Low
purchase	1,345	143	36	138	620	100	Low
Electricity import and export							
import	2,926	100	49	114	893	100	Low
export	2,306	183	60	207	536	100	Low
Transit							
transit	14,092	110	48	117	815	100	

Out of 41 active suppliers, there are 6 of them among three dominant ones in each activity. The level of market concentration remained on the 2014 level. Market concentration for the energy purchased from PE EPS was significantly increased in comparison to 2014 (HHI index was twice as high in 2015), which is a consequence of the fact that 2014 was untypical for PE EPS. Namely, in 2014, due to unavailability of mines and lack of coal and reduced production in thermal power plants, PE EPS purchased more electricity quantities, while, in 2015, production was normalized and the electricity was sold to other suppliers to a great extent.

[4] 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.

[5] Market concentration limits are the following:

HHI < 1000 – not concentrated

1001 < HHI < 2000 - moderately concentrated

HHI >2001 - highly concentrated market

3.5.1.2 Retail market

3.5.1.2.1 Electricity quantities delivered to final customers

In 2015, 28,531 GWh were sold and delivered to final customers (without the power plants consumption meant for production), which is 5.9% more than ten years ago, in 2006. However, it is 0.3% lower than in 2011 when the final customers consumption was on the highest level in the past ten-year period. In comparison to 2014, final customers' consumption was by 3.1% lower which resulted from the consumption increase with all customer categories. Table 25 indicates electricity consumption in Serbia (without APKM) in the period 2006-2015, including electricity producers withdrawn from the transmission system in order to meet their own demand.

Table 3-25: Electricity consumption structure in the period 2006-2015

GWh

Consumption category	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2015/ 2014
Households	14,276	14,145	14,313	14,412	14,645	14,666	14,517	14,147	13,802	14,062	101.9
Other customers connected to low	5,195	5,379	5,614	5,567	5,534	5,640	5,585	5,580	5,322	5,546	104.2
Customers connected to low voltage in total	19,471	19,524	19,927	19,979	20,179	20,305	20,102	19,727	19,124	19,608	102.5
Customers connected to medium voltage (10,	5,125	5,247	5,345	5,127	5,317	5,553	5,570	5,856	5,985	6,254	104.5
Customers connected to high voltage (110 kV)	2,337	2,430	2,570	2,216	2,555	2,751	2,312	2,415	2,555	2,669	104.5
Electricity delivered to final customers	26,933	27,201	27,842	27,322	28,051	28,609	27,984	27,998	27,664	28,531	103.1
TPP and HPP consumption to cover	662	447	431	492	436	476	473	503	401	416	103.7
Total consumption	**27,595**	**27,648**	**28,273**	**27,814**	**28,487**	**29,085**	**28,457**	**28,501**	**28,065**	**28,947**	**103.1**

An increase in consumption in households of 1.9% in comparison to 2014 was due to lower average temperature during winter months. In addition, one should take into account that the temperatures in 2014 were slightly lower with more rainy days during summer months and that there was a great number of interruptions in customers supply due to natural disasters – floods and freezing rain which affected certain regions in Serbia several times. In the future, the Agency will continue supervising households' consumption in wintertime and analyse the need to introduce additional measures so as irrational use of electricity for heating purposes could be destimulated more efficiently. As far as other customers are concerned, those with facilities connected to the low voltage kept the trend of consumption reduction which has been initiated since 2011. For this reason, in 2015, the consumption of these customers was reduced by around 100GWh, i.e. by 1.7% in comparison to 2011 (due to the above mentioned natural disasters and delivery interruptions which were mainly present on the low voltage level, the 2014 consumption of these customers was considerably lower and this is why it should be neglected once the consumption reduction trend is considered). To cover their own demand, producers withdrew 3.7% of electricity more than in 2014 when thermal power plants reduced the scope of their operations due to coal shortage. There was a consumption increase of 4.5% with customers whose facilities are connected to the high and medium voltage.

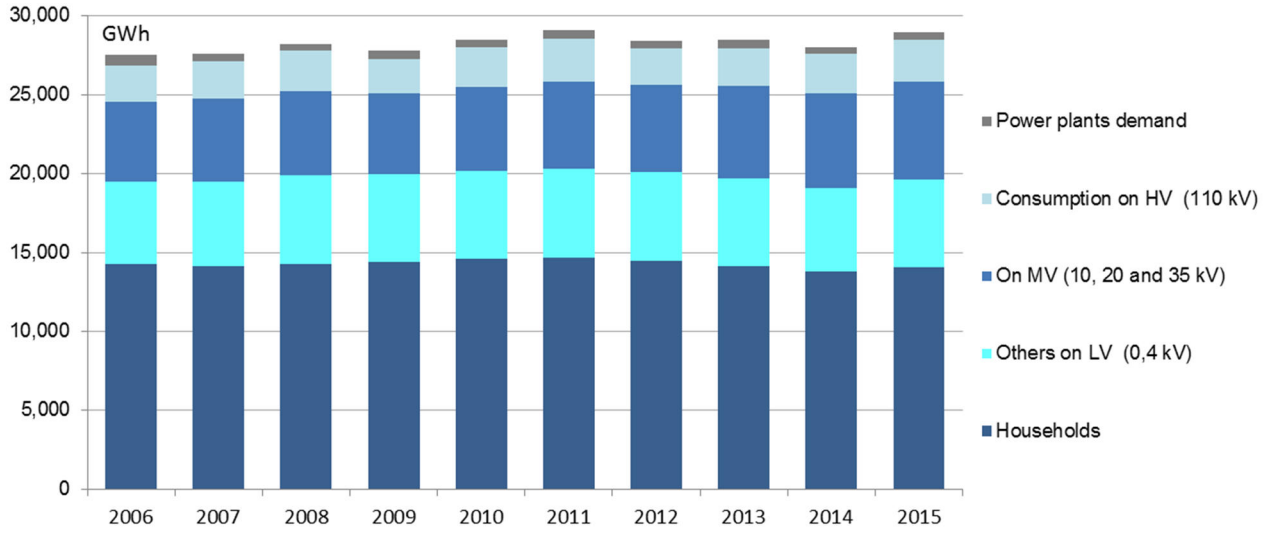


Figure 3-12: Electricity consumption structure in Serbia in the period 2006-2015 (without APKM)

The total number of metering points for customers' delivery in Serbia without APKM (without metering points of facilities within Železnice Srbije/Serbian Railroad – there are 41 of them on the transmission system) at the end of 2015 amounted to 3,617,781. Compared to 2014, the number was increased by 0.3%.

Table 3-26: Number of metering points in 2014 and 2015

Consumption category	2014	2015	2015/2014
Households	3,208,909	3,221,533	1004
Other customers connected to low voltage (0.4 kV)	392,143	391,897	99.9
Customers connected to medium voltage (10, 20 and 35 kV)	4,348	4,303	99.0
Customers connected to medium voltage (110 kV)	48	48	100.0
Total number of metering points	**3,605,448**	**3,617,781**	**100.3**

3.5.1.2.2 Electricity sale in regulated market

Pursuant to the 2004 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 regulated guaranteed supply of final customers was approved on August 1, 2015. In 2015, the Agency Council adopted an amendment to the Methodology for Setting Electricity Price for Guaranteed Supply which introduced the changes adopted by the new Energy Law.

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

From the beginning of 2015, households are also entitled to supplier switch, i.e. entitled to select either to purchase electricity at contracted (market) prices. In contrast to other customers, they are also entitled to switch back to regulated prices. 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, in 2015, amounted to average 31.02 €/MWh in EEX for base load, i.e. 39.13 €/MWh for peak load. This price on the Hungarian exchange (HUPX) amounted to average 40.88 €/MWh for base load, i.e. average – 50.36 €/MWh for peak load. Wholesale price for the procurement of electricity, which serves as the base for setting the price for regulated supply when the final approval is given to the price, amounted to 3.23 RSD/kWh, i.e. 26.75 €/MWh, calculated with the average € exchange rate for 2015.

Table 3-27 represents the trend of average realised annual prices for customers entitled to public supply (supply of the last resort), i.e. to electricity being purchased at regulated prices. The level and trend of given average prices 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 3-27: Average annual regulated prices for final customers

RSD/kWh

Consumption category	Average annual price				
	2011	2012	2013	2014	2015
High voltage (110kV)	4.06	4.30	4.28	-	-
35 kV	4.66	4.86	5.03	-	-
10 kV	5.22	5.40	5.65	-	-
Total high and medium voltage	4.78	5.02	5.50	-	-
Low voltage (0.4 kV I grade)	7.64	7.99	8.48	9.47	9.58
- 0.4 kV II grade	7.33	7.63	7.90	8.28	8.19
- households	5.36	5.60	5.79	6.14	6.26
Public lighting	5.05	5.24	5.48	5.75	5.91
Total low voltage	5.89	6.16	6.40	6.66	6.71
TOTAL AVERAGE guaranteed supply (as universal service)	5.57	5.84	6.19	6.66	6.71

Figures 3-13 and 3-16 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 second half of 2015 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. This is why it is more adequate to calculate it for the reference customer using 7,500 kWh annually. The given prices in Serbia 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% and it is higher than in most EU countries.

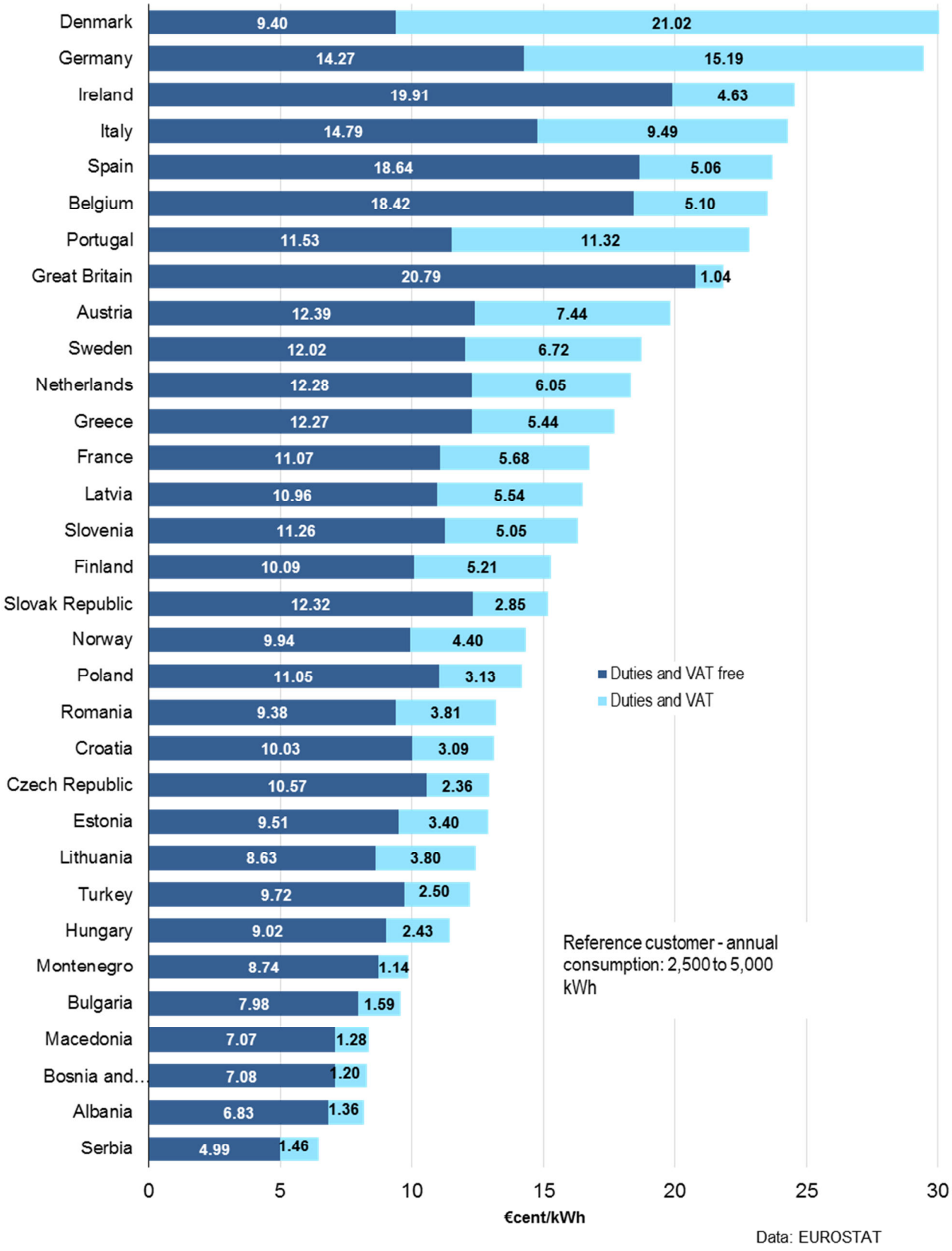


Figure 3-13: Electricity prices for households – second half of 2015

Figure 3-14 indicates a more detailed structure of retail electricity price for households in some of European capitals in December 2015. The data indicate that Serbia has the lowest prices of the very energy, while the charges of access to (transmission and distribution) networks are among the lowest ones.

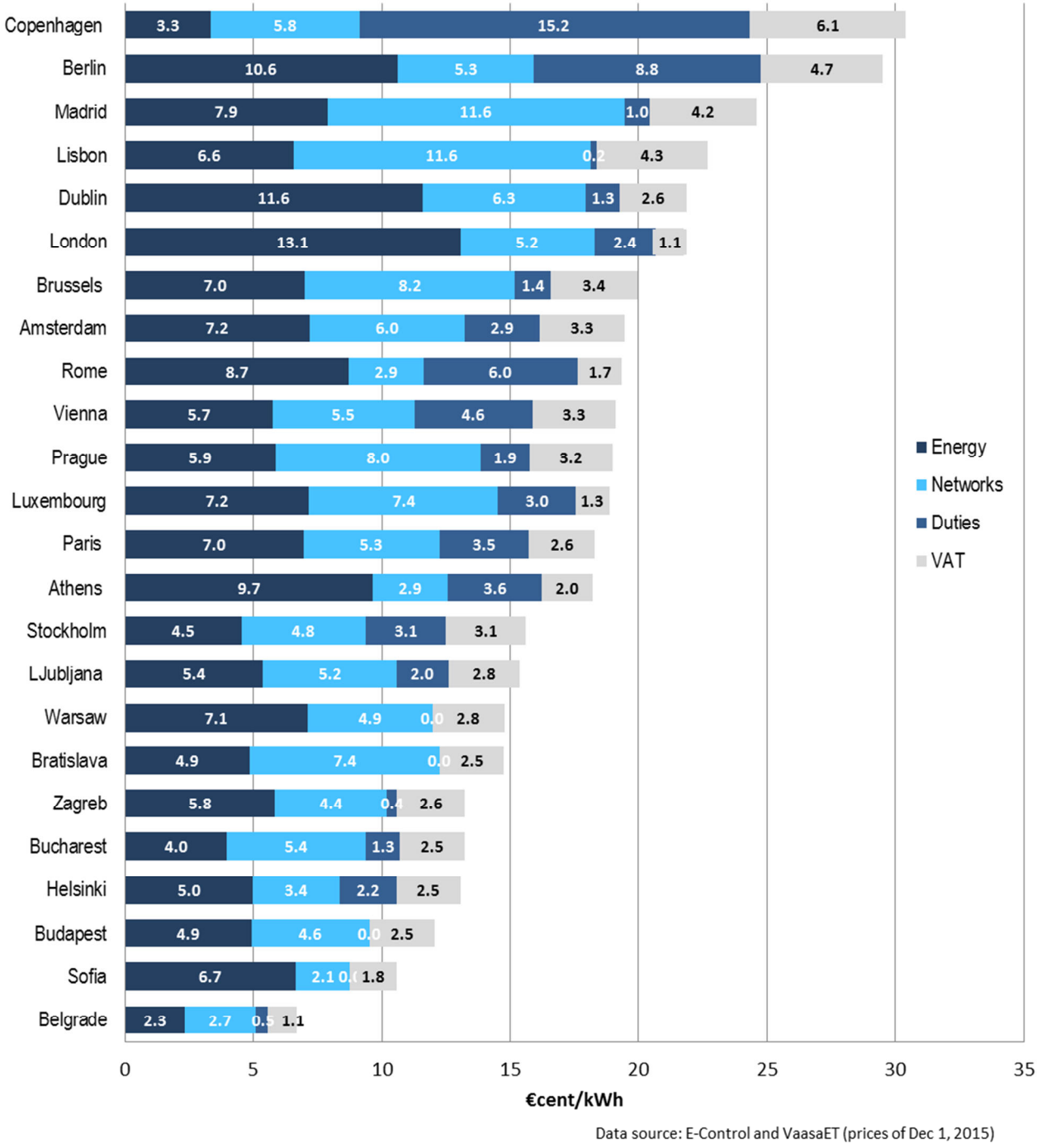


Figure 3-14: Structure of retail electricity price for households in some of European capitals in December 2015

So as to make better comparison between electricity household prices, figure 3-15 indicates the structure of electricity final price for households at purchase power parity in come of European capitals in December 2015. 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 Stockholm and Helsinki the ratio between salaries and electricity price is more favourable than in Serbia.

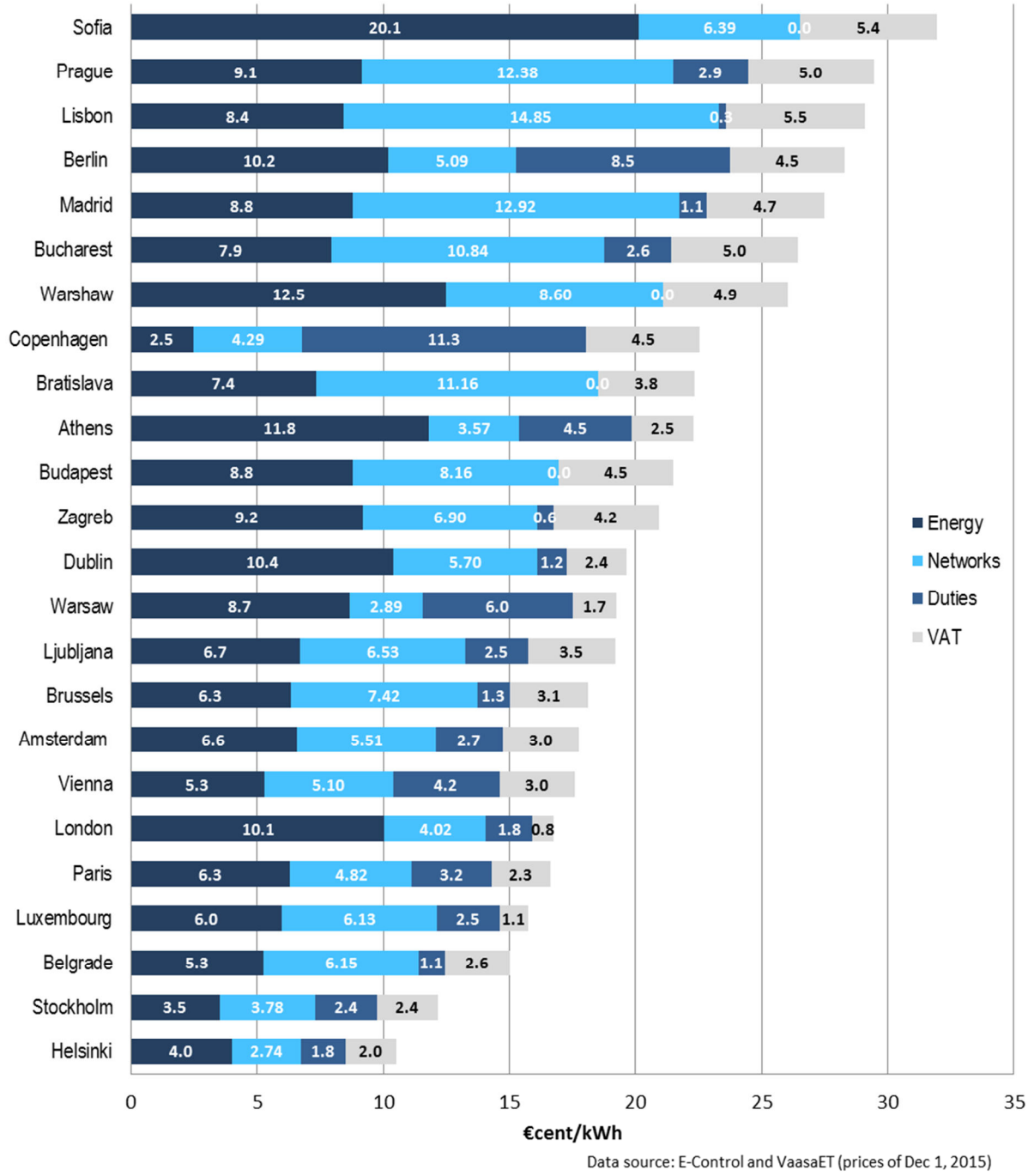


Figure 3-15: Electricity final price structure for households in some European capitals in December 2015 at purchase power parity

Since industry purchased electricity in the open market in 2015 and since the industry purchased it at contracted prices, electricity prices without duties and VAT in Serbia for these purposes are much more similar to the prices in other European countries. They are higher than the prices in Denmark, Norway, Sweden, Finland and Bosnia and Herzegovina.

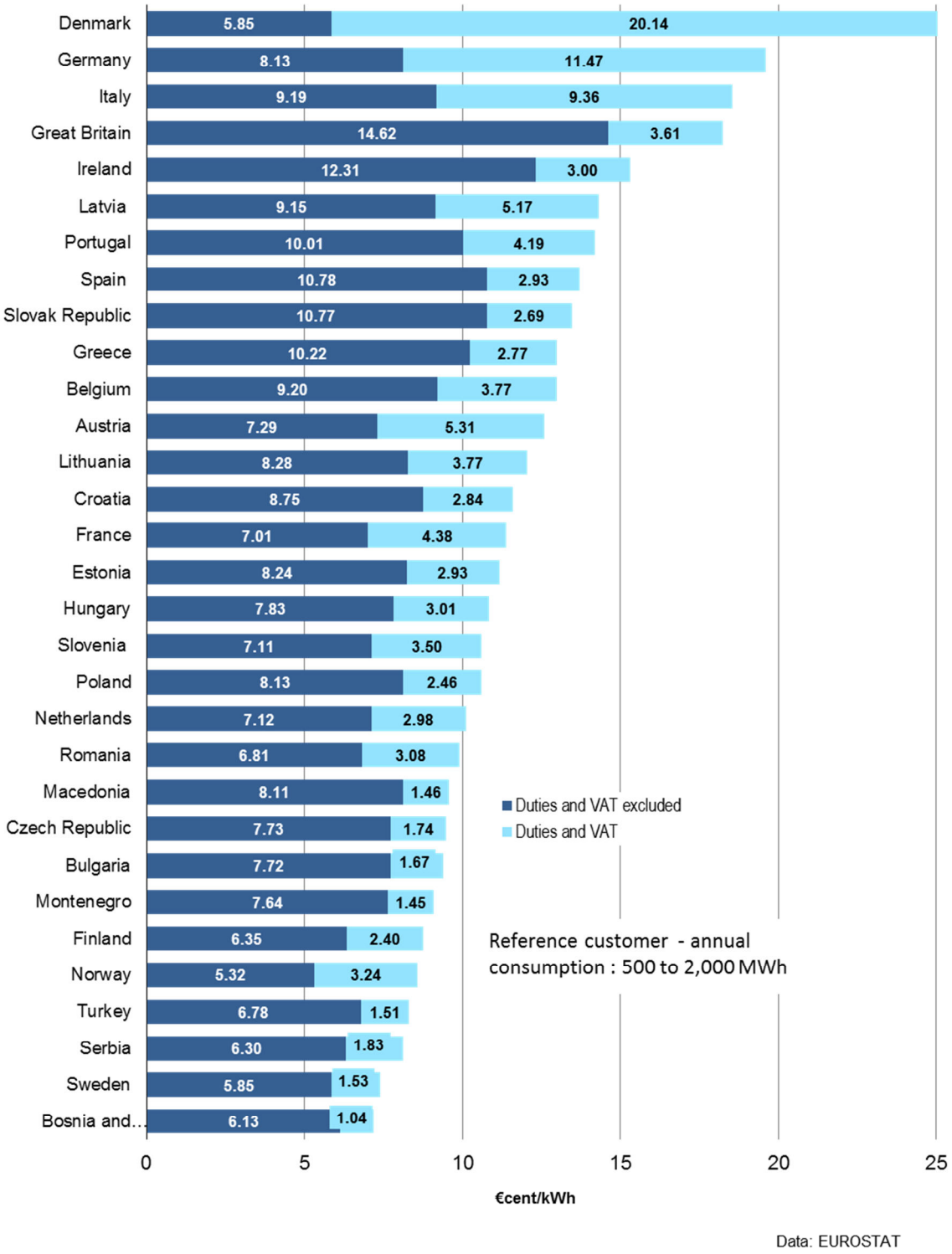


Figure 3-16: Electricity prices for industry – second half of 2015

3.5.1.2.3 Electricity sales in the open market

Although all customers, except for the households, were entitled to purchase electricity in the open market, they did not exercise that right since the regulated price of supply was more favourable. Since the beginning of 2013, all final customers whose facilities are connected to the electricity transmission system were obliged to purchase electricity in the open market. Therefore, in 2013, 2,238 GWh of electricity was delivered to customers in the open market, which amounted to 8% of total final customers' consumption. Out of 72 companies licensed for electricity supply at the end of 2013, only two of them were active in the open market, while PE EPS, as a traditional supplier, via the daughter company EPS Snabdevanje, remained the dominant supplier with over 92% of share in the total electricity quantities sold in the open market.

