Republic of Croatia

Croatian Energy Regulatory Agency

ANNUAL REPORT 2013

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CROATIAN ENERGY REGULATORY AGENCY

ANNUAL REPORT 2013

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1 INTRODUCTION

Dear Reader,

In compliance with the obligations contained in the Regulation of Energy Activities Act (Official Gazette, No. 120/12), the Croatian Energy Regulatory Agency (hereinafter: HERA) submits its 2013 Annual Report to the Croatian Parliament. The Annual Report contains information on the activities undertaken and results achieved concerning the scope of HERA's activities, and results pertaining to monitoring the fulfilment of the obligations of energy entities pursuant to the Regulation of Energy Activities Act, the Energy Act (Official Gazette, No. 120/12, 14/14), as well as other legislation regulating specific energy markets. This Annual Report also includes an analysis of the status of the energy sector and an overview of the development of the energy market and public services in the energy sector of the Republic of Croatia. The 2013 HERA Budget Execution Report is also a constituent part of this Report.

In this Annual Report, in addition to the standard format and content of regulatory reporting, HERA also provides a review of the energy sector in the Republic of Croatia. Each specific area of the energy sector is analysed separately (electricity, natural gas, oil, oil derivatives and biofuels, and thermal energy) based on an analysis of the status of the specific sector and the energy entities carrying out activities in the sector, in particular those energy entities carrying out energy activities as a public service. In this context, the Report analyses the transparency of the market and the competitiveness of the energy services and business operations, i.e. the economic position of regulated energy entities in 2013. The supply quality and level of consumer protection in specific energy sectors are also reviewed.

The accession of the Republic of Croatia to the European Union can be considered as the most important event in 2013 for the national energy market, and thus for HERA as well. The integration of the national electricity and natural gas markets into the EU single internal market and the creation of long-term assumptions for sustainable energy development (with the important role of renewable sources, energy efficiency and responsible consumers in the energy market) constitute permanent challenges in the development of regulating energy activities in Croatia.

Hence, for instance, in 2013 preparatory actions were initiated with the aim of certificating the transport and transmission system operator, and also delicate procedures verifying the compliance of the organisation of national operators with the requirements of the EU's Third Energy Package.

In March 2013, the new Electricity Market Act came into force (Official Gazette, No. 22/13), in compliance with the EU's Third Energy Package, as the umbrella legislation for the electricity sector. This legislation provides the framework for the future electricity market model in the Republic of Croatia, which will be regulated following the adoption of a range of ordinances. Thus, in 2013 HERA adopted methodologies to determine the amounts of tariff items for guaranteed electricity supplies and also for electricity supplies as part of the universal service, as well as a pricing methodology for calculating balancing electricity for balance responsible parties. Pursuant to the aforementioned Act, significant modifications were undertaken and implemented in the organisation of the sector and energy activities, and a number of decisions were issued, including the Decision on the organisation of the transmission system operator based on the independent transmission operator model (the so-called ITO model).

In 2013, the electricity sector was characterised by a further drop in electricity consumption as a result of weakened economic activity. Electricity imports also recorded a decline, mainly due to increased electricity generation in hydropower plants and favourable hydrological conditions.

In 2013, the Republic of Croatia finally opened up its retail electricity market, although the energy entities in the HEP Group accounted for about 80% of the total trading volume. HEP Opskrba d.o.o. supplied the largest number of consumers on the market. The share of other suppliers amounted to 7.8% of total sales and 15.6% of the sale of electricity to consumers who were not users of the public electricity supply service, which in comparison with the end of 2012 represents a more than fivefold increase.

As far as promoting electricity generation plants using renewable sources of energy and cogeneration plants is concerned, as at 31 December 2013 there were 679 plants in total, with a total power of 310.3 MW. In 2013, 65 plants, with a total power of 123.6 MW, achieved the abovementioned status. At the end of 2013, solar power plants represented a majority (156 with a power of 7.55 MW), though the 15 wind power plants had the largest total power (254.25 MW).

In 2013 in the natural gas sector, the process of opening up the market continued following the entry of new market participants and the strengthening of competition with a reduction in market concentration. In February 2013, the new Gas Market Act came into force (Official Gazette, No. 28/13, 14/14) in compliance with the EU's Third Energy Package, imposing *inter alia* new frameworks for changes in gas sector organisation in the Republic of Croatia.

In accordance with the aforementioned Act, HERA adopted a number of ordinances: general terms and conditions for gas supply; network rules for the gas distribution system; methodologies and decisions on the amounts of tariff items for gas transport, storage and distribution, as well as for the public gas supply service and guaranteed supply. HERA also adopted pricing methodologies for non-standard services and balancing energy and the Decision on the method and procedure for keeping separate accounting records for energy entities. HERA also provided opinions and approval for a number of pieces of legislation and ordinances.

In terms of wholesale activities in 2013, the share of Prirodni plin d.o.o. on average accounted for 80% based on the quantity of gas sold, while the share of the seven other suppliers active on the wholesale gas market amounted to 20%. As a direct effect of liberalisation and the opening-up of the natural gas market and changes in gas suppliers at the wholesale level, in January 2014 the share of Prirodni plin d.o.o. as the dominant supplier at the wholesale level had been reduced to approximately 68%.

In 2013, noticeable progress was also achieved concerning the process of opening up the market in the retail segment of the gas market. In comparison with 2012, there was a manifold increase in the rate of change of gas suppliers in 2013. As a result of the development of the gas market in 2013, a noticeable reduction in the end prices of gas for industrial consumers in the Republic of Croatia was also achieved.

In 2013, HERA determined a new end-price regulation model for supplying gas to households and adopted a methodology according to which the amounts of tariff items were determined for the public gas supply service and guaranteed supply (which entered into force on 1 April 2014). The new model was envisaged for a transition period during which the gas price for households will continue to be regulated until the fulfilment of the prerequisites required for complete price deregulation.

The new Oil and Oil Derivatives Market Act (Official Gazette, No. 19/14), adopted in February 2014, introduced some important changes to the oil and oil derivatives market. In the first place, it determined the pricing of oil derivatives in compliance with the rules regulating market relations, which implies that the market of liquid petroleum derivatives and liquefied petroleum gas is completely open in terms of price formation. Nevertheless, following the adoption of the new Oil and Oil Derivatives Market Act, the application of the Tariff system for oil pipeline transportation

and the Decision on the tariff amounts for oil pipeline transport were revoked, which implies that access to the oil pipeline is fully based on negotiated third party access.

In 2013, biofuel production amounted to 32,494 t, which represents a 15.3% drop in comparison with the quantity produced in 2012.

In compliance with the provisions of the Gas Market Act, the gas supply for energy entities which produce thermal energy for the needs of households is considered as a public service. Therefore, the billing of delivered gas as per household price commenced for energy entities in the thermal energy sector which use gas for thermal energy production and supply households with thermal energy (in contrast with the former billing method based on the price for industrial consumers).

In the thermal energy sector, in 2013 HERA also determined the amounts of tariff items for services related to the production, distribution and supply of thermal energy, based on the requests of energy entities and in line with the effective legislative framework. The abovementioned decisions and amendments to the legislative framework had a positive effect on the thermal energy sector and energy entities ended 2013 with better business results, i.e. smaller losses in comparison with previous years.

However, the most significant change in the thermal energy sector in 2013 was the adoption of the Thermal Energy Market Act (Official Gazette, No. 80/13, 14/14). This Act introduced important new features in the regulation, organisation and operation of the thermal energy sector, with the aim of market development, the promotion of new investments in thermal systems, and the creation of opportunities for better and more efficient relations between participants in the thermal energy market. In addition to energy activities and relations in the thermal energy market, this Act also determines the legislative framework for new energy services, with the aim of increasing energy efficiency in buildings, reducing the consumption of thermal energy and reducing adverse environmental effects. The Thermal Energy Market Act stipulates clear deadlines for the installation of heat exchangers and heat cost allocators or thermal energy meters, with the aim of more rational use and a reduction in thermal energy consumption.

As a special new feature, the Thermal Energy Market Act has introduced a new participant – the thermal energy consumer, who in the name of and on behalf of the building owner or co-owner carries out thermal energy consumer activities within an independent, closed and centralised heating system.

The new Croatian legislative framework adopted at the end of 2012 and during 2013 additionally strengthened HERA's independent position in compliance with EU regulations, and increased its regulatory competences and responsibilities.

HERA has an important responsibility and ongoing obligation to supervise and monitor the enforcement of regulations regarding separating network activities from the activities of production and supply, transparent and impartial access to energy networks, and the implementation of activities within the framework of regional co-operation and cross-border energy exchange, and to monitor and actively participate in the creation of transparent conditions for fostering market competition without discrimination against market participants, and monitor and implement measures concerning efficient protection of energy entities and end consumers.

Within its competence, HERA actively participates in the area of consumer protection in different ways: by supervising energy entities, monitoring the service quality of energy entities and by collecting and processing data concerning the activities of energy entities in the area of consumer protection, as well as by dealing with individual consumer claims and complaints, all in accordance with its authorisation pursuant to the Regulation of Energy Activities Act.

HERA engages in active international co-operation with regulators in the countries in the region as well as with regulators in the EU Member States. Co-operation is largely carried out through membership of associations of regulatory authorities at the EU level, i.e. the level of European regions, and through work in the expert working groups of such associations.

After the accession of the Republic of Croatia to the European Union, HERA became a member of the Agency for the Co-operation of Energy Regulators (ACER) and the Council of European Energy Regulators (CEER). The President of the HERA Board of Commissioners became a member of the ACER Committee of Regulators and the CEER General Assembly, and in February 2014 was elected as a Vice-Chairman of the CEER General Assembly for a period of two years.

In 2013, the Croatian energy regulator became a member of the family of national regulatory authorities in the EU Member States, and thus also an actor in the European Energy Strategy concerning the creation of the EU single internal energy market. Nevertheless, HERA also has an extremely demanding and complex task as a result of the specific nature of the Croatian energy sector and its legislative framework. In both segments, HERA should be operative and efficient whilst carrying out its activities and duties, which requires the ongoing fostering and building of its capacities and expertise.

President of the Board of Commissioners

Tomislav Jureković, B.Eng.

2 OVERVIEW OF THE ENERGY SECTOR

2.1 Electricity

The situation in the electric energy sector in the Republic of Croatia in 2013 should be seen in the light of functional and developmental possibilities of providing a sufficient and reliable electricity supply to end customers at market-based energy prices and transparent, cost-based tariffs for the use of the electric power network infrastructure.

In March 2013, the new Electricity Market Act (Official Gazette, No. 22/13) came into force as the umbrella law for this sector. It lays down the framework for the future electricity market model and provides a description of the tasks of the regulated energy operators and the roles of the suppliers and traders on the electricity market. This needs to be regulated in more detail by a number of ordinances prescribed by this Act.

This overview considers the main indicators of consumption and generation of electricity on the territory of the Republic of Croatia. This is the third year in a row which recorded a decrease in the total (gross) consumption of electricity, which amounted to 17.3 TWh in 2013, while it amounted to 17.9 TWh in 2010.

The maximum load of the electric power system amounted to 2,813 MW, which was measured in February 2013, while the summer peak load was measured in July and amounted to 2,812 MW, which is almost identical to the load measured in winter. The minimum load of the electric power system amounted to 1,105 MW and was recorded in May 2013.

The largest share of electricity consumption in 2013 was covered by domestic production generated by power plants located on the territory of the Republic of Croatia, which amounted to 12.8 TWh (74%). The production of the Krško nuclear power plant (NPP) for the needs of Hrvatska elektroprivreda joint-stock company (hereinafter: HEP d.d.) amounted to 2.5 TWh (15%), while total imports for the needs of buyers of electricity in the Republic of Croatia amounted to 2 TWh (11%). The share of imports in the total consumption of electricity is much lower than in 2012 when, due to unfavourable hydrological conditions, it amounted to 29%, which points to the fact that electricity production from power plants located on the territory of the Republic of Croatia is highly sensitive to hydrological conditions.

In 2013, the Republic of Croatia availed itself of a total of 4,386 MW of production capacity. The largest share of production capacity, to the amount of approximately 85%, is owned by HEP d.d., and its operative manager is HEP-Proizvodnja d.o.o. In 2013, this share was 4% lower than in 2012, which is a consequence of the entry of a large number of power plants which use renewable energy sources into Croatia's electric power system.

Of the mentioned renewable energy sources, it is important to highlight wind power plants (WPP), whose share in the production of electric power on the territory of the Republic of Croatia reached 4%.

Electric power transmission and electric power distribution are regulated activities. In the Republic of Croatia, there is one transmission system operator, i.e. Hrvatski operator prijenosnog sustava d.o.o. (hereinafter: HOPS d.o.o) and one distribution system operator, i.e. HEP – Operator distribucijskog sustava d.o.o. (hereinafter: HEP-ODS d.o.o.)

Until July 2013, the transmission system operator in Croatia was HEP - Operator prijenosnog sustava d.o.o. At this time, based on a decision of the Management Board of HEP d.d., the company’s name

was changed to HOPS d.o.o. and it became the owner of the entire Croatian transmission network (for voltage levels of 400 kV, 220 kV and 110 kV).

Investments in the transmission and distribution network in 2013 related to the construction of new substations and lines and the modernisation of existing facilities. These were higher than in 2010 and 2011, but 10% lower than in 2012.

In view of the above, it should be noted that in 2013 there were no changes in the amounts of the tariff items for the transmission and distribution of electric power, and the realised average prices, including all customer categories, were 8.7 lp/kWh for transmission and 22.4 lp/kWh for distribution.

By supplying electric power to cover the losses in the distribution network for the last quarter of 2013, HOPS d.o.o. commenced the electricity supply process for covering losses according to market principles. The energy for covering the losses in the distribution network and offering the auxiliary services of the electric power system and balancing energy were realised based on contracts concluded within the HEP group. In other words, they were still not supplied according to transparent, unbiased market principles. At this moment, since an adequate auxiliary service and balancing energy market does not exist, these services cannot actually be supplied according to market principles. The new Electricity Market Act lays down the adoption of methodologies to regulate the price of such services until the opening-up of the market.

Losses of electric power in the transmission network were 2.2%, which is acceptable, while electric power losses in the distribution network, which amounted to 9.1% in 2013, can be decreased. Some of the ways in which the losses in the distribution network can be decreased are: improvement of customer supervision measures for decreasing unauthorised consumption, the reconstruction of old lines and plants and the construction of new ones, and the introduction of the 20 kV voltage level.

In relation to previous years, in 2013 the transmission network recorded the lowest number of power outages per buyer, i.e. less than 600 minutes. In 2013, the relevant indicators of continuity of supply in the distribution network were much better than in 2012, which was characterised by adverse weather conditions (thunder, ice, storms).

As regards the licences issued in the electric power sector, as at 31 December 2013, 14 traders, 18 suppliers and 28 electric power producers held licences for energy activities.

The new Electricity Market Act provides for the possibility of establishing an organised trade in electric power within the framework of an electric power exchange. During 2013, preparatory activities were launched regarding the establishment of the electric power exchange. Thus, during this year all trading took place through the so-called bilateral market, that is, through the conclusion of bilateral contracts. The total amount of traded electric power of all market participants (including the suppliers of end customers) amounted to 43 TWh. The total amount of electric power traded among companies from the HEP group amounted to 34.1 TWh, i.e. 80% of the total volume of electric power trade in the Republic of Croatia in 2013.

One of the necessary technical/organisational preconditions for the development of the wholesale electric power market is an efficient mechanism for the determination and allocation of cross-border transmission capacities and congestion management in the transmission system.

During 2013, the allocation of cross-border transmission capacities continued on the borders with Slovenia and Hungary through co-ordinated auctions implemented as part of the Central East Europe Co-ordinated Auction Office (CEE CAO) in Freising in Germany on annual, monthly and daily bases. On the border with Slovenia, allocations were also made as part of the trading date (the so-called “first-come-first-served” allocation). These were managed in both directions by the Slovenian

transmission system operator ELES. During 2013, on the borders with Bosnia and Herzegovina and Serbia, HOPS was responsible for the allocation of half of the total cross-border capacity in both directions.

Considering all of the above, the situation on the Croatian wholesale market during 2013 can be considered satisfactory.

In 2013, activities also increased on the retail electricity market. On 31 December 2013 in the Republic of Croatia, 18 energy operators held licences to perform electricity supply energy activities. Of those 18 operators, 15 suppliers were eligible to act on the electricity market, and 9 were active, of which one supplied customers as a public service provider, i.e. HEP-ODS d.o.o.

Customers from the household tariff group can select a supplier on the market or be supplied at regulated prices as part of the public service managed by HEP-ODS d.o.o. The share of customers from the household tariff group in the total sale of electricity was 41%.

The greatest share of customers on the electricity market were supplied by HEP Opskrba d.o.o. Other suppliers participated with 7.8% of total sales and 15.6% of the sale of electricity to customers without access to supply as part of the public service, which is an increase of more than five times in relation to the end of 2012. In 2013, suppliers outside the HEP group supplied approximately 47,000 households, as opposed to the end of 2012 when they supplied less than 700 households. In this regard, it can be concluded that, as of 2013, the Croatian retail electricity market actually started to open up. The trend of intensification continued in 2014.

By the Decision of the Croatian Government of 1 May 2012, the amounts of the tariff items were defined for customers as part of the universal service. These applied until 1 October 2013, as at the end of September 2013 HERA adopted the Methodology for determining tariff item amounts for the electricity supply as part of the universal service (Official Gazette, No 116/13), whereby the price of electricity for customers as part of the universal service was no longer regulated but transparent criteria under which electricity is supplied were defined. These are primarily based on market principles. According to this methodology, on 1 October 2013 HEP-ODS d.o.o., as the electricity supplier under the universal service, adopted new tariff item amounts which amounted to 45.5 lp/kWh on average, which is a 10% decrease in relation to the tariff items adopted by the Decision of the Croatian Government of 1 May 2012.

The mechanism for calculating balancing energy for balance responsible parties is one of the areas that require improvement. A transparent, efficient and cost-based process of allocating costs for deviation from the contracted schedules is necessary as a precondition for suppliers to be competitive on the market. In 2013, HERA continued improving the balancing energy calculation mechanism by adopting the Methodology for determining the balancing energy prices for balance responsible parties (Official Gazette, No. 121/13).

The Croatian electric energy system is completely balanced by auxiliary services, the costs of which are paid by HOPS d.o.o. to its provider - HEP Proizvodnja d.o.o., and which are paid by all end customers of electricity through the transmission network usage fee. With the coming into force of the new Electricity Market Act in 2013, all the preconditions have been met for establishing the auxiliary service and balancing energy market. Until the auxiliary service and balancing energy market has been established, prices should be regulated according to the Methodology for determining the prices and conditions for the provision of auxiliary services, the Rules on the balancing of the electric energy system and the Methodology for determining the prices for the provision of balancing energy.

As regards the protection of electricity buyers, during 2013 HERA received a total of 516 submissions of which 161 were complaints and objections. Most complaints and objections related to connection to the electric power network (43%) and the calculation and use of electricity (26%).

On 31 December 2013, the incentives system for the generation of electricity from plants which use renewable energy sources and cogeneration plants included a total of 679 plants with a total capacity of 310.3 MW. 65 of these plants, with a total capacity of 123.6 MW, achieved this status in 2013. At the end of 2013, the largest share pertained to solar power plants (156 with a capacity of 7.55 MW), but the greatest total power was generated by 15 wind power plants (254.25 MW).

In 2013, the trend of a significant increase in the number of constructed solar power plants continued with as many as six times more solar power plants in operation and a fivefold increase in total power in relation to 2012 (35 times greater in number and 57 times greater in power compared to 2011).

The total amount of power which was eligible for contracts on buying off electricity with the Croatian electricity market operator (Hrvatski operator tržišta energije d.o.o., hereinafter: HROTE) amounted to 15 MW for 2013 for integrated solar power plants. The given quota was filled as early as 4 January 2013, and for non-integrated solar power plants, the quota of 10 MW was filled by 29 August 2013. By the end of 2013, HROTE had received 2,839 requests in connection with the capacity of 61,855.08 kW from integrated solar power plants and 39 requests in connection with the capacity of 19,947.67 kW from non-integrated solar power plants which were not eligible for the conclusion of buy-off contracts.

A limitation regarding the connection to Croatia's electric power system started to apply to wind power plants because of the system's regulation capacity, which HOPS d.o.o. assessed to be 400 MW. In this regard, there were no changes in 2013.

The system of incentives for the generation of electricity from renewable sources and cogeneration is financed from two sources: funds collected from suppliers under the obligation to buy electric energy generated from eligible plants in the incentives system proportionate to the market share in the total supply, and fees paid by end customers. The regulated buy-off price paid by suppliers to HROTE for the received energy was increased on 1 May 2012 from 0.4342 HRK/kWh to 0.53 HRK/kWh. Up to 1 November 2013, the fee for the incentive for generation of electricity from renewable sources and cogeneration was 0.5 HRK/kWh for all customers, and had not changed since 2011. After 1 November 2013, the fee increased to 3.5 lp/kWh for all customers except buyers of electricity who, pursuant to the act regulating air quality protection, were obliged to obtain a permit for greenhouse gas emissions, and for whom the fee remained 0.5 lp/kWh.

The fee was increased due to a deficit in collected funds and costs for electricity bought off from eligible producers in the incentives system during 2011, 2012 and 2013 (until 1 November) which amounted to HRK 221.43 million. The deficit was covered from the surplus of collected funds from the period between 2007 and 2010 to the amount of HRK 372.1 million. Considering all of the above, in future periods, without an increase in the fee, the collected funds would not suffice to pay the eligible producers in the incentives system.

The regulated buy-off price at which the suppliers purchase electricity from HROTE is defined by the Tariff system for the generation of electricity from renewable energy sources and cogeneration, and during 2013 was continuously higher than the average wholesale market price of electricity.

Along with an increase in the share of intermittent energy sources in the system, an obligation should be introduced to predict the generation from these production plants with the stimulation of a quality forecast and inclusion in the balancing energy calculation, separately or within the framework of the balance sheet group.

The current level of electricity supply security is satisfactory. However, without investment in new production capacities, it could be aggravated significantly by 2020, as worn-out thermal power plants will be decommissioned during this period, while predicted economic development will result in a significant increase in the consumption of electricity. The exclusive construction of plants which use renewable energy sources, especially wind power plants, can aggravate the security of the electricity supply if not accompanied by the construction of energy sources of manageable production.

2.2 Natural gas

In the period following the previous HERA report, the natural gas sector has primarily been characterised by the continuing trend of opening up the market that started in 2012, the adoption of a new Gas Market Act and accompanying ordinances, and initial activities regarding the preparation of documents aimed at securing the natural gas supply in the Republic of Croatia.

In 2013, at the wholesale level, 80% of sold gas was attributable to Prirodni plin d.o.o., and 20% to the remaining 7 suppliers active on the wholesale gas market. As a result of further gas market liberalisation and changes of wholesale suppliers, the share of Prirodni plin d.o.o. as the dominant wholesale supplier had decreased to approximately 68% by January 2014.

Market development in 2013 and decisions adopted by the Croatian Government in early 2014 have led to a decline in market concentration in the wholesale market. A common measure of market concentration is the Herfindahl-Hirschman Index (hereinafter: the HHI), which amounts in general to less than 2,000 points in a competitive market with no dominant players. In the Croatian gas market, the HHI amounted to 8,722 points in 2012, and 6,782 points in 2013, indicating a high market concentration and a dominant supplier in the wholesale gas market.

Further opening up of the gas market has been significant in the retail segment of the gas market. In 2013, there were 740 changes of gas suppliers, accounting for a 0.11% change in terms of the number of customers and 3.77% in terms of distributed gas quantities. In comparison to 2012, the gas supplier change rate increased severalfold in 2013. In addition, there was also an increase in the number of energy entities granted licences to carry out gas supply activities from 49 to 55. Out of these, 42 energy entities were active in supplying gas.

The need for further market development is still reflected in the final gas price level. Such prices for industrial customers in the Republic of Croatia in the second half of 2013 were on average 13% above the EU average. However, the above difference is significantly lower than in 2012, when it accounted for 27%. In connection with this, it is worth noting that in the fourth quarter of 2013, in comparison with the same period in 2012, according to HERA's data, the average final gas price (excluding VAT) for commercial customers fell by 14%.

As regards the gas retail sector, it is important to emphasise that a closed distribution system is a distribution system located in a geographically confined industrial and/or commercial site that distributes gas to end customers other than households, as well as a distribution system that distributes mixed liquefied petroleum gas, vaporised liquefied petroleum gas, town gas, biogas or gas produced from biomass. At the request of the operator of a closed distribution system, HERA may issue a decision establishing a closed distribution system. This allows for the participation of the gas buyers in the area in an open gas market, something that was not possible before. In 2013, HERA allowed two closed distribution systems (Kamen Sirač and Đuro Đaković).

As regards the supply of households using the public service gas supply, the Government decisions adopted in 2012 also remained in force in 2013. They regulated the gas supply price for tariff

customer suppliers, the gas transport and distribution price, tariff items for natural gas supply and the final gas price for households. However, in late 2013 on the basis of the provisions under the new acts adopted in late 2012 and early 2013, HERA established a new regulation model for gas supply final prices with respect to households, i.e. it adopted a new methodology fixing the tariff item amounts for the public service gas supply and guaranteed supply, which entered into force on 1 April 2014. The model has been developed for the transitional period in which the gas price for households is regulated until the prerequisites for full price deregulation are met, such as: an enhanced end customer protection system and vulnerable customer protection mechanism, an adequate wholesale market development level, enhanced supplier organisational and technical competences required by the public service, effective procedures for changing gas suppliers at the household level, and the availability of natural gas produced in the Republic of Croatia for market stakeholders under equal conditions.

In order to meet the prerequisites for full price deregulation, the HERA will monitor the relationships among the stakeholders and the development level of the wholesale and retail gas market on a continuous basis.

With respect to the technical and operational organisation of the gas market, in 2013 the commercial balance model for the transport system was adopted to enhance a non-discriminatory approach to the system and encourage further opening up of the market and competition. The new Rules on gas market organisation entered into force on 1 January 2014. For the first time, they introduced rules on the virtual trading point and enhanced the rules on the organisation of balancing groups as well the accountability of gas market stakeholders for their deviations and calculation of balancing energy.

Under the new Gas Market Act, harmonised with the Third EU Energy Package, which entered into force in March 2013 and established the framework for changes in the organisation of the Croatian gas sector, in late 2013 and early 2014, HERA adopted a number of ordinances regulating in detail certain areas laid down in this act. As part of the gas market regulations, HERA adopted the new General terms and conditions for the natural gas supply and the Decision on the manner and procedure for keeping separate accounting records for energy entities. It also gave its consent to the Rules on gas market organisation. As part of the technical and operational rules of the gas system, HERA adopted the new Network rules for the gas distribution system, and gave its consent to the Network rules for the transport system and Rules for use of the gas storage system. Finally, with respect to regulations governing prices, tariffs and fees, HERA adopted methodologies and decisions on the amounts of tariff items for gas transport , distribution, storage, public service gas supply and guaranteed supply. In addition, methodologies for establishing the prices of non-standard services for gas transport , distribution, storage and the public service gas supply, as well as prices for the balancing energies of the gas system were adopted. The importance of the above regulations is detailed in Chapter 3.3.2.

The challenges of opening up the market for most energy entities and public bodies in the gas sector present serious professional, financial and organisational requirements. The above process at the legislative level was initiated by the adoption of the new Energy Act and the new Regulation of Energy Activities Act in October 2012, and continued in 2013 with the adoption of the Gas Market Act, as well as a number of ordinances during and at the end of 2013. This process, stipulated by the Third Energy Package, is still being developed at the European level through the adoption of a number of regulations defining the target gas market. So far, regulations on congestion management, capacity allocation and balancing have been adopted, and transport tariffs, interoperability and data exchange rules are being harmonised. As an EU Member State, the Republic of Croatia is obliged to implement all the adopted regulations, but it also has an

opportunity to take part in their development. The implementation of these regulations will have a significant impact on the further operations of energy entities and public bodies in the gas sector.

Everything mentioned above indicates that the Croatian gas market is looking at further changes aimed at market development and competitive gas pricing, the protection of final gas customers, improved service quality and enhanced gas supply security.

2.3 Oil, oil derivatives and biofuels

In 2013, the oil, oil derivative and biofuel sector did not see any significant changes but was affected by the economic crisis.

The activity of oil transportation through oil pipelines in the Republic of Croatia is performed by Jadranski naftovod d.d. (hereinafter: JANAF d.d.), which has undertaken to provide legal and natural persons with access to the transportation system in an impartial and transparent manner pursuant to the Oil and Oil Derivative Market Act.

The oil pipeline system of JANAF d.d. is used for oil imports by tankers through the offshore terminal in Omišalj on the island of Krk, for the transportation of oil through pipelines to the oil refineries in Rijeka and Sisak, as well as for the requirements of refineries in Bosnia and Herzegovina, the Republic of Serbia and the Republic of Hungary.

In 2013, a total of 5.4 million tons of crude oil was transported through the oil pipeline system, which was an increase of 20% in comparison to 2012.

In 2013, the energy activity of oil and oil derivative storage was carried out by 21 energy entities. The storage of oil and oil derivatives involves storage on special premises of producers, users, and transportation companies for the purpose of supply security and/or trading. The price of oil and oil derivative storage is not regulated, i.e. it is based on market principles.

The energy activity regarding oil derivative production in the Republic of Croatia is carried out by INA d.d. In 2013, it reported a 12% decrease in total oil derivative production in comparison to 2012, i.e. total production dropped by 3.1 million tons. The oil derivatives produced in the Rijeka and Sisak oil refineries as well as at the Etan Gas Treatment Plant in Ivanić Grad, include motor as well as industrial and household fuels. Imported crude oil and crude oil and condensates produced in Croatian oil and gas fields are used as the raw material in oil derivative production.

In 2013, oil derivative wholesale trading was carried out by 35 energy entities, whereas LPG wholesale trading was carried out by five energy entities.

The price of oil derivatives is not regulated, i.e. it is based on market principles. However, the calculation, disclosure and application of the highest retail price level for oil derivatives are laid down in the Ordinance on the determination of the highest retail prices for oil derivatives (Official Gazette, No. 145/12), and the highest price level for LPG is laid down in the Ordinance on the determination of LPG prices (Official Gazette, Nos. 147/10 and 59/11). Besides oil derivatives from domestic production, imported oil derivatives represent a significant share in the market of the Republic of Croatia. According to data submitted to HERA by energy entities in 2013, a total of 0.78 million tons of oil derivatives were imported.

The Biofuels for Transportation Act stipulates the incentives for the generation and consumption of biofuels in the Republic of Croatia, particularly in terms of fostering the utilisation of biofuels and other renewable transportation fuels, thus aligning Croatian legislation with the EU acquis.

In 2013, biofuel generation accounted for 33,435 t and recorded a 15.3% decrease in comparison to 2012. In 2013, the Croatian Energy Market Operator (HROTE) paid HRK 101.28 million in incentives to eligible biofuel producers for the purpose of placing 35,915,000 litres of biodiesel on the Croatian market. The Ministry of the Economy sets and discloses the highest retail price level for biofuels on a regular basis.

2.4 Thermal energy

The conditions in the thermal energy sector in 2013 were characterised by significant changes brought about by the adoption of the Energy Act (Official Gazette, Nos. 120/12, 14/14) and the Regulation of Energy Activities Act (Official Gazette, No. 120/12) at the end of 2012, as well as the Gas Market Act (Official Gazette, Nos. 28/13, 14/14) adopted in the first quarter of 2013. The Energy Act stipulates HERA's responsibility to decide whether to approve or reject requests to determine and modify the amounts of tariff items submitted by energy entities. At the end of 2012 and during 2013, HERA determined the amounts of tariff items in accordance with the valid tariff system for thermal energy generation, distribution and supply services (Official Gazette, Nos. 65/07 consolidated version, 154/08, 22/10, 46/10, 50/10, 86/11) based upon requests submitted by the majority of energy entities in the thermal energy sector. In addition, the Gas Market Act stipulates that the gas distribution service carried out by energy subjects generating thermal energy for households is considered a public service. Therefore, with the entry into force of the Gas Market Act, energy entities participating in the thermal energy sector that use gas for thermal energy generation and distribute thermal energy to households are now charged household gas prices, instead of industrial gas prices.

These changes had a positive effect on the thermal energy sector, as energy entities achieved better business results in 2013 and had fewer losses in comparison with previous years.

In mid-2013, the Thermal Energy Market Act (Official Gazette, Nos. 80/13, 14/14) entered into force, introducing important new features in the regulation, organisation and operation of the thermal energy sector, with the aim of developing the market, promoting new investments in thermal systems, and the creation of opportunities for better and more efficient relations between participants in the thermal energy market.

The Thermal Energy Market Act has not altered the existing energy legislation concept. The Energy Act functions as a general code which governs relations in the energy sector, whereas particular activities are regulated by the relevant energy acts. In addition to energy activities and relations in the thermal energy market, this Act regulates specific solutions for complying with the requirements of the EU Energy Services Directive, aiming at upgrading energy efficiency in buildings, and reducing thermal energy consumption and adverse environmental effects.

Buildings, as the largest individual energy consumers have a considerable potential for energy, economic and environmental savings. One of the measures for achieving savings is the individual measurement of thermal energy consumption. The Thermal Energy Market Act stipulates deadlines for the installation of heat exchangers and heat cost allocators or thermal energy meters, with the aim of more rational use and a reduction in thermal energy consumption. Activities regarding the installation of heat cost allocators had already started before the adoption of the Act, and have now intensified because of the short deadlines stipulated.

In order to stimulate activities for upgrading energy efficiency in buildings and enabling every building to decide on issues such as the professional management, handling and maintenance of internal installations, a new participant in the thermal energy sector has been introduced. This is

the thermal energy consumer, who in the name and on behalf of the building owner or co-owner performs thermal energy consumer activities in an independent, closed or centralised heating system.

The activity of the thermal energy consumer is a market activity encompassing the professional management, handling and maintenance of internal installations, as well as thermal energy distribution, thermal energy calculation and issuing receipts to end customers in the building, under the thermal energy consumption contract concluded with the authorised representative of the co-owners.

The thermal energy consumer is obliged to keep separate accounting records for each building, which gives end customers a better insight into the actual costs of the professional management and maintenance of internal installations in the building. Building co-owners may choose and change thermal energy consumers by themselves. Therefore, we expect to see how the thermal energy market and healthy competition work in this area. In accordance with the provisions of the Act, HERA has established and manages on its website a Thermal Energy Consumers Registry, providing end consumers with basic information on companies performing thermal energy consumer activities.

The thermal energy consumer is obliged to submit to HERA the information required for the Registry, especially data on the energy efficiency of the building's boiler-room or thermal station and other information necessary for monitoring thermal energy consumption. This will, after a certain period of time, create a database with useful information on energy efficiency and thermal energy consumption for each building.

This Act specifies measures for a safe and reliable thermal energy supply, the conditions for obtaining concessions for thermal energy distribution, i.e. concessions for developing a distribution network, the rules and measures for safe and reliable thermal energy generation, distribution and supply in heating systems, as well as measures for achieving energy efficiency in heating systems.

The Thermal Energy Market Act provides for a transitional period to allow for the co-ordination of all participants, and we expect that the system will start functioning in accordance with the new conditions in the 2014-2015 heating season. It is important to highlight that the primary responsibility for establishing a thermal energy market lies with the end customers, who need to select their thermal energy consumer and conclude all the required contracts between the participants in the thermal energy market.

3 THE ORGANISATIONAL STRUCTURE, AUTHORITY AND ACTIVITIES OF HERA

The Croatian Energy Regulatory Agency (hereinafter: HERA) is an independent, autonomous and non-profitmaking legal person with public authority over the regulation of energy activities that was established in 2004 pursuant to the Regulation of Energy Activities Act (Official Gazette, No. 177/04).

HERA's activities are in the interest of the Republic of Croatia, and are carried out in accordance with HERA's public authority.

HERA's work is public and any HERA activity is conducted in accordance with the application of the principles of transparency, objectivity and impartiality.

3.1 Organisation

The organisational framework for HERA's operations and activities is defined in the HERA Statute (Official Gazette, Nos. 99/07 and 137/08). Pursuant to the Regulation of Energy Activities Act (Official Gazette, No. 120/12), a new HERA Statute was adopted (Class: 011-01/13-01/05, Reg: 371-01/13-14) on 16 October 2013 and entered into force on 24 October 2013. In accordance with the Statute, the conditions for improving the transparency and efficiency of the professional work and decision-making within the competence of HERA were additionally improved.

HERA has a Board of Commissioners and Divisions.

HERA is managed by the Board of Commissioners.

The Board of Commissioners and the President of the Board of Commissioners perform activities in accordance with public authorisation.

The Divisions carry out the professional, administrative and technical activities of HERA.

The main organisational units of the Divisions are as follows:

- the Electricity Division,
- the Gas and Oil Division,
- the Thermal Energy Division,
- the Legal Affairs and Consumer Protection Division, and
- the Support Services Division.

The organisational chart of HERA is shown in Figure 3.1.1.

The Divisions are managed by Directors appointed by the President of the Board of Commissioners in accordance with public announcements for vacancies for a period of four years, with the possibility of re-election.

Directors of Divisions are in charge of the professional work of the Divisions, and report to the President of the Board of Commissioners.

In 2013, 24 sessions of the Board of Commissioners were held, in which a total of 482 agenda items were discussed.

All decisions of the Board of Commissioners are published on HERA's website.

Pursuant to the Decision of the Government of the Republic of Croatia on the amount of fees for performing the regulation of energy activities (Official Gazette, Nos. 155/08, 50/09, 103/09 and 21/12), HERA's operations are financed by funds provided from the following sources:

- a fee amounting to 0.05% of the total annual income from the sale of goods and/or services generated in the previous year by energy entities involved in energy activities conducted upon the basis of licences for performing such energy activities;
- one-off payments for HERA's operations, i.e. fees for issuing licences for performing energy activities, fees for acquiring eligible producer status, and fees for the settlement of claims, complaints and requests.

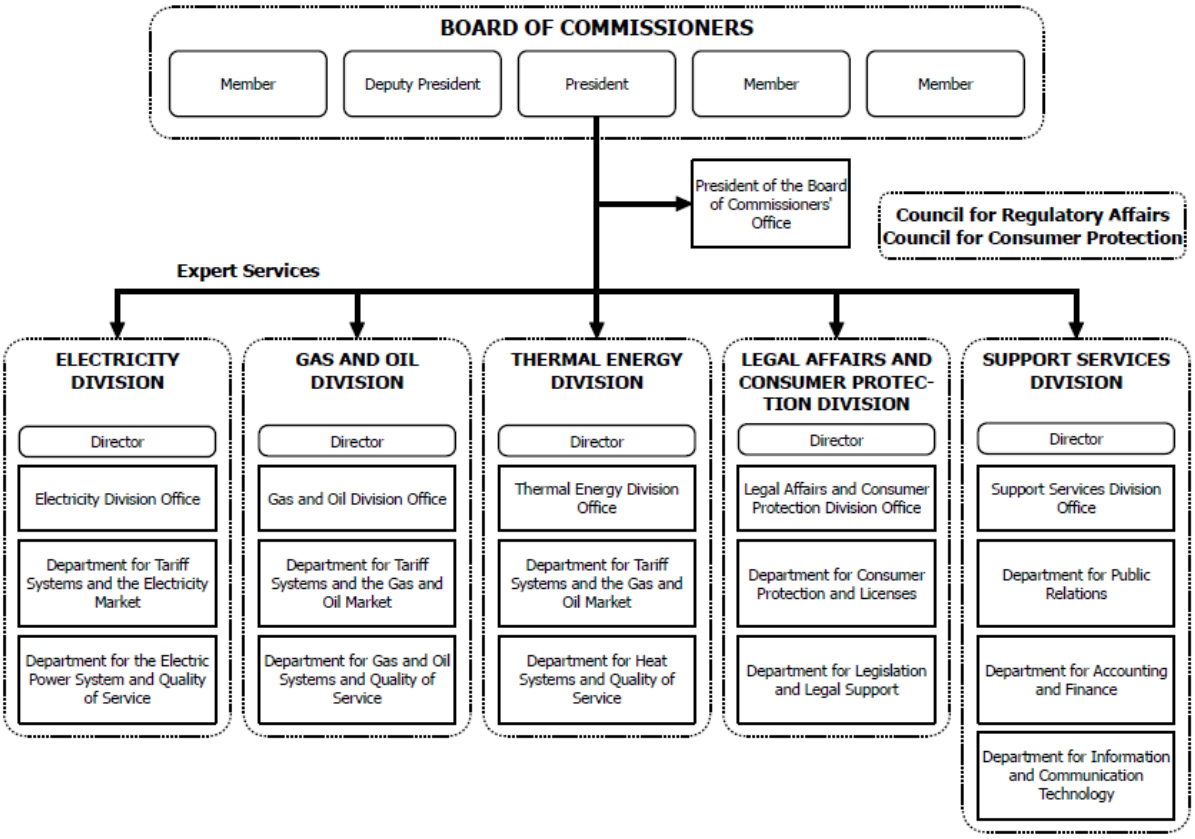


Figure 3.1.1 Organisational chart of HERA

Pursuant to the provisions of Article 8 of the Regulation of Energy Activities Act, HERA reports to the Croatian Parliament.

The legality of HERA's work and its general and individual acts is supervised by the Ministry of the Economy (hereinafter: the Ministry).

HERA's financial management is supervised by the authorised central public administration authority that is the legal person vested with the public authorisation for such a purpose.

3.2 Legislative framework

The legislative framework for the performance of the activities within HERA's competence in 2013 comprises the following regulations:

- Regulation of Energy Activities Act (Official Gazette, No. 120/12),

- Energy Act (Official Gazette, No. 120/12),
- Electricity Market Act (Official Gazette, Nos. 177/04, 76/07, 152/08, 14/11, 59/12),
- Electricity Market Act (Official Gazette, No. 22/13),
- Gas Market Act (Official Gazette, Nos. 40/07, 152/08, 83/09, 114/11),
- Gas Market Act (Official Gazette, No. 28/13),
- Thermal Energy Production, Distribution and Supply Act (Official Gazette, Nos. 42/05 and 20/10),
- Thermal Energy Market Act (Official Gazette, No. 80/13),
- Oil and Oil Derivative Market Act (Official Gazette, Nos. 57/06, 18/11 and 144/12),
- Biofuels for Transportation Act (Official Gazette, Nos. 65/09, 145/10, 26/11 and 144/12),
- Energy Community Treaty Ratification Act (Official Gazette – International Agreements, Nos. 6/06 and 9/06),
- General Administrative Procedures Act (Official Gazette, No. 47/09),
- Ordinance on licences for performing energy activities (Official Gazette, Nos. 118/07 and 107/09),
- Decision on the amounts of fees for the regulation of energy activities (Official Gazette, Nos. 155/08, 50/09, 103/09 and 21/12),
- Regulation on the validity period for licences for performing energy activities (Official Gazette, No. 50/09 and 105/09) and
- Other ordinances adopted pursuant to the Energy Act and other legislation regulating specific energy markets.

3.3 Activities

HERA's activities are governed by the Regulation of Energy Activities Act and include the following:

- issuing, extending and transferring licences to perform energy activities, and the temporary and permanent revoking of such licences,
- supervising energy entities in the performing of energy activities,
- supervising the implementation of provisions for separating activities in accordance with the legislation regulating the energy sector and particular energy activities,
- supervising the implementation of provisions for keeping separate accounting records in accordance with the legislation regulating the energy sector and other legislation for particular energy markets,
- supervising compliance with the prohibition of mutual subsidising of energy activities in accordance with the legislation regulating particular energy markets,
- supervising the application of the principles of transparency, objectivity and impartiality of energy market operators,
- giving consent to general policies for the organisation of the electricity market and general policies for the organisation of the natural gas market,

- issuing decisions on granting eligible producer status, and the temporary and permanent revoking of eligible producer status,
- developing methodologies and tariff systems in accordance with the Act, the legislation regulating the energy sector and other legislation for particular energy markets,
- setting or approving prices, the amounts of tariff items and fees in accordance with the methodologies and tariff systems for the activities referred to Article 11, Paragraph 1, Item 9 of the Act,
- approving system investment, development and construction plans in accordance with the legislation regulating particular energy markets,
- supervising the co-ordination of the investment, development and construction plans of transmission system and transport system operators with ENTSO-E and ENTSO-G development plans,
- supervising transmission, transport and distribution system operators, i.e. system owners, and other energy entities or system users, and their compliance with the provisions of the Act, the legislation regulating the energy sector, and other legislation for particular energy markets, as well as Regulation (EC) No. 714/2009 of the European Parliament and of the Council on conditions for the access to the network for cross-border exchanges in electricity (hereinafter: Regulation 714/2009), and Regulation (EC) No. 715/2009 of the European Parliament and of the Council on conditions for access to the natural gas transmission networks (hereinafter: Regulation 715/2009),
- co-operating with the regulatory bodies of European Union Member States and neighbouring countries and ACER in cross-border matters,
- co-operating with regulatory and other bodies within the Energy Community in accordance with the Ratification of the Energy Community Treaty Act,
- implementing the legally binding decisions of ACER and the European Commission,
- submitting annual reports to the Croatian Parliament containing information on its activities and results in relation to the scope of activities referred to in Article 11, Paragraph 1, Items 1 to 8 of the Act,
- reporting to other competent public authorities, ACER, the Commission and other EU bodies, i.e. submitting annual reports to ACER and the European Commission containing information on its activities and results in relation to the scope of activities referred to in Article 11, Paragraph 1, Items 1 to 8 of the Act,
- issuing conditions for quality energy supply in accordance with applicable legislation regulating particular energy activities,
- issuing general requirements for energy supply,
- issuing and supervising the implementation of the methodology for establishing fees for connection to the network/system for new customers and for increasing the connected load/capacity of energy entities and end customers,
- carrying out cost-benefit analysis and obtaining the opinions of representatives of customer protection bodies when introducing advanced measuring devices for end customers,
- supervising the quality of the energy supply in accordance with applicable legislation regulating particular energy markets,

- supervising the transparency of energy market operations,
- monitoring the degree of openness, competition and abuse in the energy market and customer supply,
- monitoring restrictive contracts, especially contracts restricting the number of suppliers, and informing the national body for competition if required,
- monitoring freedom of entry into supply contracts with the possibility of termination and long-term contracts, under the condition that these comply with EU legislation and policies,
- monitoring the time that transmission, transport and distribution system operators require for connection and repair work,
- providing assistance in applying efficient and prescribed customer protection measures in co-operation with other competent authorities,
- issuing recommended prices for energy supplies performed as a public service at least once a year,
- providing customers with the right to access information on their own energy consumption, i.e. creating a format for presenting customers with information on consumption that is easy to understand and standardised at a national level, and establishing a procedure for exercising the consumer's and supplier's rights to access information on consumption in such a way that consumers have the possibility to give access to information on their consumption to registered suppliers, in which case the entity that manages the information, at its own cost, must provide the supplier with the information, all of which services are free of charge for the consumer,
- supervising the confidentiality of customers' energy consumption,
- monitoring investments in electricity generation sites with regard to security of supply,
- certificating transmission and transport system operators in accordance with the legislation regulating the electricity market and legislation regulating the natural gas market,
- supervising the application of obligatory criteria for granting access to the gas storage system,
- monitoring the implementation of measures introduced by the Croatian Government in the case of emergency situations pursuant to the provisions of the legislation regulating the energy sector,
- encouraging and co-ordinating information exchange in important market processes at the regional level,
- other activities.

