



АГЕНЦИЈА ЗА ЕНЕРГЕТИКУ  
РЕПУБЛИКЕ СРБИЈЕ

# 2014 ENERGY AGENCY REPORT





# 2014 ENERGY AGENCY REPORT

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Serbian Energy Sector Report

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Annual and Financial Report

Belgrade, May 2015



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## INTRODUCTORY REMARKS

In line with the provisions of the Energy Law ("Official Gazette of RS", no. 57/11, 80/11 – correction, 93/12 and 124/12) which was applicable in 2014 (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 the full understanding of the Report content, the Report presents some of the provisions of the ruling Law, as well as the changes in the energy sector which arise from the new Energy Law which was adopted on December 29, 2014. The new Law fully introduces the provisions of the Third EU Package on internal energy market into the legal system of Serbia, including expanded jurisdiction of the Agency. The goal is to make the energy sector more rational and cost-effective, to regulate monopolistic activities more efficiently and provide for market activities on national, regional and Pan-European level in way which secures sustainable long-term development.

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 today, bearing in mind the necessity to address the jurisdiction introduced in the new Law and obligations arising from it 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 2014, the Council held 38 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 2014, the Agency fulfilled its obligations arising from the Law which are relevant for the planned tempo of Serbian energy market opening and 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 supply was endangered in 2014 by extreme weather conditions – floods of great scale and freezing rain which lead to supply interruptions which lasted for several days in some areas in Serbia. Due to floods, i.e. due to reduced coal production, thermal power plants produced 23% less electricity than in 2013 and, for this reason, customers' demand was covered by the import of around 2,000 GWh (around 6% of total final customers' demand). Electricity consumption in Serbia was reduced by 1.2%, while transit through Serbia was increased by 17%. Natural gas and oil derivatives supply in 2014 was on a satisfactory level. The security of natural gas supply was improved to a great extent by the increase of underground storage capacities and its operation. Natural gas consumption decreased by 10%. The consumption drop was recorded in all sectors, primarily in households.

In the beginning of 2014, the Government defined a draft of the Energy Sector Development Strategy until 2025. Planned electricity consumption growth of less than average 1% annually in this 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 only big project where conditions for its realization have already been created. In line with the target of 27% of renewable energy in gross final consumption until 2020, around 3,000 GWh should be provided from power plants fueled by renewable energy sources.

The decision of the EnC Ministerial Council provided for the postponement of the enforcement of the EU Directive on Large Combustion Plants, i.e. on the emission of sulphur and nitrogen oxides until 2023 with certain conditions to be met. Thereby, over 1,100 MW which this Directive relates to and which provide more than 15% of total production at the moment can remain operable until this deadline, with a certain operation regime to be applied.

It is also important for the long-term energy stability to adjust the energy sector of Serbia in the best possible manner to global and EU requirements related to planet protection which will be subject to decisions to be made in the end of 2015 on the UN Climate Change Conference which may greatly affect electricity production costs in thermal power plants.

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 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 sustainable development is an adequate long-term policy of regulated prices which is predictable for customers and investors. Electricity prices were not changed in 2014. In proportion to the consumption share in the regulated market, the current level of regulated electricity prices does not provide for the sustainable development of the power sector since, on one hand, it does not provide for financial sustainability and necessary funds for investments in existing energy companies, while, on the other hand, it does not stimulate new investors and does not sufficiently encourage energy efficiency which is on a very low level at the moment.

Due to negative discrepancy between purchase and final natural gas price from 2010 till September 2013, PE Srbijagas operated with negative financial result as regards natural gas supply of tariff customers. From September 2013 and during 2014, gas public supply price covered all justified costs of gas purchase and it was amended in line with market conditions.

Another important fact is that, in line with price regulation rules, approved price may cover up to 2% of uncollectible liabilities at most.

Cost rationalization in energy companies is a very important component of price policy. When approving regulated prices, the Council of the Agency insists on the acknowledgement of justified costs only and, therefore, unjustified costs are not included in approved prices. One of the highest costs arise from high electricity losses in the distribution network which are acknowledged regularly by the Agency in the amount lower than the realized ones, in line with the plan for loss reduction. In 2014, losses were in line with the dropping trend (they were reduced from 14.9 to 14.4%) but they were still very high in comparison to those which could be technically justified. Electricity theft still represents a considerable problem, which needs to be solved more efficiently, by an intensified 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.

On the other hand, a non-negotiable precondition for electricity price growth for households is the establishment of a more efficient mechanism of protection of socially vulnerable customers which has been applicable since May 2013. In 2014, in line with the records of competent institutions, the number of protected customers was several times lower than the number of customers which should be protected which calls for a particular concern of authorised bodies, especially due to the decline in the living standards among population.

In 2014, important steps were made towards electricity and natural gas market opening, structural changes and more efficient regulation of monopolistic activities. However, there was a delay in comparison to the deadlines prescribed by the Law. In the open market, 41% of natural gas and 36% of electricity was purchased.

All relevant regulatory conditions were met in order to allow all electricity customers, including households and small customers to enter the market from January 2015.

Upon legal unbundling of electricity distribution system operator from other activities, functional unbundling has not been fully realized yet.

In 2014, further progress was made in the manner cross-border electricity transmission capacity allocation rights were exercised. Joint auctions for available cross-border capacity were organised on the borders with Hungary, Romania, Bulgaria, Croatia and Bosnia and Herzegovina. PE EMS is taking actions in order to participate in coordinated cross-border capacity allocation.

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.

The electricity market concentration in Serbia was significantly reduced in 2014 in comparison to 2013 in terms of realized trading activities.

In 2014, due to vis major (freezing rain and floods), technical indicators of electricity delivery quality were deteriorated. If we exclude the influence of vis major, continuity indicators were on the regional level, but, on the other hand, considerably worse than the European average.

Natural gas customers connected to the transmission system procure gas in the market.

The Council of the Agency approved Natural Gas Distribution Network Code for most distributors, which is one of conditions to have all gas customers enter the market. It is extremely important for further gas market development to accelerate the procurement and installment of adequate metering equipment.

In the end of 2014, the Government established Basic Grounds for PE Srbijagas Restructuring, in line with which transmission and distribution system operators will be legally unbundled until mid-2015 within PE Srbijagas holding.

The gas sector is characterized by a low level of household gasification (around 10%) and a large number of small distribution companies.

First upgraded versions of ten-year development plans of the electricity transmission and distribution system and the natural gas transmission system development plan were drafted, and, to a necessary extent, harmonised among stakeholders.

The number of customers', i.e. system users' appeals submitted to the Agency is still growing and these appeals relate to the operation and actions of energy entities. 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 2015

# SERBIAN ENERGY SECTOR REPORT



## 1. ENERGY DEMAND IN SERBIA

Annual demand of primary energy in Serbia without the Autonomous Province of Kosovo and Metohija (APKM<sup>1</sup>) in 2013 amounted to around 14.9 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 high share of local lignite enables a relatively high energy independence of the country, in comparison to other countries and a relatively lower and more stable costs of electricity production. On the other hand, the use of lignite in electricity production increases its 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 published 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.

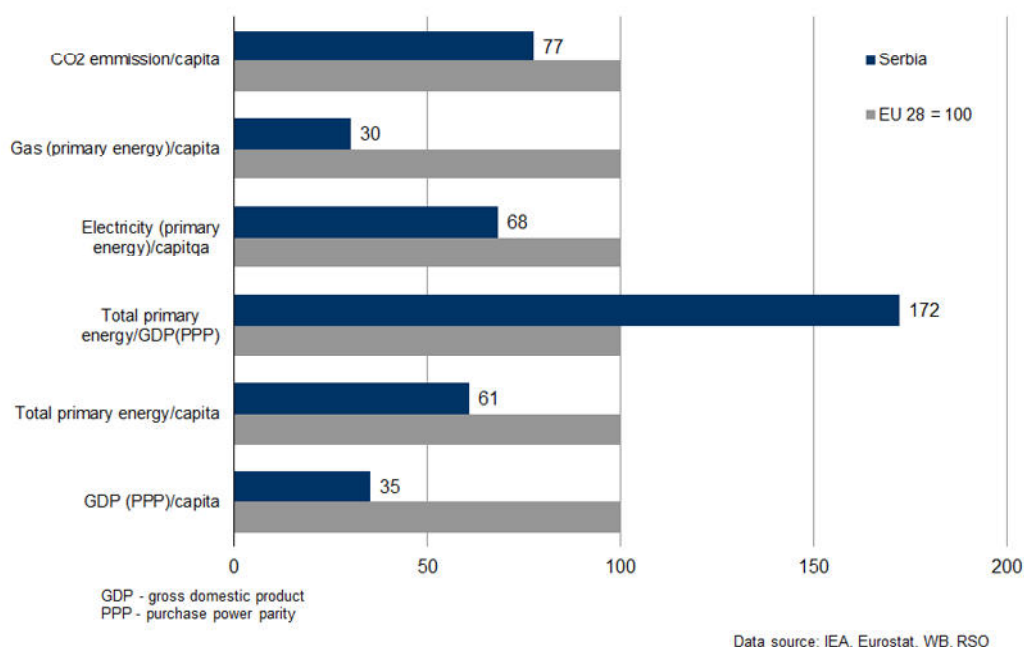
The energy net import dependence of Serbia recorded 24.1% in 2013, which is lower than in the vast majority of European countries (the European Union 54%). Import dependence in Serbia was reduced mainly thanks to the increased local production of oil and natural gas. In 2014, the costs of net energy imports amounted to € 1,76 billion. These costs present even 40% of the net import and export trading balance of the Republic.

**Table 1-1: Energy sector of Serbia (without APKM) – some indicators for 2011 and 2012**

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

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 2012 was on the level of 35%, consumption of total primary energy per capita – 61% and final electricity consumption – 68%.



**Figure 1-1: Comparative indicators of Serbia and the European Union in 2012**

<sup>1</sup> 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 30% 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.

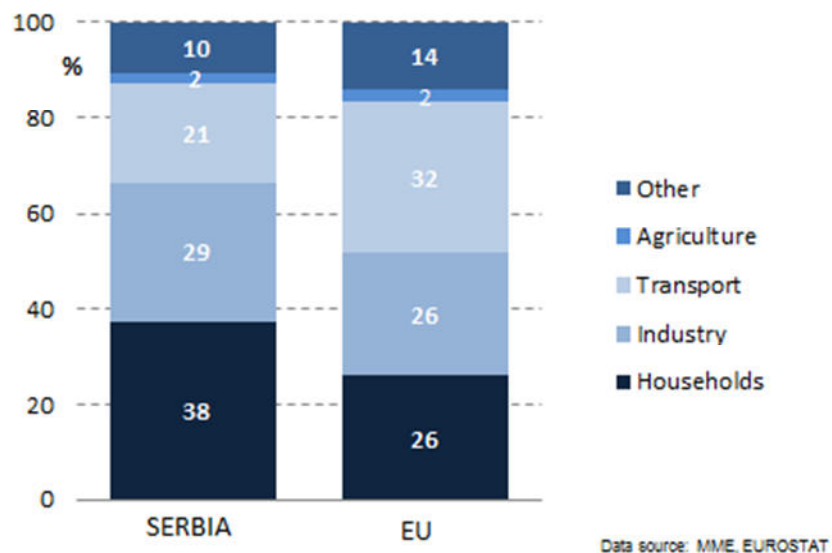


Figure 1-2: Final consumption structure (without non-energy-related consumption) in 2012

## 2. ELECTRICITY AND NATURAL GAS MARKETS IN 2014

In the electricity sector, pursuant to the Law, bilateral and balancing market is being developed and the establishment of an organised market (power exchange) is being prepared in line with the relevant Government act. Wholesale market is developed with the participation of around 40 out of 86 licensed suppliers.

In terms of electricity production, 2014 was significantly different from the average year due to large-scale floods which affected lignite pits as well and due to long recovery period which considerably decreased production in thermal power plants.

The most dynamic activities of suppliers in the open market were in the field of engagement of cross-border capacities, mainly for the purpose of transit through Serbia, trade among suppliers and import in order to meet the demand of final customers. The import was significantly higher than export due to unavailability of a part of production capacities, open pits and thermal power plants. There were 39 suppliers who dealt in cross-border exchange, 7 suppliers in final customers electricity supply in the open market, while there was one supplier who was only a purchaser in the open market in order to meet his own demand. The EPS was the dominant final customers' supplier.

In the natural gas sector, pursuant to the Law, only bilateral market is developed. In wholesale market, PE Srbijagas was practically the only supplier dominant in final customers supply.

All electricity and natural gas customers have been entitled to select a supplier in the open market ever since 2008, except for households which are entitled to it as of January 1, 2015. In the natural gas market, purchase at market prices was initiated as of 2010 when 46.4% of gas was purchased at market prices, while, in the electricity market, it was initiated as late as in 2013, with 8% of final customers consumption included. Electricity customers did not show interest in the market, since the regulated price for final customers supply was, and still is, considerably lower than the market price. The establishment of an open electricity market was initiated only when the 2011 Energy Law limited the right of final customers to regulated supply.

In 2014, only households and small electricity customers and natural gas customers connected to the distribution system were entitled to regulated supply.

### 2.1 Market openness in 2014 and expected tempo of further development

In 2014, regulated market, i.e. public supply still covers a greater share.

In the electricity sector, more than 6,000 customers were not entitled to regulated market supply. They purchased 10.16 TWh (36% of final consumption). Another 5.2 TWh were purchased under market conditions for loss recovery in transmission and distribution network.

In the natural gas market, 60 customers purchased 804 million m<sup>3</sup> in the open market which accounts for 40.6% of final customers' consumption.

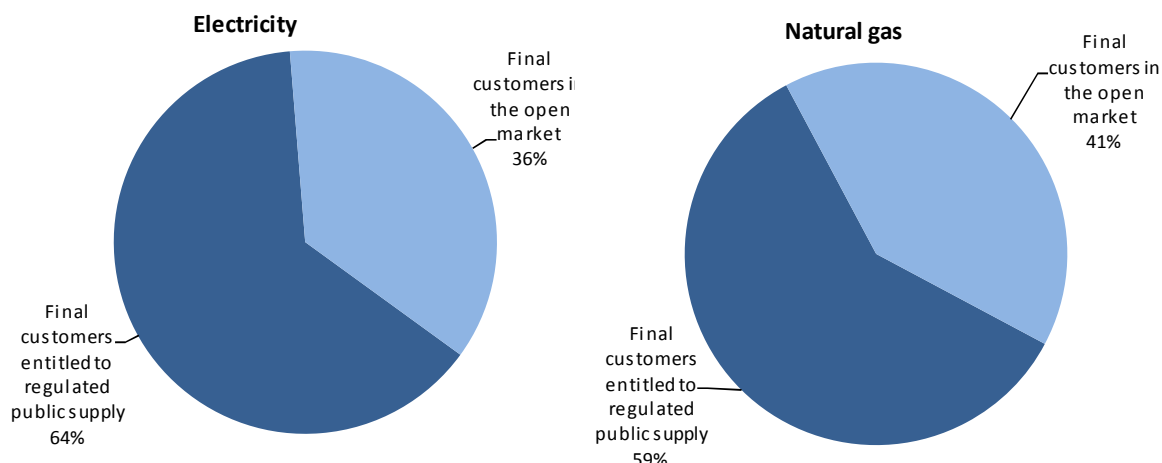


Figure 2-1: Market openness in 2014

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

Competent bodies adopted all the bylaws necessary for market functioning. The following bylaws are applicable:

- decrees on conditions for electricity and natural gas supply;
- rules on conditions for issuance, modification and withdrawal of the energy licence;

- Electricity Transmission Network Code (applied as of 2008 and amended several times) and electricity Distribution Network Code (applied as of the beginning of 2010 and harmonised with the Law and market requirements during 2013 and in 2014);
- Natural Gas Transmission Network Code of PE Srbijagas which also includes the necessary natural gas market rules;
- 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 for the allocation of 50% of cross-border capacities on 4 borders and with joint auctions on remaining 4 borders;
- 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 Agency's Council also adopted the methodology for setting natural gas storage access price but it will be applicable to new storages that will be built in the future;
- methodologies for setting public supply electricity and natural gas prices 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 use-of-system charges have been regulated since 2010. Natural gas transmission use-of-system charges have been regulated since 2008, while the distribution use-of-system charges have been regulated since 2009.

Details on all the rules and use-of-system charges regulation are available in relevant chapters.

### 2.3 Supplier Switching Rules

It is important to note that the Supplier Switching Rules are applicable in case of full supply, that the Supplier Switching is a free of charge procedure and that it cannot last longer than 21 days starting from the day the application is properly filed.

Figure 2-2 indicates the scheme for Supplier Switching upon a customer's request.

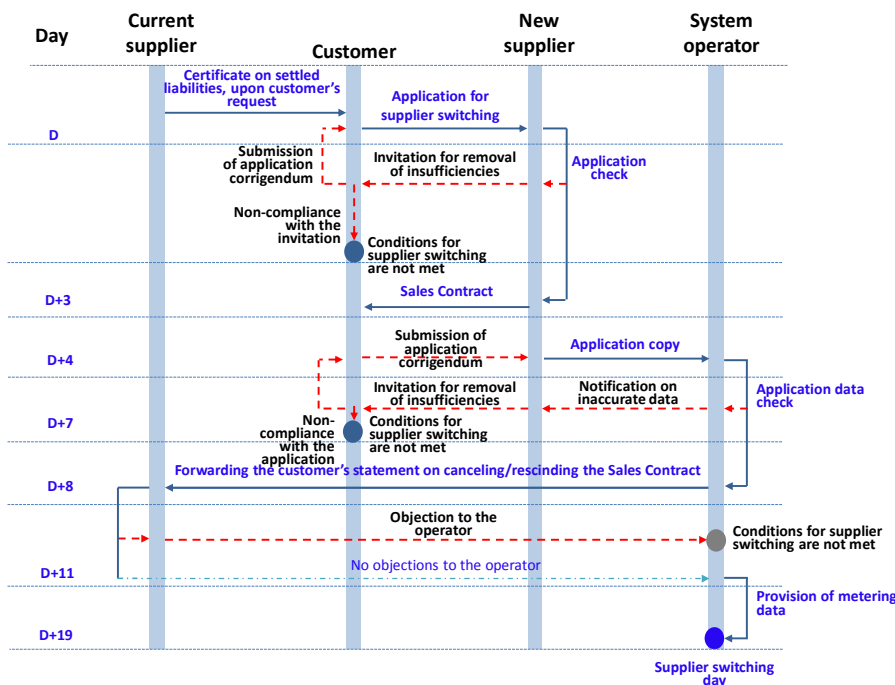


Figure 2-2: Scheme of supplier switching procedure upon customer's request

The rules include the cases of Supplier Switching upon a customer's request, as well as the switch to the last resort or to public supply when the customer is entitled to it by the Law, as well as the procedure during Supplier Switching in case a purchase contract is terminated due to unpayment.

A supplier may be switched upon a customer's request if the customer is entitled to the free choice of supplier pursuant to the Law and if the customer has settled all the liabilities towards the current supplier. When the customer selects a



new supplier and submits a request for Supplier Switching, along with the certificate on settled financial liabilities towards the current supplier, all further steps are made by the new supplier and the system operator to which the customer's facility is connected to. The duration of the Supplier Switching procedure is especially important in cases when a new supplier is selected due to the fact that the contract with the current supplier is close to termination. In each of the phases of the procedure, the data and information validity is checked and, if necessary, corrections are made. Once all the deficiencies are removed the system operator reads the meter and the supplier is switched on that day, while the balance responsibility for exchange point of the customer is transferred to the new supplier.

## 2.4 Security of electricity and natural gas supply

The security of natural gas and oil derivatives supply was on a satisfactory level in 2014. Greater security of natural gas supply was drastically affected by the use of the underground storage Banatski Dvor with the withdrawal capacity of 5 million m<sup>3</sup>/day.

Conditions for the security of electricity supply were limited due to unavailability of a share of production capacities, open pits and thermal power plants due to floods and a long lasting freezing rain period which caused supply interruptions due to damages in the transmission and distribution network. Timely purchase of energy and small volumes of coal helped to avoid market disruptions.

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

- The Government of RS adopts the Energy Balance Sheet and 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;
- The Ministry in charge of energy issues prepares a report on security of electricity and natural gas supply every year;
- 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 for Analysis and Monitoring of the Situation on Security of Supply with Energy and Energy Sources which was established by the Ministry held regular sessions and took adequate measures in line with the situation on site, especially during the period of increased consumption and during the activities on the removal of floods and freezing rain consequences. The Agency participates in the work of the Group.



### 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 2014 is indicated in Figure 3-1.

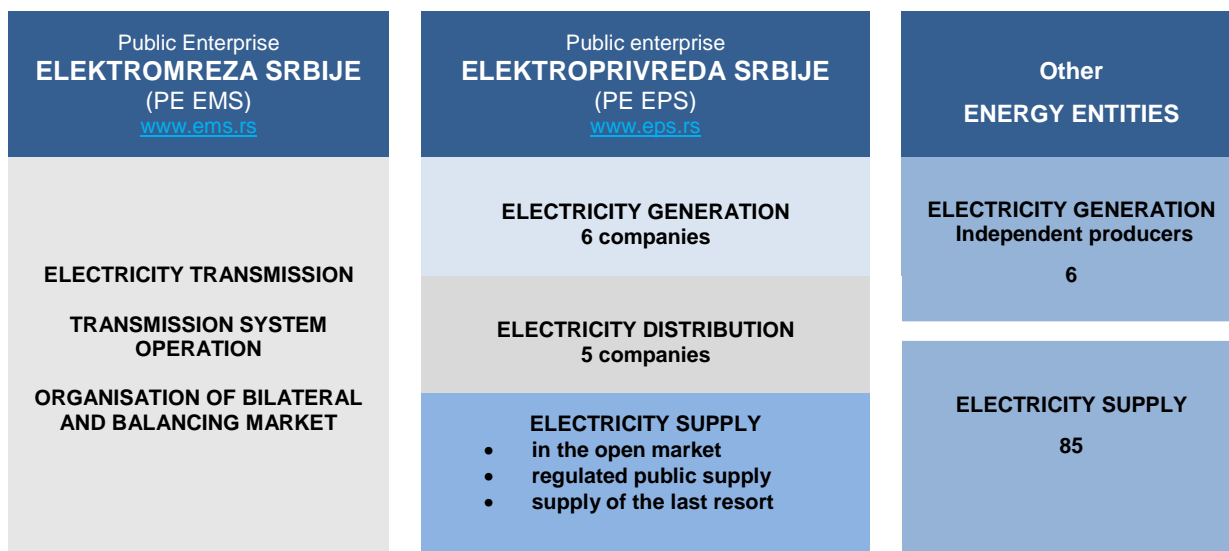


Figure 3-1: Organisational structure of the power sector

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.

Transmission and transmission system operation is performed by PE EMS.

Since 1999, a part of the power system on the territory of the APKM has been under UNMIK management in line with the 1244 United Nations Security Council Resolution.

There are six daughter companies for electricity generation and five daughter companies for distribution and distribution system operation which operate within the vertically integrated enterprise PE EPS. DC Renewable Energy Sources works on the modernisation of existing small HPPs owned by PE EPS as well as on the construction of new small HPPs and other power plants using renewable energy sources.

There is a great number of licenced electricity suppliers in Serbia (at the end of 2014, there were 86 of them and the number is growing). Approximately half of them (39) perform the activity, mainly through cross-border trade for the sake of transit and trade among the very suppliers, including PE EPS. Only seven suppliers were involved in final customers supply. Out of the two, EPS Snabdevanje (EPS Supply) is the dominant player. DC EPS Snabdevanje is also appointed by the Government of RS as the electricity public supplier of final customers at regulated prices entitled to that right.

As it was prescribed, by the Law, upon a tendering procedure, the Government of RS also selected PE EPS as the supplier of the last resort in 2014.

##### 3.1.2 Unbundling of electricity operations and the operator's independence

Separation of electricity transmission and distribution which represent natural monopolies, from generation and supply as market operations is one of key elements of market reforms.

Electricity transmission and transmission system operation were separated in 2005 into a separate company PE EMS, thereby realizing unbundling between the transmission system operator from the vertically integrated PE EPS.

Unbundling of network activities of electricity transmission and distribution, which are natural monopolies, from production and supply, which are market activities, represents one of the key elements of market reforms.

Electricity transmission and transmission system operation were unbundled into a separate company PE EMS in 2005. Thereby, transmission system operator was unbundled from the vertically integrated PE EPS.

In 2013, PE EPS established a daughter company EPS Snabdevanje (EPS Supply) and thereby, distribution (which is performed in five daughter companies) was unbundled from the supply, in terms of legal form. Electricity generation is performed in six daughter companies which are separate from network activities in terms of legal form.

The way the energy entities which deal in electricity distribution and distribution system operation unbundled their accounts did not comply with the requirements arising from the Article 19 of the Energy Law until they were unbundled into two separate legal persons. Namely, distribution companies used to set their balance sheets and income statements for each activity based on ex-post unbundling of bookkeeping on a single account of a daughter company, not on the actual (ex-ante) accounting unbundling.

The Law also defined a set of measures the implementation of which enables the independence of the distribution system operator, especially in terms of adoption of decisions on the funds necessary for operation. The parent company will be in a position only to approve annual financial plans and set the debt-level limits to the system operator but it will not be in a position to give guidance for everyday operations.

The system operator which operates within the vertically integrated company has to adopt a Program 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 Program. The operators have not done this, mainly since they are still in the process of transformation into a single Distribution System Operator (DSO). The Council of the Agency approves the Program.

In addition, electricity production (mainly small power plants) and services provided by PE EPS – Snabdevanje (Supply) have to be unbundled from the DSO.

### 3.1.3 Generation, transmission and distribution capacities

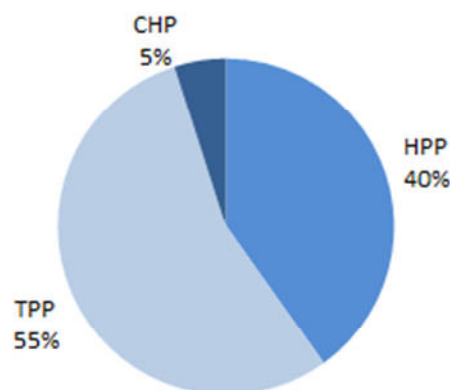
The total net installed capacity of the power plants in Serbia amounts to 8,364 MW, including power plants on the territory of APKM, which are under UNMIK jurisdiction. Within PE EPS, in lignite-fired thermal power plants, the installed capacity amounts to 5,140 MW, in hydro power plants – 2,835 MW, in natural gas- fired or heat oil-fired thermal power plants - 353 MW, in small hydro power plants – 19.8 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 7,190 MW (table 3-1).

**Table 3-1: Electricity generation capacities in 2014 (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	20
Small power plants – independent producers	77
<b>TOTAL INSTALLED CAPACITY</b>	<b>7,190</b>

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 HPPs of 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 2014 (without APKM)**

Production capacities are organised in five daughter companies of PE EPS which hold the license for electricity generation: Hidroelektrane Đerdap llc, Drinsko-limske hidroelektrane llc, Panonske termoelektrane-toplane llc, Termoelektrane Nikola Tesla llc and Termoelektrane i kopovi Kostolac llc. Small hydro power plants owned by PE EPS are still within companies for electricity distribution Elektrosrbija llc and Jugoistok llc. There are also 134 small power plants which are not owned by PE EPS with total installed capacity of 77.1 MW and they are connected to the power grid.

Companies for electricity distribution also hold licenses for electricity generation or for combined electricity and heat production: Elektrosrbija llc, Jugoistok llc and the company Milan Blagojević – Namenska JSC Lučani, ALLTECH SERBIA fermentation industry JSC Senta, GREEN WASTE LLC Belgrade, ECO ENERGO GROUP llc Novi Beograd, SOLAR MATAROVA llc Novi Sad and the Company for Exploration, Production, Processing, Distribution and Trade in Oil and Oil Derivatives and Exploration and Production of Natural Gas “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 31 transformer stations of 400/x and 220/xkV/kV with installed capacity of 13,469 MVA (26 transformer stations with 13,331 MVA of installed capacity are owned by PE EMS), 9 switchgear plants and lines of 400, 220 and 110 kV with total length of 9,640 km (9,375 km owned by PE EMS). PE EMS also owns 2 transformer stations of 110/x kV/kV. In 2013, the transfer the overhead line of 110 kV from the companies dealing in electricity distribution was initiated and it was completed in 2014. The completion of the transfer and overtaking of facilities is expected during 2014. The process of transfer of transformer stations of 110/x kV/kV was completed for 52 of 53 stations which were included in the initiated transfer.

Преносни систем ЈП ЕМС је са суседним електроенергетским системима повезан преко 22 интерконективна далековода напона 400, 220 и 110 kV.

**Table 3-2: PE EMS transmission system data in the end of 2014 (without APKM)**

Transmission system elements	Unit	
Network length per voltage levels, total	km	9,375
400 kV	km	1,614
220 kV	km	1,884
110 kV	km	5,877
Number of transformers (including TS 110/x kV/kV owned by PE EMS)		68
Number of transformer stations and switchgear plants (including 110 kV voltage level - owned by PE EMS)		36
Number of (active) interconnections		22

### 3.1.3.2 Distribution

Electricity distribution on the territory of Serbia without APKM was performed within five companies for electricity distribution - Elektrovojvodina LLC Novi Sad, Elektrodistribucija Beograd LLC Beograd, Elektrosrbija LLC Kraljevo, Jugoistok LLC Niš and Centar LLC Kragujevac. Distribution system without the territory of APKM includes around 35,700 transformer stations with the total installed capacity of around 30,200 MVA and around 164,400 km of distribution lines, with voltage of 110, 35, 20, 10 and 0.4 kV through which electricity is distributed to final customers.

There are 34,473 transformer stations owned by companies with total installed capacity of 29,271 MVA and around 158,607 km of distribution lines of all voltage levels. Their structure is given in Table 3-3. The procedure of transfer of transformer stations of 110/x kV/kV from PE EMS was completed in 2014 for 52 of 53 stations for which the process was initiated and electricity distribution companies assumed the obligation of maintenance of these facilities.

Table 3-3: Distribution lines length - end of 2014 (without APKM)

Voltage level	Distribution company					Total
	Elektrovojvodina	EDB	Elektrosrbija	Jugoistok	Centar	
110 kV	0	33	0	0	0	33
35 kV	1,294	939	2,145	1,699	712	6,788
20 kV	7,707	0	1,544	0	0	9,251
10 kV	580	6,488	12,083	9,390	3,976	32,517
0,4 kV	13,802	16,496	46,660	20,898	12,221	110,018
<b>Total</b>	<b>23,384</b>	<b>23,955</b>	<b>62,372</b>	<b>31,986</b>	<b>16,910</b>	<b>158,607</b>

### 3.2 Consumption and generation

In 2014, electricity consumption amounted to 28.1 TWh – 1.5% lower than in 2013. More detailed review of the consumption will be presented in Item 3.6.1.2.