Since the beginning of 2014, all final customers except households or “small customers” were obliged to purchase electricity in the open market. There were 10,156 GWh of electricity delivered in the open market which accounts for 36.7% of total final customers’ consumption in 2014. Electricity was delivered on over 45,000 metering points to customers in the open market. Out of 86 companies licensed for electricity supply in the end of 2014, only seven of them were active in the open retail market. The dominant supplier in the open market was still PE EPS with the 96% of total electricity sold in the open market.

In 2015, all final customers are entitled to purchasing electricity in the open market where 10,683 GWh of electricity was delivered, which amounted to 37.4% of the total final customers’ consumption in 2015. The customers in the open market, which included a small number of households, had their electricity delivered to over 69,000 metering points (it amounts to 84,000 along with public lighting). Out of 86 companies licenced for electricity supply in 2015, there were only eight of them active in the open retail market. The dominant supplier in the open market was still PE EPS with a 97% share in the total quantities of electricity sold in the open market.

Table 3-28: Average annual retail prices in the open market for final customers

RSD/kWh

Consumption category	Average annual price	
	2014	2015
High voltage (110kV)	5.60	5.71
35 kV	6.74	6.87
10 kV	6.70	6.85
Total high and medium voltage	6.45	6.58
Low voltage (0/4 kV I grade)	8.92	9.04
- 0.4 kV II grade	8.50	9.24
- households	8.65	8.63
Public lighting	7.75	7.98
Total low voltage	8.74	8.93
TOTAL AVERAGE	6.83	7.09

As the supplier of the last resort, PE EPS delivered 630 GWh of electricity to customers, i.e. 2.2% of the total electricity delivered to final customers. 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 3-29: Average annual price of the supplier of the last resort for final customers

RSD/kWh

Consumption category	Average annual price	
	2014	2015
High voltage (110kV)	7.59	7.92
35 kV	8.93	9.28
10 kV	9.36	9.55
Total high and medium voltage	8.89	9.36
Low voltage (0/4 kV I grade)	11.23	11.59
- 0.4 kV II grade	10.43	10.94
- households	-	-
Public lighting	10.25	10.48
Total low voltage	10.77	11.13
TOTAL AVERAGE	9.43	9.86

The total realised average electricity price in the retail market in Serbia which relates to all types of trade in electricity amounts to 6.898 RSD/kWh or 5.71 €c/kWh, if calculated in line with the average Euro exchange rate for 2015. The structure of this total average price for each voltage level, customer category and group separately is given in the table below:

Table 3-30: Total average annual prices for regulated market, open market and supply of the last resort

RSD/kWh

Consumption category	Average annual price	
	2014	2015
High voltage (110kV)	5.77	5.76
35 kV	7.03	7.19
10 kV	6.89	6.99
Total high and medium voltage	6.63	6.71
Low voltage (0/4 kV I grade)	9.35	9.38
- 0.4 kV II grade	8.37	8.47
- households	6.14	6.26
Public lighting	6.86	7.47
Total low voltage	6.87	6.99
TOTAL AVERAGE	6.80	6.91

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 and distribution networks, as well as the electricity meant to satisfy the demand in the production processes in hydro power plants and thermal power plants of PE EPS. It was necessary to purchase 5,584 GWh of electricity for these purposes.

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

Table 3-31: Review of realised average annual prices for each activity

Activity	Structure	Price
		RSD/MWh
Wholesale market	Available for sales	3.61
Transmission	Access to the transmission network	0.21
	Losses in the transmission network	513
	Ancillary services and capacity reserve	0.00
	Transmission – total	0.44
Distribution	Access to the distribution network	2.12
	Losses in the distribution network	5.14
	Distribution – total	2.96
Retail	Public supply at regulated prices	6.71
	Supply of the last resort	9.85
	Supply of eligible customers at market prices	7.09
	Retail – total	6.91
Other	Additional costs and duties	0.09
Final customers - average		7.00
- industrial customers (out of the total number)		7.58
- households (out of the total number)		6.26

3.5.1.2.4 Supplier switching

Supplier switching procedure implies any voluntary switch of the final customer with the selected supplier in line with the Law and Rules on Supplier Switching. The procedure when final customers had to quit regulated public supplier "by the rule of the law" in January 2015 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 3-32: Supplier switching for metering points separately in 2015

Consumption category	Number of metering points			Electricity delivered (MWh, %)		
	Total	With the supplier switch	%	Total	To metering points with new supplier	%
High voltage (110 kV)	80	2	2.5	2,669,168	52,320	2.0
Medium voltage (35 kV)	122	11	9.0	1,002,728	76,236	7.6
Medium voltage (10 and 20 kV)	4,198	869	20.7	5,251,280	510,540	9.7
Low voltage - (0.4kV I grade)	43,170	9,444	21.9	3,048,159	724,675	23.9
Mass consumption – Commercial and other (0.4kV II grade)	327,987	26,905	8.2	1,955,529	201,004	10.4
Public lighting	21,401	0	0	542,164	0	0
Households	**3,221,614**	**0**	**0**	**14,062,171**	**0**	**0**
Total	**3,618,572**	**37,231**	**1.03**	**28,531,199**	**1,564,775**	**5.48**

Legal deadline for the completion of the supplier switching procedure amounts to 21 days as defined by the Rules on Supplier Switching which were adopted by the Agency in 2015. For those customers with facilities connected to the transmission system, supplier switching procedure lasted one day by average, while for those customers connected to the distribution system, it lasted longer – between five and twenty days, i.e. fifteen days by average.

3.5.2 Electricity balancing market

Being the transmission system operator, PE EMS is responsible for system balancing and provision of system services within its control area. In line with the Electricity Market Code, which introduced the balancing responsibility concept in the electricity market in Serbia, customers who are no longer entitled to public supply had to regulate their balancing responsibility for all exchange points. By rule, they transferred it to the supplier, except for one customer who decided to the balancing party himself. Until 31/12/2015 and including that date, there were 46 electricity market players in total which signed a Contract on Balancing Responsibility with PE EMS, thus becoming parties with balancing responsibility.

Pursuant to the Law, PE EMS was obliged to purchase electricity under market conditions for the purpose of loss recovery in transmission grid, of its business facilities supply and of its own demand. PE EMS purchased the necessary electricity quantities from PE EPS via public procurement procedure.

Since January 1, 2013, electricity balancing market was established in the Republic of Serbia as prescribed by the Law and Electricity Market Rules. In 2014, on the basis of new Transmission Network Code, PE EMS prepared a draft of amendments to the Electricity Market Rules which was approved by the Council of the Agency. These amendments will regulate the balancing responsibility of electricity market players in more detail. The methodology for the calculation of the fee for balancing group deviation was improved. New methodology for the calculation of acceptable deviation of the balancing group and financial calculation method were established. The possibility to use common reserve within the regulation block during the calculation period was established.

In line with the Contract on Participation in the Balancing Mechanism signed with PE EPS, for the purpose of keeping balance between the total electricity generation, consumption and nominated exchange blocks within their control area, PE EMS as the transmission system operator activated his balancing entities of secondary and tertiary regulation. Tertiary regulation was activated in line with the schedule for activating balancing entities which was submitted by PE EPS to the transmission system operator. Emergency exchange was performed in line with the contracts signed between PE EMS and the neighbouring transmission system operators. In 2015, total engaged balancing energy amounted to 941 GWh, for which the total weighted settlement price amounted to 53.7 €/MWh. Bearing in mind the direction of activated balancing entities, it amounted to 64.1 €/MWh for upward activation and 18.07 €/MWh for downward activation.

3.5.3 Organised electricity market

Pursuant to the Energy Law, organisation and administration of the organised electricity market and making connection between it and organised electricity markets of other countries is performed by the market operator. Market operator's organisation and operation, conditions and the manner of business operation of players within the organised electricity market and other conditions which provide for electricity market functioning in line with the Law is regulated in more detail by the Government of the Republic of Serbia. As the energy entity holding the license for electricity market organisation, on July 14, 2015, PE EMS 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 exchange started operating in February 2016 and the review of its activities is available on the website www.seepex-spot.com.

3.5.4 Common activities on the regional market development

A set of activities relevant for the whole region are organised within EnC, with active participation of the Agency representatives. The most important of them are given in following categories:

Wholesale market

The implementation of the Regional Action Plan for Wholesale Electricity Market in the South-eastern Europe (SEE) was still followed. This activity is aimed at reaching a European target model for electricity, in terms of long-term (annual and monthly) and short-term (day-ahead and intraday) cross-border capacity allocation and balancing. In line with the new network code for Capacity Allocation and Congestion Management – CACM (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 West Balkans participants – WB6), in the end of 2015, the ECRB Electricity Working Group started considering an option for a more prompt implementation of this code in the EnC Contracting Parties. The impact of the code to Contracting Parties was analysed and it was concluded that an update of the Regional Action Plan should be initiated. It is expected that the working groups including regulators, transmission system operators and ministries from the region will adopt a new updated Regional Action Plan by mid-2016 which would be harmonised with the network code for CACM.

In 2015, the ECRB contributed to the harmonisation of the regulatory framework in the electricity sector by adopting recommendations: for the adoption of auction rules for the Coordinated Auction Office in the SEE, for elaboration of quarterly reports on the development of the eighth region[6] as an annex of the quarterly report on regional initiatives in the electricity sector of the Agency for Cooperation of Energy Regulators (ACER), for the development of guidelines for market monitoring and with a set of indicators for the assessment of calculations and cross-border capacity allocation and for the analysis of network codes and guidelines within the Third Package in the electricity sector within public hearings which were organised by ACER on the drafts of these documents.

During 2015, so as to increase the transparency of the electricity market in the SEE region, transmission system operators used the internet ENTSO-E Transparency Platform (EMFIP). Since the Regulation 543/2013 became applicable to the EnC Contracting Parties by the decision of the Permanent High Level Group (PHLG) adopted on June 2015, with the 18-month deadline for the implementation of the Regulation upon the adoption of the decision, in 2015, the ECRB Electricity Working Group adopted a decision to monitor the compliance with the requirements of the Regulation. This will be done by having every regulatory body, in cooperation with the transmission system operator, will submit a report on the ENTSO-E transparency platform compliance. The publication of the first transparency report with the data from the end of 2015 is expected in mid-2016.

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 was developed since 2008 in several phases. The Office was established in April 2014 in Podgorica and it gathers founders – transmission system operators from BiH (NOS BiH), Croatia, (HOPS), Montenegro (CGES), Kosovo* (KOSTT), Albania (OST), Greece (IPTO) and Turkey (TEIAS). The Office covers cross-border capacity allocation on seven borders. By establishing the Office, electricity market players were provided with one spot for contact and purchase of rights to the use of cross-border capacity with single and harmonised allocation rules in the SEE region in line with the European Commission decree and the Third Package. PE EMS, the Transmission System Operator of Serbia did not participate in the establishment of the Office, but there were bilateral negotiations between PE EMS and the Coordinated Auction Office in 2015 on the conditions for accession.

In 2015, the ECRB completed the analysis of existing balancing mechanisms in the eighth region which was prepared for publication in the internal report to be used by the regulatory bodies of ECRB members. Common activities of ECRB, EnC Secretariat, transmission system operators and market operators in the SEE region on regional balancing initiative were continued. The aim is to realise a joint allocation of balancing reserve on the level of two control blocks in the eighth region, in the light of the draft of the network code for balancing. In January 2014, three transmission system operators of the SHB control area (Slovenia, Croatia, Bosnia and Herzegovina) concluded a contract on joint procurement of balance reserve aiming at the reduction of total quantities of reserve balance capacity. In April 2015, transmission system operators of Serbia (PE EMS) and Montenegro (CGES) concluded a Contract on Purchase and Sales of Tertiary Regulation Energy for System Balancing, which enabled PE EMS to activate the reserve in Montenegro and *vice versa*. The transmission system operator of Macedonia (MEPSO) did not sign this contract since there is no balancing market in Macedonia. This is only the first step on the path towards joint dimensioning and use of reserve within the SMM control area encompassing Serbia, Montenegro and Macedonia.

Market monitoring

In EnC, great attention is paid to the development of tools and data bases for electricity and natural gas market monitoring. 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

[6] 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 undersea cable which is going to be built

mechanisms in the EnC Contracting Parties. One of important elements of these negotiations was the signing of the announced Memorandum of Understanding between ACER and EnC Secretariat, which implies that electricity wholesale and retail market monitoring in Contracting Parties would be a part of the ACER report as of 2017.

Based on the Guidelines for Regulatory SEE Market Monitoring which were approved by the ECRB in 2014, during 2015, 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 the eighth region. In the next phase, other market monitoring parameters can also be defined, in line with the accomplished rate of market openness and development and data availability.

In terms of electricity market monitoring in SEE, the Electricity Working Group of ECRB (EWG) members continued using software for the internet platform SEEAMMS, as a trial, in order to get software users familiar with its functions and with the possibilities of reporting options and of detecting indicators deviations.

Upon the EWG proposal and with the support of ECRB, it was agreed to organise electricity market monitoring in Contracting Parties on the basis of the same indicators as those used for market monitoring by the ACER in the EU. Since not every electricity market monitoring indicator is applicable to Contracting Parties at the moment, due to a different level of market monitoring in the SEE region in comparison to the EU countries, it was agreed to collect the available data in 2015 and to adjust some of the indicators in order to have more comprehensive reporting process for the SEE region. Despite big obstacles in data collection, the 2015 report draft is made and it will be published in mid-2016.

Within the Customer Working Group of ECRB (CWG), 2014 data relevant for electricity retail market were collected during 2015 in EnC Contracting Parties. These are the same data monitored in the EU member states, i.e. the data adjusted to the level of market development in Contracting Parties. The report draft will be made and published in the first half of 2016. In addition, in 2015, this working group made a questionnaire and, based on it, collected the data necessary for report draft on the conditions a new electricity supplier has to comply with in order to participate in the electricity retail market in Contracting Parties. This report will be also published in the first half of 2016.

3.6 Monitoring and regulation of the quality of delivery and supply

In line with the obligations prescribed by the Law, 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 five-year 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 were established in order to harmonise 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 enable the definition of demanded indicators' values in future phases and the method of assessment of the quality that has been reached. Upon that, the procedure in case of deviation from demanded indicators' values, depending on the deviation level will be also defined afterwards as it is defined in the Energy Law which was adopted in the end of 2014. In 2015, work was started on the new Quality Rules draft, the data on quality of delivery and supply which were submitted by energy entities were analysed and used for the amendment of the Rules and their harmonisation with the Law.

In the electricity field, the collection of data on delivery and supply quality was initiated after the type, scale and format of the data on technical and commercial aspects of quality which have to be collected by energy entities were defined. The Code also defined the deadlines for the submission of the data to the Agency. These data served for the calculation of indicators of technical and commercial aspects of quality in electricity delivery and supply field. Having the requirements of the Agency as a basis, most distribution companies have improved their practice and infrastructure necessary for data register, calculation of indicators and provision of the data on quality, especially in the field of registering continuity of delivery.

3.6.1 Continuity of electricity delivery

Energy entities dealing with electricity transmission and distribution 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 planned and unplanned 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 within the transmission and distribution network, both for planned and unplanned interruptions in the 2009-2015 period.

3.6.1.1 Transmission network delivery quality indicators

Indicators of discontinuity of delivery in 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.

Indicators of discontinuity in delivery within the transmission network calculated in such a manner for the period 2009 - 2015 are given in Table 3-33.

Table 3-33: Indicators of discontinuity in delivery within the transmission network in the period 2009 - 2015

Interruptions		Power failure – undelivered power	ENS	ENS
		MW	MWh	%
2009				
	Planned	189	984	
	Unplanned	3,589	1,525	
	Total	3,778	2,509	
2010				
	Planned	131	473	
	Unplanned	2,790	1,418	
	Total	2,921	1,891	
2011				
	Planned	392	1,875	
	Unplanned	3,212	3,364	
	Total	3,604	5,239	
2012				**2012**
	Planned	129	757	
	Unplanned	2,390	1,395	
	Total	2,519	2,152	
2013				**2013**
	Planned	161	618	
	Unplanned	1,770	747	
	Total	1,931	1,365	
2014				**2014**
	Planned	115	110	
	Unplanned	1,905	3,496	
	Total	2,020	3,605	
2015				
	Planned	359	1,543	0.0046
	Unplanned	2,292	1,659	0.0049
	Total	2,351	3,202	0.0095

Based on the given data, it is indicated that there is a considerable increase in the amount of undelivered electricity due to planned interruptions arising from planned works on the transmission system, connection of new elements of the transmission system and overhaul in existing elements of the transmission system due to big damages of the system due to extreme weather conditions.

The values of the most frequent indicator of discontinuity within the transmission network AIT are given in Figure 3-17, separately for planned and unplanned interruptions and in total.

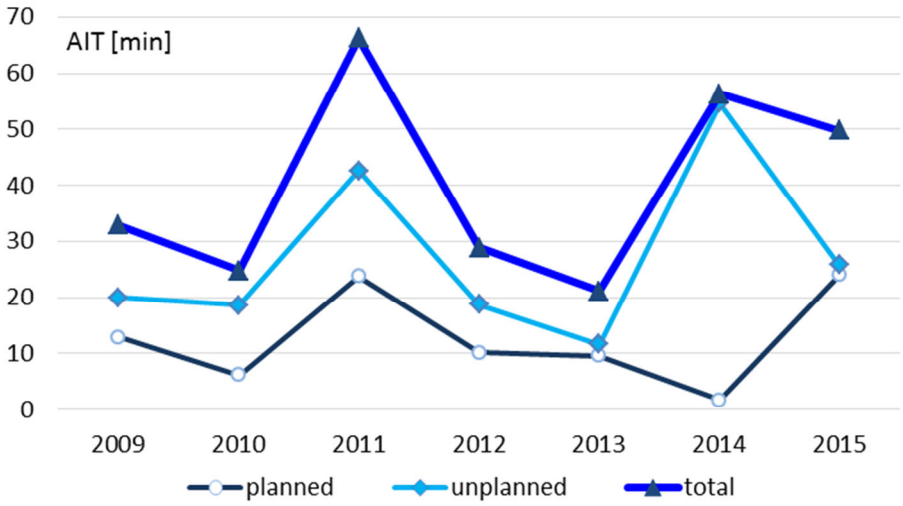


Figure 3-17: Average duration of supply interruption

In 2015, there was a big increase in the average duration of planned interruptions, which amounted to 23.97 minutes. At the same time, this is the highest value in the past six years, mostly due to planned overhauls and works on the connection of new elements of the transmission system. The average duration of unplanned interruptions was considerably shorter in comparison to 2014 and it amounted to 25.77 minutes. Bearing in mind extreme weather disasters in 2014, one may conclude that such a result was expected.

Figure 3-18 indicates all the causes of unplanned interruptions and their share in the quantities of undelivered energy due to unplanned interruptions in 2014.

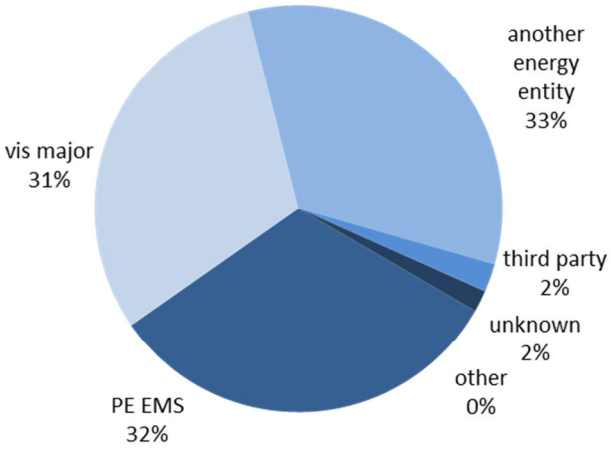


Figure 3-18: Causes of unplanned interruptions and their share in undelivered energy due to unplanned interruptions in 2015

3.6.1.2 Distribution network delivery quality indicators

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

- SAIFI[7]– average frequence of interruptions per each user, and
- SAIDI[8]– average duration of interruptions in minutes per user.

Indicators of discontinuity of delivery in the distribution network for the period 2009 - 2015, calculated in this manner, are given in Figure 3-19, both for planned and unplanned interruptions and in total.

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

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

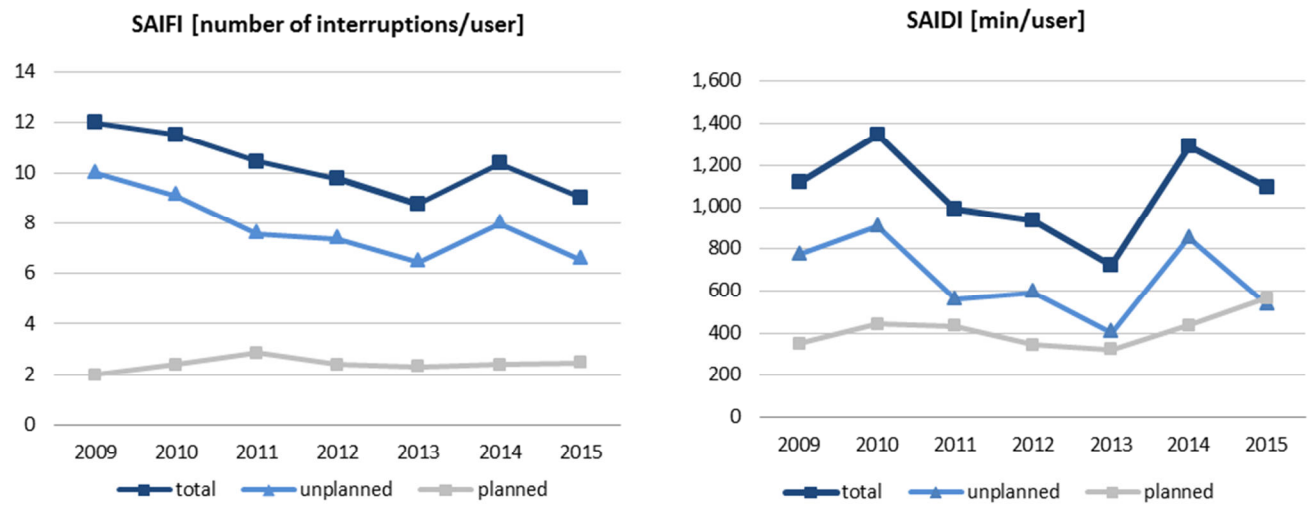


Figure 3-19: SAIFI and SAIDI for the period 2009 - 2015

There were considerable improvements with continuity indicators for unplanned interruptions in the distribution grid in 2015 in Serbia. The average frequency of unplanned interruptions was decreased by 1.5 interruptions per customer, while the average duration of unplanned interruptions was decreased by almost 300 minutes per customer, which was the result of more favourable meteorological circumstances. However, even taking these improvements into account, the indicators values are still much higher than those in the European Union member states[9], and, therefore, it is crucial to take further measures in order to reduce the number of supply interruptions and reduce their duration. The average frequency of planned interruptions was on the same level as in 2014, while the duration of planned interruptions are slightly rising. Both of them are on the high level in comparison to international practice.

The reasons for unplanned interruptions and their ratio in the total number and duration of interruptions are indicated in the Figure 3-20.

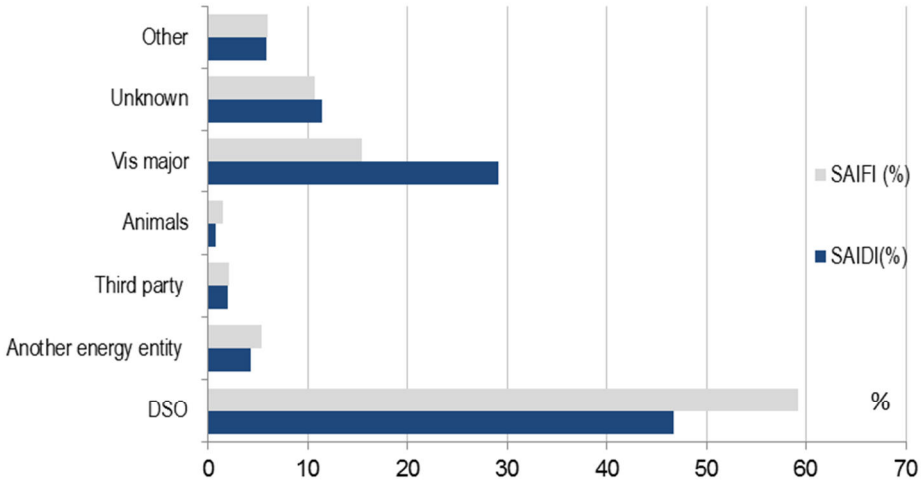


Figure 3-20: Share of causes of unplanned interruptions in SAIFI and SAIDI for 2015

The share of certain interruption causes within the number and duration of unplanned interruptions changed considerably in comparison to 2014 and it is similar to those in 2013. The share of causes, with the exception of “vis major” cause, did not change to a great extent. The share of “unknown causes” and “other” reduced in comparison to 2014. If one had better identification of the causes of interruptions, more adequate measures could be implemented so as to remove the causes of interruptions and reduce the number and duration of those.

3.6.2 Quality of electricity

The Rules 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 Delivery and Supply Conditions and

[9] 5th CEER Benchmarking Report on the Quality of Electricity Supply 2011

Transmission, i.e. Distribution System Code. In the 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.

3.6.3 Commercial quality

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

Based on former Agency's requirements, energy entities submitted reports on commercial aspects of quality to the Agency regularly. That provided the data for the calculation of some indicators of commercial quality on national level in the past four years. Despite considerable engagement of distribution companies in this field, 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.

In 2015, for the purpose of monitoring commercial quality, companies for electricity distribution submitted quarterly reports as well as the annual report to the Agency along with all the available data which still do not include all the data given in the scale and format as defined by the Agency.

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.

3.6.3.1 Connection, loadshedding and disconnection

The data registered by system operators on applications for system connection are grouped and given for medium voltage (MV) and low voltage (LV) and in total in Table 3-34.