3.4 HERA's activities and operations in 2013 in general

3.4.1 Customer protection

Within the area of its competence, HERA actively participates in customer protection in many ways:

– by supervising energy entities, the quality of their services and by collecting and processing information regarding energy entities' activities in the area of customer protection in accordance with the provisions of the Energy Act and legislation regulating particular energy activities, and

by co-operating with ministries and the competent inspectorates in accordance with the relevant legislation,

- by resolving individual customer complaints and objections on the basis of its public authority as stipulated by the Regulation of Energy Activities Act.

In order to protect their rights, energy consumers may submit to HERA complaints, objections and other inquiries and statements concerning the activities of energy entities in the area of electricity, thermal energy, natural gas and oil.

During 2013, HERA received a total of 250 complaints and objections from customers, 44 of which were within its competence. The Agency issued competent decisions in accordance with its authority. In that year, there was one dispute initiated at the competent administrative court appealing against HERA's decision. It is important to highlight that so far HERA has not lost any of the disputes submitted to an administrative court, and none of the decisions made by HERA within the area of its competence have been overturned.

3.4.2 Electricity

In 2013, HERA's activities in the electricity sector were mainly directed at:

- development of the legislative framework regulating the electricity market,
- regular monitoring of the rules for the management and allocation of interconnection capacities and compliance of the capacity attribution system with Regulation (EC) No. 1228/2003 and Regulation (EC) No. 714/2009 and associated guidelines, and continuing supervision of cross-border capacities established at the level of the Energy Community as part of the electricity working group activities of the Energy Community Regulatory Board for South-East European countries (ECRB-EWG),
- regular monitoring of balancing energy calculations for the purpose of improving legislation concerning balancing energy calculations, including the application of standard load profiles,
- collecting and processing information regarding the quality of energy entity services,
- implementing activities regarding the separation of energy activities, mainly certificating transmission system operators, and establishing separate accounting records for energy entities who perform energy activities as public services,
- issuing 17 licences to perform energy activities (8 licences for electricity generation, 7 licences for electricity supply and 2 licences for electricity trade),
- extending 3 licences to perform energy activities (1 licence for electricity generation and 2 licences for electricity trade),
- issuing decisions regarding eligible electricity producer status. In 2013, HERA issued: 104 preliminary decisions, 65 decisions, 3 decisions granting an extension to a preliminary decision, 3 decisions on approving requests for change of project leader in a preliminary decision, one decision on approving a request to change a preliminary decision, one decision on approving a request to change a project leader in a decision, and one decision refusing a request to issue a preliminary decision,
- resolving 161 objections and complaints regarding the operations of energy entities.

After consultations with the concerned public, HERA adopted the following methodologies in 2013:

- Methodology for determining tariff items for the guaranteed electricity supply (Official Gazette, No. 158/13),
- Methodology for determining tariff item amounts for the electricity supply as part of the universal service (Official Gazette, No. 116/13) and
- Methodology for determining the balancing energy prices for balance responsible parties (Official Gazette, No. 121/13).

In 2013, HERA approved the Amendments to the Ordinance on allocation and use of cross-border transmission capacities for 2013 (HEP-OPS, 11/2013).

In connection with the development of regulations and public policies relevant to the electricity market, HERA issued the following opinions:

- Opinion on the proposed regulations in the process of adopting the Ordinance on granting eligible electricity producer status (Official Gazette, No. 132/13),
- Opinion on the tariff system proposal in the process of adopting the Tariff system for electricity production from renewable energy sources and cogeneration (Official Gazette, No. 133/13),
- Opinion on the proposed amendments to the tariff system in the process of adopting the Amendments to the Tariff system for electricity production from renewable energy sources and cogeneration,
- Draft proposal of Amendments to the Tariff system for electricity production from renewable energy sources and cogeneration (Official Gazette, No. 151/13),
- Opinion on the proposed regulations in the process of adopting the Regulation on the incentive for generation of electricity from renewable sources and cogeneration (Official Gazette, No. 128/13),
- Opinion on the proposed regulations in the process of adopting the Regulation on the establishment of the guarantees of origin system (Official Gazette, No. 84/13).

3.4.3 Natural gas

In 2013, HERA activities in the gas sector were as follows:

- the development and adoption of the General requirements for gas supply,
- the development and adoption of the Network rules for the gas distribution system,
- the development and adoption of the Methodology for establishing gas transport tariff items,
- the development and adoption of the Methodology for establishing gas distribution tariff items,
- the development and adoption of the Methodology for establishing tariff items for the public service of gas supply and the guaranteed supply,
- the development and adoption of the Methodology for establishing the price for non-standard services for gas transport, distribution, storage and the public service of gas supply,
- the development and adoption of the Methodology for establishing the price for balancing energy in the gas system,
- issuing decisions on the refusal of requests for determining the amounts of tariff items for the following activities:
    - gas distribution (35 decisions),

  - gas transport (1 decision),

- issuing decisions on the approval of requests for determining the amounts of tariff items for:
  - gas distribution (1 decision),
- issuing decisions on the introduction of regulatory calculations:
  - gas distribution (5 decisions),
- issuing the Decision on the amounts of the tariff items for gas transport for the energy entity Plinacro d.o.o.,
- issuing the Decision on the amounts of the tariff items for gas distribution for 36 distribution system operators,
- issuing the Decision on average prices per work hour for providing non-standard services,
- issuing the Decision on the manner and procedure for keeping separate accounting records for energy entities,
- giving consent to energy entities concerning the following subordinate legislation:
  - to an energy market operator concerning the Rules on gas market organisation,
  - to a transmission system operator concerning the Network rules for the transport system,
  - to a gas storage system operator concerning the Rules for using the gas storage system,
- issuing opinions on the following:
  - amendments to the Gas Market Act,
  - the Decision on gas prices obliging a natural gas producer to sell natural gas produced in the Republic of Croatia to a supplier participating on the wholesale gas market,
  - the Decision on gas prices obliging a supplier participating on the wholesale gas market to sell gas to suppliers performing the activity as a public gas supply service for household customers,
  - the Decision on determining suppliers participating on the wholesale gas market,
  - the Decision on determining the obligation of a natural gas producer to sell natural gas to a supplier participating on the wholesale gas market,
  - the Decision on determining priorities in implementing the procedure for gas storage system capacity allocation for suppliers participating on the wholesale gas market
- issuing 8 licences for performing gas supply activities,
- extending 22 licences for performing energy activities: one natural gas storage licence, 10 gas distribution licences, 10 gas supply licences and one gas trade licence.

3.4.4 Oil and oil derivatives

In 2013, HERA's activities in the oil and oil derivatives sector were as follows:

- issuing 11 licences for performing energy activities: 10 licences for oil derivative wholesale trade and one licence for liquefied petroleum gas wholesale trade,
- extending six licences for performing energy activities: five licences for oil derivative wholesale trade and one licence for liquefied petroleum gas wholesale trade.

3.4.5 Biofuels

During 2013, in the biofuels sector HERA issued one licence and extended two for performing the energy activity of biofuel wholesale trade.

3.4.6 Thermal energy

In 2013, HERA's activities in the thermal energy sector were as follows:

- issuing decisions on the amounts of tariff items in the tariff system for thermal energy generation, distribution and supply services (Grijanje Varaždin d.o.o. of Varaždin, GTG Vinkovci d.o.o. of Vinkovci, Gradska toplana d.o.o. of Karlovac, Plin VTC d.o.o. of Virovitica, and SKG d.o.o. of Ogulin),
- extending licences for performing the energy activities of thermal energy generation, distribution and supply:
  - thermal energy generation: Tekija d.o.o., Požega,
  - thermal energy distribution: Tekija d.o.o., Požega,
  - thermal energy supply: SKG d.o.o., Ogulin,
- transferring licences to perform thermal energy generation, distribution and supply activities from the energy entity Termalne vode d.o.o. of Topusko to the company Top-terme d.o.o. of Topusko,
- issuing a decision to revoke the licence for performing thermal energy generation, distribution and supply of the energy entity Termoplin d.d. of Varaždin,
- managing the Thermal Energy Consumers Registry on HERA's website (there were 9 thermal energy consumers registered as at 31 December 2013),
- supervising the operations of the energy entity Grijanje Varaždin d.o.o. of Varaždin in insolvency proceedings, and the energy entity GTG Vinkovci d.o.o. of Vinkovci (pre-bankruptcy settlement),
- providing an opinion on the Draft of the proposed Thermal Energy Market Act,
- providing an opinion on the proposed Regulation on the amount and payment method of the fee for the thermal energy distribution concession and the concession for building power stations for thermal energy distribution,
- developing a proposal and implementation of the procedure for consultations with the concerned public and issuing a Decision on the criteria verification procedure for exemption from the obligation to perform a cost-benefit analysis for facilities for electricity and thermal energy generation used at times of peak load and facilities for the generation of electricity reserves (Official Gazette, No. 153/13).
- developing a proposal and implementation of the procedure for consultations with the concerned public for the following subordinate legislation:
  - Proposal of the Network rules for thermal energy distribution,
  - Proposal of the General requirements for thermal energy supply,
  - Proposal of the General requirements for thermal energy delivery,
  - Proposal of the Methodology for establishing tariff items for thermal energy distribution.

In addition to the previously mentioned activities in the thermal energy sector, in 2013 HERA issued a number of opinions, responded to various inquiries and statements from end customers, energy entities and authorities, and issued corresponding decisions.

In addition, pursuant to the Thermal Energy Market Act, HERA established and regularly updates the Thermal Energy Consumers Registry on its website.

3.4.7 International co-operation

At the international level, HERA actively co-operates with regulators from countries in the region and regulators from EU member countries. The majority of the co-operation is in the form of membership of regulators' associations at the European level and at the level of European regions, as well as participating in the work of the expert working groups of the said associations.

In the process of Croatian accession to the European Union, HERA became a member of the Agency for the Co-operation of Energy Regulators (ACER) and the Council of European Energy Regulators (CEER). The President of HERA's Board of Commissioners was appointed a member of the ACER Board of Regulators and was also appointed Vice-President of the Board of Directors of CEER.

As part of its international co-operation in 2013, we must emphasise HERA's participation in the work of the Energy Community Regulatory Board for South-East European Countries (ECRB) and ECRB working groups: the EWG (*Electricity Working Group*), CRM (*Customer and Retail Markets Working Group*) and GWG (*Gas Working Group*), as well as the work of the Athens Forum (Electricity), Gas Forum and Social Forum.

HERA also participated in the work of the European Commission on conceiving Projects of Common Interest (hereinafter: PCI), dedicated to helping EU member countries in the physical integration of the energy market, contributing to the diversification of electricity generation, and enabling the acceptance of the increasing quantity of electricity produced from renewable energy sources.

In 2012 and 2013, HERA participated in the IPA 2009 twinning project "Reinforcement and further development of internal energy market with the scope of Energy Community Treaty". The aim of the project was to contribute to the further alignment and implementation of the EU acquis concerning the energy market and further reinforcement and development of the internal energy market with an emphasis on the Energy Community Treaty. The most important results of the project are a comprehensive analysis of the energy market and guidelines and recommendations for reinforcement and further development of the internal energy market.

In 2013, HERA participated in the work of MEDREG (Mediterranean Energy Regulators), and its representatives are active members of the permanent working groups on institutional issues, electricity, gas and the environment, renewable energy sources and energy efficiency.

In 2013, HERA's representatives also actively participated as members of the following permanent committees and working groups of the Energy Regulators Regional Association (ERRA): the Licensing Committee, Tariff Committee, Chairmen Committee, Legal Regulation Working Group, and Gas Working Group.

4 ELECTRICITY

4.1 Significant events on the electricity market

Legislative framework

With the adoption of the Energy Act (Official Gazette, No. 120/12), the Regulation of Energy Activities Act (Official Gazette, No. 120/12) and the Electricity Market Act (Official Gazette, No. 22/13), the alignment of the legislative framework for electricity market activities with the Third Package of EU energy regulations commenced.

HERA continued alignment with the Third Package by adopting the following subordinate legislation:

- Methodology for determining tariff items for the guaranteed electricity supply (Official Gazette, No. 158/13),
- Methodology for determining tariff item amounts for the electricity supply as part of the universal service (Official Gazette, Nos. 116/13, 38/14) and
- Methodology for determining the balancing energy prices for balance responsible parties (Official Gazette, No. 121/13).

In addition, HERA granted approval to Hrvatski operator prijenosnog sustava d.o.o. (HOPS d.o.o.) in line with the Ordinance on the amendments to the Ordinance on allocation and use of cross-border transmission capacities (HEP-OPS, 11/2013) adopted by HOPS d.o.o.

Among other subordinate legislation for regulating the wholesale and retail electricity market and the use of the transmission and distribution network whose adoption is expected during 2014, the following should be highlighted: rules for organising the electricity market; rules on transmission system balancing; the methodology for determining prices and conditions for providing auxiliary services in the transmission network; general terms and conditions for using the network and electricity supply; electricity supply quality conditions; rules on changing supplier; the methodology for determining balancing energy calculation prices; transmission system network rules; distribution system network rules; the tariff methodology for electricity transmission; tariff methodology for electricity distribution.

As regards more significant changes brought about by the new energy acts, the following should be highlighted:

- the notions of a universal service and guaranteed electricity supply were introduced. The universal service is an obligatory public electricity supply service to household category customers, while the guaranteed electricity supply is a public service provided by a guaranteed supplier to a commercial category customer in cases when such customers are left without their supplier as a result of conditions beyond their control;
- the regulation of tariffs for electricity production and electricity supply was cancelled in full, and the regulation of electricity supply tariffs as part of the universal service and guaranteed electricity supply was introduced instead;
- HERA is authorised to approve or adopt the tariff item amounts for using the transmission and distribution networks, guaranteed electricity supply and electricity supply as part of the universal service;
- HERA's independence of all other public and private entities, including the Croatian Government and the competent ministry, has been improved enabling it to act independently of all market

interests without soliciting or receiving direct instructions from a state or other public or private entity in the performance of its regulatory tasks;

- HERA became subject to the obligation to co-operate and consult with ACER, the European Commission and regulatory bodies of other states regarding cross-border issues;
- the rules and measures for the performance of energy activities were redefined, as were the rights and obligations of the electricity end customer, the separation of business books and financial statements, the authority of the competent bodies for undertaking measures in cases of violations of the Electricity Market Act and adopted subordinate legislation based on it, provisions related to offences, and the transition period until the adoption of all planned subordinate legislation and the alignment of energy operators with the provisions of the Act.

As regards the legislative framework which regulates the generation of electricity from renewable sources and cogeneration, the following pieces of subordinate legislation have been adopted:

- the Ordinance on granting eligible electricity producer status (Official Gazette, No. 132/13), the Tariff system for the generation of electricity from renewable energy sources and cogeneration (Official Gazette, Nos. 133/13 and 151/13),
- the Regulation on the incentive for generation of electricity from renewable sources and cogeneration (Official Gazette, No. 128/13) and
- the Regulation on the establishment of the guarantees of origin system (Official Gazette, No. 84/13).

EU legislative framework

Pursuant to Regulation 713/2009 of the European Parliament and of the Council, the Agency for the Co-operation of Energy Regulators (hereinafter: ACER) was established, and, pursuant to Regulation 714/2009 of the European Parliament and of the Council, the European Network of Transmission System Operators for Electricity (hereinafter: ENTSO-E) was also established.

In order to ensure greater transparency in relation to the construction and development of the transmission network, every two years ENTSO-E publishes a non-obligatory Ten Year Network Development Plan (hereinafter: TYNDP) at the level of the entire EU.

The TYNDP is a package of documents published every two years by ENTSO-E, and consists of the main document and six regional investment plans adopted by ENTSO-E regional groups. The TYNDP reviews projects of pan-European significance, using an analysis of costs and benefits in view of the return on investment. The benefits of each project that are reviewed include the increase in the socio-economic welfare of the included countries, the impact on the security of supply, the integration of renewable energy sources, the decrease in carbon dioxide emissions, and the impact on decreasing losses as well as the technical renovation of the electric power system.

ACER issues its opinion regarding the TYNDP's contribution to the objectives of EU energy policy and assesses the alignment of the TYNDP with national ten-year plans. If ACER notices any incongruities between the TYNDP and the national plan, it proposes to supplement the national plan or TYNDP, and notifies the European Commission thereof.

ACER supervises the realisation of the TYNDP and infrastructural projects which contribute to the increase in cross-border transmission capacities. If ACER establishes any incongruities between the TYNDP (the plan) and its realisation, it investigates the reasons for the incongruity and gives recommendations to system operators, national regulatory agencies and other competent bodies for the purpose of realising the TYNDP's investments.

A strong need for investment in energy infrastructure is one of the reasons why Regulation 347/2013 of the European Parliament and of the Council on guidelines for trans-European energy infrastructure (hereinafter: TEN-E guidelines) was adopted.

TEN-E guidelines lay down a strategic framework for a long-term vision of EU energy infrastructure and introduce the notion of projects of common interest. Furthermore, the guidelines establish nine strategic infrastructural priority corridors in the area of electricity, gas and oil, and three infrastructural priority areas at the EU level for electricity transmission and the advanced network.

PCIs are projects that will help the EU Member States in the physical integration of the electricity market, which will contribute to the diversification of electricity generation and enable the reception of an increasing amount of electricity generated from renewable energy sources. For the PCIs, accelerated procedures are foreseen with regard to the issue of licences and improved regulatory conditions as well as financial support for the period from 2014 until 2020 to the amount of EUR 5.85 billion. The first PCI list, containing 248 projects, was published on 14 October 2013. The list includes approximately 140 projects from the area of electricity transmission and storage. The full list of projects can be found on the web site:

http://ec.europa.eu/energy/infrastructure/pci/doc/2013_pci_projects_country.pdf

Croatia has five projects which have been granted the status of common interest projects and included on the PCI list. The Ministry of the Economy, HERA and HOPS took part in the process of including Croatian projects in the PCI list.

ACER and ENTSO-E also co-operate in the preparation of the Network Codes. ACER's role is to prepare non-obligatory indicative guidelines that the Network Codes need to comply with before they are recommended to the European Commission for adoption, and ETSO-E's role is to prepare the Network Codes based on the indicative guidelines.

The Network Codes consist of ten documents for regulating the electricity market, the allocation of cross-border capacities and the market merger model, congestion management, requests for provision of auxiliary services, system balancing and system security. After their adoption, the Network Codes will have the status of regulations whose application is obligatory in EU Member States.

The Network Codes are:

- Capacity Allocation and Congestion Management,
- Requirements for Generators,
- Electricity Balancing,
- Forward Capacity Allocation,
- Demand Connection,
- Operational Security,
- Operational Planning & Scheduling,
- Load Frequency Control & Reserves,
- High Voltage Direct Current and
- Emergency and Restoration.

Regulation 1227/2011 on wholesale energy market integrity and transparency (hereinafter: REMIT) defines the rules for the active participants on the wholesale electricity and natural gas markets. REMIT prohibits trade based on privileged information and market manipulation. For the purpose

of determining and preventing the said activities, ACER will establish a system for market supervision within the EU which will be supported by the investigative powers and authorisation for sanctioning violations of REMIT in particular EU Member States.

REMIT also supplements and encompasses the supervision of financial markets, since energy products can also be traded in the form of financial instruments. In mid-2014, the European Commission will adopt implementing acts which will completely define which market participants will have to be registered and deliver data on transactions, as well as the format of the data. If a market participant under the obligation to register in accordance with REMIT fails to register in a timely manner, it will not be able to participate on electricity and natural gas markets in the EU.

Regulation 543/2013 on submission and publication of data in electricity markets stipulates ENTSO-E's obligation to establish a central information transparency platform within 18 months of the Regulation coming into force. Primary data owners will deliver data to national transmission system operators, who will forward them to ENTSO-E. Another manner of sending data to the information platform is through the data provider with the preliminary approval of the transmission system operator. HERA's duty is to ensure a timely delivery of data. HOPS will provide the platform with data on the total load of the control area, non-availability of large consumers, system security forecasts one year in advance, transmission infrastructure, non-availability of transmission infrastructure, estimates and offers of cross-border transmission capacities, the use of capacities, congestion management measures, production forecasts, non-availability of production units and power plants, actual production and system balancing.

Depending on the type of requested data, the transmission system operator, the distribution system operator, customers with power higher than 100 MW, owners of production units and power plants, and institutions allocating cross-border transmission capacities can all be considered data owners obliged to send data to the information platform.

Electricity trading

During 2013, the allocation of cross-border transmission capacities continued at the borders with Slovenia and Hungary through co-ordinated auctions within the Central and Eastern Europe Co-ordinated Auction Office (CEE CAO) based in Freising in Germany.

At the end of 2013, the Project Team Company for establishing the South-East Europe Co-ordinated Auction Office (SEE CAO) prepared draft rules for the allocation of trans-border transmission capacities. HOPS is one of the co-owners of SEE-CAO.

During 2013, on the borders with Bosnia and Herzegovina and Serbia, HOPS was responsible for the allocation of a half of the total cross-border capacity in both directions. At the end of 2013, HOPS and the Serbian system operator (EMS) agreed to organise joint auctions for the allocation of cross-border transmission capacities at the Croatian-Serbian border. HOPS performs annual and monthly auctions, and EMS daily and first-come-first-served ones, for both directions for the total transmission capacity.

The average summer NTC (net transmission capacity) for import in 2013 amounted to 3,414 MW, and amounted to 3,120 MW for export. The average winter NTC for import in 2013 amounted to 3,471 MW, and 3,081 MW for export.

The total annual electricity consumption of the Croatian electric power system amounted to approximately 17.3 TWh in 2013. Domestic generation met 74% of energy needs, while 26% of electric power was obtained from the Krško NPP and imports.

In 2013, electricity generation from the power plants on the territory of the Republic of Croatia consisted of generation from hydroelectric power plants (63%), thermal power plants and industrial

power plants (33%), and wind power plants (4%). A total of 599.6 GWh was produced from the system of incentives for generation of electricity from renewable energy sources and cogeneration.

The Herfindahl-Hirschman index (HHI) of the concentration of generation capacities on the territory of the Republic of Croatia amounts to 0.735, whereas the HHI of the concentration of generation from the power plants on the territory of the Republic of Croatia amounts to 0.713.

The total amount of electricity from the agreed schedules of the companies from the HEP Group is 34.31 TWh, i.e. approximately 80% of the total volume traded on the electricity market in Croatia.

Customers using the universal supply participated with 41% of the total sold electricity, and customers using the guaranteed supply with 9% on the retail electricity market.

On 31 December 2013, in the Republic of Croatia there were a total of 28 valid licences for electricity generation, 18 licences for electricity supply and 14 licences for electricity trading. The conditions for participating on the electricity market were met by 15 suppliers and 17 traders. Only one producer in the Republic of Croatia fulfilled the stated conditions for participation on the electricity market. A special issue is the status of HEP-Proizvodnja d.o.o., the largest and dominant auxiliary services provider, who nevertheless had not met the conditions for participation on the electricity market.

In comparison with the previous year, the number of energy operators who had fulfilled the conditions for participation on the electricity market grew by six, of which five were in supply and one in trading. At the same time, none of the energy operators ceased to fulfil the conditions for participation on the electricity market during 2013.

The Croatian electricity market is based on bilateral trading. The comparison with the energy sold to end customers from agreed schedules (approximately 16 TWh) and the realised consumption of end customers (approximately 15.1 TWh) shows a significantly high degree of suppliers reporting agreed schedules which were unrealistically high during 2013. This was observed during continuous supervision in 2013 and, among other reasons, triggered the adoption of the new Methodology for determining the balancing energy prices for balance responsible parties.

Another thing that needs to be highlighted in this regard is two ongoing processes in the EU aimed at introducing a single electricity market. The first process is the drafting of the Network Codes, and the other is the early implementation of the Network Codes within the framework of the Electricity Regional Initiatives (ERI). For the purpose of achieving an early implementation of the Network Codes, and especially the development of the day-before electricity market and first-come-first-served electricity market, Croatia requires the establishment of an electric power exchange which will operate according to the Price Coupling of the Region (PCR) model. For the attainment of the stated objectives, the electricity market in Croatia needs to be regulated and subordinate legislation from the area of the electricity market needs to be adopted and implemented. Since the linking of the markets is a necessary precondition for the existence of an electric power exchange which forms the market price, activities were intensified during 2013 regarding the establishment of the national exchange. These have resulted in the signing of the Business Co-operation Agreement between HROTE and HOPS regarding the establishment of a Croatian electric power exchange based on the Electricity Market Act.

Electricity supply

HEP-Operator distribucijskog sustava d.o.o. which, until the new Electricity Market Act came into force, also performed the activity of tariff customer supply, has taken over the supply of electricity as part of the universal service and guaranteed electricity supply. The new Electricity Market Act stipulates that the Croatian Government is to determine the electric power operators for the

provision of the public service of electricity supply performed as a universal service as well as electricity supply performed as a guaranteed service. However, such a decision has not been adopted yet, so HEP-Operator distribucijskog sustava d.o.o. still performs electricity supply activities along with electricity distribution.

The transitional and final provisions of the Energy Act and Electricity Market Act stipulate that until regulated prices are adopted based on the new legal framework, the current tariff systems and regulated prices will apply. Such a situation has favoured new suppliers who have used the advantageous situation on foreign electricity markets and started offering electricity supply to households at prices which are more than 10% lower than the regulated supply energy prices. In this way, the new suppliers have used the opportunity to quickly adapt to the market, whereas the price of energy within the framework of the universal service and guaranteed supply could not adapt quickly to the fluctuations on the market because the process depended on the adoption of new tariff methodologies and the process of determining tariff item amounts.

In September 2013, HERA adopted the Methodology for determining tariff item amounts for the electricity supply as part of the universal service (Official Gazette, No. 116/13), and the first tariff items based on this Methodology came into force on 1 October 2013. It should be mentioned that the stated Methodology, among other things, lays down the manner and criteria according to which the suppliers of customers using the universal service procure electric power, the tariff models, tariff elements and tariff items, the manner of determining the costs and income of the supplier, the data necessary for determining the costs and income of the supplier, and the procedure for determining and applying tariff item amounts. One of the main objectives of the Methodology is the introduction of transparent conditions for the supply of electric power for supplying customers as part of the universal service which are primarily based on market principles. This corresponds with the tendency of not regulating electricity generation and of developing the wholesale market as much as possible.

Furthermore, HERA adopted the Methodology for determining tariff items for the guaranteed electricity supply (Official Gazette, No. 158/13), which came into force on 1 January 2014.

At the end of 2013, suppliers outside the HEP Group sold almost eight percent of electricity handed over to customers in the Republic of Croatia, which represents a multiple increase in relation to the previous year.

Regulation and separation of activities

The Electricity Market Act (Official Gazette, No. 22/13), in accordance with Directive 2009/72/EC, establishes three models for separating transmission system operators from the vertically organised monopoly.

On 9 April 2013, HEP's General Assembly adopted a decision on the Independent Transmission Operator (ITO) model.

Since 1 July 2013, the transmission system operator has operated according to the ITO model, which means that it is organised as an independent legal entity outside the structure of a vertically integrated entity, i.e. its parent company, Hrvatska elektroprivreda d.d.

Based on the decision of the Commercial Court in Zagreb of 2 July 2013 on its entry into the court registry, increase in share capital, change in company name, scope of activity and provisions of the Deed of Establishment of HEP - Operator prijenosnog sustava d.o.o., this company operates and participates in legal transactions under the new company name of Hrvatski operator prijenosnog sustava d.o.o. (abbreviated to HOPS d.o.o.), in English: Croatian Transmission System Operator Ltd.

In 2013, HOPS prepared to submit its request for transmission system operator certification to HERA. Transmission system operator certification is a procedure aimed at determining the compliance of the transmission system operator with the provisions of the Electricity Market Act, which regulates the separation and independence of the transmission system operator. A certificate is deemed to be confirmation certifying that the transmission system operator meets conditions regarding its separation and independence, its financial, material, technical and staffing qualifications, and other conditions stipulated by the Electricity Market Act.

The Electricity Market Act stipulates that the transmission system operator, regardless of its organisational form, shall adopt a compliance programme which determines in more detail measures which exclude the possibility of biased behaviour, and the manner of monitoring compliance with the programme, and which also determines the particular obligations of workers related to the fulfilment of the prescribed objectives. The compliance programme must be approved in advance by HERA, and HOPS's compliance with the compliance programme is monitored by the person responsible for compliance monitoring. In 2013, the compliance programme was prepared and adopted on 28 February 2014 by means of a decision of the Management Board of HOPS. Through the compliance programme, HOPS presented an overview of measures which exclude the possibility of biased behaviour and the manner of monitoring compliance with the programme.

HEP-ODS submitted its Report for 2013 to HERA on the implementation of the programme for ensuring and implementing the principles of the transparent, objective and non-discriminatory work of HEP-ODS. The annual report was published on HEP-ODS's web site (http://www.hep.hr/ods/propisi/).

Supply security

The maximum load of the electric power system in 2013 was recorded on 11 February at 20:00 and amounted to 2,813 MW.

On the other hand, the minimum load was recorded on 31 March 2013 and amounted to 1,105 MW. The ratio of the installed power of the power plants on the territory of the Republic of Croatia and the maximum load of the Croatian electric power system for 2013 was 1.56.

The installed power on threshold of the power plants on the territory of the Republic of Croatia amounted to 4,252 MW at the end of 2013. HEP d.d. is also a co-owner of the Krško nuclear power plant in the Republic of Slovenia, and holds 50%, i.e. 348 MW of the power plant.

The importation of electricity in 2013 amounted to 26% of total electricity consumption in the Republic of Croatia.

The regulation capacities of the Croatian electric power system are very limited because the system depends on hydrological conditions and because electricity generation plants are old. As regards hydroelectric power plants, the secondary regulation participants are Senj HPP, Zakučac HPP and Vinodol HPP. As far as thermal power plants are concerned, Jertovec CPP and Osijek GPP were capacitated for entry into full load within 20 minutes. Theoretically, the maximum power of secondary regulation in the Croatian electric power system was 361 MW if all three HPPs included in the secondary regulation system were in operation with minimum production and if they disposed of a sufficient amount of water. Therefore, the current possibility of integrating wind power plants into the Croatian electric power system is limited to about four hundred MW of installed power.

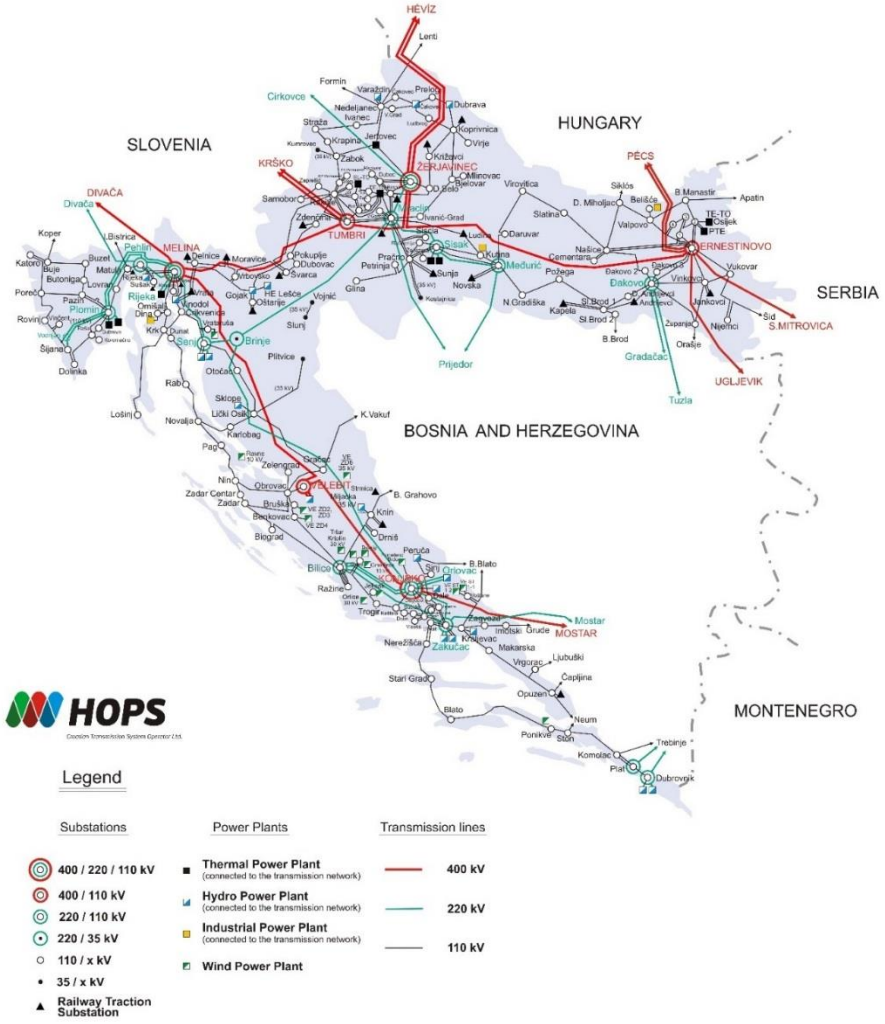
Although the electricity supply security level is currently satisfactory, it might be aggravated significantly by 2020, as before then 1,100 MW of power should be withdrawn from operation in outdated thermal power plants. The maintenance of electricity supply security depends on the

construction of new production units. It should be noted that unless supported by the construction of classical power plants, the exclusive construction of renewable energy sources, especially wind power plants, will not solve the problem of system security by itself. The reason for this is the nature of wind, which can even endanger electricity supply security.

4.2 Regulated activities in the electricity sector

4.2.1 Transmission and distribution system

Electricity transmission and distribution are regulated activities performed as public services. There is a single transmission system operator in the Republic of Croatia, Hrvatski operator prijenosnog sustava d.o.o. (hereinafter: HOPS), which is responsible for the security and reliability of the operation of the electric power system and the proper co-ordination of the operation of the production, transmission and distribution system. The transmission network and production facilities whose operation HOPS is responsible for are shown in Figure 4.2.1.



Source:HOPS

Figure 4.2.1 The transmission network and production facilities of the Croatian electric power system (December 2013)

Basic data on the transmission network are shown in Table 4.2.1.

Table 4.2.1 Basic data on the transmission network in 2011, 2012 and 2013

Network element	Voltage level	2011	2012	2013
Line length [km]	400 kV	1,247	1,247	1,301
	220 kV	1,210	1,210	1,210
	110 kV	4,782	4,828	4,905
	MV	198	203	203
	Total	**7,437**	**7,488**	**7,619**
Transformer substations [pc.]	400 kV	5	5	6
	220 kV	6	6	13
	110 kV	118	122	149
	MV	0	0	0
	Total	**129**	**133**	**168**
Transformers [MVA]	400 kV	4,100	4,100	4,740
	220 kV	2,120	2,120	1,877.5
	110 kV	4,900	4,961	5,020
	MV	0	0	0
	Total	**11,120**	**11,181**	**11,637.5**

Source:HOPS

Operator distribucijskog sustava d.o.o. (hereinafter: HEP-ODS) is the only distribution system operator in the Republic of Croatia. Figure 4.2.2 shows the territorial organisation of the 21 distribution areas of HEP-ODS.

Source: HEP-ODS

Figure 4.2.2 Distribution areas of HEP-ODS

The distribution network of HEP-ODS encompasses voltage levels of 110 kV (partially), 35(30) kV, 20(10) kV and 0.4 kV, and is powered from 110/x kV substations which are connected to the 110 kV transmission network and from small power plants connected directly to the distribution network.

Tables 4.2.2, 4.2.3 and 4.2.4 show the basic features of the HEP-ODS distribution network.

Table 4.2.2 Line lengths by voltage level in 2011, 2012 and 2013 [km]

Voltage level	2011	2012	2013
110 kV lines	88.9	88.9	33.9
30 and 35 kV lines	4,758.4	4,802.3	4,787.4
20 kV lines	6,322.3	6,373.3	6,500.4
10 kV lines	29,832.1	30,088.6	28,987.2
0.4 kV network	63,441.0	63,772.5	63,892.5
Household connections	30,947.0	31,498.8	31,527.4
Total	**135,359.6**	**136,624.4**	**135,728.8**

Source:HEP-ODS

Table 4.2.3 Transformer stations by voltage level in 2013

Voltage level	Own	Common*	Total
110/30 and 110/35 kV stations	0	42	42
110/35(30)/10(20) kV stations	0	34	34
110/10(20) kV stations	0	48	48
35(30)/10(20) kV stations	327	26	353
20/0.4 kV stations	4,508	403	4,911
10/0.4 kV stations	20,769	1,567	22,336
Total	**25,604**	**2,120**	**27,724**

Source:HEP-ODS **Partially owned by HOPS or customers*

Table 4.2.4 Transformers by voltage level in 2011, 2012 and 2013

	2011		2012		2013	
Voltage level	**Installed power [MVA]**	**Number**	**Installed power [MVA]**	**Number**	**Installed power [MVA]**	**Number**
110 kV transformers	2,432.0	79	2,412.0	78	3,080	108
30 and 35 kV transformers	4,433.9	684	4,417.0	680	4,442	683
20 kV transformers	1,397.7	4,505	1,431.2	4,628	1,599.3	5,234
10 kV transformers	6,377.6	21,445	6,509.2	21,568	6,434.7	21,251
Total	**14,640.3**	**26,713**	**14,769.4**	**26,954**	**15,556**	**27,276**

Source:HEP-ODS

The decrease in the length of 110 kV lines is a consequence of the application of the Principles of the separation of activities of generation, transmission and distribution of electricity (hereinafter: Separation Principles) signed between the parent company HEP d.d. and its subsidiaries (HOPS, HEP-ODS and HEP Proizvodnja d.o.o.) on 7 March 2013.

4.2.2 Cross-border capacities and congestion management

Pursuant to the Regulation of Energy Activities Act (Official Gazette, No. 120/12), HERA, in co-operation with the regulatory bodies of neighbouring countries with which it maintains electric power system connections, in particular monitors the rules on the introduction and distribution of

connection line capacities and the structure which solves congestion within the national transmission network/system.

The supervision of the allocation of cross-border capacities is one of the regulator's duties as defined by EU legislation, especially Regulation 714/2009 and the pertaining guidelines on congestion management (hereinafter: the Regulation). These regulations also define the minimum requirements and further direction of the development of cross-border capacity allocation.

Explicit auctions of cross-border capacities encompass only the allocation of cross-border capacities, while implicit auctions encompass the simultaneous allocation of cross-border capacities and electricity. The minimum requirements of Regulation 714/2009 for explicit auctions include the maintenance of bilateral (joint) auctions of total cross-border capacity in both directions between two neighbouring transmission system operators. The development of explicit auctions refers to the regional allocation of cross-border capacities by using co-ordinated auction offices in Europe in order to facilitate cross-border trade via centralised auction offices that would offer cross-border capacity for all the borders of particular European regions.

No implicit auctions are currently being conducted in the Republic of Croatia, since the precondition for this is the existence of an electric power exchange. In this case, the allocation of cross-border capacities would be implicitly included in electricity auctions organised through the electric power exchange. Not only would the exchange enable prices to be formed in a more transparent manner, but it would also significantly affect the linking of national electricity markets into a single internal EU electricity market. During 2013, a Business Co-operation Agreement was signed between HROTE and HOPS on the establishment of a Croatian electric power exchange. Based on the Agreement, working groups were established with the aim of analysing the existing exchanges and proposing an implementing solution and time schedule for the establishment of an exchange as a new legal entity in the Republic of Croatia and linking it to the neighbouring electricity exchanges of Hungary and Slovenia.

In 2013, the EU continued with its efforts aimed at drafting Network Codes, which will have the status of regulations and which include ten codes divided into categories related to connection, operative activities (plant) and the market. As regards the categories of the Market Codes, and in view of the problem of the allocation of cross-border capacities, the Code on Capacity Allocation and Congestion Management and the Code on Forward Capacity Allocation should be mentioned. The European Commission will not adopt all the codes at the same time, but it is expected that the Capacity Allocation and Congestion Management Code will be adopted first after the comitology process.

The European Network of Transmission System Operators for Electricity has started developing a new central information transparency platform based on Regulation (EU) 543/2013 on submission and publication of data in electricity markets and amending Annex I to Regulation (EU) 714/2009. The said Regulation obliges transmission system operators to submit basic data related to production, transmission, loading and balancing of the electric power system, which will be publicly available through a special transparency platform.

As the transparency and availability of data and their publication is the main precondition for an efficient functioning of energy markets, the European Parliament and the Council of the European Union adopted Regulation (EU) 1227/2011 on wholesale energy market integrity and transparency. The prices on the wholesale markets provide the main signals which influence the decisions of sellers (producers) and buyers (suppliers and end customers who participate in wholesale markets), as well as investments in production plants and transmission, i.e. the transport and distribution infrastructure. In addition, greater transparency on the wholesale market decreases the risk of

market manipulation and misleading price signals and facilitates the formation of appropriate market prices in the electricity and natural gas sector.

ACER's role will be to collect data and supervise wholesale transactions within the EU and carry out initial assessments of any unusual market behaviour. In cases of justified suspicion of market abuse, national regulators will be notified for the purpose of further investigation.

Congestion management methods in Croatia currently include the calculation of available capacity at annual and monthly levels and its allocation at annual, monthly, daily and intraday levels. At all levels, except those of the intraday one, capacity is allocated at auctions. In 2013, the minimum requirements of Regulation (EU) 714/2009 were met at the borders with Hungary and Slovenia.

At the end of 2012, the Croatian borders with Slovenia and Hungary were included in co-ordinated auctions carried out within the CEE CAO (Central East Europe Central Auction Office), seated in Freising in Germany. This office was responsible for holding annual, monthly and daily auctions for the allocation of cross-border capacities in both directions at the stated borders in 2013.

This centralised manner of cross-border capacity allocation at all the borders of Central and Eastern Europe facilitates the trade in electricity in this region, since identical rules for cross-border capacity allocation are used at all borders. In such regional allocation, market participants purchase the rights to use cross-border capacities in one place for all the borders between certain countries of the region, unlike the former practice of purchasing from certain transmission system operators.

Besides the mentioned office for the allocation of cross-border capacities in Central and Eastern Europe, which is responsible for the allocation of cross-border transmission capacities at the borders with Slovenia and Hungary, under the auspices of the Energy Community, the establishment of a South-East Europe Coordinated Auction Office (SEE CAO), seated in Podgorica in Montenegro, is planned. At the end of 2013, the SEE CAO Project Team Company prepared draft rules for the allocation of cross-border capacities modelled on the CEE CAO, and it is expected that the allocation of cross-border capacities will begin in 2014.

During 2013, at the borders with Bosnia and Herzegovina and Serbia, HOPS was responsible for the allocation of half of the total cross-border capacity in both directions.

At the end of 2013, HOPS and the Serbian transmission system operator (EMS) agreed to organise joint auctions for the allocation of cross-border transmission capacities on the Croatian-Serbian border so that HOPS performs annual and monthly auctions and EMS daily and intraday ones for both directions for the total transmission capacity.

Figure 4.2.3 shows the structure of the allocation of cross-border transmission capacities for the borders with Serbia and Bosnia and Herzegovina. The Croatian part of the available transmission capacity for auctioning (ATC_{HR}) is determined as the total transmission capacity (TTC) determined in agreement with the neighbouring transmission system operator, decreased by the transmission reliability margin (TRM), decreased by the net transmission capacity pertaining to the neighbouring transmission system operator (NTC_x) and decreased by the already allocated capacity (AAC_{HR}). The principles of cross-border capacity allocations that took place in 2013 at the borders with Hungary and Slovenia within the CEE-CAO are identical to those conducted in previous years through bilateral auctions at the stated borders. The allocation at these borders relies on the transmission capacity, the structure of which is shown in Figure 4.2.3 b.

The available transmission capacity (ATC) is allocated at auction and is determined as the total transmission capacity (TTC) decreased by the transmission reliability margin (TRM) and decreased by the already allocated capacity (AAC).

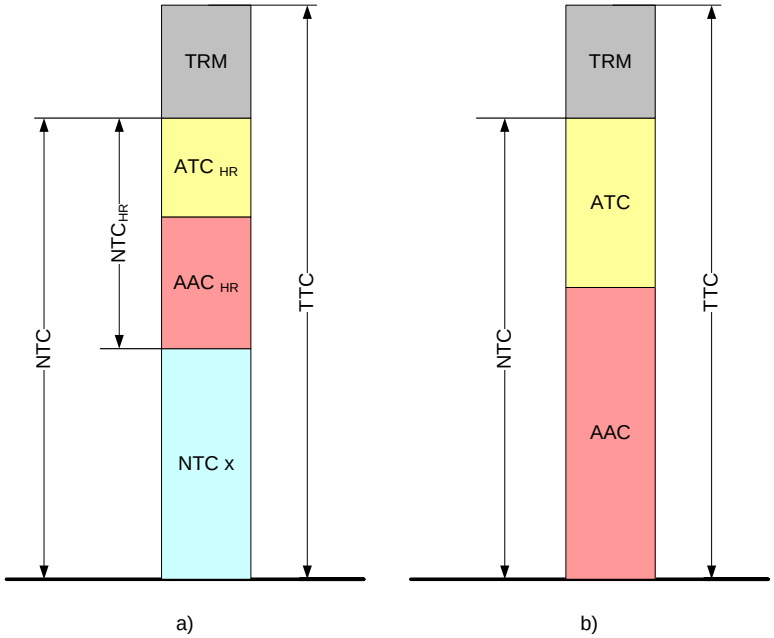


Figure 4.2.3 The structure of cross-border transmission capacities

The cross-border transmission capacities for 2013 (from 1 January 2013 until 31 December 2013) were allocated at the annual auction held at the end of 2012. The capacities allocated at the annual level in 2013 are shown in Table 4.2.5. The tables use two-letter ISO codes for countries: HR (Republic of Croatia), SI (Republic of Slovenia), HU (Republic of Hungary), BA (Bosnia and Herzegovina) and RS (Republic of Serbia).

Table 4.2.5 Capacities allocated at the annual level by border in 2013

Direction			NTC [MW]	NTC_{HR} [MW]	TRM [MW]	Number of participants	Number of participants with accepted offers	Allocated [MW]	HOPS income [HRK]
HR	←	BA	400	200	150	8	3	200	1,972,000
HR	→	BA	400	200	150	8	6	200	1,983,200
HR	←	SI	800	800	200	13	8	800	6,340,850
HR	→	SI	600	600	200	13	11	600	990,757
HR	←	RS	100	50	100	9	3	50	695,150
HR	→	RS	100	50	100	7	5	50	889,300
HR	←	HU	700	700	200	14	11	700	12,483,549
HR	→	HU	600	600	200	14	14	600	594,454
									25,949,260

Average winter and summer NTC values for 2012 and 2013 are shown in Table 4.2.6. The winter values relate to January, February, March, October, November and December, while the summer values refer to April, May, June, July, August and September.

Table 4.2.6 Average winter and summer NTC values by border for 2012 and 2013 [MW]

Winter values						Summer values					
Direction			2012	2013	Change	Direction			2012	2013	Change
HR	←	BA	677	637	-6%	HR	←	BA	650	653	0%
HR	→	BA	520	611	17%	HR	→	BA	542	673	24%
HR	←	SI	1161	1184	2%	HR	←	SI	1117	1200	7%
HR	→	SI	933	945	1%	HR	→	SI	983	983	0%
HR	←	RS	418	450	8%	HR	←	RS	343	361	5%
HR	→	RS	449	525	17%	HR	→	RS	392	464	18%
HR	←	HU	1183	1200	1%	HR	←	HU	1150	1200	4%
HR	→	HU	1000	1000	0%	HR	→	HU	950	1000	5%
Import			3439	3471	1%	**Import**			3260	3414	5%
Export			2902	3081	6%	**Export**			2867	3120	9%

In relation to 2012, NTC values increased significantly in the direction of exports to Serbia and Bosnia and Herzegovina. Generally speaking, in relation to the previous year, NTC values have increased, and the values for the export of electricity have increased more significantly.