Since 2000, PE EPS has increased its production from the existing capacities. 2012 was an exception, primarily due to long revitalization processes within important units and due to hydrologic conditions which were below the average ones. In comparison to 2013 when maximum production was achieved, i.e. almost 37.5 TWh, which is around 30% higher than in 2000, in 2014, there was production reduction due to limited exploitation of coal necessary for the operation of thermal power plants. The limitation was due to floods in May 2014 and, therefore, thermal power plants produced around 23% less electricity than in 2013. Production in hydro power plants was above the average level combined heat and power plants operated in line with the heat demand during the winter season and they produced considerably lower quantities than in 2013. Production from small power plants connected to the distribution grid is relatively small but their production in 2014 was 2.5 times higher than in 2013. This fact, in addition to the connection of new power plants to the distribution grid and in addition to favorable hydrological conditions is also the consequence of the unbundling of transmission and distribution grid. Therefore, the total annual production of 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 before.

Beside the import of PE EPS which amounted to 246 GWh of electricity in 2014, based on the available data, it is estimated that other suppliers imported around 2,623 GWh in Serbia, i.e. in total 2,869 GWh were imported. The import of electricity was increased 4.4 times in comparison to 2013 in order to meet customers' demand in Serbia. This was due to the inability of thermal power plants to operate due to coal shortage.

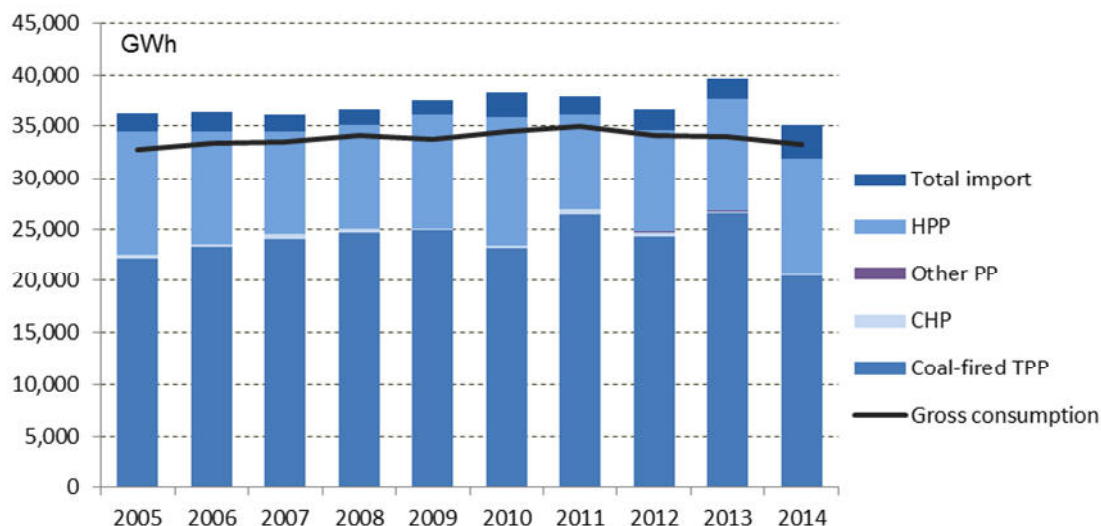


Figure 3-3: Generation, import and gross consumption in Serbia in 2014 (without APKM)

In 2014, power plants in Serbia generated 32,151 GWh in total. Out of that number, thermal power plants fired by coal produced 63.6%, hydro power plants 35.4%, combined heat and power plants 0.2 % and other plants, small power plants connected to the distribution system 0.8%.

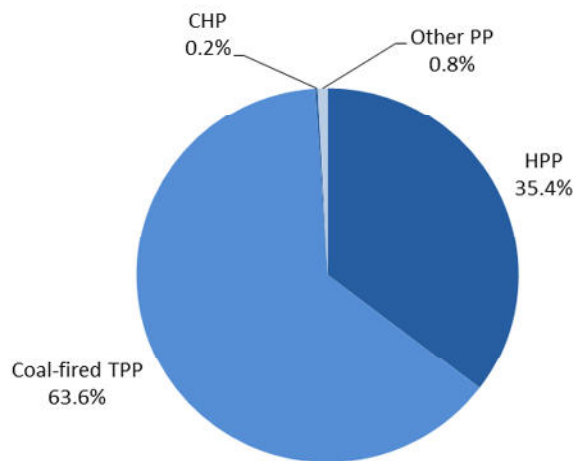


Figure 3-4: Generation structure in 2014 (without APKM)

**Table 3-4: Electricity generation and consumption in 2005 – 2014 (without APKM)**

	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
GWh										
<b>GENERATION</b>										
Hydro power plants	11,924	10,850	9,930	10,011	11,045	12,420	9,145	11,924	10,729	11,366
Coal fired thermal power plants	22,138	23,361	24,016	24,661	24,880	23,162	26,462	22,138	26,537	20,455
Combined heat and power plants	382	180	483	367	139	222	408	382	167	63
Other power plants	57	53	40	40	48	61	46	57	104	267
<b>Total generation</b>	<b>34,501</b>	<b>34,444</b>	<b>34,469</b>	<b>35,079</b>	<b>36,112</b>	<b>35,865</b>	<b>36,061</b>	<b>34,501</b>	<b>37,537</b>	<b>32,151</b>
Other (UNMIK)	1	21	88	0	44	93	184	1	0	0
<b>IMPORT</b>										
Commercial import by EPS and suppliers' import meant to cover customers' demand in Serbia	662	853	792	616	121	755	1,106	662	640	2,869
Long-term contract with EP Montenegro	1,024	993	647	797	1,116	1,463	630	1,024	1,294	0
Annual contracts	3	0	249	121	85	86	64	3	218	311
<b>Import – total import of EPS and for supply purposes</b>	<b>1,689</b>	<b>1,846</b>	<b>1,688</b>	<b>1,534</b>	<b>1,322</b>	<b>2,304</b>	<b>1,800</b>	<b>1,689</b>	<b>2,152</b>	<b>3,180</b>
<b>TOTAL AVAILABLE QUANTITY</b>	<b>36,191</b>	<b>36,311</b>	<b>36,245</b>	<b>36,613</b>	<b>37,478</b>	<b>38,262</b>	<b>38,045</b>	<b>36,191</b>	<b>39,687</b>	<b>35,331</b>
EPS – sales to suppliers for export	1,076	812	249	173	1,442	1,286	764	1,076	3,140	936
Long-term contract with EP Montenegro	1,285	1,201	1,235	1,220	1,184	1,204	1,210	1,285	1,235	0
Annual contracts	16	23	246	115	94	69	90	16	100	85
<b>Total – EPS export and sales to suppliers for export</b>	<b>2,377</b>	<b>2,036</b>	<b>1,730</b>	<b>1,508</b>	<b>2,720</b>	<b>2,559</b>	<b>2,064</b>	<b>2,377</b>	<b>4,475</b>	<b>1,021</b>
Pumping	962	852	864	878	903	1,049	860	962	1,007	902
Other (UNMIK)	169	99	133	59	71	145	199	169	207	180
<b>Gross consumption</b>	<b>32,683</b>	<b>33,324</b>	<b>33,518</b>	<b>34,168</b>	<b>33,784</b>	<b>34,509</b>	<b>34,928</b>	<b>32,683</b>	<b>34,000</b>	<b>33,228</b>
Transmission network losses	1,423	1,295	1,286	1,224	1,106	1,065	1,096	1,423	1,013	948
Distribution network losses	4,225	4,434	4,583	4,671	4,864	4,957	4,747	4,225	4,486	4,215
<b>Total losses</b>	<b>5,648</b>	<b>5,729</b>	<b>5,869</b>	<b>5,895</b>	<b>5,970</b>	<b>6,022</b>	<b>5,843</b>	<b>5,648</b>	<b>5,499</b>	<b>5,163</b>
Losses to gross consumption ratio	17.3%	17.2%	17.5%	17.3%	17.7%	17.5%	16.7%	17.3%	16.2%	15.5%
<b>Final consumption</b>	<b>27,035</b>	<b>27,595</b>	<b>27,649</b>	<b>28,273</b>	<b>27,814</b>	<b>28,487</b>	<b>29,085</b>	<b>27,035</b>	<b>28,501</b>	<b>28,065</b>

\* **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 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:

- safe and reliable transmission system operations and the quality of electricity delivery;
- transmission system operation which provides for secure electricity delivery;
- non-discriminatory and economical access to the transmission system;
- transmission system development providing for long-term capability of the transmission system to comply with rational requirements in terms of electricity transmission;
- 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;
- system balancing and provision of system services within the transmission system;



- determination of technical and technological requirements for 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 and
- organisation and administration of electricity market within their jurisdiction.

The most important activities of the transmission system operator in 2014 are as follows:

- drafting ten-year transmission system development plan;
- adoption of the electricity market rules;
- adoption of the rules for the cross-border transmission capacities allocation in 2015, 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 transformer stations 110/x kV/kV to companies dealing with electricity distribution and overtaking 110 kV overhead lines;
- submission of the data and documentation necessary for monitoring transmission system operator's operations and price regulation to the Agency;
- 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, expert teams of PE EMS and Agency were preparing amendments to the Code so as to harmonies it with the new Decree on Conditions for Electricity Delivery and Supply and the Electricity Market Rules. In June 2014, the Supervisory Board of PE EMS adopted new Transmission Network Code which was approved by the Council of the Agency in July.

### 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 2014, 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<sup>2</sup>**

RSD/kWh

	Annual level of approved charge				
	as of 01/01/2008	as of 01/01/2008	as of 01/01/2008	as of 01/01/2008	as of 01/01/2008
Total electricity transmission use-of-system charge	0.230	0.230	0.230	0.230	0.230
Net electricity transmission use-of-system charge *	0.105	0.105	0.105	0.105	0.105

\*\* 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.

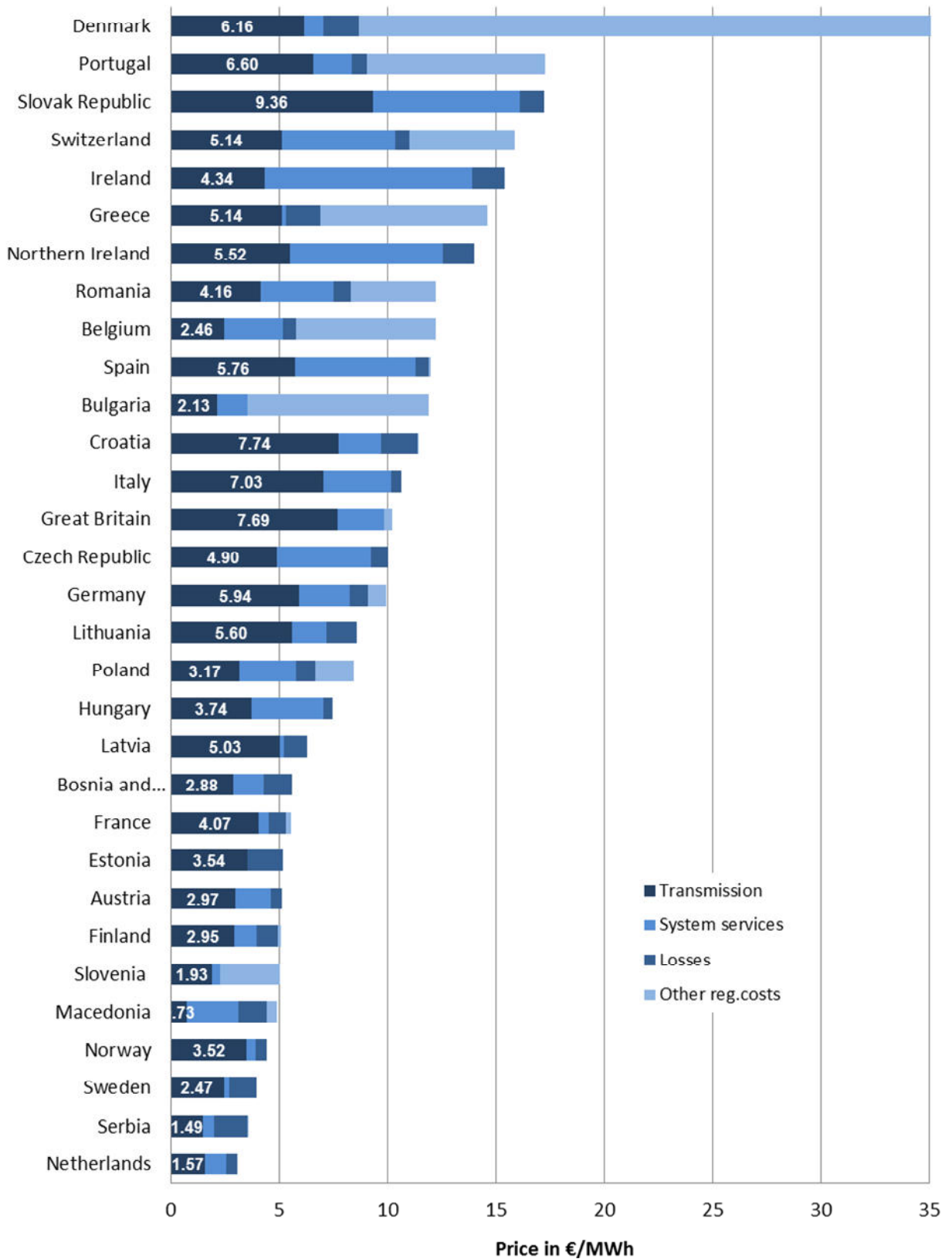
<sup>2</sup> Terms related to prices used in the Report include the annual price level and average price. The annual price level represents the quotient of the revenue arising by the application of ruling tariffs on a certain date to annual quantities and other tariff elements used in the process of 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.

The charges 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**

Tariff element	Calculation element	Unit	RSD
			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 2014, by the application of ruling charges to actual quantities, average transmission use-of-system charge was realised. It amounted to 0.434 RSD/kWh. Transmission charges and transmission structure are given in line with ENTSO-E data in the figure below (Figure 3-5).



Data source: ENTSO-e 2014

Figure 3-5: Transmission use-of-system charge (€/MWh) in 2014

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

### 3.3.3 Transmitted electricity quantities

Table 3-7 indicates the transmitted electricity quantities in 2014 in comparison to the quantities planned in the balance sheet and realised in 2013. In comparison to 2013, in the part of the system without APKM, 6.2% less electricity was transmitted which was primarily due to a lower electricity generation in PE EPS power plants connected to the transmission system due to reduced transport of coal due to May 2014 floods.

Table 3-7: Basic indicators of transmission plan realization

	Balance		Realized			Realized (%)	
	2014 without APKM	2014 with APKM	2013 without APKM	2014 without APKM	2014 with APKM	2014 Real./Bal. without APKM	Real. 2014/real. 2013 without APKM
	1	2	3	4	5	4/1	5/3
Entry (GWh)	38,631	45,377	41,463	38,891	44,157	100.7	93.8
Losses (GWh)	1,031	-	1,013	948	-	91.9	93.6
Losses (%)	2.67%	-	2.44%	2.44%	-	91.4	0.0
Exit (GWh)	37,600	-	40,450	37,943	-	100.9	93.8

Realised physical electricity transit in 2014, calculated as a lower value of average hourly electricity which was withdrawn into or out of the transmission system via interconnection overhead lines amounted to 4,609 GWh. The physical transit per month is indicated in table 3-8.

Table 3-8: Electricity transit by months of 2014 (physical flows)

Month	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Transit (GWh)	480	314	292	389	358	362	457	427	330	447	396	357

Including APKM, 44,157 GWh, were transmitted in total in 2014. 36,832 GWh were produced in the power plants connected to the transmission system while 7,325 GWh were withdrawn from the neighbouring systems. Physical flows of electricity on the borders of the control area of Serbia in 2014 are given in Figure 3-6.

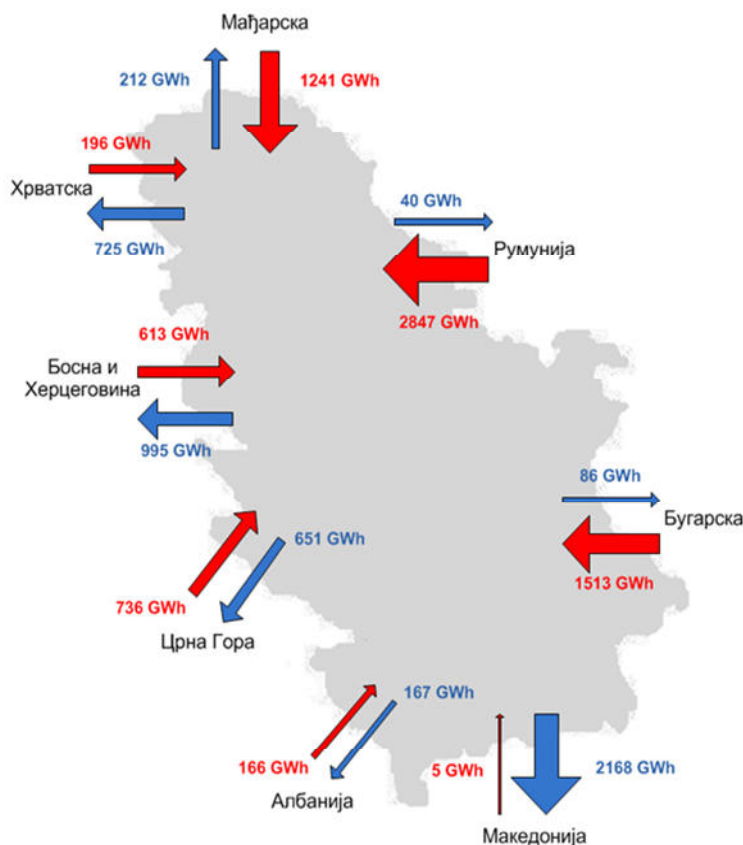


Figure 3-6: Total physical flows of electricity on the borders of the Serbian control area in 2014

On a part of the system without APKM, 38,891 GWh were transmitted, while 32,151 GWh out of these were produced outside the plants on APKM, 6,842 GWh were withdrawn from the neighbouring systems and the remaining 165 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 and other users whose facilities are connected to the transmission system, neighbouring systems and pumped-storage HPP facilities for pumping purposes.

**Table 3-9: Transmitted energy, maximum load and losses (without APKM)**

	Unit	2013	2014	2014/2013
Transmitted electricity	GWh	41,463	38,891	93.8
Maximum daily gross consumption	GWh	124.1	127.6	102.8
Maximum hourly load	MW	5,895	6,247	106.0
Transmission system losses	GWh	1,013	948	93.6
Transmission system losses (as % of transmitted electricity)	%	2.44	2.44	100.0

Since 2005, transmission network losses were reduced from 3.38% to 2.44% in 2014. In comparison to 2013, losses remained the same if given in shares (percentages) of total transmitted electricity, but, in the absolute amount, they were reduced in line with the reduction of transmitted electricity quantities.

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 winter period, in the beginning and at the end of 2014, average daily temperatures were above the average ones. It led to the electricity consumption trend of around 110,000 MWh in Serbia, without APKM these days. The highest daily gross consumption amounted to 127,626 MWh on December 31, 2014. On this very date, the maximum 2014 hourly load was reached – 6,247 MW.

### **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 by having PE EMS and neighbouring transmission system operators allocate 50% each of net transmission capacity on all interconnectors. The exception is Serbian-Hungarian border since 2011, Serbian-Romanian border since 2013, Serbian-Bulgarian and Serbian-Croatian since 2014 where joint explicit auctions for the allocation of 100% of available capacity have been organised.

#### **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 and the Rules for Available Cross-Border Transfer Capacities Allocation on Borders of Control Area of Republic of Serbia.

Rules and agreements with neighbouring system operators in Hungary, Bulgaria, Romania and Croatia were approved by the Council of the Agency at the end of 2013 and were applicable in 2014.

In the end of 2014, PE EMS reached an agreement with transmission system operator of Bosnia and Herzegovina (NOS BiH) on the organisation of joint explicit auctions for the allocation of 100% of available capacity in 2015. The agreements were submitted to the Agency for approval. On December 10, 2014, the Agency's Council adopted a decision on the approval to the "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 2015". This agreement defined the organisation of long-term auctions for the allocation of 100% available capacity (annual and monthly auctions) by PE EMS and by NOS BiH (daily and intraday).

#### **3.3.4.2 Allocation of cross-border capacity**

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](http://www.ems.rs)).

Tables 3-10 and 3-11 indicate average monthly amounts of net cross-border transmission capacities (NTC) on all borders in both directions.

**Table 3-10: Average monthly amounts of NTC for entry into Serbia in 2014 (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	607	700	700	700
Rom---> Ser	600	646	632	608	465	463	419	534	377	611	600	676
Bul ---> Ser	250	225	260	275	308	383	350	350	300	273	450	600
Mac---> Ser	250	250	250	240	300	300	300	300	210	300	300	300
Alb---> Ser	250	250	250	193	183	210	210	210	196	227	250	250
Mon---> Ser	600	700	650	663	610	573	700	700	690	642	650	650
BiH--- Ser	600	500	600	475	435	600	490	400	462	421	550	550
Cro---> Ser	600	500	600	475	435	600	500	400	348	411	450	550

**Table 3-11: Average monthly amounts of NTC for exit from Serbia in 2014 (MW)**

Border/months	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
Ser --->Hun	800	800	800	800	735	800	800	800	693	800	800	800
Ser --->Rom	300	357	397	325	360	383	316	437	337	379	500	300
Ser --->Bul	200	200	200	200	200	250	250	250	205	174	200	300
Ser --->Mac	700	700	650	543	681	573	437	534	327	584	650	700
Ser --->Alb	250	250	250	193	183	206	164	210	190	219	250	250
Ser --->Mon	700	700	650	592	687	635	463	556	580	561	700	700
Ser --->BiH	600	500	550	483	445	355	413	485	483	444	450	500
Ser --->Cro	600	500	550	483	445	355	413	485	370	431	450	500

In 2014, 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 2013, in line with the "Rules for the Cross-border transmission capacity allocation on the Borders of the PE EMS Control Area for the Period 01/01/2014 – 31/12/2014", PE EMS organised explicit auctions for 50% of the available capacity on the following borders: Serbia-Albania, Serbia-Bosnia and Herzegovina, Serbia-Montenegro and Serbia-Macedonia. In 2014, PE EMS organised explicit auctions for 50% of available capacity while, 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.

In 2014, the right to participate in the auctions on 50% of available capacity was on disposal of 50 market players. 28 of them actively participated in the auctions.

Annual auctions for the allocation of 50% of the available cross-border capacity for 2014 were held on November 29, 2013 with 21 participants. On each border/in both directions, congestions occurred. General data on the given annual auctions are given in Table 3-12.

**Table 3-12: General data on annual auctions for the allocation of 50% of available cross-border transmission capacities in 2014**

Border – direction	Congestion scale: Total demanded/total allocated capacity	Number of participants in the auctions	Price of the last successful bid in case of congestion EUR/MWh
Albania - Serbia	7.20	12	0.21
BiH – Serbia	6.53	15	0.41
Montenegro - Serbia	5.05	15	0.21
Macedonia - Serbia	5.71	13	0.26
Serbia - Albania	8.56	14	1.45
Serbia – BiH	5.50	13	0.17
Serbia - Montenegro	3.95	15	0.15
Serbia - Macedonia	5.53	17	1.72

In 2014, 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 3-13. The general data on monthly auctions are given in the Table 3-14.

**Table 3-13: Number of participants in monthly auctions for 2014**

Month	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
No. of participants	23	20	21	22	22	23	21	21	21	22	24	22

**Table 3-14: General data on monthly auctions for the allocation of 50% of available cross-border transmission capacities in 2014**

Border – direction	No. of days with “0” capacity	Number of congestions/total number of auctions	Congestion scale: total demanded/total allocated capacity	Number of participants in auctions (min.-max.)	Range of prices of the last successful bid in case of congestion EUR/MWh
Alb - Ser	6	14 / 19	0.81 / 4.60	3 - 9	0.01 – 0.09
BiH - Ser	0	25 / 25	1.75 / 4.41	12 - 16	0.07 – 0.33
Mon - Ser	0	21 / 21	1.09 / 2.41	7 - 13	0.01 – 0.13
Mac- Ser	9	15 / 16	1.36 / 4.69	8 - 15	0.02 – 0.37
Ser - Alb	6	23 / 25	1.93 / 6.08	6 - 12	1.67 – 13.33
Ser - BiH	0	31 / 31	1.10 / 6.80	9 - 13	0.01 – 0.29
Ser - Mon	0	35 / 35	1.42 / 5.27	9 - 15	0.04 – 0.36
Ser - Mac	9	26 / 27	1.58 / 5.24	9 - 17	0.41 – 7.45

Weekly auctions were not organised in 2014.

In 2014, PE EMS organised long-term (annual and monthly) and intraday (first come-first served) auctions for the allocation of 100% of the available capacity on the Serbian-Hungarian border. The Hungarian transmission system operator MAVIR ZRt. allocated the available capacity on daily level. In 2014, , while PE EMS allocated the available capacity on daily level, while PE EMS allocated the available capacity on daily level. In 2014, Croatian transmission system operator HOPS organised long-term (annual and monthly) and intraday (first come-first served) auctions for the allocation of 100% of the available capacity on the Serbian-Croatian border, while PE EMS allocated the available capacity on daily and intraday level. Bulgarian transmission system operator Elektroenergien Sistemen Operator EAD organised long-term (annual and monthly) and intraday (first come-first served) auctions for the allocation of 100% of the available capacity on the Serbian-Bulgarian border, while PE EMS allocated the available capacity on daily level and intraday auctions were not organised at all.

Out of the 60 entitled participants, 47 of them participated in the auctions for 100% available capacity on the Serbian-Hungarian border. Out of the 48 entitled participants, 26 of them participated in the auctions for 100% available capacity on the Serbian-Romanian border, 21 of 48 participants on the Serbian-Bulgarian border and 17 of 40 on the Serbian-Croatian border.

The number of participants as well as the other general data on joint annual auctions for 2014 on the Serbian-Hungarian, Serbian-Romanian, Serbian-Bulgarian and Serbian-Croatian borders are given in Table 3-15.

**Table 3-15: General data on joint annual auctions for cross-border transmission capacities in 2014**

Border – direction	Congestion scale: Total demanded/total allocated capacity	Number of participants in the auctions	Marginal price EUR/MWh
Hungary - Serbia	3.91	28	0.51
Serbia – Hungary	4.88	27	0.43
Romania - Serbia	4.67	16	1.11
Serbia – Romania	4.30	15	0.12
Bulgaria – Serbia	4.28	8	2.07
Serbia – Bulgaria	4.44	5	1.21
Croatia – Serbia	4.40	4	0.36*
Serbia – Croatia	5.53	7	0.67*

*\*Prices in Euros are given approximately as the price is set in Croatian Kuna.*

The number of participants as well as other general data on joint monthly auctions on Serbian-Hungarian, Serbian-Romanian, Serbian-Bulgarian and Serbian-Croatian border in 2014 are given in the Table 3-16.

**Table 3-16: General data on joint monthly auctions for the allocation of 100% of available cross-border transmission capacities in 2014**

Border – direction	No. of days with “0” capacity	Number of congestions/total number of auctions	Congestion scale: total demanded/total allocated capacity	Number of participants in auctions (min.-max.)	Range of marginal prices EUR/MWh
Hungary - Serbia	4	12 / 12	2.48 – 3.59	18 - 27	0.24 – 0.88
Serbia – Hungary	4	12 / 12	1.32 – 3.30	15 - 20	0.02 – 0.41
Romania - Serbia	3	42 / 43	1.07 – 4.03	6 - 20	0.27 – 8.97
Serbia – Romania	3	12 / 60	1.06 – 1.70	2 - 9	0.01 – 0.07
Bulgaria – Serbia	5	18 / 18	1.88 – 8.44	2 – 14	0.13 – 4.87
Serbia – Bulgaria	5	14 / 14	1.52 – 5.88	3 - 6	0.08 – 3.95
Croatia – Serbia	11	12 / 12	1.08 – 2.28	6 – 9	0.01 – 0.18*
Serbia – Croatia	11	10 / 12	1.07 – 3.85	4 – 11	0.006 – 0.16*

\*Prices in Euros are given approximately as the price is set in Croatian Kuna.

### 3.3.4.3 Annual exchange across the borders of coltrol areas

The total scale of cross-border transactions in 2014 (with APKM) amounted to 16,637 GWh – entrance, i.e. 14,416 GWh –exit from the market area of Serbia. The scale of internal transactions amounted to 11,574 GWh. Table 3-17 indicates the scale of nominated and confirmed internal and external (cross-border) transactions in the period 2009-2014.

**Table 3-17: Cross-border and internal transactions in the market area of Serbia (2009-2014)**

Year	GWh		
	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

Beside the transactions given in Table 3-17, a part of the cross-border trade in 2014 was realized via connected operations of the distribution systems of Serbia and Bosnia and Herzegovina. Transactions from Serbian to BiH amounted to 48,218 MWh, while they amounted to 1,149 MWh in the opposite direction.

Energy exchange with APKM was realized through internal and external transactions. Table 3-18 indicates the scale of external and internal transactions with APKM in the period 2009-2014.

**Table 3-18: Part of external and internal transactions related to APKM (2009-2014)**

Year	GWh			
	External transactions – exit to APKM	Cross-border transactions – entry to APKM	Internal transactions – exit to APKM	Internal transactions – entry to APKM
2009	522	125	245	149
2010	142	129	676	222
2011	31	88	785	283
2012	53	101	572	371
2013	64	101	458	755
2014	95	54	915	422

In addition, a part of internal exchange related to APKM was realized with a part of transmission and distribution system on the north of APKM (45,996 MWh were delivered through the distribution system, while 90,844 MWh through the transmission system while 2,292 MWh were delivered via transmission system).

Table 3-19 indicates the scale of electricity cross-border transactions on each border.



**Table 3-19: Entry and exit nominated cross-border transactions for each border for 2014**

Border with	GWh	
	Entry into Serbia	Exit from Serbia
Romania	4,181	544
Bulgaria	2,064	636
Macedonia	160	3,742
Montenegro	102	1,763
Albania	663	2,305
BiH	1,466	835
Croatia	2,015	1,029
Hungary	5,986	3,562
<b>By all borders</b>	<b>16,637</b>	<b>14,416</b>

### 3.4 Regulation of the distribution system operator

Distribution system operators are daughter companies within PE EPS, holding licenses for the performance of electricity distribution and distribution system operation.

Transmission system operator is responsible for:

- safe and reliable distribution system operations and the quality of electricity delivery;
- distribution system operation;
- non-discriminatory and economical 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;
- 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 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 2014 which provided the compliance of its work with the commitments arising from the Law and electricity market opening are as follows:

- unbundling of the supply operations;
- implementation of measures for energy system loss reduction, which are above the technically justified level;
- elaboration of the ten years' distribution system development plan and harmonisation with the transmission system development plan, other distribution systems and applications for the connection of facilities of producers and customers which are not completed;
- 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;
- overtaking transformer stations 110/x kV/kV from 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 operators are 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 although it should have been adopted by every operator by January 1, 2013 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 due to, among other things, distribution systems' reorganisation.

In 2014, there was a follow-up of activities on the reorganisation of distribution systems. Reorganisation envisages the establishment of a single distribution system operator instead of five operators. Reorganisation of the distribution sector is expected to be completed in 2015.

### 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. The Code was supposed to be harmonised with the 2011 Energy Law and the 2013 Decree on Conditions for Electricity Delivery and Supply. Harmonisation procedure has been initiated in 2013, continued in 2014, but it was practically interrupted since a new energy law was expected to be adopted.