Table 3-34: Connection applications by voltage levels

Connection applications			MV	LV	Total
Number	of submitted applications		265	22,687	22,952
	Settled applications	Approving connection	214	18,854	19,068
		Denying connection	7	69	76
		Settled differently	27	2,485	2,512
		Total	248	21,408	21,656
		Within 30 days for final customers, 60 days for producers	207	18,343	18,550
%	Settled applications in comparison to the submitted ones		93	94	94
	Applications approving connection in comparison to the number of settled ones		86	88	88
	Settled applications within 30 days for final customers, 60 days for producers		78	81	81
Average time	Necessary for settlement – given in days		12	12	12

In comparison to 2014, the number of submitted applications for connection is slightly lower, as well as the number of decisions approving connections. Applications are generally submitted for each facility separately, while the number of connections is given for each metering point.

Table 3-35: Connection of facilities/metering points by voltage levels

Connection		MV	LV	Total
Number	of connected facilities/metering points	137	35,948	36,085
	of facilities connected/metering points within 15 days' period	63	26,677	26,740
%	of facilities connected/metering points within 15 days' period	45	74	74
Average time – given in days	Necessary for connection since the day all the conditions are met	5	9	9

The indicators describing the connection of a facility/metering point (Table 3-35) deteriorated in comparison to 2014, including the average time necessary to perform connection as of the day the conditions for connection are met which is two days longer and amounts to 9 days.

In 2015, there were 198,470 disruptions upon suppliers' request, registered due to unsettled liabilities as regards electricity in the prescribed deadline, which is 3% less than in 2014. The average time of reconnection upon the removal of causes of disruption/disconnection, i.e. upon unjustified disruption/disconnection differs in different DCs for electricity distribution. It is between 1 and 4 days and it is corresponds to the values in 2014.

3.6.3.2 Metering and calculation

Regular controls of meters were planned for 615,118 meters in 2015 and 340,535 customers had their meters checked, i.e. 55% of them. Out of them, 32,172, i.e. around 9.4% had irregularities. There were 35,625 extraordinary checks of metering points requested by customers, and checks were organised for 35,568 points (around 99.8%) and there were irregularities in 65% of extraordinary checks (23,236). The irregularities were removed in 23,230 cases.

Upon registering the disappearance, restraints or damage of meters, in 82% of cases, proper metering was provided within 2 days upon registration. Average time necessary to provide proper metering since the moment of disappearance, 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 2 and 4 days, while in mass consumption category (metering points where active energy is metered) average time period was longer, different in different DC for electricity distribution - 13 days at most.

In 2015, around 1.4% out of total number of bills – 40,783,422 was revised. More than one third of them were revised due to improper reading. The reasons for billing corrections and their share in the total number of revised bills are given in Figure 3-21.

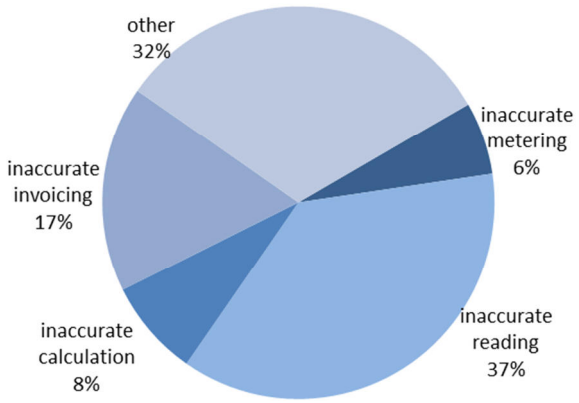


Figure 3-21: Reasons for bills corrections and their share in the total number of revised bills

The average time for settling complaints against bills was different in different DC for electricity (before they were merged) and amounted to 5 days at most.

3.6.3.3 Removal of technical disturbances in delivery

Out of the total number of customers' requests in 2015 for the removal of voltage disturbances which are repeated in a long time frame (112), more than 89% of requests (100) were justified. Voltage disturbances were removed in 92 cases, i.e. 92% of justified cases, which represents 20% higher performances than in 2014.

The register of the data on average time necessary for a distributer to address the request of a customer for the removal of voltage disruptions, i.e. the time since the submission of the application until voltage is checked on the spot

and informing the customer as well as on the average time since the voltage disruption establishment till its removal should be improved so as one could get a more realistic picture of the quality of such service.

3.6.3.4 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 will have to start, i.e. improve these data.

3.7 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. This leads to reaching the same level of reliability of customers' supply as the one in the EU countries. Even without new production capacities, the security of electricity supply was considerably higher and the import demand decreased.

3.7.1 Consumption forecast

In line with the Energy Sector Development Strategy until 2025, electricity consumption is expected to increase by less than 1% annually. 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.

3.7.2 Generation adequacy/prospects

Out of the total electricity production in the Republic of Serbia, around 2/3 are produced in coal-fired thermal power plants and 1/3 from hydro potential. The Energy Sector Development Strategy until 2025 and the National Action Plan for Use of Renewable Energy Sources of the Republic of Serbia indicate the plan to have considerable increase of the share of renewable energy sources in production in the future and the share should reach around 3,100 GWh annually by 2020.

All thermal blocks in PE EMS are subject to the requirements of the Large Combustion Plants Directive 2001/80/EC (LCPD) and the Industrial Emission Directive 2010/75/EU (IED) to the extent of limitation of the emission of polluting substances – Sulphur dioxide (SO_2), nitrogen oxides (NO_x) and powder substances. In line with the decision of the Energy Community Ministerial Council, full enforcement of the EU Large Combustion Plants Directive is planned until 2023 and 2027 in case of Industrial Emissions Directive. A preliminary National Emission Reduction Plan (NERP) with a detailed plan for the adjustment of the emission of polluting substances in the air as prescribed by these Directives was submitted to the Energy Community. NERP enabled operations of some thermal blocks which are not planned to be affected by those measures until 2026.

Due to old-fashioned technology, high production costs and environment protection, during the NERP implementation period (until 2027), there will be successive shutting down of the oldest and energy-wise most inefficient thermal units. At the same time, there are continuous activities in PE EPS on the revitalization and modernisation of existing power plants which will enable the increase in energy efficiency and installed capacity. There are ongoing preparations for the beginning of construction of new thermal unit B3 in TPP Kostolac B, with 350 MW capacity, fuelled by Kostolac lignite (PE EPS is the investor) as well as of a combined heat and power plant CHP Pančevo with simultaneous production of heat and power and maximum capacity of 140MWe in the condensing regime, the first phase (NIS, JSC and Gasprom energoholding, Russia are the investors).

The development of capacities in lignite mines is adjusted to the demand of thermal power plants by the expansion of existing and opening new pits which will replace the pits which are at the end of their exploitation life.

There are ongoing activities on the revitalization and modernisation of hydro power plants Đerdap 1 with 1058 MW capacity and Zvornik with 96 MW capacity as well as preparation activities for HPP Potpeć. The capacity is also increased by these revitalization activities.

3.7.3 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 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 decrees is in the jurisdiction of the ministry in charge of energy issues (**www.mre.gov.rs**).

Final prices for privileged electricity producers are given in the Table 3-36. These prices were valid in 2015.

Table 3-36: Final prices for privileged electricity producers

No.	Type of power plant	Installed capacity (MW)	Incentive price (c€ / kWh)		
			01/03/2013	01/03/2014	01/03/2015
1	**Hydro power plants**				
1.1		Up to 0.2 MW	12.40	12.57	12.62
1.2		from 0.2 MW to 0.5 MW	13.73	13.92	13.97
1.3		from 0.5 MW to 1 MW	10.41	10.54	10.6
1.4		from 1 MW to 10 MW	10.747 – 0.337*P	10.747 – 0.337*P	10.790 – 0.337*P
1.5		from 10 MW to 30 MW	7.38	7.48	7.51
1.6	With the existing infrastructure	Up to 30 MW	5.90	5.98	6.01
2	**Biomass-fired power plants**				
2.1		Up to 1 MW	13.26	15.47	19.54
2.2		From 1 MW to 10 MW	13.82 – 0.56*P	14.013 – 0.56*P	14.069 – 0.56*P
2.3		Over 10 MW	8.22	8.34	8.37
3.	**Biogas-fired power plants**				
3.1		Up to 0.2 MW	15.66	15.88	15.94
3.2		from 0.2 MW to 1 MW	16.498 – 4.188*P	16.728 – 4.188*P	16.795 – 4.188*P
3.3		Over 1 MW	12.31	12.48	12.53
3.4	Power plants fired by biogas of animal origin		12.31	12.48	12.53
4.	**Power plants fired by landfill gas and gas from plants for treatment of public utility waste water**		6.91	7.01	7.03
5.	**Wind powered power plants**		9.20	9.33	9.37
6.	**Solar power plants**				
6.1	Roof-mounted	Up to 0.03 MW	20.66	20.95	21.03
6.2	Roof-mounted	from 0.03 MW to 0.05 MW	20.941 – 9.383*P	21.243 – 9.383*P	21.319 – 9.383*P
6.3	Ground-mounted		16.25	16.48	16.54
6.4		from 0.2 MW to 2 MW	C_0 = 10.667– 1.333*P	C_0 = 10.821– 1.333*P	C_0 = 10.860– 1.333*P
6.5		from 2 MW to 10 MW	C_0 = 8,20	C_0 = 8.32	C_0 = 8.35
7.	**Geothermal power plants**				
7.1		Up to 1 MW	9.67	9.81	9.84
7.2		from 1 MW to 5 MW	10.358 – 0.688*P	10.503 – 0.688*P	10.545 – 0.688*P
7.3		over 5 MW	6.92	7.02	7.04
8.	**Waste fired power plants**		**8.57**	**8.69**	**8.72**
9.	**Natural gas-fired combined cycle power plants**	Up to 10 MW	8.04	8.15	8.19

Table 3-37: Final prices for privileged electricity producers – follow-up

Ред. број	Type of power plant	Installed capacity (MW)	Incentive price (c€ / kWh)		
			01/03/2013	01/03/2014	01/03/2015
10.	Natural gas-fired combined cycle power plants	Up to 10 MW	8.89	9.01	9.05
	Regular annual correction of incentive final prices due to inflation in the Euro zone is done in February every year, starting from 2014, in the following manner:	$C_1 = C_0 * (1 + P_{inf}/100)$			
		where:			
		C_1 – new incentive final price,			
		C_0 – former incentive final price,			
		P_{inf} – annual inflation in the Euro zone published by the competent European Union institution and given in %.			
	Final price correction for natural gas-fired combined heat and power plants	$C = C_o$ *0.36 +0.64* G/35.59			
		where:			
		C – new purchase electricity price			
		Co – incentive final price set on the basis of the tariff "energy source" of 35.59 RSD/m^3, from the natural gas price at which a supplier which supplies public suppliers sells natural gas to public suppliers and which does not include the natural gas transmission use-of-system charges with the Public Enterprise "Srbijagas" Novi Sad			
		G – new tariff "energy source" from the natural gas price at which a supplier who supplies public suppliers sells natural gas to public suppliers and which does not include the natural gas transmission use-of-system charges with the Public Enterprise "Srbijagas" Novi Sad, given in RSD/m^3.			

Table 3-38: Structure of prices and applied prices of electricity withdrawn from privileged producers in 2015

Privileged producers category		Quantity	Amount	Price
		MWh	000 RSD	RSD/MWh
1	Small hydro power plants	151,223	1,543,556	10.21
2	Biogas-fired power plants	21,984	377,532	17.17
3	Wind-fired power plants	417	4,784	11.48
4	Solar power plants	10,006	268,911	26.87
4.1	Ground-mounted solar power plants	6,976	181,089	25.96
4.2	Roof-mounted solar power plants	3,030	87,822	28.98
5	Fossil fuel-fired combined heat and power plants	44,265	512,180	11.57
6	TOTAL	227,895	2,706,963	11.88

Table 3-39: Fee for electricity privileged producers' incentive

RSD/kWh

	2013	2014	2015
Fee for RES incentive	0.044	0.081	0.093

In 2015, final electricity customers paid a separate fee for stimulating privileged electricity producers in the amount of 0.093 RSD/kWh.

Electricity quantities withdrawn from privileged producers in 2014 and 2015 are presented in Table 3-40.

Table 3-40: Electricity withdrawn from privileged producers in 2014 and 2015

MWh

Renewable energy source/ Fuel for combined production	2014	2015	2015/2014
Water flow	146,614	151,223	103.1
Fossil fuels (coal, heating oil (mazoute) and natural gas) – combined production	30,748	44,265	144.0
Biogas	15,667	21,984	140.3
Solar energy	5,232	10,006	191.2
Other	5,356	417	7.8
УКУПНО	**203,617**	**227,895**	**111.9**

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.

3.7.4 Construction of new transmission capacities

In 2015, the activities were conducted within the transmission system as regards regular maintenance and overhauls as well as reconstruction of facilities. The construction of new TS 400/110 kV Belgrade 20 was completed and the TS was commissioned with connection to new 110 kV overhead lines and new 400 kV overhead line Belgrade 8 – Pančevo 2. Two new energy transformers were installed on this facility with the total capacity of 600 MVA. The reconstruction, expansion and transformation of the existing TS 220/110 kV Smederevo were completed and this TS was transformed into a multi-level TS 400/220/110 kV Smederevo 3. An energy transformer with 400 MVA was installed and this marks the initiation of works on the reconstruction of TS 400/220 kV Obrenovac which will be continued in 2016, too. The instalment of new energy transformers (300 MVA each) was completed within TS Jagodina 4 and TS Leskovac 2. Plants of 220 kV and 11kV within TS Belgrade 6 and plants of 220 kV within TS Bajina Bašta were reconstructed.

Transmission system operator is obliged by the Energy Law to prepare a transmission system development plan every year for the following 10-year period. The development plan is based on the amended version of the former one, in line with new insights and requirements, bearing in mind the experience in transmission network operation and maintenance. The plan is being harmonised with the plans of neighbouring distribution and transmission system operators. The position of the Serbian transmission system within a synchronised area of “Continental Europe” is considered and there is active participation in the preparation of a Ten Years Network Development Plan as well as the Regional Investment Plan within ENTSO-E. The Law stipulates that the electricity transmission system operator is obliged to adopt a plan of investments in the transmission network every year for the three-year period, in line with the distribution system investment plan.

The Development Plan of the Transmission System of the Republic of Serbia for the period from 2015 until 2024 (2030) was drafted by PE EMS and submitted to the Agency on 29/12/2014 and it is harmonised with the provisions of the Energy Law in general. In comparison to the previous plan, some elements of the document were upgraded and harmonised with the ENTSO-E criteria further. The Plan was drafted in line with the Pan-European Transmission Network Development Plan and with regional investment plans.

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, PE EMS proposed the construction of new elements of 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 plant was harmonised with the development plans of distribution system operators, in line with the data provided by entities dealing with electricity distribution to PE EMS during the Plan draft phase.

For the 400kV transmission network, the plan defines several projects which jointly represent a unique project known as the Trans-Balkans Corridor. The most important activities within this Project include:

- construction of a new two-direction overhead interconnector line of 400 kV TS Pančevo 2 – TS Rešica (Romania) which will contribute significantly to the security of supply in the whole region;
- construction of a new overhead line of 400 kV TS Kragujevac 2 – TS Kraljevo 3;
- upgrade of the grid from 220 kV to 400 kV voltage level in the western Serbia region – increasing the hub voltage level Bajina Bašta to 400 kV voltage level and the construction of a new two-direction 400 kV overhead line between TS Obrenovac and TS Bajina Bašta and
- construction of 400 kV interconnection overhead lines between Serbia, Montenegro and Bosnia and Herzegovina.

Bearing in mind planned demand, construction of new sources, planned development of regional and European grid, and these projects would contribute to the security of supply and reliability of system operations. Their realization will also depend on financing conditions. The conditions and tempo of realisation of the interconnection between Serbia, Montenegro and Bosnia and Herzegovina were considered in more detail in the feasibility study, design project with the justifiability study and environment impact study which were presented by those who made the study in late March 2015. This project is of regional and Pan-European importance for electricity transmission and it contributes directly to the long-term energy security of the Republic of Serbia. However, bearing in mind the results of the feasibility study, there is still an open question of the sources of financing the construction and a need to provide grants for the facilities in Serbia to the greatest extent possible.

In terms of the transmission network of 220 kV voltage level, the PE EMS has a strategic plan to withdraw this network gradually, i.e. to increase its voltage level to 400 kV. However, until this is completed, there is a plan to construct TS 220/110 kV Bistrica and to increase the installed capacity in some of 220/110 kV transformer stations.

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 Plan also includes the solutions for connection diagram of overhead lines coming along the new transmission facilities, as it is the case of the cities of Belgrade and Niš.

Up to now, due to the inability to build staff capacities, the Agency was not in a position to take the submitted development plans into consideration to a necessary extent which would create the conditions for giving approval to these plans.

3.7.5 Distribution system operators' investment activities

In line with the Law, distribution system operator is obliged to adopt network development plans, harmonised with the transmission system development plan and connection applications. During 2015, distribution system operators were preparing ten-year development plans. However, they did not submit them to the Agency since there was reorganization of PE EPS in the middle of the year and a single DSO was established.

Apart from the development plan, the DSO is supposed to submit the plan for the transfer (overtaking) of metering equipment, metering switchboards, installations and equipment in metering switchboards, lines and other devices within connections on facilities of existing customers, i.e. producers. These documents are submitted to the Agency. The newly-established single DSO did not comply with this commitment and the submission of the plan and the report on realised transfer during 2015 is expected in the first half of 2016.

Other measures for the increase of security of electricity supply were introduced in order to compensate for the delay in investments in distribution network. Investment activities as well as other activities were aiming at the completion of initiated investments and new investments in network expansion, revitalisation or replacement of existing old-fashioned equipment in the distribution network, especially transformer stations 110/x kV/kV transferred from PE EMS as well as other measures in terms of modernisation of operations and business activities.

The following works were either completed or initiated within the distribution systems:

- 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;
- on transformer stations:
  - Reconstruction and expansion of capacities was done on a certain number of existing 110/35/20 kV, 110/10(20) kV TSs;
  - Construction of new 35/10 kV TSs, expansion and reconstruction of existing 35/10 kV TSs;
  - In order to improve the security of distribution system operations, modernisation of the protection system in TS was completed;
- metering and management:
  - Upgrade of metering devices and further development and introduction of remote reading system has not been done to the planned scale primarily since the tender for the procurement of electricity meters was not realised.

3.7.5.1 Smart grids

The replacement of meters in the distribution companies with more modern models is planned. PE EPS is preparing a project on the modernisation of the system for electricity distribution so as to provide monitoring, protection and automatised optimisation of the work of all system parts and installations between system users, power plants, network and connected facilities. However, there is great delay in project realization. After the establishment of a single DSO, the improvement of metering system with users connected to the medium voltage network was defined as the primary goal while among the users with facilities connected to the low voltage network, priority is given to users who have their active and reactive energy and monthly maximum power metered.

Smart grids and measurement systems will enable high reliability and quality level of delivered electricity. They will stimulate better consumption management and more dynamic electricity market, as well as considerate reduction of technical and commercial losses.

3.7.5.2 Reduction of electricity losses in the distribution network

By organising some of investment activities in 2015 (increased grid capacity, replacement of invalid meters, dislocation of metering points) better control over electricity theft and increasing of the collection rate, the distribution system operators continued the trend of reduction of energy loss in networks.

However, these activities were not sufficient and they did not match the level of losses and the need to cut the losses to an acceptable level in technical terms.

Future measures which should contribute to electricity loss reduction in distribution network to a much greater extent and these measures are also envisaged by the DSO plan for loss recovery 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 cooepration with state bodies as regards electricity theft prevention.

4. NATURAL GAS

4.1 Sector structure and capacities

4.1.1 Organisational and ownership structure

The basic structure of the natural gas sector of Serbia is established upon the adoption of the Energy Law in 2004 and division of the Public Enterprise Petroleum Industry of Serbia (Naftna industrija Srbije) into three companies. Gas sector structure at the end of 2015 is given in Figure 4-1.

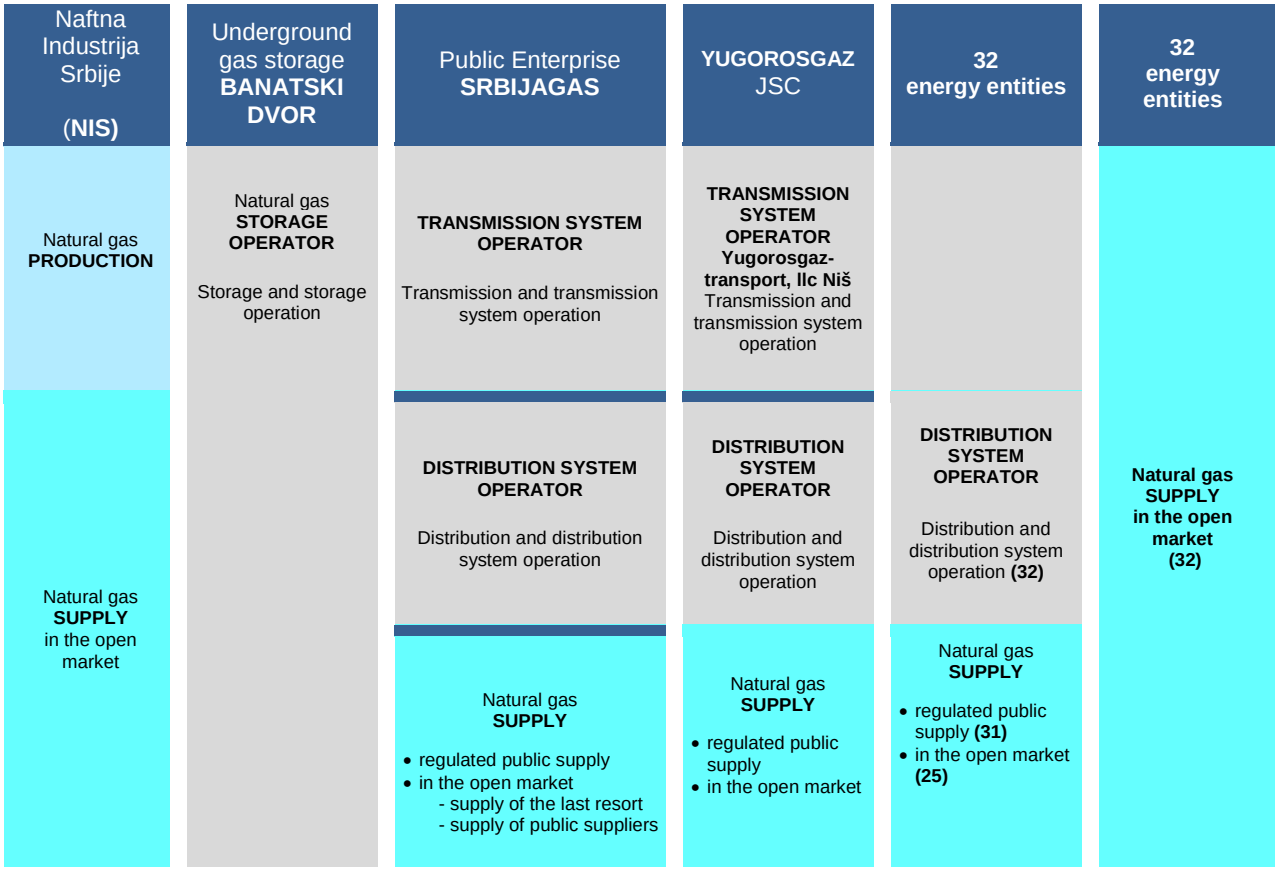


Figure 4-1: Organisational structure of the natural gas sector at the end of 2015

Natural gas production is performed solely by Petroleum Industry of Serbia JSC (Naftna industrija Srbije a.d.) (hereafter: NIS). Natural gas production is not a regulated activity.

In Serbia, natural gas transmission and transmission system operation are performed by two licenced transmission system operators (TSO), i.e.: PE Srbijagas, Novi Sad and Yugorosgaz-Transport LLC, Niš. In 2015, TSO Yugorosgaz-Transport LLC completed legal and functional unbundling from a vertically-integrated company „Yugorosgaz" JSC Belgrade. In PE Srbijagas, legal and functional unbundling of TSO – Transportgas Srbija LLC from the parent company was not fully completed since Transportgas Srbija LLC has not started operating which is why the transmission is still operated by its founder PE Srbijagas.

Natural gas distribution and distribution system operation are performed by 33 licenced distribution system operators (DSO). There is one more operator with a licence, but the company has not started its operation yet.

Apart from DSO PE Srbijagas and Yugorosgaz JSC, this activity is performed by another 31 licenced companies. Most of them are owned by municipalities and towns, some of them are public-private partnership, and some of them are private companies. Since all distribution system operators have less than 100,000 connected final customers, they are also entitled to perform supply, in the regulated market and in the open market and they are not obliged to unbundle the system operator and supplier (pursuant to the Article 259 of the Law). In 2015, PE Srbijagas adopted a decision on the establishment of a daughter company for the performance of natural gas distribution – Distribucija Srbija LLC Novi Sad which has not started operating yet. For this reason, natural gas distribution is still performed by PE Srbijagas.

In the end of 2015, there were 60 energy entities licenced for the supply in the open gas market. Out of the number, 28 suppliers were active. There are 33 companies which serve as public natural gas suppliers with regulated prices and these companies also deal in natural gas distribution.

The supply of public suppliers and supply of the last resort of final customers who are entitled to it by the Law can be performed by any supplier in the open market if selected by the Government of RS via tender procedure for a defined period of time. Based on a public tender, on 30/12/2015 ("Official Gazette of RS, No. 113/2015), the Government of RS adopted a decision on the amendment of decision on the selection of PE Srbijagas as a natural gas public suppliers' supplier until 01/07/2016. The price at which public suppliers are supplied is established in line with tender conditions and it was approved by the Government of the Republic of Serbia, while the methodology of its application was defined by tender conditions.