NTC values are calculated on a monthly basis. Figure 4.2.4 shows the average values of capacity at the monthly level at all Croatian borders, including the ones allocated at the annual level (AAC), those allocated at the monthly level (see below: Allocated), as well as those left for allocation at the daily level (see below: Left for daily allocation).

	BA→HR	HR→BA	SI→HR	HR→SI	RS→HR	HR→RS	HU→HR	HR→HU
TRM	150	150	200	200	100	100	200	200
Left for daily allocation	0	0	100	100	0	0	0	0
Non-allocated	0	0	0	0	0	0	0	0
Allocated	123	121	300	281	153	197	500	400
AAC	200	200	800	600	50	50	700	600
NTC x	323	321	0	0	203	247	0	0

Figure 4.2.4 The average monthly values of cross-border transmission capacities by border in 2013

The largest share of income from the allocation of cross-border capacities at annual auctions was realised in the directions from Slovenia into Croatia and from Hungary into Croatia, which is also where the largest capacity was offered at auctions. It is also evident that there is a significant difference between cross-border transmission capacities towards EU Member States and other neighbouring countries. Most income was realised in the direction of imports at all borders. HOPS's total income from annual auctions amounted to almost HRK 26 million.

It should be noted that at the borders with Slovenia and Hungary, the CEE CAO organised the allocation of cross-border capacities using the rule of economic precedence of offers in unit prices expressed in €/MWh, while HOPS carried out the allocation at the borders with Serbia and Bosnia and Herzegovina in unit prices expressed in HRK/MW.

Capacity left unallocated at the monthly auction and capacity not reported for use are offered again at daily auctions. At the borders with Slovenia, transmission system operators reached an agreement to leave 100 MW for daily auctions only.

It is important to note that all the capacities offered at all the borders were also allocated. The largest amounts of capacity were allocated at the borders with Hungary and Slovenia. It is interesting to note that identical amounts of capacities were offered for the above two borders. An insignificant difference occurred in October when, from 6 to 25 October, the DV 400 kV Tumbri-Krško 1 and 2 and DV 400 kV Krško-Maribor lines were switched off for maintenance.

Figure 4.2.5 shows the structure of HOPS's income from monthly auctions by direction for cross-border transmission capacities in 2013. The income from monthly auctions during 2013 amounted to HRK 21,249,764.

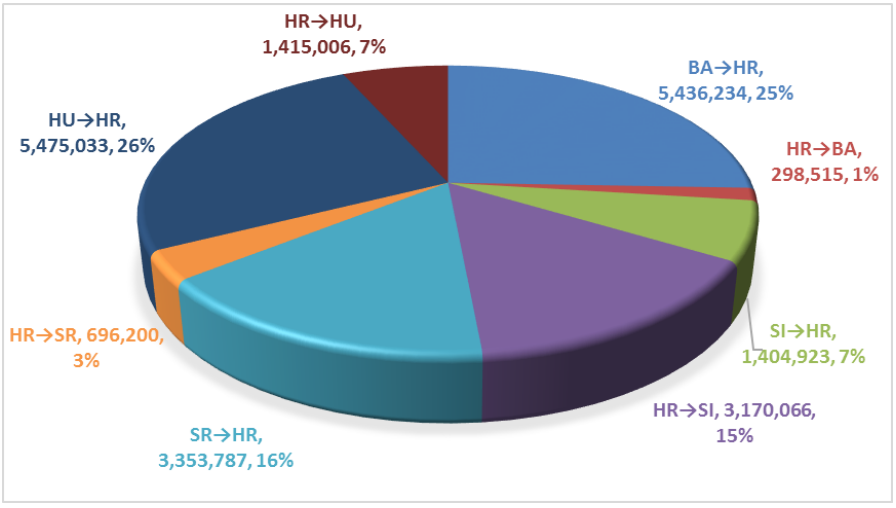


Figure 4.2.5 The structure of HOPS's income from monthly auctions by direction for cross-border transmission capacities in 2013

The figure above shows that HOPS realised most of its income from monthly auctions at the borders with Hungary and Slovenia, whereas, individually, the direction from Hungary into Croatia had the greatest share in HOPS's total income from monthly auctions.

Daily auctions for the borders with Slovenia and Hungary are conducted by the CEE-CAO. Additionally, first-come-first-served auctions in both directions at the Croatian-Slovenian border are conducted by the Slovenian system operator ELES. HOPS holds daily and first-come-first-served auctions of its part of the ATC at the border with Bosnia and Herzegovina. At the border with Serbia, daily auctions were not held due to unresolved technical difficulties. The total income from daily auctions during 2013 amounted to HRK 19,518,469.

Besides the income side, HOPS also had an expenditure side in terms of capacity allocation. This consisted of the cost of allocation of cross-border capacities at the borders with Slovenia and Hungary by the CEE-CAO and the costs of capacity resale.

HOPS's cost of participation in auctions organised by the CEE-CAO in 2013 amounted to HRK 2,260,746.

As regards the secondary market of cross-border capacities, the already allocated capacity can be transferred to a new market participant at all borders, and at the borders with Slovenia and Hungary there is an additional possibility of reselling cross-border capacities, i.e. returning already allocated capacities at an annual and monthly level to the auction office with financial compensation. The already allocated capacity at the annual level can be returned to the auction office through monthly and daily products, while the allocated monthly capacity can be returned through daily products. A holder of the rights to use cross-border capacities who is returning the allocated capacity to the auction office is entitled to a fee which equals the marginal price achieved at the monthly and/or daily auction at which the capacity was resold. The costs of capacity resale on the secondary market at the border between Slovenia and Croatia amounted to HRK 13,877,727.

The total net income from auctions during 2013, according to reports submitted by HOPS, amounted to HRK 50,579,020, and the share of particular income and expenditure items are shown in Figure 4.2.6.

Pursuant to Regulation (EU) 714/2009, the stated income related to the maintenance or increase of cross-border capacities through investments in the network, especially in cross-border lines.

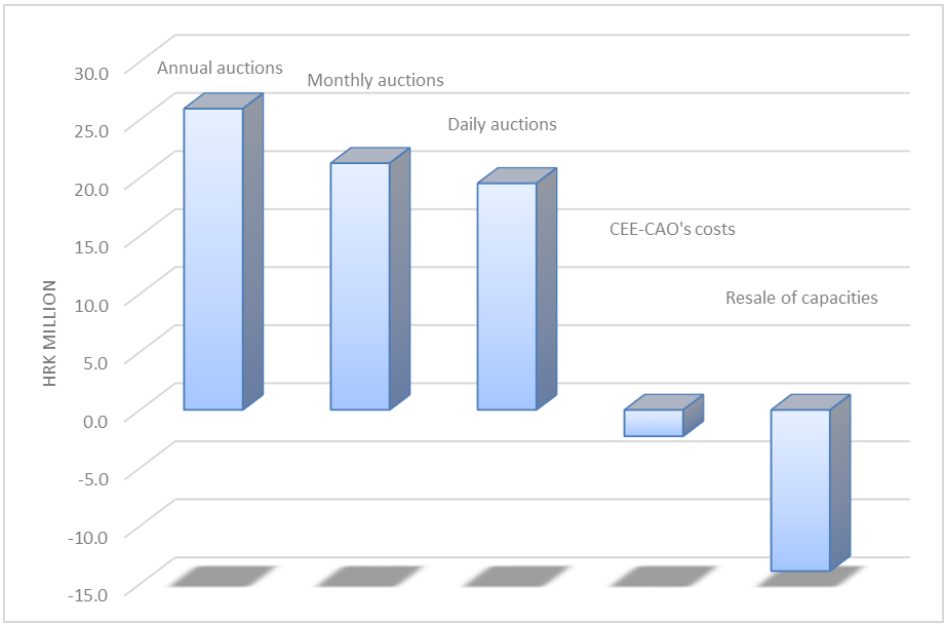


Figure 4.2.6 The structure of HOPS's income and expenditure from auctions during 2013 [HRK mil.]

4.2.3 Tariffs for using the transmission and distribution network

In June 2008, based on the Energy Act (Official Gazette, Nos. 68/01, 177,04, 76/07 and 52/08), HERA stated for the first time its opinion on the proposal for tariff item amounts for electric power transmission and electric power distribution activities. The decisions on tariff item amounts that came into force on 1 July 2008 were adopted by the Government of the Republic of Croatia, and in 2009, 2010 and 2011 there were no changes in the tariff item amounts. By means of the Decision on tariff item amounts in the tariff system for electricity transmission, without tariff item amounts

(Official Gazette, No. 49/12) and the Decision on tariff item amounts in the tariff system for electricity distribution, without tariff item amounts (Official Gazette, No. 49/12), the Government of the Republic of Croatia determined new tariff item amounts for electric power transmission and electric power distribution activities. These came into force on 1 May 2012 and were applied in 2013 too.

Tables 4.2.7 and 4.2.8 show the average prices for electric power transmission and electric power distribution in the period from 2008 to 2013 by end customer category. The amounts of the average prices of electricity are determined according to the realised income by end customer category, obtained by applying the appropriate tariff items from the tariff systems for electric power transmission and electric power distribution and realised electricity consumption.

Table 4.2.7 The realised average price for electric power transmission in the period 2008 - 2013

End customer category	Average price for transmission					
	2008 [lp/kWh]	2009 [lp/kWh]	2010 [lp/kWh]	2011 [lp/kWh]	2012 [lp/kWh]	2013 [lp/kWh]
Commercial - high voltage customers	5.3	6.0	7.1	6.9	7.9	7.0
Commercial - medium voltage customers	7.0	7.0	6.9	6.9	7.7	7.9
Commercial - low voltage customers	7.2	7.5	7.6	7.6	8.4	8.9
Households (low voltage customers)	6.3	7.4	7.4	7.4	8.3	8.9
Average for all customers	6.7	7.3	7.3	7.3	8.2	8.6

Table 4.2.8 Realised average price for electric power transmission in the period 2008 - 2013

End customer category	Average price for distribution					
	2008 [lp/kWh]	2009 [lp/kWh]	2010 [lp/kWh]	2011 [lp/kWh]	2012 [lp/kWh]	2013 [lp/kWh]
Commercial - high voltage customers	–	–	–	-	-	-
Commercial - medium voltage customers	10.2	13.4	13.2	13.5	14.4	14.0
Commercial - low voltage customers	22.3	23.7	23.7	24.0	26.1	26.3
Households (low voltage customers)	22.1	20.6	20.6	20.6	23.0	24.3
Average for all customers	18.9	19.8	19.8	19.8	21.7	22.4

The method used for determining the costs of the transmission system operator in the Tariff system for electricity transmission, without tariff item amounts (Official Gazette, Nos. 143/06 and 26/10) and the distribution system operator in the Tariff system for electricity distribution, without tariff item amounts (Official Gazette, Nos. 143/06 and 26/10) adopted by HERA in December 2006 is the method of approved expenses. The main features of the method of approved expenses are as follows:

- Approval of justified operating expenses of an energy operator,
- Approval of a reasonable deadline for refund of invested assets to the energy operator,
- Allocation of expenses to users in proportion to the amount they have incurred and
- A 1-year regulatory period.

One of the important factors and preconditions for applying this method is the investment plan for transmission and distribution network development in the upcoming regulatory period.

Tables 4.2.9 and 4.2.10 show the investments realised by HOPS and HEP-ODS in the period from 2008 to 2013.

Table 4.2.9 Overview of investments realised by HOPS in the period 2008 - 2013

Type of investment	Realised [HRK mil.]					
	2008	2009	2010	2011	2012	2013
Investment preparation	16.9	14.5	4.1	5.3	6.1	6.6
Replacements and reconstruction	151.9	127.7	72.1	92.4	147.9	125.4
Revitalisations	0.5	0.3	0.0	0.1	30.8	30.8
Repairs and renovations	3.1	0.0	0.0	0.0	0.0	0.0
New facilities	180.6	280.6	67.3	133.8	218.4	130.7
Other assets	2.6	0.8	0.0	4.8	8.5	46.2
Electric power conditions and connections			90.3	13.1	78.1	76.6
Total	**355.6**	**423.9**	**233.9**	**249.5**	**489.8**	**416.3**

Source:HOPS

Table 4.2.10 Overview of investments realised by HEP-ODS in the period 2008 - 2013

Type of investment	Realised [HRK mil.]					
	2008	2009	2010	2011	2012	2013
Investment preparation	26.3	20.7	15.7	14.1	17.7	14.4
Replacements and reconstruction	121.2	99.4	87.7	212.7	287.9	206.9
Revitalisations	2.7	1.0	2.1	9.4	7.3	5.7
Repairs and renovations	68.6	11.4	2.1	8.1	4.2	2.6
New facilities	153.5	139.7	66.6	151.9	234.7	187.8
Other investments	118.2	83.9	51.8	88.7	127.1	100.8
Electric power conditions and connection	608.5	475.1	356.8	372.9	304.5	361.8
Total	**1,099.0**	**831.3**	**582.8**	**857.8**	**983.4**	**879.9**

Source: HEP-ODS

In 2013, HOPS invested HRK 416.3 million, while the level of investment in HEP-ODS was HRK 879.9 million, where, for the purpose of creating the conditions for and connections to the electric power transmission and distribution network, HRK 76.6 million and HRK 361.8 million were invested respectively. In relation to 2012, there was a moderate decrease in investments by HOPS to the amount of 15.0% and by HEP-ODS to the amount of 10.5%.

4.2.4 Quality of the electricity supply

The quality of the electricity supply is defined and monitored in regard to:

- service quality,
- continuity of supply and
- voltage quality.

Service or commercial quality is related to a wide range of services connected to non-technical aspects of the quality of the electricity supply which are reflected in the quality of the relationship between the consumer and service provider, i.e. the transmission system operator, distribution system operator or electric power supplier.

The continuity of supply is defined as the ability of the network to provide a continuous supply of electricity over a given period of time and is expressed by indicators related to the number and duration of interruptions in supply.

Voltage quality is defined as the continuity of physical voltage properties in comparison to standardised values (effective value, frequency, waveform, symmetry of phase voltage values, etc.)

The main participants in the regulation of the quality of the electricity supply are energy operators, primarily HEP-ODS, HEP-OPS, HERA, the Ministry and ultimately buyers of electricity.

Under the Electricity Market Act, HERA is obliged to adopt conditions concerning the quality of the electricity supply and monitor the quality of the supply. The conditions for the quality of the electricity supply are currently being prepared, and HERA will use them to stipulate, among other things:

- the indicators of the quality of the electricity supply,
- the manner of measuring, collecting and publishing indicators of the quality of the electricity supply,
- the gradual introduction of general, minimum and guaranteed standards of the quality of the electricity supply and
- the gradual introduction of fees to customers after the introduction of guaranteed standards concerning the quality of the electricity supply.

The results shown in this Chapter are the result of the former practice of collecting and publishing data, and represent a good basis for the further development of the quality of the electricity supply which will be included in the said document.

During 2013, according to the reports of HOPS, there were no significant interruptions in the electricity supply in the transmission system. Table 4.2.11 shows the interruptions in the electricity supply and their duration as well as the estimated undelivered electricity in HOPS's network in 2008, 2009, 2010, 2011, 2012 and 2013.

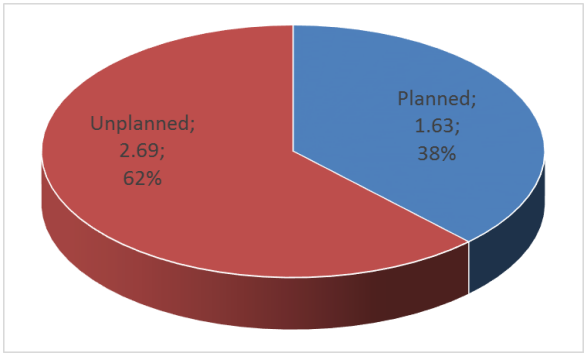
Table 4.2.11 Interruptions and the duration of interruptions in the electricity supply by HOPS in the period from 2008 to 2013

Year	Number of supply interruptions	Duration of supply interruptions [min]	Estimated undelivered electricity [MWh]
2008	131	4,844	666.3
2009	144	7,676	1840.44
2010	109	4,916	867.38
2011	115	3,587	255.78
2012	200	11,854.5	1,055.91
2013	51	2,908	329.16

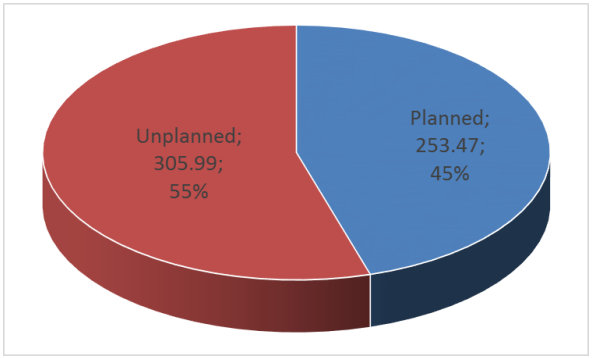
Source:HOPS

As early as at the beginning of 2006, HEP-ODS implemented a system for monitoring interruptions in the supply (so-called DISPO) in all distribution areas. However, the monitoring of interruptions still greatly relies on the manual entry of interruptions lasting longer than three minutes from the diary of operational events into DISPO, since a large part of the distribution network is not directly connected to a management system through which data on interruptions can be obtained directly. The indicators of the continuity of supply which are systematically monitored indicate the average annual number of interruptions per customer (System Average Interruption Frequency Index - SAIFI) and the average total annual duration of interruptions per customer (System Average Interruption Duration Index - SAIDI). The programme enables the analysis of recorded interruptions and their statistical processing on the basis of which the indicators of continuity of supply are calculated.

Figure 4.2.7 shows the indicators of the continuity of supply for 2013, and Figure 4.2.8 shows the fluctuation in the indicators of the continutiy power supply in HEP-ODS from 2006 to 2013.



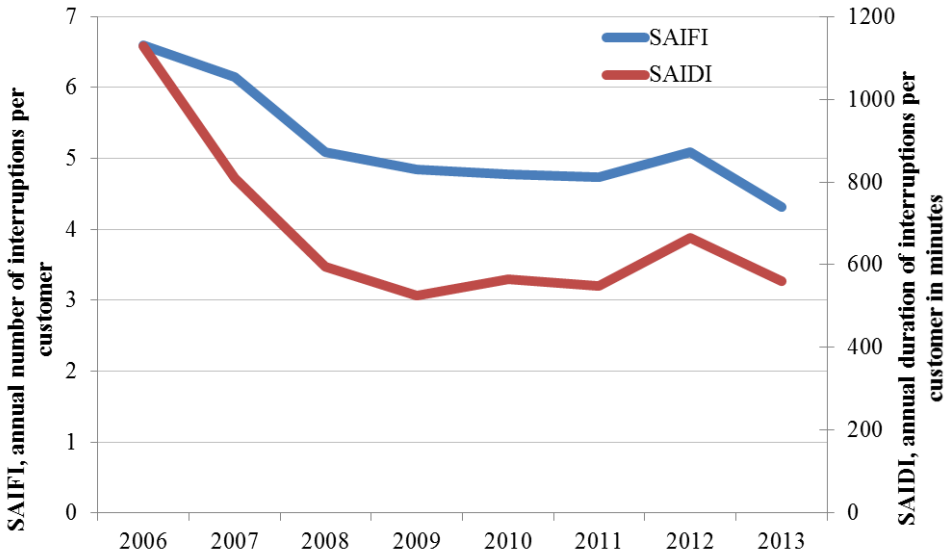
SAIFI
average annual number of interruptions per customer



SAIDI
average annual duration of interruptions per customer in minutes

Source:HEP-ODS

Figure 4.2.7 Indicators of the continuity of supply in HEP-ODS for 2013

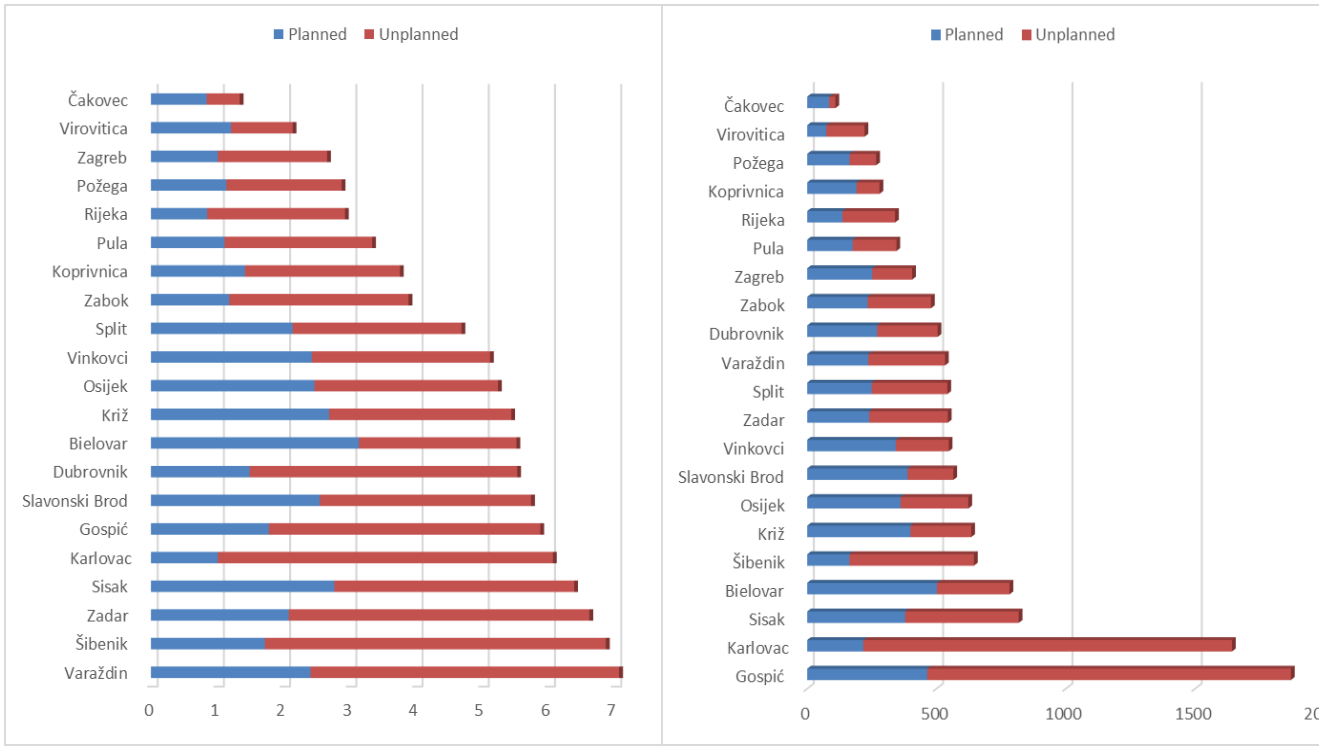


Source:HEP-ODS

Figure 4.2.8 The fluctuations in continuity of supply indicators in HEP-ODS from 2006 to 2013

The above figures show that in 2013 a lower average annual number of interruptions per customer was recorded, as well as a lower average annual duration of interruptions per customer in relation to 2012.

Figure 4.2.9 shows the continuity of supply indicators in HEP-ODS by distribution area for 2013. Their values were better than in 2012.



SAIFI
average annual number of interruptions per customer

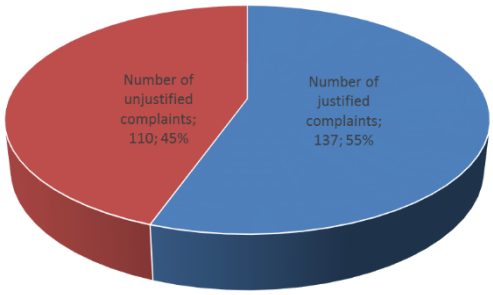
SAIDI
average annual duration of interruptions per customer in minutes

Source:HEP-ODS

Figure 4.2.9 Continuity of suply indicators by distribution area in 2013

More significant differences in the SAIDI indicators in the areas of Karlovac and Gospić in relation to other areas occurred due to the presence of specific consumers (in places with weekend houses) with a low consumption of electricity; when an interruption in the power supply occurs due to malfunctions in the winter period in these areas, it is not necessary to re-establish the power supply as a priority, in contrast with other important areas.

Figure 4.2.10 shows the statistics of complaints regarding voltage quality in the distribution network of HEP-ODS in 2013. Of the total of 2,361,869 metering points in the distribution network of HEP-ODS, there was a total of 247 complaints regarding voltage quality. The largest number of complaints regarding voltage quality was recorded in the distribution area of Zagreb, whereas the largest number of justified complaints was recorded in the distribution areas of Varaždin and Slavonski Brod.



Source:HEP-ODS

Figure 4.2.10 Complaints regarding voltage quality in the distribution network of HEP-ODS in 2013

The quality of service is estimated based on the level of complaints from network users regarding the provision of services and the timeliness of services performed in relation to user connections to the network, network usage and the electricity supply of tariff customers.

Besides electricity distribution, HEP-ODS also carries out electricity supply as part of the universal and guaranteed supply. The conditions for the quality of the electricity supply will stipulate the obligations of all suppliers, not only those who perform the supply as a public service, taking into consideration the collection of data necessary for determining and publishing the indicators of service quality.

HEP-ODS categorises services in electricity distribution and supply activities as follows:

- service quality in the activity of electricity distribution,
- metering service quality in the activity of electricity distribution,
- service quality in the activity of electricity supply,
- other attributable services and
- monitoring business conduct quality.

The statistics for issued preliminary electric power approvals (hereinafter PEPA) and electric power approvals (EPA), and the average number of issuing days for the abovementioned approvals in HEP-ODS in 2013 are shown in Table 4.2.12.

Table 4.2.12 Preliminary electric power approvals and electric power approvals issued and the average number of issuing days in HEP-ODS in 2013

Type of approval	Number of approvals	Average number of issuing days
PEPA	23,662	20.72
EPA - new customers	33,078	-
EPA - construction site connection	1,330	-
EPA - temporary connection	590	-

Source:HEP-ODS

In 2013, HOPS issued a total of 14 PEPAs of which only one project related to an increase in the existing connection power requested by HEP-ODS as part of the increase in the power of the existing Ludina 110/20 kV substation, while the other projects related to the construction of new connections. Of the total of 14 issued PEPAs, 11 related to connections enabling receipt of generated electric power into the electric power network. HOPS also approved the issue of PEPAs by HEP-ODS for the connection of power plants to the middle-voltage network.

In 2013, preliminary electric power approval was issued, but soon cancelled, for one power plant construction project. In 2013, a new Construction Act was adopted (Official Gazette, Nos. 153/05, 13/08 and 82/09) and a new Physical Planning Act (Official Gazette, No. 153/13) in which the manner of issuing the conditions for connection was changed. Furthermore, the Energy Act, adopted at the end of 2012, prescribed the adoption in 2013 of a regulation on the procedure for issuing energy approvals for determining individual conditions for connection to the electric power network in 2013, which is in preparation. Therefore, it can be expected that the statistics for issuing of conditions for connection will change in the future.

In relation to the process of separating the transmission system operator's assets and activities from other associated companies within the HEP group, HOPS issued 22 PEPAs to the existing power plants of HEP-Proizvodnja d.o.o. for the purpose of co-ordinating the billing metering points in the existing power plants of HEP Proizvodnja d.o.o. which, according to the Separation Principles and Article 76, Paragraph 10 of the Electricity Market Act, were allocated to HOPS.

Table 4.2.13 shows the statistics for electricity supply contracting by HEP-ODS in 2013.

Table 4.2.13 Electricity supply contracting by HEP-ODS in 2013

Consumption category	No. of contracts concluded	No. of complaints regarding the contracting procedure	
		Received	Upheld
Households	116,765	557	134
Commercial customers	25,913	100	17
Total	142,678	657	151
Share of complaints in the number of concluded contracts		0.46%	0.11% (22.98%*)

Source:HEP-ODS ** upheld with regard to the number of complaints received*

Table 4.2.14 shows the statistics for the calculation and issuing of invoices in HEP-ODS in 2013.

Table 4.2.14 Calculation and issuing of invoices in HEP-ODS in 2013

Consumption category	No. of invoices issued	Complaints regarding invoices and instalments	
		Received	Upheld
Households	30,843,935	112,559	94,509
Commercial customers	2,028,988	14,926	12,201
Total	32,872,923	127,485	106,710
Share of complaints in the number of concluded contracts		0.39%	0.32% (83.7%*)

Source:HEP-ODS **upheld with regard to the number of complaints received*

Table 4.2.15 shows the statistics for receivables collection through regular procedures conducted by HEP-ODS in 2013.

Table 4.2.15 Receivables collection through regular procedures conducted by HEP-ODS in 2013

Consumption category	No. of invoices paid without dunning letter	No. of complaints regarding the regular collection procedure	
		Received	Upheld
Households	25,962,684	9,715	1,142
Commercial customers	1,452,320	1,025	253
Total	27,415,004	10,740	1,395
Share of complaints in the number of concluded contracts		0.04%	0.01% (12.99%*)

Source:HEP-ODS **upheld with regard to the number of complaints received*

Table 4.2.16 shows the statistics for replies to questions, requests and complaints from customers submitted by HEP-ODS in 2013.

Table 4.2.16 Replies to questions, requests and complaints from customers submitted by HEP-ODS in 2013

Consumption category	No. of questions, requests and complaints from customers	No. of replies within the legally provided deadline
Households	957,291	957,168
Commercial customers	72,153	74,703
Total	1,029,444	1,028,871
Share in the total number of questions, requests and complaints from customers		**99.94%**

Source:HEP-ODS

Table 4.2.17 shows the statistics for non-standardised services for calculating and issuing invoices by HEP-ODS in 2012.

Table 4.2.17 Non-standardised services for calculating and issuing invoices by HEP-ODS in 2013

Consumption category	No. of non-standardised services for calculating and issuing invoices				No. of complaints regarding non-standardised services for calculating and issuing invoices	
	Extraordinary calculation	Self-reading	Copy of payment slips and certified invoices	Total	Received	Upheld
Households	458,018	431,755	37,322	927,095	1,025	341
Commercial customers	4,231	-	7,754	11,985	345	117
Total	462,249	431,755	45,076	939,080	1,370	458
Share	49.22%	45.98%	4.80%	100.00%	0.15%	0.05% (33%*)

Source:HEP-ODS ** upheld with regard to the number of complaints received*

Table 4.2.18 shows the statistics for receivables collection after sending a dunning letter by HEP-ODS in 2013.

Table 4.2.18 Receivables collection through a non-standardised procedure conducted by HEP-ODS in 2013

Consumption category	No. of dunning letters sent	No. of complaints regarding non-standardised collection procedure	
		Received	Upheld
Households	2,051,169	7,249	556
Commercial customers	508,249	858	247
Total	2,559,418	8,107	803
Share in the number of dunning letters sent		0.32%	0.03% (9.91%*)

Source:HEP-ODS ** upheld with regard to the number of complaints received*

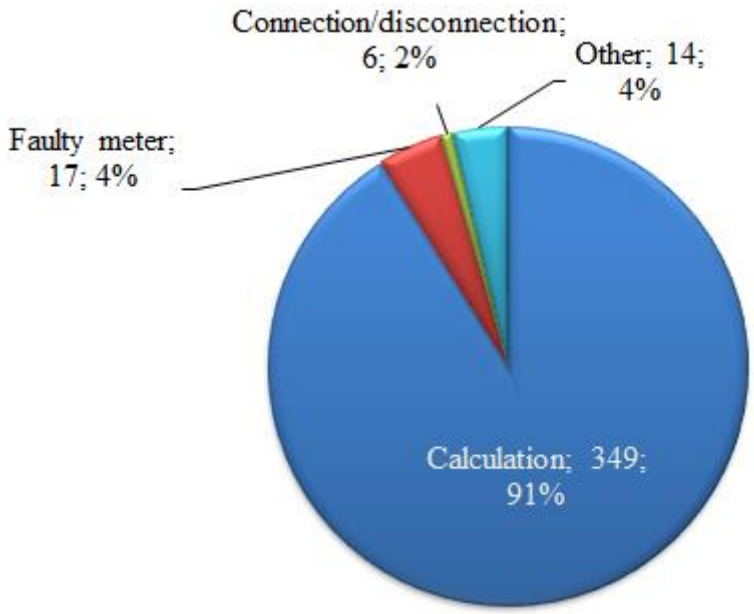
The Customer Complaint Committee of HEP-ODS held 84 meetings in total, and the results of their performance are shown in Table 4.2.19. Of 383 complaints resolved by the Customer Complaint Committee of HEP-ODS, 70 were upheld and 313 were rejected.

Table 4.2.19 Results of the performance of the Customer Complaint Committee of HEP-ODS in 2013

Sessions held	Total complaints	Total upheld	Total rejected
84	383	70	313

Source:HEP-ODS

The structure of complaints is shown in Figure 4.2.11.



Source:HEP-ODS

Figure 4.2.11 Shares of certain types of customer complaints resolved by the Customer Complaint Committee of HEP-ODS

4.2.5 Unbundling of activities

Legal unbundling of particular energy activities has been carried out within the HEP Group, except in the part referring to the performance of HEP-ODS's activities. However, the Electricity Market Act (Official Gazette, No. 22/13) enables HEP-ODS to carry out electricity distribution and electricity supply activities in the part which relates to end customers who use the electricity supply as part of the public service, i.e. the electricity supply as part of the universal service and guaranteed electricity supply.

Independence, transparency and impartiality in the performance of HOPS and HEP-ODS, the regulated energy operators, are also ensured by the monitoring of their business activities by HERA. HOPS and HEP-ODS are obliged to obtain the approval of HERA for their respective activities and to submit reports on their activities to HERA.

The Electricity Market Act stipulates that the transmission system operator and distribution system operator shall prepare a programme regulating conditions, rules, organisation and methodology in order to comply with the principles of transparency, objectivity and impartiality in their work.

The transmission system operator and the distribution system operator shall submit an annual report on the implementation of their programmes to HERA and publish it on their website.

In 2013, HOPS was preparing to submit a request for transmission system operator certification to HERA.

Certification of the transmission system operator is a procedure aimed at determining the compliance of the transmission system operator with the provisions of the Electricity Market Act, which regulates the separation and independence of the transmission system operator, while a certificate is considered to be confirmation issued in the certification process which certifies that the transmission system operator meets the conditions for its separation and independence, the

conditions for financial, material, technical and staffing qualifications, and other conditions stipulated by the Electricity Market Act.

Pursuant to the Separation Principles, on 2 July 2013 HOPS assumed, in terms of bookkeeping, the fixed assets (equipment, parts of plants, buildings or their parts) of energy operators who perform electricity generation (HEP-Proizvodnja d.o.o.) and electricity distribution activities (HEP-ODS) and used them in the continuation of its electricity transmission activities.

The provisions of Article 22 of the Electricity Market Act stipulate that the transmission system operator, regardless of its organisational form, shall adopt the compliance programme, which determines in more detail the measures which exclude the possibility of biased behaviour and the manner of monitoring compliance with the programme, and which determines the special obligations of workers related to the fulfilment of the set objectives. The compliance programme must be approved in advance by HERA, and HOPS's compliance with the compliance programme is monitored by the person responsible for compliance monitoring. In 2013, the compliance programme was prepared and was adopted on 28 February 2014 by means of a decision of the Management Board of HOPS. Through the compliance programme, HOPS presented an overview of measures which exclude the possibility of biased behaviour and the manner of monitoring compliance with the programme.

In line with its legal obligations, HEP-ODS adopted the Programme for the provision and implementation of transparency, objectivity and impartiality principles in HEP-ODS's operations (hereinafter: the Programme), and on 1 January 2008 established a Commission for follow-up and monitoring of the Programme (hereinafter: the Commission).

The Commission adopted the annual report on the implementation of the Programme in 2013 and published it on the website of HEP-ODS (http://www.hep.hr/ods). The conclusions of the report are that in 2013 the Commission received no written complaints regarding non-compliance with the Programme.

On its website, HEP-ODS (http://www.hep.hr/ods) publishes notifications related to its tariff models, electricity prices, consumption calculation instructions, planned work, advice regarding rational use of electricity, etc. All legal and subordinate regulations and internal regulations of HEP d.d. and HEP-ODS related to electricity end customers as well as the annual reports of HEP-ODS with all the data and indicators of its business performance in the previous year are also available on the same website.

4.3 Development of the electricity market

4.3.1 Electricity trading

In March 2013, the new Electricity Market Act (Official Gazette, No. 22/13) came into force. It stipulates the adoption of subordinate acts in the electricity domain:

- Rules on the organisation of the electricity market,
- Methodology for determining the prices and conditions for the provision of auxiliary services,
- Methodology for the determination of prices for providing balancing services,
- Rules on the electric power system balancing,
- Methodology for determining the balancing energy prices for balance responsible parties,
- General terms and conditions for using the network and electricity supply and

– Rules on changing supplier.

The said subordinate acts were not adopted in 2013, except the Methodology for determining the balancing energy prices for balance responsible parties (Official Gazette, No. 121/13), of which only some of the provisions, mostly those related to reporting, came into force. Therefore, in 2013 the electricity market in the Republic of Croatia was regulated by:

– Rules on the electricity market (Official Gazette, Nos. 135/06, 146/10 and 90/12) regulating the relationships between the participants on the electricity market,

– General terms and conditions for electricity supply (Official Gazette, No. 14/06) describing the procedure for changing supplier,

– Methodology for providing balancing services in the electric power system (Official Gazette, Nos. 37/11 and 42/11), the purpose of which is to enable the contracting of the electric power system balancing service between the transmission system operator and the balancing service provider, the establishment of a framework for determining the reference price of the energy balancing service, and determination of the price of balancing energy for balance responsible parties.

– Rules on the balancing of the electric power system (Official Gazette, Nos. 133/06 and 135/11) determining the balance responsible party, balancing service providers, and regulating their relationship with the transmission system operator and market operator, as well as the manner of the balancing energy calculation

– Ordinance on allocation and use of cross-border transmission capacities together with the pertaining annexes published on HOPS's website.

The electricity market model in the Republic of Croatia is shown in Figure 4.3.1.

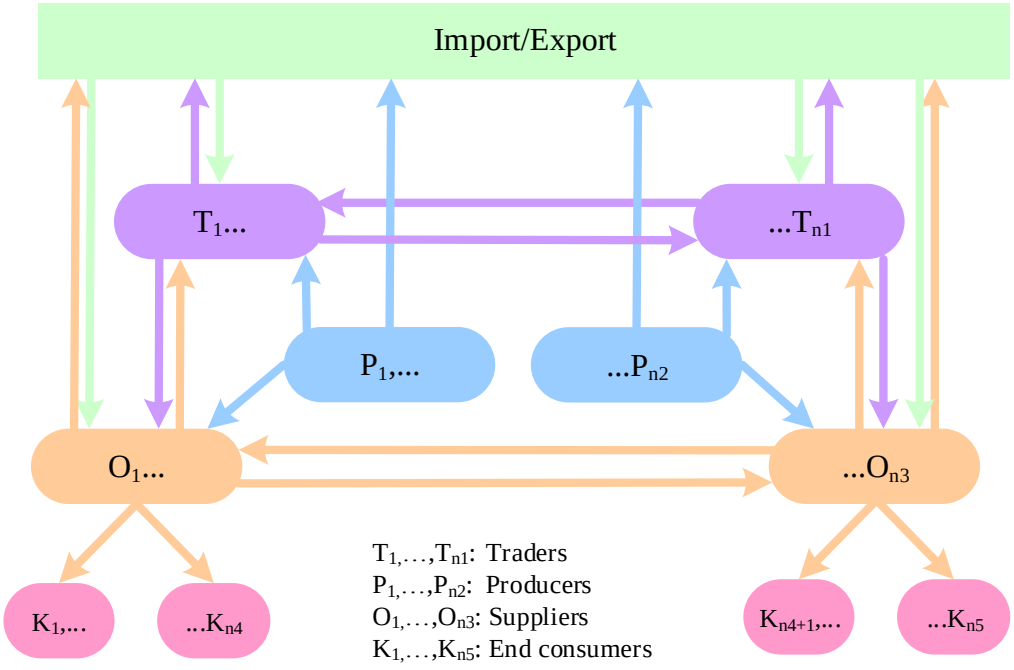


Figure 4.3.1 The electricity market model in the Republic of Croatia

On the Croatian electricity market, a producer can sell electricity generated in its own production facilities to traders and suppliers.

A supplier can buy electricity from a producer, trader or another supplier, and can sell electricity to all end customers according to the contracted relations.

A trader can buy electricity from a producer, supplier or another trader, and can sell electricity to a supplier or another trader.

All end customers can freely select their supplier with whom they enter into a supply contract.

Producers, suppliers and traders who wish to take part in procedures and activities on the electricity market must enter into an agreement with HROTE in which the rights and obligations between the market participant and HROTE are regulated. Moreover, they must enter into a balancing energy agreement with HOPS. Furthermore, producers, traders and suppliers may sell electric power to HOPS and HEP-ODS to cover losses in the system, for auxiliary services and for balancing energy.

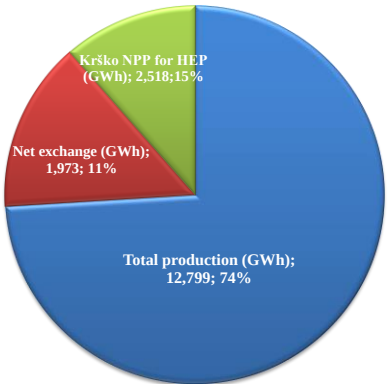
Table 4.3.1 shows the main elements of the electric power balance sheet of the Republic of Croatia for 2013, as well as for the previous four years. It shows data on the total generation of electricity from power plants on the territory of the Republic of Croatia (including energy taken from industrial power plants and wind power plants, and production taken directly into the distribution network), production from the Krško nuclear power plant (from the part of HEP d.d.), imports and exports of electricity, and total consumption (with losses) in the Republic of Croatia.

Table 4.3.1 Balance sheet of the Croatian electric power system 2009-2013 [GWh]

No.	Electric power system balance sheet	2009	2010	2011	2012	2013
1	Total production*	12,014.8	13,268.0	9,998.8	9,897.3	12,799.0
2	Generation of Krško NPP for HEP d.d.	2,729.6	2,690.1	2,952.9	2,621.6	2,518.0
3	Other input into Croatia	9,110.3	9,669.1	11,059.3	10,569.1	8,746.0
4	**Input into Croatia (2+3)**	**11,839.9**	**12,359.2**	**14,012.3**	**13,190.7**	**11,264.0**
5	**Total procurement (1+4)**	**23,854.7**	**25,627.2**	**24,011.0**	**23,088.0**	**24,063.0**
6	Output from Croatia	6,158.0	7,683.4	6,307.8	5,567.4	6,773.0
7	**Total consumption (5-6)**	**17,696.7**	**17,943.8**	**17,703.2**	**17,520.6**	**17,290.0**
8	Direct procurement in the distribution network	408.4	470.9	396.6	498.0	592.0
9	Losses in the transmission network	511.0	533.0	513.7	461.5	483.0
10	**Consumption of transmission (7-8-9)**	**16,777.3**	**16,939.9**	**16,820.0**	**16,561.1**	**16,215.0**
11	Direct customers	814.0	852.2	750.5	600.2	674.02
12	Pumping work (Velebit Pump Storage Power Plant) and other own consumption	163.3	209.9	226.6	273.4	152.0
13	**Delivered to distribution (10-11-12)**	**15,800.0**	**15,877.8**	**15,842.9**	**15,687.5**	**15,389.0**
14	Transit (min (4,6))	6,158.0	7,683.4	6,307.8	5567.4	5,568.4
15	**Transmission losses [%] (100x9/(10+9+14))**	**2.2%**	**2.1%**	**2.2%**	**2.0%**	**2.2%**

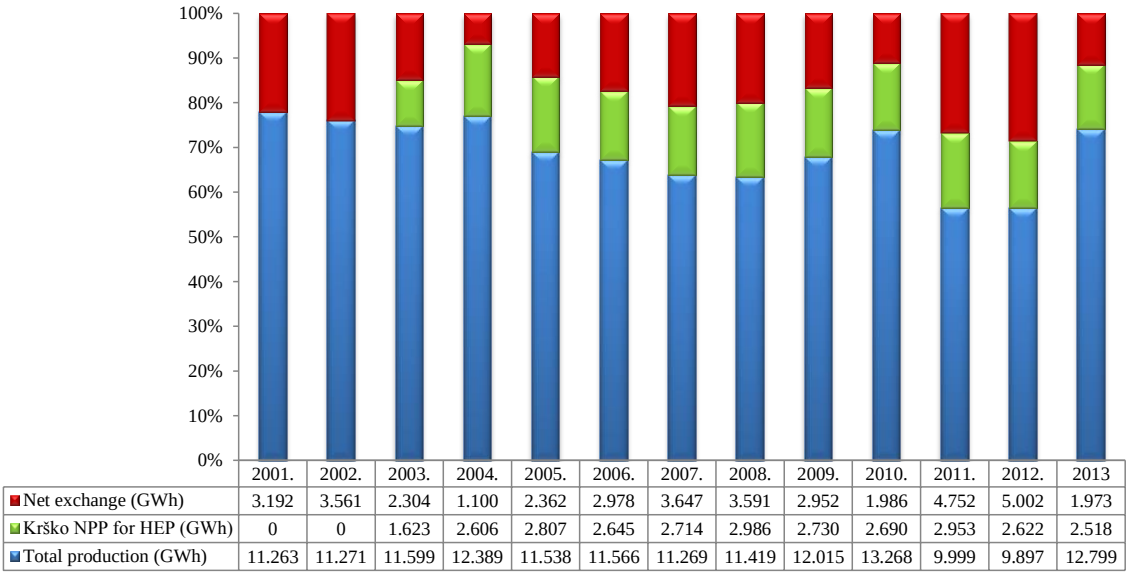
Source:HOPS

Figure 4.3.2 shows the structure of electricity procurement for the needs of the Croatian electric power system in 2013, and Figure 4.3.3 shows the structure of electricity procurement for the needs of the Croatian electric power system from 2003 until 2013. The largest share of total consumption in 2013 (17,290 GWh, Table 4.3.1) was covered by domestic generation, which amounted to 12,799 GWh. The generation of the Krško NPP for the needs of HEP d.d. amounted to 2,518 GWh, whereas the net exchange ("Other input into Croatia" - "Output from Croatia") amounted to 1,973 GWh.