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 will be entitled to select an electricity supplier in the open market in 2015. The amendment was drafted and submitted to the Agency for approval in late 2014.

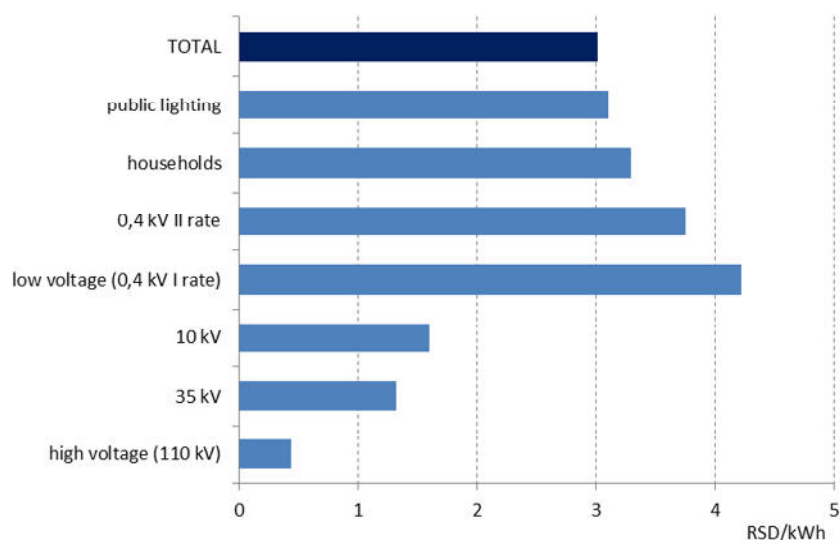
### 3.4.2 Regulation of the electricity distribution use-of-system charges

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 and the latter ones are still valid. 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 eligible customers, i.e. customers who are not entitled to public supply while they are connected to the distribution network. Balancing the distribution charges, customers connected to the distribution network were allowed to purchase electricity from suppliers in the open market under the same conditions in on the whole territory of the Republic of Serbia in terms of distribution use-of-system charges.

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

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	1,171	1,385	1,557
Low voltage (0.4 kV I grade)	2,710	3,189	3,525
Mass consumption - total	2,113	2,432	3,268
- 0.4 kV II grade	2,381	2,721	3,747
- households	2,077	2,393	3,204
Public lighting	1,614	1,895	3,063
Total low voltage	2,196	2,537	3,303
TOTAL	1,825	2,302	2,930

Figure 3-7 indicates average realized electricity transmission and distribution use-of-system charges (in total) for Serbia (without APKM) by customers' categories in 2014. The total average transmission and distribution charge for all customers amounted to 3.01 RSD/kWh.



**Figure 3-7: Average achieved annual distribution use-of-system charge in 2014**

The current distribution use-of-system charges for each company are available on the Agency's website ([www.aers.rs](http://www.aers.rs)).

During 2014, the Council of the Agency adopted a decision on amendments of the Methodology for Setting Electricity Distribution Use-of-System Charges.

After the establishment of DC EPS Snabdevanje, the greatest segment of the activities related to supply is performed by distribution system operators as additional activities, via service contracts. Strengthening DC EPS Supply in personnel and information terms would enable gradual assumption of these tasks. If these relations between daughter companies prolong, it will make the performance of certain activities of the Agency more difficult. These activities refer to regulation of distribution use-of-system charges, public supply prices as well – to the extent they are within the jurisdiction of the Agency, i.e. the insight into costs arising from such contract and assessment on whether they are justified.

### 3.4.3 Distributed electricity quantities

The electricity delivered to customers through the distribution system is almost fully withdrawn from the electricity transmission system. Only a small portion of it is provided from the power plants connected to the distribution system. In 2014, these quantities were 2.5 times higher than in 2013, which is a consequence of the connection of new power plants to the distribution network, more favourable hydrological conditions and unbundling of transmission and distribution network. Therefore, the total annual production of 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 before.

**Table 3-21: Electricity quantities distributed in 2005 – 2014**

	2005	2006	2007	2008	2009	2010	2011	2012	GWh, %	
									2013	2014
Distributed - Total electricity withdrawn by the distribution system	28,556	29,030	29,355	29,942	29,970	30,453	30,604	30,256	30,069	29,345
Withdrawn from the transmission network (excluding customers connected to 110 kV)	28,449	28,977	29,315	29,902	30,392	30,558	29,922	30,183	29,965	29,078
Generation from power plants connected to the distribution system	57	53	40	40	61	46	48	73	104	267
Total delivered electricity quantities (excluding customers connected to 110 kV)	24,331	24,596	24,772	25,271	25,106	25,496	25,857	25,677	25,586	25,130
Distribution system losses	4,225	4,434	4,583	4,671	4,864	4,957	4,747	4,579	4,486	4,215
Distribution system losses (as % of total withdrawn energy)	14.7	15.3	15.6	15.6	16.2	16.3	15.5	15.1	14.9	14.4

Electricity losses within the distribution system exceed the technically justified ones. Such volume of losses can only partially be justified by inevitable technical losses due to a high share of low voltage consumption (even twice as high as in the EU). 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 2014, 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 slightly higher electricity on medium voltage and lower consumption on low voltage in comparison to 2013 led to the reduction of loss percentage which amounted to 14.4% of total withdrawn energy in 2014, which is less than in 2013 when they amounted to 14.9%. When a price is being approved, lower percentages of justified network loss level envisaged in loss recovery plans are taken into account, not the realized loss level.

### 3.5 Regulation of prices of regulated electricity supply

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 regulated public supply electricity price for final customers was approved on August 1, 2013 and it was not changed in 2014. In 2014, the Agency's Council adopted a decision on the adoption of a new Methodology for Setting Public Supply Electricity Price which complied with all the changes in the electricity market.

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

Until 2013, final customers procured electricity at regulated prices. Since the beginning of 2013, customers connected to the transmission network had to purchase electricity at market prices. Since the beginning of 2014, only households and small customers are entitled to public electricity supply while other final customers purchase electricity at market prices. Market price, i.e. wholesale price which is set on the basis of "futures" trend on neighbouring exchanges for the coming year and which does not imply transmission, i.e. distribution costs ranged on Leipzig exchange (EEX) from 39.06 €/MWh for base load i.e. 49.52 €/MWh for peakload, while the same price on the Hungarian exchange (HUPX) ranged 44.26 – 57.85 €/MWh. In addition, wholesale electricity prices which represents the basis for setting public supply price amounted to 3.26 RSD/kWh, i.e. 28.85 €/MWh at the average € exchange rate in 2013 at the moment when the last approval of prices was given.

Table 3-22 represents the trend of average realised annual prices for customers entitled to public supply, 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.

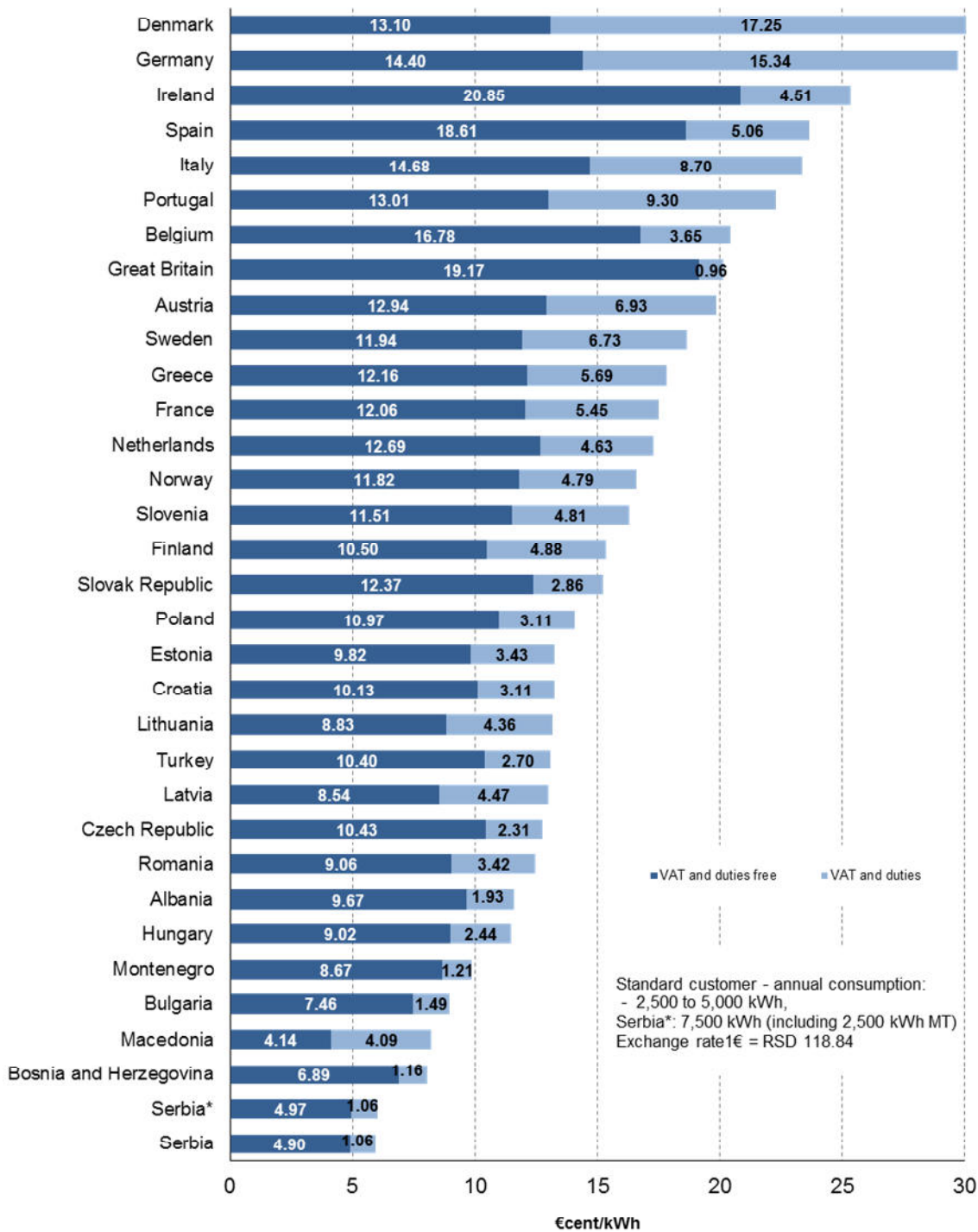
**Table 3-22: Average annual regulated prices for final customers**

Consumption category	Average annual price			
	2011	2012	2013	2014
High voltage (110kV)	4,060	4,296	4,280	-
35 kV	4,657	4,855	5,032	-
10 kV	5,217	5,402	5,649	-
Total high and medium voltage	4,778	5,017	5,503	-
Low voltage (0.4 kV I grade)	7,635	7,994	8,475	9,467
- 0.4 kV II grade	7,334	7,628	7,900	8,278
- households	5,355	5,598	5,792	6,144
Public lighting	5,053	5,244	5,480	5,754
Total low voltage	5,895	6,159	6,399	6,662
TOTAL Public Supply	5,571	5,837	6,189	6,662

The current level of regulated electricity prices does not allow sustainable development of the power sector since, on one hand, it does not provide for necessary funds for investments of existing energy companies, and, on the other hand, it destimulates other investors and energy efficiency. Such a low electricity price does not stimulate the use of other means of energy and energy sources (district heating systems, natural gas, etc.), especially in terms of heating.

Figures 3-8 and 3-11 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 2014 and calculated in line EUROSTAT methodology. There are two prices given for Serbia, one of them is harmonised with EUROSTAT methodology and it relates to the reference customer with average annual electricity consumption between 2,500 and 5,000 kWh in line with European processes and standards. The other price is more in line with Serbian circumstances since it reflects the average household prices better. Both prices in Serbia were the lowest in

this period for both customers category, not only in comparison to developed European countries but also the countries in the region.



Data source: EUROSTAT, Energy Agency

Figure 3-8: Electricity prices for households – second half of 2014

Figure 3-9 indicates a more detailed structure of retail electricity price for households in some of European capitals in December 2014. The data indicate that Serbia has the lowest energy prices and the prices of access to (transmission and distribution) networks.

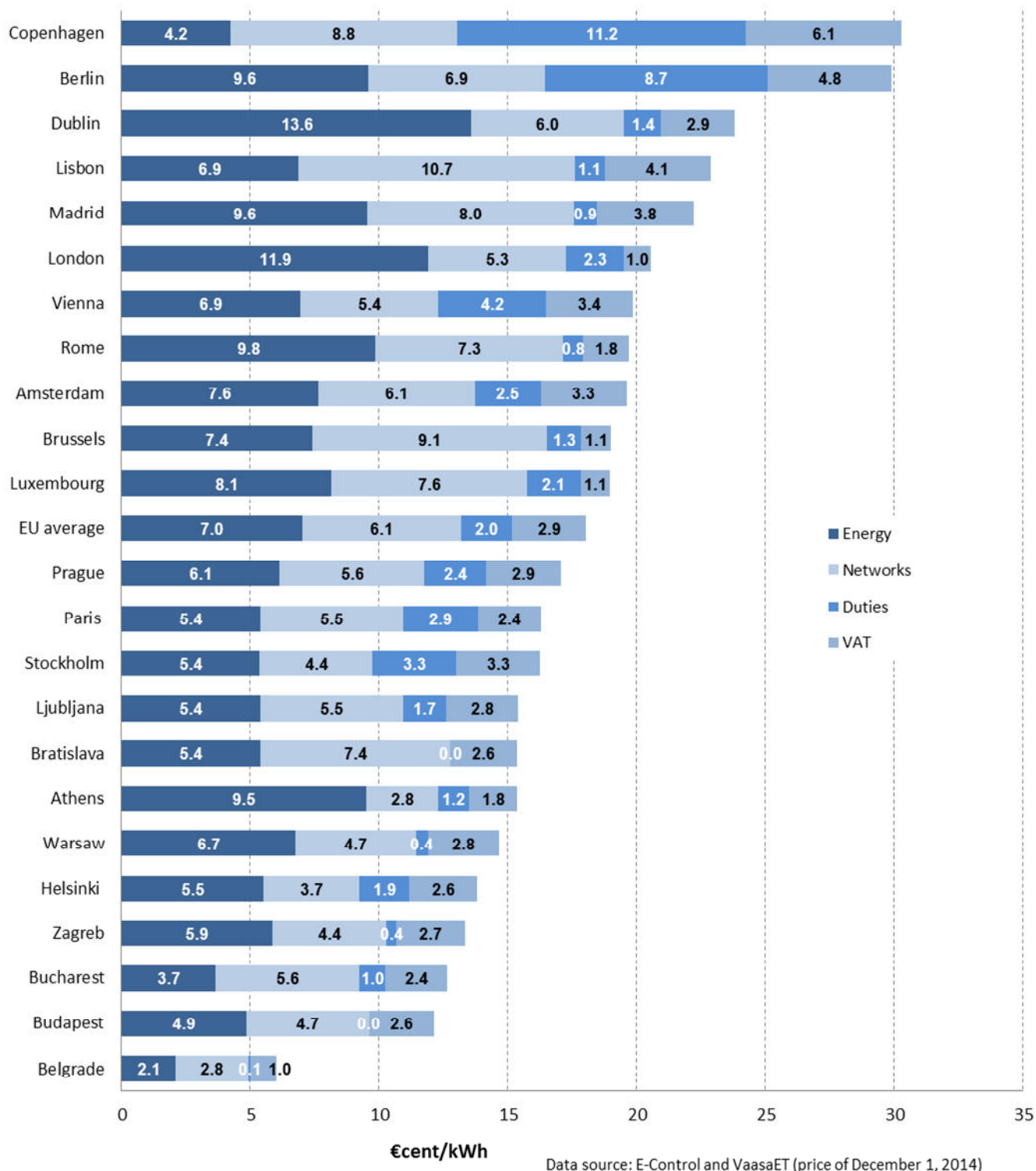


Figure 3-9: Electricity final price for households in some of European capitals in December 2014

So as to make better comparison between electricity household prices, figure 3-10 indicates the structure of electricity final price for households at purchase power parity in some of European capitals in December 2014. 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.

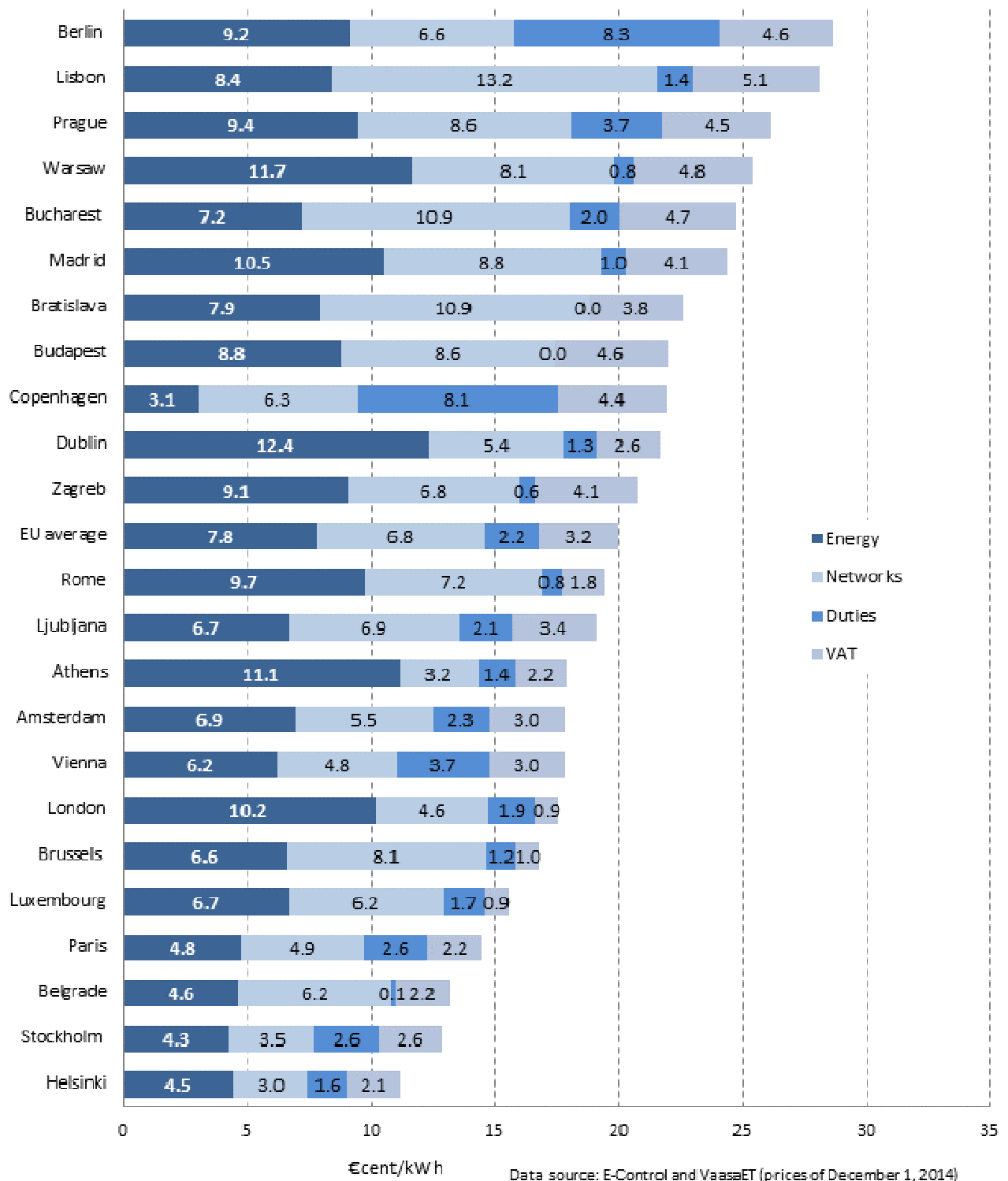
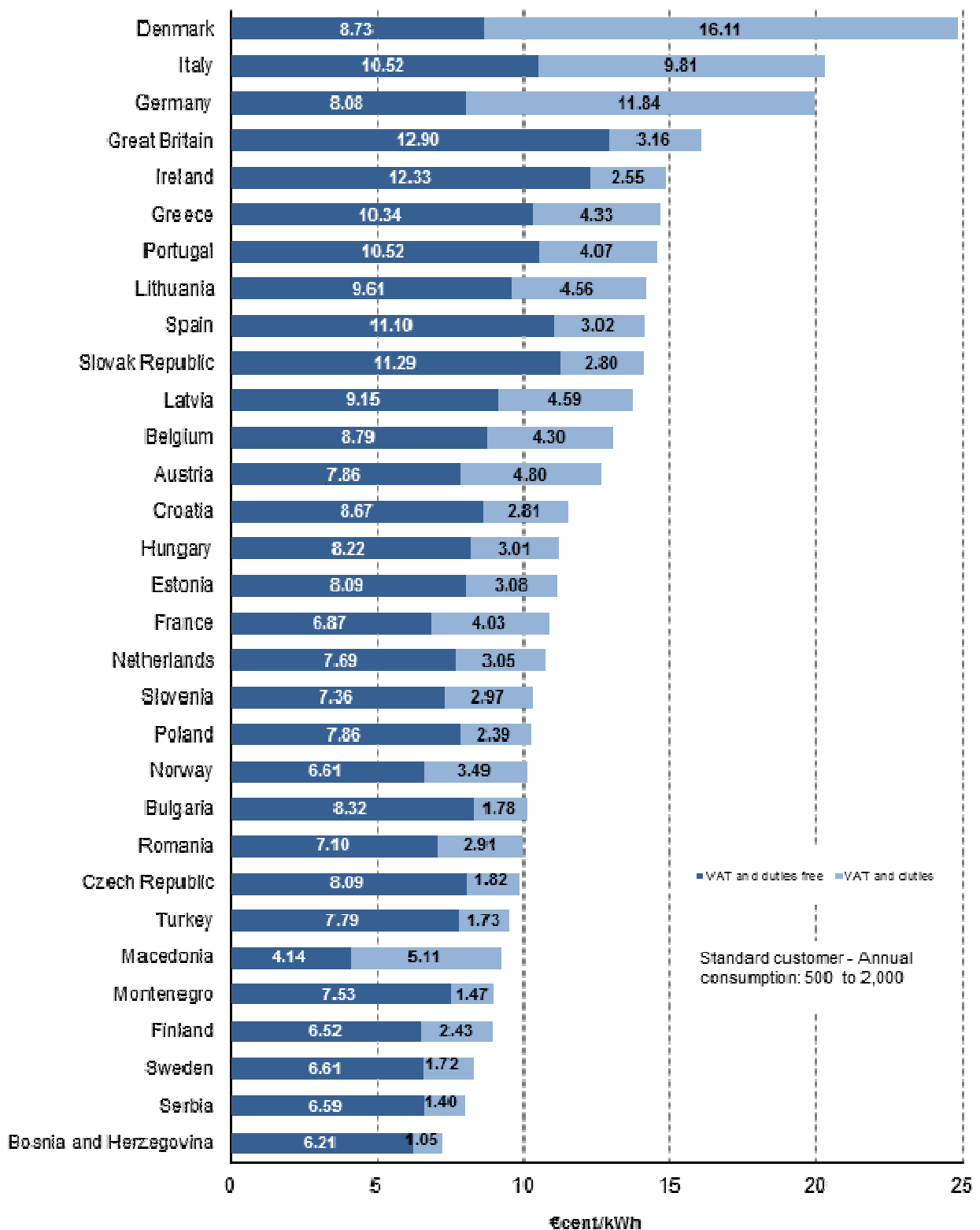


Figure 3-10: Electricity final price structure for households in some European capitals in December 2014 at purchase power parity



Data source: EUROSTAT

Figure 3-11: Electricity prices for industry – second half of 2014



### 3.6 Electricity market

Electricity market in Serbia includes:

- 1) bilateral electricity market;
- 2) balanced electricity market and
- 3) organised electricity market.

Electricity market players are the following:

- electricity producers;
- electricity suppliers in the open market;
- electricity public supplier;
- electricity supplier of the last resort;
- final customers;
- 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 and
- market operator.

The scheme of electricity market is given in figure 3-11.

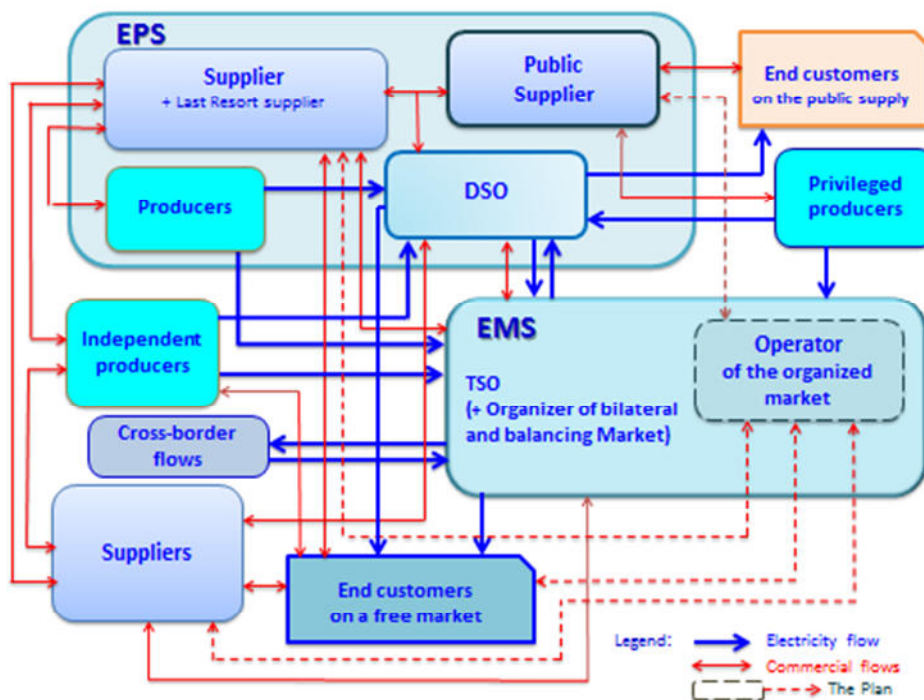


Figure 3-12: Electricity market scheme

#### 3.6.1 Bilateral electricity market

Both electricity purchase and sales are organised on the bilateral market directly between market players, while on the wholesale bilateral market, the players traded in electricity at open market prices, while on the retail bilateral market, supply was organised at open market prices and regulated prices due to the fact that in 2014, all customers except for households and small customers were obliged to purchase electricity in the open market. Households and small customers were supplied at regulated prices by public supplier.

##### 3.6.1.1 Wholesale market

Wholesale electricity market in 2014 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 in the region and the 8 existing borders, as well as for the purpose of import meant to meet the demand of final customers and export. In 2014, electricity import was considerably higher than the export due to unavailability of a segment of production capacities, thermal power plants for which coal from the open pits was unavailable since the pits were flooded since May.

In 2014, there were 47 electricity market players entitled to nominate operation plan on the basis of a relevant contract signed with PE EMS. 40 of them actively participated in the market of the Republic of Serbia. 39 market players dealt in cross-border exchange, 7 of them in electricity supply of final customers in the open market, while there was only one electricity customer in the open market.

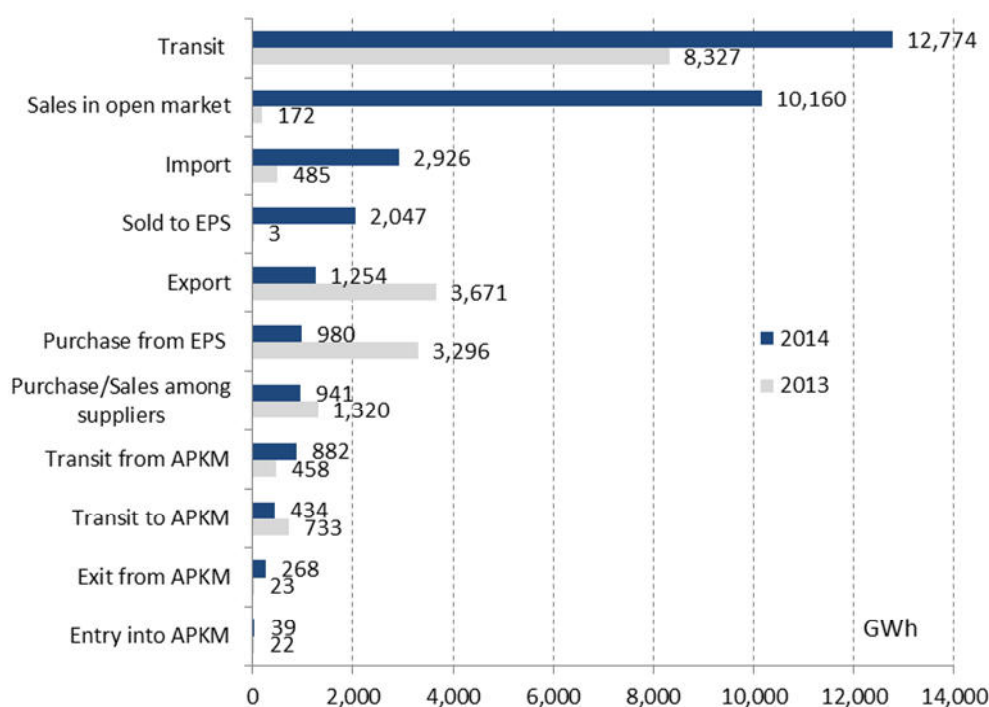
**Table 3-23: Number of market players 2008 - 2014**

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

In 2014, electricity transit was increased (commercial data) in comparison to 2013. The quantities of electricity purchased by PE EPS from other suppliers in the open market were greatly increased due to the above mentioned reduced production in thermal power plants. In the beginning of the year, since February till May 2014, electricity export dominated thanks to favourable weather conditions and increased PE EPS production while since May 2014, electricity export began to dominate.

PE EPS was the dominant supplier of customers in the open market.

Figure 3-13 indicates electricity quantities for each of suppliers' activities in 2013 and 2014.



**Figure 3-13: Electricity quantities for each suppliers' activity in 2013 and 2014**

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, Danske commodities Serbia LLC Belgrade, EZPADA LLC Belgrade and MVM PARTNER SERBIA 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 from PE EPS: EFT TRADE LLC Belgrade, ALPIQ ENERGIJA RS, LLC, Belgrade, GEN-I LLC Belgrade, PLC INTERENERGO LLC, Belgrade and Danske commodities Serbia LLC, Belgrade;
- Purchase by PE EPS: PETROL LLC, Belgrade, GEN-I LLC Belgrade, EFT TRADE LLC Belgrade, ALPIQ ENERGIJA RS, LLC, Belgrade and MVM PARTNER SERBIA LLC, Belgrade;
- Purchase/trade between suppliers: ALPIQ ENERGIJA RS, LLC, Belgrade, PLC INTERENERGO LLC Belgrade, PETROL LLC, Belgrade, EFT TRADE LLC Belgrade and ENERGIJA NATURALIS LLC, Belgrade.

The scale of import, export and transit of suppliers for each month of 2014 is indicated in Figure 3-14.