The supply of the last resort of those customers entitled to it by the Law is performed by PE Srbijagas which, on the basis of the public tender launched in June 2013 and the decision of the Government as of 31/7/2013, was selected to be the supplier of the last resort for the period as of September 1, 2013 until January 1, 2016 ("Official Gazette of RS", No. 69/2013). The decision on the amendment of the former decision which is published in the "Official Gazette ", No. 113/2015, prescribed the extension until January 1, 2017.

Storage operator performs natural gas storage and storage operation. There is only one storage, Natural Gas Underground Storage Banatski Dvor, llc, founded and owned by PE Srbijagas (49%) and Gazprom Germania (51%). This was defined on the basis of the Agreement of the Republic of Serbia and the Government of the Russian Federation on Cooperation in Oil and Gas Industry (Law on Confirmation of the Agreement of the Republic of Serbia and the Government of the Russian Federation on Cooperation in Oil and Gas Industry "Official Gazette of RS – International Agreements, No. 83/08) concluded in January 2008. The agreement on the realisation of the joint project was signed in October 2009.

4.1.2 Unbundling of energy activities and operator's independence

At the end of 2014, the Government of RS adopted a Decision on Basic Grounds for PE Srbijagas Restructuring which envisaged transmission and distribution system operators as legally separate entities from PE Srbijagas as their owner. The plan was harmonised with the Energy Community. Thereby, Serbia addressed the September 2014 invitation from the EnC Ministerial Council for Serbia to comply with its obligations arising from the EnC Treaty with regards to transmission system operator unbundling.

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

The Government adopted a Conclusion on November 19, 2015 and enabled the companies Transportgas Srbija LLC and Distribucijagas Srbija LLC to perform the activities of general interest – transmission and transmission system operation and distribution and distribution system operation based on the PE Srbijagas licence until the end of its validity date and recommended taking all necessary steps in order to obtain the relevant licences as soon as possible.

Transmission system operator Yugorosgaz – Transport LLC Niš was legally unbundled from the Yugorosgaz JSC Belgrade as its owner and it was licensed for natural gas transmission and transmission system operation in September 2013. Legal and functional unbundling was completed before the adoption of the Law. Therefore, the follow-up activity would be the operator certification procedure as prescribed by the Law and the issuance of the licence in line with the Law.

Distribution companies in Serbia unbundled distribution from supply and other energy related or non-energy related activities in terms of accounting.

4.1.3 Natural gas transmission, distribution and storage capacities

Natural gas transmission and distribution systems are developed in line with strategic documents and programmes of the Republic of Serbia.

4.1.3.1 Transmission

At the end of 2015, the length of the transmission system of PE Srbijagas where the activity is performed (the ownership is not transferred to the Transportgas Srbija company) amounted to 2,298 km in north and central Serbia, while the length of the Yugorosgaz transport LLC transmission system amounted to 125 km in southeast Serbia (Table 4-1). PE Srbijagas owns 95% of the gas transmission network, while Yugorosgaz JSC owns the remaining 5% of gas transmission lines which are used by its daughter company performing transmission – Yugorosgaz – Transport, LLC, Niš.

Table 4-1: Length of the transmission network in Serbia in 2010 - 2015

Year	2010	2011	2012	2013	2014	2015
Network length, km	2.258	2.321	2.391	2.398	2.423	2.423

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

Table 4-2 indicates the most important technical characteristics of the transmission system of PE Srbijagas and the system managed by Yugorosgaz transport LLC.

Table 4-2: Important technical characteristics of the transmission system

Important technical characteristics of the transmission system	PE Srbijagas	Yugorosgaz-transport LLC
Capacity, mill. m3/day	≈ 18	≈ 2.2
Pressure, bar	16 - 75	16 - 55
Length, km	2,298	125
Diameter	DN 150 - DN 750	DN 168 - DN 530
Compressor station, power, MW	4.4	-
Number of entries into the transmission system	12	1
From another transmission system	1	1
From production fields – domestic gas	10	-
From the storage	1	
Number of exits from the transmission system	267	5
Metering and regulating stations on transmission system exit	264	5
Overtaking stations	2	-
Entry into Yugorosgaz transmission system	1	-
Interconnector towards Bosnia and Herzegovina	1	-
Natural gas storage	1	

Gas transmission systems are not equipped adequately with metering and data collection devices which are necessary for market functioning and development. 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. This equipment was installed in all exits on the system which is operated by Yugorosgas-transport LLC and on 34% of the total number of exits from PE Srbijagas transmission system.

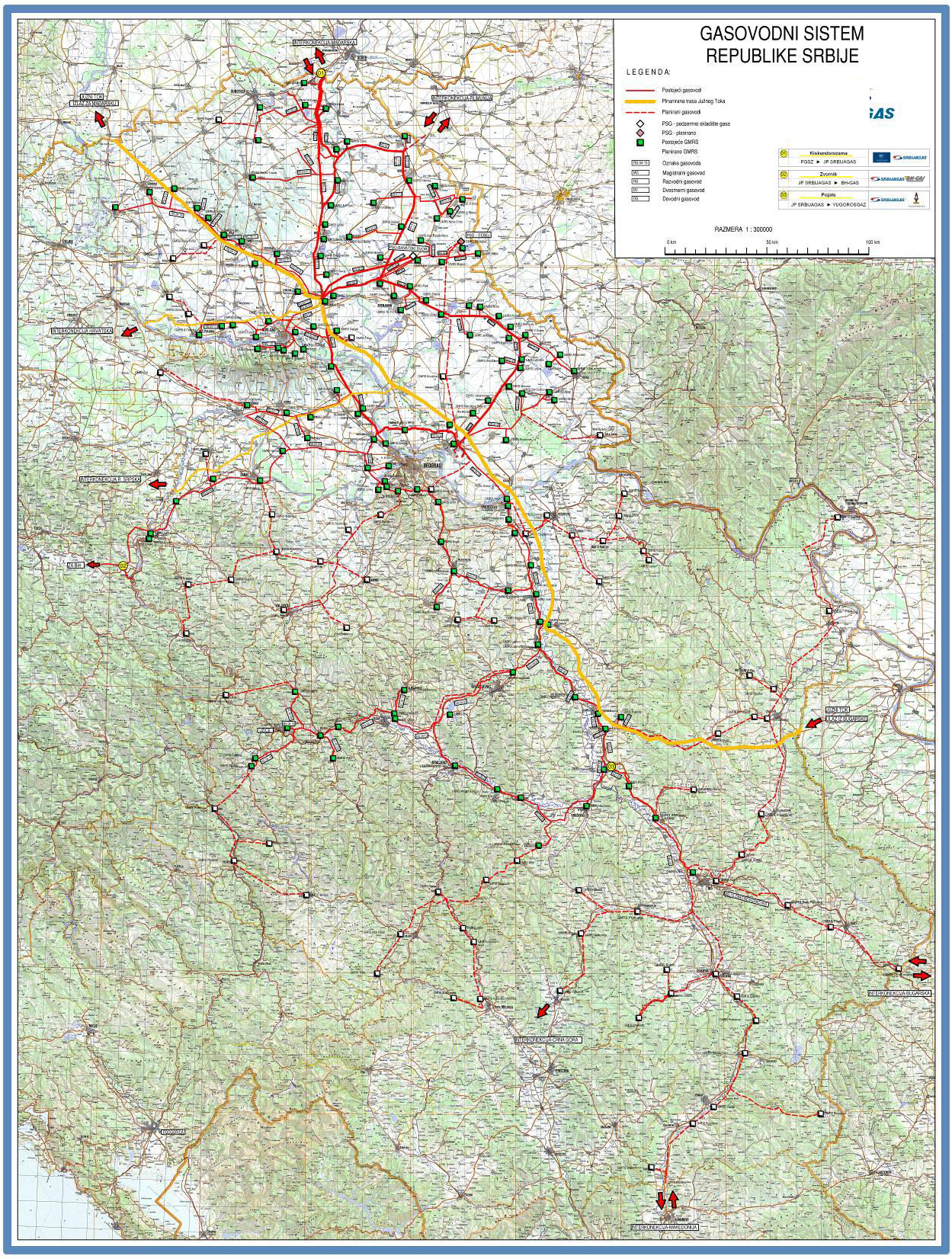


Figure 4-2: Natural gas transmission system of the Republic of Serbia

4.1.3.2 Distribution

The length of the distribution network has increased from 2011 to 2015 by 11.5%, i.e. to 16,532 km (without connections) thus creating the conditions for the connection of new customers. The greatest share of increase in distribution network length in 2015 was with PE Srbijagas which owns around 48% of the distribution network at the moment.

Table 4-3: Length of the distribution network in Serbia in 2011 - 2015

	2011	2012	2013	2014	2015
Length of the distribution network	14,628	15,348	15,839	16,363	16,532

The number of active connections (delivery points) within distribution networks amounts to 262,500.

Table 4-4: Length of distribution network and number of delivery points on December 31, 2015

No.	Natural gas distributor	Distribution grid length, m	Number of active connections
1	7. Oktobar, Novi Kneževac	49,652	1,525
2	Beogas, Belgrade	270,931	8,734
3	Beogradske elektrane, Novi Beograd	330,870	3,905
4	Boss construction, Trstenik	29,860	52
5	Čoka, Čoka	27,190	805
6	Drugi oktobar, Vršac	198,266	12,744
7	Elgas, Senta	59,750	1,756
8	Gas – Feromont, Stara Pazova	586,070	16,658
9	Gas – Ruma, Ruma	454,146	6,929
10	Gas, Bečej	205,094	1,643
11	Gas, Temerin	266,500	6,641
12	Graditelj, Srbobran	150,200	2,268
13	Gradska toplana, Zrenjanin	510,564	19,955
14	Ingas, Inđija	357,834	9,518
15	Interklima, Vrnjačka Banja	105,050	946
16	Komunalac, Novi Bečej	121,158	2,306
17	Kovin – Gas, Kovin	333,094	3,908
18	Loznica - Gas, Loznica	127,360	1,402
19	Novi Sad – Gas,Novi Sad	2,362,175	45,160
20	Polet, Plandište	239,300	3,598
21	Resava Gas, Svilajnac	59,972	303
22	Rodgas, Bačka Topola	149,624	1,254
23	Cyrus energy, Belgrade	21,173	1,788
24	Sigas, Požega	19,987	300
25	Sombor – Gas, Sombor	172,000	1,798
26	Srbijagas, Novi Sad	7,857,046	86,367
27	Srem - Gas, Sremska Mitrovica	262,919	4,891
28	Standard, Ada	42,000	977
29	Suboticagas, Subotica	406,570	9,122
30	Toplana – Šabac, Šabac	170,381	2,501
31	Užice – gas, Užice	134,459	494
32	Vrbas – Gas, Vrbas	182,000	1,575
33	Yugorosgaz, Beograd	269,610	683
	TOTAL	16,532,805	262,506

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

The Law (Article 261, paragraph 1) 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 o 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 MU/MRS until December 31, 2020.

Out of 33 DSOs, all MU/MRS in 18 of them are owned by the operator. In the remaining 15, around 45% of MU/MRS are not owned by them and they should take them over. Once DSO is under bankruptcy and they cannot take MU/MRS over, 13 of them submitted their transfer plans which were approved by the Agency and the plan draft of the PE "Srbijagas" was harmonised with the Agency but it has not been submitted for approval officially.

Table 4-5: DSOs which do not own all MU/MRS in their system (data at the moment plans are adopted)

No.	Distribution company	DSO is the owner of MU/MRS	DSO is not the owner of MU/MRS	Total MU/MRS
1	PE "Srbijagas" Novi Sad	75,698	14,144	89,842
2	Dist.Com. "Novi Sad Gas" Novi Sad	334	44,779	45,113
3	"Gas-feromont" S. Pazova	9,571	7,639	17,210
4	PE "Ingas" Inđija	8,285	1,137	9,422
5	PE "Gas Ruma" Ruma	5,511	1,658	7,169
6	PE "GAS" Temerin	371	6,242	6,613
7	SPUC "Polet" Plandište	1,148	2,886	4,034
8	PE "Kovin Gas" Kovin	1,003	2,851	3,854
9	PUC "Graditelj" Srbobran	3	2,277	2,280
10	PUC "Komunalac" Novi Bečej	45	2,259	2,304
11	PE "Vrbas-Gas" Vrbas	1,183	629	1,812
12	"Sombor-Gas" LLC Sombor	1,361	421	1,782
13	"Gas-Bečej" LLC Bečej	139	1,604	1,743
14	"Loznica-Gas" LLC Loznica	1,360	17	1,377
	Total:	**106,012**	**88,543**	**194,555**

The number of MU/MRS which should be taken over 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.

4.1.3.3 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 m^3 of natural gas. Total area of the storage amounts to around 54 km^2. There are currently 450 million m^3 of available capacity while the designed storage capacity amounts to 5 million m^3/day.

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

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

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

In 2015, maximum technical capacity of injection was 2.5 million m^3/day and maximum withdrawal capacity (from the storage) was 4.6 million m^3/day. Maximum daily injection quantities in 2015 amounted to 2.4 million m^3/day and maximum daily withdrawn quantities recorded 2.8 million m^3/day.

In 2015, the cushion gas quantity in the storage did not change and it amounted to 530 million m^3.

In the beginning of 2015, there were 333 million m^3 of commercial gas. 231 million m^3 of gas was injected from the transmission system into the storage, out of which 3 million m^3 were spent to cover the storage demand. The remaining 228 million m^3 of commercial gas were injected. Users withdrew 113 million m^3 from the storage, and this is also the volume injected into the transmission system. In the end of 2015, 448 million m^3 of commercial gas were stored in the storage.

4.2 Natural gas consumption and supply sources

In 2015, 2, 285 million m^3 of natural gas in total were available from: import, local production and underground storage. 2 million m^3 were available for consumption and 2,041 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 Moscow 50%, PE Srbijagas 25% and Central ME Energy and Gas, Vienna 25%) procures natural gas from Gazprom Moscow for customers in Serbia.

In 2015, natural gas import from the Russian Federation in line with a long-term contract amounted to 1,733 million m^3, while there were 7 million m^3 imported via other contracts. Therefore, in total, imported volumes withdrawn from the Hungarian transmission system amounted to 1,740 million m^3.

In 2015, local production amounted to 432 million m^3, i.e. 7.5% and its share in total available volumes amounted to 19%.

Table 4-6: Natural gas supply sources and consumption in 2014 and 2015

	2014 million m^3	2015 million m^3	2015/2014 Index
Production delivered to transmission system	453	422	93
Production delivered to distribution system	14	10	64
Total production	467	432	93
Import from the Russian Federation – via long-term contract	1,393	1,733	124
Import from other sources – via other contracts	0	7	-
Total import	1,393	1,740	125
Quanities withdrawn from the underground storage	306	113	37
TOTAL AVAILABLE QUANTITIES	2,166	2,285	105
Injected into the storage	164	228	139
Gross consumption	2,002	2,057	103
Transmission system losses and consumption	7	8	114
Distribution network losses	14	8	57
For final consumption	1,981	2,041	103

In 2015, 2,041 million m^3 of natural gas were consumed – 3% more than in 2014. Consumption increased by 7% in households, 23% in district heating companies and decreased by 5% in the industrial sector. The consumption growth with households and district heating companies is a result of 0.8 lower average mid-day temperature in wintertime in comparison to 2014 (if we compare January, February and December, average mid-day temperature was 1.7 grades lower).

The number of delivery points in 2015 was increased by 1,109 in comparison to 2014. At the end of 2015, it amounted to 262,591. Out of the number, households accounted for 249,803 or 95.2%. This implies that only 10% of all households in Serbia have a gas connection.

Table 4-7: Number of delivery points at the end of 2014 and 2015

Consumption category	2014	2015	Difference 2015-2014
Households	248,975	249,803	828
District heating companies	69	75	6
Industry and other	12,219	12,494	275
Total	261,263	262,591	1,109

Consumption structure for customer categories is given in Table 4-8.

Table 4-8: Consumption structure in 2014 and 2015

Consumption category	2014 million m^3	2015 million m^3	2015/2014 Index
Households	179	191	107
District heating companies	472	569	121
Industry and other	1,331	1,281	95
Total	1,982	2,041	103

Households consumption accounts for 9% of final natural gas consumption in 2015. Disctrict heating companies consumption accounted for 28%, while industry and other customers covered 63% (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 2015 is given in Figure 4-3.

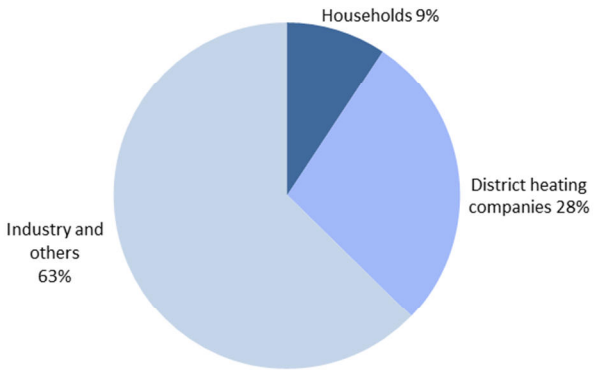


Figure 4-3: Structure of natural gas consumption in Serbia in 2015

Average annual natural gas consumption per connected household amounted to 763 m^3 in 2015 (including active delivery points for households which did not consume gas during 2015) which amounts to 6% more than in 2014. If one only takes into account the households which consumed natural gas during 2015, average annual consumption per household amounted to 845 m^3.

4.3 Regulation of the transmission system operator

The transmission system operator Transportgas Srbija LLC is a new company, established in order to perform transmission and transmission system operation which has not started operating until the end of 2015 which is why the natural gas transmission and transmission system operation is still performed by its founder – PE Srbijagas. In 2014, Yugorosgaz-transport LLC is the transmission system operation which completed legal and functional unbundling from its founder - the vertically-integrated company “Yugorosgaz” JSC Belgrade and obtained the licence for transmission and transmission system operation in line with the law regulating the energy sector at that time. In line with the Law, Issuing the licence to this operation will be considered after an adequate certificate is issued to the system operator.

Transmission system operators are obliged to organise their structure as one of three models as prescribed by the Law:

- Transmission System Operator (TSO) which is an independent legal person and not a part of a vertically-integrated company; independent from the performance of natural gas production and supply and it is the owner of the transmission system or
- Independent System Operator (ISO) which is not the owner of the transmission system; it will neither have joint information systems or equipment, premises and information protection systems with any part of the vertically-integrated company nor engage the same persons who would work on their information systems, equipment and information protection systems; the owner of the transmission system has to be independent in terms of its legal form, organisation and decision-making procedures from other activities which are not related to natural gas transmission or
- Independent Transmission Operator (ITO) which operates the transmission system owned by a vertically-integrated company, while ITO is obliged to adopt a programme for non-discriminatory behaviour; it has to have legal and accounting departments as well as the information technology department independent from any part of vertically-integrated company and to adopt and implement the programme for non-discriminatory behaviour.

Before any legal entity is awarded with the licence and defined as the transmission system operator, it has to be certified.

In line with the Law, the transmission system operator is responsible for:

- secure and reliable transmission system operation and the quality of natural gas delivery;

- safe transmission system operation;
- transmission system operation;
- transmission system development providing for long-term capability of the transmission system to comply with rational requirements in terms of natural gas transmission;
- coordinated operations of the transmission system with other transmission systems, with distribution systems and natural gas storage;
- system balancing;
- non-discriminatory access to the transmission system;
- accuracy and reliability of natural gas metering on delivery points from and into the transmission system and
- arranging and administration of natural gas market.

The most important activities of the transmission system operators in 2015 which provide the compliance of its work with the commitments arising from the Law and natural gas market opening are as follows:

- harmonisation of the Transmission Network Code with the Law;
- procurement of metering equipment, hardware and software which enable the application of the Transmission Network Code (network code);
- draft of the 10 years' transmission system development plan and its harmonisation with the applications for the connection of producers' facilities and customers' facilities;
- monitoring security of supply and submission of the data which are to be incorporated into the report on security of natural gas supply prepared by the Ministry;
- exchanging information necessary for safe and secure operations of the system with other system operators;
- submission of the data and documentation necessary for price regulation to the Agency and
- other activities which improve the security, efficiency and transparency of the transmission system operations and market functioning and development.

4.3.1 Natural Gas Transmission Network Code

PE Srbijagas implements the Natural Gas Transmission Network Code adopted in 2013. The Code also includes the rules on the capacity allocation and the rules on natural gas market. The beginning of the enforcement of these provisions was planned for 2014, but it was delayed for mid-2016 since capacity allocation requires unbundling natural gas transmission and supply prior to this. The text of the Transmission Network Code is harmonised with the Law and agreed with the Agency in November 2015. It is expected to be submitted for Agency's approval.

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

4.3.2 Regulation of the transmission use-of-system charges

In 2015, the Council of the Agency approved a decision on the natural gas transmission use-of-system charge of PE Srbijagas which has been applicable as of February 1, 2015. The charge was calculated for the first time using the so called entry-exit model[10], based on the Methodology for Setting Natural Gas Transmission Use-of-System Charge which was adopted in 2012.

The natural gas transmission use-of-system charges of Yugorosgaz-Transport were not modified in 2015.

Since February 2015, average approved transmission use-of-system charge of PE Srbijagasa has been 2.70 RSD/m^3 and of Yugorosgaz-Transport – 1.62 RSD/m^3.

Table 4-9: Average approved natural gas transmission use-of-system charge[11]

RSD/m^3

Transmission system operator	31/12/2014	31/12/2015
PE Srbijagas	1.13	2.70
Yugorosgaz-Trasnport, LLC, Niš	1.62	1.62

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).

[10] Entry-exit model enables the transmission system operator to charge system users with separate capacity lease on entries into and exits from the transmission system at different prices for different time intervals. The price of capacity at each entry and exit is calculated by distributing a part of the system operator's revenue to a certain entry or exit point, on the basis of the costs of the infrastructure connected with entry-exit points and divide it with capacities contracted for that point.

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

4.3.3 Transmitted natural gas quantities

In 2015, 2, 499 million m^3 of natural gas were delivered to 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 system operators 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 in Belgrade and Novi Sad.

Table 4-10: Transmitted natural gas quantities in 2014 and 2015

	2014 million m^3	2015 million m^3	2015/2014 Index
Production	453	422	93
Entry into Serbia from Hungary to meet Serbia's demand	1,468	1,740	119
Entry into Serbia to meet Bosnia and Herzegovina's demand	185	223	121
Total	2,106	2,386	113
From storage	353	113	32
Transmitted quantities	2,459	2,499	102

4.3.4 Use of cross-border transmission 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
- Serbia – Bosnia and Herzegovina (Zvornik) – exit point.

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

4.3.4.1 Rules on cross-border transmission capacity allocation

The rules on the allocation of all transmission capacities, cross-border capacities included, and on congestion management are defined by the Natural Gas Transmission Network Code. The first capacity allocation is expected to be organised for the gas year which starts on July 1, 2016.

4.3.4.2 Capacity allocation on interconnection lines and congestion management

Being the operator of the transmission system interconnected with neighbouring countries, PE Srbijagas, i.e. Transportgas Srbija, llc is entitled to award capacities on interconnection gas pipelines. In 2015, capacities were allocated on the entry point Hungary – Serbia (Kiskundorozma) so as to meet the demand of PE Srbijagas, Gazprom Export, Company for gas production and transmission BH – Gas LLC Sarajevo, Alumina LLC Zvornik and Gazprom Export. Exit capacity towards Bosnia and Herzegovina was allocated so as to meet the demand of BH Gas and Alumina. In 2015, there were no congestion problems, i.e. there were available capacities on the interconnectors even during winter months.

In 2015, the utilisation rate of the entry firm capacity on Serbian-Hungarian border amounted to average 41.4 % with 540,000 m^3/hour (13 million m^3/day) (In 2014, it amounted to 36,5 %.), 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 Serbian-Hungarian border amounted to 10.72 million m^3/day. 9.24 million m^3/day was used by customers in Serbia, while 1.48 million m^3/day were intended for Bosnia and Herzegovina. Bearing in mind the available interconnector capacity for natural gas customers in Serbia of 11 million m^3/day and interconnector utilisation rate of 90%, it is possible to have around 3.6 billion m^3 imported which is greatly higher than annual import in 2005-2015.

4.3.5 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.

In 2015, system balancing is realised by changing nominated imported gas quantities and by using the line pack during the day, as well as using natural gas from the storage. When natural gas demand on exit points exceeds the capacity contracted on entry points, the transmission system operator may interrupt a part of capacity on the exit points to the customers who have an option to use alternative fuel so as to reach balance in the system. However, there was no need to do that in 2015.

Natural gas market players have to regulate their balancing responsibility by conclusion of a transmission contract which defines financial responsibility for the discrepancy between natural gas quantities delivered at points of entry into the transmission system and quantities withdrawn on points of exit from the transmission system. 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 PE Srbijagas Natural Gas Transmission Network Code prescribes the conclusion of an annual contract between the transmission system operator and a supplier who will provide the balancing service, i.e. who will withdraw extra natural gas within the system and deliver natural gas in case of shortage. Once the natural gas market is developed on daily level in Serbia, the transmission system operator will purchase the balancing service in the market. The application of balancing responsibility for transmission system users is supposed to start as of July 1, 2016.

4.4 Regulation of the distribution system operator

In 2015, 33 companies performed distribution and distribution system operation (the license is also held by ViGas Tel LLC Belgrade which has not started performing natural gas distribution yet). In May 2015, Boss Constructione LLC, Trstenik started dealing in distribution on the network that was formerly used by BOS Petrol which submitted an application for the annulment of licence (ceased operating in the distribution sphere).

Natural gas distribution sector has one dominant feature, i.e. great fragmentation. For this reason, there is no economy of scale and therefore, network charges are higher. PE Srbijagas acquired one small gas distributer, but, in general, the initiatives that would lead to enlargement are not strong enough.