Source:HOPS

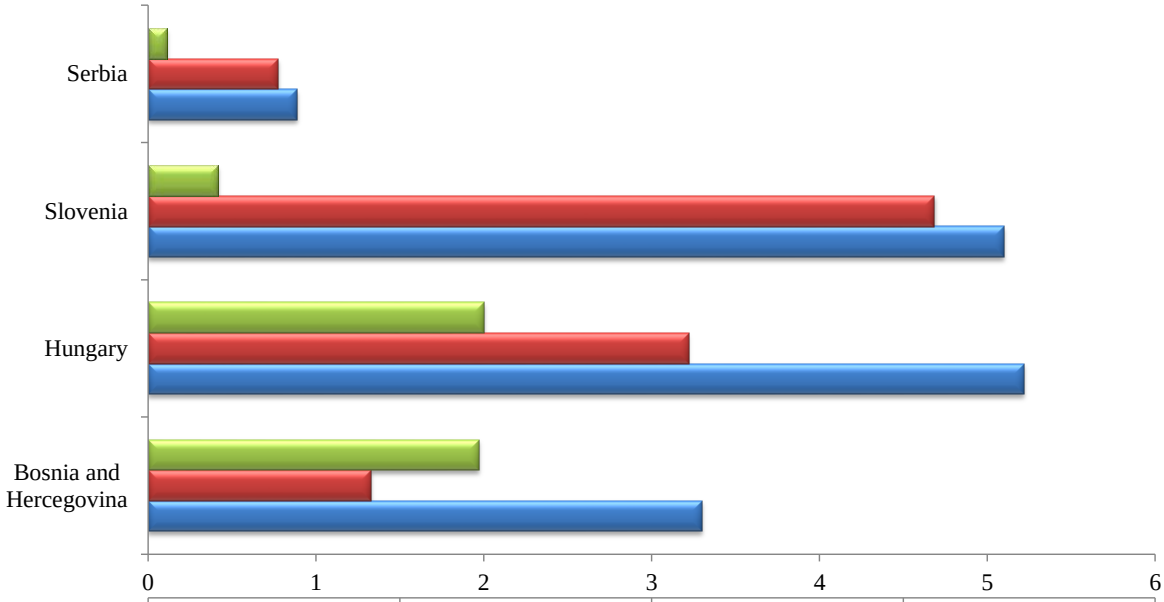
Figure 4.3.2 The structure of electricity procurement for the needs of the Croatian electric power system in 2013



	2001.	2002.	2003.	2004.	2005.	2006.	2007.	2008.	2009.	2010.	2011.	2012.	2013
Net exchange (GWh)	3.192	3.561	2.304	1.100	2.362	2.978	3.647	3.591	2.952	1.986	4.752	5.002	1.973
Krško NPP for HEP (GWh)	0	0	1.623	2.606	2.807	2.645	2.714	2.986	2.730	2.690	2.953	2.622	2.518
Total production (GWh)	11.263	11.271	11.599	12.389	11.538	11.566	11.269	11.419	12.015	13.268	9.999	9.897	12.799

Figure 4.3.3 The structure of electricity procurement for the needs of the Croatian electric power system from 2003 until 2013

Figure 4.3.4 shows the sale and purchase of electricity (imports, exports and net exchange) per border of the Republic of Croatia in 2013 according to the amounts from market participants' agreed schedules. It is evident that the Republic of Croatia was a net importer of electricity at all of its borders. The balance sheet points to the fact that the Republic of Croatia had a net exchange of approximately 4.5 TWh in favour of imports, keeping in mind that this included the generation of the Krško NPP for the Republic of Croatia, which amounted to approximately 2.5 TWh in 2013.



	Bosnia and Hercegovina	Hungary	Slovenia	Serbia
Neto	2.0	2.0	0.4	0.1
Export	1.3	3.2	4.7	0.8
Import	3.3	5.2	5.1	0.9

Source:HROTE

Figure 4.3.4 Sale and purchase of electricity (imports, exports and net exchange) per border of the Republic of Croatia in 2013 according to the amounts from market participants' agreed schedules

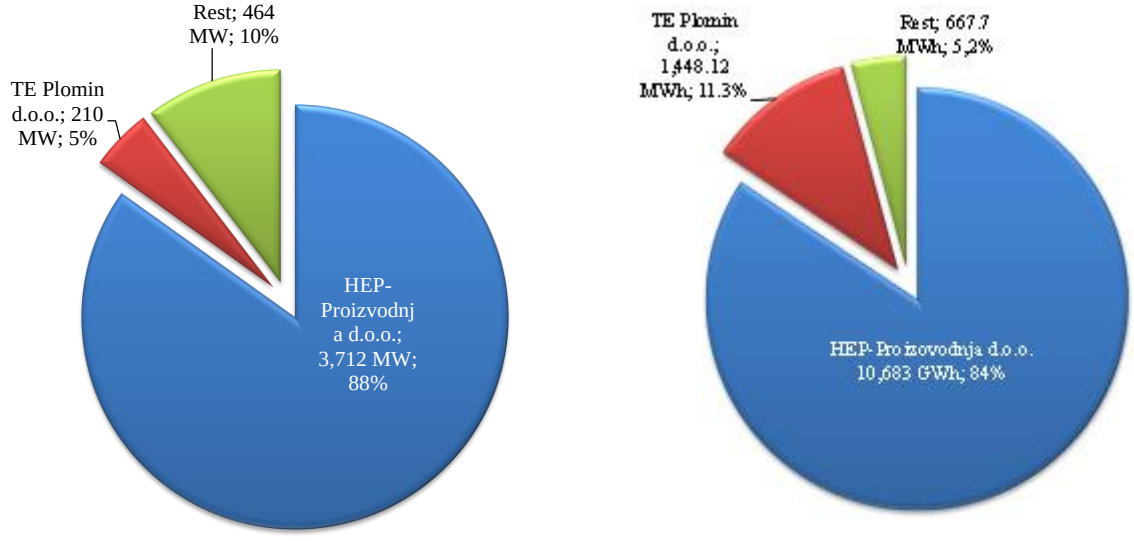
Table 4.3.2 shows the list of energy operators with a licence granted for the generation of electricity as at 31 December 2013. The comparison with the previous year shows that one energy operator did not extend its licence for the generation of electricity, while 8 energy operators obtained such a licence in 2013. Pursuant to the Electricity Market Act, producers whose production plants' installed power is up to 1 MW (inclusive) in the aggregate are not obliged to hold licences for the generation of electricity.

Table 4.3.2 List of energy operators for the generation of electricity as at 31.12.2013

No.	Name of energy entity	Licence issue date	Licence validity [year]
1.	HEP-PROIZVODNJA d.o.o.	10.12.2003	15
2.	TE PLOMIN d.o.o.	11.12.2003	15
3.	INA INDUSTRIJA NAFTE d.d.	13.12.2003	15
4.	ADRIA WIND POWER d.o.o.	29.03.2012	5
5.	EKO d.o.o.	06.12.2012	5
6.	VJETROELEKTRANA TRTAR – KRTOLIN d.o.o.	08.01.2013.	5
7.	SLADORANA d.o.o.	28.09.2019	5
8.	ZAGREBAČKE OTPADNE VODE – upravljanje i pogon d.o.o.	26.11.2009	5
9.	VJETROELEKTRANA ORLICE d.o.o.	15.12.2009	5
10.	POLJOPRIVREDNA ZADRUGA OSATINA	10.02.2010	5

11.	UNIVERZAL d.o.o.	01.09.2010	5
12.	SELAN d.o.o.	02.11.2010	5
13.	VELIKA POPINA d.o.o.	30.12.2010	5
14.	T7 VIS d.o.o.	23.03.2011	5
15.	KONČAR-OBNOVLJIVI IZVORI d.o.o.	09.05.2011	5
16.	VJETROELEKTRANA CRNO BRDO d.o.o.	24.08.2011	5
17.	STRIZIVOJNA HRAST d.o.o.	20.09.2011	5
18.	OSATINA GURPA d.o.o.	06.06.2012	5
19.	EUCON d.o.o.	17.12.2012	5
20.	Energija Gradec d.o.o.	25.02.2013	5
21.	VJETROELEKTRANA PONIKVE d.o.o.	13.03.2013	5
22.	ZAGREBAČKI HOLDING d.o.o.	09.05.2013	5
23.	VJETROELEKTRANA JELINAK d.o.o.	24.06.2013	5
24.	OŠTRA STINA d.o.o.	21.06.2013	5
25.	HIDRO WATT d.o.o.	27.06.2013	5
26.	EKO ZADAR DVA d.o.o.	28.08.2013	5
27.	GUMIPEX - GUMI RECIKLAŽA I PROIZVODNJA d.d.	08.11.2013	5
28.	AGROKOR-ENERGIJA d.o.o.	19.12.2013	5

Figure 4.3.5 shows the share in production capacities and electricity generated by power plants on the territory of the Republic of Croatia per energy operator in 2013. HEP-Proizvodnja d.o.o. had by far the largest share amounting to 85% of production capacities and 83.5% of generated electricity. The share of TPP Plomin d.o.o. is 5% of production capacities and 11.3% of generated electricity.



a) Production capacities b) Generated electricity

Source:HOPS

Figure 4.3.5 Share of production capacities and electricity generated by power plants on the territory of the Republic of Croatia per energy operator in 2013

The Herfindahl-Hirschman Index (HHI) of the concentration of generation capacities on the territory of the Republic of Croatia amounts to 0.735, whereas the HHI of the concentration of generation from the power plants on the territory of the Republic of Croatia amounts to 0.713.

On 31 December 2013, there were a total of 28 valid licences for electricity generation, 18 licences for electricity supply and 14 licences for electricity trading. Obtaining a licence is a necessary but not sufficient condition for operating on the electricity market in the Republic of Croatia. An energy operator may operate on the electric power market upon obtaining an EIC (Energy Identification Coding Scheme) code, concluding a balancing energy agreement with HOPS, and finally signing an agreement with HROTE on the regulation of mutual relations on the electricity market. Only one producer in the Republic of Croatia had fulfilled the stated conditions for operating on the electricity market, and the same conditions were fulfilled by 15 suppliers and 17 traders.

Table 4.3.3 states the energy operators who had fulfilled all the conditions for operating on the electricity market. In comparison with the previous year, the number of energy operators who had fulfilled the conditions for operating on the electricity market grew by six, of which five were in supply and one in trading, while at the same time, none of the energy operators ceased to fulfil the conditions for operating on the electricity market during 2013.

Table 4.3.3 The list of energy operators who had fulfilled the conditions for operating on the electricity market as at 31 December 2013, excluding eligible producers in the incentives system

Type of participant	No.	Name of market participant	Type of licence
Producers	1	INA INDUSTRIJA NAFTE d.d.	**Licence for the generation of electricity**
Suppliers	1	ELEKTRO PLUS d.o.o.	**Licence for electricity supply**
	2	EL-EN SOLUCIJE d.o.o.	
	3	RWE Energija d.o.o.	
	4	ENZYME d.o.o.	
	5	GEN-I Zagreb d.o.o.	
	6	HEP-OPERATOR DISTRIBUCIJSKOG SUSTAVA d.o.o.*	
	7	HEP-OPSKRBA d.o.o.	
	8	KORLEA d.o.o.	
	9	NOX GRUPA d.o.o.	
	10	Proenergy d.o.o.	
	11	Axpo Trgovina d.o.o.	
	12	Hrvatski Telekom d.d.	
	13	PETROL d.o.o.	
	14	PRVO PLINARSKO DRUŠTVO - TRGOVINA ENERGIJOM d.o.o.	
	15	RUDNAP energija d.o.o.	
Traders	1	ALPIQ ENERGJA HRVATSKA d.o.o.	**Licence for trading in electricity**
	2	AXPO TRGOVINA d.o.o.	
	3	EFT HRVATSKA d.o.o.	
	4	ENEL TRADE d.o.o.	
	5	EZPADA d.o.o.	
	6	GEN-I ZAGREB d.o.o.	
	7	HEP d.d.	
	8	HEP-TRGOVINA d.o.o.	
	9	HSE ADRIA d.o.o.	

	10	INTERENERGO d.o.o.	
	11	INTER ENERGO GRUPA d.o.o.	
	12	KORLEA d.o.o.	
	13	MVM PARTNER d.o.o.	
	14	PETROL d.o.o.	
	15	Proenergy d.o.o.	
	16	REPOWER HRVATSKA d.o.o.	
	17	RUDNAP ENERGIJA d.o.o.	
	18	TLM d.d	
* Supplier of tariff customers			

Source:HROTE

The Croatian electricity market is based on bilateral trading. Table 4.3.4 and Figure 4.3.6 show the total amounts of electricity sold on the Croatian electricity market according to the amounts from market participants' agreed schedules and the amounts of electricity sold according to the agreed schedules for covering losses and the consumption of end customers. The comparison with the energy sold to end customers from agreed schedules (approximately 16 TWh) and the realised consumption of end customers (approximately 15.1 TWh) shows a significantly high level of suppliers reporting agreed schedules which were unrealistically high during 2013. This was observed during continued supervision in 2013 and this, among other factors, triggered the adoption of the new Methodology for determining the balancing energy prices for balance responsible parties.

Table 4.3.4 The direction of electricity sold on the Croatian market in 2013 according to market participants' agreed schedules

Sale direction	Energy [MWh]
Total amount of electricity sold	43,063,029
Traders → HOPS (for covering losses)	512,250
Traders → HEP-ODS (for covering losses)	890,132
Suppliers → Customers	16,007,234

Source:HROTE

The total amount of electricity from the agreed schedules of the companies from the HEP Group is 34.31 TWh, i.e. 79.66% of the total trading volume on the electricity market in the Republic of Croatia.

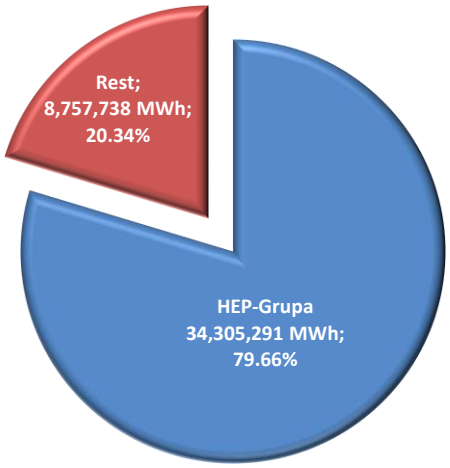


Figure 4.3.6 Total amounts of electricity sold by market participants in 2013 according to market participants' agreed schedules

Source:HROTE

Figure 4.3.7 shows the total amount of electricity sold by electricity suppliers to customers in 2013. Universal supply customers participated with 40.94% of the total electricity sold, guaranteed supply customers represented 9.09%, while the rest of sales amounted to 49.97%. Consumers that are supplied by the supplier of last resort are charged significantly higher prices for electricity, which is aimed at motivating them to select a supplier on the electricity market.

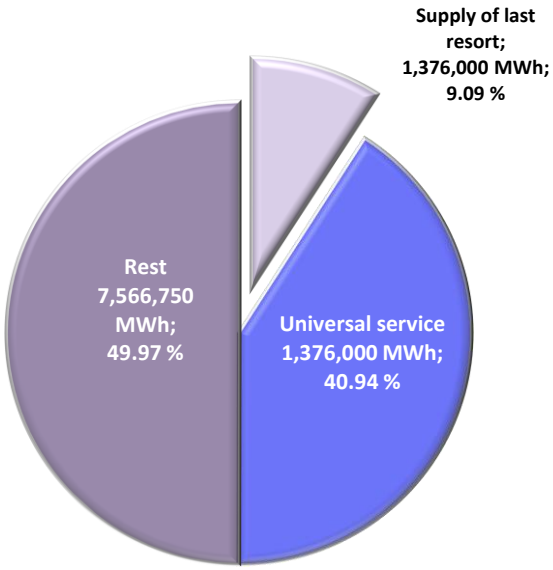


Figure 4.3.7 The total electricity sold by suppliers to customers in 2013

Figure 4.3.8 shows the share of suppliers outside the HEP Group in the sale of electricity to end customers in 2013. The share of suppliers outside the HEP Group almost quadrupled in relation to early 2013. Besides the trend of an increasing number of suppliers of end customers, during 2013 there was also a trend of an increased share of suppliers outside the HEP Group in the supply of end customers, which shows that the electricity market in the Republic of Croatia is developing well.

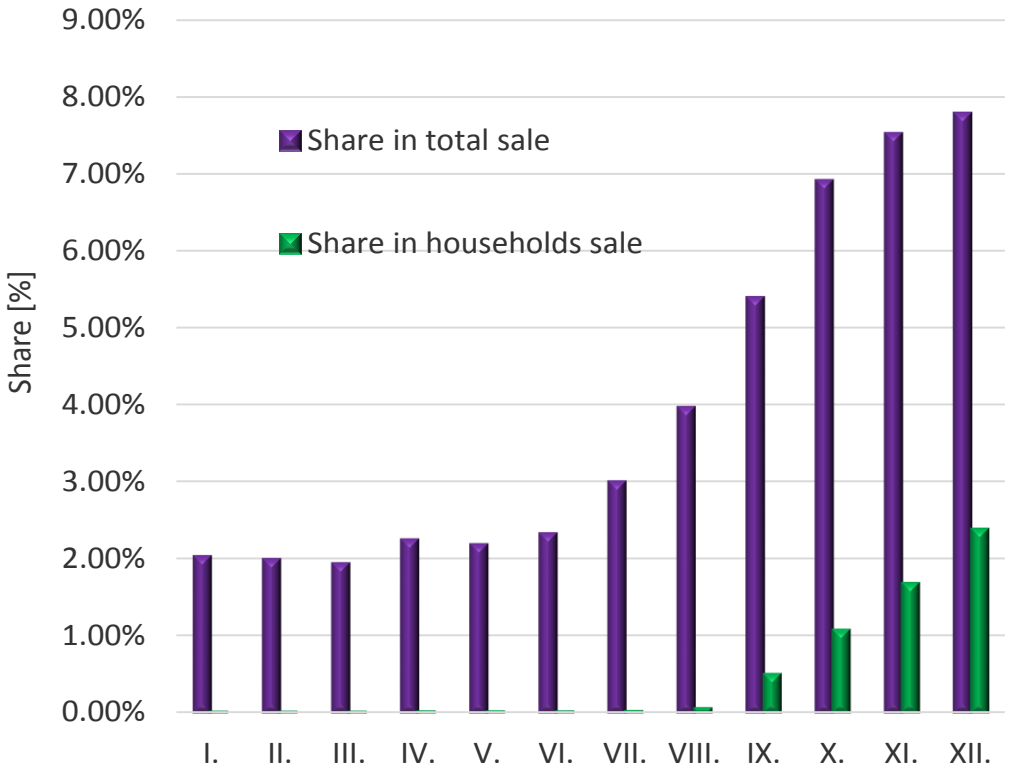


Figure 4.3.8 Share of participants outside the HEP Group in sales to end customers in 2013

Since the development of the market and the formation of the market price for electricity is a necessary precondition for the existence of the electric power exchange, during 2013 there was an intensification of activities which resulted in the signing of the Business Co-operation Agreement between HROTE and HOPS regarding the establishment of the Croatian electric power exchange in accordance with the Electricity Market Act. On the basis of this agreement, working groups were established with the aim of analysing the existing exchanges and proposing an implementing solution and time schedule for the establishment of the exchange as a new legal entity in the Republic of Croatia and market coupling with the neighbouring EU electricity exchanges of Hungary and Slovenia.

4.3.2 Electric power system balancing

The need for balancing the electric power system arises due to the maintenance of the system's frequency and the obligation to maintain the planned power of the exchange between the Croatian electric power system and other electric power systems.

Figure 4.3.9 shows the imbalances of the Croatian electric power system in the SHB regulation block (Slovenia, Croatia, Bosnia and Herzegovina) during 2013. A negative value means that there was excess energy in the Croatian electric power system, while a positive value means there was a deficiency in energy. Imbalances have evidently shifted towards negative values. This was expected, as during 2013 a large majority of suppliers reported unrealistically high agreed schedules. This was observed during continuous supervision in 2013, based on which HERA changed the manner of determining the balancing energy calculation price so as to motivate the balance responsible parties to report agreed schedules as realistically as possible.

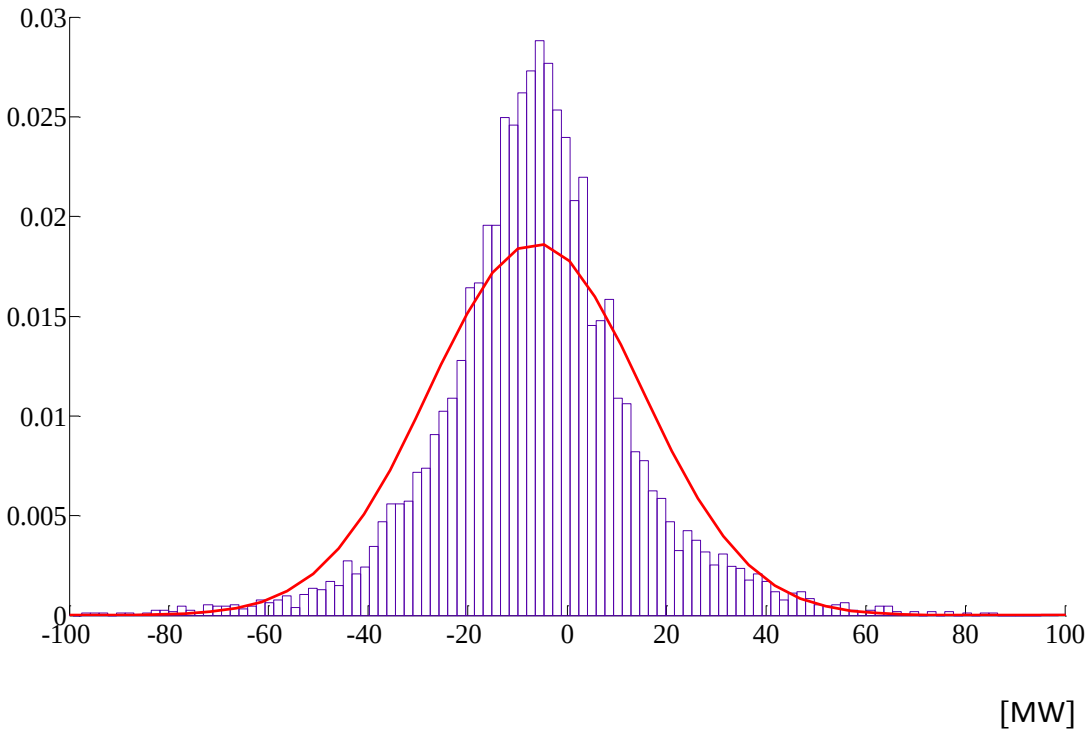


Figure 4.3.9 An overview of the deviations of the Croatian electric power system within the SHB regulation block

During 2013, electric power system balancing and balancing energy calculations were prescribed by the Electricity Market Act (Official Gazette, Nos. 177/04, 76/07, 152/08, 14/11 and 59/12) and regulated by a number of subordinate acts, such as the Rules on the electricity market (Official Gazette, Nos. 135/06, 146/10 and 90/12), the Rules on electric power system balancing (Official Gazette, Nos. 133/06 and 135/11) and the Rules on the application of standard load profiles (http://www.hep.hr/ods/opskrbljivaci/PRAVILA_NKO_potpisano.pdf).

In September 2013, pursuant to the Regulation of Energy Activities Act (Official Gazette, No. 120/12), HERA adopted the Methodology for determining the balancing energy prices for balance responsible parties (Official Gazette, No. 121; hereinafter: the new Balancing Methodology), though it is important to note that balancing energy calculation for the whole of 2013 was carried out according to the Methodology for providing balancing energy services in the electric power system (Official Gazette, Nos. 37/11 and 42/11; hereinafter: the former Balancing Methodology).

In the new Balancing Methodology, the average value of electric energy prices on the regional BSP exchange (http://www.bsp-southpool.com; hereinafter: BSP) and the Hungarian HUPX electricity exchange (http://www.hupx.hu; hereinafter: HUPX) is taken as the reference price of electric energy in billing metering intervals. The new Balancing Methodology also prescribes that a supplier who is under a public service obligation shall not pay balancing energy until the rules for organising the electricity market come into force. One of the objectives related to the adoption of the new Balancing Methodology is to enable cost reductions for balance responsible parties (hereinafter: BRP) for balancing energy in relation to the former Balancing Methodology, assuming that the BRPs' imbalances are not distinctly positive or negative.

The simulations applied to data for 2013 show that the prices obtained for positive imbalances are much lower in relation to the former Balancing Methodology and that the prices for negative imbalances are level with the former prices for negative imbalances. The new Balancing Methodology additionally penalises exceptionally negative or positive imbalances. As a result of

continuous monthly supervision during 2013, it was frequently observed that agreed schedules were reported as being much higher than the realised amounts for most suppliers, and this, among other factors, led to the adoption of the new Balancing Methodology.

The new Balancing Methodology contains provisions according to which HOPS is obliged to deliver data on a monthly basis at a fifteen-minute level on energy activated for secondary and tertiary regulation, and data on other energy activated for electric power system balancing. In addition, HEP-ODS and HROTE must deliver data for monitoring the calculation of suppliers' realisations and for monitoring the balancing energy calculation for balance responsible parties. During 2013, HEP-ODS and HROTE regularly fulfilled this obligation, thus enabling their continued supervision. HOPS is a different issue.

For the purpose of analysing the effect of the former Balancing Methodology and the new Balancing Methodology, HERA drafted a comparison of prices within the tolerance band with those of Slovenia and Hungary based on data from 2013.

The Slovenian market operator, BORZEN, publishes hourly prices of positive and negative imbalances C_+ and C_- on its website (http://www.borzen.si). Figure 4.3.10 shows the average prices of positive and negative imbalances in Slovenia and Croatia applied during 2013. The figure also shows the prices of positive and negative imbalances obtained by simulating the new Balancing Methodology with the data for 2013. It is evident that the average Slovenian prices of positive imbalances are lower than the Croatian prices of positive imbalances within the tolerance band, while the average Slovenian prices of negative imbalances are higher than the Croatian prices of negative imbalances within the tolerance band. In considering the Slovenian prices, it should be borne in mind that these are formed based on all the income and expenditure in a certain hourly interval. Moreover, at the end of the first half of 2013, Slovenia started co-operating in the balancing of the system with the Austrian transmission system operator in the manner described on the Austrian transmission system operator's website (http://www.apg.at/en/market/balancing/secondary-control/inc). The above co-operation brought about a decrease in system balancing costs. Figure 4.3.10 shows that the average price for negative imbalances in Slovenia within the tolerance band is within the limits of the average value of the prices on the BSP and HUPX exchanges.

On its website, MAVIR, the Hungarian transmission system operator, publishes fifteen-minute prices for balancing energy (http://www.mavir.hu/web/mavir-en/settlement-unit-prices) for positive and negative imbalances. Figure 4.3.10 shows that the average Hungarian price for positive imbalances and the average Hungarian price for negative imbalances within the tolerance band were level with the Croatian prices for positive and negative imbalances within the tolerance band. The above observation relates to the prices applied during 2013.

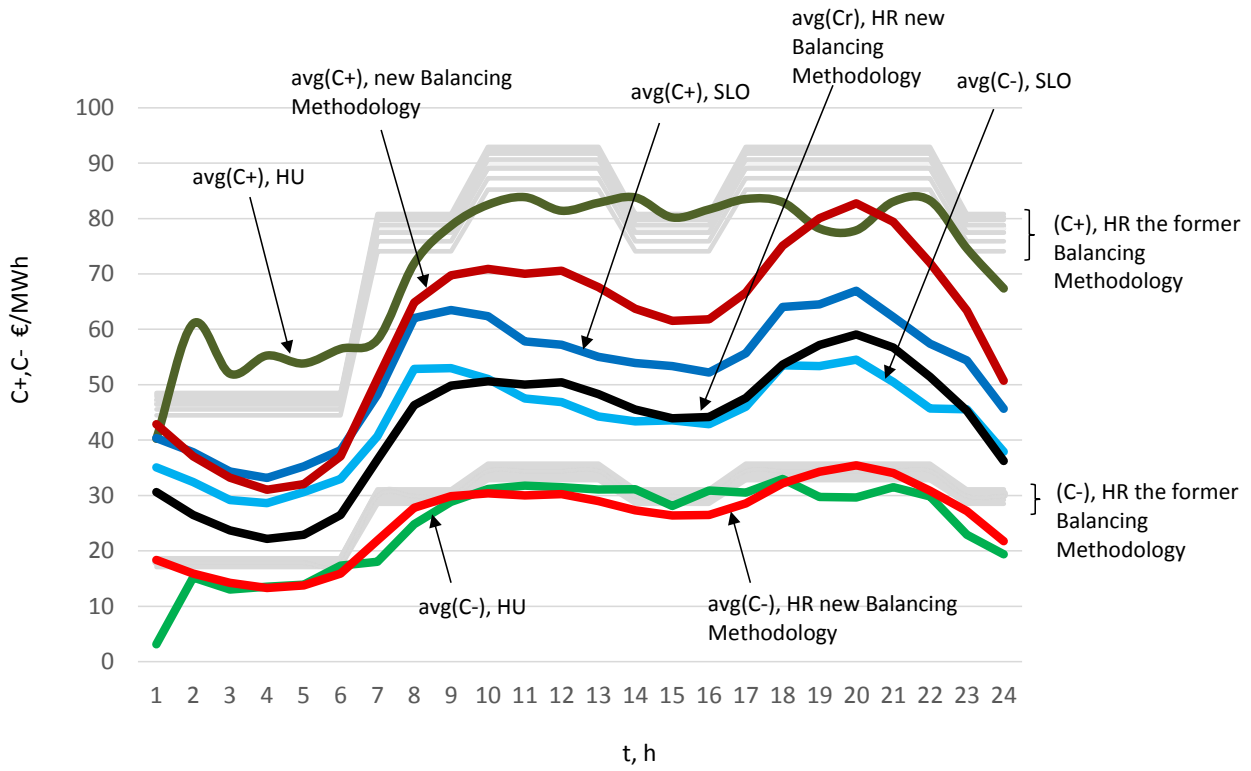


Figure 4.3.10 Comparison of the prices of positive and negative imbalances in Croatia, Slovenia and Hungary in 2013

During 2013, the former Balancing Methodology prescribed the manner of determining the prices for positive and negative imbalances C_p and C_n determined according to the reference price C_r, which changes on a monthly basis, and consists of components C_{r1} and C_{r2}. The first component of the reference price C_{r1} is determined as the monthly average of the Phelix Day Base index for the billing period on the European power exchange, the EPEX Spot Market. The other component C_{r2} relates to the domestic price of electricity generation, defined by the tariff item amount for electricity generation, for the active power of a household with single-tariff electricity metering. The mass factor for the average monthly price from EPEX amounts to 0.3, whereas the mass factor for the domestic price of generation amounts to 0.7. These are factors which maintain the expected ratios of imported electricity in relation to domestic generation.

Figure 4.3.11 shows that during 2013 the reference price for balancing in Croatia fluctuated between 57.00 €/MWh in June and 62.18 €/MWh in February.

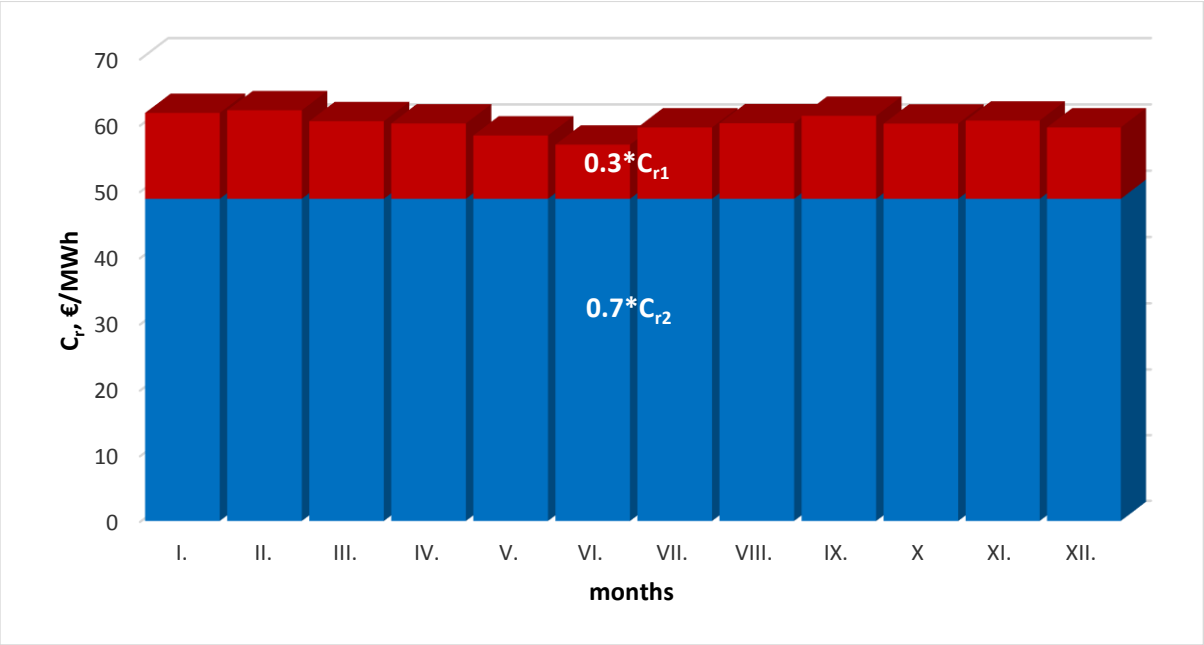


Figure 4.3.11 Fluctuations in the reference price for balancing energy C_r in 2013

Figure 4.3.12 shows the calculated amounts for balancing energy, without HEP-ODS, in 2013: a significant increase in value at the end of the year is evident.

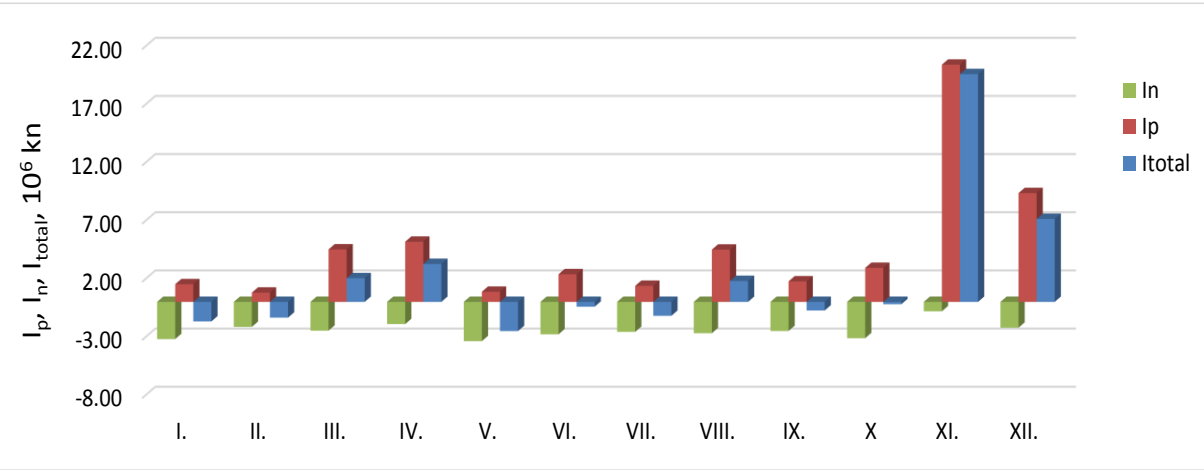


Figure 4.3.12 Calculated amounts for balancing energy for 2013 (without HEP-ODS)

Figure 4.3.13 shows the average monthly prices of positive and negative imbalances of BRPs. The figures attached show that the maximum value of the average monthly price for positive imbalances was at the highest level in September, amounting to 98.94 €/MWh, whereas the maximum amount of the average monthly price for negative imbalances was 19.49 €/MWh, which was in November.

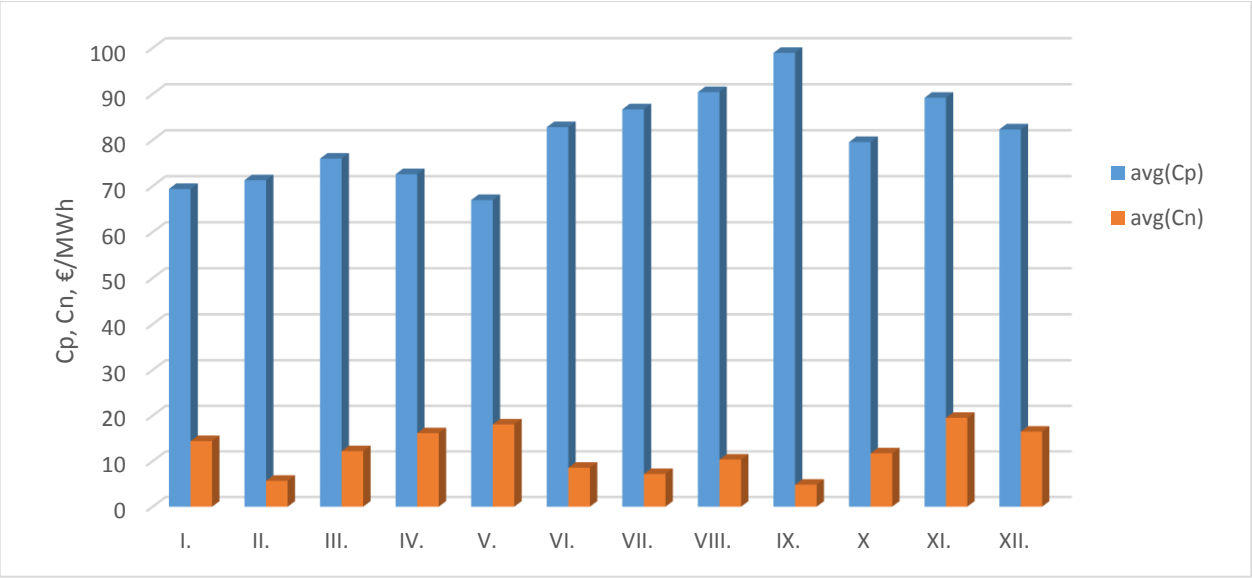


Figure 4.3.13 Average monthly prices of positive and negative imbalances of BRPs in 2013 (without HEP-ODS)

Pursuant to Directive 2009/72/EC, a balancing energy market must also be established as part of a sufficiently liquid electricity market. However, until the market becomes sufficiently liquid, the regulator must have an active role in determining fair prices for balancing energy which reflect actual costs. Thus, the prices of balancing energy should stimulate market participants to report agreed schedules as realistically as possible.

After all the necessary preconditions have been met, HERA will determine the reference price of balancing energy from all the costs and income from electricity system balancing, including the energy for secondary and tertiary regulation and balancing energy, as well as other possible costs and income arising from electricity system balancing.

In October 2013, the Government of the Republic of Croatia adopted the Regulation on the incentive for generation of electricity from renewable sources and cogeneration (Official Gazette, No. 128/13; hereinafter: Regulation on the incentive for generation of electricity from RES and cogeneration) replacing the Regulation on incentives for generation of electricity from renewable sources and cogeneration (Official Gazette, Nos. 33/07, 133/07, 155/08, 155/09, 8/11 and 144/11). The Regulation on incentives for generation of electricity from RES and cogeneration stipulates that resources for the incentive may not be used for paying balancing costs resulting from imbalances in the values of planned and generated electric energy in the production facilities of producers who are in the electricity generation incentive system, except in the case of production facilities whose generation is used for the general consumption of a facility in which a production facility has been integrated. In addition, the Regulation on the incentive for generation of electricity from RES and cogeneration stipulates that the said calculation and the collection of balancing costs shall be performed by the market operator according to the provisions of the rules for the organisation of the electricity market. However, the provisions of the Regulation on the incentive for generation of electricity from RES and cogeneration do not clearly establish the manner in which the costs of the balancing incurred by producers in the incentives system are to be borne.

Below is an explanation of the former manner of payment of balancing costs incurred by producers in the incentives system.

According to the contractual relations between HOPS and HEP-Proizvodnja d.o.o., the costs of auxiliary services collected through the network fee amount to approximately 1.5 lp/kWh of

supplied electricity, which amounted to approximately HRK 230 million (for 15.1 TWh) in 2013. The costs of auxiliary services include the costs of secondary and tertiary regulation.

In addition, the total amount HOPS collects by calculating balancing energy is forwarded to HEP-Proizvodnja d.o.o. According to the data of HROTE, the calculated amounts which were charged to BRPs for balancing energy in 2013 amounted to approximately HRK 27 million.

Besides the above, for each generated kWh from eligible producers, before the Regulation on the incentive for generation of electricity from RES and cogeneration came into force, HROTE paid balancing energy costs to HOPS. The total costs of balancing energy were calculated as a product of 10% of the component of the reference price for balancing C_{r2} (0.053 HRK/kWh) and the amount of generated electricity from the plants which used renewable energy sources and cogeneration plants which were in the incentive system. The total amount for RES balancing amounted to approximately HRK 24 million in 2013. For RES and cogeneration balancing, HROTE paid an amount which was not determined based on the difference between the agreed schedules and the realised generation of renewable sources and cogeneration, but a flat amount based on the total generation of renewable energy sources and cogeneration in the incentive system. Due to a growing share of renewable energy sources, especially wind power plants, in the generation of electricity, the manner of hourly planning of the generation of plants in the incentive system and the calculation of the balancing energy of the concerned plants, separately or as part of the balance sheet group, should be determined bearing in mind that the expected average value of all absolute mistakes in the day-before wind forecast is 20%.

The balancing energy calculation system should include the guaranteed supplier and the supplier supplying electricity as part of the universal service. Formerly, the balancing energy calculation was carried out in HEP-ODS, but the balancing energy was not charged to HEP-ODS.

In addition, all electricity producers must be consistently included in the balancing energy calculation system in accordance with legal and subordinate acts regulating the electricity market.

During 2013, certain suppliers complained of HEP-ODS's activities regarding metering point reading procedures. The period between two readings for a part of the reading did not correspond with the calculation period as prescribed by the General terms and conditions for electricity supply (Official Gazette, No. 14/06; hereinafter: General Terms and Conditions). If the owner of a metering point does not allow HEP-ODS access to the billing metering point, HEP-ODS cannot read the billing metering point according to the time frame from the General Terms and Conditions. Therefore, it can be said that electricity customers are largely responsible for the failure to read the billing metering points. This affects the calculation of the suppliers' realisation which might cause the supplier additional costs in the calculation of balancing energy.

During 2013, at the request of certain suppliers, HERA conducted an inspection of the following energy operators: HROTE, HOPS and HEP-ODS. One of the reasons behind the inspection request was the issue of reading billing metering points. HERA established that energy operators need to start drafting subordinate acts defined by the new Electricity Market Act as soon as possible. Moreover, HERA instructed HEP-ODS to provide HERA, at a monthly level, with reports on the successfulness of meter reading as laid down in the General Terms and Conditions. Based on the data obtained for customers outside the universal and guaranteed supply, it can be concluded that the successfulness of reading billing metering points in 2012 amounted to 71.97%, whereas it amounted to 81.23% in 2013, which clearly shows an improvement on 2012.

During 2013, certain suppliers pointed to aggravated conditions regarding planning customers' consumption in their portfolio due to the non-availability of the historical data necessary for consumption planning. HEP-ODS should, together with the meeting of the necessary preconditions,

establish an efficient mechanism for delivery of historical customer data to suppliers for the needs of consumption planning, which is important for the purpose of improving conditions and facilitating the planning of the electricity market in Croatia.

4.3.3 The basic features of electricity consumption

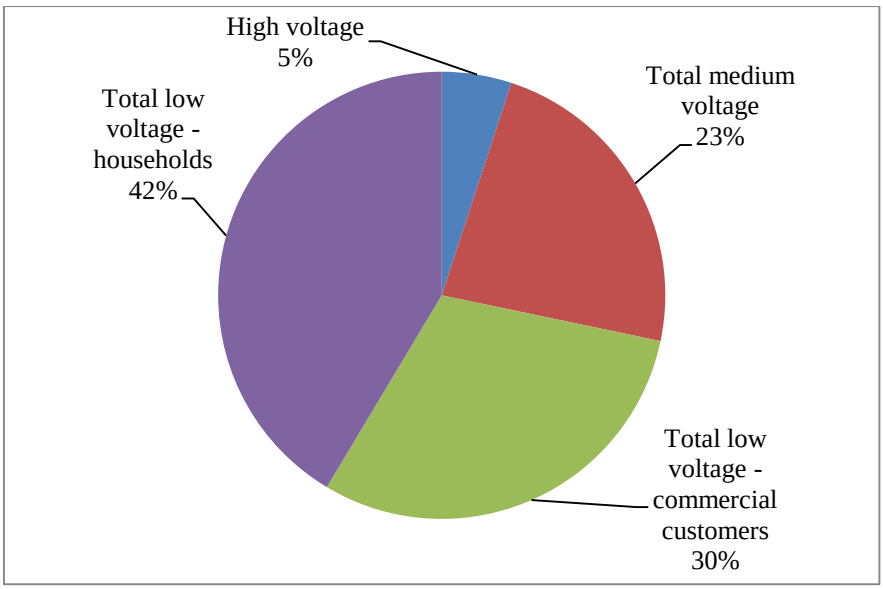
The data on the number of metering points, sale and average sale of electricity per metering point and the share of a particular consumption category in the overall sale of electricity are shown in Table 4.3.5.

Table 4.3.5 The number of metering points and the sale, average sale and share of sale of electricity by consumption category in 2013

Consumption category	Number of metering points	Sale [MWh]	Sale per metering point [kWh]	Share in total sale (%)	Sale '13/'12 [%]
High voltage - 110 kV*	59	826,764	14,112,615	5	11.3
Medium voltage	2,126	3,506,754	1,649,681	23	1.6
Total high and medium voltage	**2,184**	**4,333,518**	**1,983,939**	**28**	**3.3**
Low voltage - commercial users (blue)	46,920	248,309	5,292	2	-5.9
Low voltage - commercial users (white)	125,288	1,262,432	10,076	8	-2.9
Low voltage - commercial users (red)	17,828	2,628,836	147,456	17	-1.8
Low voltage - commercial users (orange)					
Low voltage - street lights (yellow)	21,731	432,260	19,892	3	
Total low voltage - commercial users	**211,766**	**4,571,837**	**21,589**	**31**	**-2.2**
Low voltage - households (blue)	757,757	1,560,575	2,059	10	-5.3
Low voltage - households (white)	1,376,618	4,668,038	3,391	31	-3.4
Low voltage - households (orange)		568			
Low voltage - households (black)	3,098	7,797	2,517		-8.0
Total low voltage - households	**2,137,474**	**6,236,978**	**2,918**	**41**	**-3.8**
Total low voltage	**2,349,240**	**10,808,815**	**4,601**	**72**	**-3.1**
Overall total	**2,351,425**	**15,142,333**	**6,440**	**100**	**-1.4**

** For these end customers, the metering points represent aggregate metering points, i.e. facilities for receiving electricity. Sale at high voltage includes end customers in HOPS's and HEP-ODS's network.*
Source:HEP-ODS, HOPS

The percentage structure of electricity sales is shown in Figure 4.3.14.



Source:HEP-ODS

Figure 4.3.14 The share of certain consumption categories in the total sale of electricity

The supply and sale of electricity for HEP-ODS and the pertaining losses in the distribution network for the period from 2002 until 2013 are shown in Table 4.3.6.