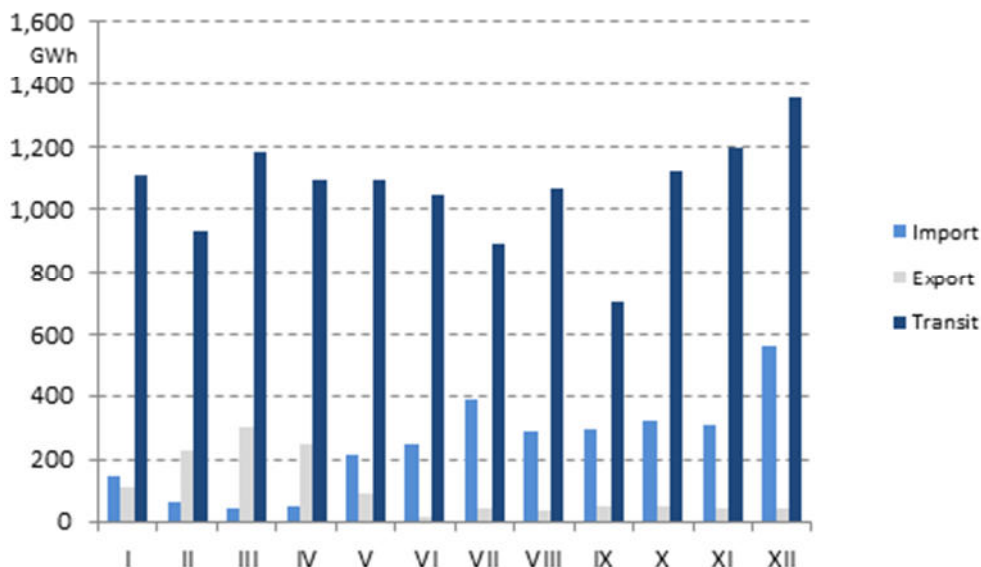


Figure 3-14: Import, export and transit of suppliers in 2014

Figure 3-15 indicates purchase and sales of electricity between suppliers and PE EPS. Purchase by PE EPS to suppliers (all of them except to EPS Snabdevanje) was considerable until May, while purchase of great quantities by PE EPS from other suppliers was dominant since May. The trade between other suppliers did not indicate any dependence from seasons.

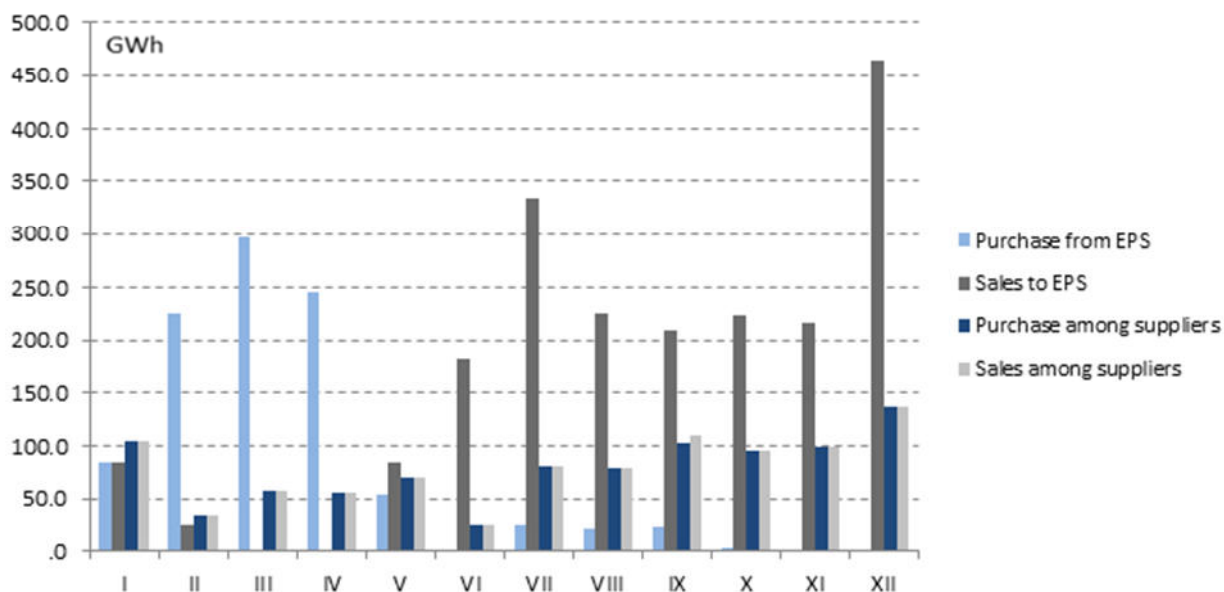


Figure 3-15: Purchase/sales between suppliers, i.e. between suppliers and EPS in 2014

Relevant indicators of development level and electricity market concentration in Serbia (without APKM) in 2014 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 2013. 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<sup>3</sup> and
- evaluation of market concentration level per individual activities<sup>4</sup>.

<sup>3</sup> 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.

<sup>4</sup> Market concentration limits are the following:

HHI < 1000 – not concentrated

1001 < HHI < 2000 - moderately concentrated

HHI > 2001 - highly concentrated market

**Table 3-24: Electricity market concentration level in Serbia in 2014**

Supplier's activity	Electricity quantity (GWh)		Share of three suppliers with the greatest trading scale [%]		Herfindahl-Hirschman Index - HHI		Market concentration level
	2014	2014/2013	2014	2014/2013	2014	2014/2013	2014
<b>Trade with PE EPS</b>							
sales to EPS	2,047	51,075	51	-48,9	1,053	-86.3	Moderately high
purchase from EPS	980	-70	39	-27,7	767	-36.6	Low
trade between suppliers							
sales	948	-17	40	-36,5	852	-57.7	Low
purchase	941	-27.1	26	-51,9	620	-53.5	Low
<b>Electricity import and export</b>							
import	2,925	501,8	43	-6.52	893	-22.2	Low
export	1,255	-65,8	29	-44.56	536	-55.4	Low
<b>Transit</b>							
transit	12,774	53,4	41	-28.9	815	-31.7	

Out of 39 active suppliers, 6 of them are among three dominant suppliers in each of activities. Market concentration level was reduced in comparison to 2013 in all suppliers' activities and this was also the case of PE EPS activities. Market concentration for the energy sold to PE EPS was reduced by even 7 times in comparison to 2013 (HHI was reduced by 86.3% in 2014) which is a consequence of the fact that 2014 was untypical year for PE EPS in energy terms since PE EPS purchased great quantities of electricity from other suppliers in 2014 due to unavailability of some of production capacities owned by PE EPS and, thereby, made a huge impact to other suppliers' activities.

### 3.6.1.2 Retail market

#### 3.6.1.2.1 Electricity quantities delivered to final customers

In 2014, 27,664 GWh were sold and delivered to final customers, which is 4.3% more than in 2005. In comparison to 2013, final customer's consumption was by 1.2% lower which is a consequence of the consumption reduction with customers with their facilities connected to low voltage. Electricity consumption in Serbia (without APKM) in the period 2005-2014, including electricity producers used to meet their own demand is given in Table 30-25.

**Table 3-25: Electricity consumption structure in the period 2005-2014**

Consumption category	GWh										
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2014/2013
Households	14,407	14,276	14,145	14,313	14,412	14,645	14,666	14,517	14,147	13,802	97.6
Other customers connected to low	4,957	5,195	5,379	5,614	5,567	5,534	5,640	5,585	5,580	5,322	95.4
Customers connected to low voltage in total	19,364	19,471	19,524	19,927	19,979	20,179	20,305	20,102	19,727	19,124	96.9
Customers connected to medium voltage (10,	4,967	5,125	5,247	5,345	5,127	5,317	5,553	5,570	5,856	5,985	102.2
Customers connected to high voltage (110 kV)	2,183	2,337	2,430	2,570	2,216	2,555	2,751	2,312	2,415	2,555	105.8
Electricity delivered to final customers	26,514	26,933	27,201	27,842	27,322	28,051	28,609	27,984	27,998	27,664	98.8
TPP and HPP consumption to cover	521	662	447	431	492	436	476	473	503	401	79.7
<b>Total consumption</b>	<b>27,035</b>	<b>27,595</b>	<b>27,648</b>	<b>28,273</b>	<b>27,814</b>	<b>28,487</b>	<b>29,085</b>	<b>28,457</b>	<b>28,501</b>	<b>28,065</b>	<b>98.5</b>

A considerable consumption drop in comparison to 2013 of 2.4% was recorded with households and of 4.6% with other customers with facilities connected to low voltage which is a consequence of a higher average temperature during winter months and slightly lower temperatures with more rainy days during summer months. In addition, it is a consequence of a great number of interruptions in customers supply due to natural disasters – floods and freezing rain which affected certain regions in Serbia several times during 2014. In the following period, the Agency will continue

supervising households consumption in wintertime and analyze the need to introduce additional measures so as irrational use of electricity for heating purposes could be destimulated more efficiently. Producers withdrew over 20% of electricity less than in 2013 to cover their own demand. This was due to reduced operations of thermal power plants due to coal shortage.

Consumption increased by with customers connected to high and medium voltage by 2.2% and 5.8% respectively.

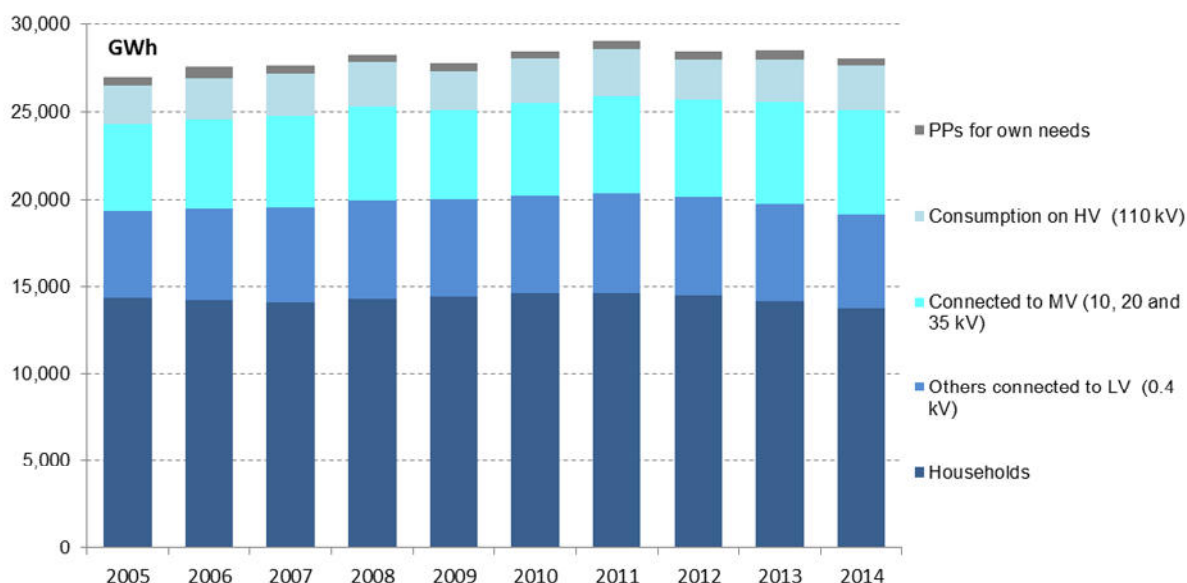


Figure 3-16: Electricity consumption structure in Serbia in the period 2005-2014. (without APKM)

Total number of metering points for customer delivery in Serbia without APKM (without metering points of facilities within Železnice Srbije/Serbian Railroad) at the end of 2014 amounted to 3, 605,448. Compared to 2013, the number was increased by 0.7%.

Table 3-26: Number of metering points in 2013 and 2014

Consumption category	2013	2014	2014/2013
Households	3,184,522	3,208,909	100.8
Other customers connected to low voltage (0.4 kV)	391,712	392,143	100.1
Customers connected to medium voltage (10, 20 and 35 kV)	4,316	4,348	100.7
Customers connected to medium voltage (110 kV)	48	48	100.0
<b>Total number of metering points</b>	<b>3,580,579</b>	<b>3,605,448</b>	<b>100.7</b>

### 3.6.1.2.2 Electricity sales in the open market

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 retail 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 retail 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 either for households or for customers who did not belong to the small customers group were obliged to purchase electricity in the open retail 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 electricity sold, since all other suppliers sold around 373.5 GWh of electricity to their customers. Average price in 2014 for this category of customers amounted to 6.83 RSD/kWh (VAT free).

Apart from final customers, electricity had to be provided in the open market for loss recovery in transmission and distribution networks as well as the electricity necessary to cover the demand of production in PE EPS hydro power plants and thermal power plants. Additional 5,517 GWh of electricity were necessary for these purposes.

### 3.6.2 Electricity balancing market

Being the transmission system operator, PE EMS is responsible for system balancing and provision of system services within the power system in the Republic of Serbia. 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 for all exchange points had to regulate their balancing responsibility. By rule, they transferred it to the supplier, except for one customer in 2014 who decided to the balancing party himself. Until 31/12/2014 and including that date, there were 44 electricity market players in total which signed a Contract on Balancing Responsibility with PE EMS, thus becoming parties with balancing responsibility.

Pursuant to the Energy Law, in 2014, PE EMS was obliged to purchase electricity under market conditions for the purpose of loss recovery in transmission grid, of 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 Energy 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 2014, total engaged balancing energy amounted to 774 GWh, for which the total weighted settlement price amounted to 35.03 €/MWh. Bearing in mind the direction of activated balancing entities, it amounted to 54.67 €/MWh for upward activation and 19.44 €/MWh for downward activation.

### 3.6.3 Organised electricity market

Pursuant to the Energy Law, organisation and administration of the organised electricity market and making connection between it and organised electricity markets of other countries is performed by the market operator. Market operator's organisation and operation, conditions and the manner of business operation of players within the organised electricity market and other conditions which provide for electricity market functioning in line with the law is regulated in more detail by the Government of the Republic of Serbia. PE EMS as the energy entity holding the license for electricity market organisation continues preparing for the beginning of operations of this market which is expected in 2015.

### 3.6.4 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**

Within the EnC Regulatory Board, a discussion was launched on regulatory incentives which promote investments in the transmission network. In addition, the ECRB made an assessment of regulatory independence and obstacles for reaching it were identified.

In 2014, the ECRB drafted a recommendation on the treatment of interconnectors and interconnection points between the EnC Contracting Parties and the EU Member States with the implementation of the network codes of the Third Package. Already established cooperation with the Agency for the Cooperation of Energy Regulators (ACER) and the Council of European Energy Regulators (CEER) was expanded, while common activities with the Group of Mediterranean Regulators (MedReg) are being established.

The implementation of the Regional Action Plan for Wholesale Electricity Market in the Southeastern Europe is 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 2014, the ECRB contributed to the harmonisation of the regulatory framework in the electricity sector by making numerous analyses and adopting recommendation: recommendation for the adoption of auction rules for the Coordinated Auction Office in the Southeastern Europe, making quarterly reports on the development of the eighth region<sup>5</sup> as an annex of the quarterly report on regional initiatives in the electricity sector ACER, development of guidelines for market monitoring and a set of indicators for the supervision of calculations and cross-border capacity allocation, 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.

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<sup>5</sup> 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

During 2014, so as to increase the transparency of the electricity market in the Southeastern Europe region, transmission system operators used the internet ENTSO-E Transparency Platform (EMFIP).

The project on the establishment of the Coordinated Auction Office in the Southeastern Europe, 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 Southeastern Europe region in line with the European Commission decree and the Third Package. The Coordinated Auction Office organised first annual auctions in November 2014, while in December 2014, first monthly auctions were organised on the borders Croatia-BiH and BiH-Montenegro. Other transmission system operators who are Office shareholders still do not participate in allocations due to various problems. Some of the problems include unsettled tax issues, technical problems, lack of a regulatory body's approval of allocation rules, etc. Serbian transmission system operator – PE EMS did not participate in the establishment of the Office, but it submitted its operation plan to the EnC Secretariat in 2014 in which it presented its plan on how the Third Package requirements in the field of coordinated congestion management would be met.

### ***Market of balancing energy***

In 2014, the ECRB completed the analysis of existing balancing mechanisms in the eighth region which was published in the internal report. Common activities of ECRB and EnC Secretariat on regional balancing initiative were continued. Upon the discussions about the Terms of Reference, these activities implied joint meetings in 2014 between the EnC Secretariat and transmission system operators and market operators in the Southeastern Europe region. The meetings were aimed at realization of a common allocation of balancing reserve on the level of two control blocks in the region in line with the draft of market rules for balancing. Therefore, in January 2014, three transmission system operators of the SHB (Slovenia, Croatia, BiH) control block concluded a contract on common purchase of balancing reserve. This cooperation is aimed at the reduction of total quantities of purchased balancing capacity. Negotiations between transmission system operators within the SMM (Serbia, Montenegro, and Macedonia) control block on the common procurement and allocation of balancing reserve were continued in 2014.

### ***Market monitoring***

In 2014, ECRB approved the document - the Guidelines for regulatory market monitoring in the Southeastern Europe. The Guidelines include a detailed description of the indicators based on which one can estimate whether the market is functioning in line with the adopted rules and based on the principles of transparency and non-discrimination. These guidelines include the recommendations to the regulators in the region for the collection of necessary sets of data for the supervision of cross-border parameters in the eighth region. In the next phase, these recommendations can also include other parameters for market monitoring, in line with the achieved level of market openness and development and the availability of the data. The enforcement of these Guidelines is aimed at the establishment of a harmonised approach to regulatory tasks and the introduction of an option for regional market monitoring. Guidelines are not legally binding.

In 2014, the members of the ECRB Electricity Working Group continued their trial work on the activities regarding regional electricity market monitoring, using a software for internet platform - SEEAMMS. The objective of this trial was to familiarise the software users with its functions as well as with the possibilities of different reporting models and detection of indicators' deviations. The ECRB postponed adopting a decision on the appointment of entities that will monitor the regional market, play the administrators role and manage the market monitoring software.

In October 2014, a joint ECRB-ACER workshop on gas and electricity market monitoring was organised during which ACER presented its market monitoring project.

## **3.7 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 on the indicators in order to compare and regulate them. The collected data and calculated indicators will 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.

In the electricity field, the collection of data on delivery and supply quality was initiated six years ago. This is when 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.

### 3.7.1 Continuity of electricity delivery

The continuity of electricity delivery which is characterised by the number and duration of electricity delivery interruptions is regularly monitored by the energy entities dealing with electricity transmission and distribution. The entities submit monthly reports to the Agency for each unplanned and planned interruptions within the transmission and distribution grid which lasted more than 3 minutes. Annual indicators of delivery continuity in the transmission and distribution grid for unplanned and planned interruptions 2009-2014 were calculated.

#### 3.7.1.1 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 which amounts to total undelivered electricity during all interruptions;
- 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 - 2014 are given in Table 3-27.

**Table 3-27: Indicators of discontinuity in delivery within the transmission network in the period 2009 - 2014**

Interruptions		Power failure – undelivered power	ENS	ENS
		MW	MWh	%
<b>2009</b>				
	Planned	189	984	0.002
	Unplanned	3,589	1,525	0.004
	Total	3,778	2,509	0.006
<b>2010</b>				
	Planned	131	473	0.001
	Unplanned	2,790	1,418	0.004
	Total	2,921	1,891	0.005
<b>2011</b>				
	Planned	392	1,875	0.005
	Unplanned	3,212	3,364	0.008
	Total	3,604	5,239	0.013
<b>2012</b>				
	Planned	129	757	0.002
	Unplanned	2,390	1,395	0.004
	Total	2,519	2,152	0.005
<b>2013</b>				
	Planned	161	618	0.002
	Unplanned	1,770	747	0.002
	Total	1,931	1,365	0.004
<b>2014</b>				
	Planned	115	110	0.0003
	Unplanned	1,905	3,496	0.0104
	Total	2,020	3,605	0.0107

Based on the data in the Table, it is obvious that the number of power failures and cases of undelivered electricity quantities due to unplanned interruptions was drastically increased. It resulted from extreme natural disasters, first of all, from freezing rain which caused great damage to the transmission and distribution systems in 2014.

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.



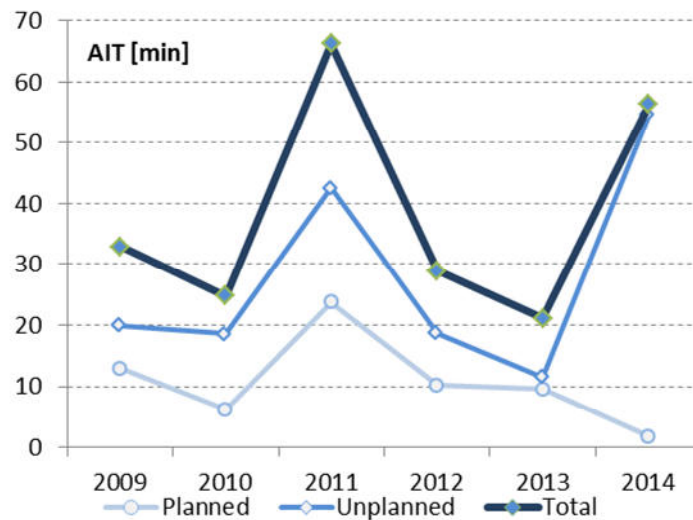


Figure 3-17: Average duration of supply interruption

There was a great increase of average duration of unplanned interruption. It amounted to 54.6 minutes and this is the highest value in the past six years. Average duration of the planned interruption was considerably reduced if compared to previous years and it amounted to 1.72 minutes. Values of unplanned interruption indicators were affected by force major, i.e. natural disasters. The decrease in the share of interruptions of unknown origin indicates that there has been an improvement in the field of identification of interruption cause. 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.

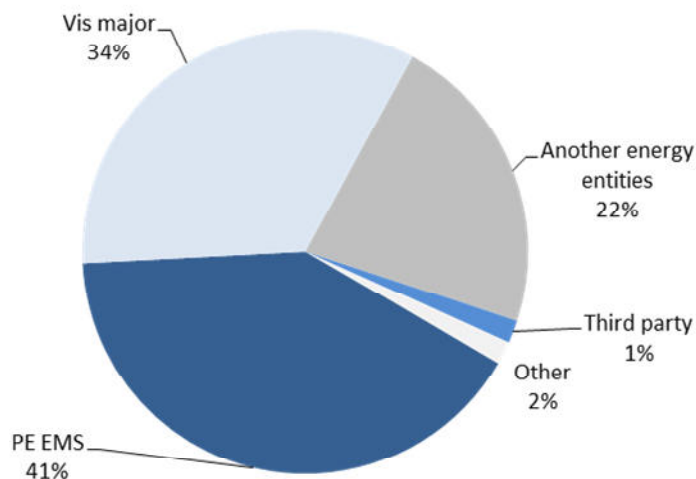


Figure 3-18: Causes of unplanned interruptions and their share in undelivered energy due to unplanned interruptions in 2014

### 3.7.1.2 Distribution network delivery quality indicators

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

- SAIFI [number of interruptions/user] – average frequency of interruptions per each user, calculated as a quotient of the cumulative number of interruptions and total number of users and
- SAIDI [min/user] – average duration of interruptions in minutes per user, calculated as a quotient of cumulative duration of interruption and total number of users.

Indicators of discontinuity of delivery in the distribution network for the period 2009 - 2014, calculated in this manner, are given in Figure 3-19, both for planned and unplanned interruptions and in total.

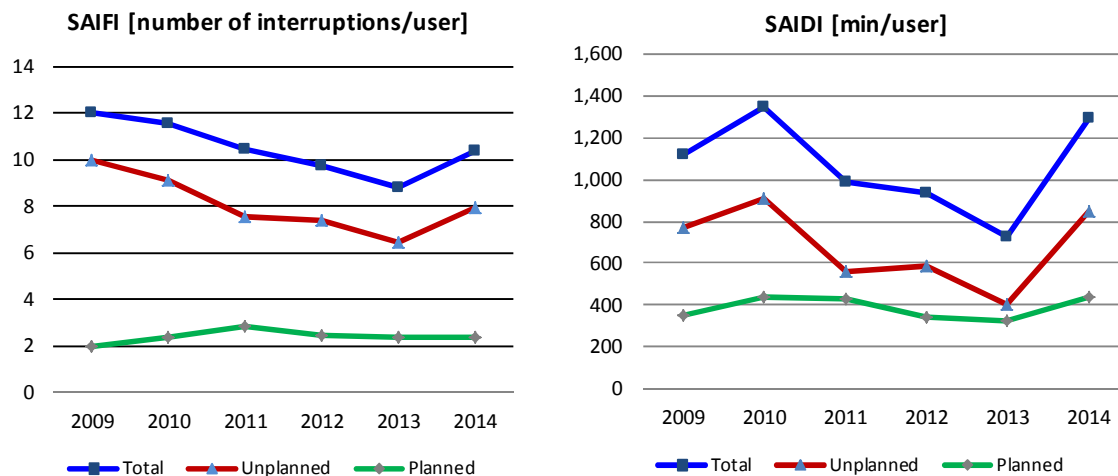


Figure 3-19: SAIFI and SAIDI for the period 2009 - 2014

There was considerable deterioration with continuity indicators for unplanned interruptions in the distribution grid in 2014 in Serbia. The average frequency of unplanned interruptions was increased by 2 interruptions per customer, while the average duration of unplanned interruptions was increased by almost 400 minutes per customer, which represents a huge deterioration in comparison to 2013. This still does not indicate the reduction of the activities of distribution companies. It is the result of extremely unfavourable meteorological circumstances. However, once the interruptions caused by weather, the indicators values are still much higher than those in the European Union member states<sup>6</sup>, and, therefore, it is necessary to take further measures in order to reduce the number of supply interruptions and reduce their duration. The average frequency and duration of planned interruptions were still 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.

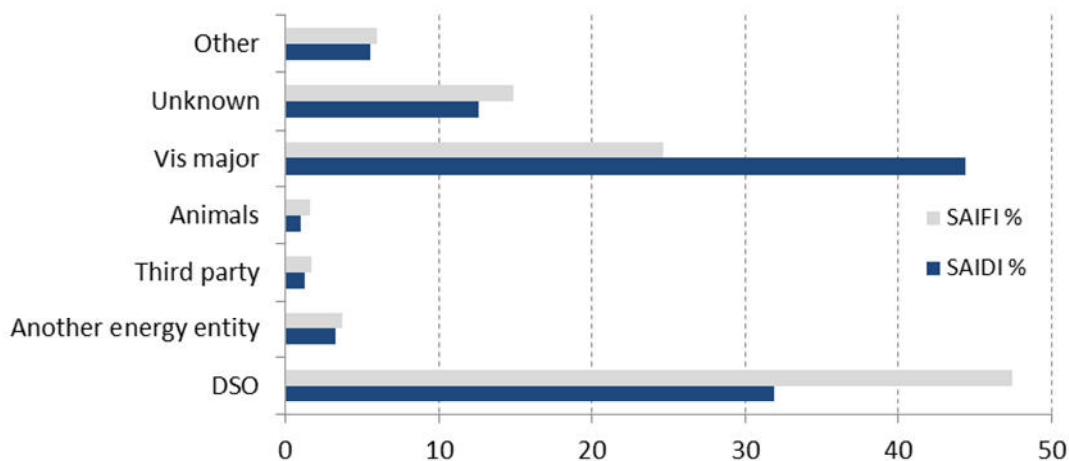


Figure 3-20: Share of causes of unplanned interruptions in SAIFI and SAIDI for 2014

The share of certain interruption causes within the number and duration of unplanned interruptions changed considerably in comparison to 2013. The share of vis major was increased significantly since the indicators valued increased considerably due to the May floods in Serbia. The percentage rate of other causes in coefficients is generally speaking the same, but it must be highlighted that the share of “unknown causes” and “other” amounted to half the 2013 values.

### 3.7.2 Quality of electricity

The quality of electricity is the other aspect of technical quality, along with delivery continuity, which the system operators are obliged to monitor in line with Rules on Quality. 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

<sup>6</sup> 5<sup>th</sup> CEER Benchmarking Report on the Quality of Electricity Supply 2011

Decree on Delivery and Supply Conditions and 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 from the aspect of users' appeals which are being monitored within commercial quality area.

### 3.7.3 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 treatment of customers, i.e. services users.

Based on former Agency's requirements, 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 three 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 2014, for the purpose of monitoring commercial quality, companies for electricity distribution submitted quarterly reports as well as the annual report to the Energy Agency on regular basis with 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 groups of data which were incomplete as some energy entities do not submit the relevant data.

#### 3.7.3.1 Connection, loadshedding and disconnection

The data registered by system operators on applications for system connection are grouped and given for each voltage level Table 3-28.

**Table 3-28: Connection applications by voltage levels**

Connection applications		MV	LV	Total	
Number	of submitted applications	235	38,125	38,360	
	Settled applications	Approving connection	174	28,289	28,463
		Denying connection	4	88	92
		Settled differently	20	8,525	8,545
		Total	198	36,902	37,100
	Within 30 days	148	24,581	24,729	
%	Settled applications in comparison to the submitted ones	84	97	97	
	Applications approving connection in comparison to the number of settled ones	88	77	77	
	Settled applications within 30 days	65	64	64	
Average time	Necessary for settlement – given in days	20	29	25	

In comparison to 2013, the number of submitted applications for connection as well as the number of decisions approving connections is somewhat higher, as well as the number of denial.

The average time necessary for the adoption of the decision was increased by around 5 days in comparison to 2013.

**Table 3-29: Connection of facilities by voltage levels**

Connection		MV	LV	Total
Number	of connected facilities	117	37,819	37,936
	of facilities connected within 15 days' period	60	25,046	25,106
%	of facilities connected within 15 days' period	29	90	90
Average time – given in days	Necessary for connection since the day all the conditions are met	8	5	7

The indicators describing the connection of a facility (Table 3-29) improved in comparison to 2013, including the average time necessary to perform connection as of the day the conditions for connection are met which amounts to 7 days, i.e. 4 days less than in 2013..

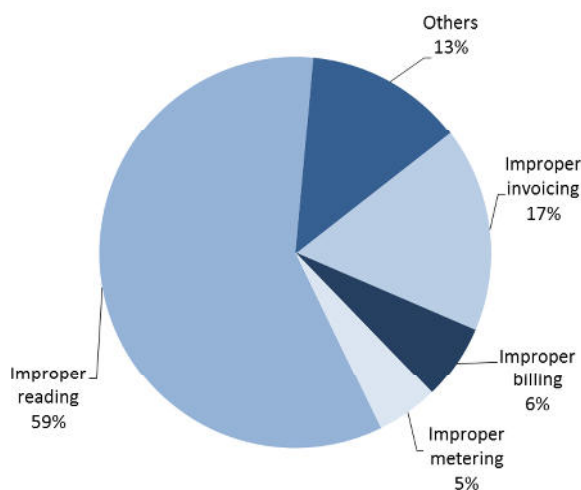
In 2014, there were 203,101 disruptions upon suppliers' request, registered due to unsettled liabilities as regards electricity in the prescribed deadline, which is 30% less than in 2013. The average time of reconnection upon the removal of causes of disruption/disconnection, i.e. upon unjustified disruption/disconnection differs in different DCs for electricity distribution. It is between 1 and 3 days and it corresponds to the values in 2013.