In 2015, the Agency worked on amendments of 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 in order to harmonise them with the Energy Law.

Natural gas distribution system operator is responsible for:

- secure and reliable distribution system operation and the quality of natural gas delivery;
- safe operation of the natural gas distribution system;
- distribution system development providing for long-term capability of the distribution system to comply with rational requirements in terms of natural gas distribution in a way which is justified in economic terms;
- construction of a connection to the distribution system;
- provision of information to energy entities and distribution system users which are necessary for an efficient access to the distribution system, based on transparency and non-discrimination principles;
- non-discriminatory access to the distribution system;
- distribution system operation, in a manner providing security of natural gas supply and
- accuracy and reliability of natural gas metering.

The most important activities of the distribution system operator in 2015 which provide the compliance of its work with the commitments arising from the Law are as follows:

- development of the price list for standard connections in the distribution system;
- drafting Natural Gas Distribution Network Code;
- taking prescribed safety measures during the use of distribution system;
- submision of the data which are to be incorporated into the report on security of supply to the Ministry in charge of energy and
- other activities which improve the security, efficiency and transparency of the system operation and support market functioning and development.

4.4.1 Distribution Network Code

The Distribution System Code is an important part of regulation which creates conditions for natural gas market opening and functioning. The Code regulates the relations between the distribution system operator and system users, in particular: method of planning distribution system development, technical conditions for connection, access to the system, metering with defined metering equipment, facility maintenance, procedures in case of disruption, type and scope of data exchanged with other energy entities and system users, procedures and tempo of data and information exchange, system users' obligations, etc.

In 2015, the Council of the Energy Agency of the Republic of Serbia approved Natural Gas Distribution System Code for 31 system operators and one draft Code is within the approval procedure.

4.4.2 Regulation of distribution use-of-system charges

In 2015, the Council of the Energy Agency approved decisions on prices of natural gas distribution use-of-system charges for 10 distribution system operators. Average approved distribution use-of-system charge for all distribution networks in Serbia on 31/12/2015 amounted to 4.26 RSD/m^3. The difference in distribution use-of-system charges with different distribution system operators 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 4-11: Average approved natural gas distribution use-of-system charge

No.	Distribution system operator	31/12/2014	31/12/2015
1	7 Oktobar, Novi Kneževac	4.34	10.15
2	Beogas, Belgrade	3.65	3.65
3	Beogradske elektrane, Novi Beograd	5.63	5.63
4	Čoka, Čoka	6.86	6.86
5	Drugi oktobar, Vršac	691	6.91
6	Elgas, Senta	7.3	7.3
7	Gas – Feromont, Stara Pazova	5.69	5.69
8	Gas – Ruma, Ruma	5.64	5.64
9	Gas, Bečej	6.32	11.24
10	Gas, Temerin	6.2	8.71
11	Graditelj, Srbobran	6.26	6.26
12	Grejanje, Zrenjanin	7.33	7.33
13	Ingas, Inđija	5.96	5.96
14	Interklima, Vrnjačka banja	7.02	7.02
15	Komunalac, Novi Bečej	7.14	7.14
16	Kovin – Gas, Kovin	4.86	4.86
17	Loznica – Gas, Loznica	3.77	3.77
18	Novi Gas – Gas, Novi Sad	6.13	6.13
19	Polet, Plandište	7.53	7.53
20	Resava Gas, Svilajnac		6.49
21	Rodgas, Bačka Topola	4.39	4.39
22	Sigas, Požega	12.56	12.56
23	Sloga, Kanjiža	6.09	
24	Sombor – Gas, Sombor	5.15	5.15
25	Srbijagas, Novi Sad	1.38	3.8
26	Srem – Gas, Sremska Mitrovica	4.98	4.98
27	Standard, Ada	8.87	8.87
28	Suboticagas, Subotica	6.02	6.02
29	Toplana – Šabac, Šabac	6.43	6.43
30	Užice – gas, Užice	5.13	5.87
31	Vrbas – Gas, Vrbas	5.28	5.28
32	Yugorosgaz, Belgade	2.28	2.28
	AVERAGE	**2.42**	**4.26**

The increase of Srbijagas charges has the greatest impact to the increase in the average natural gas transmission use-of-system charge. System operators which have not submitted an application for the modification of charge for a long time record a considerable increase in the charge because of the correction element.

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).

4.4.3 Distributed natural gas quantities

Natural gas quantities are withdrawn into the distribution systems mostly from the natural gas transmission system. Some distributers have natural gas delivered from the distribution system of PE Srbijagas. Only small quantities are provided from natural gas production facilities connected to the distribution system. Table 4-12 indicates natural gas quantities withdrawn into natural gas distribution systems and distributed in 2015.

Table 4-12: Distributed natural gas quantities in 2015

	2014 million m^3	2015 million m3	2015/2014 Index
Total distributed quantities	1,288	1,405	109
withdrawn from the transmission system	1,195	1,310	110
withdrawn from distribution systems	79	85	108
withdrawn from production facilities	14	10	71
losses	13	8	62
	1%	0.57%	57

4.5 Regulation of prices of regulated natural gas supply

In 2015, natural gas public supply prices were modified four times due to the change in purchase price of natural gas meant for public supply: in March, June, July and October, the percentage of price change was as follows:

Table 4-13: Modification of average price in 2015

Month of 2015	Average price modification (%)	
	Small consumers including households	for all customers entitled to public supply
March	+8.0	+10.8
June	-5.1	-5.3
July	-10.5	-11.2
October	-8.5	-9.1
MODIFICATION for the whole 2015	-16.1	-15.5

This price drop is a result of the reduction of the natural gas import price.

In line with the provisions of the Law, as of September 2013, the supply of natural gas public suppliers is performed by PE Srbijagas which was selected by the Government previously via a tender procedure. The contract on the supply of natural gas public suppliers, which was an integral part of the tender documentation, envisages that the natural gas price for this purpose is set on the basis of the variable component which relates to the import price of natural gas and the fixed component which covers the costs of transit through Hungary, of natural gas transmission in Serbia and of storage, the costs of the public supplier's supplier and local gas costs, i.e. all costs arising up to the delivery point of the public supplier. The contract also stipulates that the natural gas prices set thereby given in US$ is billed to public suppliers in line with the average exchange rate at the date of the invoice. Pursuant to the Law, the Energy Agency approves public supply prices given in RSD. The very preparation procedure, adoption of the decision on prices and the Agency's approval takes two weeks. However, pursuant to the Energy Law and the Law on Customers' Protection ("Official Gazette 62/2014 and 6/2016 – another law) which is applicable as of 22/09/2014, the supplier is obliged to inform a customer on a change of price at the latest 30 days before the application of new prices, if they are increased. Due to all the above given, bearing in mind unstable Dollar exchange rate and its increase, i.e. considerable difference in the exchange rate at the moment the approval is given for the price and its application and more than two months after that, a considerable difference can be registered between approved and actual procurement prices during gas invoicing.

Table 4-14: Average approved natural gas public supply price[12]

RSD/м3

No.	Natural gas public supplier	All customers		Small customers	
		31/12/2014	31/12/2015	31/12/2014	31/12/2015
1	7 Oktobar, Novi Kneževac	48.10	44.97	48.89	45.55
2	Beogas, Belgrade	48.02	39.00	48.17	39.15
3	Beogradske elektrane, Novi Beograd	48.69	39.67	49.36	40.34
4	Čoka, Čoka	51.53	42.51	54.05	45.03
5	Drugi oktobar, Vršac	50.13	41.11	52.35	43.33
6	Elgas, Senta	50.96	41.94	51.11	42.09
7	Gas – Feromont, Stara Pazova	48.76	39.74	49.59	40.57
8	Gas – Ruma, Ruma	48..51	39.49	50.72	41.70
9	Gas, Bečej	49.74	47.82	50.84	48.04
10	Gas, Temerin	50.15	42.33	50.40	42.48
11	Graditelj, Srbobran	50.27	41.25	51.87	42.85
12	Grejanje, Zrenjanin	52.54	43.52	52.85	43.83
13	Ingas, Inđija	48.59	39.57	50.10	41.08
14	Interklima, Vrnjačka banja	48.93	40.00	50.06	41.14
15	Komunalac, Novi Bečej	50.78	41.76	51.56	42.54
16	Kovin – Gas, Kovin	48.12	39.09	51.23	42.21
17	Loznica – Gas, Loznica	46.01	36.99	47.63	38.61
18	Novi Gas – Gas, Novi Sad	49.24	40.22	50.23	41.21
19	Polet, Plandište	51.27	42.25	53.51	44.49
20	Resava Gas, Svilajnac	45.92	42.64	46.89	43.08
21	Rodgas, Bačka Topola	46.92	37.90	50.37	41.35
22	Sigas, Požega	60.09	51.07	60.34	51.32
23	Sloga, Kanjiža	49.62		50.28	
24	Sombor – Gas, Sombor	47.58	38.56	49.02	40.00
25	Srbijagas, Novi Sad	43.78	37.58	46.25	40.55
26	Srem – Gas, Sremska Mitrovica	47.61	38.59	49.48	40.46
27	Standard, Ada	52.85	43.83	53.68	44.66
28	Suboticagas, Subotica	48.50	39.48	49.86	40.84
29	Toplana – Šabac, Šabac	49.09	40.07	49.16	40.14
30	Užice – gas, Užice	43.85	40.41	45.10	41.15
31	Vrbas – Gas, Vrbas	48.00	38.98	50.06	41.04
32	Yugorosgaz, Belgade	43.53	34.69	45.60	36.76
	AVERAGE	45.02	38.06	49.01	41.16

The costs of natural gas purchase represent the dominant share within natural gas public supply tariff with all public suppliers. On 31/12/2015, the costs of natural gas procurement account for over 78% of the total average approved price of public suppliers. Figure 4-4 indicates the structure of average regulated natural gas public supply tariff of PE Srbijagas of 37.58 RSD/m^3 which has been applied as of 31/12/2015.

[12] In 2015, Boss petrol, Trstenik and BOSS Construction, Trstenik applied natural gas public supply prices on the level of those of Srbijagas, Novi Sad. Sloga, Kanjiža ceased dealing in natural gas public supply in 2015.

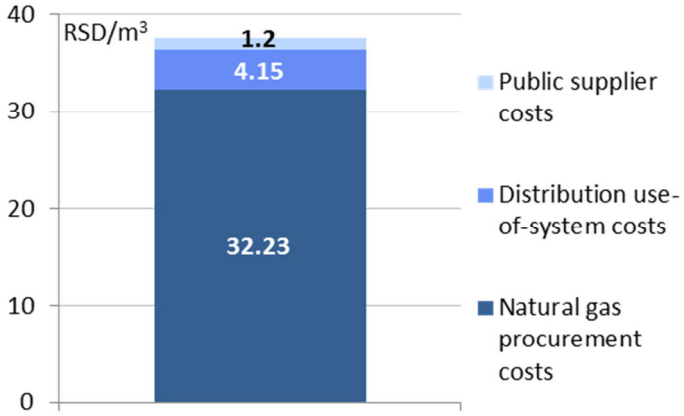


Figure 4-4: Structure of average approved natural gas public supply price of PE Srbijagas on 31/12/2015

Figure 4-5 indicates the comparison between natural gas household price in Serbia and in other EU countries and in the region. The price is given for a reference household customer for the second half of 2015.

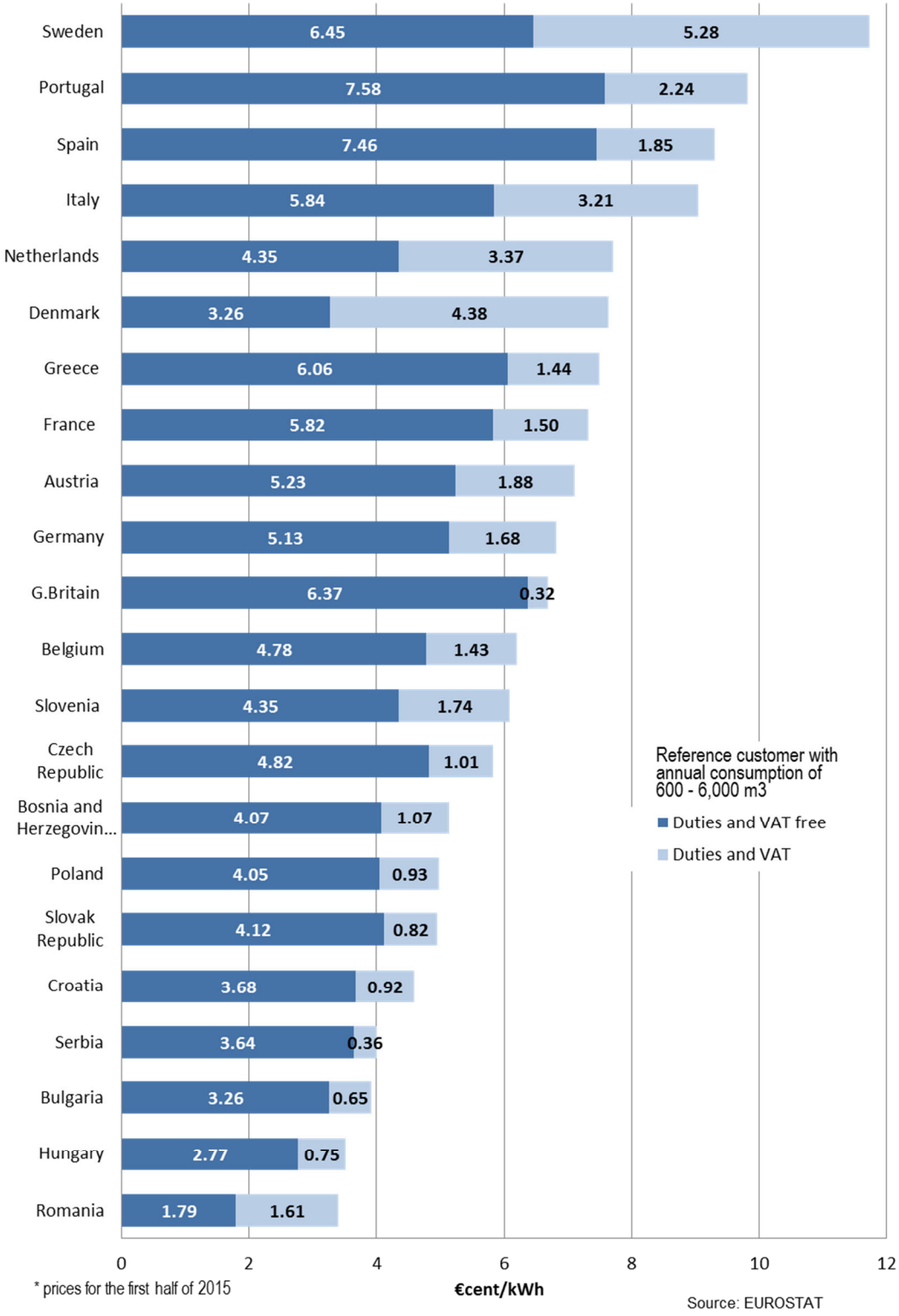


Figure 4-5: Natural gas prices for households – second half of 2015

Figure 4-6 indicates a more detailed structure of elements of the natural gas household prices in some of European capitals in December 2015. 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 the lowest ones, and they amount to around 17%, while the European average amounts to around 26%. It is also evident that there is also a considerably lower share of costs of taxes and duties.

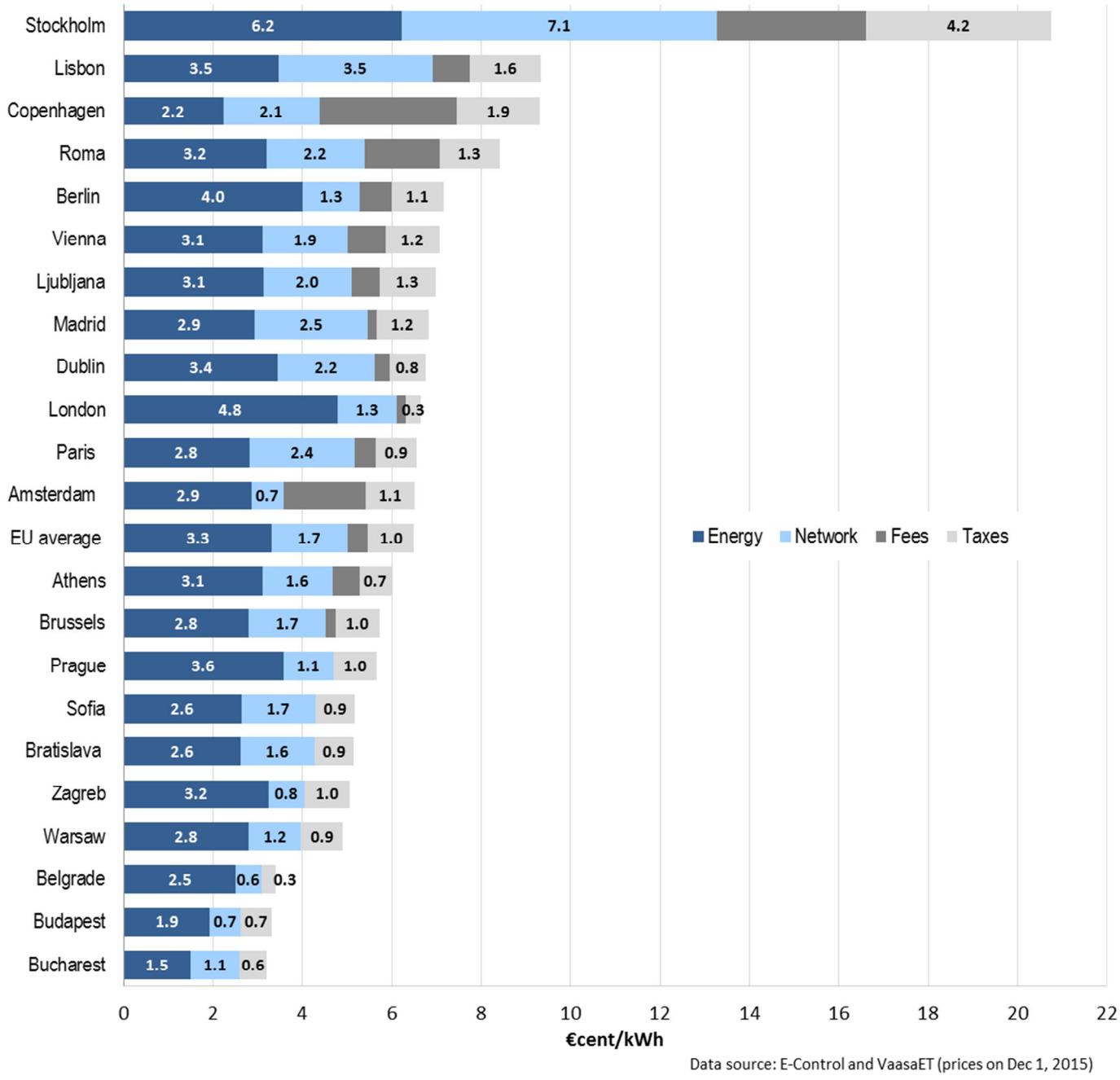


Figure 4-6: Structure of natural gas household prices in some of European capitals in December 2015

Figure 4-7 indicates the structure of the final natural gas price for households in some European capitals in December 2015 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 among the highest ones in comparison to the prices in other European capitals, which is a result of a different living standard in European countries.

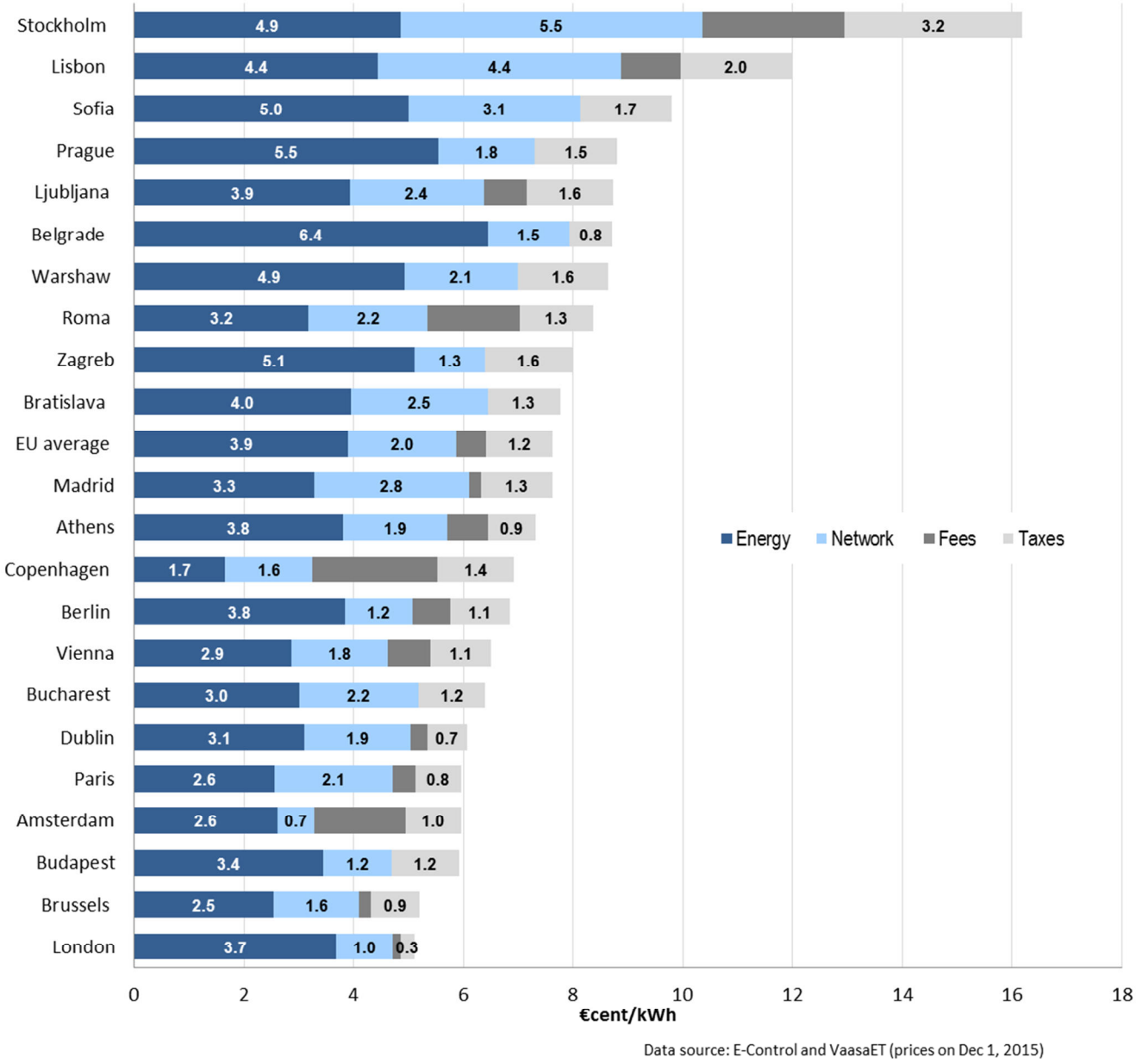


Figure 4-7: Structure of natural gas household prices in some of European capitals in December 2015 given in purchase power parity

Figure 4-8 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 second half of 2015. Natural gas price in Serbia is among the lowest ones. The difference between prices is greatly influenced by different tax policy, i.e. different duties and taxes borne by industrial consumers.

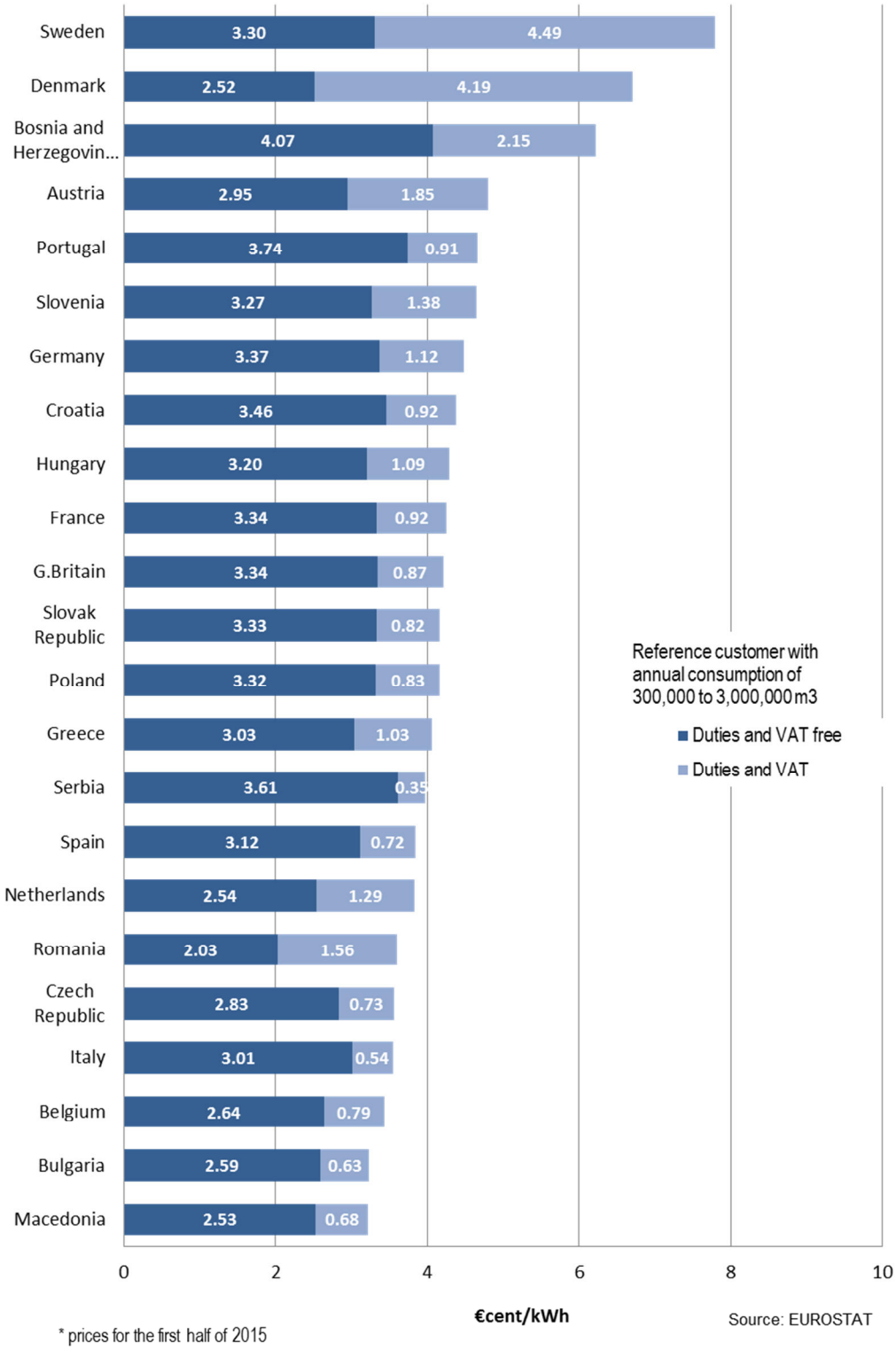


Figure 4-8: Natural gas prices for industry – second half of 2015

4.6 Natural gas market

Natural gas market players are the following:

- producer (1);
- suppliers (60);
- public suppliers (33);
- supplier of public suppliers (1);
- final customers (261,765 having regulated supply and 802 in the open market);
- transmission system operators (2);
- distribution system operators (34), and one of them does not perform the activity and
- storage operator.