Table 4.3.6 Supply, sale and losses of electricity in the distribution network for the period from 2002 until 2013

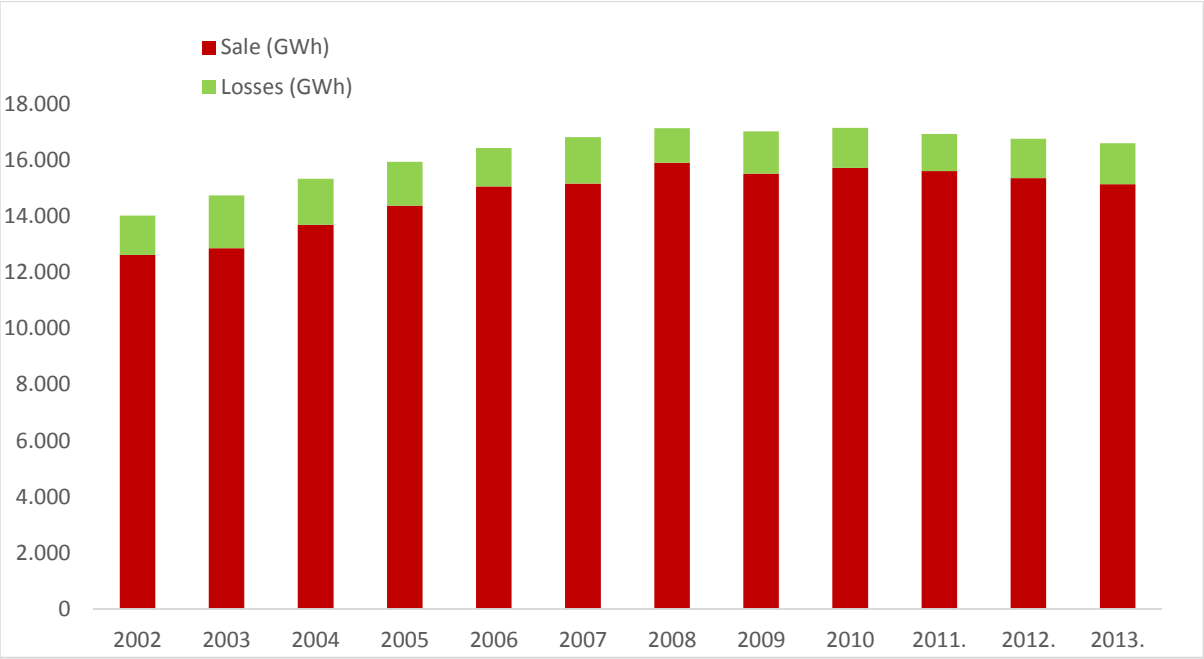
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Supply [GWh]	14,022	14,737	15,329	15,942	16,423	16,811	17,130	17,021	17,152	16,927	16,755	16,601
Sale [GWh]	12,615	12,854	13,692	14,372	15,059	15,158	15,907	15,514	15,721	15,602	15,353	15,142
Losses [GWh]	1,407	1,883	1,637	1,571	1,365	1,653	1,223	1,508	1,424	1,325	1,402	1,459
Losses [%]	10.0	12.8	10.7	9.9	8.3	9.8	7.2	9.3	8.7	8.2	8.7	9.1

Source:HEP-ODS

Note: The supply of electricity includes energy for the needs of end customers using the high voltage network.

The average annual increase in the electricity supply in the period from 2002 to 2013 amounted to 1.55%, whereas the average annual increase in the sale of electricity amounted to 1.67% in the same period.

An overview of supply, i.e. the aggregate of the sale of electricity and the pertaining losses in the distribution network for the period from 2002 to 2013, is shown in Figure 4.3.15.



Source:HEP-ODS

Figure 4.3.15 Supply, i.e. the aggregate of the sale and losses of electricity in the distribution network, for the period from 2002 until 2013

Since 2007, the European statistics organisation, Eurostat, has been using a new model for monitoring average electricity prices defined by consumption categories for household end customers and non-household end customers (hereinafter: commercial customers) in the manner shown in Tables 4.3.7 and 4.3.8.

Table 4.3.7 Electricity consumption categories for households

Consumption category	Lowest consumption [kWh/g]	Highest consumption [kWh/g]
Da – very small households		< 1,000
Db – small households	1,000	< 2,500
Dc – medium households	2,500	< 5,000
Dd – large households	5,000	< 15,000
De – very large households	≥ 15,000	

Source:Eurostat

Table 4.3.8 Electricity consumption categories for commercial customers

Consumption category	Lowest consumption [MWh/g]	Highest consumption [MWh/g]
Ia		< 20
Ib	20	< 500
Ic	500	< 2,000
Id	2,000	< 20,000
Ie	20,000	< 70,000
If	70,000	≤ 150,000

Source: Eurostat

Table 4.3.9 shows indicative peak loads for commercial customers based on HERA's estimates.

Table 4.3.9 Indicative peak loads for commercial customers

Consumption category	Lower value [kW]	Upper value [kW]
Ia	5	20
Ib	10	350
Ic	200	1,500
Id	800	10,000
Ie	5,000	25,000
If	15,000	50,000

Tables 4.3.10 and 4.3.11 show the division of end customers by number, i.e. the number of billing metering points and the electricity consumption in the Republic of Croatia, and also according to the consumption categories defined by Eurostat's methodology.

Table 4.3.10 Consumption categories for households

Consumption category	Consumption [%]	Customers [%]
Da	3.4	29.5
Db	15.1	25.1
Dc	35.3	28.2
Dd	42.4	16.7
De	3.8	0.5

Source:HEP-ODS

The largest share of electricity sold pertains to categories Dd (large households) and Dc (medium households). As regards customers (metering points), the largest share is in the Dc (medium households) and Da (very small households) categories.

Table 4.3.11 Consumption categories for commercial customers on low, medium and high voltage

Consumption category	Commercial customers on low voltage		Commercial customers on medium voltage		Commercial customers on high voltage		Total commercial customers	
	Consumption [%]	Customers [%]	Consumption [%]	Customers [%]	Consumption [%]	Customers [%]	Consumption [%]	Customers [%]
Ia	9.8	79.3	0.0	0.1	0.0	0.0	9.9	79.4
Ib	29.0	19.2	0.2	0.2	0.0	0.0	29.2	19.4
Ic	9.9	0.4	1.8	0.3	0.0	0.0	11.6	0.7
Id	2.7	0.0	18.7	0.4	0.2	0.0	21.6	0.5
Ie	0.0	0.0	16.7	0.1	3.9	0.0	20.0	0.1
If	0.0	0.0	2.5	0.0	5.2	0.0	7.7	0.0
> 150,000 MWh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All categories	51.3	99.0	39.4	1.0	9.3	0.0	100.0	100.0

Source:HEP-ODS, HOPS

In the category of commercial users using low voltage, the largest share of electricity sold is in the Ib consumption category, whereas the share of end customers in the exceptionally small commercial customers category (Ia) is by far the highest.

In the category of end customers using medium voltage, most electricity was sold in the Id consumption category, which also includes the largest number of end customers (metering points). In the category of end customers using high voltage, the most electricity was sold in the If category.

4.3.4 Electricity prices for end customers

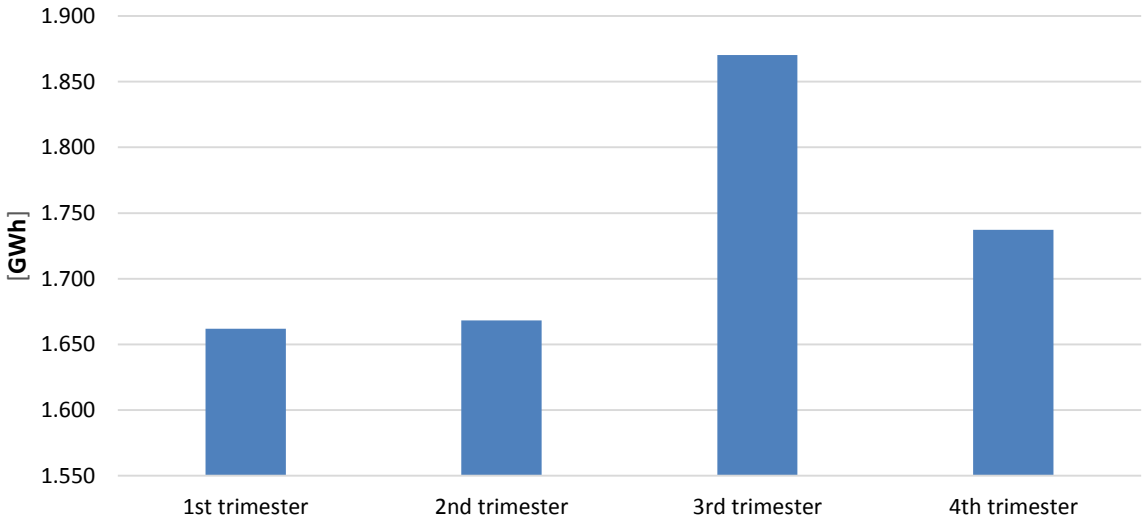
The prices of electricity in the Republic of Croatia

After 1 July 2008, all end customers in the Republic of Croatia have been able to select their supplier on the market. However, those customers from the household category who do not want to select their supplier on the market can be supplied at regulated prices as part of the universal supply. Those end customers from the commercial category who do not have their market supplier can also be supplied as part of the guaranteed supply. The universal and guaranteed supplies are performed as public services provided by HEP-ODS.

During 2013, all end customers on high voltage and the largest part of those on medium voltage and low voltage had concluded electricity supply contracts. The figures below are an overview of the sale of electricity to end customers by trimester in 2013, and the share of certain categories of end customers (in relation to their overall consumption) who in 2013 procured electricity from suppliers on the electricity market (suppliers not under the public service obligation).

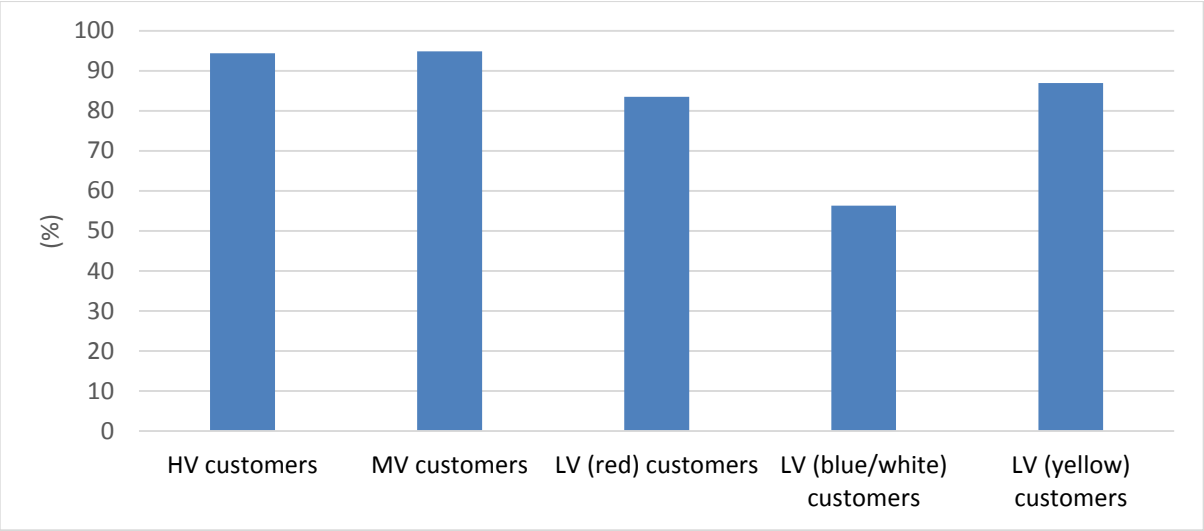
Figure 4.3.16 shows the electricity sold to end customers who selected their supplier on the electricity market by trimester in 2013, whereas Figure 4.3.17 shows the percentage share of certain categories of end customer on the electricity market in terms of electricity consumption during 2013.

It must be highlighted that there were situations when end customers did not have electricity supply contracts for a short period of time (usually one month) due to procedural problems related to the implementation of public procurement for the purpose of selecting the supplier. In that period, they were supplied with electricity by HEP-ODS under regulated conditions.



Source:HEP-ODS

Figure 4.3.16 Electricity sold to end customers who selected a supplier on the market by trimester in 2013 [GWh]



Source:HEP-ODS

Figure 4.3.17 The share of certain categories of end customer on the electricity market during 2013 in relation to the total consumption of electricity and categories of end customers

The average total selling prices for end customers by tariff category and voltage level in the period 2008 -2013 are shown in Table 4.3.12. The prices are determined based on tariff item amounts from the tariff systems for regulated energy activities in the period from 2008 - 2013 and customer data. Table 4.3.13 shows the average prices of electricity (without the fee for network usage) for end customers by semester for the period from 2011 to 2013.

Table 4.3.12 Average total selling prices of electricity for end customers in the period 2008 - 2013 [HRK/kWh]

End customer category	2008	2009	2010	2011	2012	2013
Customers on medium voltage	0.49	0.58	0.58	0.58	0.61	0.60
Customers on low voltage - commercial customers	0.64	0.72	0.74	0.73	0.79	0.78
Customers on low voltage - households	0.64	0.70	0.70	0.70	0.78	0.82
Total customers on low voltage	0.64	0.71	0.72	0.72	0.79	0.80

Source:HEP-ODS, HEP-Opskrba d.o.o.

Table 4.3.13 Average prices of electricity for end customers on the market in the second semester of 2013 [HRK/kWh]

Semester	Price		
	2011	2012	2013
II	0.380	0.397	0.389

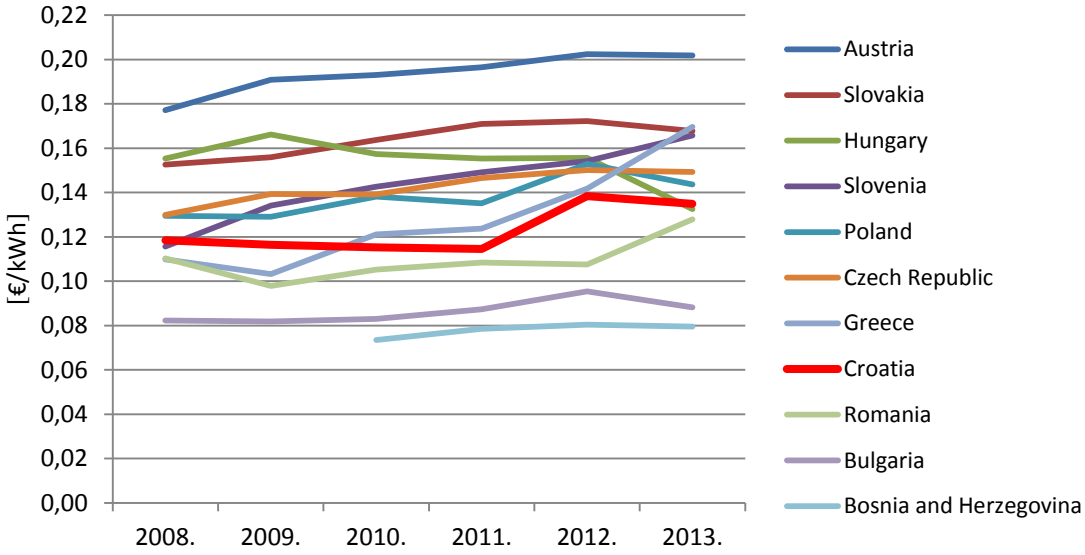
Source: Suppliers on the market (suppliers who are not under the public service obligation)

Table 4.3.14 Average electricity prices for end customers in the public service system (households) [HRK/kWh]

2010	2011	2012	2013
0.385	0.387	0.440	0.472

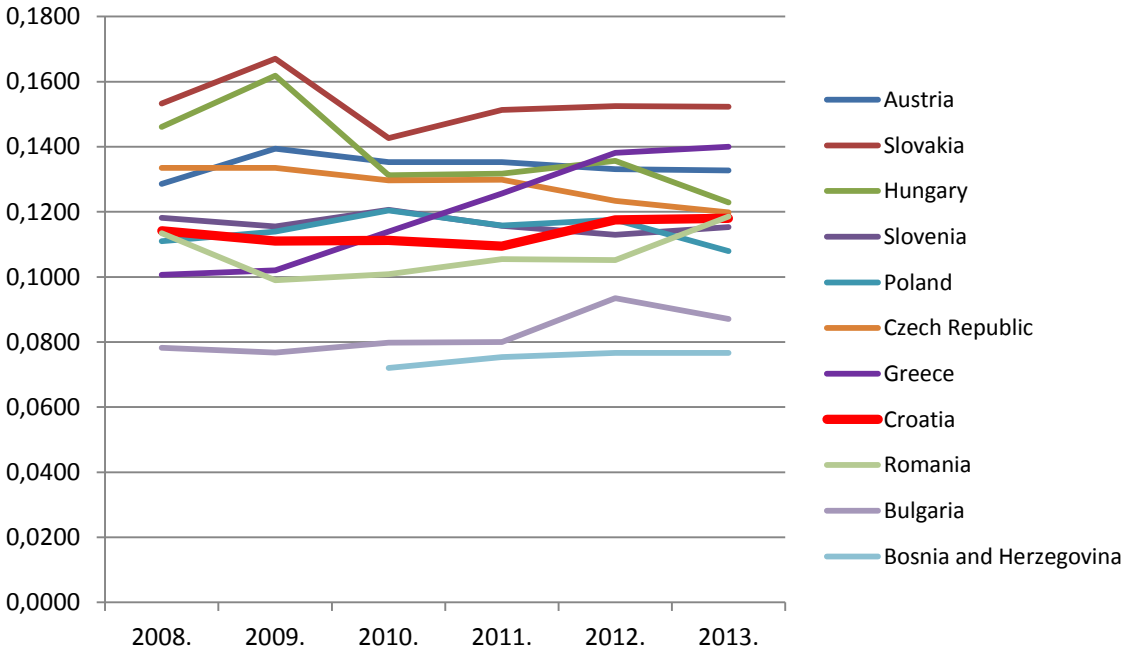
The prices of electricity in European countries

Figures 4.3.18 and 4.3.19 show the increasing trend in the total prices of electricity (including fees for network usage) in the EU states for typical end customers in the household and commercial categories.



Source:Eurostat

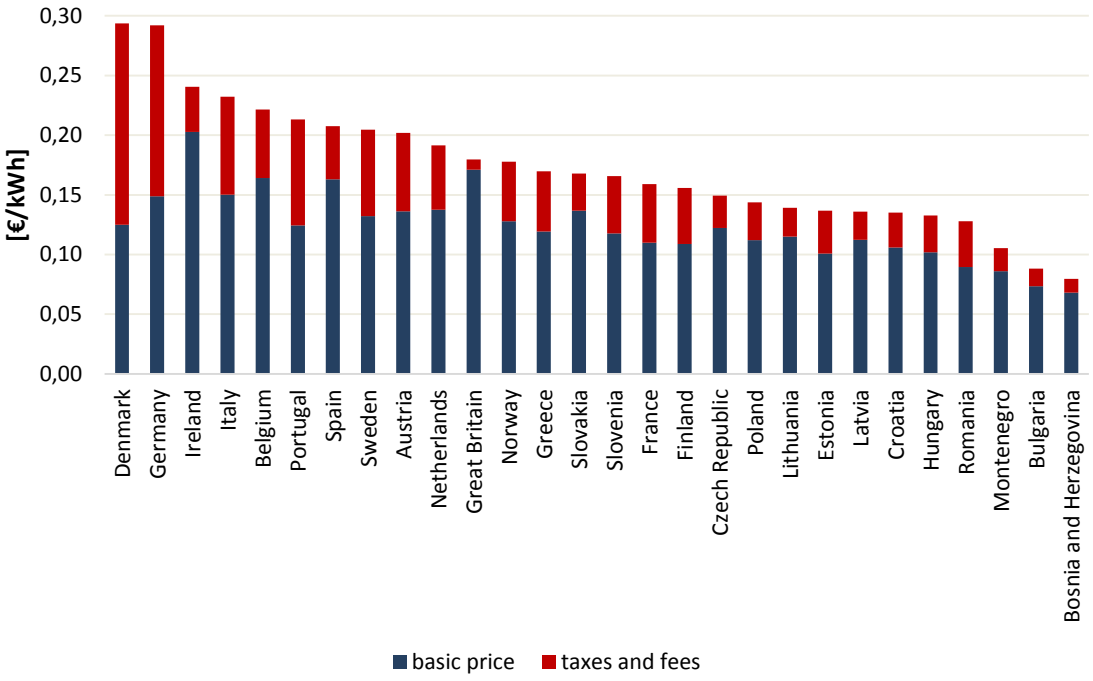
Figure 4.3.18 An overview of the changes in the total prices of electricity in the EU states for end customers in the Dc household category from 2008 to 2013 with taxes and fees (2nd semester)



Source:Eurostat

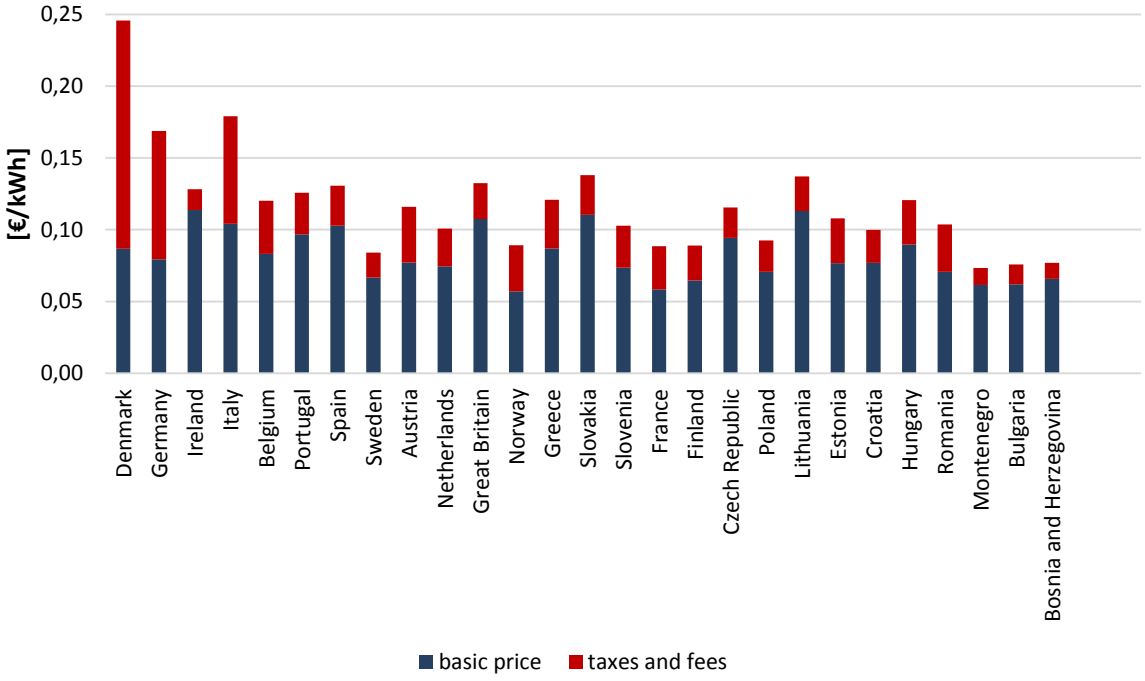
Figure 4.3.19 Overview of the change in the total prices of electricity in EU states for end customers in the Ic commercial category from 2008 to 2013 with taxes and fees (2nd semester)

The average overall prices of electricity for the Dc household category and Id commercial category in the second semester of 2013 in the EU states, Montenegro, and Bosnia and Herzegovina are shown in Figures 4.3.20 and 4.3.21. The prices are shown with taxes and other fees.



Source:Eurostat

Figure 4.3.20 The total price of electricity for the Dc household category with taxes and fees for the second semester of 2013



Source:Eurostat

Figure 4.3.21 The total price of electricity for the Id commercial category with taxes and fees for the second semester of 2013

Electricity prices for typical customers in the Republic of Croatia

Table 4.3.15 shows the features of typical electricity end customers in the Republic of Croatia by consumption category in 2013. Figures 4.3.22 to 4.3.26 show the structure of total electricity prices for these end customers. The share of VAT is presented in percentages of the total electricity prices.

Table 4.3.15 The features of typical electricity end customers in the Republic of Croatia

Type of end customer	Designation	Consumption [MWh/g]	Peak load [MW]	Day/night	Category by tariff system
Very large industry	If	100,000	15	60/40	Commercial customers - high voltage
Large industry	Ie	24,000	4	60/40	Commercial customers - medium voltage (35 kV)
Medium industry	Id	2,000	0.5	65/35	Commercial customers - medium voltage (10 kV)
Medium commercial customers	Ib	150	0.05	70/30	Commercial customers - low voltage (red)
Medium households	Dc	3.5		70/30	Households (white)

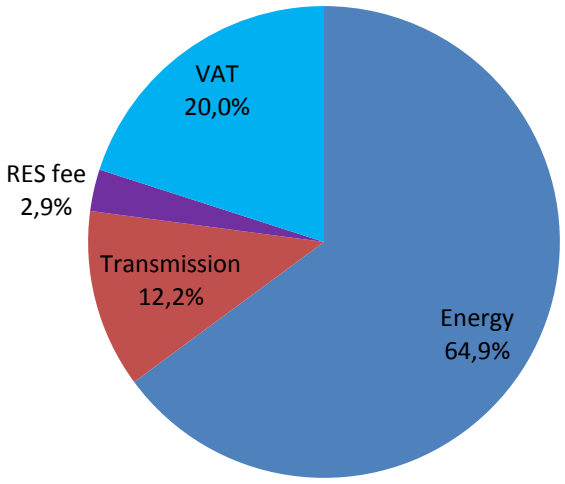


Figure 4.3.22 The structure of electricity prices for end customers of the If category in the second semester of 2013

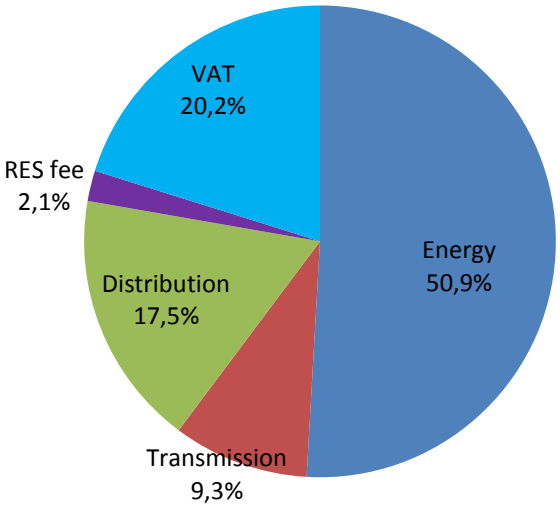


Figure 4.3.23 The structure of electricity prices for end customers of the Ie category in the second semester of 2013

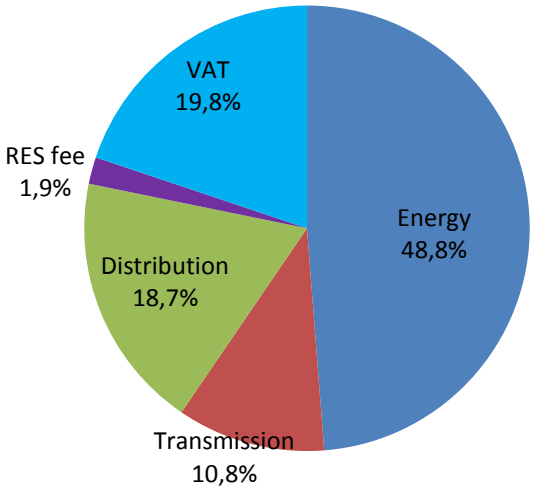


Figure 4.3.24 The structure of electricity prices for end customers of the Id category in the second semester of 2013

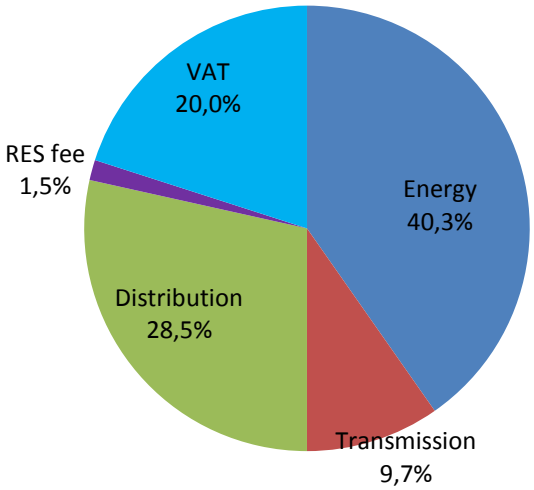


Figure 4.3.25 The structure of electricity prices for end customers of the Ib category in the second semester of 2013

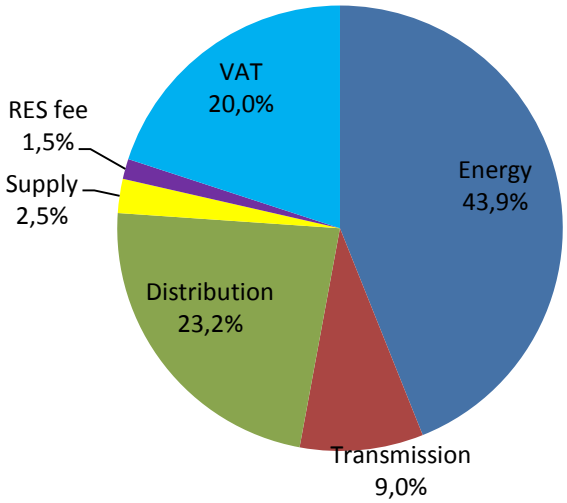


Figure 4.3.26 The structure of electricity prices for end customers of the Dc (household) category in the second semester of 2013

4.3.5 Customer protection

During 2013 in the electricity sector, HERA received a total of 495 submissions and in the same year resolved 477, including submissions received in 2012. Of the 495 submissions, HERA received a total of 161 complaints and objections. Statistics concerning the complaints and objections are shown in Table 4.3.16. The other submissions represent the various requests of customers and other persons for opinions, interpretations, reports, delivery of data, etc.

Table 4.3.16 The statistics of complaints and objections in the field of electricity in 2013

No.	Description	Number	Share [%]
1	**Objections related to the calculation and use of electricity**		**26**
1.1	Objections regarding unauthorised use of electricity - exceeded load	0	
1.2	Objections regarding unauthorised use of electricity - energy	6	
1.3	Objections regarding electricity consumption calculation	34	
1.4	Objections regarding balancing energy	2	
2	**Objections regarding the quality of the electricity supply**		**6**
2.1	Objections regarding the continuity supply	4	
2.2	Objections regarding voltage quality	5	
2.3	Objections regarding service quality	1	
3.	**Complaints regarding the connection**		**43**
3.1	Complaints regarding rejected requests for issuing preliminary electric power approval in the process for issuing a location permit	1	
3.2	Complaints regarding conditions in the issued PEPA	18	
3.3	Complaints regarding rejected requests for issuing PEPA	8	
3.4	Complaints regarding the failure to fulfil the provisions of the contract on network connection	3	
3.5	Complaints regarding the fee for the connection contract	6	
3.6	Complaints regarding conditions in the issued EPA	4	
3.7	Complaints regarding rejected requests for issuing EPA	3	
3.8	Complaints regarding network access - other reasons	25	
4	**Objections and complaints related to disconnection**		**8**
4.1	Complaints regarding disconnection from the electric power network	12	
4.2	Objections regarding suspension of electricity supply	1	
5	**Other**	**28**	**17**
	TOTAL	**161**	**100**

Figure 4.3.27 shows the shares of complaints and objections by type of objection in the total received objections in the field of electricity in 2013. Most complaints and objections related to connection to the electric power network and the calculation and use of electricity.

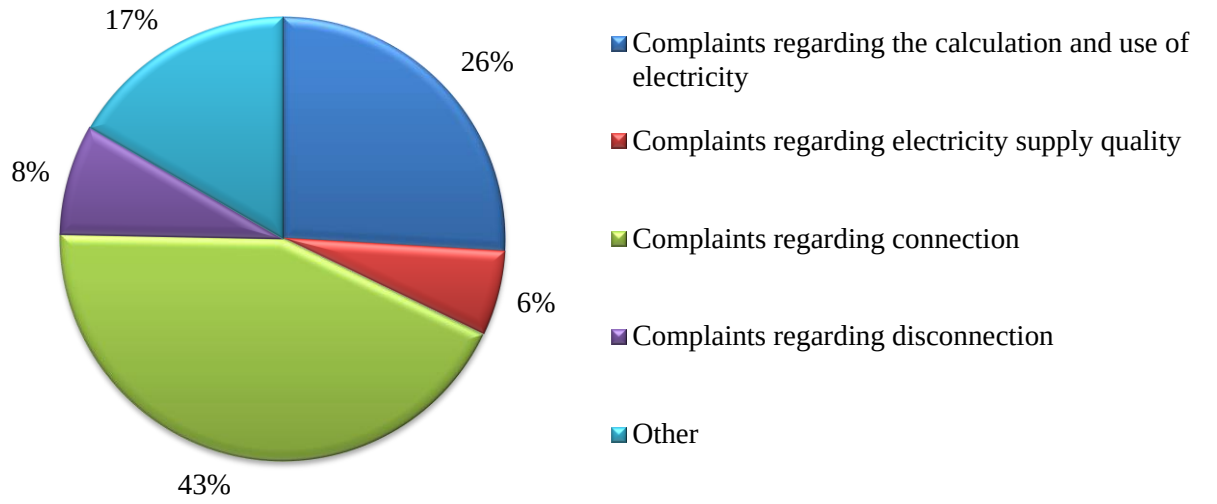


Figure 4.3.27 The share of complaints and objections by type in the field of electricity in 2013

Since most complaints received by HERA were related to HEP-ODS operations, Table 4.3.17 shows an overview of the complaints received by the Complaints Committee of HEP-ODS. Most of the complaints relate to non-acceptance of the conditions in the issued PEPA, but most of them were found to be unjustified.

Table 4.3.17 An overview of customer complaints received by the Complaints Committee of HEP-ODS

Type of complaint	Total	Upheld	Rejected	Unjustified request	Applicant withdrew
Rejection of a request to issue PEPA (limited technical conditions)	**4**	0	1	3	0
Non-acceptance of conditions in PEPA and/or the connection fee	**28**	12	0	14	2
Non-acceptance of conditions in the issued PEPA (resolution of property rights issues, separation of metering, legalisation of connections, etc.)	**0**	0	0	0	0
Other (objection regarding the fee for unauthorised consumption, calculation of consumption, etc.)	**21**	3	0	12	6

4.4 Security of the electricity supply

Pursuant to Article 27, Paragraph 3 of the Energy Act (Official Gazette, No. 120/12), the Government of the Republic of Croatia, at the proposal of the Ministry, which has obtained HERA's opinion, issues a report once a year on the state of the security of the electricity supply and expected energy needs. In 2013, HERA did not receive the Ministry of the Economy's request for an opinion regarding the mentioned report.

The security of the electricity supply can be observed in the short-, mid- and long-term.

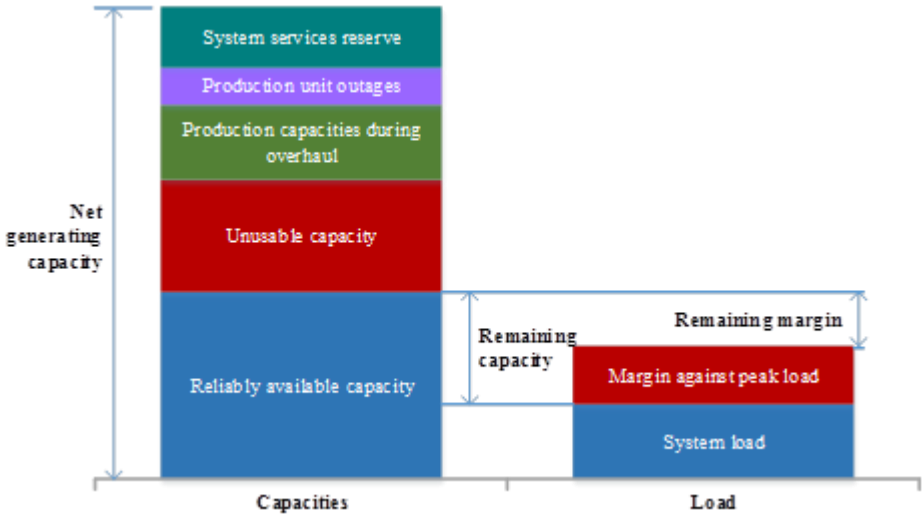
Short-term level of supply security refers to the reliability of the distribution system and the operative security of the transmission system and is observed in a time period of between a few minutes and not more than several days.

The operative security of the transmission system refers to the ability of the electric power system to respond to dynamic transitional events it is exposed to, such as unexpected failures of its elements. Since occasional planned or unplanned stoppages of production units and transmission network elements are inevitable in the operation of the transmission network, certain reserves must be ensured in the production units on the territory of the Republic of Croatia or abroad. Therefore, the transmission network must be constructed in line with criteria guaranteeing its operation even in the case of failure in the operation of certain elements. The criterion known as "n - 1" is used for ensuring the operation of the transmission network in the case of failure in the operation of any (individual) element of the network: transmission lines or power transformers. This criterion is also used in the planning of distribution networks, where economically justified. The short-term level of security of the electricity supply in terms of continuity of supply was analysed in the 5th Benchmarking Report on the Quality of Electricity Supply, which is carried out every three years by the Council of European Energy Regulators (CEER). The operative security of the transmission system was analysed in ENTSO-E-'s Operation Handbook, which describes the necessary tertiary reserves to be ensured by each transmission system operator.

Mid-term level of supply security is related to the adequacy of the electric power system in a typical investment cycle of three to five years. The adequacy of the electric power system is related to static conditions and means that, within the framework of the nominal values of the load elements of the system and voltage limits, it is sufficiently developed to meet electricity consumption, taking into consideration planned and unplanned stoppages; it is observed separately through generation adequacy and transmission network adequacy. Generation adequacy is observed as the ability of the generation to meet the needs of the consumption of the electric power system. Transmission network adequacy is observed as the ability to transfer the power flow through the transmission network.

The indicators of the mid-term level of supply security are defined in the ENTSO-E's System Adequacy Forecast 2009-2020, which also lays down the methodology for analysing the adequacy of the electric power system.

Figure 4.4.1 shows the principles for determining the remaining capacity and remaining margin.



Source: UCTE, System Adequacy Methodology, January 2009

Figure 4.4.1 Production adequacy analysis principle

Besides the stated values, each particular country also defines the Adequacy Reference Margin (ARM), which is equal to the system reserve capacity increased by the Margin against peak load. The

system reserve capacity is part of the net production capacity which should be available to ensure supply security in most cases.

If the remaining capacity is positive, the production capacity will probably be available to the electric power system in regular operative conditions. If the remaining capacity is negative, there is a risk that there will be a deficiency of production capacities in regular operative conditions.

If the remaining capacity is higher than or equal to the ARM, the electric power system will have a certain amount of capacity available for export. If the remaining capacity is lower than the ARM, the electric power system will depend on the import of electric power in crisis situations.

Long-term supply security refers to a longer period of time in which market and investment risks caused by the regulatory framework and market model are observed, and the diversity of electricity generation is considered.

Table 4.4.1 shows the maximum and minimum loads (P_{max} and P_{min}) of the Croatian electric power system, the times of their occurrence and the corresponding import and export of electricity. The maximum load of the electric power system in 2013 was recorded on 11 February at 20:00 and amounted to 2,813 MW.

Table 4.4.1 Maximum and minimum loads of the Croatian power system

Year	Maximum load				Minimum load			
	P_{max} [MW]	Time	Import with P_{max} [MW]	Export with P_{max} [MW]	P_{min} [MW]	Time	Import with P_{min} [MW]	Export with P_{min} [MW]
2006	3,036	25.01. 20:00	1,960	1,178	1,046	11.06. 03:00	1,454	673
2007	3,098	17.12. 18:00	1,538	734	1,143	02.05. 04:00	975	288
2008	3,009	31.12. 18:00	1,903	892	1,182	25.05. 06:00	1,207	672
2009	3,120	21.12. 18:00	1,448	548	1,151	13.04. 05.00	687	440
2010	3,121	16.12. 18:00	1,589	955	1,113	23.05. 06:00	1,253	1,060
2011	2,970	25.01. 19:00	1,493	721	1,185	25.04. 04:00	1,368	687
2012	3,193	06.02. 19:00	2,340	881	1,132	27.05. 06:00	1,314	609
2013	2,813	11.02. 20:00	1,626	878	1,105	31. 03. 04:00	661	1,347

The installed power at the threshold of the power plants on the territory of the Republic of Croatia amounted to 4,252 MW. The Republic of Croatia is also a co-owner of the Krško nuclear power plant in the Republic of Slovenia and holds 50%, i.e. 348 MW of the plant.

The production capacities necessary to meet the maximum load of the Croatian electric power system can be analysed through the ratio of the installed power of the power plants on the territory of the Republic of Croatia and the maximum load of the Croatian electric power system.

Figure 4.4.2 shows the installed power of the power plants on the territory of the Republic of Croatia in the period from 2006 to 2013 and the maximum system loads. The ratio between the installed power of the power plants on the territory of the Republic of Croatia and the maximum load of the Croatian electric power system in 2013 amounted to 1.56, which is an increase on the 1.36 in 2012 caused primarily by a decrease in the maximum load. The increase in installed capacities in wind power plants of 113 MW in relation to 2012 should be highlighted. In addition, excluding wind power plants, the share of eligible producers in the distribution network, with 56.1 MW of installed power, is no longer insignificant.

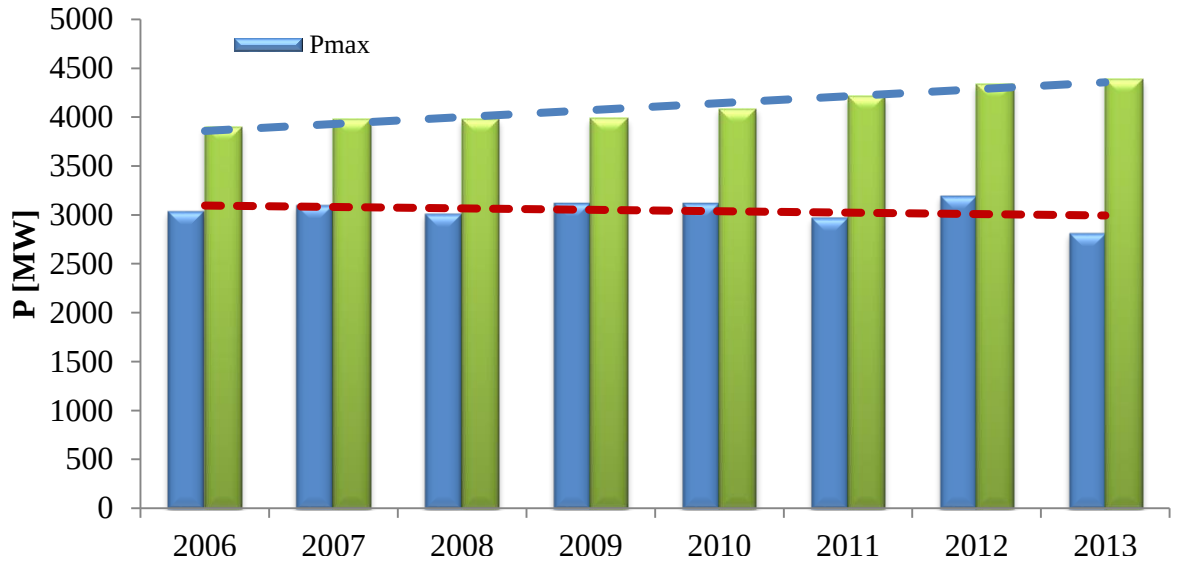
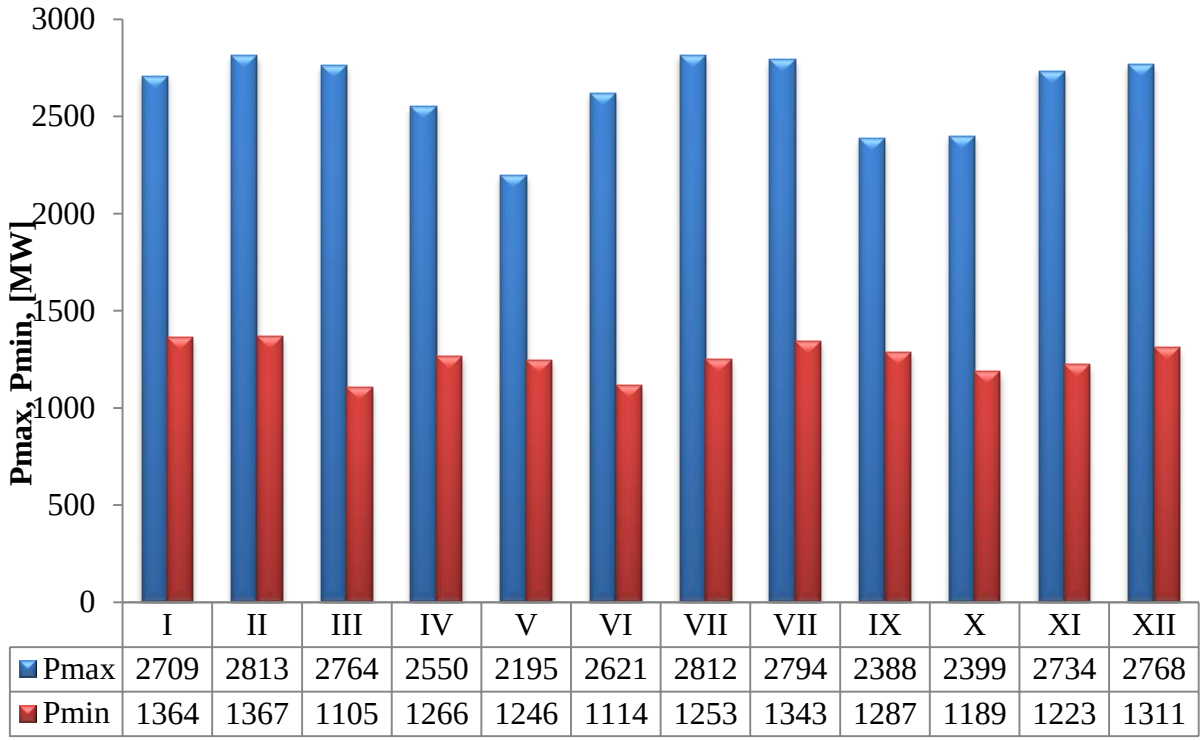


Figure 4.4.2 Overview of the maximum load of the Croatian electric power system (P_{max}) and the installed power of power plants on the territory of the Republic of Croatia (P_{inst}) from 2006 to 2013

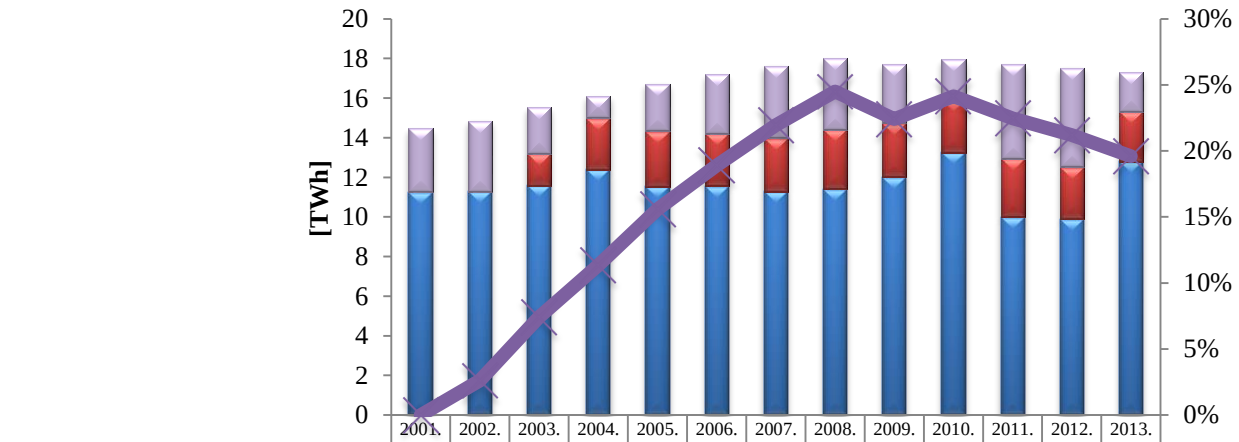
Figure 4.4.3 shows the maximum and minimum loads of the Croatian electric power system during 2013. Besides the maximum load in February, a more significant loading of the system is also visible in July, which was a consequence of the intense installation and use of air-conditioning.