### 3.7.3.2 Metering and calculation

Regular controls of meters were planned for 370,558 meters in 2014 and 347,239 customers had their meters checked, i.e. 94% of them. Out of them, 42,219, i.e. around 11% had irregularities. There were 47,736 extraordinary checks of metering points requested by customers, and checks were organised for 46,613 points (around 98%) and there were irregularities in 50% of extraordinary checks (23,555). The irregularities were removed in 23,364 cases.

Upon registering the disappearance, restraints or damage of meters, in 98% 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 amounted to between 2 and 4 days, while in mass consumption category average time period was longer, different in different distribution company - 8 days at most.

In 2014, around 1% out of total number of bills – 42,789,133 was revised. More than half 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**

Average time for settling complaints against bills was different in different distribution companies and amounted to 8 days at most.

### 3.7.3.3 Removal of technical disturbances in delivery

Out of the total number of customers' requests in 2014 for the removal of voltage disturbances which are repeated in a long time frame (1,292), more than 82% of requests (1,065) were justified. Voltage disturbances were removed in 742 cases, i.e. 70.5% of justified cases, which represents several percent higher performances than in 2013.

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

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

### **3.7.3.4 Customer services**

Despite the progress that has been made on the improvement in providing services to customers in customers' and contact centers (call centers), data which could serve for the assessment of the quality of services in these centers 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, energy entities will have to improve, i.e. start registering these data.

## **3.8 Security of electricity supply**

Multi-year investments in revitalisation and modernisation, reliability and efficiency of units in thermal power plants and lignite mines which provide fuel for thermal power plants and partly for hydro power plants were increased. In the transmission network, too. In addition, revitalisation of some power plants contributed to the increase in the power on the transmission threshold (maximum power that could be delivered to the grid). It all lead to the increase of production in thermal power plants and their reliability reached 96.2% in 2013, which is comparable to the reliability and usage rate of such plants in the EU. Thereby, even without new production capacities, security of electricity supply was drastically increased while the import demand was decreased.

However, in 2014, the security of supply was very endangered by extreme weather conditions, great-scale floods and freezing rain which affected lignite mines and thermal power plants as well as the transmission and distribution network significantly. To a certain extent, mitigation of consequences of these weather conditions was caused by inflows in hydro power plants profiles which were above average and temperatures during winter season which were also than the average ones.

### **3.8.1 Consumption forecast**

Until 2025, one can expect electricity consumption growth in Serbia of below 1% by average per year. This forecast is given in the Draft Energy Sector Development Strategy until 2-15 which was defined by the Government in early 2014. These assumptions take into account consumption growth in the industrial sector as well as the implementation of measures for energy efficiency increase in all consumption sectors. The unknown tempo of the economic growth makes the development of the consumption forecast more difficult and increases the risk for potential investors.

### **3.8.2 Generation adequacy**

New power plants are necessary so as to cover the electricity consumption growth and so as to replace the power plants which, due to their long lifetime and inability to comply with environment protection requirements, will be shut down. PE EPS is preparing further revitalisation and modernisation of existing power plants which will have their installed capacity increased as well. Ever greater share of the demand in the future will be covered by the use of renewable energy sources in line with the National Action Plan for the Use of Renewable Energy Sources of the Republic of Serbia which defined around 3,100 GWh production until 2020.

The Decision of the Ministerial Council of EnC allowed the postponement of the enforcement of the EU Directive on Large Combustion Plants, i.e. on the emission of sulphur and nitrogen oxides until 2023 with special conditions. The result of this is that over 1,100 MW to which this Directive refers and which provide more than 15% of the total production at the moment, can be still operating until that deadline in line with a certain operating regime. The urgent construction of new power plants is postponed to the extent provided by the Directive.

#### ***Thermal power plants***

The revitalisation and modernisation of thermal units which have not gone through that procedure is planned in the future.

Due to their age, low efficiency, high production costs and environment protection, the oldest generators will be out of operation. The first one to be out of operation will be the thermal power plant Kolubara A.

A new thermal capacity that is most likely going to be constructed among other facilities is the third unit in TPP Kostolac B, of 350 MW capacity fueled by lignite.

Capacities in lignite mines should be timely harmonised with the demand of thermal power plants by the expansion of existing pits and opening new ones which will replace the almost exhausted ones.

#### ***Hydro power plants***

Revitalisation and modernisation of hydro power plants Đerdap 1 of 1,058 MW capacity, Zvornik of 96 MW and other PE EPS hydro power plants is either planned or already initiated.

Apart from the revitalisation and modernisation of existing hydro power plants, the construction of hydro power plants on Ibar, Morava and Drina rivers as well as of the pumped-storage hydro power plant Bistrica of 4x170 MW is either considered or being prepared.

### 3.8.3 Use of renewable energy sources

The Decree on Incentive Measures for Electricity Generation through the use of renewable energy sources and combined electricity and heat energy generation prescribes incentive measures for electricity generation through the use of renewable energy sources and for energy purchase – feed-in tariff in more detail. Incentive measures include setting procurement prices based on power plant type where electricity is produced through the use of renewable energy sources and based on installed capacity.

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.

Final prices for privileged electricity producers are given in the Table 3-30. These prices were valid in 2014.

**Table 3-30: Final prices for privileged electricity producers in 2014**

No.	Type of power plant	Installed capacity (MW)	Incentive measure – final price (c€/ kWh)
<b>1</b>	Hydro power plants		
1.1		Up to 0.2 MW	12.40
1.2		from 0.2 MW to 0.5 MW	13.727-6.633* P
1.3		from 0.5 MW to 1 MW	10.41
1.4		from 1 MW to 10 MW	10.747-0.337* P
1.4		from 10 MW to 30 MW	7.38
1.4	Existing infrastructure	Up to 30 MW	5.9
<b>2</b>	Biomass fired power plants		
2.1		Up to 1 MW	13.26
2.2		from 1 MW to 10 MW	13.82 – 0.56*P
2.3		over 10 MW	8.22
<b>3.</b>	Biogas fired power plants	From 5 MW to 10 MW	11.4
3.1		Up to 0.2 MW	15.66
3.2		From 0.2 MW to 1 MW	16.498 – 4.188*P
3.3		over 1 MW	12.31
3.4	Power plants fired by biogas of animal origin		12.31
<b>4.</b>	Power plants fired by landfill gas from plants for municipal waste water treatment		6.91
<b>5.</b>	Wind power plants		9.20
<b>6.</b>	Solar power plants		
6.1		On the facility of up to 0.03 MW	20.66
6.2		On the facility of 0.03 MW -0.05 MW	20.941 – 9.383*P
6.3		On the ground	16.25
6.4		From 0.2 MW to 2 MW	C <sub>0</sub> = 10.667–1.333*P
6.5		From 2 MW to 10 MW	C <sub>0</sub> = 8.2
<b>7.</b>	Geothermal power plants		
7.1		Up to 1 MW	9.67
7.2		from 1 MW to 5 MW	10.358-0.688*P
7.3		Over 5 MW	6.92
<b>8.</b>	Waste fired power plants		8.57
<b>9.</b>	Coal-fired combined cycle power plants	Up to 10 MW	8.04
<b>10.</b>	Natural gas-fired combined cycle power plants	Up to 10 MW	8.89
	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 <sub>1</sub> – new incentive final price , C <sub>0</sub> – former incentive final price , P <sub>inf</sub> – 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	$C = C_0 * 0.36 + 0.64 * \Gamma/35.59$ where: C – new purchase electricity price C <sub>0</sub> – incentive final price set on the basis of the tariff “energy source” of 35.59 RSD/m <sup>3</sup> , 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, P - (installed) power 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 <sup>3</sup> .	

Electricity quantities withdrawn from privileged producers in 2014 are given in Table 3-31.

**Table 3-31: Electricity withdrawn from privileged producers in 2013 and 2014**

Renewable energy sources/ Fuel for combined generation	MWh, %		
	2013	2014	2014/2013
Water flows	61,664	146,614	237.8
Fossil fuels (coal, fuel oil and natural gas) – combined production	21,063	30,748	146.0
Biogas	14,052	15,667	11.5
Biomass	5,052	3,996	79.1
Waste, landfill gas and gas from waste waters	14	988	7057.1
Solar energy	1,490	5,232	351.1
Wind	682	372	54.5
<b>TOTAL</b>	<b>104,017</b>	<b>203,617</b>	<b>195.8</b>

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

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

### 3.8.4 Construction of new transmission capacities

In 2014, activities on regular maintenance, overhauls and reconstruction of facilities were implemented within the transmission system, but, due to extreme weather, especially due to floods in many parts of Serbia and freezing rain in eastern Serbia, it was necessary to get engaged greatly in bringing parts of the transmission network which underwent huge damage back into operation. There was a follow-up of investment projects, i.e. some important facilities were constructed such as TS 400/110kV Vranje 4, overhead line 110kV Majdanpek – Mosna. In addition, the construction of TS Belgrade 20 was continued and the construction of the 400 kV overhead line was initiated in order to provide the supply for that TS. The reconstruction of the following transformer stations was either continued or initiated: TS 400/220 kV Obrenovac, TS 400/110 kV Kragujevac, TS 220/110/35 kV Belgrade 5, TS 220/110 kV Belgrade 3 and TS 220/110 kV Kraljevo 3.

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 Energy Law of the Republic of Serbia which was adopted in the end of 2014 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.

A set of strategic documents which is published by PE EMS includes:

- Ten-year Development Plan of Transmission Network of the Republic of Serbia;
- National Strategic Investment Plan – NASIP and
- Annual Investment Plan – GIP. The Development Plan of Transmission Network of the Republic of Serbia for the period from 2015 until 2024 (2030) was drafted by PE EMS and submitted to the Agency on 26/12/2014 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. This document was improved in comparison to the previous one to a great extent.

Analyzing 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 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;
- a follow-up of the construction of TS 400/110 kV Belgrade 20 of installed capacity of 2x300 MVA which is a condition for secure supply of central Belgrade zones;
- 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 will contribute to the security of supply and reliability of system operations. The conditions and tempo of realisation of the interconnection between Serbia, Montenegro and Bosnia and Herzegovina will be considered in more detail upon the completion of additional study documents.

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. 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. The Development Plan was harmonised with the distribution system operator's development plans, in compliance with the data submitted by electricity distributors to the PE EMS during the preparation of the Plan.

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.

### **3.8.5 Distribution system operators' investment activities**

In line with the new Energy Law, distribution system operator is obliged to adopt network development plans, harmonised with the transmission system development plan and connection applications. During 2014, distribution system operators were preparing ten-year development plans. But some of them did not submit them to the Agency. The plans were harmonised with the transmission system development plans and the plans of neighbouring distribution systems.

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. A plan for 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 or producers is an integral part of the plan.

In 2014, distribution systems were affected by great damage due to freezing rain and floods and considerable efforts were made so as to remove the damage. The following works were either completed or initiated within the distribution systems:

- on OHLs:
  - Construction and reconstruction of a set of OHL within the distribution 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 TSs:
  - Reconstruction and expansion of capacities was done on a certain number of existing TSs;
  - In 2014, the legal procedure of transfer of 52 of 53 transformer stations which were transferred from PE EMS in 2013 was completed. Therefore, taking into consideration the status of equipment, their reconstruction and modernisation is planned in the following ten-year period;
- metering and management:
  - Upgrade of metering devices and further development and introduction of remote reading system has not been done to the expected scale primarily due to delayed tenders launch which prevented mainly launching more numerous procurement procedures for new electricity meters.



### **3.8.5.1 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 and supply 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. In 2011, a credit was approved for the realisation of this task. The tender for the procurement of necessary equipment, primarily new meters, was being prepared. It was also decided to replace the meters in those areas with significant level of losses in electricity distribution first. In 2012, a tender was launched, but it was suspended because of appeals which were filed. For this reason, the procurement of a substantial number of new meters was postponed for the future. In 2013, a feasibility study on meters replacement was done again so as to continue the procedure of metering equipment procurement. In 2014, a tender for the realization of a modern metering system, remote metering and metering data processing was launched.

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.

### **3.8.5.2 Reduction of electricity losses in the distribution network**

By organising some of investment activities in 2014 (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 initiated the trend of reduction of energy loss in grids.

However, the scale of these activities was 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 grid to a much greater extent 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 coepration with state bodies as regards electricity theft prevention.



## 4. NATURAL GAS

### 4.1 Sector structure and capacities

#### 4.1.1.1 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 2014 is given in Figure 4-1.

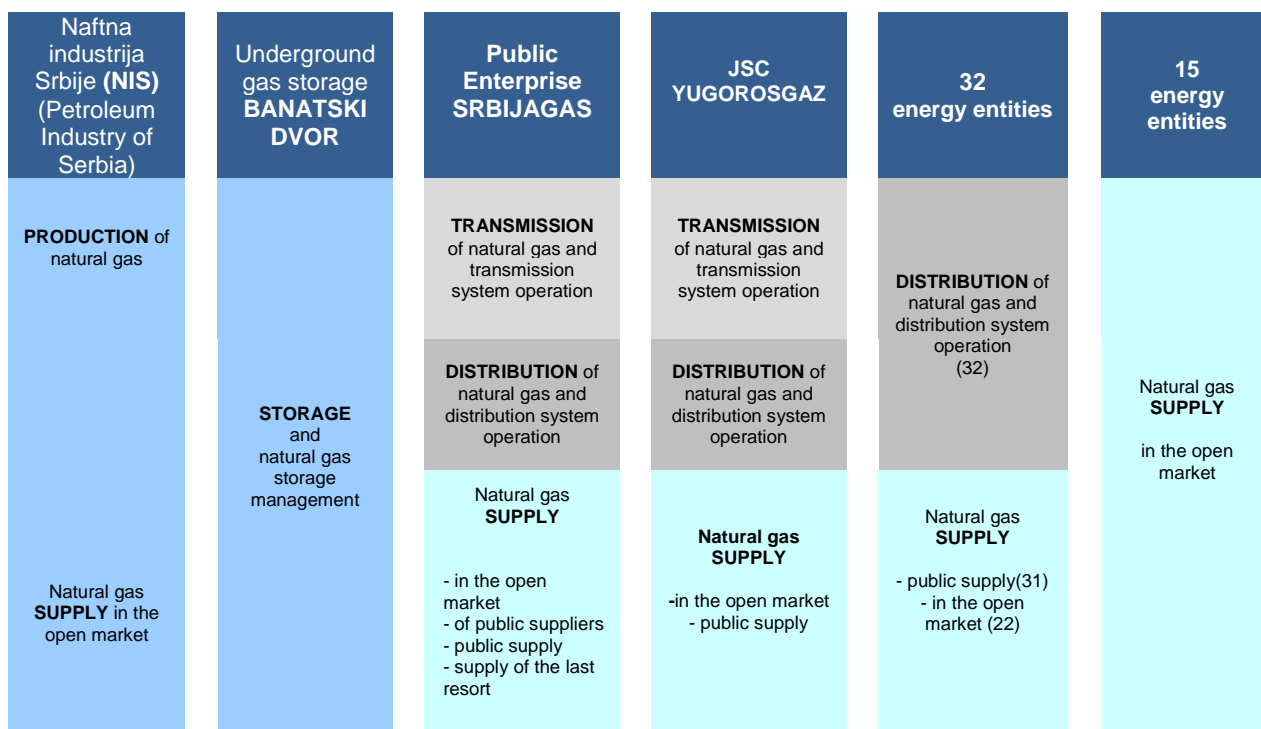


Figure 4-1: Organisational structure of the natural gas sector at the end of 2014

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.

Natural gas transmission and transmission system operation are performed by natural gas transmission system operators: PE Srbijagas and Yugorosgaz JSC.

Yugorosgaz JSC (with following shareholders: Gazprom Moscow 50%, PE Srbijagas 25% and Central ME Energy and Gas, Vienna 25%) procures natural gas from Gazprom Moscow for Serbian customers.

There are 34 licensed energy entities performing distribution and distribution system operation while these activities are performed by distribution system operators PE Srbijagas and Yugorosgaz JSC and 32 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 18 of the Law).

At the end of 2014, there were 40 energy entities in total licensed for supply in the open market: NIS, PE Srbijagas, Yugorosgaz JSC, 22 of them which deal in distribution and another 15 energy entities dealing only in this energy activity. In 2014, only two suppliers were active in the open market: PE Srbijagas and Elgas Energy Trading, LLC. Natural gas public suppliers at regulated prices are the following: PE Srbijagas, Yugorosgaz JSC and 31 companies dealing in 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, the Government of RS adopted a decision on 23/07/2013 on the selection of PE Srbijagas as a natural gas public suppliers' supplier for the period 01/09/2013 – 01/01/2015. 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. PE Srbijagas is also the supplier of the last resort, selected via public tender published in June 2013.

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, while 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 until mid-2015. Transmission and distribution system operators are planned to be legally separate entities within PE Srbijagas holding. 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.

Transmission system operator Yugorosgaz – Transport LLC Niš was legally unbundled within the Yugorosgaz JSC Belgrade holding and it was licensed for natural gas transmission and transmission system operation in September 2013. However, unbundling was not completed in full compliance with the law. The Agency approved the Programme for Non-Discriminative Behaviour of Yugorosgaz – Transport LLC Niš in November 2014.

Distribution companies in Serbia unbundled distribution, 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.

##### 4.1.3.1 Transmission

At the end of 2014, the length of the transmission system of PE Srbijagas amounted to 2,298 km in north and central Serbia, while the length of the Yugorosgaz JSC 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.

Table 4-1: Length of the transmission network in Serbia in 2010 - 2014

Year	2010	2011	2012	2013	2014
Network length, km	2,258	2,321	2,391	2,398	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 transmission systems of PE Srbijagas and Yugorosgaz JSC.

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

Important technical characteristics of the transmission system	PE Srbijagas	Yugorosgaz JSC
Capacity, mill. m <sup>3</sup> /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	265	5
Metering and regulating stations on transmission system exit	262	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 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 27% of the total number of exits from the transmission system.

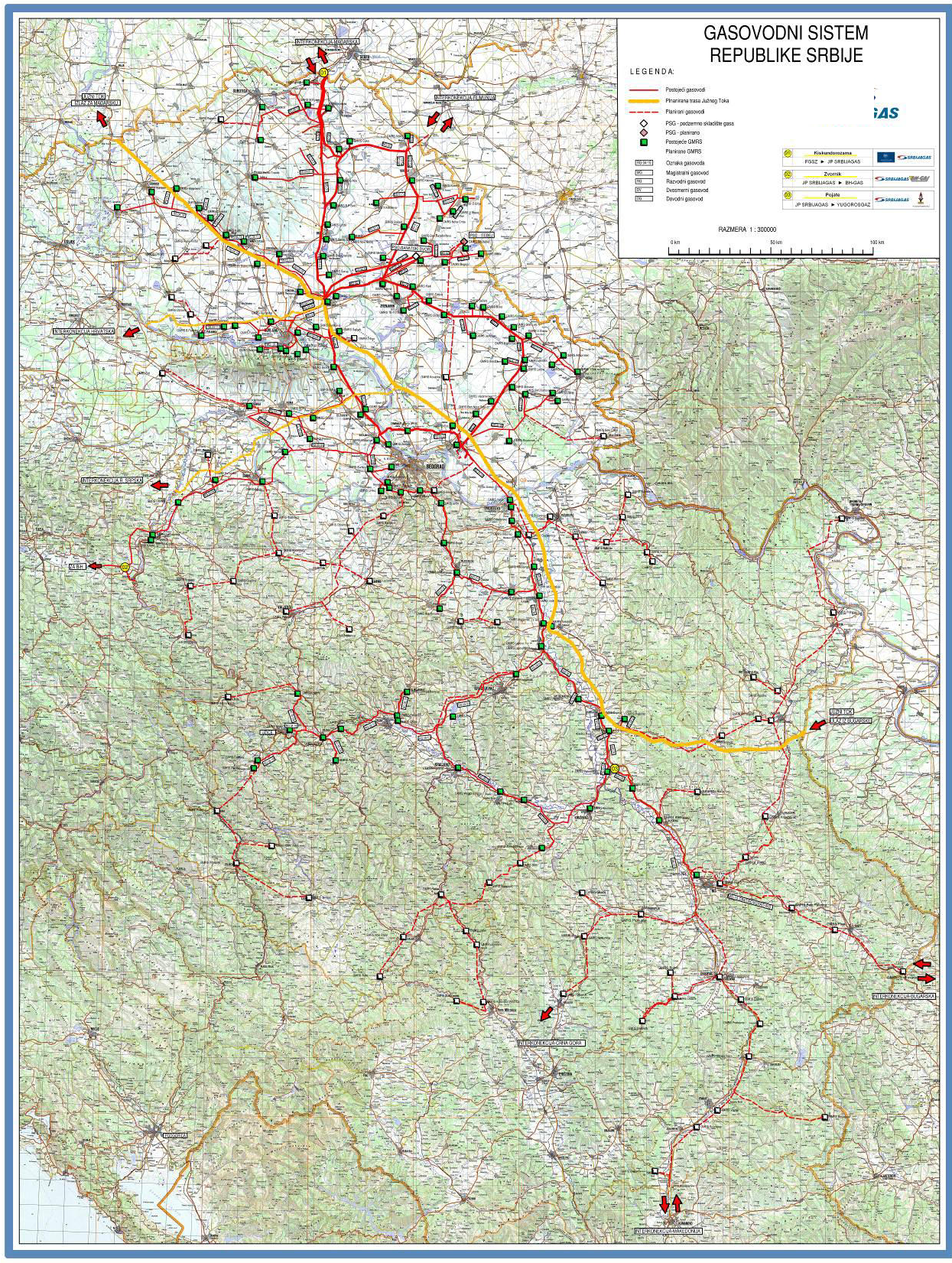


Figure 4-2: Natural gas transmission system of the Republic of Serbia

#### 4.1.3.2 Distribution

The length of the distribution network has increased from 2010 to 2014 by 12.6%, i.e. to 16,363 km (without connections) thus creating the conditions for the connection of new customers. The greatest share of increase in distribution network length was with PE Srbijagas which owns around 46% of the distribution network at the moment.

**Table 4-3: Length of the distribution network in Serbia in 2010 - 2014**

	2010	2011	2012	2013	2014
Length of distribution network, km	14,299	14,628	15,348	15,839	16,363

The number of active connections (delivery points) within distribution networks amounts to 261,000.

**Table 4-4: Length of distribution network and number of delivery points on December 31, 2014**

No.	Natural gas distributor	Distribution grid length, meters	Number of active connections
1	7. Oktobar, Novi Kneževac	49,652	1,536
2	Beogas, Belgrade	213,324	8,465
3	Beogradske elektrane, Novi Beograd	330,710	3,848
4	Boss petrol, Trstenik	26,134	34
5	Čoka, Čoka	27,190	813
6	Drugi oktobar, Vršac	198,040	12,760
7	Elgas, Senta	59,230	1,771
8	Gas – Feromont, Stara Pazova	569,944	16,598
9	Gas – Ruma, Ruma	453,580	7,000
10	Gas, Bečež	198,197	1,643
11	Gas, Temerin	266,500	6,624
12	Graditelj, Srbobran	150,200	2,281
13	Grejanje, Zrenjanin	510,564	20,175
14	Ingas, Inđija	357,488	9,507
15	Interklima, Vrnjačka Banja	105,050	951
16	Komunalac, Novi Bečež	121,158	2,302
17	Kovin – Gas, Kovin	333,094	3,911
18	Loznica - Gas, Loznica	126,360	1,355
19	LP - Gas, Belgrade	38,500	1,788
20	Novi Sad – Gas, Novi Sad	2,362,175	44,803
21	Polet, Plandište	239,300	3,590
22	Resava Gas, Svilajnac	59,334	313
23	Rodgas, Bačka Topola	204,704	1,280
24	Sigas, Požega	19,987	295
25	Sloga, Kanjiža	171,300	4,012
26	Sombor – Gas, Sombor	172,000	1,779
27	Srbijagas, Novi Sad	7,514,449	82,081
28	Srem - Gas, Sremska Mitrovica	262,919	4,639
29	Standard, Ada	42,000	987
30	Suboticagas, Subotica	403,846	8,988
31	Toplana – Šabac, Šabac	170,381	2,445
32	Užice – gas, Užice	126,578	347
33	Vrbas – Gas, Vrbas	183,000	1,603
34	Yugorosgaz, Beograd	296,610	679
	<b>TOTAL</b>	<b>16,363,498</b>	<b>261,203</b>

\* LP Gas has the network and customers, but its status is not settled.

### 4.1.3.3 Storage

Underground gas storage Banatski Dvor is located on the depleted gas deposit whose capacity used to amount to 3.3 billion cubic meters of natural gas. Total area of the storage amounts to around 54 square kilometers. There is currently 450 million cubic meters of available capacity while maximum productivity in the withdrawal process amounts to 4.5 million cubic meters per day. After the second phase of construction is completed, the storage will have the capacity of 800 million cubic meters. Banatski Dvor is 22 km east to the Zrenjanin city and 44 km from the main gas pipeline junction point in Gospođinci. The underground storage is connected by two gas pipelines to the gas pipeline junction point in Elemir.

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. The basic data on this gas pipeline are the following:

- length 42,5 km
- nominal diameter DN 500
- maximum working pressure:  $p_{max}=75$  bar
- maximum gas flow:
  - withdrawal UGS B. Dvor  $Q=415,000$  m<sup>3</sup>/h (10 million S m<sup>3</sup>/day)
  - injection UGS B.Dvor  $Q=230,000$  m<sup>3</sup>/h (5.5 million S m<sup>3</sup>/day)

This storage greatly contributes to security of natural gas supply in Serbia.

In 2014, maximum technical capacity of injection was 2.7 million m<sup>3</sup>/day and maximum withdrawal capacity was 4.5 million m<sup>3</sup>/day. With reference to realised flows, maximum daily injection quantities in 2014 amounted to 2.7 million m<sup>3</sup>/day and maximum daily withdrawn quantities recorded 4.2 million m<sup>3</sup>/day.

In 2014, the cushion gas quantity in the storage did not change and it amounted to 530 million m<sup>3</sup> during the year. Storage users injected 284 million m<sup>3</sup> of commercial gas and withdrew 353 million m<sup>3</sup> from it.

288 million m<sup>3</sup> of gas were injected from the transmission system into the storage, and 352 million m<sup>3</sup> were withdrawn into the transmission system.

At the end of 2014, there were 333 million m<sup>3</sup> of commercial gas in the storage.

The difference between the quantities injected into the storage and the quantities withdrawn from the storage, as compared to the quantities delivered and overtaken from and into the transmission system represent the quantities necessary to cover storage system consumption.

In 2014, the Council of the Agency adopted a Methodology for Setting Natural Gas Use-of-Storage Charges.

## 4.2 Natural gas consumption and supply sources

In 2014, 2,166 million m<sup>3</sup> of natural gas were available from import, local production and underground storage. Most of natural gas quantities are provided through import from the Russian Federation based on the long-term contract. In 2014, natural gas import from the Russian Federation in line with a long-term contract amounted to 1,393 billion m<sup>3</sup>, out of which 1,346 million m<sup>3</sup> were withdrawn from the Hungarian transmission system and 47 million m<sup>3</sup> from the storage.

2014 local production amounted to 466 million m<sup>3</sup> was practically the same as in 2013 and its share in total consumption amounted to 22%.

**Table 4-5: Natural gas supply sources and consumption in 2013 and 2014**

	2013 million m <sup>3</sup>	2014 million m <sup>3</sup>	2014/2013 %
Production delivered to transmission system	451	453	100
Production delivered to distribution system	17	14	82
<b>Total production</b>	468	467	100
Import from the Russian Federation – via long-term contract	1,155	1,393	120
Import from other sources – via other contracts	729	0	0
<b>Total import</b>	1,884	1,393	74
Quantities withdrawn from the underground storage	113	306	271
<b>TOTAL AVAILABLE QUANTITIES</b>	2,465	2,166	88
Injected into the storage	251	164	65
<b>Gross consumption</b>	2,214	2,002	90
Transmission system losses and consumption	6	7	116
Distribution network losses	16	14	88
<b>For final consumption</b>	2,192	1,981	91

In 2014, 1,982 million m<sup>3</sup> of natural gas were consumed – 10% less than in 2013. Consumption decreased by 18% in households, 10% in district heating companies and 8% in the industrial sector. The consumption drop with customers and district heating companies is a result of higher average temperature in wintertime. In case of households, another reason is gas substitution with other energy sources due to lower prices. In comparison to 2013, when natural gas from line pack was not used to cover consumption, 1.2 million m<sup>3</sup> of natural gas from line pack was used to cover the demand in 2014.

The number of delivery points was in 2014 was increased by 188 in comparison to 2013. At the end of 2014, it amounted to 261,203. Out of it, households accounted for 248,975 or 95.3%. This implies that only 10% of all households in Serbia have a gas connection.

**Table 4-6: Number of delivery points at the end of 2013 and 2014**

Consumption category	2013	2014	Difference 2014-2013
Households	249,006	248,975	-31
District heating companies	73	69	-4
Industry and other	11,936	12,219	283
Total	261,015	261,263	248

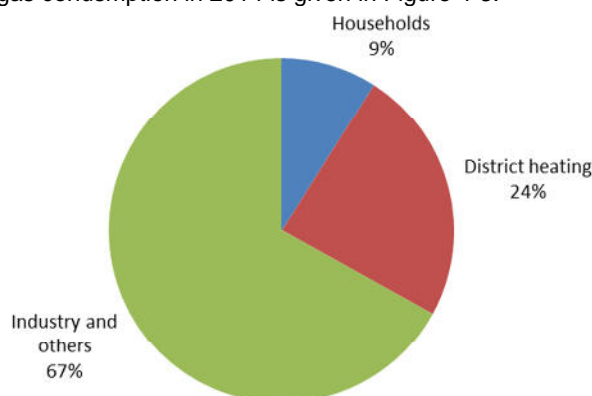
Consumption structure for customer categories is given in Table 4-7.

**Table 4-7: Consumption structure in 2013 and 2014**

Consumption category	2013 million m <sup>3</sup>	2014 million m <sup>3</sup>	2014/2013 %
Households	218	179	82
District heating companies	526	472	90
Industry and other	1,448	1,331	92
Total	2,192	1,982	90

Households consumption accounts for 9% of final natural gas consumption in 2014. District heating companies consumption accounted for 24%, while industry and other customers covered 67% (this consumption includes the quantities purchased in the market and the quantities NIS spent from its local production).

The structure of the final natural gas consumption in 2014 is given in Figure 4-3.



**Figure 4-3: Structure of natural gas consumption in Serbia in 2014**

Average annual natural gas consumption per connected household amounted to 717 m<sup>3</sup> in 2014 (including active delivery points for households which did not consume gas during 2014) which amounts to 18% less than in 2013. If one only takes into account the households which consumed natural gas during 2014, average annual consumption per household amounted to 795 m<sup>3</sup>.

### 4.3 Regulation of the transmission system operator

PE Srbijagas and Yugarosgaz JSC are transmission system operators holding the license for transmission and transmission system operation.

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
- organisation and administration of natural gas market.

The most important activities of the transmission system operator in 2014 which provide the compliance of its work with the commitments arising from the Law and natural gas market opening are as follows:

- activities on the procurement 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.

Natural gas transmission system operator is obliged to submit the development plan to the Agency every year. The plan is approved by the Agency.