Bilateral market is being developed in the natural gas sector.

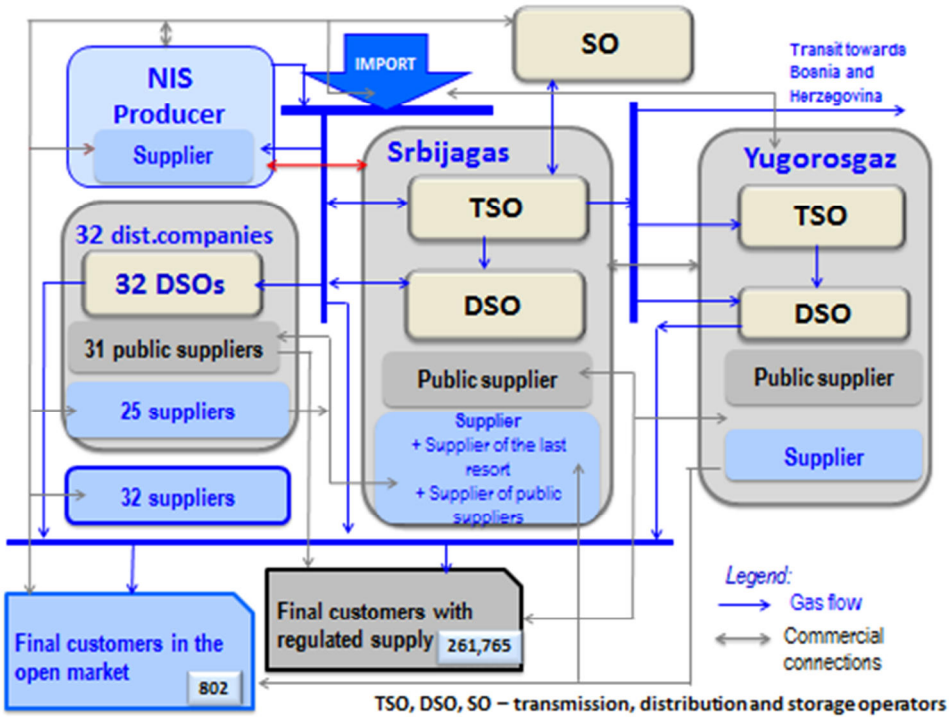


Figure 4-9: Natural gas market scheme

The Government of RS appointed PE Srbijagas to be the supplier of natural gas public suppliers in the period 01/09/2013 – 01/07/2016 and it is obliged to supply all the public suppliers demanding it, natural gas supply under the same conditions and at a same price. The Government of RS set the manner how this price is established. The same conditions are valid for PE Srbijagas as a public supplier.

4.6.1 Wholesale market

Except for gas purchase for public suppliers' sake, the wholesale natural gas market was based on bilateral contracts between suppliers and between producers and suppliers. In 2015, there were only two companies in the wholesale market – PE Srbijagas and gas producer Naftna industrija Srbije which sold natural gas to suppliers to meet the final customers' demand.

Being the only importer in 2015, PE Srbijagas purchases Russian gas on the basis of the long-term contract with Yugorosgaz JSC. The wholesale gas price in the Serbian market depends to the greatest extent on the purchase/final gas price and US$ exchange rate. Import price is defined based on the formula where basic elements include three oil derivatives with prices formed in the international market (when calculating gas price for the following quarter, nine-month average of all these prices from previous three quarters are taken into account). The price of locally-produced gas depends on the price of imported gas and on calorific value of the local gas.

In 2015, average weighted procurement import price of natural gas on the border between Hungary and Serbia, i.e. on the entry into the transmission system amounted to 302 US$/000m^3 or 28.21 €/MWh (calculated in line with the upper calorific value of natural gas of 37,178 kJ/m^3 and the temperature of 0°C). Average weighted procurement price of natural gas in 2015 which includes the import price of gas, the price of locally-produced gas and the price of gas withdrawn from the storage, given in RSD in line with the average exchange rate of US$, amounted to 32.02 RSD/m^3.

Import price of gas is greatly affected by the price of transmission through Hungary (average price in 2015 amounted to 37.04 US$/000m^3). The price of transmission for PE Srbijagas purposes is set in line with a long-term contract between the Hungarian transmission system operator and PE Srbijagas which was signed before the Treaty on EnC came into force. The long-term contract validity period ends in 2017. The regulated price of transmission through Hungary towards exit to Serbia is very similar to the transmission price in line with the long-term contract, but it is considerably higher than the price applicable for users in Hungary, as well as for users transmitting natural gas from Hungary towards exits to Croatia, Ukraine, Slovak Republic and Romania. The Agency has asked for an explation on how such high regulated prices of transmission through Hungary towards exits to Serbia were set from the Hungarian regulator in the gas field several times. However, data and reply on this were not sent.

Wholesale natural gas price at which suppliers and public suppliers procured natural gas in order to meet final customers' demand in 2015 amounted to 39.81 RSD/m^3.

Joint activities on regional market development

The most important initiatives related to the development of the regional market include drafting Network Codes which have already been adopted in the EU. Their mandatory enforcement in the EnC is expected. In 2015, ECRB Natural Gas Working Group, which also includes the representatives of the Agency, analysed the issues related to the wholesale natural gas price, in terms of identifying obstacles for market functioning and drafting proposals for an improvement. The Group also cooperated on the draft of the study "Integration of Natural Gas Market in the Energy Community" and cooperated with the EU regulators which are also members of the Gas Regional Initiative South Southeast on the issues related with data transparency.

4.6.2 Retail market

4.6.2.1 Quantities delivered to final customers

In 2015, total final customers consumption amounted to 2,041 million m^3. NIS JSC spent 266 million m^3 of gas they produced and this quantity was not placed in the market. 1.774,8 million m^3 were procured in the market. 802 customers procured gas in the open market, while 94 of them were also using supply of the last resort. In total, 1,514 million m^3 were delivered to them, i.e. 85.3% of the total gas volume delivered to final customers. 28 suppliers were selling the gas to them (PE Srbijagas with the greatest share - 73%).

In 2015, only 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.

There were 33 public suppliers supplying customers at regulated prices in 2015. The volumes delivered in order to supply customers in the open market, including supply of the last resort and to supply customers at regulated market are presented in Table 4-15.

Table 4-15: Structure of natural gas sales in the open and in the regulated market

	2014 million m^3	2015 million m^3	2015/2014 index
Consumed in the open market	804	1,514	188
Consumed in the regulated market	1,178	261	22

Based on the data provided by natural gas suppliers and public suppliers, average retail price in the open market in 2015 amounted to 44.65 RSD/m^3 while the average retail price in the regulated market amounted to 46.60 RSD/m^3. For small customers' categories which are primarily households, the price amounted to 47.12 RSD/m^3 without VAT which amounts to 10% in case of natural gas.

In 2015, only 4 distribution system operators delivered more than 30 million m^3 to customers, while 22 of them delivered less than 10 million m^3.

The greatest share of natural gas, i.e. 1,377 million m^3 or around 67% of total quantities was sold to customers by PE Srbijagas in 2015. The second greatest share was sold by DC Novi Sad Gas sold 62 million m^3 of gas, i.e. around 3% and Naftna industrija Srbije JSC with 52 million m^3, i.e. 2.5% of total consumed quantities in 2015. Individual share of other suppliers amounts to around 2% or below 2% of total quantities. Natural gas volumes sold to final natural gas customers by suppliers (excluding the gas both produced and consumed by NIS JSC) in 2014 and 2015 are given in Table 4-16.

Table 4-16: Natural gas sale to final customers in 2014 and 2015

No.	Trader	2014 (000 m^3)				2015 (000 m^3)				2015/2014			
		Households	District heating companies	Industry and others	Total	Households	District heating companies	Industry and others	Total	Households	District heating companies	Industry and others	Total
1	7 Oktobar, Novi Kneževac	574	0	541	1,115	599	0	299	898	104	-	55	81
2	Beogas, Belgrade	9,847	0	2,394	12,241	11,255	0	4,073	15,328	114	-	170	125
3	Beogradske elektrane, Novi Beograd	2,217	0	1,067	3,284	2,379	0	532	2,911	107	-	50	89
4	Босс петрол, Трстеник	9	383	1,505	1,897	11	0	482	493	121	-	32	26
5	Čoka, Čoka	226	0	302	528	239	0	321	560	106	-	106	106
6	Drugi oktobar, Vršac	5,775	1,551	11,745	19,071	5,791	1,645	12,494	19,930	100	106	106	105
7	Elgas, Senta	813	0	458	1,271	1,009	0	500	1,509	124	-	109	119
8	Gas – Feromont, Stara Pazova	12,551	0	9,725	22,276	13,652	720	8,066	22,439	109	-	83	101
9	Gas – Ruma, Ruma	4,025	592	10,073	14,690	4,315	519	10,340	15,174	107	88	103	103
10	Gas, Bečej	1,158	0	1,462	2,620	1,251	0	1,362	2,613	108	-	93	100
11	Gas, Temerin	4,359	0	1,426	5,785	4,541	0	1,402	5,943	104	-	98	103
12	Graditelj, Srbobran	904	505	1,268	2,677	936	596	1,185	2,717	104	118	93	101
13	Grejanje, Zrenjanin	10,166	9,115	3,866	23,147	10,646	9,454	3,584	23,684	105	104	93	102
14	Ingas, Inđija	5,864	0	10,091	15,955	6,229	0	7,374	13,603	106	-	73	85
15	Interklima, Vrnjačka banja	680	0	1,732	2,412	690	0	1,390	2,080	102	-	80	86
16	Komunalac, Novi Bečej	928	0	1,309	2,237	975	0	906	1,881	105	-	69	84
17	Kovin – Gas, Kovin	2,573	993	5,821	9,387	2,423	1,097	5,422	8,942	94	110	93	95
18	Loznica – Gas, Loznica	1,173	3,240	3,782	8,195	1,345	3,687	3,535	8,567	115	114	93	105
19	Naftna industrija Srbije, Novi Sad	0	0	0	0	0	0	51,817	51,817	-	-	-	-
20	Novi Sad - Gas, Novi Sad	31,987	733	24,170	56,890	35,603	868	24,738	61,209	111	118	102	108
21	Polet, Plandište	1,432	0	3,008	4,440	1,550	0	2,621	4,171	108	-	87	94
22	Resava Gas, Svilajnac	338	0	1,657	1,995	364	0	1,056	1,420	108	-	64	71
23	Rodgas, Bačka Topola	847	440	7,704	8,991	914	0	5,165	6,079	108	-	67	68
24	Sajrus Energy, Belgrade	1,786	0	169	1,955	1,977	0	199	2,176	111	-	118	111
25	Sigas, Požega	192	0	66	258	201	0	70	271	104	-	106	105
26	Sombor – Gas, Sombor	1,384	2,810	4,914	9,108	1,485	1,393	3,747	6,624	107	50	76	73
27	Srbijagas, Novi Sad	59,887	416,170	834,315	1,310,372	62,889	509,038	804,637	1,376,564	105	122	96	105
28	Srem – Gas, Sremska Mitrovica	3,716	551	7,791	12,058	4,112	886	7,857	12,855	111	161	101	107
29	Standard, Ada	599	0	1,186	1,785	622	0	801	1,423	104	-	68	80
30	Suboticagas, Subotica	6,781	0	16,383	23,164	7,576	0	14,723	22,299	112	-	90	96
31	Toplana – Šabac, Šabac	2,410		471	2,881	2,674	0	585	3,259	111	-	124	113
32	Užice – gas, Užice	301		4,852	5,153	401	2,573	1,366	4,341	133	-	28	84
33	Vrbas – Gas, Vrbas	1,300	0	3,967	5,267	1,409	0	2,411	3,820	108	-	61	73
34	Yugorosgaz, Belgrade	544	24,723	16,634	41,901	604	27,636	16,003	44,243	111	112	96	106
35	Cestor Veks, Kruševac	0	0	0	0	0	1,579	1,327	2,906	-	-	-	-
36	Elgas Energy Trading, Belgrade	0	10,187	17,324	27,511	0	7,423	12,640	20,063	-	73	73	73
	Total:	**177,346**	**471,993**	**1,013,178**	**1,662,517**	**190,668**	**569,115**	**1,015,029**	**1,774,813**	**108**	**121**	**100**	**107**

As the Energy 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. Above all, the aim was to 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 uniform way and inform the Agency on this once a year.

Data collection was initiated in 2015 and it was organized on the annual level in order to enable the Agency to monitor the quality of delivery and supply and compare energy entities which perform the same energy activity based on submitted data and reports. Not all energy entities provided the requested data for 2015 and submitted them to the Agency.

4.6.2.2 Supplier switching

On July 21, 2015, the Council of the Agency adopted new Rules on Supplier Switching which regulated 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 for the first time. The data on supplier switching were collected by transmission system operators and distribution system operators. The data on supplier switching on the transmission system relate to the metering systems which are within the PE Srbijagas system, since there are no final customers connected to the transmission system of Yugorosgaz-Transport.

Within the transmission system, out of 61 metering points for final customers, a supplier was switched on 3 metering points in 2015, which amounts to 4.9% of the total number of metering points. Out of the total natural gas quantity delivered to final customers within the transmission system which amounted to 479 million m^3, 95 million m^3, i.e. 19.8% was subject to supplier switch.

Most of distribution system operators stated that there was no supplier switch within their systems. On the distribution level, the total number of delivery points for final customers in 2015 amounted to 262,506. Out of that number, supplier was switched on 10 metering points, where 4 million m^3 were delivered. It amounts to 0.3% of natural gas quantities out of total 1,304 million m^3 delivered to final customers connected to distribution systems.

In total, in 2015, 13 of total 261,567 metering points within transmission and distribution system for final customers, supplier was switched. Out of total delivered natural gas quantities for final customers, 5.5% gas quantities were subject to gas supplier switch.

4.6.3 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 was submitted by 26 distribution system operators, while 7 of them did not submit the data. Based on the submitted data, annual indicators of continuity of delivery were calculated for the first time.

4.6.3.1 Continuity of delivery within 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 of planned interruptions.

In 2015, 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 4-16. Within the system of the transmission system operator PE Srbijagas, there were unplanned interruptions which lasted 36 minutes in total and, in line with the rules, “other reasons” were stated as their cause – the cause were works on the construction of connection and installation of new metering equipment. On the system handled by Yugorosgaz-Transport LLC system operator, there were no circumstances which would lead to natural gas delivery interruption.

Table 4-17: Interruptions within transmission systems by causes

	Interruption causes					
	planned interruptions		unplanned interruptions		vis major	
	number of interruptions	total duration (min)	number of interruptions	total duration (min)	number of interruptions	duration
Srbijagas	0	0.00	5.00	36.00	0.00	0.00
Yugorosgaz-Transport	0	0.00	0.00	0.00	0.00	0.00

4.6.3.2 Continuity of delivery within distribution systems

Natural gas distribution system operators submitted data on the number and duration of interruptions for 2015 by their causes. Both for planned and unplanned interruptions which lasted longer than 60 minutes, delivery continuity indicators SAIFI [13] and SAIDI[14] were calculated.

Table 4-18: Summary indicators of continuity within distribution systems for unplanned interruptions

Interruption cause	Unplanned interruptions				
	Number of interruptions	SAIFI (number of interruptions/user)	SAIDI (min/user)	Maximum reached SAIFI	Maximum reached SAIDI
Delivery reduction from upstream system	0	0.00	0.00	0.00	0.00
Gas leak	58	0.02	1.70	0.11	10.15
Third party	219	0.00	0.09	0.15	75.88
Inadequate network capacity	0	0.00	0.00	0.00	0.00
Other reasons	0	0.00	0.00	0.00	0.07
Total	**277**	**0.02**	**1.79**	**0.26**	**86.10**

The results show that there were no unplanned interruptions caused by delivery reduction from the upstream system and due to inadequate network capacity, and that the greatest number of unplanned interruptions in 2015 was caused by the third party, while the greatest number of users were affected by interruptions caused by gas leak.

Table 4-19: Summary indicators of continuity within 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	0.00	0.00	0.00	0.00	0.00
Administrative interruption	0.00	0.00	0.00	0.00	0.16
Operator's interruption	22.00	0.03	4.38	1.00	540.00
Uncategorized interruption	32.00	0.02	1.80	0.11	12.30
Total	**54.00**	**0.05**	**6.18**	**1.11**	**552.46**

When continuity indicators SAIFI and SAIDI are analysed, based on available data, interruptions caused by operator's activities had greater impact to customers. Summary data on delivery continuity within distribution system on the level of Serbia are given in Table 4-19. The data relate to 143,388 out of total 262,506 delivery points, i.e. on 54.6% delivery points.

Table 4-20: Summary continuity indicators within distribution systems

Type of interruptions	Summary continuity indicators		
	Number of interruptions	SAIFI (number of interruptions/user)	SAIDI (min/user)
Planned interruptions	277.00	0.02	1.79
Unplanned interruptions	54.00	0.05	6.33
Total	**331.00**	**0.07**	**8.12**

[13] 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

[14] 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

4.6.4 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 2015, the data on commercial quality were collected on the annual level for the first time. Therefore, they still need time to achieve adequate level of reliability and accuracy. Data were submitted by 29 distribution system operators which deliver natural gas to 158,204 delivery points out of total 262,506 delivery points, i.e. to 60% of delivery points while 4 distribution system operators did not submit the data.

4.6.4.1 Connection, disruption and disconnection

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

Table 4-21: Application for connection

Application for connection			
Number	of filed applications		1,127
	of settled applications	approving connection	1,113
		denying connection	4
		settled otherwise	7
		Total	1,124
		within 30 days	1,076
%	of settled applications in comparison to the number of filed ones		99.7
	of appplications approving connection in comparison to the number of settled ones		99.0
	of settled applications within 30-day deadline		95.7
Average time	necessary for settling an application – days		7

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

Table 4-22: Connection of facilities

Connection		
Number	of connected facilities	1,318
	of facilities connected within a 15-day deadline	1,285
%	of facilities connected within a 15-day deadline	97.0
Average time - days	Necessary for connection since the day all conditions are met	6

4.6.4.2 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 in the beginning of 2015 will submit applications for the access to the systems to which customers are connected. However, distribution system operators did not keep adequate registries on applications for the access to the system and, therefore, no good-quality and reliable data on commercial quality were gathered.

4.6.4.3 Metering and billing

Justified objections which were submitted against billings included the following causes: inaccurate reading 87%, inaccurate metering 5%, inaccurate billing (energy section) 1%, inaccurate invoicing 1% and other 6%. Average time necessary for the settlement of objection against billing in 2015 amounted to at least 1 day and 8 days at most.

The total number of filed applications filed by users – final customers for extraordinary check of metering equipment in 2015 amounted to 126. The number of the checks made amounted to 120 (95%) of the total number of applications. Out of the number, there were 52 (43% of checks made) irregularities were noted and 52 irregularities

removed (100% of the total number of noted irregularities). The number of extraordinary checks of metering equipment which were done within the prescribed deadline of 10 days amounted to 85 (71% of checks made).

4.6.4.4 Call center

Although efforts were made in order to collect data on this aspect of commercial quality as well, the data on call centers 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. PE Srbijagas submitted its Ten Year Development Plan to the Agency for approval. Since it was not possible to increase staff capacities, the Agency could not analyse this plan to the extent necessary so as to be able to approve the Plan. The Plan will be updated and important modifications relate to interconnection gas pipelines.

4.7.1 Natural gas consumption forecast

Future natural gas consumption will depend on gas price to a great extent. If the current, lower natural gas prices remain, there could be a gradual consumption growth in the following years. Consumption growth is also encouraged by the construction of new distribution networks in those areas which were not gasified in the past.

A considerable consumption growth could be also fostered by the construction of capacities for natural gas-fired electricity production, cogeneration plants in the first place.

4.7.2 Projects aimed at the increase of security of supply

The security of supply is considerably increased by commissioning the operation in the underground storage Banatski Dvor with designed withdrawal capacity of 5 million m^3/day.

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. The gas pipeline is expected to be around 150 km long and the first phase capacity should amount to 1.8 billion m^3 annually.

In addition, 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 gas provision, such as Romania and Croatia.

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

5.1 Sector structure and capacities

5.1.1 Organisational and ownership structure of the oil sector

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 out of 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.

Since a Rulebook on the Issuance and Withdrawal of Energy Licences in line with new Law entered into force in late October 2015, in 2015, no energy entity was awarded with a licence for the five activities listed in the end of the list.

There are three energy entities licensed for oil derivatives production by the end of 2015: NIS-Gazprom njeft, JSC, Standard gas LLC, both from Novi Sad and Hipol JSC from Odžak.

NIS – Gazprom njeft JSC (hereinafter NIS), the company dealing in oil, oil derivatives and natural gas exploration, production, processing and sales is the dominant oil and oil derivatives market player in Serbia. Vertically integrated company NIS JSC 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 has 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 Lukoil, OMV, MOL Serbia, ECO-Serbia, Knez Petrol, Petrol and smaller independent retail systems Eurogas, Europetrol, Stana Mihajlović, AVIA, etc.

PE Transnafta transports oil through oil pipelines.

In 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.

5.1.2 Unbundling energy activities

Oil transport by oil pipelines and oil derivatives transport by product lines, being regulated activities of general interest and separate from other energy-related and non-energy-related activities are performed by the PE Transnafta at regulated prices and under prescribed and publicly announced conditions in line with non-discrimination principle.

5.2 Production and transport capacities

5.2.1 Production of oil, oil derivatives and biofuels

New Energy Law defined some new meanings of existing energy activities which require licence in this are. For example, now, the production of oil derivatives does not only include processes such as production of oil derivatives by refining crude oil, by degasification or by separation of light liquefied hydrocarbons, but also includes all those technological processes which result in standardized products with prescribed quality. In addition, the existing activity – biofuels production became separated from bio liquids production, i.e. now, 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 by the new Energy Law 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 was, the new Law introduces a licenced activity of 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.

Crude oil production, import and processing in Serbia are performed exclusively by NIS. Total crude oil and semi-products consumption from local production, import and reserves in 2015 in Serbia amounted to 3.04 million tons. Crude oil production is performed by NIS (Exploration and Production Unit) on 53 oil fields with 650 wells both in Serbia and in Angola. In 2015, around 1.05 million tons (34.8% of the total consumption) were produced in Serbia, around 56 thousand tons were produced in Angola (in oil deposits owned by NIS), and 1.97 million tons (65.3%) were imported, primarily from Russia (Ural type oil). Crude oil processing is performed in oil refineries in Pančevo and Novi Sad.

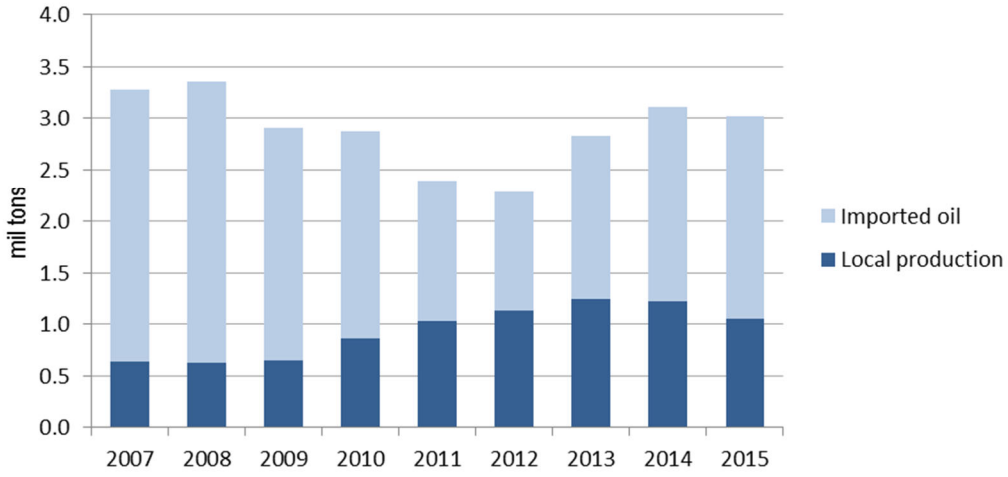


Figure 5-1: Crude oil refinery processing in Serbia in 2007 - 2015

After the completion of the first modernisation cycle in Pančevo Refinery in 2013 (light hydrocracking and hydro processing modules and production of motor fuels with "Euro 5" quality exclusively), for the first time after the change in the ownership structure of NIS, crude oil refinery processing in 2014 was higher than 3 million tons. In 2015, it was practically on the same level as in 2014. Local crude oil production kept growing until 2013. In comparison to 2013 with maximum production level, in 2015, production was around 15% lower (8.5% in comparison to 2014), i.e. in comparison to production in 2011. The import of crude oil and semi products recorded growth of 11.5% in comparison to 2014. The share of local crude oil in total refinery processing amounted to 18.6% in 2008, around 49.5% in 2012 and 34.7% in 2015. The import of crude oil and its share in processing was lower in the period of refinery modernisation – in 2011 and 2012.