	I	II	III	IV	V	VI	VII	VII	IX	X	XI	XII
Pmax	2709	2813	2764	2550	2195	2621	2812	2794	2388	2399	2734	2768
Pmin	1364	1367	1105	1266	1246	1114	1253	1343	1287	1189	1223	1311

Figure 4.4.3 Maximum and minimum loads of the Croatian electric power system during 2013

The structure of electricity procurement for the needs of the Croatian electric power system is shown in Figure 4.4.4. The figure also shows an increase in the total consumption of the Croatian electric power system from 2001 to 2013. With an average annual growth rate of 1.5%, the total consumption of the Croatian electric power system increased by 20% from 2001 to 2013. However, a certain decrease in consumption during 2009, 2011, 2012 and 2013 is evident, and is a consequence of negative trends in the economy.



	2001.	2002.	2003.	2004.	2005.	2006.	2007.	2008.	2009.	2010.	2011.	2012.	2013.
Net exchange (GWh)	3.192	3.561	2.304	1.100	2.362	2.978	3.647	3.591	2.952	1.986	4.752	5.002	1.973
Production of Krško NPP for HEP (GWh)	0	0	1.623	2.606	2.807	2.645	2.714	2.986	2.730	2.690	2.953	2.622	2.518
Total production (GWh)	11.263	11.271	11.599	12.389	11.538	11.566	11.269	11.419	12.015	13.268	9.999	9.897	12.799
Increase in total consumption as %	0%	3%	7%	11%	16%	19%	22%	24%	22%	24%	22%	21%	20%

Figure 4.4.4 The structure of electricity procurement for the needs of the Croatian electric power system from 2001 until 2012

The net exchange data in Figure 4.4.4 actually relate to imports for the needs of domestic consumption, whereas total generation refers to power plants on the territory of the Republic of Croatia.

In the period from 2001 to 2013, the electric power system of the Republic of Croatia was an importer of electricity. Figure 4.4.5 shows the import of electricity into the Republic of Croatia for the needs of domestic consumption. It consists of the net exchange (the difference between imports and exports in the Republic of Croatia, including transit for the needs of other countries) and the generation of the Krško NPP, amounting to between 3.2 TWh and 7.7 TWh. The import of electricity in 2013 reached 25% of the total consumption of the Croatian electric power system.

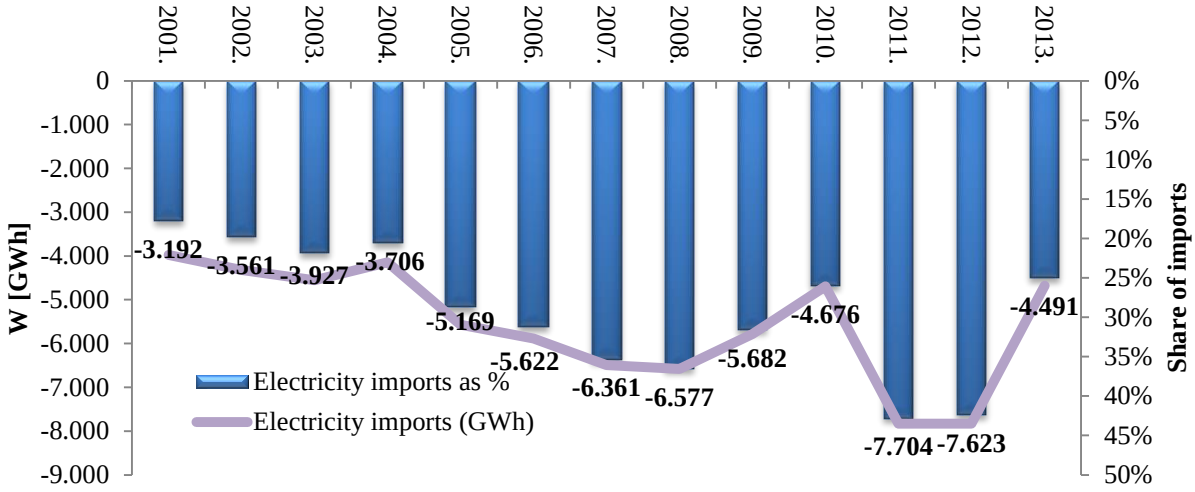
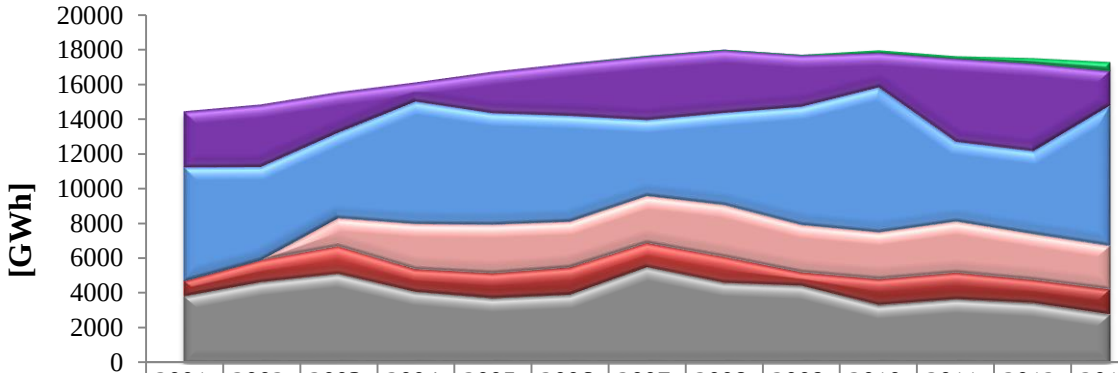


Figure 4.4.5 The import of electricity and the share of necessary imports in the Republic of Croatia

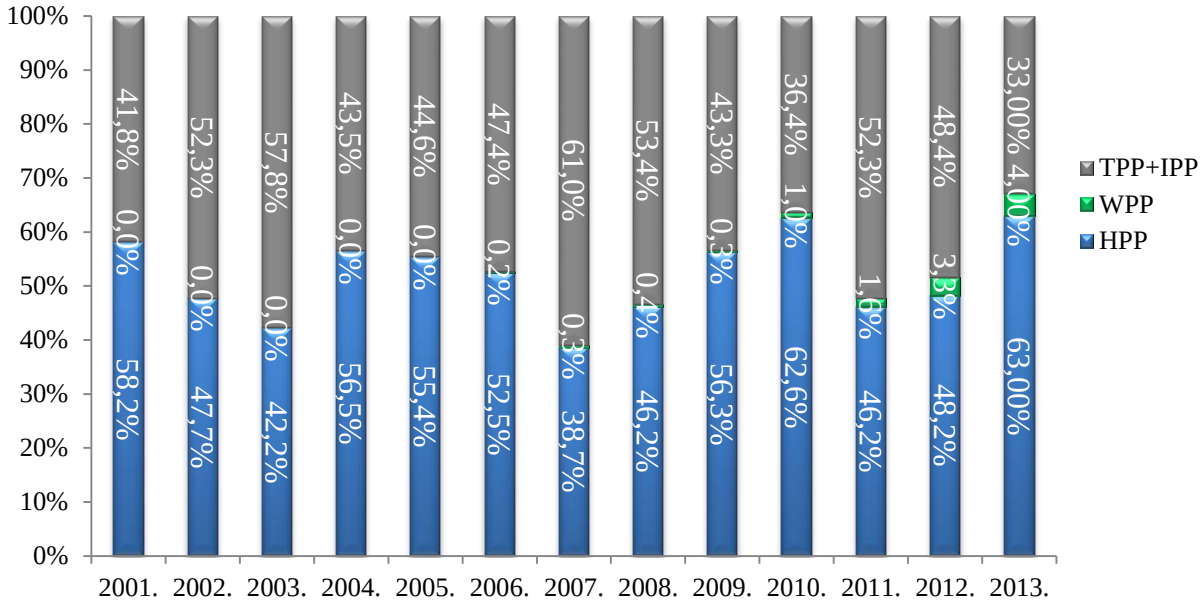
Figure 4.4.6 shows the structure of electricity procurement for the needs of the Croatian electric power system from 2001 to 2013. Due to favourable hydrological conditions in 2013, the generation of hydroelectric power plants was very high in the observed period, which resulted in a decreased need for generation of electricity from thermal power plants.



	2001.	2002.	2003.	2004.	2005.	2006.	2007.	2008.	2009.	2010.	2011.	2012.	2013.
WPP	0	0	0	0	0	19	35	40	41	138	157	329	517
Net exchange	3192	3561	2304	1100	2362	2978	3647	3591	2952	1986	4752	5002	1973
HPP	6550	5372	4896	7001	6388	6070	4357	5277	6765	8305	4578	4772	8054
Krško NPP	0	0	1623	2606	2807	2645	2714	2986	2730	2690	2953	2622	2518
Plomin 2 TPP	899	1284	1616	1320	1458	1576	1401	1514	797	1511	1546	1372	1448
TPP+IPP	3814	4615	5087	4069	3692	3902	5475	4587	4411	3314	3637	3419	2780

Figure 4.4.6 The structure of electricity procurement for the needs of the Croatian electric power system from 2001 until 2013

The structure of electricity generation from the power plants on the territory of the Republic of Croatia is shown in Figure 4.4.7.



Source:HEP-ODS

Figure 4.4.7 Electricity generation from power plants on the territory of the Republic of Croatia in the period from 2001 to 2013

Several factors need to be considered in assessing the security of the electricity supply, especially the expected increase in the consumption of electricity, construction plans for new production facilities, as well as the decommissioning of outdated and economically non-profitable production units. The specificities of the Croatian electric power system should also be considered, as it largely consists of hydroelectric power plants whose generation depends on current hydrology and plans for the construction of wind power plants which, due to the lack of wind constancy, condition the need to construct additional conventional sources (in the case that the share of wind power plants becomes significant, which is usually above 10% of the peak system load, which was roughly achieved in 2013). The basic guidelines on the further development of the electric power system in the Republic of Croatia are laid down in the Energy Development Strategy of the Republic of Croatia (Official Gazette, No. 130/09) which provides for the development of the Croatian energy sector for the period until 2020. Based on the Energy Development Strategy of the Republic of Croatia, the Programme for the Implementation of the Energy Development Strategy is to be adopted for a period of at least three years. By the end of 2013, this Programme had not been adopted.

On 17 October 2013, at the 120th session of the Government of the Republic of Croatia, the National Renewable Energy Action Plan until 2020 was adopted (hereinafter: National Action Plan). Each EU Member State is obliged to adopt one as part of the implementation of Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources.

It should also be pointed out that in the field of energy efficiency in 2013, the drafting of the 3rd National Energy Efficiency Action Plan began. In 2013, the measures of the 2nd National Energy Efficiency Action Plan for the period until the end of 2013 were implemented.

According to the Energy Development Strategy of the Republic of Croatia, it is estimated that the average annual increase in the consumption of electricity by 2020 will amount to approximately

3.5%, i.e. that the total consumption of electricity, without power plants' own consumption, will amount to approximately 28 TWh in 2020. It is estimated that the peak load in the Croatian electric power system will amount to approximately 4,600 MW in 2020. In addition, the Master Plan ("Necessary construction of new electric power facilities and plants in the Republic of Croatia in the period from 2001 until 2020", Hrvoje Požar Energy Institute, 2001) also defines the peak load scenarios until 2020.

Figure 4.4.8 shows the forecast of the increase in the peak load by 2020 according to the Master Plan and Energy Development Strategy, and its realisation by 2012. Due to the recession, there was no significant increase in the consumption of electricity. Therefore, consumption has been stagnating since 2008, and in 2011 the peak load of the system was far lower than predicted. Despite an increase in 2012, a significantly lower peak load occurred in 2013 as well as a significant deviation from the reference scenario.

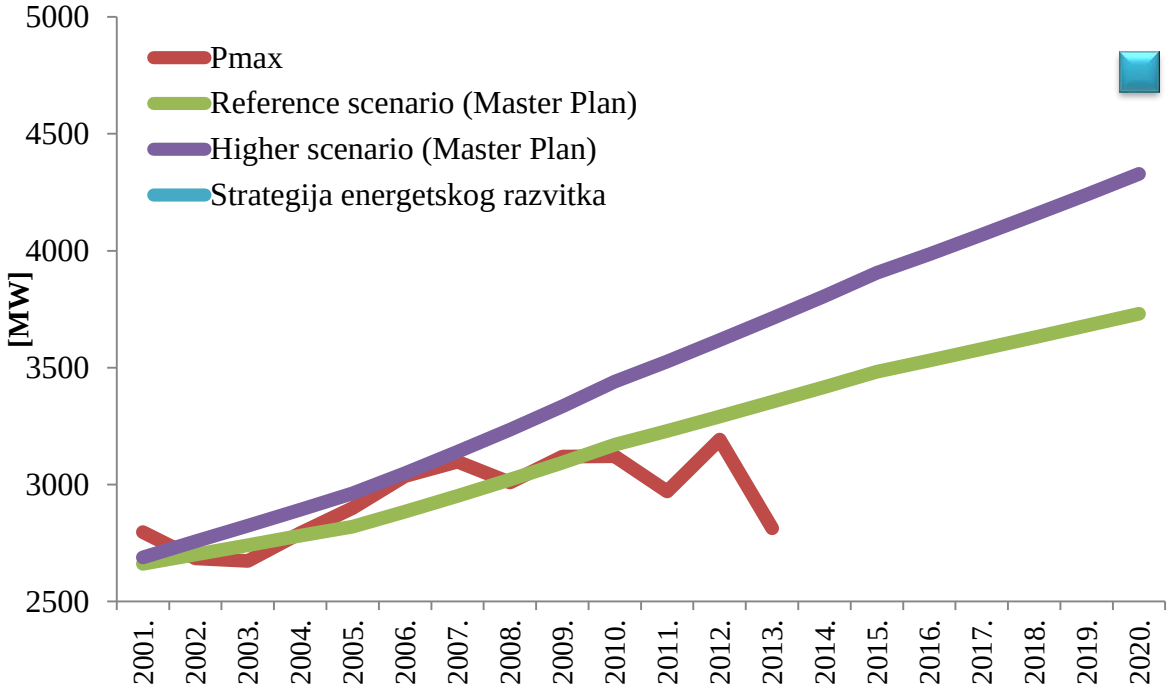


Figure 4.4.8 Forecast of the increase in the peak load by 2020 according to the Master Plan and the Energy Development Strategy, and its realisation by 2013

To meet future needs, the Energy Development Strategy of the Republic of Croatia prescribes the construction of an elastic electric power system which would be competitive in uncertain conditions, with a high level of security of electricity supply for customers, and which would be based on the diversity and heterogeneity of applied technologies and energy forms for transformation into electric power. The following objectives are significant:

- it is expected that the newly built capacities in large hydroelectric power plants (installed power over 10 MW) will amount to approximately 300 MW by 2020,
- the Republic of Croatia set an objective that, in the period until 2020, the share of electricity generated from large hydroelectric power plants and renewable energy sources in the total consumption of electricity will be maintained at the current level and amount to 35% in 2020,
- by 2020, cogeneration units will have been built with a total power of at least 300 MW in counter-pressure operations,

- by 2020, gas-fuelled thermal power plants with a total power of at least 1,200 MW need to be constructed,
- by 2020, the construction of coal-fired thermal power plants with a total power of at least 1,200 MW is expected,
- The Republic of Croatia is launching a Croatian nuclear energy programme. A decision on the construction of a nuclear power plant was expected to be adopted not later than by 2012 (in 2013, the decision had not yet been adopted),
- the installed power of wind power plants in the Republic of Croatia is expected to reach up to 1,200 MW in 2020,
- the Republic of Croatia set the objective to construct at least 100 MW of small hydroelectric power plants by 2020.

It is important to note that the stated objectives are conditioned not only by an increase in consumption but also by decommissioning outdated and economically unprofitable thermal power plants. According to the Energy Development Strategy of the Republic of Croatia, in the period from 2013 to 2020, thermal power plants with a total threshold power of 1,100 MW are expected to be decommissioned.

To realise its objectives, and in connection with the security of the electricity supply, the Energy Development Strategy of the Republic of Croatia includes a number of other mechanisms, such as the use of all forms of renewable energy sources, energy efficiency, the distributed generation of electricity, the application of other energy sources in direct consumption, etc.

According to the proposal of the Ten Year Transmission Network Development Plan (2014-2023) prepared by HOPS, the existing thermal power plants of Sisak 1, Plomin 1, EL-TO Zagreb (A block) and Rijeka TPP will be decommissioned by 2020. These power plants have an installed power at the threshold of 308.3 MW or 611.3 MW, which is related to the decommissioning of Rijeka TPP, which is conditional on the remaining operation hours and the need to provide the system with a tertiary service and thermal consumption.

It is assumed that all existing hydroelectric power plants will still be operational in 2020 if subjected to appropriate revitalisation work. By 2020, approximately 1,160 MW in thermal power plants will be decommissioned. It is presumed that only the Plomin 2 TPP and blocks K and L of the TE-TO Zagreb will be operational at the end of the period.

The regulation capacities of the Croatian electric power system are very limited because the system depends on hydrological conditions and electricity generation plants are old. As regards hydroelectric power plants, the secondary regulation participants are Senj HPP, Zakučac HPP and Vinodol HPP. As regards thermal power plants, Jertovec CPP and Osijek GPP have been capacitated for entry into full load within 20 minutes. Theoretically, the maximum power of secondary regulation in the Croatian electric power system is 361 MW if all three HPPs included in the secondary regulation system are in operation with minimum production and if they dispose of a sufficient amount of water. Therefore, the possibility of integrating wind power plants into the Croatian electric power system is limited to about four hundred MW of installed power. Thus, HEP-ODS has proposed several measures for the purpose of increased acceptance of wind power plants in the Croatian electric power system. The following measures should be highlighted: the inclusion of renewable energy sources in the balancing energy calculation system, the possibility of the cross-border supply of secondary and tertiary regulation, obligatory equipping of new generators for operations in automatic secondary P/f regulation, activation of existing HPPs which are technically capable of secondary regulation, stimulation of construction of gas-fuelled power plants intended for secondary regulation, construction of reversible HPPs as a strategic commitment.

In the case of constructing new WPPs with a total power of 1,200 MW, HEP-ODS plans to construct the 400/110 kV Lika substation which will serve both as a reception point for all WPPs in the vicinity and as a connection point for the future 400 kV interconnection with Bosnia and Herzegovina towards Banja Luka. Revitalisation of the existing 220 kV Melina-Konjsko transmission line and its increase to 400 kV is expected, whereby the existing 220 kV Brinje switchyard would also be transformed into a 400/220/110 kV substation to which the future Senj 2 HPP and Dalmacija TPP would be connected.

Based on the above, it can be concluded that the level of electricity supply security is currently satisfactory. However, the security level could deteriorate significantly by 2020. As noted above, in this period 1,100 MW of power should be withdrawn from operation in outdated thermal power plants. The maintenance of electricity supply security depends on the construction of new production units. In this regard, it should be noted that, unless supported by the construction of classical power plants, the exclusive construction of renewable energy sources, especially wind power plants, will not solve the problem of system security by itself. The reason for this is the nature of wind, which can also endanger the security of the electricity supply.

4.5 The public service obligation in the electricity sector

The Electricity Market Act stipulates that electricity transmission and distribution activities shall be performed as public services, and it also prescribes the legal framework and HERA's competences in the adoption of tariff systems (tariff methodologies and tariffs) for these activities. Such an approach to electricity transmission and distribution activities is determined by the fact that these represent natural monopolies.

Besides the stated activities, the Electricity Market Act also stipulates that the electricity supply as part of the universal service and guaranteed electricity supply shall be performed as a public service.

A universal service is any electricity supply service which grants a certain customer category (households) the right to the electricity supply on the territory of the Republic of Croatia at realistic, clearly comparable and transparent tariffs.

The guaranteed electricity supply is a public service provided by guaranteed suppliers to customers from the commercial category in cases when such customers are left without their supplier in situations beyond their control.

HEP-ODS, which until the new Electricity Market Act came into force in March 2013 also performed tariff customer supply activities, took over the performance of supply as a universal service and guaranteed supply, and continued to perform these services until the adoption of the Croatian Government's decision on the determination of electric power operators who are obliged to provide the public service of universal and guaranteed electricity supply. The stated decision was adopted by the Government of the Republic of Croatia at the Ministry's proposal and after obtaining the opinion of HERA, which is based on research into the functioning of the electricity market. HERA is obliged to conduct this research in co-operation with the competent authority for the protection of market competition at least every three years, and for the first time in 2013. The research was conducted in 2013 and the recommendation was that HEP-ODS, i.e. the current supplier, should remain the supplier within the framework of the universal and guaranteed supply.

However, such a decision has not been adopted yet, although HEP-ODS, as prescribed by the transitional and final provisions of the Electricity Market Act, still performs both electricity distribution and supply activities as a public service.

Electricity prices for customers using the supply as part of the universal service and for those using the guaranteed supply are regulated by HERA. These customers are also entitled to use the supply as part of the universal service or guaranteed supply without time limitations. Not all EU Member States use this approach. There is a tendency not to regulate supply prices within the universal service and to provide customers with a guaranteed supply only for a defined, short period of time.

At the end of September 2013, HERA adopted the Methodology for determining tariff item amounts for the electricity supply as part of the universal service (Official Gazette, No. 116/13), and the first tariff items in this Methodology came into force on 1 October 2013. The stated Methodology, among other things, lays down the manner and criteria according to which the supplier of customers using the universal service procures electric power, the manner of determining the costs and income of the supplier, the tariff models, tariff elements and tariff items, and the data necessary for determining the costs and income of the supplier and the procedure for determining and changing the tariff item amounts. It is important to highlight that one of the main objectives of the stated methodology is the introduction of transparent conditions primarily based on market principles in supplying electricity to customers as part of the universal service.

In addition, in 2013 HERA adopted the Methodology for determining tariff items for the guaranteed electricity supply (Official Gazette, No. 158/13). This methodology came into force on 1 January 2014, and the first tariff items based on this methodology will be adopted for the period from 1 July to 31 December 2014. The tariff item amounts for the guaranteed supply are higher than the average tariff item amounts for the supply of similar end customers supplied on the electricity market, and there is also a significant increase in the tariff items depending on the duration of the use of the guaranteed supply. By determining tariff items in this way, end customers using the guaranteed supply are motivated to select market suppliers.

As regards the use of the supply as part of the universal and guaranteed supply, the situation in 2013 was as follows:

- the supply within the universal service encompassed 41% of the total sale of electricity in the Republic of Croatia, and 99% of the sale of electricity to end customers in the household category,
- the guaranteed supply encompassed 15% of the total sale of electricity in the Republic of Croatia, and. 9% of the sale of electricity to end customers in the commercial category,

Therefore, about 50% of the sale of electricity in the Republic of Croatia was carried out at regulated prices.

4.6 Electricity generation from renewable energy sources and cogeneration

4.6.1 Eligible electricity producers

Legal framework

According to the Electricity Market Act (Official Gazette, No. 22/13), an energy operator or another legal or natural person who simultaneously generates electric or thermal power in a highly efficient manner in an individual production plant, who uses waste or renewable energy sources for electricity generation in an economically sufficient manner pursuant to regulations in the area of environmental protection, regardless of the power of the production plant, can be granted the status of an eligible electricity producer.

A transmission system operator or distribution system operator, in line with the requirements of the reliability and security of the operation of the electric power system, is obliged to ensure and control the reception of the total generated electricity from a plant which has been granted the status of an eligible electricity producer, based on the conditions determined under special regulations, especially the Network Codes for the transmission and distribution system.

The status of eligible electricity producer is a necessary but not sufficient condition for entry into the incentives system for electricity generation from renewable energy sources and cogeneration (hereinafter: incentives system). The incentives system, described in more detail in the following chapter, focuses primarily on the construction of new production plants. The most important regulation establishing this incentives system is the tariff system for the generation of electricity from renewable energy sources and cogeneration. The manner in which the construction of plants is stimulated is the possibility of concluding long-term buy-off contracts at a stimulative buy-off price for supplied electricity.

The tariff system for the generation of electricity from renewable energy sources and cogeneration stipulates additional conditions for planned plants or projects for which buy-off contracts with stimulative prices are concluded. If the eligible electricity producer cannot meet the conditions for entry into the incentives system in line with the Regulation on the establishment of the guarantees of origin system (Official Gazette, No. 84/13), they can obtain guarantees of origin (electronic documents they can sell on the market), regardless of the sale of generated electricity. It must be noted that plants cannot be in the incentives system and sell guarantees of origin at the same time, as illustrated in Figure 4.6.1.

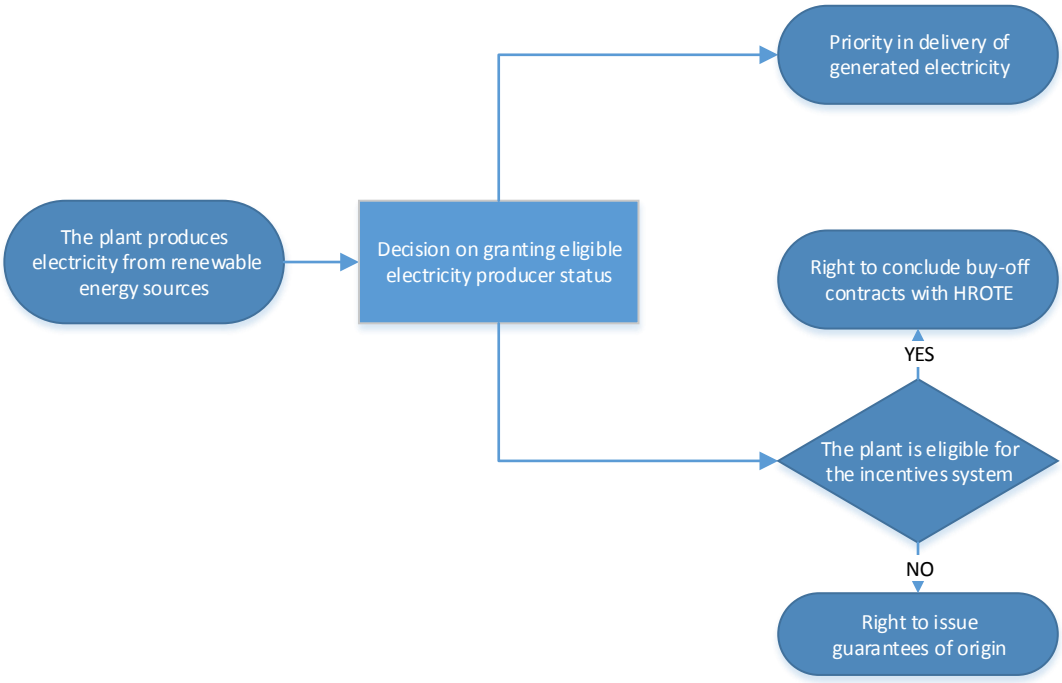


Figure 4.6.1 The rights of eligible producers of electricity from renewable energy sources

The conditions and manner of acquiring eligible electricity producer status are prescribed by the Ordinance on granting eligible electricity producer status. During 2013, the Ordinance on granting eligible electricity producer status (Official Gazette, No. 88/12), adopted on the basis of the Electricity Market Act (Official Gazette, Nos. 177/04, 76/07, 152/08, 14/11 and 59/12), was in force, but on 12 November 2013 the Ordinance on granting eligible electricity producer status (Official

Gazette, No. 132/13) came into force based on the new Electricity Market Act (Official Gazette, No. 22/13).

Both ordinances have their basis in the Ordinance on the use of renewable energy sources and cogeneration (Official Gazette, No. 88/12), adopted on the basis of the Electricity Market Act (Official Gazette, Nos. 177/04, 76/07, 152/08, 14/11 and 59/12). The above Ordinance, among other things, regulates the issuing of energy approval and the so-called RESCPP (Register of projects and plants) for the use of renewable energy sources and cogeneration and eligible producers. The adoption of the Ordinance on the use of renewable energy sources and cogeneration is not regulated by the Electricity Market Act (Official Gazette, No. 22/13), so the key aspects of the ordinance will be governed by other regulations.

During the preparation of construction or during the actual construction of a plant, HERA issues preliminary decisions on the granting of eligible producer status to legal and natural persons (project holders) for individual planned plants. These preliminary decisions are one of the conditions for concluding buy-off contracts in accordance with the Tariff system for the generation of electricity from renewable energy sources and cogeneration. In the case of constructing plants which are considered to be simple structures, pursuant to the regulations on spatial planning and construction (this currently applies only to integrated solar power plants), project holders do not need to obtain preliminary decisions.

HERA issues decisions on granting eligible producer status to legal and natural persons for individual constructed plants, except in the case of plants which are simple structures which are granted such status by the obtaining of electric power approval by the distribution system operator.

A schematic overview of the administrative procedure for realising the right to buy off is shown in Figure 4.6.2, while Figure 4.6.3 shows the same procedure for plants which are simple structures.

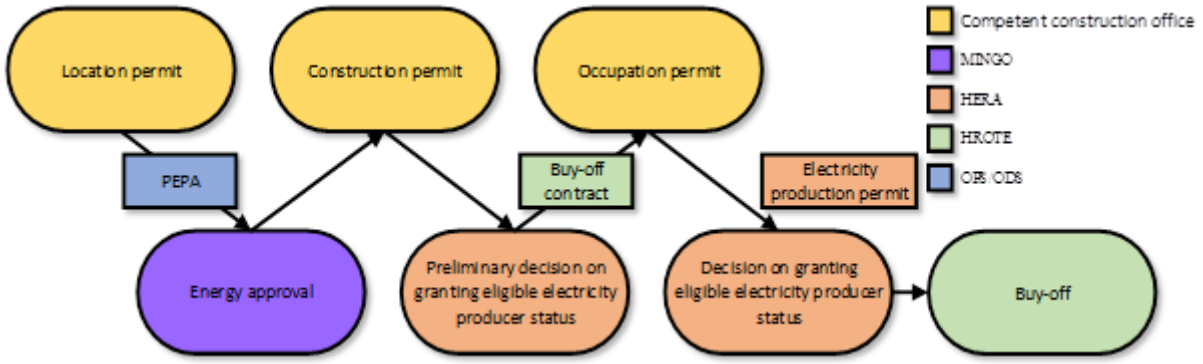


Figure 4.6.2 Order of issuing acts in the preparation of the construction of plants for the generation of electricity from *renewable sources and cogeneration plants*

Figure 4.6.3 Simplified order of issuing acts in the preparation of the construction of integrated solar power plants

Although the procedure for plants which are not simple structures cannot be simplified so as to be presented as in Figure 4.6.3, there is a lot of room for improvement in the part of the procedure in Figure 4.6.2 which refers to the issuing of preliminary and final decisions on granting eligible producer status, i.e. the removal of administrative barriers.

With the coming into force of the new Ordinance on granting eligible electricity producer status (Official Gazette, No. 132/13), the validity of the decision on granting eligible producer status was increased from 14 to 25 years.

In addition, the possibility of extending the validity of the preliminary decision on granting eligible producer status has been cancelled, though in the case of construction in stages it can be issued for each construction stage.

As far as the more important open issues regarding the application of the Ordinance on granting eligible producer status are concerned, the following should be mentioned:

- Reporting and supervision eligible producers must be significantly improved both in practice and within the legal framework. The Ordinance on granting eligible producer status (Official Gazette, No. 88/12) and the Ordinance on granting eligible producer status (Official Gazette, No. 132/13) prescribe certain obligations of eligible producers and the obligations of HERA, i.e. the distribution system operator, regarding supervision in the case of simple structures. It should be highlighted that the supervision of eligible producers is a specific type of supervision (inspection) which brings into question the supervision performed by HERA based on the Ordinance adopted by the minister of the economy, given HERA's duties and authority based on the Regulation of Energy Activities Act (Official Gazette, No. 120/12).
- A particular issue in the supervision of eligible producers is that of supervision of the use of thermal power generated in plants which simultaneously produce electric and thermal power. The supervision of the fulfilment of conditions of high efficiency in the Ordinance on granting eligible producer status and the conditions of minimum annual efficiency in the Tariff system for the generation of electricity from renewable energy sources and cogeneration (Official Gazette, Nos. 63/12, 121/12 and 144/12) for plants stipulate that HERA shall establish metering rules and direct supervision of metering devices for thermal energy and supervision of the use of heat. Such a responsibility is completely outside HERA's scope of duties and authority under the Regulation of Energy Activities Act. In general, such an approach to determining the fulfilment of conditions for acquiring the status of an eligible producer which simultaneously produces electric and thermal power in its plants, and the supervision of its maintenance is complicated and uneconomical. For stimulating the rational construction of such technologies, a simple solution would be to define real price signals, i.e. to determine a price for generated power which would stimulate producers into making an effort and producing and consuming thermal power in a manner resulting in additional benefits.

Issuing of decisions

Table 4.6.1 shows the number of decisions issued by HERA during 2013, while Table 4.6.2 shows an overview of plants by primary energy form for which HERA has issued decisions on granting eligible electricity producer status. It is evident that solar power plants are still by far the most numerous, whereas wind power plants have the greatest total installed power.

Table 4.6.1 Decisions on granting eligible producer status issued during 2013

Type of facility / primary energy source	No. of decisions issued		Plant power [MW]	
	Preliminary	Final	Preliminary	Final
Solar power	71	54	30.70	3.73
Biomass and biogas	21	3	43.28	4.00
Water power	3	1	2.77	0.22
Wind	9	5	321.60	113.00
Landfill gas and gas from wastewater treatment plants	0	1	0.00	2.04
Cogeneration	0	1	0.00	0.65
Total	**104**	**65**	**398.36**	**123.64**

Table 4.6.2 Overview of plants by primary energy form with valid decisions on the granting of eligible electricity producer status as at 31 December 2013

Type of plant / primary energy source	Number of plants	Total power [kW]
Biomass-fuelled power plants	3	6,690.00
Biogas-fuelled power plants	11	11,135.00
Power plants fuelled by landfill gas and gas from wastewater treatment plants	2	4,536.00
Hydroelectric power plants	5*	3,104.00
Solar power plants	156	7,552.62
Wind power plants	15	254,250.00
Micro cogenerations	1	33.00
Small cogenerations	2	1,110.00
Medium cogenerations	1	10,000.00
Total	**196**	**298,410.62**
* A decision on granting eligible electricity producer status was issued for the plant. However, the concerned plant is an old hydroelectric power plant and is not eligible for stimulative prices.		

A comparison between the number of issued preliminary and final decisions for solar power plant project holders in 2013 and the number in 2012 (150 preliminary and 84 final decisions issued) shows a significant decrease. A simplification of the procedure for granting eligible producer status for integrated solar power plants should be taken into consideration, which prescribes that HERA shall not issue preliminary and final decisions to project holders. The number of operational solar power plants is greater than the number of issued decisions on granting eligible producer status because of the simplicity of the procedure for granting eligible producer status and entry into the incentives system. The statistics on solar power plants are given below.

During 2013, HERA issued three decisions extending a preliminary decision on granting eligible producer status while the Ordinance on granting eligible electricity producer status (Official Gazette, No. 88/12) was in force. In addition, three decisions were issued regarding the approval of requests for changing the project holder in a preliminary decision and one decision was issued regarding the approval of a request for changing a preliminary decision in view of the changed installed power of the plant. In 2013, a decision was also issued regarding the approval of a request for changing the

project holder in a decision, one decision was issued regarding the approval of a request for changing a decision in view of the changed installed power of the plant, and also one decision regarding a change in the technical-technological features and conditions of use of the plant, the latter being related to a change in the connection power of its consumption.

A decision was also issued regarding the refusal to issue a preliminary decision because the applicant failed to enclose the prescribed evidence and documents for issuing the preliminary decision.

It is important to mention that the Ordinance on granting eligible electricity producer status (Official Gazette, No. 132/13) and the Electricity Market Act do not contain provisions that enable amendments to a preliminary decision or a decision on granting eligible producer status, unlike the Ordinance on granting eligible electricity producer status (Official Gazette, No. 88/12), which provided for such a possibility. Since the Civil Procedure Act (Official Gazette, No. 47/09) does not prescribe the possibility of any amendments to decisions, HERA has no legal grounds to implement them. This situation creates significant barriers in practice, because it prevents the removal or amendment of decisions enabling the adjustment of rights and obligations to actual situations, such as the transfer of status to another person, determining changes to the plant, etc.

Incentives system for electricity generation from renewable energy sources and cogeneration

In 201, the incentives system was regulated by the following regulations:

- Tariff system for the generation of electricity from renewable energy sources and cogeneration (Official Gazette, Nos. 63/12, 121/12 and 144/12; hereinafter: RES&C Tariff System),
- the Regulation on incentives for generation of electricity from renewable sources and cogeneration (Official Gazette, Nos. 33/07, 133/07, 155/08, 155/09, 8/11 and 144/11),
- the Regulation on the incentive for generation of electricity from renewable sources and cogeneration (Official Gazette, No. 128/13), and
- the Regulation on the minimum proportion of incentivised electricity generated from renewable energy sources and cogeneration (Official Gazette, Nos. 33/07 and 8/11).

In 2013, the incentives system took in 538 new plants or more than five times more than in 2012, and more than 30 times more than in 2011. This continued the trend of the faster and more significant construction of both plants using renewable energy sources and cogeneration plants, and leads to the conclusion that the incentives system provides results, as shown in Figure 4.6.3. Although the share of generation and installed power in the incentives system is still very low in relation to the total production capacities in the Republic of Croatia, the construction dynamics show that plants will be commissioned quickly, which will help in the achievement of the objectives of the Energy Development Strategy of the Republic of Croatia and supply security.

However, payments to eligible producers should be kept in mind, as they require adequate resources, as is evident from Table 4.6.3.

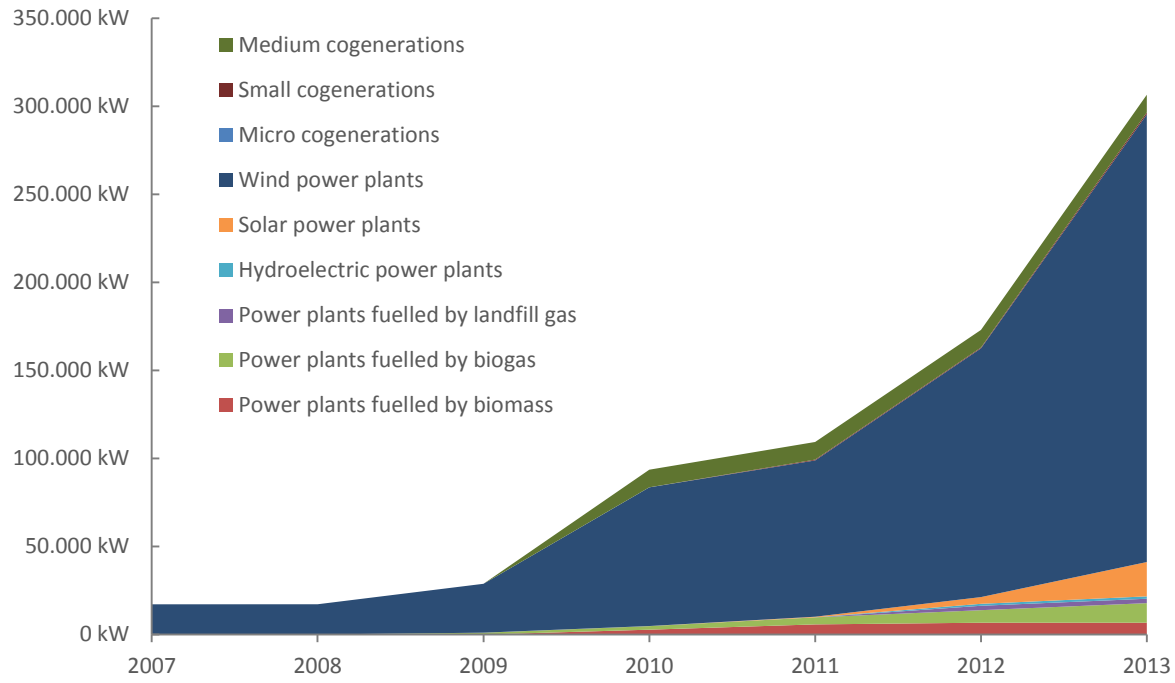


Figure 4.6.4 Installed power of plants in the incentives system from 2007 to 2013 by type of plant

Table 4.6.3 Generation and paid incentives to eligible producers in 2013 by type of plant

Type of plant	Installed power [kW]	Share in installed power [%]	Generation of electricity [kWh]	Share in generation [%]	Paid incentives (excluding VAT) [HRK]	Share in disbursements [%]
Biomass-fuelled power plants	6,690.00	2.18%	47,727,100	7.96%	60,042,569,86	10.85%
Biogas-fuelled power plants	11,135.00	3.63%	63,229,680	10.54%	86,514,835,21	15.64%
Power plants fuelled by landfill gas and gas from wastewater treatment plants	2,500.00	0.82%	38,250	0.01%	16,619,65	0.00%
Hydroelectric power plants	1,340.00	0.44%	7,928,209	1.32%	8,032,969.62	1.45%
Solar power plants	19,496.00	6.36%	11,293,959	1.88%	29,969,789.28	5.42%
Wind power plants	254,250.00	82.94%	466,353,459	77.77%	365,900,923.96	66.13%
Micro cogenerations	33.00	0.01%	30,376	0.01%	28,043.69	0.01%
Small cogenerations	1,110.00	0.36%	2,852,180	0.48%	2,642,377.69	0.48%
Medium cogenerations	10,000.00	3.26%	175,840	0.03%	125,419.03	0.02%
Total	**306,554**	100.00%	**599,629,053**	100.00%	**553,273,547.99**	100.00%

HROTE buys off electricity from eligible producers in the incentives system, i.e. from plants for which the producer was granted eligible status and signed a buy-off contract, and distributes electricity to suppliers at regulated prices and proportionately to the supplier's share in the total power delivered to customers. All end customers in the Republic of Croatia pay their supplier the contracted price of electricity and the fee for the stimulation of electricity generation from renewable energy sources and cogeneration. The regulated price at which suppliers purchase electricity from HROTE is defined

by the RES&C Tariff System. During 2013, it was continuously higher than the average wholesale market price of electricity.

Customers started to be charged the fee for the stimulation of electricity generation from renewable energy sources and cogeneration as of 1 July 2007, based on the Regulation on incentives for generation of electricity from renewable sources and cogeneration. Although in 2007 the above Regulation stipulated an increase in the fee for the purpose of constructing plants, the fee amount was retained at the level of 2007 until the end of 2009. Since sufficient resources for the incentive had been collected in the previous period, and since the planned plants were commissioned quite slowly, and for the purpose of decreasing the burden on customers at a time of economic crisis, the fee was decreased to 0.005 HRK/kWh in 2010. The above amount was retained until 1 November 2013, when the Regulation on the incentive for generation of electricity from renewable sources and cogeneration (Official Gazette, No. 128/13) came into force. By means of the latter regulation, the incentives fee was increased to 0.035 HRK/kWh for all customers, with the exception of those customers who are obliged under the act regulating air protection to obtain greenhouse gas emission permits. Due to investors' great interest in constructing plants, as early as 2011 the annual amount required for paying eligible producers exceeded the income from the fee and sale of electricity. The amount increased step-wise in 2012 and 2013. HROTE settled the difference from unexpended funds collected in previous years. However, to maintain the sustainability of the incentives system, it was necessary to increase the fee.

An overview of the fees, prices and generation of electricity from plants using renewable energy sources and cogeneration is shown in Table 4.6.4. An overview of cash flows in the incentives system is shown in Table 4.6.5.

Table 4.6.4 Overview of the fees, prices and generation of electricity from plants using renewable energy sources and cogeneration

Year	2007 *	2008	2009	2010	2011	2012	2013**
The fee amount prescribed by the Regulation from 2007 [HRK/kWh]	0.0089	0.0198	0.0271	0.035	–	–	–
Fee amount [HRK/kWh]	0.0089	0.0089	0.0089	0.005	0.005	0.005	0.005 / 0.035
Cumulative power of plants using renewable energy sources in the incentives system (end of year) [MW]	5.95	17.187	28.796	83.573	98.862	173.069	295.421
Cumulative power of cogeneration plants in the incentives system (end of year) [MW]	/	/	/	10.033	10.493	10.493	11.133
Energy generated in plants using renewable energy sources [MWh]	477	38,064	47,430	83,927	224,269	378,995	596,571
Energy generated in plants using cogeneration [MWh]	/	/	/	249	1,285	2,186	3,058
Energy generated in plants using renewable energy sources and cogeneration [MWh]	477	38,064	47,430	84,176	225,554	381,181	599,629
Total consumption*** [MWh]	17,629,700	17,995,800	17,696,700	17,943,800	17,703,200	17,520,600	

The share of electricity generated in plants using renewable energy sources, the generation of which is incentivised, in the total consumption of electricity [%]	0.003	0.212	0.268	0.468	1.267	2.163	
The share of electricity generated in cogeneration plants, the generation of which is incentivised, in the total consumption of electricity [%]	/	/	/	0.001	0.007	0.012	
*The incentives system was regulated at the end of June 2007. Therefore, only the period from July to December 2007 has been observed. **The increased fee applied from 1 November 2013 to all customers, except those who are obliged under the act regulating air protection to obtain greenhouse gas emission permits. *** The total consumption in the manner defined by the Regulation on the minimum proportion of incentivised electricity generated from renewable energy sources and cogeneration (Official Gazette, Nos. 33/07, 8/11).							

Table 4.6.5 Overview of cash flows in the incentives system [HRK mil.]

Year	2007	2008	2009	2010	2011	2012	2013
Suppliers' obligations							
Invoiced amounts for the incentive fee	82.5	142.98	137.78	78.41	77.85	76.61	148.33
Invoiced amounts for electricity sold to suppliers	0.15	13.64	20.76	36.55	97.94	190.07	317.80
HROTE's obligations							
Balancing energy costs	0.02	1.36	2.08	3.65	9.79	19.01	24.37
Costs of electricity bought off from eligible producers	0.38	26.19	36.59	70.4	182.18	331.75	553.27
The costs for special fees to suppliers	/	/	/	/	1.17	1.15	0.95
Resources for financing HROTE's activities in the RES&C incentives system	/	/	/	/	/	2.90	3.50
DIFFERENCE							
Difference at the annual level	**82.25**	**129.07**	**119.87**	**40.91**	**-17.35**	**-88.13**	**-115.95**

In 2011, the Regulation on amendments to the Regulation on incentives for generation of electricity from renewable sources and cogeneration (Official Gazette, No. 8/11) laid down that an electricity supplier is entitled to a special fee paid from the incentive fee funds. The above special fee was disbursed for the service of incentive fee collection and collection risk coverage to the amount of 1.5% of the amount of the invoice for the fee, excluding VAT. The regulation was repealed by means of the Regulation on the incentive for generation of electricity from renewable sources and cogeneration (Official Gazette, No. 128/13), and suppliers are no longer entitled to the above amount.

National objectives and the incentives system

Since by the end of 2010 the incentives system had not achieved the objectives defined by the Regulation on the minimum proportion of incentivised electricity generated from renewable energy sources and cogeneration (Official Gazette, No. 33/07), the Government of the Republic of Croatia adopted the Regulation on amendments to the Regulation on incentives for generation of electricity from renewable sources and cogeneration (Official Gazette, No. 8/11), establishing the objectives until 2020.

The above Regulation, pursuant to the Energy Development Strategy of the Republic of Croatia, defines new objectives so that the minimum share of incentivised electricity generation in the total direct consumption of electricity by 31 December 2020 will amount to:

- 13.6% from plants using renewable energy sources and
- 4% from cogeneration plants which generate electricity which is delivered into the transmission or distribution network.

The guarantees of origin system is not used for determining the share of electricity in total energy consumption.