#### 4.3.1 Natural Gas Transmission Network Code

Upon the approval of the Agency, PE Srbijagas published the Natural Gas Transmission Network Code in August 2013. The Code also includes the rules for capacity allocation and natural gas market code. The enforcement of their provisions was planned to start in 2014, but it was delayed until the beginning of the gas year which starts as of July 1, 2016 (gas year is a period between July 1 of a year at 8.00 o'clock until July 1, at 8.00 o'clock next year) since capacity allocation requires legal unbundling of natural gas transmission from supply and this is expected in mid-2015. Yugorosgaz JSC submitted its Natural Gas Transmission Network Code draft harmonised with the Agency's requirements in December 2014. Natural Gas Transmission Network Code of Yugorosgaz JSC was adopted in January 2015.

#### 4.3.2 Regulation of the transmission use-of-system charges

Regulated transmission use-of-system charges have been applied for the first time on October 15, 2008. In 2014, natural gas transmission use-of-system charges were not modified and the charges which were assessed positively by the Agency prior to being approved by the Government in 2011 were applied in 2013. Transmission use-of-system charges which were applied in 2014 are given in Table 4-8.

**Table 4-8: Transmission use-of-system charges in 2014**

Natural gas transmission system operator	Commodity RSD/m <sup>3</sup>	Capacity RSD/m <sup>3</sup> /day/year	Commodity for system operation RSD/m <sup>3</sup>
PE Srbijagas, Novi Sad	0.79	54.98	0.00
Yugorosgaz-Transport, LLC, Niš	1.13	75.52	0.00

Average PE Srbijagas transmission use-of-system charge amounted to 1.13 RSD/m<sup>3</sup>, while the average Yugorosgaz-Transport charge amounted to 1.62 RSD/ m<sup>3</sup> in 2014. This transmission use-of-system charge of PE Srbijagas was considerably below the economically-justified level due to underestimated level of capital assets, since the assessment of these has not been done for a long time, but, also due to the application of a negative correction element during the approval of prices in 2011.

**Table 4-9: Trend of approved natural gas transmission use-of-system charges on the annual level RSD/m<sup>3</sup>**

	September 2008	from August 2011
PE Srbijagas	1.10	1.13
	November 2009	from September 011
Yugorosgaz-Transport, LLC, Niš	2.29	1.62

In the end of 2014, preparations for price correction were initiated as well as for the enforcement of the new methodology for setting transmission use-of-system charges which was adopted in 2012 and harmonised with the EU

legislation. The Methodology uses the so called ENTRY-EXIT model and it enabled a more realistic ratio between fixed and variable costs – 70:30, as it was not the case so far. The new PE Srbijagas transmission use-of-system charge is applicable as of February 1, 2015.

The current natural gas transmission use-of-system charges are available on the Agency's website ([www.aers.rs](http://www.aers.rs)).

### 4.3.3 Transmitted natural gas quantities

In 2014, 2,459 million m<sup>3</sup> of natural gas were delivered to Srbijagas transmission system. These quantities were transmitted so as to meet the demand on the side: customers, transmission for Bosnia and Herzegovina, storing, transmission and distribution system operators for gas losses recovery and compressor operations, while 122 million m<sup>3</sup> were transmitted into the storage for Gazpromexport, in line with the long-term contract with PE Srbijagas. 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 2013 and 2014**

	2013 million m <sup>3</sup>	2014 million m <sup>3</sup>	2014/2013 %
Production	451	453	100
Entry into Serbia from Hungary to meet Serbia's demand	1,823	1,468	81
Entry into Serbia to meet Bosnia and Herzegovina's demand	194	185	95
Total	2,468	2,106	85
From storage	266	353	132
<b>Transmitted quantities</b>	<b>2,734</b>	<b>2,459</b>	<b>90</b>

### 4.3.4 Use of cross-border transmission capacities

The Republic of Serbia has two interconnections with other gas pipeline systems (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 cross-border transmission capacity allocation and congestion management are defined by the natural gas Transmission Network Code. This code also defines the mechanism for capacity allocation and congestion management on interconnectors. 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 other countries, PE Srbijagas is entitled to award capacities on interconnection gas pipelines. In 2014, capacities were allocated on the entry point Hungary – Serbia (Kiskundorozsma) so as to meet the demand of PE Srbijagas, Gazprom Export, Company for gas production and transmission BH – Gas LLC Sarajevo and Alumina LLC Zvornik. Exit capacity towards Bosnia and Herzegovina was allocated so as to meet the demand of BH Gas and Alumina. In 2014, there were no congestion problems, i.e. there were available capacities on the interconnectors even during winter months.

In 2014, the utilisation rate of the entry firm capacity on Serbian-Hungarian border amounted to average 36.5% with 540,000 m<sup>3</sup>/hour (13 millions m<sup>3</sup>/day). In 2013, it amounted to 42.5%, 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 in 2014 amounted to 10.61 million m<sup>3</sup>/day. 9.36 million m<sup>3</sup>/day was used by customers in Serbia, while 1.25 million m<sup>3</sup>/day were intended for Bosnia and Herzegovina. Bearing in mind the available interconnector capacity for natural gas customers in Serbia of 11 million m<sup>3</sup>/day and interconnector utilisation rate of 90%, it is possible to have 3.6 billion m<sup>3</sup> imported which is greatly higher than annual import in 2005-2014.

### 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 2014, 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 not need to interrupt exit capacities in 2014.

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 2014, 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). 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 distributor, but, in general, the initiatives that would lead to enlargement are not strong enough.

A great number of small distribution companies with low capacities take considerable time and engagement of the Agency in terms of data preparation and control so as to control the data necessary for price regulation.

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 and
- accuracy and reliability of natural gas metering.

The most important activities of the distribution system operator in 2014 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;
- submission 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.

##### **4.4.1 Distribution Network Code**

The Council of the Energy Agency of the Republic of Serbia approved PE Srbijagas Natural Gas Distribution Network Code in mid December 2014. The Natural Gas Distribution Network Code of most of other system operators were drafted and submitted to the to the Agency in late 2014. Therefore, as of the beginning of 2015, the Council of the Agency started approving the drafts. The Code regulates distribution system planning, technical conditions for connection, access to the system, metering with defined metering equipment, facility maintenance, procedures in case of disruptions, type and scale of data exchanged with other energy entities and system users, procedures and tempo of data exchange, obligations of system users, etc. The Code is an important part of legislation which creates conditions for natural gas market opening. It regulates relations between distribution system operator and system users. All distribution system operators are expected to have their Distribution Network Code adopted by mid 2015.

##### **4.4.2 Regulation of distribution use-of-system charges**

In line with the Energy Law, regulated distribution use-of-system charges have been applied for the first time on October 15, 2008.

In September 2014, the Council of the Agency approved decisions on natural gas distribution use-of-system charges of 32 distribution system operators. The average distribution use-of-system charge for all distribution networks in Serbia, without PE "Srbijagas" network amounts to 5.3 RSD/m<sup>3</sup>, while, with PE "Srbijagas" network, the average price amounts to 2.4 RSD/m<sup>3</sup>. PE "Srbijagas" distribution use-of-system charge is considerably below the economically justified price, primarily due to underestimated value of capital assets since the assessment of it has not been made for a long time and business books were not updated with these data. A big difference between expenses of certain distribution companies arises from different structure and number of customers, the size of the system, conditions for financing, the age of the network and updated assessments of the value of capital assets, application of correction element with price calculation which arises from more or less acknowledged costs from the previous period and other factors. However, the network use-of-system charges are much lower in Serbia than in European countries (see Figure 4-6).

**Table 4-11: Average approved distribution use-of-system charges<sup>7</sup>**

No.	Natural gas distribution company	Average approved charge RSD/m <sup>3</sup>		
		2008-2009	Sep. 2011	Oct. 2014
1	7. Oktobar, Novi Kneževac	3.54	3.90	4.34
2	Beogas, Belgrade	3.74	3.28	3.65
3	Beogradske elektrane, Novi Beograd		5.06	5.63
4	Čoka, Čoka	5.61	6.16	6.86
5	Drugi oktobar, Vršac	3.61	6.21	6.91
6	Elgas, Senta	3.13	6.57	7.30
7	Gas – Feromont, Stara Pazova	1.43	5.10	5.69
8	Gas – Ruma, Ruma	3.88	5.52	5.64
9	Gas, Bečej	5.34	5.68	6.32
10	Gas, Temerin	3.37	5.57	6.20
11	Graditelj, Srbobran	3.44	6.38	6.26
12	Grejanje, Zrenjanin	6.52	7.85	7.33
13	Ingas, Indija	2.44	5.35	5.96
14	Interklima, Vrnjačka Banja	5.36	6.31	7.02
15	Komunalac, Novi Bečej	4.05	6.41	7.14
16	Kovin – Gas, Kovin	1.64	3.25	4.86
17	Loznica - Gas, Loznica		4.85	3.77
18	Novi Sad – Gas, Novi Sad	2.57	5.51	6.13
19	Polet, Plandište	5.70	7.02	7.53
20	Rodgas, Baka Topple	4.18	4.21	4.39
21	Sagas, Požega		11.28	12.56
22	Sloga, Kanjiža		5.47	6.09
23	Sombor – Gas, Sombor	6.11	6.16	5.15
24	Srbijagas, Novi Sad	1.97	1.21	1.38
25	Srem - Gas, Sremska Mitrovica	5.30	5.76	4.98
26	Standard, Ada	4.12	8.62	8.87
27	Suboticagas, Subotica	5.28	6.39	6.02
28	Topline – Šabac, Šabac			6.43
29	Užice – gas, Užice		5.13	5.13
30	Vrbas – Gas, Vrbas	2.75	4.74	5.28
31	Yugorosgaz, Beograd	1.85	2.66	2.28
	<b>TOTAL</b>	<b>2.33</b>	<b>2.25</b>	<b>2.42</b>

At the end of 2014, preparations were made for PE "Srbijagas" distribution use-of-system charges. A new charge is applicable as of February 1, 2015.

The current natural gas distribution system use-of-system charges are available on the Agency's website ([www.aers.rs](http://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. Certain natural gas quantities are delivered from the distribution system of PE Srbijagas to other distributors. Only

<sup>7</sup> The average level of approved price is calculated as a quotient of a product of approved prices which were applicable on a certain date and relevant annual quantities and capacities which were used during price approval, on the contrary to the average realized annual price which is a quotient of realized revenue from the sales and from delivered quantities during a year.

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 2014.

**Table 4-12: Distributed natural gas quantities in 2014**

	2013 million m <sup>3</sup>	2014 million m <sup>3</sup>	2014/2013 %
<b>Total distributed quantities</b>	1,366	1,288	94
withdrawn from the transmission system	1,260	1,195	95
from distribution systems	89	79	89
from production facilities	17	14	82
losses	14	13	93
	1%	1%	100

#### 4.5 Regulation of prices of regulated natural gas supply

Pursuant to the Law, regulated natural gas final customers prices were applied on October 15, 2008 for the first time. In 2014, natural gas public supply prices were modified three times: in August, October and November, due to modifications in the final price of natural gas meant for public supply. In August, average price for small-scale consumption which includes households increased by 1.2%, while it amounted to 1.3% for all public supply customers. In October, average household price increased by 4.8% for low-scale consumption and 3.7% for all customers while, in November 2014, average prices for small-scale consumption were increased by 3.3% by average, i.e. 3.6% for all customers. The total growth of average natural gas prices of public supply in 2014 amounted to 8.9% for all customers, while the growth for small-scale consumption amounted to 9.6%. This price growth is primarily a result of the American dollar exchange rate growth which reduced the effects of the reduction in import price of natural gas.

In line with the provisions of the Law, as of September 2013 until today, 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 which is set by the application of the standard formula from the contract with Yugorosgaz, JSC and the fixed component which covers the costs of transit through Hungary, of natural gas transmission in Serbia and of storage, supplier's costs and local gas costs, i.e. all costs arising until the gas delivery point. The second component, the fixed one, depending from the share of local gas in total deliveries, is set in the range 60.04 – 72.04 US\$/000m<sup>3</sup>. The contract also stipulates that the natural gas prices set thereby given in US\$ is billed to public suppliers in line with the middle 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 62/14) 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. Due to all the above given, bearing in mind unstable Dollar exchange rate, i.e. considerable difference in the exchange rate at the moment the approval is given for the price and more than two months after that, a considerable difference can be registered between approved and actual procurement prices during gas invoicing.

In the fourth quarter of 2014, when there was a significant increase in the US\$ exchange rate, public suppliers faced high negative financial gaps since the invoiced procurement natural gas price was several RSD higher than the approved price per cubic meter at the moment when natural gas consumption reached its peak.

Lost revenues in 2014 reached the level of 1.8 billion RSD, while PE Srbijagas, being the biggest public supplier, represented 1.3 billion RSD or 71% of the figure, while the rest was borne by other public suppliers. Such a trend was still evident in the first quarter of 2015. In line with the Methodology, public suppliers are entitled to compensate this loss through the correction element in the following regulatory period for the part which relates to customers who opted for public supply.

Table 4-13: Average level of approved natural gas public supply price

No.	Natural gas public supplier	RSD/m <sup>3</sup>							
		Average approved price – all customers				Average price – low-scale consumption			
		Dec-13	Aug-14	Oct-14	Nov-14	Dec-13	Aug-14	Oct-14	Nov-14
1	7. Oktobar, Novi Kneževac	43.55	44.09	46.53	48.10	43.63	44.17	47.32	48.89
2	Beogas, Belgrade	43.78	44.32	46.45	48.02	44.10	44.64	46.60	48.17
3	Beogradske elektrane, Novi Beograd	44.39	44.93	47.12	48.69	44.85	45.39	47.79	49.36
4	Boss petrol, Trstenik <sup>8</sup>								
5	Čoka, Čoka	46.40	46.94	49.46	51.53	47.30	47.84	52.48	54.05
6	Drugi oktobar, Vršac	45.83	46.37	48.56	50.13	47.86	48.40	50.78	52.35
7	Elgas, Senta	46.38	46.92	49.39	50.96	46.32	46.87	49.54	51.11
8	Gas – Feromont, Stara Pazova	44.61	45.15	47.19	48.76	45.05	45.59	48.02	49.59
9	Gas – Ruma, Ruma	44.93	45.47	46.94	48.51	46.19	46.73	49.14	50.72
10	Gas, Bečej	45.34	45.89	48.17	49.74	45.65	46.19	49.27	50.84
11	Gas, Temerin	45.38	45.92	48.58	50.15	45.44	45.98	48.83	50.40
12	Graditelj, Srbobran	46.82	47.37	48.69	50.27	47.63	48.17	50.30	51.87
13	Grejanje, Zrenjanin	48.20	48.74	50.97	52.54	48.35	48.89	51.28	52.85
14	Ingas, Inđija	44.48	45.02	47.02	48.59	45.46	46.00	48.53	50.10
15	Interklima, Vrnjačka Banja	44.81	45.34	47.37	48.93	45.48	46.01	48.51	50.06
16	Komunalac, Novi Bečej	46.00	46.54	49.21	50.78	46.30	46.84	49.99	51.56
17	Kovin – Gas, Kovin	42.98	43.52	46.54	48.12	45.16	45.70	49.66	51.23
18	Loznica - Gas, Loznica	43.84	44.38	44.44	46.01	44.82	45.36	46.06	47.63
19	Novi Sad – Gas, Novi Sad	44.93	45.47	47.67	49.24	45.52	46.06	48.66	50.23
20	Polet, Plandište	47.23	47.78	49.70	51.27	48.49	49.03	51.93	53.51
21	Resava Gas, Svilajnac	39.88	40.42	44.35	45.92	41.03	41.57	45.32	46.89
22	Rodgas, Bačka Topola	43.44	43.98	45.35	46.92	46.03	46.57	48.80	50.37
23	Sigas, Požega	52.63	53.18	58.52	60.09	54.05	54.59	58.76	60.34
24	Sloga, Kanjiža	44.90	45.45	48.04	49.62	45.80	46.34	48.70	50.28
25	Sombor – Gas, Sombor	45.31	45.85	46.01	47.58	47.91	48.45	47.45	49.02
26	Srbijagas, Novi Sad	40.18	40.73	42.21	43.78	42.24	42.78	44.67	46.25
27	Srem - Gas, Sremska Mitrovica	45.05	45.59	46.04	47.61	46.75	47.29	47.91	49.48
28	Standard, Ada	48.95	49.49	51.28	52.85	49.64	50.19	52.11	53.68
29	Suboticagas, Subotica	45.45	45.99	46.93	48.50	46.30	46.84	48.29	49.86
30	Toplana – Šabac, Šabac			47.52	49.09			47.59	49.16
31	Užice – gas, Užice	43.32	43.85	40.18		44.57	45.10	40.56	
32	Vrbas – Gas, Vrbas	43.61	44.15	46.42	48.00	45.95	46.49	48.49	50.06
33	Yugorosgaz, Beograd	40.56	41.09	41.99	43.53	41.53	42.06	44.06	45.60
	<b>TOTAL</b>	<b>41.35</b>	<b>41.89</b>	<b>43.45</b>	<b>45.02</b>	<b>44.72</b>	<b>45.26</b>	<b>47.44</b>	<b>49.02</b>

<sup>8</sup> It applies tariffs approved to PE "Srbijagas"

The costs of natural gas purchase represent the dominant share, i.e. over 80% within natural gas public supply tariff with all public suppliers. Figure 4-4 indicates the structure of average regulated natural gas public supply tariff of PE Srbijagas OF 43.78 RSD/m<sup>3</sup> which has been applied as of November 1, 2014 where, due to low transmission and distribution use-of-system charges, the share of natural gas purchase costs amounts to 91%.

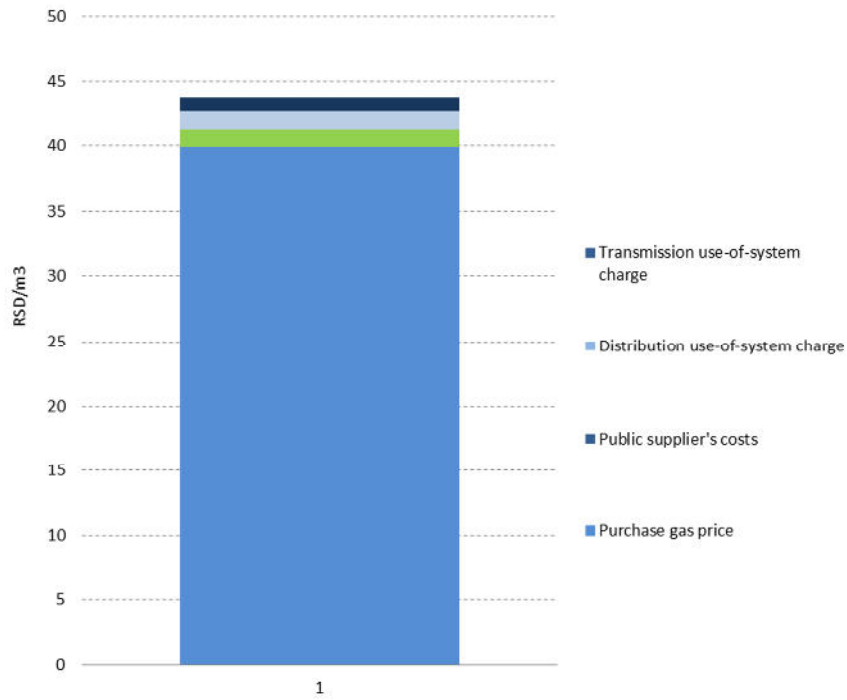


Figure 4-4: Structure of average public supply natural gas tariff for PE Srbijagas as of 01/11/2014

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 2014. Only customers in Hungary and Romania have a lower household price than those in Serbia.

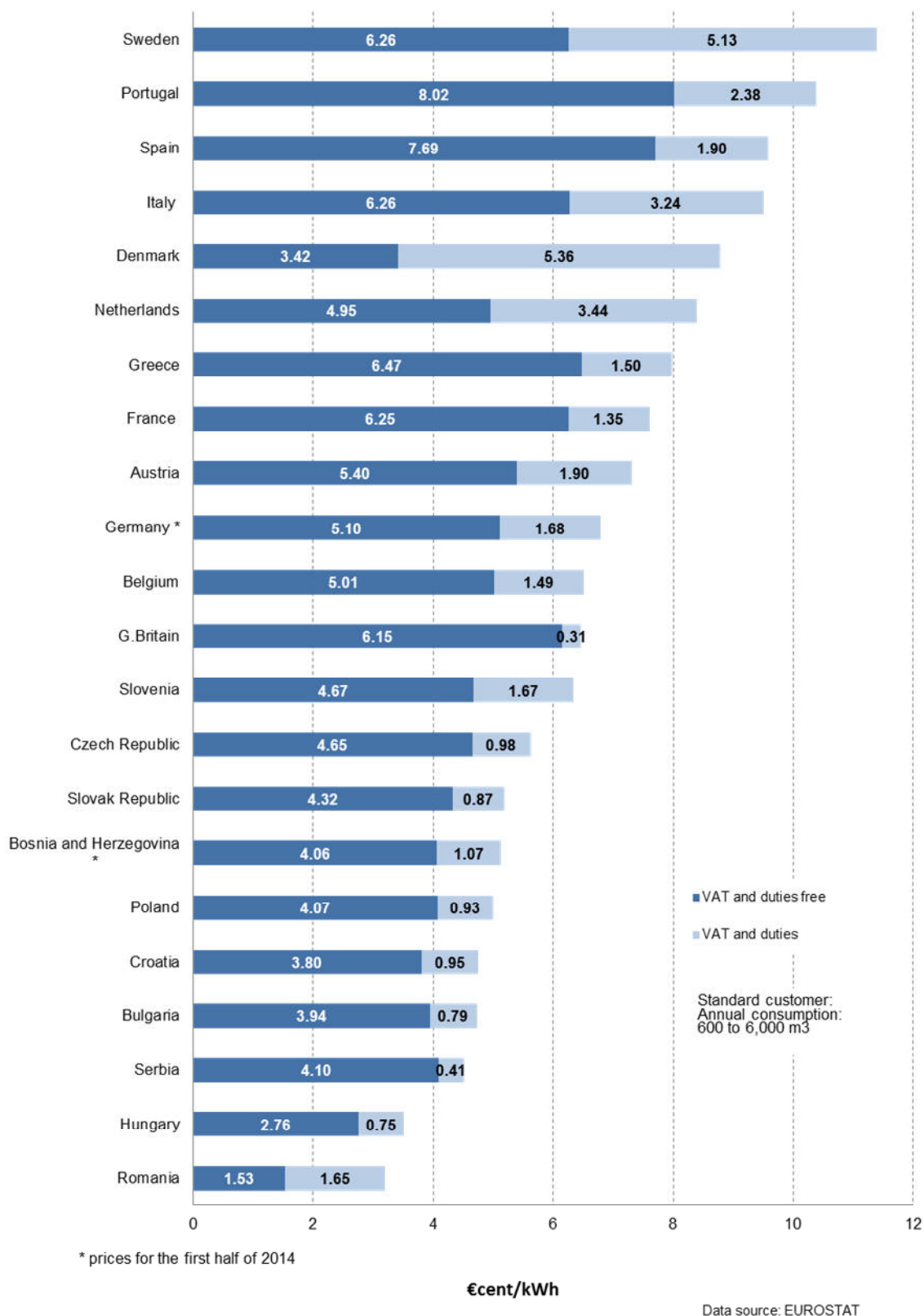


Figure 4-5: Natural gas prices for households – second half of 2014



Figure 4-6 indicates a more detailed structure of elements of the natural gas household prices in some of European capitals in December 2014. 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 11%, while the European average amounts to around 23%. It is also evident that there is also a considerably lower share, i.e. lower taxes and duties.

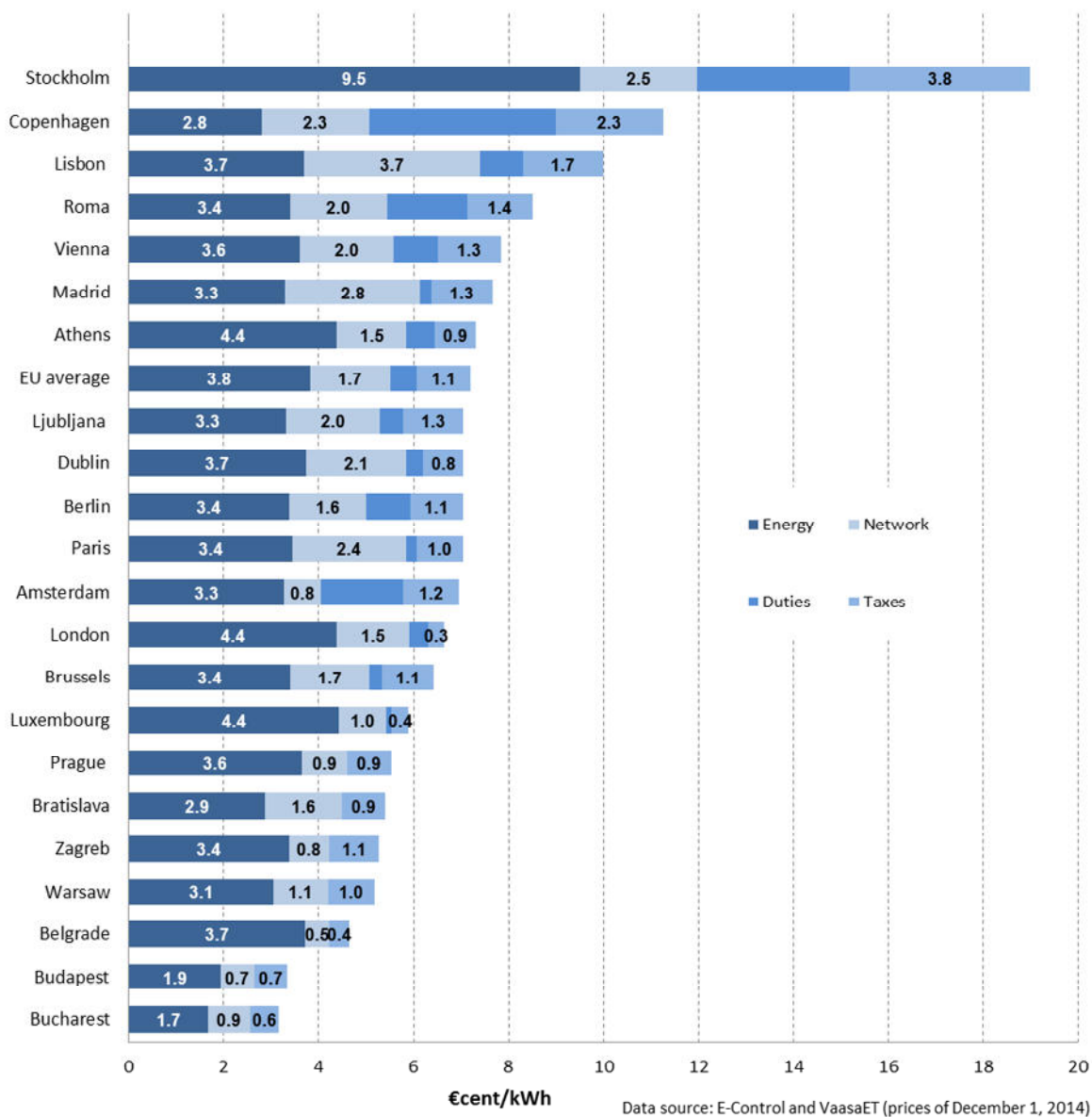


Figure 4-6: Structure of natural gas household prices in some of European capitals in December 2014

Figure 4-7 indicates the structure of the final natural gas price for households in some European capitals in December 2014 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.

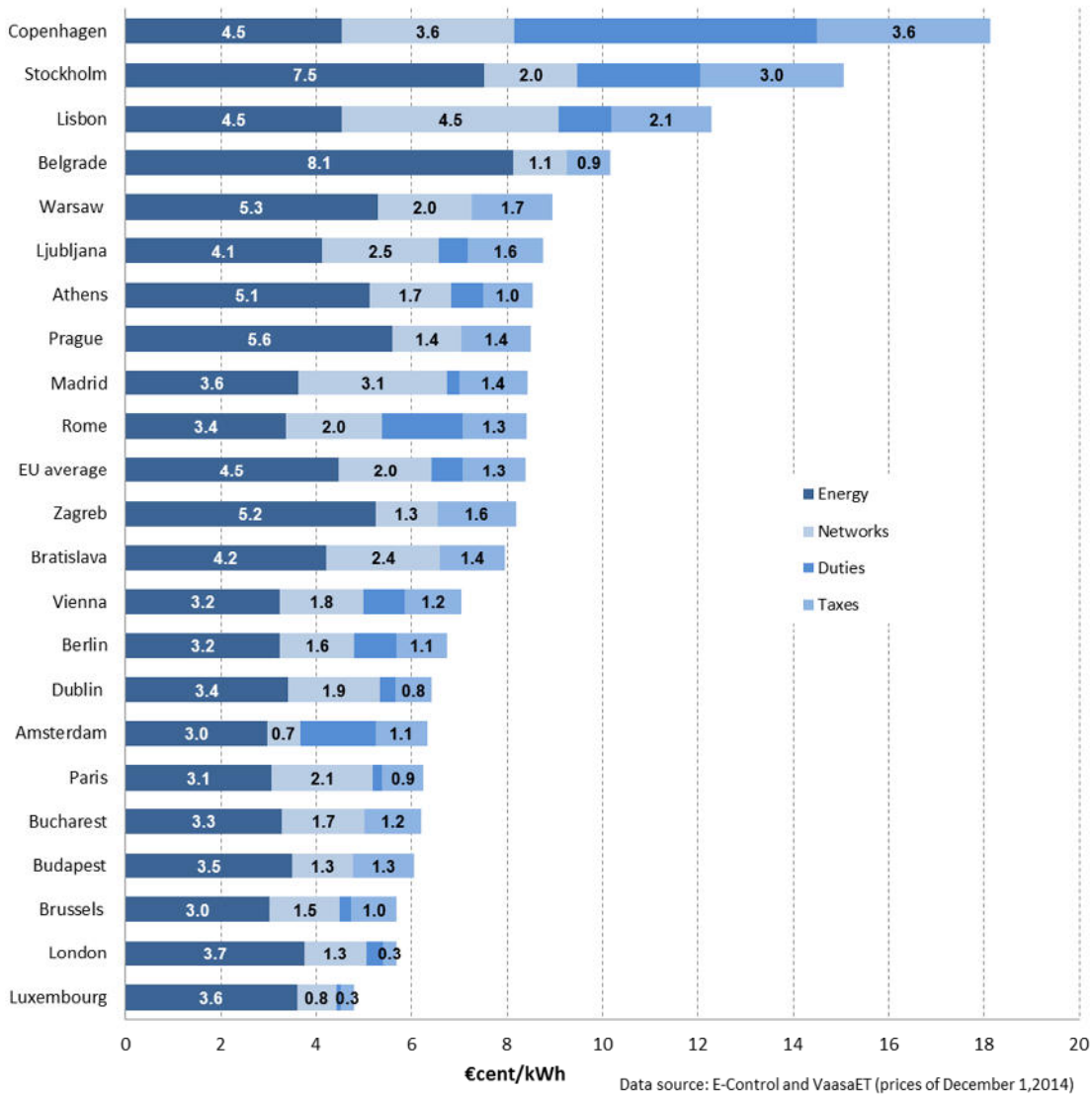


Figure 4-7: Structure of natural gas household prices in some of European capitals in December 2014 given in purchase power parity

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 2014. 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.