In Serbia, apart from being produced in refineries in Novi Sad and Pančevo, 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 in Odžaci (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. They are also produced in the plants of Hipol JSC which obtains propane as a side product in the process of purification of refinery, i.e. petrochemical propylene into propylene of polymer purity.

In comparison to 2014, the structure of oil derivatives production changed as follows: the share of gas oils increased but the share of heating oil and petrol decreased as a consequence, while the LPG production remained on the same level. The effects of investments in modernisation of processing capacities reflect precisely in the growth of the share of highly valorised derivatives in the total production.

Oil derivatives, as final products, except from refinery processing are also provided from import and reserves. In 2015, around 0.8 million tons of derivatives were imported, which is around 8.3% more than in 2014. Within the structure of consumption of motor fuels, petrols account for 18%, gas oils for 70%, LPG for 12%. The consumption of gas oils increased by 3% in comparison to 2014 and the consumption of LPG was reduced by 3%. The consumption of petrols remained on the 2014 level. There are no precise statistics on the consumption of compressed natural gas for vehicles, but one may assume that the share of LPG is being reduced since the consumption compressed natural gas is increasing.

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 defined in the Rules on Technical Requirements and other Requirements for Liquid Fuels of Oil Origin, i.e. in the Rules on Technical Requirements and other Requirements for Liquid Petroleum Gas ("Official Gazette of RS", No. 111/2015). These Rules also define labelling of installations used for oil derivatives trade.

The Decree on Oil Derivatives Authentication ("Official Gazette of RS", No.51/2015) closely prescribes the conditions, methods and procedure of authentication of oil derivatives which are traded with in the market.

In 2015, there were no licensed energy entities for biofuels production. There was no biofuels import in 2015 either.

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 PE 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 reservoirs of 10,000 m^3 each which are used operationally for crude oil transport as well as two reservoirs of 10,000 m^3 each which are used as crude oil storage.

In the period from 2005 when PE Transnafta was established until the end of 2015, around 27 million tons of oil was transported. The transport of oil from import was lower in the process of refinery modernisation – in 2011 and 2012. In 2015, around 0.8 million tons of oil produced locally and 1.87 million tons of imported oil were transported. PE 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).

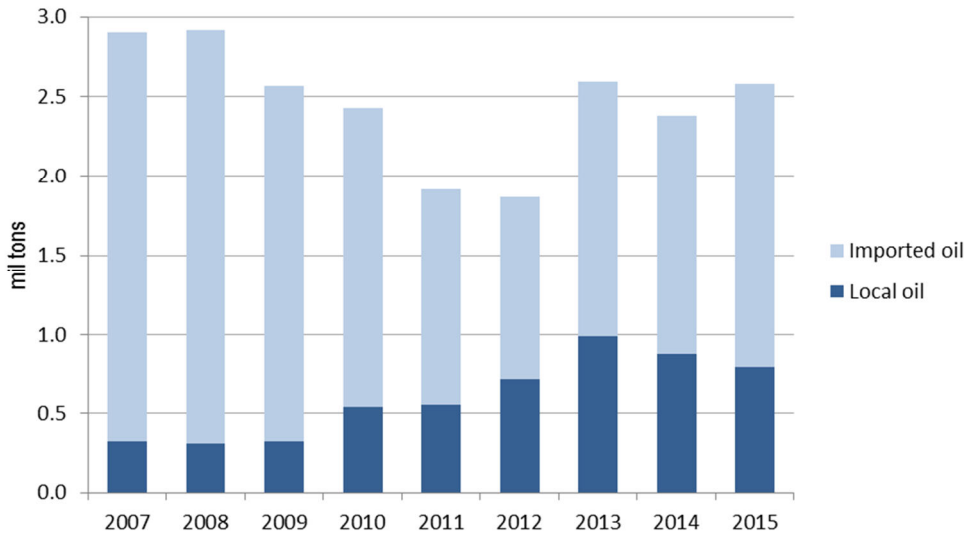


Figure 5-2: Crude oil quantities transported by oil pipeline of PE "Transnafta"

In 2015 (Figure 5-2), around 13.7% more crude oil was transported than in 2014, both local and imported crude oil, and this is primarily due to an increased import in comparison to 2014.

5.3 Regulation of oil and oil derivatives transport

5.3.1 Transport Network Code

Transport Network Code was adopted in 2010 by PE Transnafta and approved by the Agency. The Transport Network Code includes: technical requirements for safe TS operations; rules for procedure in case of TS accidents; rules on TS use; metering, functional requirements and energy meters accuracy class. The Code is applicable without need to enforce important amendments even upon the entry into force of the new Law.

A commission was appointed in PE Transnafta for monitoring the enforcement of the code on oil transport via oil pipelines, but the commission is not active. Since there are still no product lines publicly used, the conditions were not created for the adoption of the relevant code.

5.3.2 Development plan

In its five-year development plan, PE Transnafta envisaged product line construction in several phases. After the completion of the final phase, oil derivatives will be transported on the route from Sombor via Novi Sad, Pančevo, Smederevo, Jagodina to Niš including an independent branch towards Belgrade. The construction of the line would enable pipeline connection between Serbian refineries with storage installations and create conditions for safer, more secure and more environment friendly supply of the market in motor fuels. In 2015, technical documentation was being prepared for the section of the product line – Pančevo-Smederevo.

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

5.3.3 Regulation of the transport use-of-system charges

In line with the Energy Law, regulated transport use-of-system charges were applied on April 11, 2007 for the first time. In 2015, oil transport use-of-system charges did not change and the prices which were assessed positively by the Agency and approved by the Government in 2011 were applied in 2015. Table 5-1 indicates the transport use-of-system charges applied in 2015.

Table 5-1: Transport use-of-system charges

PE Transnafta, Pančevo	Oil pipeline branch	Tariff rate "commodity" (RSD/tons/100 km	Approval of the Government of RS
2015	Sotin – Novi Sad	316.05	"Official Gazette of RS", No.91 as of 30/11/2011
	Novi Sad – Pančevo	210.69	

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 new 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. 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 a specific wholesale and it is regulated also by regulations in the field of fire protection. In such a way, big ships for local cruise and technical vessels in ports and water flows in the Republic of Serbia had their supply enabled.

In the regulations in the field of trade, the storage of oil, oil derivatives and biofuels is no longer recognised as trade service, but it is still a licenced 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 reservoirs.

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 81/2015). These regulations also regulate 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) which entered into force in the end of 2013 and enabled the implementation of the directives 2006/67/EC and 2009/119/EC in the local legislation. These directives relate to the provision of minimum mandatory oil and oil derivatives reserves.

The directive 2009/28/EC which regulates the mandatory content of biofuels in motor fuels, aimed at the reduction of greenhouse gases, has not been implemented in the local legislation yet. The renewable energy sources action plan for the construction of new capacities fuelled by renewable energy sources prescribes the obligation to reach 10% of biofuels share in motor fuels by 2020, but the share of biofuels in oil derivatives market in 2015 is still negligible.

5.4.1 Wholesale market

Until the beginning of 2016, the licence for trade in oil, oil derivatives, biofuels and compressed natural gas was held by 41 energy entities, i.e. over 10% less than in the past four years and, thereby, the reduction trend is followed. The trend is indicated in figure 5-3.The main reasons for the reduction of the number of licenced energy entities for this energy activity are more strict 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 and 2015, when licenses were withdrawn most often for these reasons upon the proposal of market inspectors.

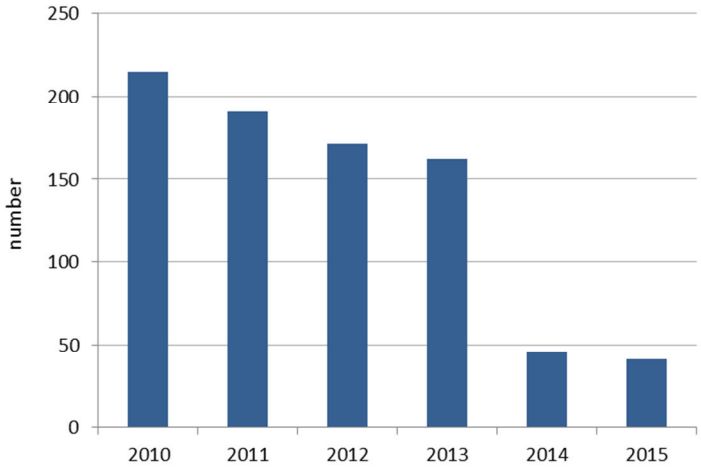


Figure 5-3: Number of active licenses for trade in oil, oil derivatives, CNG and biofuels

In addition, licenced energy activities include oil and oil derivatives (gases, patrols, diesels and fuel oil) storage which, in line with the 2011 Energy Law, also includes biofuels storing. The number of licence holders in Serbia has been slightly increasing since 2009. Namely, there are 20 of them and the biggest company is definitely NIS.

5.4.2 Retail market

The 2014 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. Since the beginning of 2016, for the fuel supply of small vessels, adequate regulations were not adopted in the field of fire protections. Therefore, there are no registered stations for the supply of these vessels in the list of licences. The sale of heating oils on petrol stations is forbidden as of early 2015.

There were 370 energy entities licensed for retail by the end of 2011, while there were 462 of them at the end of 2015. An increase of the number of licensed energy entities is due to 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 the 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.

There were four energy entities licensed for the trade in compressed natural gas (wholesale and retail) until the end of 2015.

6. ACTIVITIES OF GENERAL INTEREST AND CUSTOMERS PROTECTION

6.1 Activities of general interest

The legal framework for public supply in the energy sector of Serbia is stipulated by two major laws: the Energy Law and Law on Public Enterprises.

The Law on Public Enterprises ("Official Gazette of RS" No, 15/2015) 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 guaranteed, i.e. public supply commitment is regulated by the Energy Law. Electricity production is no more an activity of general interest, while guaranteed electricity supply is not an energy activity. It is just a public service of a supplier appointed by the Government of RS. 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, 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. Energy activities defined in the Energy Law as activities of general interest are performed pursuant to the Law regulating the status of public enterprises. The Energy Law also defines an obligation of public natural gas supply and guaranteed electricity supply as a universal service at regulated prices which is provided by a public, i.e. guaranteed supplier. It is provided to customers entitled to regulated supply and who did not select a supplier in the open market. Electricity and natural gas market in the Republic of Serbia was opened in several phases. Since 01/01/2015, only households and small electricity and natural gas customers have been entitled to regulated guaranteed/public supply.

In line with the Law, public, i.e. guaranteed supplier is appointed by the Government of RS within a procedure and deadlines defined by the Law. In the second half of 2012, by the amendments to the statute of PE Srbijagas and by the conclusion of the contract on entrusting natural gas public supply with several companies, the Government of RS appointed energy entities in the field of natural gas which can perform this activity. All 33 of them complied with the conditions and were awarded with the natural gas public supply license by the Agency at the end of 2012 and in the beginning of 2013. In March 2013, the Government of RS adopted a decision on approving the Decision of PE EPS on the establishment of a company for electricity final customers supply – "EPS Snabdevanje" (EPS Supply) LLC. Upon compliance with the Agency's conditions, this company was awarded with the electricity public supply license in June 2013. In 2015, the company continued supplying households and small customers at regulated prices, with rights and obligations of a guaranteed supplier, until the appointment by the Government of RS.

6.2 Customer protection

In more general terms, electricity and natural gas customers' protection within services of general economic interest is enabled through the mechanisms prescribed by the Law on Customer Protection ("Official Gazette of RS", No. 62/14 and 6/16). In the narrow sense, electricity and natural gas customers' protection is provided through the Energy Law and the bylaws regulating general terms for electricity and natural gas delivery. In particular, customer protection is provided by regulating prices of electricity transmission and distribution, i.e. natural gas transmission and distribution and the prices of public or guaranteed supply in electricity and natural gas. It is also provided through the decisions adopted by the Agency upon appeals of the customers against the acts adopted by system operators on both dismissal and failure to adopt the decision on submitted application for connection or access to the system. Another mechanism includes the definition of special types of protection of vulnerable customers, i.e. "energy vulnerable customers".

The Decree on Conditions for Electricity Delivery and Supply ("Official Gazette of RS", No. 63/13) and the Decree on Conditions for Natural Gas Delivery and Supply ("Official Gazette of RS", No. 47/06, 3/10 and 48/10) define the rights and obligations of customers, suppliers and energy delivery entities more closely as well as the conditions under which some customers may be disconnected from the network in case of unsettled bills.

In order to protect all electricity and natural gas customers, the Agency adopted the rules on monitoring technical and commercial indicators and regulating quality of electricity and natural gas delivery and supply. 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.

6.2.1 Assistance to the most energy vulnerable customers in Serbia

The assistance to the most vulnerable customers in Serbia in the beginning of 2015 was offered in line with the Decree on Energy Vulnerable Customer adopted by the Government of RS in March 2013 (“Official Gazette of RS”, 27/13), which defined the criteria for the award of right to protection, protection methods, conditions, deadlines and procedure for determination of the status of such customer, method for the provision of funds and the source of funds for the supply of certain electricity and natural gas quantities under special conditions as well as keeping registry of these customers. The Decree was amended in 2013 and included vulnerable heat energy customers during the heating season as well. As of April 2014, this Decree is applied only to energy-wise vulnerable customers who consume electricity and natural gas.

On September 29, 2015, the Constitutional Court of Serbia adopted a decision on the annulment of the provisions given in Article 5-8 of the Decree on Energy-Wise Vulnerable Customer, i.e. Heat Vulnerable Customer. As of that date until the end of 2015, there was a legal gap in this area.

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 more prompt energy market development.

The above mentioned Decree, which was applicable in 2015 as well, defined that the status of energy vulnerable customer (EVC) (energy-wise protected customer) is awarded to a household (individual, family) living in one housing unit with one metering point where electricity, i.e. natural gas is metered i.e. heat energy is delivered. The main criteria for obtaining the status of the energy-wise protected customer are the following:

- total monthly income of the household
- number of household members and
- financial status.

The Rulebook on Harmonised Amounts of Accrued Total Monthly Income of Households defined the following total monthly income as a condition for the award of the status of the energy vulnerable customer as of May 2015 (“Official Gazette of RS”, No. 40/2015 of 07/05/2015):

1) up to 13,595.68 RSD for a one member household;
2) up to 19,795.00 RSD for a two and three members household;
3) up to 25,990.25 RSD for a four and five members household and
4) up to 32,684.20 RSD for a six and more than six members household.

Given total monthly incomes of households are 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. In addition to the given incomes, in order to be awarded with the energy-wise protected customer status, a customer must not own any other living space except the space corresponding to the household needs.

Beneficiaries of financial social assistance and children allowance who were awarded with that right in line with the regulations on social care are awarded with the status of energy-wise protected customer without filing an application, i.e. on the basis of the data available to the ministry in charge of social care issues.

Energy-wise protected customer is awarded with a right to reduced monthly bill for certain electricity, i.e. natural gas, i.e. heat energy quantities, by the number of m^2 of the living space in the following manner:

1) for electricity, for all months:
   (1) for a one-member household by 120 kWh monthly;
   (2) for a two-member and three-member household by 160 kWh monthly;
   (3) for a four-member and five-member household by 200 kWh monthly;
   (4) for a six-member household and a household with more than six members by 250 kWh monthly.
2) for natural gas, for January, February, March, October, November and December:
   (1) for a one-member household by 35 m^3 monthly;
   (2) for a two-member and three-member household by 45 m^3 monthly;
   (3) for a four-member and five-member household by 60 m^3 monthly;
   (4) for a six-member household and a household with more than six members by 75 m^3 monthly.

3) for heat energy, for January, February, March, October, November and December:

   (1) for a one-member household by 25 m2 monthly;

   (2) for a two-member and three-member household by 35 m2 monthly;

   (3) for a four-member and five-member household by 45 m2 monthly;

   (4) for a six-member household and a household with more than six members by 55 m2 monthly.

The reduction of the monthly bill is presented as the reduction of the principal of the monthly bill:

- for electricity: by the amount set by multiplying the given quantities with the established higher daily tariff from the green zone for customers from the category Mass Consumption with Two-Tariff Metering increased by 10% from the price list for public supply of DC EPS Snabdevanje;
- for natural gas: by the amount set by multiplying the given quantities with the tariff "commodity" for customers from the category Households which are supplied by PE Srbijagas increased by 5% from the price list for public supply of PE Srbijagas.

Energy-wise protected customer is entitled to the reduction of the monthly bill if the monthly consumption is below the double electricity or natural gas quantities mentioned in the Decree. In case realised monthly electricity or natural gas consumption amounts to 2 or 2.5 times more than the quantities mentioned in the Decree, energy-wise protected customer is entitled to half the amount of the reduction of the monthly bill. Energy-wise protected customer whose realised monthly electricity or natural gas consumption amounts to more than 2.5 times more than the quantities mentioned in the Decree is not entitled to monthly bill reduction.

Based on the data collected from the competent departments of the Ministry of Mining and Energy, the number of energy vulnerable customers who were entitled to bill reduction in 2015 was the following:

Table 6-1: Review of realised reductions for energy vulnerable customer (EVC) in 2015

	Number of EVC from the data base (end of the year)	Customers entitled to reduction	
		Number of customers (end of the year)	Number of customers (end of the year)
Electricity	91,249	58,403	780,369
Natural gas	58	58	566
Total	91,307	58,462	780,935

The number of customers who exercised their right to bill reduction in 2015 varied by months. For electricity, it ranged from 53,254 in January and 73,676 in June. The average number was 64,910. In case of natural gas, it ranged from 50 in October to 78 in February. The average number amounted to 62 during the period of the year when it is applied. The total number of households who exercised the right of an energy vulnerable customer in the end of 2015 amounted to 58,462 (slightly more than 2% of households). The number of customers exercising the right to have a certain quantity of electricity or natural gas free of charge is definitely low in comparison to the number of 250,000 households registered by the Ministry of Labour, Employment, Veteran and Social Affairs as the beneficiaries of child allowance and social care allowance. In line with the data given by the Statistical Office, the number of households which cannot provide adequate heating of their premises is approximately amounting to 425,000 of them. Therefore, one can assume that these households are facing scarcity or poverty.

On 30/12/2015, the Government of the Republic of Serbia adopted a new Decree on Energy-Wise Vulnerable Customer ("Official Gazette of RS", No. 113/2015) which removed the deficiencies which resulted having the former Decree on Energy-Wise, i.e. Heat Vulnerable Customer declared unconstitutional ("Official Gazette of RS", No. 90/2013, 44/2014, etc. Rulebook, 40/2015 – etc. rulebook and 82/2015 – decision of the CC).

Apart from other things, the new Decree on Energy-Wise Vulnerable Customer was aimed at creating room for a greater range of households so as they could use this opportunity. This was achieved by loosening the necessary criteria for the award of the energy-wise vulnerable customer status as well as harmonizing the criteria with the current situation in the country. The most important change was made in the field related to allowed monthly consumption. Namely, a vulnerable customer is entitled to bill reduction if they consume less or equal to four times (it used to be twice as high) as high quantities defined in this Decree, depending on the number of household members. This enabled even those customers who have no alternative but to use electricity for heating purposes to keep the status of an energy vulnerable customer which was not the case in the former Decree. In addition, this Decree defines that the status of an energy vulnerable customer can be awarded even on the ground of one's health condition.

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 when the conditions for financing its work were met.

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.

At the same time, the role of the Agency was strengthened and its jurisdiction was expanded, in particular by the Energy Law from December 2014. The reasons for the adoption of this Law are the following: harmonisation of local regulatory framework with the EU regulatory framework and removal of deficiencies in the existing law. This Law transposes the provisions of the Third Package of the European Union regulations on the internal energy market into the Serbian legal system. These provisions also imply expanded jurisdiction of the Agency.

In line with the new Law, the most important Energy Agency jurisdiction areas divided into most important fields 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 prices: i.e. energy systems use-of-system charges; of regulated electricity and natural gas supply, of connection to systems and 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 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;
  - 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 and natural gas transmission and distribution network codes 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;
  - procedure for the connection to the transmission system;
  - harnomisation programmes for non-discriminatory behaviour of the system operator;
  - 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;
- 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;
  - 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;
- taking measures so as to make the list of practical data on their rights available to system users and customers.

International cooperation

- The Agency cooeprates 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 by 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 market operator's compliance with the principles of transparency and non-discrimination;
- the level of market openness and its efficiency and competence in wholesale and 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 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.

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.

In the first two years of operation, the Agency was financed from the EU funds, through the European Agency for Reconstruction, pursuant to the agreement - Grant Agreement Establishment and Operation of the Energy Regulatory Agency (grant agreement) which was concluded on July 29, 2005. This grant agreement defined the scope and the structure of Agency's expenditure in the two-year period (employees' costs included). So far, their growth was considerably lower than corresponding expenditure in the economy and the energy sector of Serbia.

Even after the two-year period, up to 2014, the EU provided support to the Agency through grants so as to improve its professional capacities. To the same end, USAID supported the Agency between 2007 and 2011.

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". In the beginning of December 2015, the National Assembly approved 2015 Financial Plan of the Agency. In the end of October 2015, the Agency submitted the 2016 Financial Plan to the National Assembly.

Annual calculations of revenue and expenditure of the Agency are audited by an authorised auditor. The auditor's report is submitted to the National Assembly. If one determines that the annual revenue of the Agency exceeds total expenditure, the discrepancy 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 3rd package of regulations on internal EU energy market) which regulate functional, personal and financial independence of the regulatory authority. These provisions are being limited in practice by other regulations on salaries and employment process.

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 market participants.

There is a considerable correlation between AERS 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;
- 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 items) 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 2015

In 2015, the Agency Council which manages the Agency held 37 sessions during which decisions, approvals, certificates and other acts in the fields of: price regulation, licensing, electricity and natural gas market establishment and monitoring, 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 licensing 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 Law and the Rulebook 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 licensing procedure. The rulebook on energy licence and certification ("Official Gazette of RS", No. 87/15) is available (with prescribed forms and proofs which are necessary to be submitted along with the application for energy license) on the Agency website.

The registry of issued licenses is a public document and it is both available in the written form and kept in the Agency registry and in the electronic form available on the website of the Agency (www.aers.rs).

In order to perform these duties, in line with its legal jurisdiction, the Agency adopts a regulation on the level of costs for the issuance of energy licences. The act is approved by the Ministry of Finance and published in the "Official Gazette of RS". The act defines the cost of the Agency while assessing the compliance with the conditions for the performance of energy activities for each energy activity separately. The costs are borne by licence applicants. This act is available 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 2015, the Council of the Agency issued licences for 12 energy activities out of 25 of them for which licences are issued in line with the 2014 Energy Law:

- Power production
- Combined power and heat production
- Electricity transmission and transmission system operation
- Electricity distribution and distribution system operation
- Electricity distribution and closed system operation
- Electricity supply
- Electricity wholesale supply
- Organised electricity market operation
- Natural gas transmission and transmission system operation
- Natural gas storage and storage operation
- Natural gas distributionand distribution system operation
- Natural gas supply
- Natural gas public supply
- Oil derivatives production
- Oil transport through oil pipelines
- Oil derivatives transport through product lines
- Storage of oil, oil derivatives and biofuels
- Trade in oil, oil derivatives, biofuels and compressed natural gas
- Trade in fuels out of petrol stations
- Filling vessels for liquid petroleum gas, compressed and liquified natural gas
- Trade in motor fuels and other fuels on petrol station
- Trade in fuels meant for vessels
- Biofuels production
- Bioliquids production and
- Blending biofuels with fuels of oil origin.

In 2015, there were 148 applications for license issuance submitted to the Agency. Since there were 1,709 applications in the period 2006-2014, the total number of applications amounts to 1,856.

In 2015, unorderly applications from previous years and applications submitted in the previous years were processed. By the end of the year, 109 new licenses were issued. 94 files ended in permanent withdrawal of license, its annulment, and suspension by virtue of law or dismissal of incomplete (unorderly) application. At the end of 2015, there were 892 ruling licenses in total.

In most cases, the applications did not include all the necessary documents and therefore, they were amended by energy entities upon the Agency's request. With some of those applications, amendments were made several times. After noticed inadequacies were removed and application files completed, applications were reassessed in order to check if the conditions for licence issuance are met. For the given reasons, there are more than 80 applications being considered at the moment.

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 trade in motor fuels and other types of fuels on petrol station. Most applications were submitted due to the change of facilities where energy activity is performed. In 2015, the Agency adopted 87 decisions on amendments on decisions for the issuance of license for this activity.

The Agency is not responsible for energy entities that did not comply with the conditions for issuing licence. In 2015, a report of a competent inspector for fire protection was submitted to the Agency and this was 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 2015 (some applications are from 2014 and licences issued in 2015) for each activity are given in Table 7-1.