In addition, at the 120th session of the Government of the Republic of Croatia held on 17 October 2013, the National Renewable Energy Action Plan until 2020 was adopted (hereinafter: National Action Plan). Each EU Member State is obliged to adopt one as part of the implementation of Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.

The Tariff system for the generation of electricity from renewable energy sources and cogeneration (Official Gazette, Nos. 133/13 and 151/13), adopted during 2013 and applied since 1 January 2014, uses the objectives of the National Action Plan for contracting limitations.

Solar power plants and "quotas"

Simplified construction and obtaining eligible electricity producer status for solar power plants which are considered to be simple structures (implemented in regulations during 2012) and the possibility of achieving a high stimulative price resulted in a marked increase in the construction of solar power plants in 2013, and triggered the adoption of the Tariff system for the generation of electricity from renewable energy sources and cogeneration (Official Gazette, Nos. 133/13 and 151/13).

In 2013 in particular, there was a significant increase in the number of constructed solar power plants, with as many as six times more solar power plants in operation and a fivefold increase in total power in relation to 2012 (35 times greater in number and 57 times greater in power in relation to 2011), as shown in Table 4.6.6.

Table 4.6.6 Number and total installed power of operational solar power plants

<table>
<tr><th rowspan="2">Year</th><th rowspan="2">Number of operational solar power plants</th><th rowspan="2">Total installed power of operational solar power plants [kW]</th><th colspan="2">Contracting limitation prescribed by the Tariff System</th><th rowspan="2">Note</th></tr>
<tr><th>Integrated solar power plants</th><th>Non-integrated solar power plants</th></tr>
<tr><td>2007</td><td>0</td><td>0.00</td><td colspan="2" rowspan="5">1 MW</td><td rowspan="5">-The quota was fulfilled by solar power plants which had obtained final decisions, i.e. started regular operations.
- There is no division between integrated and non-integrated solar power plants.
- The limitation was in force until the Tariff System (Official Gazette, No. 63/12) came into force.
- Based on this limitation, a buy-off was contracted from plants with an aggregate power of 7.1 MW.</td></tr>
<tr><td>2008</td><td>1</td><td>7.14</td></tr>
<tr><td>2009</td><td>2</td><td>16.14</td></tr>
<tr><td>2010</td><td>4</td><td>52.84</td></tr>
<tr><td>2011</td><td>18</td><td>342.32</td></tr>
<tr><td>2012</td><td>108</td><td>3,881.00</td><td>10 MW</td><td>5 MW</td><td rowspan="3">- The quota is fulfilled by signing a buy-off contract.
*An additional 2 MW for solar power plants for plants owned by state administration bodies, local and regional self-government units</td></tr>
<tr><td>2013</td><td>639</td><td>19,496.00</td><td>15 MW</td><td>10 MW</td></tr>
<tr><td>2014</td><td></td><td></td><td>5 MW
+
2 MW*</td><td>5 MW</td></tr>
</table>

The limitation for 2013 for integrated solar power plants was reached as early as 4 January 2013, and for non-integrated ones later during the year on 29 August 2013. Due to certain obscurities in the procedure for the submission of requests for the conclusion of contracts in the RES&C Tariff System, the manner in which HROTE applied the Civil Procedure Act and the manner in which the achievement of the contracting limitation is determined, HROTE also continuously received requests, and by the end of 2013 had received 2,839 requests with a connection power of 61,855.08 kW from integrated solar power plants and 39 requests with a connection power of 19,947.67 kW from non-integrated solar power plants for which there was no possibility of concluding buy-off contracts.

The Tariff system for the generation of electricity from renewable energy sources and cogeneration (Official Gazette, Nos. 133/13 and 151/13), which was adopted during 2013 and came into force on 1 January 2014, partially addresses the issues regarding the contracting of the buy-off for solar power plants. The above tariff system prescribed that when the total value of the concluded electricity buy-off contracts for solar power plants reaches the prescribed limitation, HROTE shall stop receiving requests for the conclusion of electricity buy-off contracts, and those requests for electricity buy-off contracts they receive subsequently shall be rejected by means of decisions. In addition, the transitional and final provisions prescribe that all solar power plant project holders who had submitted requests to HROTE regarding the conclusion of buy-off contracts pursuant to the Tariff system for generation of electricity from renewable energy sources and cogeneration (Official Gazette, Nos. 63/2012, 121/2012 and 144/2012), and who, due to the fulfilment of the limitation, had not concluded buy-off contracts by the time the new tariff system came into force, shall submit a new request to HROTE in accordance with the provisions of the new tariff system.

Another purpose of the Tariff system for the generation of electricity from renewable energy sources and cogeneration (Official Gazette, No. 133/13) was to try to stimulate the construction of plants at the location of electricity consumption. In this regard, it was prescribed that HROTE shall pay the approved stimulative price only for the quantity of generated electricity from plants which is equal to the average annual consumption of the producer as the customer. The reference price

will be disbursed for all the electricity generated in excess and not consumed on location. Moreover, it is an obligation of the distribution system operator to limit, in their preliminary electric power approval, the connection power of an integrated solar power plant to the customer's connection power. The new manner of connecting a solar power plant, which included the linking of the solar power plant installation with the installation of the end customer at the same location with the use of two meters for calculating electricity consumption and generation, was particularly unclear.

Since the new provisions for solar power plants were written very obscurely, Amendments to the Tariff system for the generation of electricity from renewable energy sources and cogeneration (Official Gazette, No. 151/13) were soon adopted. Under these Amendments, the old manner of connecting solar power plants was reinstated in the sense of separate connections for solar power plants, and an administrative connection of the producer and end customer at the location was introduced. The producer and the "connected customers" were connected in parallel to the electric power network. For generation to an amount up to the amount of the end customer's consumption in the billing period, the producer is paid the full amount of the incentive price, and for generation above the amount of the end customer's consumption the producer is paid 80% of the incentive price.

4.6.2 Guarantees of origin system

Pursuant to Article 15 of Directive 2009/28/EC, a guarantee of origin is an electronic document which serves to prove to the end customer that a certain share or quantity of electricity was generated from a particular energy source (usually from a renewable energy source). The guarantee of origin contains data on the quantity of electricity (1 MWh of electricity is the basic unit), the date of the beginning and end of the electricity generation for which the guarantee of origin is issued, the type of primary energy source, data on the production plant itself, including the location of the plant, and the identity of the competent authority which issued the guarantee of origin.

Pursuant to Article 10 of the Energy Act (Official Gazette, No. 120/12), the Government of the Republic of Croatia adopted the Regulation on the establishment of the guarantees of origin system (Official Gazette, No. 84/13), regulating the roles of public legal bodies in the guarantees of origin system, the management of the register of guarantees of origin, and defining the issuing and usage of guarantees of origin.

During 2013, the preparation of two more subordinate acts regulating the guarantees of origin system commenced. These were:

- the Methodology for determining the origin of electricity adopted by HERA based on Article 36, Paragraph 2 of the Energy Act, and
- the Rules for using the register of guarantees of origin adopted by HROTE based on Article 53, Paragraph 6, Item 15 of the Electricity Market Act (Official Gazette, No. 22/13).

The adoption of the above acts was planned for the first half of 2014. The delay in adoption was caused by the late adoption of the Regulation on the establishment of the guarantees of origin system, and the fact that the adoption of the Regulation on the establishment of the guarantees of origin system introduced barriers to the establishment of the guarantee system, which necessitated the introduction of amendments to the Regulation. The greatest obstacle introduced by the Regulation regarding the establishment of a functional guarantees of origin system is the predefined use of guarantees of origin which is not aligned with practice in other EU Member States. The Regulation also introduced provisions which were not aligned with the valid subordinate acts regulating the electricity market and the Ordinance on granting eligible electricity producer status

and the Tariff system for the generation of electricity from renewable energy sources and cogeneration.

The purpose of the Rules for using the register of guarantees of origin is to develop the use of the Register of guarantees of origin, a computer system established and managed by HROTE, which is the competent authority for issuing guarantees of origin. Individual guarantees of origin are stored in the Register as electronic documents.

Since the inspection and supervision of production plants for the needs of the guarantees of origin system are almost identical to the process of issuing decisions and supervision as prescribed by the Ordinance on granting eligible electricity producer status, the Regulation on the establishment of the guarantees of origin system stipulates that the basic condition for issuing guarantees of origin is obtaining the decision on granting the status of an eligible electricity producer for the plant the guarantee of origin is intended for.

Therefore, eligible electricity producers which are not in the incentives system, pursuant to the legal framework regulating the guarantees of origin system, will be able to obtain guarantees of origin that they will be able to sell separately and thus achieve additional income other than from the sale of electricity.

On the other hand, the guarantees of origin system will enable electricity suppliers to offer in a transparent manner tariff models guaranteeing a minimum share of one or more types of energy source in the generation of electricity sold to end consumers. Electricity end consumers, depending on their wishes, will be able to select such a supplier's offer that might include a larger or smaller share of electricity generated from renewable energy sources, and the customers will be able to rely on the guarantees of origin system to ensure that the supplier will really provide what has been promised.

The guarantees of origin system is important for existing large hydroelectric power plants and other plants which are not eligible for the conclusion of buy-off contracts with HROTE and the realisation of the incentive price for delivered electricity. By means of guarantees of origin, they will still be able to achieve certain earnings, since they are plants that use renewable energy sources.

It must be highlighted that the Ordinance on the use of renewable energy sources and cogeneration (Official Gazette, No. 88/12) failed to clearly stipulate the obtaining of energy approval for existing plants and entry into the RESCPP. In addition, according to the above ordinance, hydroelectric power plants with installed power over 10 MW cannot obtain energy approval. It is therefore necessary to implement changes in the legal framework so that existing large hydroelectric power plants in the Republic of Croatia can simply obtain eligible producer status.

During 2013, HEP-Opskrba d.o.o. offered its customers the "ZelEn" product, which represents an electricity supply with so-called voluntary certificates of electricity generation from renewable energy sources. Such voluntary certificates are the predecessors of guarantees of origin, and their use will cease after the establishment of the guarantees of origin system.

5 NATURAL GAS

5.1 Legislative framework for natural gas

The gas sector in the Republic of Croatia is regulated by the Energy Act, Gas Market Act, Regulation of Energy Activities Act, and ordinances and regulations adopted thereunder.

In February 2013, the Croatian Parliament adopted a new Gas Market Act (Official Gazette, No. 28/13), which was amended in January 2014 (Official Gazette, No. 14/14).

In 2013, HERA adopted the following regulations:

- General terms and conditions of gas supply (Official Gazette, No. 158/13),
- Network rules for the gas distribution system (Official Gazette, No. 158/13),
- Methodology for establishing gas transmission tariff items (Official Gazette, Nos. 85/13, 158/13),
- Methodology for establishing gas distribution tariff items (Official Gazette, No. 104/13),
- Methodology for establishing tariff items for the public service gas supply and guaranteed supply (Official Gazette, Nos. 158/13, 2/14),
- Methodology for establishing tariff items for the public service gas supply and guaranteed supply (Official Gazette, No. 38/14),
- Methodology for establishing the prices of non-standard services for gas transmission, distribution and storage, and the public service gas supply (Official Gazette, No. 158/13),
- Methodology for establishing prices for the balancing energies of the gas system (Official Gazette, No. 158/13),
- Methodology for establishing gas storage tariff items (Official Gazette, No. 22/14).

On the basis of the abovementioned methodologies, HERA adopted the following accompanying decisions:

Decision on gas transmission tariff items for the energy entity PLINACRO d.o.o., Savska 88A, Zagreb (Official Gazette, No. 102/13),

- Decision on gas distribution tariff items (Official Gazette, No. 158/13),
- Decision on average prices per hour for non-standard services,
- Decision on gas storage tariff items (Official Gazette, No. 28/14).

In addition, HERA adopted the Decision on the manner and procedure for keeping separate accounting records for energy entities (Official Gazette, No. 103/13).

In 2013, HERA gave its consent to the relevant energy entities for the following regulations:

- Rules on gas market organisation (Croatian Energy Market Operator (HROTE), 12/2013 and 02/2014),
- Network rules for the transmission system (PLINACRO d.o.o., 12/2013),
- Network rules for the transmission system (PLINACRO d.o.o., 06/2014),
- Rules for use of the gas storage system (PODZEMNO SKLADIŠTE PLINA d.o.o., 12/2013).

Based on the amendments to the Gas Market Act adopted by the Croatian Parliament in January 2014 (Official Gazette, No. 14/14), in March 2014 HERA adopted a new Methodology for establishing

tariff items for the public service gas supply and guaranteed supply (Official Gazette, No. 38/14), repealing the Methodology for establishing tariff items for the public service gas supply and guaranteed supply (Official Gazette, Nos. 158/13, 2/14).

Pursuant to Article 5a, Paragraph 3 of the Gas Market Act (Official Gazette, Nos. 28/13 and 14/14), the Government of the Republic of Croatia adopted the following decisions:

- Decision on the gas price at which a natural gas producer is obliged to sell the natural gas produced on the territory of the Republic of Croatia to a gas supplier on the wholesale gas market (Official Gazette, No. 29/14),
- Decision on the gas price at which a supplier on the wholesale gas market is obliged to sell gas to suppliers in the public service gas supply for households (Official Gazette, No. 29/14),
- Decision on determining wholesale gas market suppliers (Official Gazette, No. 29/14),
- Decision on obliging a natural gas producer to sell natural gas to a wholesale gas market suppler (Official Gazette, No. 29/14),
- Decision on setting priorities when allocating gas storage system capacities to a wholesale gas market supplier (Official Gazette, No. 29/14).

Gas Market Act

The main reason underlying the adoption of the new Gas Market Act is the obligation undertaken by the Republic of Croatia to align Croatian legislation with the EU acquis, i.e. the binding requirements laid down in the Third Energy Package. Alignment with the Third Energy Package was conducted only in those areas in which the Third Package differed from the Second Energy Package, and in the areas in which current practice showed that improvement was needed. In connection with this, the main areas that required aligning were the following: the public service supply and protection of end customers, regional solidarity and co-operation, unbundling of transmission system operators, identification and certification of transmission system operators, establishment of closed distribution systems, exemption for new infrastructure, and current practice enhancement. These amendments introduced the notion of the guaranteed supply provided by a guaranteed supplier in order to guarantee each customer connected to the distribution system the supply of a sufficient natural gas quantity in cases where their supplier ceases its operations for a certain reason. Co-operation among Member States in the case of a crisis in one or several Member States and measures to be taken in such cases are provided for in the area of regional solidarity. The term "closed distribution system" is defined in the area of natural gas distribution. This term covers a distribution system in a particular geographical area used for distributing gas to customers in the category of industry and services, excluding households.

General gas supply terms

On 17 December 2013, HERA adopted the new General terms and conditions of gas supply, which entered into force on 1 January 2014 and repealed the General terms and condition of natural gas supply (Official Gazette, Nos. 43/09 and 87/12). The amendments to the new General terms and conditions of gas supply essentially refer to the commercial relationship between the end customers and a gas supplier in the context of the opening up of the retail gas market. In this process, the relationships between the end customer or gas system user with gas system operators, i.e. the rights and obligations connected to gas system use, were converted into the applicable network rules to the maximum extent. In addition, in compliance with the EU acquis and the Gas Market Act, a very important amendment and improvement is reflected in an enhanced focus on end customer protection. In this context, the new General terms and conditions of gas supply stipulate the

mandatory content of invoices for delivered gas, the method to exercise the right to appeal, a detailed description of the change of supplier procedure, and also regulate the gas supply quality for the first time.

Network rules for the gas distribution system

On 17 December 2013, HERA adopted the Network rules for the gas distribution system, which entered into force on 1 January 2014 and repealed the previous Network rules for the gas distribution system (Official Gazette, No. 50/09). The new Network rules for the gas distribution system stipulate, *inter alia*, in detail the method for buying gas to cover losses in compliance with the provisions of the Public Procurement Act. In addition, they stipulate the method for exercising the applicant´s right to a secured energy supply and energy compliance certificate, and provide for the possibility to lodge a complaint with the distribution system operator in the case that an application for the certificate is denied or the terms of the energy supply and energy compliance certificate are unsatisfactory. They also provide for the possibility to lodge an appeal with the Croatian Energy Regulatory Agency in the case of dissatisfaction with a decision on an appeal made by the distribution system operator. The Rules also regulate in more detail the gas calorific values in the distribution system, as well as the sharing, delivery and disclosure of data on gas quality, the content and deadline for the publication of the annual gas quality report, and material changes to the provisions stipulating the correction of the gas volume in relation to pressure and temperature for calculation and measuring sites without an installed adequate correcting device. They also provide a method for determining corrections according to gas compressibility. The Rules also introduce the obligation on the part of the distribution system operator to read all calculation measuring devices on 1 June ± 15 days if they are not read on a daily basis. The readings are used for several purposes, most importantly for the correct identification of losses in the distribution system and the final calculation of the gas supply for distribution system users and end customers.

Network rules for the transmission system

On 17 December 2013, HERA gave its consent to the Network rules for the transmission system of the energy entity Plinacro d.o.o. The new Network rules for the transmission system were developed in compliance with the Gas Market Act, and regulated the following:

- a description of the transmission system,
- transmission system development, construction and maintenance,
- transmission system management and monitoring,
- organisation of public invitations for expressions of interest of existing and potential transmission system users in using particular infrastructure,
- financial security instruments for existing and potential transmission system users,
- public invitations for expressions of interest of existing and potential transmission system users in using particular infrastructure that requires an additional investment feasibility test,
- connection to the transmission system,
- contractual relationships and general terms and conditions of transmission system use,
- reservation and allocation of transmission system capacities,
- transmission system capacity trading,
- transmission system balancing,
- mutual rights and obligations of transmission system operators and transmission system users,

- measurement and allocation rules,
- data disclosure and information sharing,
- connection to other gas system units,
- conditions for gas delivery limitations and outage,
- unauthorised gas consumption,
- damages,
- congestion management.

Rules for use of the gas storage system

On 17 December 2013, HERA gave its consent to the Rules for use of the gas storage system of the energy entity Podzemno skladište plina d.o.o. The new Rules for use of the gas storage system were developed in compliance with the Gas Market Act, and regulated the following:

- a description of the gas storage system,
- gas storage system development, construction and maintenance,
- gas storage system management and monitoring,
- contractual relationships and general terms and conditions of gas storage system use,
- reservation and allocation of gas storage system capacities,
- gas storage system capacity trading,
- rights and obligations of gas storage system operators and gas storage system users,
- measurement and allocation rules,
- data disclosure and information sharing,
- connection to other gas system units,
- damages.

Rules on gas market organisation

On 17 December 2013, HERA gave its consent regarding the Rules on gas market organisation to the Croatian Energy Market Operator (HROTE). The new Rules on gas market organisation were developed in compliance with the Gas Market Act, and regulate the following:

- the procedures, principles and standards for gas market organisation and operations in compliance with the applied gas market model,
- the rules for organising balancing groups and keeping a registry of the balancing group leader and balancing group members,
- the rules on the virtual trading point,
- contractual relationships between the gas market operator and the balancing group leader,
- the accountability of gas market stakeholders for their deviations,
- the rules on balancing energy calculation,
- other rules required for gas market organisation and operations.

Methodology for establishing gas transmission tariff items

On 21 June 2013, HERA adopted the Methodology for establishing gas transmission tariff items, which entered into force on 12 July 2013 and repealed the Tariff system for natural gas transport, without the amounts of tariff items (Official Gazette, Nos. 32/06, 3/07 and 63/12). In compliance with the Energy Act, the Methodology is based on the eligible costs of the operation, maintenance, replacement, construction or reconstruction of facilities and environmental protection, and provides an appropriate return on reasonable investments. The regulation model, i.e. the methodology for establishing tariff items, is based on the regulation incentive method, i.e. the maximum permitted income method, whereas the permitted income allocation and tariff item establishment are based on the entry-exit model. On the basis of the Methodology, on 31 July 2013 HERA adopted the Decision on gas transmission tariff items for the energy entity PLINACRO d.o.o., which entered into force on 1 January 2014. The Decision stipulates the amounts of gas transmission tariff items for the first regulation period from 1 January 2014 to 31 December 2016.

Methodology for establishing gas distribution tariff items

On 31 July 2013, HERA adopted the Methodology for establishing gas distribution tariff items, which entered into force on 22 August 2013 and repealed the Tariff system for natural gas distribution, without the amounts of tariff items (Official Gazette, Nos. 34/07, 47/07, 44/10 and 13/12). In compliance with the Energy Act, the Methodology is based on the eligible costs of the operation, maintenance, replacement, construction or reconstruction of facilities and environmental protection, and provides an appropriate return on reasonable investments. The Methodology is based on the regulation incentive method, i.e. on the maximum permitted income method, whereas up to this point the amounts of tariff items had been equal for all users of the same tariff model within the same distribution area owned or operated by a distribution system operator, regardless of the distribution route distance (the post stamp principle). On the basis of the Methodology, on 17 December 2013 HERA adopted the Decision on gas distribution tariff items for the first regulation period 2014-2016 for the 36 distribution system operators on the territory of the Republic of Croatia, which entered into force on 1 January 2014.

Methodology for establishing tariff items for the public service gas supply and guaranteed supply

On 17 December 2013HERA adopted the Methodology for establishing tariff items for the public service gas supply and guaranteed supply, which entered into force on 1 January 2014. Annex 2 to this Methodology provided for the amounts of tariff items for the public service gas supply and guaranteed supply for the period from 1 January 2014 to 31 March 2014 for all public service gas suppliers on the territory of the Republic of Croatia. Upon its entry into force, the Methodology repealed the Tariff system for natural gas supply, with the exception of eligible customers, without the amounts of tariff items (Official Gazette, Nos. 34/07, 47/07, 87/09, 13/12), and also the Decision on tariff items in the tariff system for natural gas supply, with the exception of eligible customers, without the amounts of tariff items (Official Gazette, Nos. 49/12, 99/12). The above Methodology is based on an enhanced approach, which represents a transitional stage in the Croatian gas market development until the conditions for full gas market liberalisation are met.

Since on 27 February 2014 the Government of the Republic of Croatia adopted the decision establishing, *inter alia*, the wholesale gas market supplier (Hrvatska elektroprivreda d.d.) and the price at which it is obliged to sell gas to public service suppliers for the needs of households, there was a need for a new methodology. In connection with this, on 21 March 2014 HERA adopted a new Methodology, which entered into force on 1 April 2014. Annex 2 to this Methodology stipulated the amounts of tariff items for the public service gas supply and guaranteed supply for the period from

1 April 2014 to 31 December 2014 for all public service gas suppliers on the territory of the Republic of Croatia. The transitional period concept, also stipulated by the new Methodology, is based on the establishment of the final gas price component for households on the basis of the gas price for the previous period, the gas price achieved at auction, and the average gas price on the relevant spot market. The new methodology postponed the start of the transitional period until 1 April 2017 or an earlier date, and the transition period will start on the day the last Decision on the wholesale gas price adopted by the Government of the Republic of Croatia ceases to be valid.

Methodology for establishing gas storage tariff items

On 14 February 2014, HERA adopted the Methodology for establishing gas storage tariff items, which entered into force on 20 February 2014 and repealed the Tariff system for natural gas storage, without the amounts of tariff items (Official Gazette, Nos. 151/08, 13/09 and 2/11). The Methodology is based on the regulation incentive method, i.e. on the maximum permitted income method. On the basis of the Methodology, on 24 February 2014 HERA adopted the Decision on gas storage tariff items for the first regulation period 2014-2016 for the energy entity Podzemno skladište plina d.o.o., which entered into force on 1 April 2014.

5.2 Regulated activities in the natural gas sector

5.2.1 Natural gas transport

Natural gas transport is a regulated energy activity performed as a public service. The energy entity Plinacro d.o.o. is a transport system operator in the Republic of Croatia and is owned by the Republic of Croatia. Plinacro d.o.o. manages the network of the main gas and regional gas pipelines through which natural gas from domestic production (the northern part of continental Croatia and the Northern Adriatic) and from imports via Slovenia (Rogatec-Zabok)) and Hungary (Donji Miholjac–Dravaszerdahely) is transmitted to exit measuring-reduction stations where the gas is delivered to gas distribution systems and to end (industrial) customers directly connected to the transport system. The gas transport system of the Republic of Croatia is shown in Figure 5.2.1.

Figure 5.2.1 Gas transport system of the Republic of Croatia

The operation of the transport system to which the gas production fields of Pannonia and the Northern Adriatic, the Okoli underground gas storage facility, 36 distribution systems and 24 end customers are connected is constantly controlled and managed from the national dispatch centre, which is equipped with a modern Supervisory Control and Data Acquisition System (SCADA). The operational management and maintenance of the system is organised into five gas transport regions: Eastern Croatia with its headquarters in Donji Miholjac, Central Croatia with its headquarters in Popovača, Northern Croatia with its headquarters in Zabok, Western Croatia with its headquarters in Rijeka, and Southern Croatia with its headquarters in Benkovac.

The total length of the gas transport system in the Republic of Croatia at the end of 2013 was 2,662 km, of which 952 km were gas pipelines under a working pressure of 75 bars, and 1,710 km gas pipelines under a working pressure of 50 bars.

The gas is received into the transport system from nine connection points at entry measuring stations, of which six connection points serve for receiving gas from production fields on the territory of the Republic of Croatia, two connection points are international connection points and serve for receiving gas from import routes, while one is for withdrawing gas from the Okoli underground gas storage facility (UGSF Okoli).

The transport system gas is delivered to 195 connection points (157 exit measuring-reduction stations), of which 38 connection points serve for delivering gas to industrial customers connected to the transport system, 156 connection points serve for delivering gas to the distribution systems operated by the 36 distribution system operators, and one connection point serves for injecting gas into the Okoli underground gas storage facility.

In 2013, 42 gas suppliers grouped into eight balancing groups used the gas transport service. Prirodni plin d.o.o., the gas supplier with the highest market share, leased the capacities on all 10

transport system entry points and 38 transmission system exit points for the needs of 22 end customers which it supplies with gas. For the end customer Petrokemija d.o.o., the capacities was leased by two suppliers, and for the end customer HEP proizvodnja d.d., the capacity was leased by three suppliers. The capacities for the remaining 156 exit points were leased by 35 suppliers for distribution system buyers.

In 2013, Plinacro d.o.o. continued to carry out its obligations and activities in the management system of gas transport system capacities, and certain activities intensified with the appearance of new balancing groups on the natural gas market in 2013, and with the entry into force of the Ordinance on the amendments to the Ordinance on natural gas market organisation (Official Gazette, No. 29/13) stipulating additional conditions for the calculation of the maximum cumulative value exceeding daily deviations, and the conditions for the calculation of deviations from the nominated values.

At the interconnection points with Hungary (Donji Miholjac-Dravaszerdahely) and Slovenia (Zabok-Rogatec), there is daily sharing of information with the neighbouring transport system operators for the purpose of balancing the gas quantities nominated by both operators, and data on the measured gas quantities and content, as well as other obligations under mutually agreed rules.

A transport system operator performs an analysis of customer applications for access to the transport system and makes calculations of the technical, reserved and free capacities of the transport system for the purpose of managing capacities and congestion in the transport system. Nominated and realised flows of natural gas are analysed and compared for the purpose of supervision over the use of reserved transport system capacities. In 2013, congestion management was conducted through capacity allocation in the manner stipulated by Article 11, Paragraph 7 of the Ordinance on natural gas market organisation. On the basis of the applications received for the reservation of transport system capacities, it was established that the nominated capacity was higher than the free capacity of the transport system. Transport system balancing management is conducted in the manner stipulated by the Ordinance on natural gas market organisation. The capacity reservation, allocation and contracting manner is identical for all transport system entry and exit points, regardless of the location and direction of the gas flow (entry/exit). All reservations of all capacities by a single user within the same balancing group submitted in a single application for reservation form a single gas transport contract. In 2013, the regular activities of transmission system capacity management were conducted in the following business processes:

- gas transport service contracting for monthly and annual periods,
- daily nomination processing,
- collection and processing of data on measured and allocated gas quantities,
- daily and monthly reporting and disclosure of data,
- gas quality data monitoring and disclosure.

In 2013, the energy entity Plinacro d.o.o. completed the construction of section IV of the Lika and Dalmatia pipeline system by constructing the main Benkovac-Dugopolje pipeline. This marked the completion of the Second development and investment cycle, and the natural gas supply in almost all parts of the Republic of Croatia. The year 2013 also saw the completion and construction of facilities in Slavonski Brod, Čakovec and Vodnjan, and the initial designs of facilities in Ogulin and Benkovac. In addition, the majority of the activities connected to the construction of the Kutina-Dobrovac pipeline were completed in 2013. Besides the above investment projects, the energy entity Plinacro d.o.o, in addition to maintaining the gas transport system route and corridor, carried out a series of major works on system maintenance, which, *inter alia*, included activities relating to

the power grid and construction maintenance, and maintenance of the system of remote stations, instruments and power supply.

According to the data submitted by the energy entity Plinacro d.o.o., the total transported natural gas quantities in the Republic of Croatia in 2013 amounted to 28,694,234,200 kWh, which was a decline of 8.2% in comparison to the total transported in 2012. The total natural gas losses in the transport system in 2013 accounted for 0.26%. The maximum transported gas quantity in a day for final consumption[1] amounted to 126,797,350 kWh/day. The total technical capacity of all transport system entry points as at 31 December 2013 amounted to 11,428,706 kWh/h. According to Plinacro d.o.o. data, technical capacities were established for ten transport system entry points, the largest of them being: Dravaszerdahely – 2,854,586 kWh/h, Pula Terminal – 2,664,280 kWh/h, UGSF Okoli (underground gas storage facility) – 2,664,280 kWh/h, and Rogatec – 1,998,210 kWh/h. The maximum used capacity at all transport system entry points per hour in 2013 amounted to 6,382,658 kWh/h, while the maximum used capacity in a year at the level of the respective transport system entry points was achieved at the UGSF Okoli entry point to the amount of 2,166,562 kWh/h. The quantities of transmitted gas per transport system entry group per month in 2013 are shown in Figure 5.2.2.

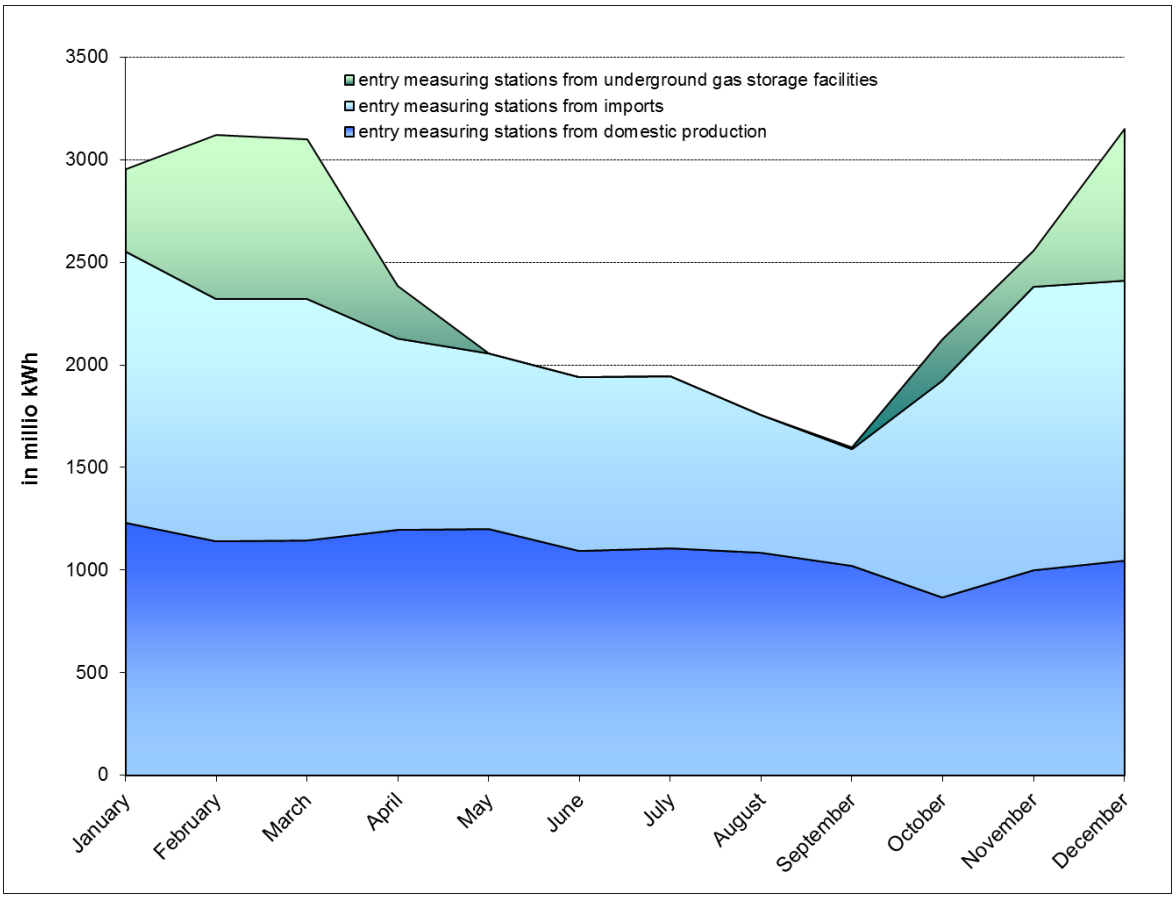


Figure 5.2.2 Quantities of transported gas per transport system entry group per month in 2013

The total technical capacity of the transport system exit points as at 31 December 2013 amounted to 17,307,840 kWh/h. Out of this, the total technical capacity of the exits to distribution systems amounted to 9,996,762 kWh/h, the total technical capacity of exits to end customers directly connected to the transport system was 5,693,478 kWh/h, and the technical capacity of the UGSF Okoli exit was 1,617,600 kWh/h. The maximum used capacity at all transport system exit points per

[1] *Exits to distribution systems and exits to customers directly connected to the transport system.*

hour in 2013 amounted to 6,611,331 kWh/h, whereas the maximum used capacity at the level of the respective transport system exit points was achieved at the exit point to distribution systems to the amount of 4,025,770 kWh/h.

The quantities of transported gas per transport system exit group per month in 2013 are shown in Figure 5.2.3.

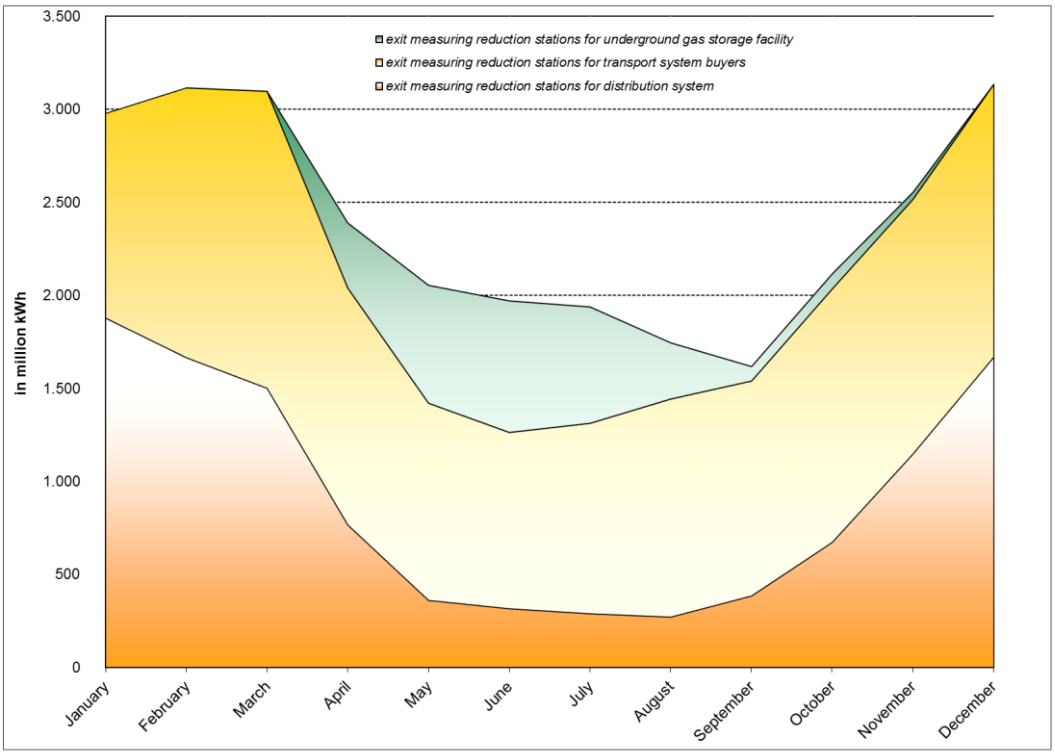


Figure 5.2.3 Quantities of transport gas per transport system exit group per month in 2013

The price of natural gas transport in 2013 was established in accordance with the Tariff system for natural gas transport, without the amounts of tariff items (Official Gazette, Nos. 32/06, 3/07 and 63/12). The Tariff system lays down three tariff items related to natural gas transport in the months of peak, medium and basic loads. The Government of the Republic of Croatia sets the amount of tariff items, which is equal for all users of the transport system. The amounts of tariff items, excluding VAT,[2] for natural gas transport in 2013 are shown in Table 5.2.1.

Table 5.2.1 Amounts of tariff items for natural gas transport in 2013

Transport period	Decision of the Croatian Government (OG 103/09) – in force since 1 September 2009
Peak load months *(January, February, November and December)*	T_{peak} = HRK 5.13 per Sm^3 per day
Medium load months *(March, April, May, June, September and October)*	T_{medium} = HRK 4.265 per Sm^3 per day
Basic load months *(July and August)*	T_{basic} = HRK 2.58 per Sm^3 per day

[2] *All tariff items and prices in this chapter are shown excluding VAT.*

The price of natural gas transport, i.e. the fee for the use of the gas transport system, is defined according to the previously leased and actually used capacity of the transport system by an individual user in a year. The average price of natural gas transport in 2013 for gas suppliers of end customers connected to the distribution system amounted to 0.228 HRK/m3, which was a decrease of 4.60% in comparison to the average transport price for gas suppliers in 2012.

The average price of natural gas transport in 2013 for the 24 end customers directly connected to the transport system amounted to 0.179 HRK/m3, which was an increase of 5.92% in comparison to the average transport price for end customers directly connected to the distribution system in 2012. The average price of natural gas transport in 2013 for all transport system users amounted to 0.200 HRK/m3, which was an increase of 0.50% in comparison to the average natural gas transport price in 2012.

5.2.2 Natural gas storage

Natural gas storage is a regulated energy activity performed as a public service. Since 2009, the gas storage system operator in the Republic of Croatia has been the energy entity Podzemno skladište plina d.o.o., which uses UGSF Okoli for natural gas storage. The geographical position of the facility is shown in Figure 5.2.1. Before it was demerged into Podzemno skladište plina d.o.o., an independent company, UGSF Okoli was an integral part of the INA d.d. company from its establishment in 1987.

Okoli consists of underground gas deposits (geological structures), operating and control wells, and the overground part of a plant whose basic facilities are well platforms, connection pipelines, a regulation station, gas drying station, measuring station, compression station and ancillary facilities. In general, natural gas is injected into the underground deposit from 1 April to 31 September and withdrawn from 1 October to 31 March.

The technical capacities of the gas storage system[3] are defined by the Supplemental mining project for the Okoli production field and underground gas storage of 25 November 2005. The technical capacity of the working volume amounts to 5,239,896 MWh, the technical capacity of withdrawal amounts to 2,274 MWh/h (54,576 MWh/day), while the technical injection capacity amounts to 1,516 MWh/h (36,384 MWh/day).

During 2013, a total of 2,341,003 MWh of natural gas were injected into UGSF Okoli and 2,961,312 MWh of natural gas withdrawn. The end of the withdrawal cycle and the beginning of the natural gas injection cycle, established according to the minimum gas quantity in the storage facility for a calendar year, was on 12 April 2013, when the status of the working volume was 2,644,205 MWh. The beginning of the cycle of gas withdrawal was on 28 September 2013, when the working volume balance amounted to 5,238,874 MWh, while the highest working volume balance of UGSF Okoli was achieved in October 2013 and accounted for 5,238,874 MWh. The natural gas working volume balance in UGSF Okoli on certain dates during 2013 is shown in Figure 5.2.4. The largest achieved gas withdrawal capacity in 2013 amounted to 2,274 MWh/h, while the largest achieved gas injection capacity amounted to 1,421 MWh/h.

Podzemno skladište plina d.o.o. investments in the development and extension of the gas storage system in 2013 covered mining works in eight production wells of UGSF Okoli, i.e. replacement of the well production equipment with new equipment of a larger diameter (six wells) and the cleaning of sediment from perforations, thus reducing the hydraulic resistance to gas flows through the wells and enhancing their productivity. The above equipment was replaced after 26 years, which led to

[3] *The technical capacity is the total capacity of the gas storage system which the gas storage system operator can offer to the system users, taking into account the integrity and technical capabilities of the gas storage system.*

enhanced storage facility safety and reliability. In addition, project documentation was prepared and a location permit obtained for a formation water injection system project. As part of this project, UGSF Okoli will be able to dispose of the formation water independently, without having to use the INA d.d. system. This will lead to a significantly reduced risk pertaining to the technological process. In addition, the first wireless connection phase was completed as part of a video surveillance project. As a result of this, all facilities (wells, platforms, plants) of UGSF Okoli have been covered by video surveillance since 2013. Furthermore, the required project documentation and construction permit were obtained, and work on the construction of the UGSF Okoli administrative building and storage facility started. In addition, all the required project documents for the additional KRS Gr-1Z and Gr-2Z exploration works with seismic (VSP) and hydrodynamic (RLTi IT) measurements for the Grubišno Polje peak storage facility project were developed, and an extended licence for exploration for minerals for the Grubišno Polje production field requested and obtained from the Ministry of the Economy.

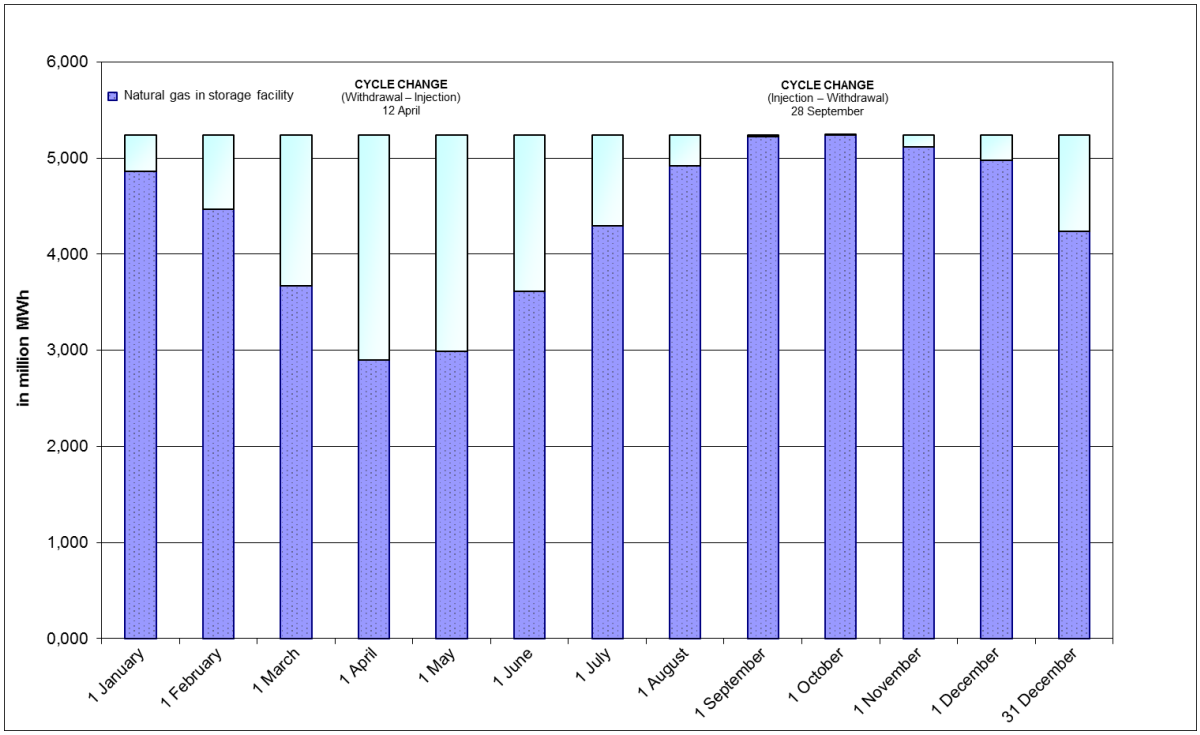


Figure 5.2.4 Natural gas supplies in UGSF Okoli on particular days in 2013

The price of natural gas storage in 2013 was established in accordance with the Tariff system for natural gas storage (Official Gazette, Nos. 151/08, 13/09 and 2/11). In June 2009, the Government of the Republic of Croatia adopted the Decision on tariff items for natural gas storage (Official Gazette, No. 73/09). The amounts of tariff items as per the above Decision, which was also valid in 2013, are shown in Table 5.2.2.

Table 5.2.2 Amounts of tariff items for natural gas storage in 2013

T_{rv} – tariff item for the lease of working volume	T_{rv} = 8.77 HRK/MWh
T_u – tariff item for the lease and use of the daily injection capacity of gas into the working volume	T_u = 270.65 HRK/MWh/day
T_p – tariff item for the lease and use of the daily withdrawal capacity of gas from the working volume	T_p = 195.41 HRK/MWh/day

5.2.3 Gas distribution

Gas distribution is a regulated energy activity performed as a public service. In 2013, gas distribution in the Republic of Croatia was performed by 36 energy entities.[4]

According to the data collected from the 36 distribution system operators, the total distributed gas quantities[5] in the Republic of Croatia in 2013 amounted to 10,648 million kWh, which was a decline of 1.89% in comparison to the total distributed quantities in 2012. Of the total quantity of gas distributed, 6,154 million kWh (58%) were distributed to users of the household tariff group and 4,494 million kWh (42%) to users of the commercial tariff group. In 2013, the total number of distribution system users amounted to 651,099, which was an increase of 0.63% in comparison to the total number of distribution system users in 2012. Of the total number of distribution system users, in 2013 there were 599,019 users in the household tariff group, and 52,080 users in the commercial tariff group. Of the total number of commercial tariff group users in 2013, 52,013 users had an annual natural gas consumption under or equal to 10 GWh, 63 users above 10 GWh and under or equal to 50 GWh, and four users had an annual consumption of natural gas above 50 GWh.