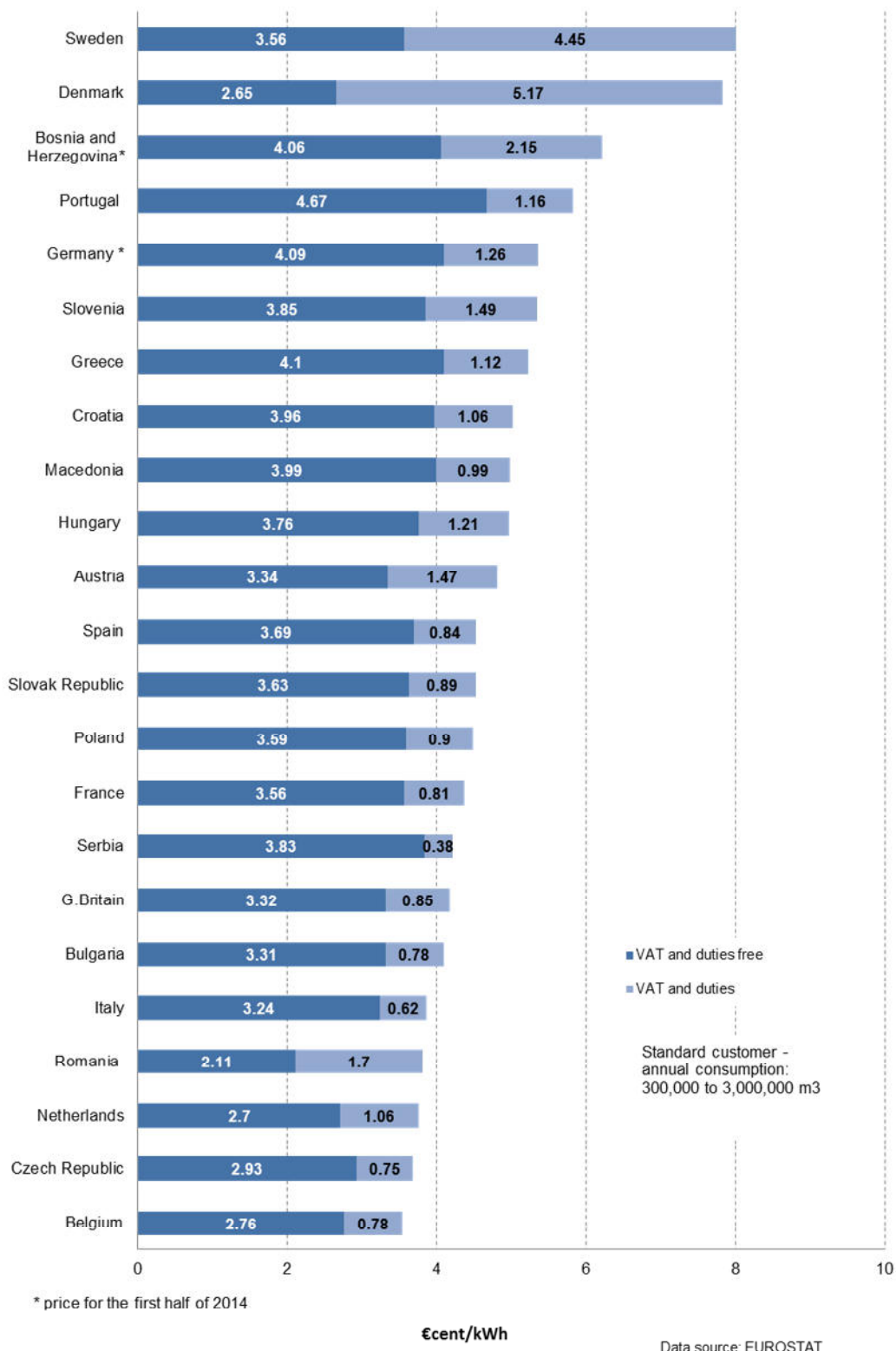


Figure 4-8: Natural gas prices for industry – second half of 2014

The current natural gas public supply prices are available on the Agency website ([www.aers.rs](http://www.aers.rs)).

## 4.6 Natural gas market

In the natural gas sector, only bilateral market will be developed.

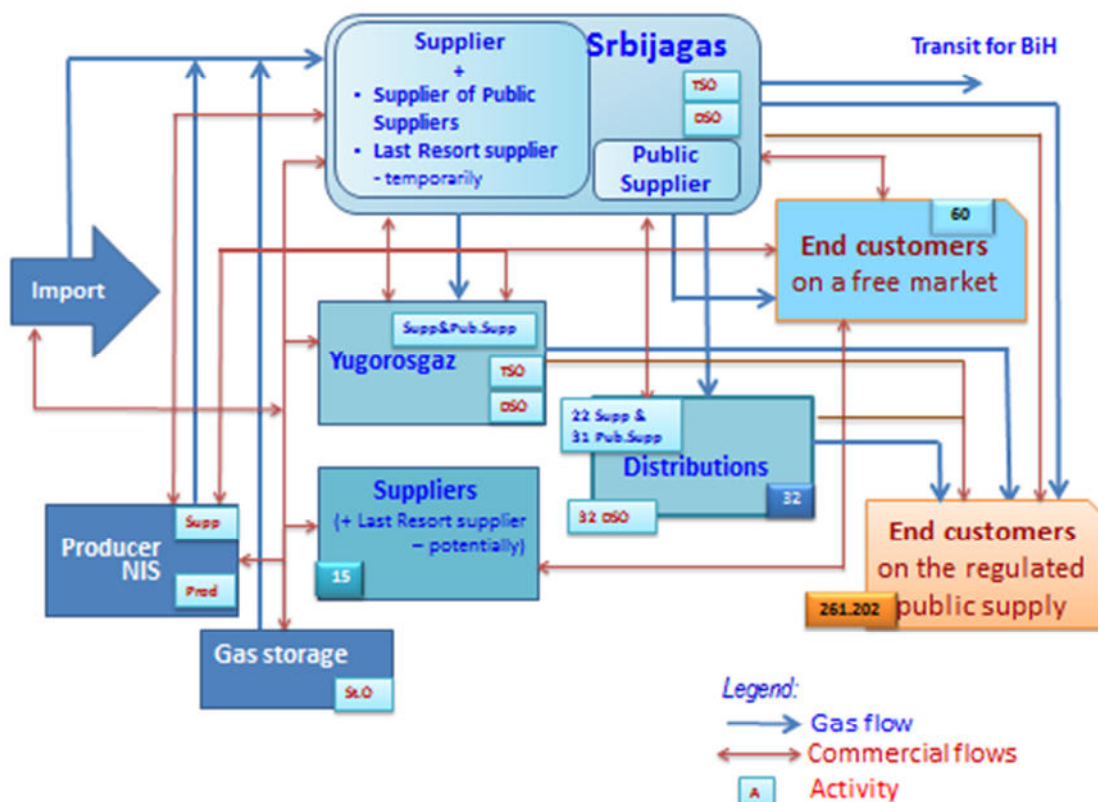


Figure 4-9: Natural gas market scheme

Natural gas market players are the following:

- producer (1);
- suppliers (40);
- public suppliers (33);
- supplier of public suppliers – upon their request (1);
- final customers (261,262);
- transmission system operators (2);
- distribution system operators (34, and one of them does not perform the activity) and
- storage operator.

The Government of RS appointed PE Srbijagas to be the supplier of natural gas public suppliers in the period 01/09/2013 – 01/01/2015 and it is obliged to supply all the public suppliers demanding it, supply under the same conditions and at a same price which was approved by the Government of RS and which can be modified in a manner approved by the Government. 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 producers and suppliers. In 2014, there were two companies and the gas producer dealing in trade in the wholesale market. Out of these three companies, one company operated as a natural gas importer in 2014.

Final price changes and US dollar exchange rate have the greatest influence on natural gas wholesale market. Based on the long-term contract with Yugorosgaz as a dominant Serbian market supplier, the final prices are established based on a formula which includes as basic elements three oil derivatives whose prices are established on the international market (when calculating gas price for the following quarter, one takes into consideration average price in nine months from the previous three quarters). Local gas price is connected to imported gas price. Average purchase import natural gas price on the border with the Ukraine in 2014 amounted to 388 US\$/000m<sup>3</sup> or 28.64 €/MWh (calculated in line with the heat value of natural gas of 37,005 kJ/m<sup>3</sup>. Average weighted purchase natural gas price in

2014, which includes import gas price, local gas price and price of gas withdrawn from the storage amounted to 37.91 RSD/m<sup>3</sup>.

Wholesale gas price is greatly influenced by the price of transit through Hungary (average price in 2014 amounted to 46.77 US\$/000m<sup>3</sup>) which exceeds the ruling price for local customers in Hungary, as well as the price for customers from Croatia and Romania. Transmission prices for Serbia are set by long-term contract between the Hungarian and Serbian transmission system operators, independently from the Hungarian regulatory energy authority, which is not in line with the provisions of the EnC Treaty. The Agency addressed the EnC Secretariat in order to make further steps in line with the mechanism for dispute settlement defined by the EnC Treaty. In 2014, there were consultations between the Agency, EnC Secretariat, European Commission and ACER in order to collect further all the relevant information and define modalities for dispute settlement.

Wholesale natural gas price for tariff customers was regulated in the period from October 2008 till September 2013. Approved purchase natural gas price for tariff customers which was positively assessed by the Agency and approved by the Government of RS was lower than the contracted final price from 2010 till September 2013. Therefore, PE Srbijagas was operating with negative financial result in the area of natural gas supply of tariff customers. Negative effect on these bases for the period 2008-2012 amounts to around €230 million. As of September 2013, wholesale natural gas price is established on the basis of tender procedure when PE Srbijagas was selected as the supplier of public suppliers and it covers all justified costs of natural gas purchase.

#### **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 2014, ECRB Natural Gas Working Group, which also includes the representatives of the Agency, analysed the Network Codes and made comments on them related to capacity allocation and congestion management, while the issues related to interoperability and natural gas quality were considered in detail.

#### **4.6.2 Retail market**

In 2014, 60 customers procured gas in the open market. 804 million m<sup>3</sup> were delivered to those customers, including 317 million m<sup>3</sup> of natural gas consumed for NIS' own demand (NIS being the producer), i.e. 41% of total gas quantities delivered to final customers.

In 2014, customers were supplied by 33 suppliers holding energy supply licence. Quantities delivered to cover supply in both open and regulated market are given in Table 4-14.

**Table 4-14: Structure of natural gas sales in the open and regulated market**

	2013 million m <sup>3</sup>	2014 million m <sup>3</sup>	2014/2013 %
Consumed in the open market	949	804	85
Consumed in the regulated market	1,243	1,178	95

In 2014, practically the whole natural gas volume sold in the open market was delivered to customers connected to the transmission system which were obliged to purchase natural gas in the open market. On the distribution system, there was only one customer purchasing natural gas in the open market. This customer purchased 2 million m<sup>3</sup>, i.e. 0.2% of the volume sold in the open market.

In 2014, only 3 distributors delivered more than 30 million m<sup>3</sup> to tariff customers, while 23 of them less than 10 million m<sup>3</sup>.

The greatest share of natural gas, i.e. 1,310 million m<sup>3</sup> or around 66% of total quantities was sold to customers by PE Srbijagas in 2014. The second greatest share was sold by DC Novi Sad Gas sold 57 million m<sup>3</sup> of gas, i.e. around 2.9% and YugoRosgaz with 42 million m<sup>3</sup>, i.e. 2.1% of total quantities in 2014. 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) in 2013 and 2014 are given in Table 4-15.

Table 4-15: Natural gas sales to final customers in 2013 and 2014

No.	Trader	2013 (000 m <sup>3</sup> )				2014 (000 m <sup>3</sup> )				2014/2013 (%)			
		Househ.	District Heating Company	Industry and others	Total	Househ.	District Heating Company	Industry and others	Total	Househ	District Heating Company	Industry and others	Total
1	7. Oktobar, Novi Kneževac	711	0	504	1,215	574	0	541	1,115	-19	0	7	-8
2	Beogas, Belgrade	12,241	0	1,610	13,851	9,847	0	2,394	12,241	-20	0	49	-12
3	Beogradske elektrane, Beograd	2,786	0	1,137	3,923	2,217	0	1,067	3,284	-20	0	-6	-16
4	Boss petrol, Trstenik	6	0	1,000	1,006	9	383	1,499	1,891	50	0	50	88
5	Čoka, Čoka	285	0	367	652	226	0	302	528	-21	0	-18	-19
6	Drugi oktobar, Vršac	7,512	1,870	12,919	22,301	5,775	1,551	11,745	19,071	-23	-17	-9	-14
7	Elgas, Senta	1,224	0	616	1,840	813	0	458	1,271	-34	0	-26	-31
8	Gas – Feromont, Stara Pazova	15,353	679	8,168	24,200	12,551	0	9,725	22,276	-18	-100	19	-8
9	Gas – Ruma, Ruma	5,055	845	9,573	15,473	4,025	592	10,073	14,690	-20	-30	5	-5
10	Gas, Bečež	1,434	0	1,299	2,733	1,158	0	1,462	2,620	-19	0	13	-4
11	Gas, Temerin	5,545	0	1,223	6,768	4,359	0	1,426	5,785	-21	0	17	-15
12	Graditelj, Srbobran	1,128	211	1,404	2,743	904	505	1,268	2,677	-20	0	-10	-2
13	Grejanje, Zrenjanin	12,697	10,342	3,861	26,900	10,166	9,115	3,866	23,147	-20	-12	0	-14
14	Ingas, Inđija	7,283	0	9,322	16,605	5,864	0	10,091	15,955	-19	0	8	-4
15	Interklima, Vrnjačka Banja	746	0	1,669	2,415	680	0	1,732	2,412	-9	0	4	0
16	Komunalac, Novi Bečež	1,153	0	835	1,988	928	0	1,309	2,237	-20	0	57	13
17	Kovin – Gas, Kovin	2,750	1,132	5,942	9,824	2,573	993	5,821	9,387	-6	-12	-2	-4
18	Loznica - Gas, Loznica	1,341	3732	3,934	9,007	1,173	3,240	3,782	8,195	-13	-13	-4	-9
29	LP - Gas, Belgrade	2,049	,0	157	2,206	1,786	0	169	1,955	-13	0	8	-11
20	Novi Sad – Gas, Novi Sad	40,880	839	25,559	67,278	31,987	733	24,170	56,890	-22	-13	-5	-15
21	Polet, Plandište	1,678	0	2,728	4,406	1,432	0	3,008	4,440	-15	0	10	1
22	Resava Gas, Svilajnac	422	0	1,318	1,740	338	0	1,657	1,995	-20	0	26	15
23	Rodgas, Bačka Topola	1,063	0	7,709	8,772	847	440	7,704	8,991	-20	0	0	2
24	Sigas, Požega	221	0	56	277	192	0	66	258	-13	0	18	-7
25	Sloga, Kanjiža	1,614	0	1,838	3,452	1,270	0	1,983	3,253	-21	0	8	-6
26	Sombor – Gas, Sombor	1,734	3,413	4,371	9,518	1,384	2,810	4,914	9,108	-20	-18	12	-4
27	Srbijagas, Novi Sad	70,349	456,954	675,980	1,203,283	59,887	416,170	834,315	1,310,372	-15	-9	23	9
28	Srem - Gas, Sremska Mitrovica	4,662	493	8,937	14,092	3,716	551	7,791	12,058	-20	12	-13	-14
29	Standard, Ada	780	0	979	1,759	599	0	1,186	1,785	-23	0	21	1
30	Suboticagas, Subotica	8,406	0	16,151	24,557	6,781	0	16,383	23,164	-19	0	1	-6
31	Toplana – Šabac, Šabac	2,950	0	541	3,491	2,410	0	471	2,881	-18	0	-13	-17
32	Užice – gas, Užice	193	4,126	941	5,260	301	0	4,852	5,153	56	0	416	-2
33	Vrbas – Gas, Vrbas	1,623	0	4,222	5,845	1,300	0	3,967	5,267	-20	0	-6	-10
34	Yugorosgaz, Beograd	579	26,322	16,367	43,268	544	24,723	16,634	41,901	-6	-6	2	-3
35	RST, Novi Sad	0	0	270,634	270,634	0	0	0	0	0	0	-100	-100
36	Elgas Energy Trading, Beograd	0	59,247	0	59,247	0	10,187	17,324	27,511	0	0	0	100
	<b>Total:</b>	<b>218,453</b>	<b>570,205</b>	<b>1,103,871</b>	<b>1,892,529</b>	<b>178,616</b>	<b>471,993</b>	<b>1,015,161</b>	<b>1,665,770</b>	<b>-18</b>	<b>-17</b>	<b>-8</b>	<b>-12</b>

## **4.7 Monitoring and regulating quality of delivery and supply**

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 was set as commercial indicators of quality.

These rules define that the data related to the quality of natural gas delivery and supply are collected in a systematic and uniform way.

Data collection will be organised quarterly, semi-annually and annually so as to create conditions for 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. In 2014, data collection was initiated, but not every energy entity was in a position to submit required data and this is why the Agency's activities on the upgrade of these activities will be intensified in 2015.

## **4.8 Security of natural gas supply**

PE Srbijagas submitted a Ten-Year Development Plan for approval. The plan needs to be updated bearing in mind the changes in the area of gas interconnectors.

### **4.8.1 Natural gas consumption forecast**

After economic crisis consequences are mitigated, it is expected that natural gas consumption will continue to grow in the years to come. Growth rate will surely depend on gas price as well. Consumption growth will be also a result of construction of new distribution grids in those areas which have not been gasified yet. First of all for the industries using natural gas as a raw material, but for industry with high natural gas consumption in general, consumption will depend on natural gas price and the efficiency of the industry.

Considerable consumption growth is possible in case there are new cogeneration plants or gas-fueled power plants constructed which would use natural gas at times when its price is lower.

### **4.8.2 Projects on increased security of supply**

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

There are ongoing preparations for the construction of an interconnector with Bulgaria. It is planned on the basis of the Agreement on the Construction of Gas Pipeline Niš-Dimitrovgrad-Sofia and it will 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<sup>3</sup> annually.

In addition, connections with gas pipeline systems with other neighbouring countries will be also important for the increase in the security of supply, especially with those countries which have a highly developed gas infrastructure 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

Pursuant to the 2011 Law which was applicable in 2014, licensed energy activities in oil and biofuels field included:

- 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 of oil, oil derivatives, biofuels and compressed natural gas and
- biofuels production.

Two energy entities: NIS, JSC and Standard gas LLC, both from Novi Sad are licensed for oil derivatives production.

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 slightly over 56% of shares, by the Republic of Serbia with slightly less than 30%, while 11% are owned by a great number of small shareholders and 3% by others. In 2014, NIS JSC provided for around 78% of total Serbian demand in oil derivatives. The company has the greatest retail network which covers around 25% of the market in terms of number of facilities where motor fuels and other fuels for vehicle fueling are sold and in terms of 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, 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 of 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

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 2014 in Serbia amounted to 3.10 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 2014, around 1.31 million tons (44.2%) were produced in Serbia, around 56 thousand tons were produced in Angola (in oil deposits owned by NIS), and 1.65 million tons (55.8%) were imported, primarily from Russia (Ural type). Crude oil processing is performed in oil refineries in Pančevo and Novi Sad.

Local crude oil production kept growing until 2013, while in 2014, it remained on approximately the same level. Therefore, in comparison to 2007, local crude oil production was practically doubled (growth of 90% after the change in ownership structure in NIS). Crude oil import slightly declined in comparison to 2013.

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 (with the growth of semi products consumption) as it is indicated in Figure 5-1. The share of local crude oil in the total refinery processing amounted to 18.6% in 2008 and to around 44% in 2014.

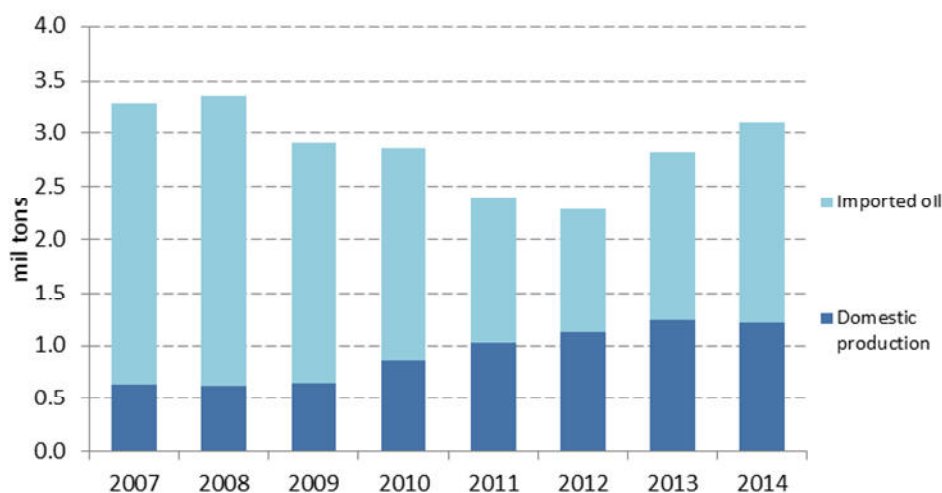


Figure 5-1: Crude oil refinery processing in Serbia in 2007 - 2014

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.

In 2014, in the oil derivatives production structure, diesel production holds the share of 34%, motor fuels 15.4%, heating oil 12%, liquid petroleum gas (LPG) 43.3% and other derivatives (naphtha, bitumen, etc.) 35.3%. Within the oil derivatives production structure, in comparison to 2013, petrol share was increased by 1.4%, diesel share by 1.5, heating oil share considerably by 5%, while LNG production had the same market participation as in 2013. The effects of investments in modernisation of processing capacities reflect precisely in the growth of the share of highly valorized derivatives in the total production.

Oil derivatives, as final products, except from refinery processing are also provided from import and reserves. In 2014, around 1 million tons of derivatives were imported. Import mainly included Euro diesel (EN 590) and LPG, as well as small quantities of unleaded motor fuel (EN 228). In 2014, around 0.55 million tons of derivatives were exported which is around 16% less than in 2013.

Total oil derivatives consumption in 2014 amounted to around 3.52 million tons, which included around 2.10 million tons motor fuels consumption which is equal to 2013 level. The structure of motor fuels consumption is as follows: petrols account for 18.4%, diesels – 66.6% and autogas – 15%.

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.97/10, 123/12 and amendments from No. 63/13 and 75/13). These Rules also define labeling of installations used for oil derivatives trade.

The Decree on Oil Derivatives Authentication ("Official Gazette of RS", No. 46/13) closely prescribes the conditions, methods and procedure of authentication of oil derivatives which are traded with in the market. The primary goal of the introduction of authentication is to reduce the quantities of fuel which are illegally traded and the fact that the goal was reached was evident in 2014, i.e. there was an increase in the fuel tax in the budget of the Republic of Serbia.

In 2014, there were neither licensed energy entities for biofuels production nor biofuels import.

### 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-Novu 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<sup>3</sup> each which are used operationally for crude oil transport as well as two reservoirs of 10,000 m<sup>3</sup> each which are used as crude oil storage.

In the period from 2005 when PE Transnafta was established to 2014, around 24.4 million tons of oil was transported. In 2014, around 0.88 million tons of oil produced locally and 1.5 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.



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

In 2014 (Figure 5-2), around 10% less crude oil was transported than in 2013, which is a consequence of a slight decline in the production of crude oil from the fields from which oil is transported via this oil pipeline, and of the fact that crude oil was processed from the stocks from the previous year, not imported.

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).

### 5.3 Regulation of oil and oil derivatives transport

#### 5.3.1 Transport System Code

Transport System Code was adopted in 2010 by PE Transnafta and approved by the Agency. The Transport System 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 applied even upon the entry into force of the 2011 Law.

#### 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 Sombor - Novi Sad – Pančevo - Smederevo - Jagodina - 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.

International project pipeline Constanza – Trieste (PEOP) has been on standby since 2012.

#### 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 2014, 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 2014. Table 5-1 indicates the transport use-of-system charges applied in 2014.

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

Oil pipeline branch	Tariff rate "fuel" (RSD/tons/100 km)	Government of RS approval
Sotin – Novi Sad	316.05	"Official Gazette of RS", No.90 as of 30/11/2011
Novi Sad – Pančevo	210.69	

## 5.4 Oil and oil derivatives market

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). These regulations also regulate the trade in motor fuels and other fuels on petrol stations. There is full liberalisation of all energy activities in Serbia.

The development of oil and oil derivatives market is greatly influenced by the new Law on Commodity Reserves ("Official Gazette of RS", No. 104/13) which 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 prescribes the obligation to reach 10% of biofuels share in motor fuels by 2020, but the share of biofuels in oil derivatives market in 2013 is still negligible.

### 5.4.1 Wholesale market

The 2011 Law expanded the meaning of energy activity, i.e. oil and oil derivatives trade, to biofuels and compressed natural gas trade. Until the beginning of 2015, the licence for trade in oil, oil derivatives, biofuels and compressed natural gas was held by 46 energy entities, i.e. over 70% less than in the past three 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, when licenses were withdrawn for these reasons upon the proposal of market inspectors.

In addition, licenced energy activities include oil and oil derivatives (gases, petrols, 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 increased slightly since 2009. Namely, there are 18 of them and the biggest company is definitely NIS.

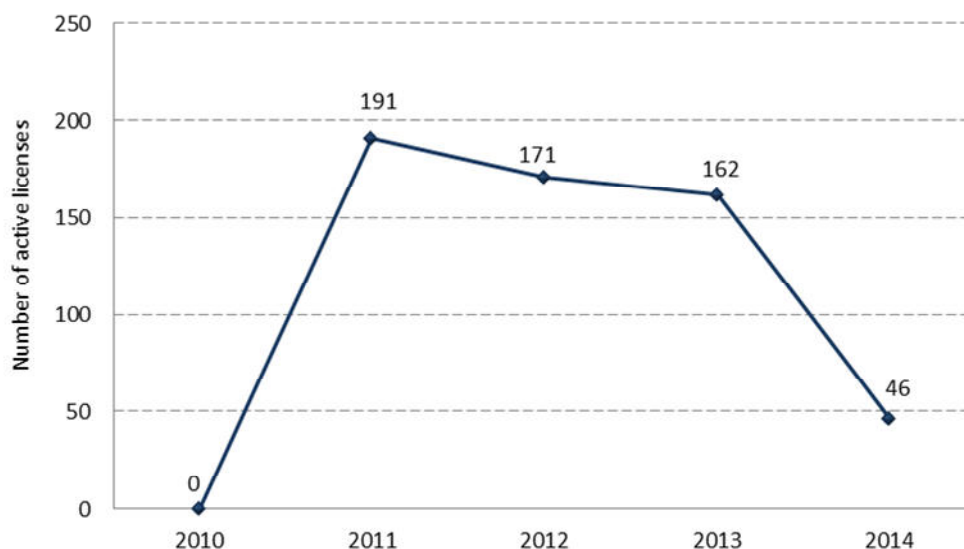


Figure 5-3: Number of active licenses for trade in oil, oil derivatives, CNG and biofuels

### 5.4.2 Retail market

Similarly to the case of wholesale, the 2011 Law expanded oil derivatives trade and included retail in motor fuels and other fuels on petrol stations. Except for oil derivatives, the term motor fuels also implies biofuels, gaseous oils and compressed natural gas, while the term "other fuels" mostly relates to extra light heating oil. There were 370 energy entities licensed for retail by the end of 2011, while there were 432 of them at the end of 2014. 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, all participants in this market applied for the license, even those who used to operate illegally.

There were two energy entities licensed for the trade in compressed natural gas (wholesale and retail) until the end of 2014.

## 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: Law on Public Enterprises and the Energy Law.

The Law on Public Enterprises ("Official Gazette of RS" No. 119/12) 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 public supply commitment is regulated by the Energy Law (electricity production is no more an activity of general interest). The Law on Public Enterprises defines that an activity of general interest can be performed by a public enterprise founded by the Republic of Serbia, autonomous province or local self-government unit or economic entity, i.e. some other company type, one branch of a company and entrepreneur, in line with the law regulating their legal status, when these activities are entrusted to them by the competent body.

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

On the other hand, the 2011 Energy Law, which was applicable in 2014, defines 22 energy activities with 10 of them defined as the activities of general interest in the field of electricity, natural gas and oil. In the field of electricity, they include the following: electricity transmission and transmission system operation, electricity distribution and distribution system operation, public supply and electricity market organisation. 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 electricity and natural gas public supply as an all-purpose service at regulated prices which should be provided by the public supplier to those customers who did not select the supplier in the open market and who are entitled to regulated supply pursuant to the Law... Bearing in mind that, in line with the Law, the public supplier is appointed by the Government of RS, and that the electricity and natural gas markets was opened in several phases, as of 01/01/2014, in the electricity field, only households and small are entitled to public supply. In the natural gas field, as of 01/01/2015, only natural gas households and small customers will be entitled to it. 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.

### 6.2 Customers 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. 73/2010). 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 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 suspension 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 2014 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 heat energy customers as well. As of April 2014, the Decree on Energy Vulnerable Customer, i.e. Heat Energy Vulnerable Customer (“Official Gazette of RS”, 44/14, as of 26/04/2014) is applicable.

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, since the burden of protection is transferred from the energy supplier to the state level.

The above mentioned Decree 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 following range of total monthly income is the condition for the award of the energy-wise protected customer status in 2014:

- 1) up to 13,501.17 RSD for a one member household;
- 2) up to 19,657.39 RSD for a two and three members household;
- 3) up to 25,809.58 RSD for a four and five members household and
- 4) up to 32,457.00 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<sup>2</sup> 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<sup>3</sup> monthly;
  - (2) for a two-member and three-member household by 45 m<sup>3</sup> monthly;
  - (3) for a four-member and five-member household by 60 m<sup>3</sup> monthly;
  - (4) for a six-member household and a household with more than six members by 75 m<sup>3</sup> monthly.
- 3) for heat energy, for January, February, March, October, November and December:
  - (1) for a one-member household by 25 m<sup>2</sup> monthly;
  - (2) for a two-member and three-member household by 35 m<sup>2</sup> 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 electricity bill for 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 Supply.

The reduction of the monthly bill is presented as the reduction of the principal of the monthly natural gas bill for the amount set by multiplying the given quantities with the tariff "source" 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.

The reduction of the monthly bill is presented as the reduction of the monthly heat energy bill by the amount set by multiplying the given quantities per m2 by 60.00 RSD/m2.

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 2014 is given in Table 6-1.

**Table 6-1: Review of realised reductions for energy vulnerable customer (EVC) in 2014**

	Number of EVC from the data base (end of the year)	Customers entitled to reduction	
		Number of customers (end of the year)	Annual amount 000 RSD
Electricity	90,936	55,651	732,612
Natural gas	79	79	920
Heat energy	337	337	1,707
Total	91,015**	55,730**	735,239

\* number of customers in the end of March

\*\* heat energy is not taken into account

Since the decree was not amended in its segment related to heat energy, subsidies to heat energy vulnerable customers were canceled as of April 2014.