Table 7-1: Submitted applications and approved licenses in 2015 per each activity

No.	Activity	No. of applications	No. of approved licences
1.	Power production	4	2
2.	Combined power and heat production	1	1
3.	Electricity transmission and transmission system operation	0	0
4.	Electricity distribution and distribution system operation	1	0
5	Electricity distribution and closed system operation	1	0
6.	Electricity supply	15	11
7.	Electricity wholesale supply	15	6
8.	Organised electricity market operation	1	1
9	Natural gas transmission and transmission system operation	0	
10.	Natural gas storage and storage operation	0	0
11.	Natural gas distribution and distribution system operation	0	2
12.	Natural gas supply	17	21
13.	Natural gas public supply	0	2
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	3	5
18.	Trade in oil, oil derivatives, biofuels and compressed natural gas	12	9
19.	Trade in fuels out of petrol stations	2	0
20.	Filling vessels for liquid petroleum gas, compressed and liquified natural gas	1	0
21	Trade in motor fuels and other fuels on petrol stations	71	48
22.	Trade in fuels meant for vessels	0	0
23.	Biofuels production	1	0
24.	Bio liquids production	1	0
25.	Blending biofuels with fuels of oil origin	1	0
	Total	**148**	**109**

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 the field of price regulation, the Council of the Agency adopted amendments of following methodologies in 2015:

- Methodology for Setting Electricity Distribution Use-of-System Charge;
- Methodology for Setting Electricity Transmission Use-of-System Charge;
- Methodology for Setting Electricity Public Supply Price;
- Methodology for Setting Costs of Connection to Electricity Transmission and Distribution System and
- Methodology for Setting Natural Gas Transmission Use-of-System Charge.

In 2015, the Council of the Agency approved following decisions on prices:

- For electricity
  - Approval of regulated electricity price for the supply of households and small customers, in June;

- For natural gas
  - Approval of natural gas transmission use-of-system charge of PE “Srbijagas” Novi Sad, in January;
  - 10 approvals to distribution system operators (DSOs) of decisions on natural gas distribution use-of-system charge, during the year;
  - 3 approvals of amendments to the DSO decisions on natural gas distribution use-of-system charge, during the year;
  - 33 approvals of decisions of public suppliers on natural gas public supply price, in January;
  - Approval of amendment to the decision on natural gas public supply price of one public supplier, in March;
  - approval of decision of public suppliers on natural gas public supply price for one supplier and 2 approvals of amendments to the decision on natural gas public supply price, in April;
  - 33 approvals of decisions of public suppliers on natural gas public supply price, in May;
  - 33 approvals of decisions of public suppliers on natural gas public supply price, in June;
  - 33 approvals of decisions of public suppliers on natural gas public supply price, in September;
  - 2 approvals of decisions of public suppliers on natural gas public supply price, in October and
  - 2 approvals of decisions of public suppliers on natural gas public supply price, in December.

All the approved documents are available on the Agency website.

Permanent activities of the Agency related to price regulation include:

- Provision of professional assistance to energy entities as regards the enforcement of methodologies for setting prices and monitoring their adequate implementation;
- Monitoring the enforcement of methodologies for setting costs of connection to electricity transmission and distribution system, i.e. to natural gas transmission and distribution and deciding upon customers’ appeals which provides adequate level of customer protection and directly contributes to appropriate implementation of methodologies in practice;
- Provision of professional support to energy entities as regards unbundling their funds and costs into different activities, as well as the control over unbundling;
- Monitoring and analysis of data submitted by energy entities as regards realised costs and regulated prices;
- Half-yearly monitoring and comparison of actual electricity and natural gas prices in the region and in Europe;
- Monitoring costs of apartment heating and comparing prices of different energy sources used for heating during a heating season;
- 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 Council of the Agency adopted the Supplier switching rules (“Official Gazette of RS”, No. 93/12). In 2015, the Council adopted new Rules, in order to harmonise them with the 2014 Law. The Rules for Monitoring Technical and Commercial Indicators and Regulation of Quality of Electricity Supply were adopted by the Council at the end of 2013, and the Agency monitored their application in 2015.

The remaining rules are adopted by energy companies, upon the Agency’s approval.

In 2015, the Council of the Agency approved the following rules:

- Amendments to the Natural Gas Transmission Network Code, PE Srbijagas, Novi Sad, in January;
- Natural Gas Transmission Network Code, Yugorosgaz-Transport, Niš, LLC, in November, in January;
- Electricity Distribution Network Code for all five electricity distributers, in January;
- Electricity Transmission Network Code, PE Elektromreža Srbije, in November;
- Procedure for the connection of facilities to the transmission system, in December;
- Rules on Cross-border transmission capacity allocation for the Period 01/01/2016 – 31/12/2016, in November;
- Rules on Cross-border transmission capacity allocation on Serbian – Hungarian Border for 2016 (“Agreement between Transmission System Operators of the Republic of Hungary – MAVIR ZRt. and the Transmission System Operator of the Republic of Serbia – PE EMS on the Procedure and Manner of Allocation of Rights to Cross-Border Capacities and Access to Cross-Border Transmission Capacities for 2016”), in December;
- Rules on Cross-border transmission capacity allocation on Serbian – Romanian Border for 2016 (“Agreement between Transmission System Operators of the Republic of Romania CCCN TRANSELECTRICA – S.A.–. and the Transmission System Operator of the Republic of Serbia – PE EMS

on the Procedure and Manner of Allocation of Rights to Cross-Border Capacities and Access to Cross-Border Transmission Capacities for 2016"), in December;

- Rules for the Cross-border transmission capacity allocation on Serbian-Bulgarian Border for 2016 ("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 – Public Enterprise "Elektromreža Srbije" on the Procedure and Method of Cross-border capacity allocation and on the Access to Cross-Border Transmission Capacities for 2016"), in December;
- Rules for the Cross-border transmission capacity allocation on Serbian-Croatian Border for 2016 ("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 – Public Enterprise "Elektromreža Srbije" on the Procedure and Method of Cross-border capacity allocation and on the Access to Cross-Border Transmission Capacities for 2016"), in December;
- Rules for the Cross-Border Capacity Allocation on the Border between Serbia and Bosnia and Herzegovina for 2016 („"Agreement between the Independent Transmission System Operator in Bosnia and Herzegovina (NOS BiH) and the Transmission System Operator of the Republic of Serbia – Public Enterprise "Elektromreža Srbije" on the Procedure and Method of Cross-border capacity allocation and on the Access to Cross-Border Transmission Capacities for 2016"), in December;
- Natural Gas Distribution Network Code for 26 DSOs, successively from January until November and
- Plans for the transfer of metering equipment, i.e. transfer of metering and regulation stations in the facilities of existing customers, i.e. natural gas producers for 11 DSOs, in November and December.

In 2015, the Agency monitored the enforcement of adopted rules by analysing needs and initiatives for amendments of these rules also by participating in the work of commissions appointed to monitor their enforcement.

In the field of electricity, the following commissions for monitoring enforcement of the rules are the following:

- In PE EMS for Transmission Network Code and Market Rules,
- In PE EPS for Distribution Network Code for all five daughter companies which deal in distribution which, in the meantime, since there was a status modification, are now organised into one DSO; the commission continues its work.

In the field of natural gas, such commissions have not been established. In line with the rules, they will be appointed.

One representative of the Agency participates in all the commissions which have been established so far.

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 extremely important for energy market monitoring. These programmes are approved by the Agency. In 2015, drafting the programmes was initiated by the distribution system operator EPS Distribucija.

7.2.4 Deciding upon appeals

Pursuant to the Law, deciding upon appeals (second instance administrative procedure) which is performed as entrusted activities includes deciding upon the following appeals against:

- operator's acts upon an application for connection to the system, i.e. if the system operator does not adopt a decision upon application for connection to the system;
- operator's acts on dismissal of access to the system;
- acts of energy entities dealing in oil transport through oil pipelines or energy entity deling in oil derivatives transport through product lines on dismissal of access to the system.

Within the procedure of deciding upon appeals of customers, i.e. system users, a necessary level of customer protection is provided. In addition, there is direct contribution to adequate implementation of methodologies and other regulations.

In 2015, there were 348 files submitted and they mainly dealt with the activities and behaviour of energy entities in different areas of their operations. 203 of them are appeals settled by the Agency in the administrative procedure as entrusted activities, while 145 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 203 appeals submitted for reasons stipulated by the Law were processed in 2015. 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.

The greatest number of appeals was filed against decisions of electricity distribution companies – 202 appeals, while there was only one of them 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 operators 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 2015, so as to reduce the number of unlawful decisions adopted by electricity distribution companies, upon Agency's request, meetings with these energy entities were held. During these meetings, the Agency identified the most common breaches of procedural and material-legal regulations which lead to adoption of unlawful decisions and stressed legally binding commitments of energy entities within connection procedure.

The appeals number growth trend was stopped in 2011. However, it continued in 2015 and therefore, the activities of the Agency concerning the work with experts employed with electricity and natural gas distribution operators and decide on applications on connection to the system will be continued in the years to come.

Since the establishment of the Agency, with 2015 inclusive, there were 54 appeals to the Administrative Court of RS 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	2007	2008	2009	2010	2011	2012	2013	2014	2015	Total
Number of appeals	1	4	2	9	12	7	4	8	7	54

All filed appeals ended either with denial or discharge.

7.2.5 International activities

Pursuant to the Energy Law, ratified international agreements and Council decisions, the Agency cooperates with regulatory authorities from other countries, as well as with other international bodies and organisations. First of all, this refers to the participation in the work of the institutions of the EnC. 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 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 3rd 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 and Social Forum were founded.

Figure 7-1: Energy Community institutions

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, Gas Forum and Social Forum.

The Agency also contributes to the compliance with the obligations assumed by our country within the Stabilisation and Association Agreement and negotiations on the EU accession (the chapters dealing with energy, trans-European networks, etc.).

The Agency is a full member of the Energy Regulators Regional Association (ERRA), a professional regulators association which aims at the upgrade of cooperation, exchange of experience and professional capacity building within member states.

7.2.5.1 The Athens process and the Energy Community Regulatory Board (ECRB)

Pursuant to the commitments arising from the Treaty establishing the EnC, the Agency participates actively in the work of EnC institutions, 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 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 has been the chairman of the EnC Regulatory Board Working Group for Electricity (ECRB WG-E) since the beginning of 2007, while several representatives of the Agency chair some ECRB sub-groups. The efficiency of the work of these bodies could be improved by more prompt preparation and more timely submission of material for their sessions.

In 2014, the Agency participated in the following activities of the EnC institutions:

Strategic and joint activities

- Participation in consultations on the report of the High Level Reflection Group- HLRG "An Energy Community for the Future";
- Drafting Report on Independence of National Regulators in the Energy Community[15];
- Drafting a methodology for the identification of risks which infrastructure projects are facing and a proposal of regulatory measures which stimulate investments in transmission networks[16] and
- 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

- Adoption of ECRB recommendations for auction rules of the Coordinated Auction Office for the allocation of transmission capacities on interconnectors (SEE CAO);
- Analysis of existing balancing mechanisms in the Southeastern Europe region and considering options for their improvement;
- Drafting half-yearly reports on cross-border transmission capacity allocation in the Southeastern Europe;
- Support to and monitoring Regional Action Plan for Electricity Market Integration in the Southeastern Europe and its Functional Integration into PanEuropean Electricity Market;
- Review of the state-of-play of the development of electricity wholesale markets, identification of obstacles for market functioning and drafting proposales for its improvement;
- Preparation of mechanisms for electricity market monitoring in the Southeast Europe and
- Renewable energy sources (RES) – exchange of experience in terms of the influence of regulatory regimes to the scale and tempo of RES plants construction in the region.

Natural gas

- Review of the state-of-play of the development of natural gas wholesale markets, identification of obstacles for market functioning and drafting proposales for its improvement;
- Cooperation with the consultant on the study „Energy Community Cross-Border Gas Market Integration Study"[17];
- Comparative review of compliance with the EU legislation provisions which regulate the data transparency issue within the Gas Regional Initiative South South- East and

Protection of vulnerable customers

- Review of conditions for participation in national electricity and natural gas retail markets;
- Review of mechanisms for alternative dispute settlement in the Energy Community;
- comparative analysis of the quality of electricity delivery and supply in cooperation with the Council of European Energy Regulators (CEER) and
- review of the situation in retail electricity and natural gas market development, identification of obstacles for market functioning and drafting proposals for market upgrade.

15 https://www.energy-community.org/portal/page/portal/18DC1BF11FCE2743E053C92FA8C07751

16 https://www.energy-community.org/portal/page/portal/147A527F43581AC1E053C92FA8C01011

17 https://www.energy-community.org/portal/page/portal/ENC_HOME/DOCS/4056377/2D86B61364B31B23E053C92FA8C0092A.pdf

Berlin Process – initiative "Western Balkans 6" (WB6) and CESEC (Central and South Eastern Europe Gas Connectivity) Initiative

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.

CESEC Initiative was launched by signing a Memorandum of Understanding between the countries of the Western Balkans (Albania, Bosnia and Herzegovina, Macedonia and Serbia), Black Sea region (Moldova and Ukraine) and the EU (Austria, Bulgaria, Croatia, Greece, Hungary, Italy, Romania, Slovak Republic and Slovenia) so as to coordinate support to cross-border trans-European infrastructure projects which provide for the diversification of the natural gas supply in the region and for the harmonisation of the relevant legislation.

Within its jurisdiction, the Energy Agency should contribute to the realisation of activities defined in these initiatives such as: functional unbundling of the distribution system operator, certification of the transmission system operator, cooperation with the Agency for Cooperation of Energy Regulators (ACER), regional integration of the gas market, coupling day-ahead electricity market with neighbouring markets, etc.

7.2.5.1 Energy Regulators Regional Association (ERRA)

The Agency is a full member of ERRA (Energy Regulators Regional Association), an expert association of regulators aiming at the improvement of cooperation, exchange of experience and capacity building in member states. ERRA links the regulators from Southeast and East Europe, from former USSR, NARUC – USA regulators association, as well as the regulators of certain countries in Asia and Africa. So as to identify the best regulatory mechanisms in several fields of regulation theory and practice (price regulation, competition and energy market, licensing, etc.), insight into options for their implementation in Serbia and capacity building in the Agency. In 2015, the representatives of the Agency participated in the following ERRA activities:

- Licensing and Competition Committee
  - Licensing and dispute settlement;
  - System services and balancing energy market;
  - Supplier switching;
  - Comparative review of support mechanisms for energy-wise vulnerable electricity and natural gas customers and
  - Comparative review of the legal framework and regulatory treatment of illegal electricity consumption.
- Tariff/Pricing Committee (an Agency representative has been the vice president of the Committee since 2011)
  - Prices of the supply of the last resort – case study;
  - Incentive mechanisms for price regulation;
  - Conditions for network access;
  - Market models in case of concentrated natural gas markets and
  - Regulatory aspects of the enforcement of EU Network Codes.

7.2.5.2 European integration

The representatives of the Agency participated in several meetings 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.

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), the representatives of the Agency participated in the draft of the second review of the National Program for the Adoption of EU *Aquis* 2014-2018 (NPAA).

7.2.6 Other activities

In 2015, the Agency cooperated with ministries in the areas related to its competence and conditions for the performance of activities prescribed by the law:

- several times submitted its proposals and opinions, especially regarding issues such as energy market development, price regulation, activities and status of the Agency, obligations of regulated energy entities, customer protection, etc.;
- submitted its positions and suggestions to the drafts of important systemic laws, such as the Law on Customer Protection and the Law on Public Sector Salary System and
- participated in the work of the Working Group for Analysis and Monitoring of the Situation on Security of Supply with Energy and Energy Sources of the Ministry.

8. AGENCY'S FINANCIAL REPORT

Financial operations of the Agency in 2015 were in line with the financial plan. The financial 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. The Agency's Financial Plan for 2015 was submitted to the National Assembly for approval in line with the obligations arising from the Law and the plan was approved in the end of the year.

This report illustrates planned and actual utilisation of funds per each purpose from the revenue which, in line with the Law and Financial Plan arises from the license fee, part of tariff for access to and use of the system, grants and reimbursements and financial revenues and other revenues.

Table 8-1: Total Agency's revenues in 2015

RSD

No.	Revenues	Plan	Realised
1	Revenue from licenses	21,460,000	27,692,880
2	Revenue from regulatory fee	121,647,253	142,405,799
3	Separate income from 2012	0	0
4	Revenue from grants and reimbursements	1,722,390	1,701,659
5	Financial revenues and other revenues	27,324,829	26,695,407
6	Extra revenue transferred from 2014	26,638,713	0
	TOTAL REVENUE	**198,793,185**	**198,495,745**

Notes related to Table 8-1:

The revenue from license fees is calculated in line with the Criteria and Standards for Setting License Fee which are enforced as of 01/06/2013 ("Official Gazette of RS", No. 46/13 and 94/15) which stipulate that the fee is set as a one-off fee and it is set at the same time the license is issued. The fee has the same validity period as the license – 10 years. In line with this, relevant revenue from this source for 2015 was calculated. It amounted to RSD 27,692,880.

The revenue from the regulatory fee, i.e. from the part of tariff for access to and use of electricity and natural gas transmission system amounting to RSD 142,405,799. It is calculated quarterly 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. A more considerable growth of revenues arising from this source in comparison to planned revenues is a consequence of the change in revenues of the natural gas transmission system as of February 1, 2015.

The revenues from grants and reimbursements amount to expenditures. In this case, they are as follows: reimbursements of a part of expenses for business trips abroad from the EnC Secretariat (pursuant to the Treaty establishing the EnC, which covers accommodation and travel costs for the participants of certain meetings of this institution) in the amount of RSD 1,628,715, as well as the amount to the value of costs of depreciation of equipment financed from grant funds for 2014, in the amount of RSD 78,280 which debits purchase value of equipment obtained from the EU grant in 2005 and 2006. Since the grant funds are mostly depreciated, the share of depreciation of these funds in revenues is reduced year by year. On the other hand, regular participation of the Agency's employees in the activities of the EnC working groups, Euro modification trend and effect of foreign currency – RSD calculation caused slightly higher revenues than expected in the Plan.

Financial and other revenues include revenues arising from *a vista* interest rates which are charged by the bank and attributed to RSD business account, positive foreign currency differences via settling foreign currency differences on foreign currency account and non-operational and extraordinary revenues. All the three mentioned revenue sources amount to total RSD 26,695,407. The most considerable item in this group of revenues in 2015 includes collected revised liabilities from 2013 and 2014 from PE Srbijagas arising from the regulatory fee amounting to RSD 25,834,725.

In 2015, the revenues arising from regulatory fee and energy licence fees were higher than expected in the plan. Extra revenue was recorded in the amount of RSD 24,846,983 and it is transferred to 2016.

Table 8-2: Total Agency expenditure in 2015

RSD

No.	Expenditure	Planned	Realised
1	**Material, fuel and energy costs**	**3,843,799**	**3,167,690**
1.1	- material (operating cost)	1,621,103	1,360,041
1.2	- fuel and energy	2,222,696	1,807,649
2	**Salaries and allowances**	**122,697,914**	**108,660,536**
2.1	- salaries and allowances (gross)	95,130,296	84,457,987
2.2	- levies paid by employer	17,028,323	15,128,892
2.3	- fees in line with other contracts	70,574	718,907
2.4	- other personal expenditure and fees	10,468,721	8,354,750
3	**Production services**	**23,966,284**	**22,550,866**
3.1	- transport	1,966,959	1,604,219
3.2	- maintenance	1,931,170	1,541,000
3.3	- lease	16,839,216	16,557,520
3.4	- marketing and advertising material	165,000	159,788
3.5	- other services	3,063,939	2,688,339
4	**Depreciation and reserves**	**4,458,429**	**4,083,260**
5	**Non-material expenditure**	**23,739,213**	**12,418,807**
5.1	- non-production services	9,394,874	2,221,180
5.2	- costs of representation	279,746	259,181
5.3	- insurance premium	423,572	393,418
5.4	- payment operations	257,683	197,093
5.5	- membership	425,000	425,951
5.6	- taxes and fees	377,599	389,950
5.7	- other non-material expenditure (10%reduction of salaries)	12,580,739	8,532,034
6	**Financial expenditure and other expenditure**	**20,087,546**	**22,767,603**
	TOTAL EXPENDITURE	**198,793,185**	**173,648,762**
7	**Financial result – extra revenues**	**-26,638,713**	**24,846,983**
	TOTAL EXPENDITURES = REVENUES	**198,793,185**	**198,495,745**

Notes related to Table 8-2:

In 2015, calculated expenditures amounted to total RSD 173,648,762 and they were 13% lower than the total planned expenditures.

All main items of expenditures are either below the level of the planned ones or equal to them.

Costs of material and energy altogether are 18% lower than those planned due to the fact that unused stock of material and fuel from 2013 were used and due to rational spending.

The costs in terms of calculated wages and allowances are around 11% lower than the planned ones, primarily due to the fact that the plan to engage new employees was not realised during the year since the National Assembly approved the 2015 Financial Plan of the Agency in early December 2015. Due to the brain drain and the lack of possibility to replace them, it was necessary to have extra engagement via contracts on temporary employment contract. For this reason, there is a considerable growth in figures representing compensation for other contracts in contrast to the plan. Based on the reduction of net salaries of employees, in line with the Law on Temporary Reduction of Basic Salary Rate of Public Sector Employees, there was RSD 8,518,678.89 in total of reduction in employees' income and the amount was transferred to the budget of RS. Therefore, gross salaries amount was around 9% lower than in 2014. One of the biggest problems the Agency has been facing for several years is the "brain drain" of highly-qualified personnel of the Agency (in total, ten employees have left the Agency since its establishment which represents almost 30% of the total number of employees in expert departments) and hindered 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, has a negative effect to the dynamics of activities within the competence of the Agency.

The costs of production services were below the planned figure and they are equal to those in 2014, while they are, in realistic terms, lower, bearing in mind those costs related to the Euro exchange rate growth.

Non-material expenditures were on the level of 48% in comparison to the planned ones. It was due to the fact that although it was planned to engage consultants, this was not realized in 2015 either, as the Agency tended to complete all the activities by using its own sources. The funds planned to be spent on consultant services and on health examinations of employees were not spent and these were planned costs. In addition to this, the reduction of planned costs, in particular those meant for professional education and official advertising affected the total level of these costs.

Financial expenditure and other types of expenditure were higher than the planned ones. The main reason for this is the correction of unsettled liabilities in terms of licenses and regulatory fee (unsettled liabilities for more than 60 days) amounting to RSD 22,381,248 as well as the correction of liabilities amounting to RSD 109,800 in terms of licenses which is mostly due to financial crisis effects, reduced solvency and constant change in the number of energy entities. Namely, some of them stopped operating, some of them had their license permanently withdrawn.

Total liabilities of the Agency on these bases on December 31, 2015 amounted to RSD 61,541,102. RSD 3,086,600 account for liabilities for issued licenses and RSD 58,454,502 for regulatory fee. Until the day of submission of financial balance papers for 2015 to the Serbian Business Registry Agency, i.e. until 29/02/2016, RSD 26,043,030 (42%) were collected.

The amount of unsettled liabilities for licences and regulatory fee was corrected on December 31, 2015 for RSD 22,491,048 in line with the Rulebook on Accounting and Accounting Policies. This correction includes correction of 13% of the calculated revenue arising from license fee and regulatory fee. In addition, there was a write-off of liabilities of RSD 13,200 in terms of liabilities arising from licenses of energy entities which stopped operating. These data indicate that there is always a risk in collecting liabilities due to non-stop changes in the operations of energy entities and one can expect that this will be the case in the future as well. Therefore, so as to provide for unhindered and reliable operations of the Agency, accumulated extra revenues from the previous period present an adequate reserve which serve not only for the replacement of fixed assets but to provide for additional safeguard basis for Agency's activities when there are no other financing sources to be provided within legal framework in the Agency's operations.

The Agency procured equipment from its own funds in the period 2007 – 2014 as indicated in Table 8-3. In addition, procurements were organised in 2015, 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 8-3: Purchase of fixed assets of the Agency

RSD

	2007-2011	2012	2013	2014	2015
Cars	4,913,209	2,126,167	0	0	0
Computer equipment, software, network	11,655,537	2,544,052	2,478,749	2,387,880	2,877,402
Office furniture and equipment	2,152,575	392,217	239,964	444,800	0
Telephone devices, telephone switchboard	880,011	120,694	137,525	446,060	287,172
Video surveillance, network	1,060,207	0	0	0	0
TOTAL	20,661,539	5,183,130	2,856,238	3,278,740	3,164,574

The value of assets which were not written down until December 31, 2015, amounts to RSD 9,187,850, i.e. 23% of gross purchase value of assets, which indicates a high level of write-down and need to regular procurement of equipment that is to replace the existing equipment.

In line with legal requirements, the 2015 annual financial report was audited by an authorized auditor who had no objections to the report. In the auditor's opinion, "the financial report indicates true and objective financial position of the Energy Agency of the Republic of Serbia in all issues of material importance on December 31, 2015 as well as indicating the result of operation and cash flow for the year ended on that date, in line with ruling accounting regulations in the Republic of Serbia."

Content of tables

Content of figures

Abbreviations and foreign phrases

ACER	Agency for the Cooperation of Energy Regulators
APKM	Autonomous Province of Kosovo and Metohija
Benchmarking	Comparative analysis of similar (indicators, companies, activities, etc.)
CEER	Council of European Energy Regulators
BiH	Bosnia and Herzegovina
DAMAS	Information system in PE EMS
DS	Distribution system
EnC	Energy Community
ECRB	EnC Regulatory Board
ECRB WG	EnC Regulatory Board - Working Groups
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
PE EMS	Public Enterprise Elektromreža Srbije - TSO
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
Smart Grid	"Smart" power grid with digital meters, remote collection and distribution of data and information on the behaviour of all system users and with management system, so as to improve system reliability and efficiency
MRE	Ministry of Mining and Energy
NIS JSC	Petroleum Industry of Serbia
DC	Daughter Company
RS	Republic of Serbia
RST	Russian – Serbian Trading Company
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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