The number of customers who had their electricity and natural gas bills reduced in 2014 was different for each month, i.e.: in the electricity field it ranged from 48,352 in January to 69,087 in June and 61,041 by average monthly; number of natural gas customers ranged from 79 in December to 119 in February and 93 by average in the part of the year when subsidies are applied. For heat energy in the first three months, the number of energy-wise protected customers ranged from 205 in January to 337 in March, i.e. 267 by average. The total number of customers (households) who exercised the right of energy protected customer in the end of 2014 amounted to 55,730. This number of customers who use the possibly of getting certain quantities of electricity or natural gas or heat energy free of charge is certainly negligible in comparison to the number of 375,000 households which are estimated, in line with the data from the Republic Statistical Office, to be facing deprivation or poverty. This indicates that it is necessary to make a more detailed analysis and increase the engagement of competent bodies. Based on their registry, the Ministry of Labour and Social Policy has a data base with individuals and households which could be awarded with the status of energy-wise protected customer on the basis of adopted criteria.





ANNUAL AND FINANCIAL  
REPORT



## 7. AGENCY 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. In 2014, the Agency functioned in line with the 2011 Law and, for this reason, the content of this chapter is based on 2011 Law, unless it is indicated otherwise.

The scope of work of the Agency includes the activities in four energy sectors:

- electricity,
- natural gas and
- oil and oil derivatives.

Regulatory activities of the Agency, determined by the Law, can be divided in five basic groups:

- price regulation;
- licencing of energy entities for energy activities;
- monitoring electricity and natural gas market;
- deciding upon appeals and
- implementation of international agreements within the Agency's competence

Pursuant to the Law, the Agency performs the following activities:

- adopts the following methodologies for setting:
  - electricity transmission use-of-system charges;
  - electricity distribution use-of-system charges;
  - electricity public supply tariffs;
  - natural gas transmission use-of-system charges;
  - natural gas distribution use-of-system charges;
  - natural gas storage use-of-system charges;
  - natural gas public supply tariffs;
  - oil transport use-of-system charges and oil derivatives via oil pipelines and product lines respectively;
  - costs of connection to electricity transmission and distribution system and
  - costs of connection to natural gas transmission and distribution system;
- adopts rules on:
  - Supplier Switching;
  - monitoring technical and commercial indicators and regulating electricity and natural gas quality of delivery and supply;
- issues licences for the performance of energy activities and adopts an act on licence withdrawal, under the conditions prescribed by the Law, except for the activities related to heat energy, and keeps the register of issued and withdrawn licences (entrusted procedures of the state administration, hereafter: entrusted activity);
- adopts an act defining the criteria and parameters for the definition of the licence fee;
- specifies and publishes:
  - system services prices and publishes them;

- licence fee;
- approves:
  - electricity Transmission Network Code;
  - rules on the cross-border transmission capacity allocation;
  - electricity distribution system code;
  - electricity market rules;
  - organised electricity market rules;
  - natural gas Transmission Network Code;
  - natural gas distribution system code;
  - natural gas storage system code;
  - oil transport (through oil pipelines) system code;
  - oil derivatives transport (through product lines) system code;
  - electricity transmission and distribution system development plan;
  - natural gas transmission system development plan;
  - programme for non-discriminatory practice;
- approves regulated supply tariffs;
- adopts decisions on an appeal against:
  - an act of the system operator on dismissal, i.e. failure to adopt the decision upon an application for connection to the system;
  - an act of the system operator on dismissal of the access to the system;
  - an act of an energy entity for oil transport through oil pipelines or an energy entity for oil derivatives transport through product lines on dismissal of the access to the system (entrusted activities));
- adopts an opinion upon application for exemption from the regulations stipulating regulated access to the system and
- decides on other issues stipulated by the law.

In addition, the Agency is authorised to:

- supervise the implementation of methodologies and approved regulated tariffs;
- adopt instructions and recommendations and give guidelines for the implementation of methodologies and other acts for which the Agency is responsible;
- specify the manner, procedure and deadlines for the submission of the data and documents relevant for Agency's activities;
- specify the manner, procedure and deadlines for bookkeeping aimed at regulation and implementation of the procedure for accounts unbundling and other procedures defined by the law;
- demand amendments to the system code and market rules as well as to other acts in line with the Law and
- demand submission of the data and documents relevant for Agency's activities from energy entities, within the deadline which may be shorter than eight days upon the day of demand submission.

Issuance and withdrawal of licences and deciding upon appeals are entrusted activities.

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;
- compliance with the commitments of licenced energy entities;
- application of the rules for cross-border transmission capacity allocation in cooperation with regulatory bodies from other states;

- application of the mechanisms for removal of congestion in transmission and transport system;
- time necessary for system operators to connect an entity to the system, i.e. time for repair work in case of interruptions;
- publishing the data on cross-border transmission capacities and on system use by transmission and transport system operator;
- system reserves use;
- 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;
- manner in which system operators and energy entity dealing in oil transport through oil pipelines and oil derivatives transport through product lines perform their duties defined by the Law and
- transparency and competition level, in cooperation with the bodies authorised for competition issues.

In addition, in line with the Law, the Agency participates in the activities of international institutions responsible for the development of regional and European electricity and natural gas market.

## **NEW ENERGY LAW**

New Energy Law was adopted on December 29, 2014. The rationale for its adoption includes: harmonisation of national regulatory framework with the EU regulatory framework and its legal heritage, creation of conditions for safe security of supply in Serbia and removal of shortcomings in the existing Law. This Law provides for the full transposition of the provisions of the Third European Union Package on the internal energy market, including expanded jurisdiction of the Agency into the legal system of Serbia.

**Pursuant to the new Law, the most important competences of the Energy Agency include:**

### **LICENSING AND CERTIFICATION**

- license issuance and withdrawal, keeping license registry and adoption of an act on license fee;
- certification of transmission system operators;

### **PRICE REGULATION**

- adoption of methodologies for setting the level of: use-of-system charges, regulated price of electricity and natural gas supply, price of connection to the system and price of electricity that was consumed without authorization;
- approval of regulated prices;
- setting prices of regulated ancillary services;
- monitoring the enforcement of methodologies and approved regulated prices;
- setting a compensation fee to be reimbursed to customers on the basis of deviation from prescribed quality of electricity and natural gas delivery and supply;
- preparation of a report on the necessity of further regulation of electricity supply prices for households and small customers;

### **ENERGY MARKET MONITORING**

- adoption of rules and other documents:
  - rules on supplier switching;
  - rules on quality of electricity and natural gas delivery and supply;
  - document on exemption of new electricity and gas interconnectors;
  - procedure of exercising a customer's right to access his own consumption data;
  - instructions, recommendations and guidelines for the application of documents within the Agency's jurisdiction;
- approval of rules:
  - electricity transmission and distribution system code and natural gas transmission and distribution system code and natural gas storage code;
  - rules on electricity market operation;
  - rules for cross-border capacity allocation;
  - rules on publication of key market data;
- approval of other documents:
  - multiannual transmission and distribution system development plans ;
  - procedure of connection to the transmission system;
  - compliance programs for the provision of non-discriminatory behavior of the system operator;
  - plans for the transfer of metering devices from distribution system operators;
  - document of the transmission system operator on the level of compensation for the guarantee of origin;
  - document of the system operator on the prices of non-standard services;
- issuance of opinion on plans for the introduction of smart meters;
- monitoring compliance of licensed energy entities with obligations and market monitoring;
- analysis of the necessity of a supplier of a last resort;
- enforcement of binding decisions of competent Energy Community bodies;
- contribution to harmonisation of the procedure of data exchange for the most important market processes in the region;

### **DECIDING UPON APPEALS AND CUSTOMERS PROTECTION**

- deciding upon appeals:
  - against denied system access;
  - against a system operator's document upon application for connection or against failure to adopt such a document;
- consideration of files on failures of a system operator and supplier to comply with their commitments;
- offering expertise and data to applicants who settle their disputes via mediation;
- penalties and keeping penalties registry;
- initiation of offence proceedings and commercial offences proceedings;
- analysis of circumstances and initiation of proceedings with authorised bodies in case of injury to competition and market limitations and
- taking measures making lists with practical information on their rights available to system users and customers.

### **INTERNATIONAL COOPERATION**

The Agency cooperates with regulatory bodies from other countries as well as with other international bodies and organisations in line with the law and ratified international treaties and the decisions of the Council.

### 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 54 of 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

The Agency is an autonomous legal entity and it is independent from the executive authorities and all other state bodies and organisations, as well as from all legal and natural persons dealing in energy activities. Its independence does not prejudice the cooperation between the Agency and other national bodies, the implementation of the general policy adopted by the Government in issues which are not related with 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 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). During the six year period, 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 48 of the Law, the Agency adopts a financial plan defining total revenue and expenditure, including contingency funds and elements for full insight into the compensation and employment policy which provide adequate professional personnel. The financial plan is approved by the National Assembly. The financial plan is submitted to the National Assembly at the latest by the end of October of the current year for the following year. Upon the approval of the National Assembly, it is published in the "Official Gazette of the Republic of Serbia". The Agency regularly submitted annual financial plans to the Assembly. The National Assembly approved the Agency Financial Plan for 2012. The National Assembly has not considered the 2013 and 2014 Financial Plan of the Agency.

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. The independence of the Agency from executive authorities also reflects in the fact that, pursuant to the Law, the President and members of the Agency Council are appointed by the National Assembly of the Republic of Serbia. Persons who are nationals of the Republic of Serbia, with higher education qualifications (Bachelor degree) in the field of technical, legal or economic sciences with at least 10 years of working experience in the energy sector can be elected as the Council President and members. Neither the members of the parliament of the National Assembly of the Republic of Serbia, nor the members of the parliament of the autonomous province, members of the boards, other persons appointed by the state or officials of the political party bodies can be elected Council President or member. The following persons cannot be elected as the President and members of the Council: members of the National Assembly, MPs of the Assembly of the Autonomous Province, members of boards, other elected or appointed persons, as well as political parties' officials; owners or co-owners of energy entities, as well as persons whose spouses, children or direct relatives, regardless of degree of consanguinity, or collateral relatives, including second degree of consanguinity, owners or co-owners of energy entities; persons lawfully convicted for criminal offenses against official duty, corruption, fraud or other criminal offences rendering them unfit to discharge the functions they are elected to.

Pursuant to the law and other regulations, the Agency is obliged to keep commercial and other confidential business data which were submitted to it for the purpose of its scope of work as classified.

The Agency leases its offices and pays for the lease from its own funds. The Agency addressed responsible state bodies so as state-owned offices could be provided for the Agency so as to rationalise the expenditure. So far, this issue has not been settled.

## **7.2 Activities of the Agency in 2014**

In 2014, the Agency Council which manages the Agency held 38 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 Price regulation**

In 2014, in terms of price regulation, the Agency Council adopted the following methodologies:

- Amendment to the Methodology for Setting Electricity Distribution Use-of-System Charges;
- Amendments to the Methodology for Setting Electricity Transmission Use-of-System Charges;
- Methodology for Setting Electricity Public Supply Prices;
- Amendments to Methodology for Setting Natural Gas Transmission Use-of-System Charges;
- Amendments to Methodology for Setting Natural Gas Distribution Use-of-System Charges;
- Methodology for Setting Natural Gas Use-of-Storage Charges;
- Methodology for Setting Natural Gas Public Supply Prices;

The Agency Council also adopted:

- Decision on electricity trading price at which PE EMS and PE EPS trade in order to cover compensation programs and
- Decision on setting system services price for 2014 and 2015.

The Agency Council issued:

- Approval of the decision on natural gas public supply price for 33 public suppliers in July 2014;
- Approval of the decision on natural gas public supply price for 32 public suppliers in September 2014;
- Approval of the decision on natural gas public supply price for 32 public suppliers in October 2014 and
- Approval of the decision on natural gas transmission use-of-system charges for 32 distribution system operators in September 2014.

All the given acts are available on the website of the Agency.

Permanent Agency activities in terms of price regulation include:

- provision of expertise in the field of implementation of methodologies for setting prices as well as monitoring their adequate implementation;
- monitoring implementation of methodologies for setting costs for connection to electricity transmission and distribution systems, natural gas transmission and distribution systems and deciding upon customers' appeals, thereby providing for a necessary level of customer protection and directly contributing to adequate implementation of methodologies in practice;
- provision of expertise to energy entities in unbundling funds and costs for their different activities as well as the control;
- monitoring and analysing the data submitted by energy entities on realised costs and regulated tariffs;



- semi-year monitoring and comparison of realised electricity and natural gas prices in the region and Europe;
- monitoring costs of apartment heating taking into account the prices of fuels in a certain period of the year and;
- analysis of solutions and draft solutions for price regulation and preparation of draft amendments and improvement of existing legislation.

### 7.2.2 Licensing of energy entities

Activities related to licensing of energy entities for energy activities are administrative-legal procedures which include:

- issuing licences for energy activities;
- amendments to issued licences;
- withdrawal, revoking and adoption of decision on withdrawal of the licence by virtue of law;
- monitoring the fulfilment 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 rules regulating the conditions for issuing licenses for energy entities and which is adopted by the ministry in charge of energy issues. These are the main regulations the Agency implements within the licensing procedure. The Rulebook which regulates the conditions for issuing energy licenses was published (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](http://www.aers.rs)).

So as to perform these duties, in line with its legal authorisation, the Council of the Agency also adopts the Criteria and Standards for Determining Energy License Fees and sets the coefficient value for the calculation of the license fee for each calendar year. A separate decision is adopted for this and it is published in the "Official Gazette of RS".

The Council of the Agency adopted the Criteria and Standards for Determining Energy Licence Fees ("Official Gazette of RS", No. 76/2011) thus harmonising the titles of energy activities with the titles stipulated by the Law.

In 2014, the Council of the Agency issued licenses for 7 energy activities out of 19 of them defined by the 2011 Energy Law:

- electricity generation (electricity generation of total allowed connection power of over 1 MW);
- combined electricity and heat energy production (combined cycle - combined electricity and heat energy production in thermal power plants-district heating companies in facilities of over 1 MW of total connection power and over 1 MWh of total heat power);
- electricity transmission and transmission system operation;
- electricity distribution and distribution system operation;
- electricity public supply;
- electricity market organisation;
- 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 motor fuels and other types of fuels on petrol stations;
- natural gas transmission and transmission system operations;
- storage of natural gas and natural gas storage management;
- natural gas distribution and natural gas distribution system;
- natural gas supply;
- natural gas public supply and
- biofuels production of over 1,000 t per annum.

In 2014, there were 102 applications for license issuance submitted to the Agency. Since there were 1,607 applications in the period 2006-2013, there were 1,709 in total.

In 2014, unordered applications from previous years and applications submitted in the previous years were processed. By the end of 2014, 82 new licenses were issued. 149 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 2014, there were 784 ruling licenses in total.

In most cases, the applications were sent back to energy entities for further supplements and corrections to be made. Some of them were sent back several times. Upon the removal of deficiencies and documentation completion, these applications were considered again, so as to check the compliance with energy license conditions. For the given reasons, there are more than 80 applications being considered.

As of 2008, there were several 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 2014, the Agency adopted 47 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 2014, competent market inspectors did not find basis for filing against economic offences against legal persons performing energy operation without licence. The list of licences issued in 2014 per each activity is given in Table 7-1.

**Table 7-1: Submitted applications and approved licenses in 2014 per each activity**

No.	Activity	Submitted applications	Approved licenses
1.	Electricity generation (electricity generation of total approved connection power of over 1 MW)	0	0
2.	Combined electricity and heat energy production (combined electricity and heat energy production in combined heat and power plants in facilities of over 1 MW of total electrical power of the connection and over 1 MWt of total heat power)	1	1
3.	Electricity transmission and transmission system operation	0	0
4.	Electricity distribution and distribution system operation	0	0
5.	Electricity supply	17	20
6.	Electricity public supply	0	0
7.	Electricity market organisation	0	0
8.	Oil derivatives production	1	0
9.	Oil transport through oil pipelines	0	0
10.	Oil derivatives transport through product lines	0	0
11.	Storage of oil, oil derivatives and biofuels	35	4
12.	Trade in oil, oil derivatives, biofuels and compressed natural gas	11	3
13.	Trade in motor fuels and other fuels on petrol stations	41	36
14.	Natural gas transmission and transmission system operations	0	0
15.	Natural gas storage and storage system operation	0	0
16.	Natural gas distribution and distribution system operation	1	1
17.	Natural gas supply	24	17
18.	Natural gas public supply	1	0
19.	Biofuels production of over 1000t per year	0	0
	<b>Total</b>	<b>102</b>	<b>82</b>

The updated register of licensed energy entities for each energy activity is available on the Agency's website ([www.aers.rs](http://www.aers.rs)).

### 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. There are 12 of them. Before 2014, the Council of the Agency adopted the Supplier switching rules ("Official Gazette of RS", No. 93/12). The Rules for Monitoring Technical and Commercial Indicators and Regulation of Quality of Electricity Supply were adopted at the end of 2013, and the Agency monitored their application in 2014.

The remaining 10 rules are being developed and adopted by energy companies, upon the Agency's approval.

In 2014, the Council of the Agency approved the following documents:

- Amendments to the Natural Gas Transmission Network Code, PE Srbijagas, Novi Sad, in January 2014;
- Natural Gas Distribution Network Code, PE Srbijagas, Novi Sad, in December 2014;

- Programme for Non-Discriminatory Behaviour, Yugorosgaz-Transport, Niš, LLC, in November 2014;
- Amendments to the Electricity Distribution Network Code for all five electricity distributors, in April 2014;
- Amendments to the Electricity Transmission Network Code, PE Elektromreža Srbije, in July 2014;
- Amendments to the Electricity Market Rules, in October 2014;
- Rules on Cross-border transmission capacity allocation for the Period 01/01/2015 – 31/12/2015;
- Rules on Cross-border transmission capacity allocation on Serbian – Hungarian Border for 2015 (“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 2015”);
- Rules on Cross-border transmission capacity allocation on Serbian – Romanian Border for 2015 (“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 2015”);
- Rules for the Cross-border transmission capacity allocation on Serbian-Bulgarian Border for 2015 (“Agreement between the Croatian Transmission System Operator LLC 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 2015”);
- Rules for the Cross-border transmission capacity allocation on Serbian-Croatian Border for 2015 (“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 2015”) and
- Rules for the Cross-Border Capacity Allocation on the Border between Serbia and Bosnia and Herzegovina for 2015 („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 2015”).

At the very end of 2014, most natural gas distributors submitted the distribution network code for the Agency’s approval. Since there are no product lines in public use, the conditions for the adoption of Rules for the Oil Derivatives Transport by Product Lines have not been met.

In 2014, the Agency supervised the implementation of the adopted rules through the analysis of needs and initiatives for amendments and supplements to these rules and through its participation in the work of commissions in charge of their supervision. There are several active commissions, i.e. in PE EMS – for Transmission Network Code and Market Rules, in PE EPS – a joint commission for all five distribution companies, in the gas sector, transmission system code was adopted for both transport networks, and by the end of 2014, all distribution network codes were not adopted. The commissions for the enforcement of rules of procedure will be appointed in line with the rules. In PE Transnafta, a commission was appointed for monitoring rules for oil transport via oil pipelines, but the commission is not active. There is one representative of the Agency as a member in each of the appointed commissions.

#### **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 on dismissal, i.e. failure to adopt a decision on the application on system connection;
- against operator’s acts on dismissal of access to the system;
- against acts of energy entities dealing in oil transport through oil pipelines or energy entity dealing 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 2014, there were 331 appeals in total against the activities and behavior of energy entities in different areas of their operations. 201 of them are under the jurisdiction of the Agency, while 130 of them are different petitions and complaints.

The Agency processed all the submitted petitions and complaints and submitted responses to the applicants while forwarding the issues to responsible state bodies for further procedure.

As far as the appeals for which the Agency is responsible within the second instance procedure are concerned, all 201 appeals submitted for reasons stipulated by the Law were processed in 2014. 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”) – 51 appeals;
- against decision of electricity or natural gas distribution system operator dismissing application on connection to the system – 50 appeals;
- 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 – 100 appeals.

The greatest number of appeals was filed against decisions of electricity distribution companies – 198 appeals, while there were 3 of them filed against a decision adopted by natural gas distribution system operators.

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 2014, so as to reduce the number of unlawful decisions adopted by electricity distribution companies, upon Agency's request, several 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 2014 and therefore, the activities of the Agency concerning training experts who work for 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 2014 inclusive, there were 47 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	Укупно
No. of appeals	1	4	2	9	12	7	4	8	47

All filed appeals ended either with denial or discharge.

### 7.2.5 International activities

An important segment of Agency activities implies the implementation of international commitments established by the law. First of all, these refer 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, 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 establishing the EnC provides for the establishment of regional institutions necessary for the Pan-European energy market 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 (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.

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

##### ***Electricity***

- analysis of regulatory aspects of technical, economic and legal basis for the establishment of the Coordinated Auction Office as well as for the implementation of coordinated auction mechanism for the allocation of transmission capacities on interconnection lines;
- analysis of existing balancing mechanisms in the Southeast Europe region;
- analysis of proposals for regional balancing mechanism which would optimise the procurement of balancing energy and make it more efficient, taking into consideration limited production capacities in the whole region;
- elaboration of the proposals for the organisation (design) of the regional electricity market in the Southeast Europe;
- analysis of options for the harmonisation of the licencing regime for electricity trade;
- 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***

- drafting proposals for the improve of interoperability of transmission system operators with the focus on the analysis of gas quality and compatibility of national quality standards with the relevant European standards (CEN) and European Transmission Network Codes and
- workshop on regulatory aspects of underground gas storages in line with the requirements of the Third EU Energy Package.

##### ***Protection of vulnerable customers***

- drafting documents to inform electricity and natural gas customers on the retail market opening;
- 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.

##### ***EnC Working Group for Investment Incentives***

- Drafting methodology for the identification of risks faced by infrastructure projects and the proposal of regulatory measures stimulating investments in transmission and transport networks.

#### **7.2.5.2 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, 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 2014, the representatives of the Agency participated in the following ERRA activities:

- Licensing and Competition Committee
  - Monitoring economic performances of regulated monopolistic activities and potential regulatory measures;
  - Impact of the implementation of the Third EU Package on internal energy market to the unbundling of transmission system operators;

- Technical and regulatory issues important for the integration of spot electricity market and
- Reasons for the regulation of final customers' prices and potential consequences.
- Tariff/Pricing Committee (an Agency representative has been the vice president of the Committee since 2011)
  - Incentive regulatory measures for the support of national and cross-border investments;
  - Influence of mechanisms for price regulation (setting the regulatory value of capital assets, justifiability of costs, length of regulatory period, etc.) to transmission network development;
  - Price regulation principles for small distribution networks and
  - Update of the statistical data base on electricity and natural gas prices in ERRA countries.

### **7.2.5.3 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. Activities of the Agency – adoption and approval of regulations on energy market and their full enforcement contributed significantly to the positive assessment of the progress made by the Republic of Serbia in the field of common energy market within chapter 15 (energy) of the 2043 European Commission Serbia Progress Report.

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 implementation and monitoring the National Program for Integration of Serbia into the European Union 2013-2016 (NPAA) as well as in the explanatory and bilateral screening for Chapter 15 - Energy.

### **7.2.6 Other activities**

Several times during the process of drafting the Energy Law, the Agency submitted its proposals to the responsible ministry, especially regarding issues such as energy market development, price regulation, activities and status of the Agency, obligations of regulated energy entities, customer protection, etc.

The Agency submitted its positions and suggestions to other important systemic laws, such as the Law on Planning and Construction and the Law on Rational Use of Energy to responsible ministries.

The Agency 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 2014 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 2014 was submitted to the National Assembly for approval in line with the obligations arising from the Law and the plan was not analysed.

This report illustrates the planned 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 2014**

No.	Revenues	RSD	
		Plan	Realised
1	Revenue from licenses	27,545,000	26,819,800
2	Revenue from regulatory fee	120,678,390	101,372,714
3	Separate income from 2012	0	0
4	Revenue from grants and reimbursements	1,500,000	1,864,444
5	Financial revenues and other revenues, settled corrected liabilities for licenses and regulatory fee	1,150,000	13,008,746
	<b>TOTAL REVENUE</b>	<b>150,873,390</b>	<b>143,065,704</b>

### 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 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 2014 was calculated. It amounted to 26,819,800 RSD.

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 101,372,714 RSD 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 discrepancy between actual revenues arising from this source and the planned revenues is a consequence of the Council's decision on the reduction of coefficient which is the basis for the calculation of this revenue, which is set in order to harmonise total revenues with planned expenditure in 2014, in line with the law.

The revenues from grants and reimbursements amount to expenditures. In this case, they 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. Both that amount as well as 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 1,720,627 are presented as a revenue. Since the grant funds are mostly depreciated, the share of depreciation of these funds in revenues is reduced to a great extent. On the other hand, regular participation of the Agency's employees in the activities of the EnC working groups, Euro increase trend and effect of foreign currency – RSD calculation caused slightly higher revenues than expected by the Plan, while being on the level of 2013.

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 453,406. A considerable item in this group of revenues in 2014 includes collected revised liabilities from 2013 from PE Srbijagas arising from the regulatory fee amounting to RSD 8,611,575.

In the accounting 2014 year, due to the above mentioned reduction of revenues arising from the regulatory fee, there was a deficit in revenues in comparison to expenditures which are covered from extra revenues accumulated in previous years.

Table 8-2: Total Agency's expenditure in 2014

Ред - бр.	Расходи	RSD	
		Planned for 2014	Realised in 2014
<b>1</b>	<b>Material, fuel and energy costs</b>	<b>4,050,637</b>	<b>3,238,098</b>
1.1	- material (operating cost, office, miscellaneous)	1,773,425	1,473,202
1.2	- fuel and energy	2,277,212	1,764,896
<b>2</b>	<b>Salaries and allowances</b>	<b>134,884,746</b>	<b>114,390,344</b>
2.1	- salaries and allowances (gross)	107,752,016	92,340,295
2.2	- levies paid by employer	18,653,410	16,318,742
2.3	- fees in line with other contracts	61,707	90,480
2.4	- other personal expenditure and fees	8,417,613	5,640,827
<b>3</b>	<b>Production services</b>	<b>23,241,990</b>	<b>22,180,711</b>
3.1	- transport	2,139,449	1,696,072
3.2	- maintenance	1,701,214	1,617,790
3.3	- lease	16,201,728	15,979,263
3.4	- marketing and advertising material	150,000	149,826
3.5	- other services	3,049,599	2,737,760
<b>4</b>	<b>Depreciation and reserves</b>	<b>5,205,027</b>	<b>4,889,652</b>
<b>5</b>	<b>Non-material expenditure</b>	<b>10,024,416</b>	<b>4,988,507</b>
5.1	- non-production services	8,191,542	3,258,192
5.2	- costs of representation	285,444	241,656
5.3	- insurance premium	362,742	353,125
5.4	- payment operations	254,980	263,599
5.5	- membership	408,000	404,773
5.6	- taxes and fees	512,581	458,762
5.7	- other non-material expenditure	9,127	8,400
<b>6</b>	<b>Financial expenditure and other expenditure</b>	<b>27,719,663</b>	<b>30,835,039</b>
	<b>TOTAL EXPENDITURE</b>	<b>205,126,479</b>	<b>180,522,351</b>
<b>7</b>	<b>Profit - loss account Financial result</b>	<b>-54,253,089</b>	<b>-37,456,648</b>
	<b>TOTAL EXPENDITURES = REVENUES</b>	<b>150,873,390</b>	<b>143,065,704</b>

**Notes** related to Table 8-2:

In 2014, calculated expenditures amounted to total RSD 180,522,351 and they were 12% lower than the total planned expenditures for 2014.

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 around 20% lower than those planned due to the fact that unused stock of material and fuel from 2013 were used and due to extremely rational spending and savings.

The costs in terms of calculated wages and allowances are around 13% lower than the planned ones, primarily due to the fact that the National Assembly did not assess the 2014 Financial Plan of the Agency. Based on the reduction of net salaries of employees, in line with the Law on Reduction of Net Income of Public Sector Employees, there was RSD 7,868,129 in total of reduction in employees' income. Therefore, gross salaries amount was around 6% lower than in 2013.

In 2014, the trend of "brain drain" of highly-qualified personnel of the Agency was continued (in total, ten employees have left the Agency since its establishment which represents almost 30% of the total number of employees in expert departments). 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, starts having 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 2013, 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 50% in comparison to the planned ones. First of all, it was due to the fact that although it was planned to engage consultants, this was not realized in 2014 as the Agency tended to complete all the activities by using its own sources.

Financial expenditure and other types of expenditure was 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) as well as the liabilities in terms of licenses which is mostly due to financial crisis effects, reduced solvency and considerable change in the number of energy entities. Namely, some of them stopped operating, some of them had their license temporarily or permanently withdrawn due to the fact they did not pay the fee.

Total liabilities of the Agency on all bases on December 31, 2014 amounted to RSD 50,921,621. RSD 5,525,700 are liabilities for issued licenses and RSD 43,080,559 for regulatory fee.

Based on the Rules on Accounting and Accounting Policies, unsettled liabilities amount was corrected for RSD 26,301,925<sup>9</sup> on December 31, 2014. This correction includes correction of 18% of the total revenue arising from license fee and regulatory fee. In addition, there was a write-off of liabilities of RSD 343,200 primarily 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 would serve not only for 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 – 2013 as indicated in Table 8-3. In addition, procurements were made in 2014, 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					
	2007-2009	2010	2011	2012	2013	2014
Cars	0	1,893,554	3,019,655	2,126,167	0	0
Computer equipment, software, network	3,706,112	2,720,731	5,228,694	2,544,052	2,478,749	2,387,880
Office furniture and equipment	1,672,714	64,883	414,978	392,217	239,964	444,800
Telephone devices, telephone switchboard	318,339	224,090	337,582	120,694	137,525	446,060
Video surveillance, network	1,060,207	0	0	0	0	0
<b>TOTAL</b>	<b>6,757,372</b>	<b>4,903,258</b>	<b>9,000,909</b>	<b>5,183,130</b>	<b>2,856,238</b>	<b>3,278,740</b>

The value of assets which were not written down until December 31, 2014, amounts to RSD 10,288,807, i.e. 27% 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 2014 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 ending on that date, in line with ruling accounting regulations in the Republic of Serbia."

<sup>9</sup> A great share of these liabilities was collected in the first half of 2015.



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## Abbreviations and foreign phrases

ACER	Agency for the Cooperation of Energy Regulators
APKM	Autonomous Province of Kosovo and Metohija
Benchmarking	Comparative analysis of similar (indicators, companies, activities, etc.)
CEER	Council of European Energy Regulators
BiH	Bosnia and Herzegovina
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	Southeastern 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
MERZZS	Ministry of Energy, Development and Environment Protection
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

	<b>kJ</b>	<b>kcal</b>	<b>kWh</b>	<b>kg oe*</b>
<b>1 kJ</b>	1	0.2388	0.000278	0.000024
<b>1 kcal</b>	4.1868	1	0.001163	0.0001
<b>1 kWh</b>	3,600	860	1	0.086
<b>1 kg oe</b>	41,868	10,000	11.63	1

\* kilograms of equivalent oil



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