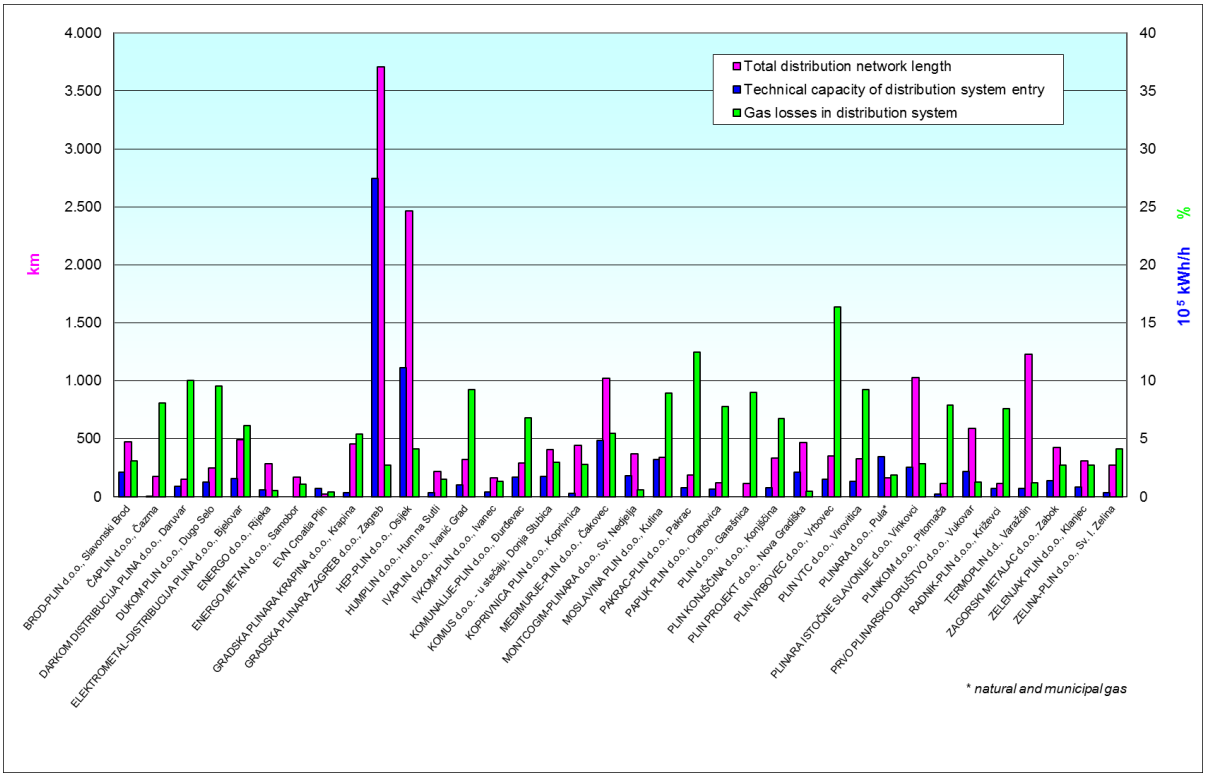


Figure 5.2.5 Comparison of the length of the distribution network, the total technical capacity of exits into distribution systems, and gas losses per distribution system operator in the Republic of Croatia in 2013

The total length of all gas distribution systems in the Republic of Croatia at the end of 2013 amounted to 18,577 km, which was 1.1% more compared to the total length of all gas distribution systems at the end of 2012, according to the data collected from the distribution system operators. Of the total length of distribution systems at the end of 2013, low-pressure pipelines accounted for 18%, medium-pressure pipelines for 75% and high-pressure pipelines for 7%. In terms of the type of material of the total length of the distribution systems at the end of 2013, 18.9% were made of

[4] *Including the energy entity Plinara d.o.o. Pula, which, apart from natural gas, also distributed municipal gas.*

[5] *Natural and municipal gas.*

steel, 80.8% of polyethylene and 0.3% of other materials. The total number of odorisation stations in all distribution systems at the end of 2013 amounted to 124. A comparison of the length of distribution systems, the total technical capacity of entries into distribution systems, and gas losses per distribution system operator in the Republic of Croatia in 2013 is shown in Figure 5.2.5. The geographical position of the distribution areas of distribution system operators in 2013 is shown in Figure 5.2.6.

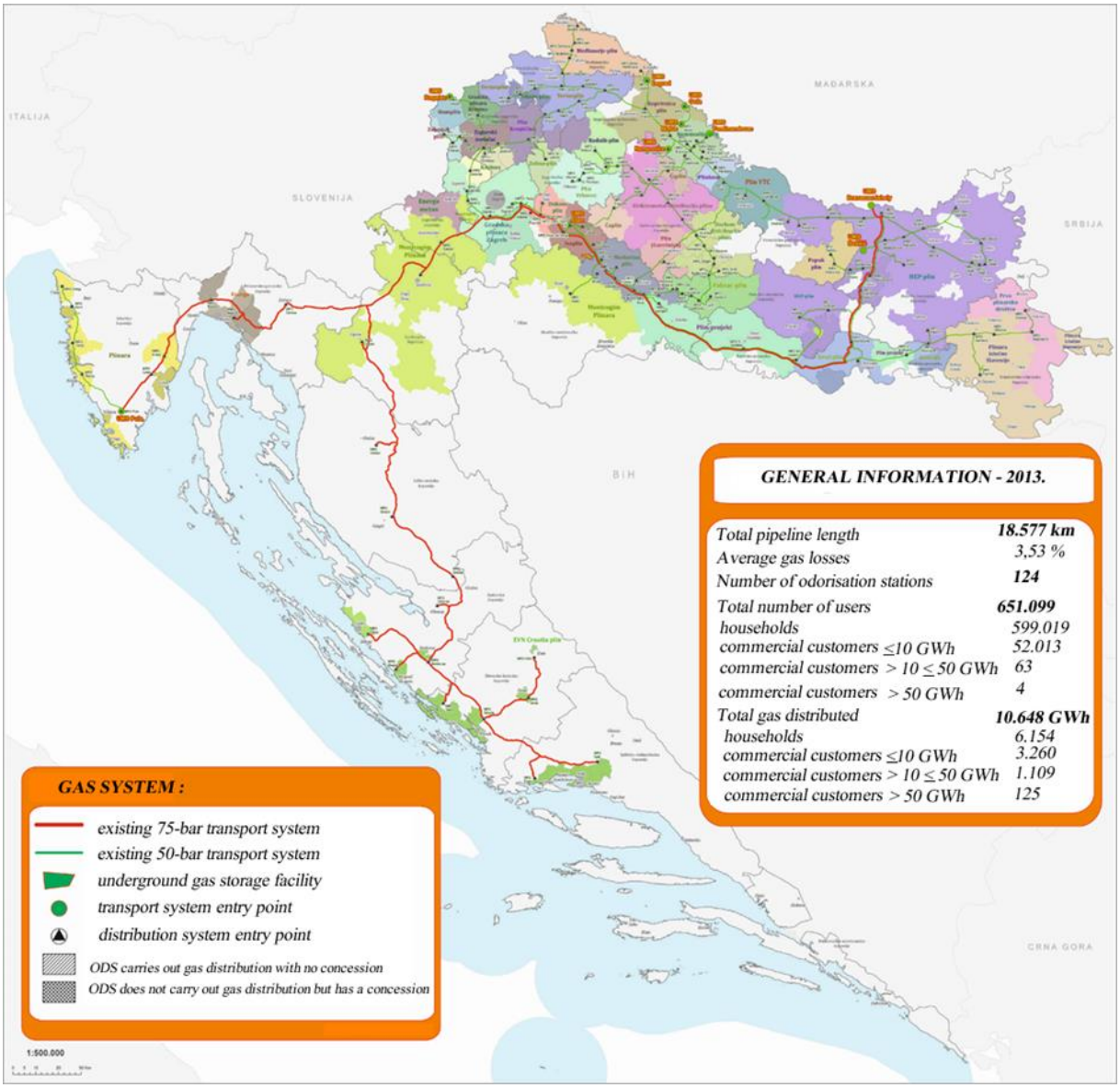


Figure 5.2.6 Locations of the distribution areas of distribution system operators and general information about gas distribution activity in the Republic of Croatia in 2013

Under the Energy Act, the price of gas distribution in 2013 was also established in accordance with the Tariff system for gas distribution, without the amounts of tariff items (Official Gazette, Nos. 34/07, 47/07, 44/10 and 13/12). The amounts of tariff items for gas distribution in 2013 were at the level of the amounts of tariff items set in April 2012 by the Government of the Republic of Croatia in compliance with the Decision on tariff items in the tariff system for natural gas distribution, without the amounts of tariff items (Official Gazette, Nos. 49/12 and 99/12). They are shown in Table 5.2.3.

Table 5.2.3 The amounts of gas distribution tariff items in 2013 per distribution system operator by tariff model

Decision of the Croatian Government (OG 49/12 and 99/12) – in force from 1 May 2012									
No.	Distribution system operator	*Household*		*Commercial ≤10 GWh*		*Commercial > 10 ≤ 50 GWh*		*Commercial > 50 GWh*	
		TI1 (HRK/kW)	*TI2 (HRK)*	*TI1 (HRK/kW)*	*TI2 (HRK)*	*TI1 (HRK/kW)*	*TI2 (HRK)*	*TI1 (HRK/kW)*	*TI2 (HRK)*
1	BROD-PLIN d.o.o., Slavonski Brod	0.032395	16.50	0.031315	16.50	0.019437	60.00	0.008639	60.00
2	DARKOM DISTRIBUCIJA PLINA d.o.o., Daruvar	0.032395	16.50	0.025916	16.50	0.021597	60.00	0.008639	60.00
3	DUKOM PLIN d.o.o., Dugo Selo	0.047513	16.50	0.042113	16.50	0.021597	60.00	0.008639	60.00
4	ELEKTROMETAL-DISTRIBUCIJA PLINA d.o.o., Bjelovar	0.036714	16.50	0.035634	16.50	0.021597	60.00	0.008639	60.00
5	ENERGO d.o.o., Rijeka	0.060471	16.50	0.059391	16.50	0.023756	60.00	0.012958	60.00
6	ENERGO METAN d.o.o., Samobor	0.033475	16.50	0.026996	16.50	0.019437	60.00	0.008639	60.00
7	EVN Croatia Plin d.o.o.	0.060471	16.50	0.060471	16.50	0.028076	60.00	0.008639	60.00
8	GRADSKA PLINARA KRAPINA d.o.o., Krapina	0.038874	16.50	0.033475	16.50	0.021597	60.00	0.008639	60.00
9	GRADSKA PLINARA ZAGREB d.o.o., Zagreb	0.032395	16.50	0.025916	16.50	0.019437	60.00	0.008639	60.00
10	HEP-PLIN d.o.o., Osijek	0.030235	16.50	0.026996	16.50	0.019437	60.00	0.008639	60.00
11	HUMPLIN d.o.o., Hum na Sutli	0.038874	16.50	0.032395	16.50	0.021597	60.00	0.008639	60.00
12	IVAPLIN d.o.o., Ivanić Grad	0.041034	16.50	0.041034	16.50	0.021597	60.00	0.008639	60.00
13	IVKOM-PLIN d.o.o., Ivanec	0.030235	16.50	0.025916	16.50	0.021597	60.00	0.008639	60.00
14	PLIN d.o.o., Garešnica	0.055071	16.50	0.045353	16.50	0.021597	60.00	0.008639	60.00
15	PLIN KONJŠČINA d.o.o., Konjščina	0.050752	16.50	0.045353	16.50	0.021597	60.00	0.008639	60.00
16	KOPRIVNICA PLIN d.o.o., Koprivnica	0.038874	16.50	0.030235	16.50	0.025916	60.00	0.009718	60.00
17	PAKRAC-PLIN d.o.o., Pakrac	0.030235	16.50	0.026996	16.50	0.021597	60.00	0.008639	60.00
18	PLIN VRBOVEC d.o.o., Vrbovec	0.050752	16.50	0.041034	16.50	0.023756	60.00	0.008639	60.00
19	ČAPLIN d.o.o., Čazma	0.045353	16.50	0.037794	16.50	0.021597	60.00	0.008639	60.00
20	KOMUNALIJE-PLIN d.o.o., Đurđevac	0.028076	16.50	0.026996	16.50	0.021597	60.00	0.008639	60.00
21	PLINKOM d.o.o., Pitomača	0.033475	16.50	0.030235	16.50	0.021597	60.00	0.008639	60.00
22	KOMUS d.o.o. - in bankruptcy proceedings, Donja Stubica	0.036714	16.50	0.028076	16.50	0.021597	60.00	0.008639	60.00
23	MEĐIMURJE-PLIN d.o.o., Čakovec	0.030235	16.50	0.024836	16.50	0.021597	60.00	0.008639	60.00
24	MONTCOGIM-PLINARA d.o.o., Sv. Nedjelja	0.057231	16.50	0.037794	16.50	0.021597	60.00	0.008639	60.00
25	MOSLAVINA PLIN d.o.o., Kutina	0.048592	16.50	0.034555	16.50	0.021597	60.00	0.008639	60.00
26	PAPUK PLIN d.o.o., Orahovica	0.032395	16.50	0.030235	16.50	0.021597	60.00	0.008639	60.00
27	PLINARA d.o.o., Pula	0.060471	16.50	0.060471	16.50	0.028076	60.00	0.008639	60.00
28	PLIN-PROJEKT d.o.o., Nova Gradiška	0.050752	16.50	0.050752	16.50	0.028076	60.00	0.008639	60.00
29	PLINARA ISTOČNE SLAVONIJE d.o.o, Vinkovci	0.038874	16.50	0.036714	16.50	0.021597	60.00	0.008639	60.00

30	PRVO PLINARSKO DRUŠTVO d.o.o., Vukovar	0.034555	16.50	0.030235	16.50	0.019437	60.00	0.008639	60.00
31	RADNIK-PLIN d.o.o., Križevci	0.042113	16.50	0.032395	16.50	0.021597	60.00	0.008639	60.00
32	TERMOPLIN d.d., Varaždin	0.032395	16.50	0.031315	16.50	0.021597	60.00	0.008639	60.00
33	PLIN VTC d.o.o., Virovitica	0.037794	16.50	0.029155	16.50	0.021597	60.00	0.008639	60.00
34	ZAGORSKI METALAC d.o.o., Zabok	0.042113	16.50	0.034555	16.50	0.021597	60.00	0.008639	60.00
35	ZELENJAK PLIN d.o.o., Klanjec	0.032395	16.50	0.029155	16.50	0.021597	60.00	0.008639	60.00
36	ZELINA-PLIN d.o.o., Sv. I. Zelina	0.033475	16.50	0.029155	16.50	0.021597	60.00	0.008639	60.00

In compliance with the Decision on tariff items in the tariff system for natural gas distribution, without the amounts of tariff items (Official Gazette, Nos. 49/12 and 99/12), the average price of gas distribution in the Republic of Croatia[6] in 2013 for the household tariff group (tariff model TM1) amounted to 0.054554 HRK/kWh, for the commercial tariff group with a total annual natural gas consumption under or equal to 10 GWh (tariff model TM2) it was 0.034088 HRK/kWh, for the commercial tariff group with a total annual natural gas consumption above 10 GWh and under or equal to 50 GWh (tariff model TM3) it was 0.021902 HRK/kWh, and for the commercial tariff group with a total annual natural gas consumption above 50 GWh it was 0.008662 HRK/kWh. The total average gas distribution price in the Republic of Croatia in 2013 amounted to 0.044348 HRK/kWh. Total average gas distribution prices per distribution system operator in the Republic of Croatia in 2013 in compliance with the Decision of 1 May 2012 are shown in Figure 5.2.7.

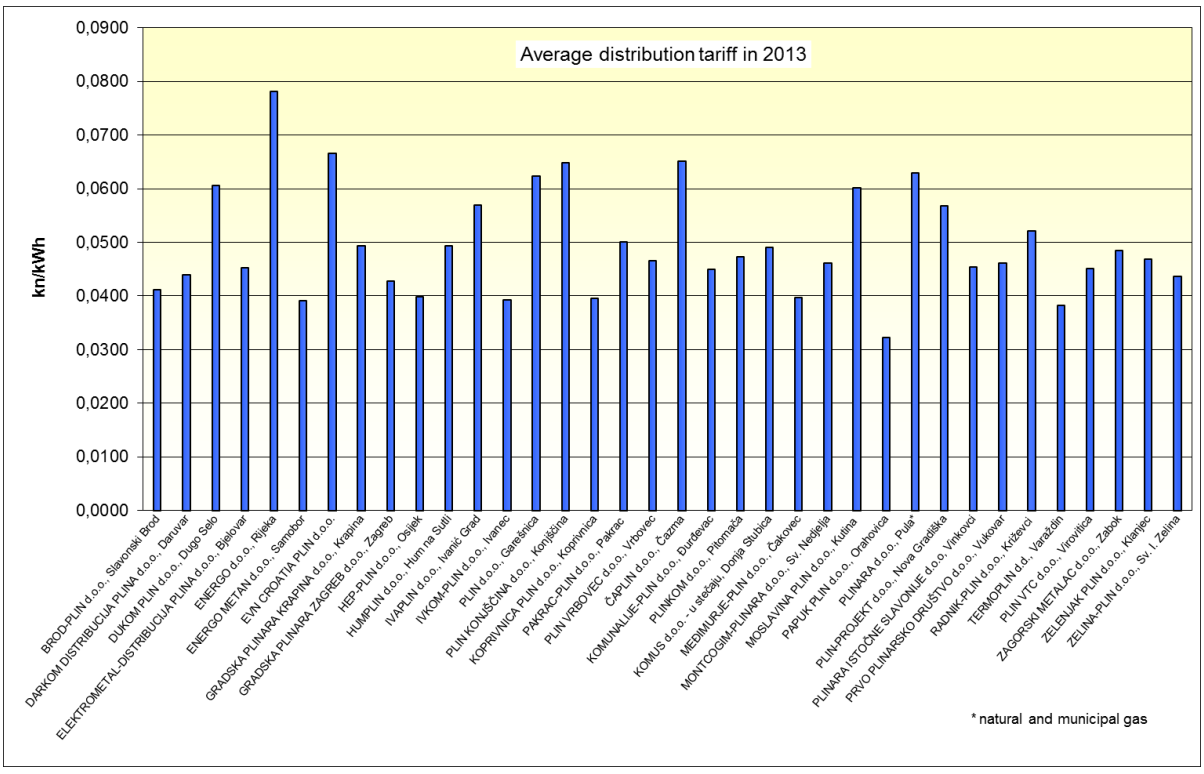


Figure 5.2.7 Total average gas distribution prices per distribution system operator in the Republic of Croatia in 2013 in compliance with the Decision of 1 May 2012

[6] *Weighted average according to distributed gas quantities for each individual distribution system operator.*

5.2.4 Unbundling of activities

The unbundling of energy-related activities implies that the activities of the transport system operator, distribution system operator, gas storage system operator and LNG system operator, including the operator which is part of a vertically integrated energy entity, need to be organised in an independent legal entity and independently of other activities in the gas sector.

The above requirements were stipulated in 2008. In compliance with EU legislation, they exempt from the unbundling of activities a distribution system operator who is part of a vertically integrated energy entity and has fewer than 100,000 customers connected to the distribution system. They also stipulate the obligation to organise gas distribution activities in an independent legal entity, separated from horizontally integrated entities and independent of activities outside the gas sector. The obligation to restructure the gas sector was carried out by all market stakeholders by 2010.

Since 2002, natural gas transport has been carried out by Plinacro d.o.o., a state-owned company established as a spin-off of INA d.d. Under the Gas Market Act, in 2007 Plinacro d.o.o. was appointed the transport system operator in the Republic of Croatia for a period of 30 years.

Natural gas storage is provided by Podzemno skladište plina d.o.o., a company owned by Plinacro d.o.o. since 2009 and operating as a separate legal entity.

In 2013, gas was distributed by 36 energy entities, and supplied by 42 out of 55 licenced energy entities. Of 36 distribution system operators, 13 were organised as independent legal entities dealing only with gas distribution, whereas 23 energy entities were organised as vertically integrated legal entities with fewer than 100,000 customers, active in both gas distribution and supply. The structure of energy entities in 2013 with respect to the activities they carry out and the unbundling requirements is shown in Figure 5.2.8.

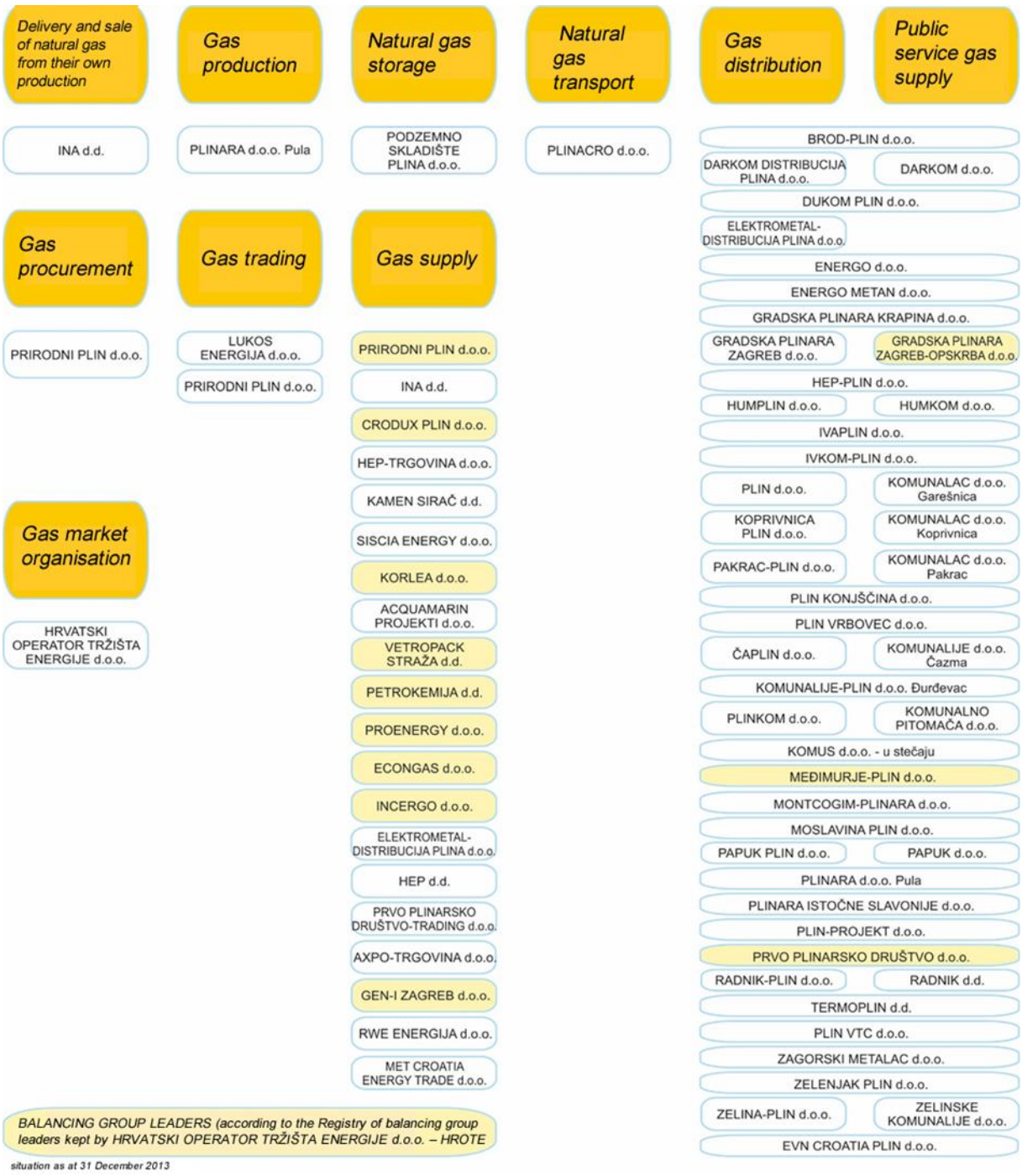


Figure 5.2.8 The structure of energy entities according to their activities

5.3 Natural gas market development

5.3.1 Natural gas balance

In 2013, the total gas quantity which entered the transport system amounted to 28,683 million kWh, of which 13,120 million kWh (45.8%) were from domestic production, 12,202 million kWh (42.5%) from imports, and 3,361 million kWh (11.7%) from UGSF Okoli (Figure 5.3.1).

In addition, in 2013 the total gas quantity that exited the transport system amounted to 28,694 million kWh, of which 14,975 million kWh (52.2%) went to end customers directly connected to the

transport system, 10,906 million kWh (38%) to distribution system buyers, and 2,813 million kWh (9.8%) to UGSF Okoli.

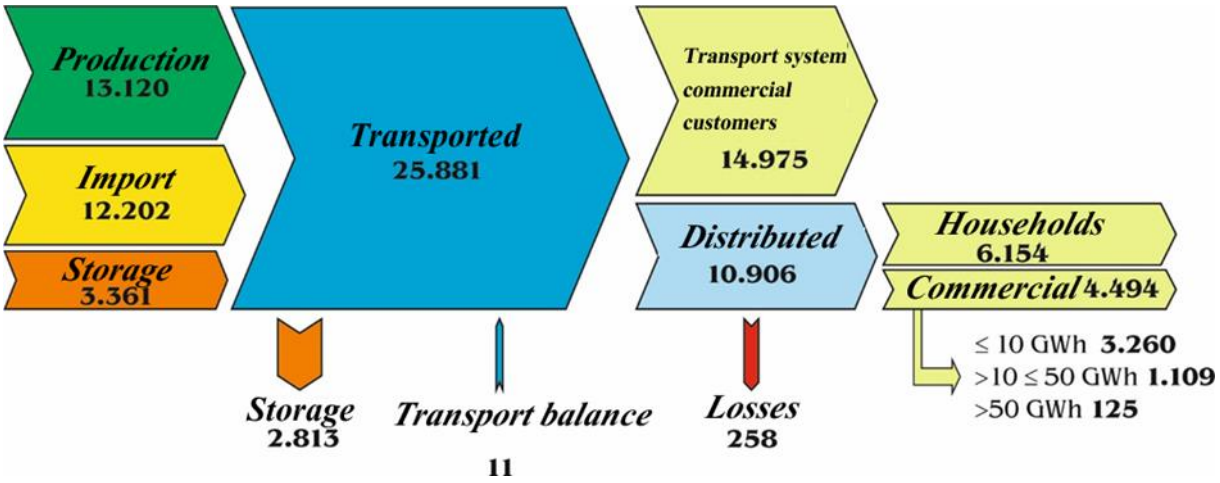


Figure 5.3.1 Natural gas balance in the Republic of Croatia in 2013

Distribution system operators distributed a total of 10,648 million kWh, of which 6,154 million kWh were distributed to households, 3,260 million kWh to commercial customers with a total annual natural gas consumption under or equal to 10 GWh, 1,109 million kWh to commercial customers with a total annual natural gas consumption above 10 GWh and under or equal to 50 GWh, and 125 million kWh to commercial customers with a total annual natural gas consumption above 50 GWh.

In 2013, 42 gas suppliers grouped into eight balancing groups used the gas transport service. As regards the market shares of the respective balancing groups, the Prirodni plin d.o.o. gas supplier received 83.4% of the gas, and the remaining 7 suppliers received 16.6%. The shares of the respective balancing groups in 2013 are shown in Figure 5.3.2.

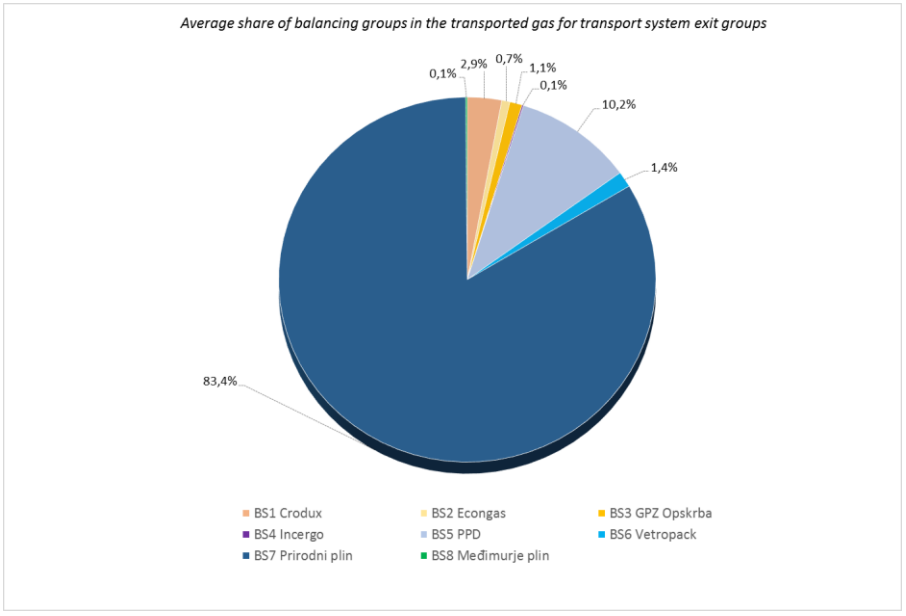


Figure 5.3.2 The shares of balancing groups in the total natural gas quantities delivered from the transport system in 2013

5.3.2 Natural gas supply and final consumption

In 2013, the natural gas supply in the Republic of Croatia was carried out by 42 energy entities, even though 55 energy entities were authorised to carry out gas supply activities in 2013. The natural gas delivery in 2013 was structured in the following way:

- 14,975 million kWh were delivered to end customers directly connected to the transport system,
- 6,154 million kWh were delivered to households connected to the distribution system, and
- 4,494 million kWh were delivered to commercial customers connected to the distribution system.

The delivery structure in 2013 is shown in Figure 5.3.3.

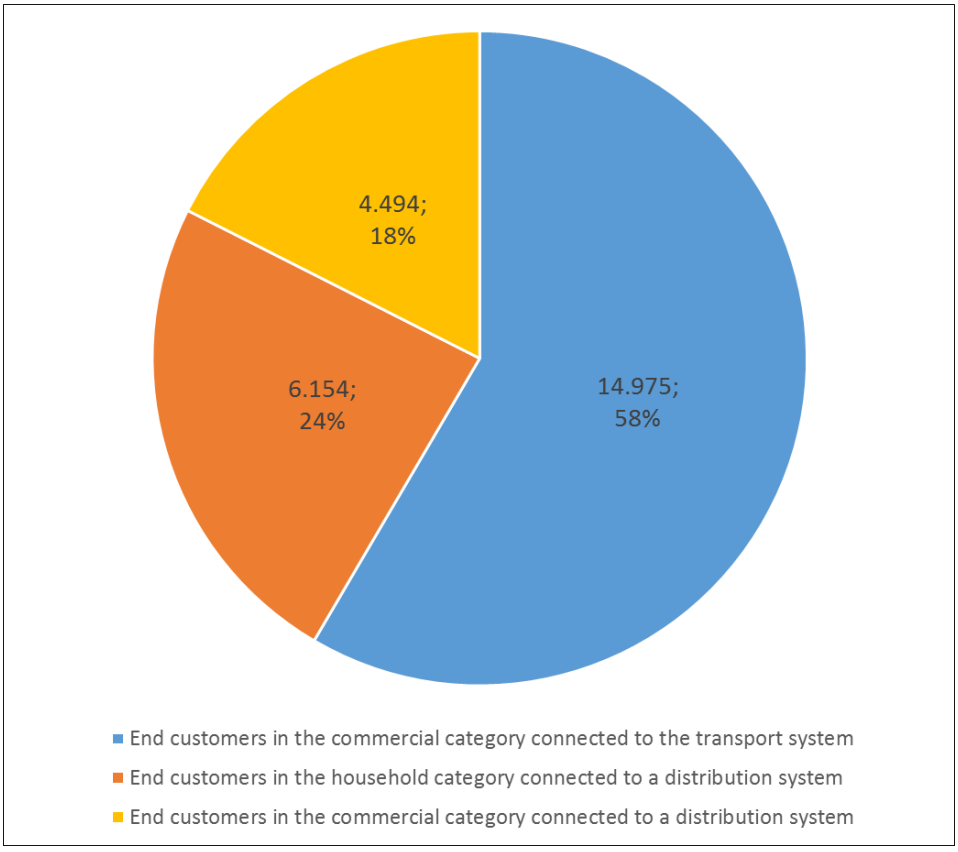


Figure 5.3.3 Structure of the delivery of natural gas from the transport system in 2013 [million kWh]

The total natural gas quantity delivered by gas suppliers in 2013 to end customers connected to the distribution system amounted to 10,648 million kWh. Of this quantity, 6,154 million kWh of natural gas were delivered to households, which was a decrease of 0.9% in comparison to the quantity delivered to households in 2012. Of this, 4,494 million kWh of natural gas were delivered to commercial customers connected to the distribution system, which was a decrease of 4.0% in comparison to the quantity delivered to commercial customers in 2012. Of the total number of commercial customers in 2013, 3,260 million kWh were delivered to customers with an annual natural gas consumption under or equal to 10 GWh, 1,109 million kWh to customers with an annual consumption of natural gas above 10 GWh and under or equal to 50 GWh, and 125 million kWh to customers with an annual consumption of natural gas above 50 GWh. Of this amount, 14,975 million kWh of natural gas were delivered to commercial customers connected to the transport system, which was a decrease of 4.2% in comparison to the quantity delivered to commercial customers connected to the transport system in 2012.

A comparison of the number of end customers connected to the distribution system and the quantity of natural gas delivered to end customers per gas supplier in the Republic of Croatia in 2013 is shown in Figure 5.3.4.

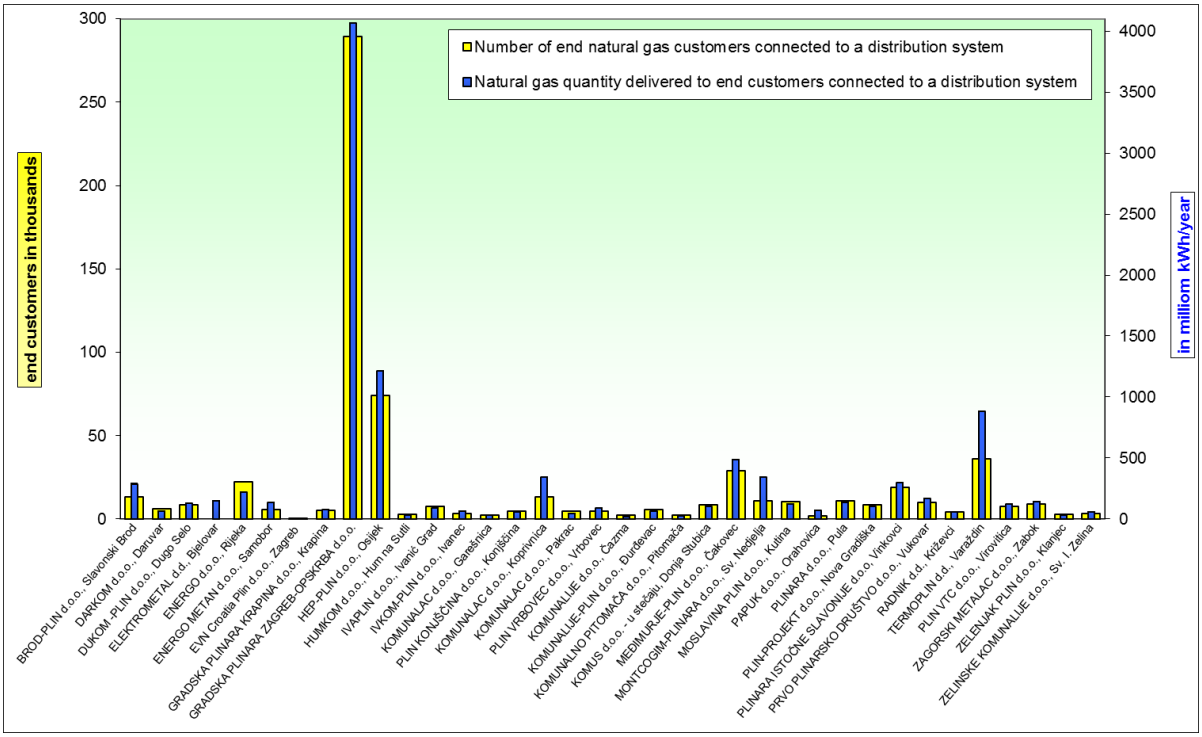


Figure 5.3.4 A comparison of the number of end customers connected to the distribution system and the quantity of natural gas delivered to end customers per gas supplier in the Republic of Croatia in 2013

5.3.3 Gas supply quality

The Gas Market Act defines the obligations of gas producers and transport , distribution, storage and LNG system operators, as well as the obligations of gas suppliers, with regard to the disclosure and maintenance of the agreed gas supply quality parameters to customers. The General terms and conditions of natural gas supply stipulate that the quality of the gas supply should cover the quality of service, reliability of delivery and quality of gas. The quality of service represents the stipulated level of service that the transport system operator, distribution system operator and gas supplier are required to provide to transport or distribution system users. The reliability of delivery means the continuity of the gas delivery from the transport or distribution system over a particular period of time expressed through indicators of the number of delivery interruptions and their duration. Standard gas quality is stipulated under Annex I to the General terms and conditions of natural gas supply. Gas producers, gas suppliers and gas traders are obliged to ensure the standard quality of the gas delivered to the transport or distribution system, as stipulated by the General terms and conditions of natural gas supply. Furthermore, the General terms and conditions of natural gas supply stipulate that the transport system operator, distribution system operator and gas supplier also have the obligation to establish a system for gathering data on the quality of service and publish annual reports on the quality of service in electronic form.

For 2013, HERA has gathered data which are informative in nature and cover the gas supply quality as monitored through the following parameters:

– the number of requests for connection to the gas network,

- the average response time for requests for connection to the gas network,
- the number of complaints lodged by customers/users,
- the number of planned and unplanned interruptions in gas delivery,
- the total duration of planned and unplanned interruptions in gas delivery.

The data were gathered from the transport system operator and all the distribution system operators. In 2013, the transport system operator received a total of five requests for connection to the transport network. Of these, two were approved (connection completed), while the other three requests are still being processed. The distribution system operators received a total of 4,120 requests for connection to the distribution network, which represented a decrease in the number of requests in comparison to 2012 of 32.6%. Of a total of 4,120 received requests, 3,899, i.e. 94.6%, were approved. The average response time for requests amounted to 15 days, which was 36.3% longer than in 2012.

The quality and reliability of the gas supply is also defined as the continuity of transport and distribution of gas over a certain period of time and is expressed by the number and duration of delivery interruptions. Data on the number and duration of planned and unplanned interruptions in gas delivery in 2013 were collected from the transport and distribution system operators.

In the course of 2013, there were 34 planned gas delivery interruptions in the gas transport network, and three unplanned delivery interruptions. All delivery interruptions in 2013 amounted to 473 hours.

In the distribution networks, there were on average 30 planned and unplanned delivery interruptions, with a total average duration of all delivery interruptions of 450 hours.

5.3.4 Natural gas prices

Gas procurement prices

As in 2012, the gas procurement price[7] in 2013 was determined pursuant to the Decision on the price of gas procurement for the gas supplier of suppliers of tariff customers (Official Gazette, No. 49/12), which the Government of the Republic of Croatia adopted in April 2012 and which entered into force on 1 May 2012. The gas procurement price was identical for all tariff customers and amounted to 0.237563 HRK/kWh, which corresponds to a calorific value[8] of gas of 2.28 HRK/m^3.

Natural gas prices for end customers in the Republic of Croatia

The Government of the Republic of Croatia adopted the Decision on tariff items in the tariff system for natural gas supply, with the exception of eligible customers, without the amounts of tariff items (Official Gazette, Nos. 49/12 and 99/12), which entered into force on 1 May 2012, and also remained valid in 2013. In 2013, the average natural gas selling price for households per gas supplier in the Republic of Croatia, excluding VAT, varied from 0.318614 to 0.406615 HRK/kWh. The average natural gas selling price for households[9] in the Republic of Croatia in 2013, excluding VAT, amounted to 0.331938 HRK/kWh.

[7] *The Gas Market Act defines gas procurement as the supply of tariff customer suppliers and suppliers who have a public service gas supply obligation.*

[8] *The 2013 average gas calorific value of 34.57 MJ/m^3, based on the data submitted by Plinacro d.o.o., was used for the conversion into m^3.*

[9] *Weighted average according to the gas delivered to households per gas supplier.*

The average natural gas selling price, excluding VAT, for commercial customers[10] connected to the distribution system in the Republic of Croatia in 2013 amounted to 0.3806 HRK/kWh.

In 2013, the average natural gas selling price, excluding VAT, for commercial customers[11] connected to the distribution system in the Republic of Croatia with a total annual natural gas consumption under or equal to 10 GWh amounted to 0.3937 HRK/kWh. The lowest price was recorded in the fourth quarter and amounted to 0.3723 HRK/kWh, and the highest price was in the second quarter and amounted to 0.4100 HRK/kWh. For commercial customers with a total annual natural gas consumption above 10 GWh and under or equal to 50 GWh, the average natural gas selling price, excluding VAT, amounted to 0.3499 HRK/kWh. The lowest price was recorded in the fourth quarter and amounted to 0.3162 HRK/kWh, and the highest was in the first quarter and amounted to 0.3718 HRK/kWh. The average natural gas selling price, excluding VAT, for commercial customers with a total annual natural gas consumption above 50 GWh amounted to 0.3298 HRK/kWh. The lowest price was recorded in the fourth quarter and amounted to 0.2944 HRK/kWh, and the highest price was in the first quarter and amounted to 0.3567 HRK/kWh.

In 2013, the average natural gas selling price, excluding VAT, for commercial customers[12] connected to the transport system in the Republic of Croatia amounted to 0.2793 HRK/kWh. The lowest price was recorded in the fourth quarter and amounted to 0.2639 HRK/kWh, and the highest price was in the first quarter and amounted to 0.2951 HRK/kWh.

The average natural gas selling prices for all categories of end customers connected to the distribution system per gas supplier in the Republic of Croatia in 2013 are shown in Figure 5.3.5.

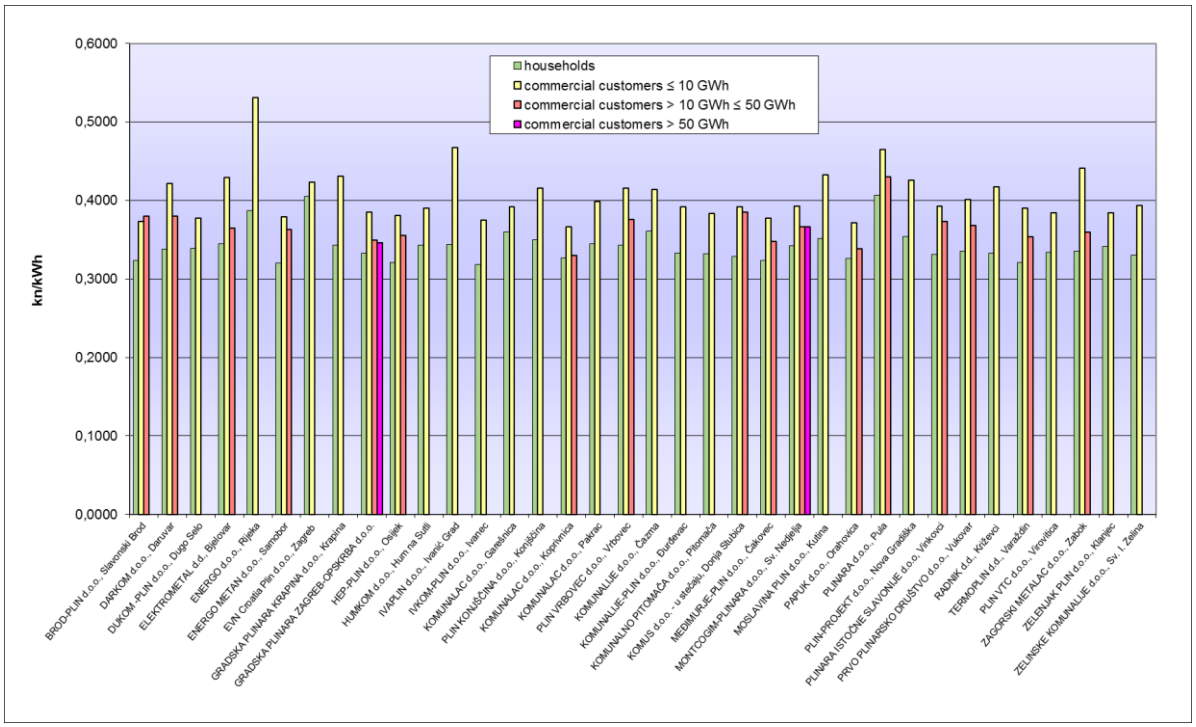


Figure 5.3.5 The average natural gas selling prices for categories of end customers connected to the distribution system per gas supplier in the Republic of Croatia in 2013

[10] *Weighted average according to the gas delivered to commercial customers per gas supplier.*

[11] *Weighted average according to the gas delivered to commercial customers for each tariff model per gas supplier.*

[12] *Weighted average according to the gas delivered to commercial customers per gas supplier.*

Natural gas prices for end customers in European countries

The natural gas prices for households in most European countries experienced a continuous increase from 2004 to 2007. The upward trend was briefly suspended in 2007, and in some countries, such as Romania and Croatia, natural gas prices for households even decreased. The prices of natural gas increased again in 2008, while in 2009 most EU Member States reported a significant reduction in the natural gas price for households. According to Eurostat data, the prices of natural gas for end customers in the household category in the Republic of Croatia increased slightly until 2007, followed by a short stagnation of prices, while in 2009 the price significantly increased. The trend also continued in 2012. In 2013, natural gas prices for households in the Republic of Croatia slightly declined, as shown by Eurostat. The trend in retail prices for natural gas for households in the D2 category with an annual consumption of natural gas from 20 to 200 GJ, which approximately amounts to a natural gas consumption of between 600 to 6,000 m^3/year, is shown in various European countries between 2002 and 2013[13] in Figure 5.3.6.

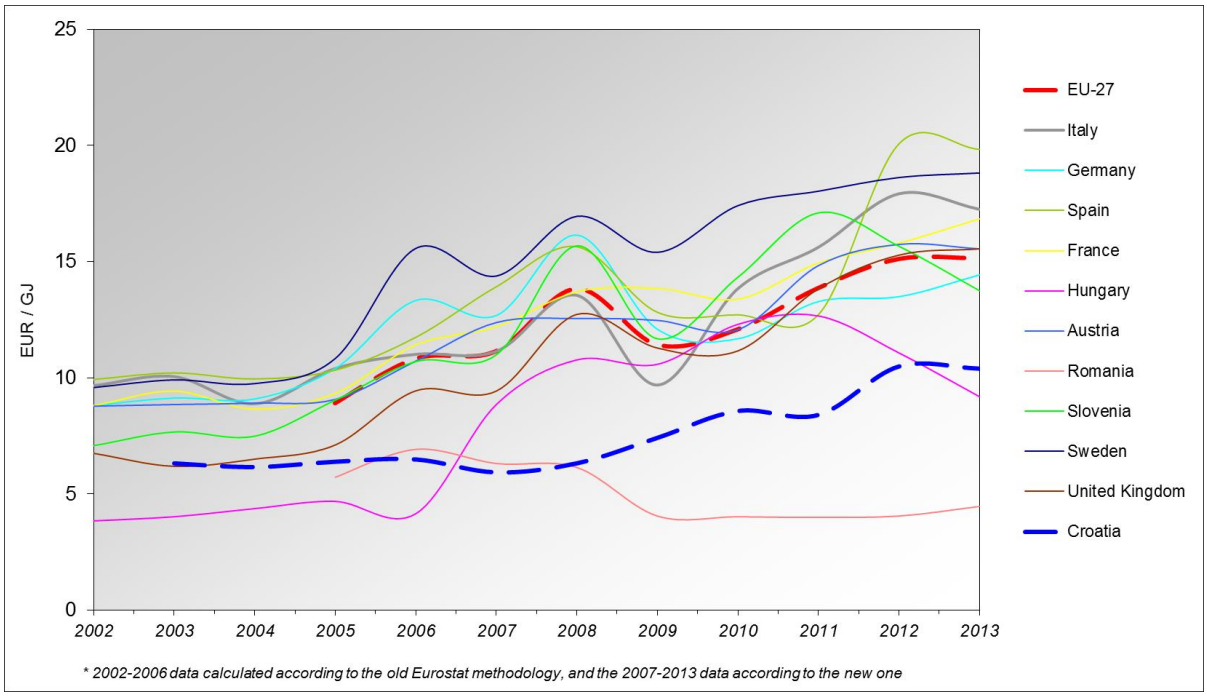


Figure 5.3.6 Trend in retail prices of natural gas for households in the D2 category in various European countries from 2002 to 2013 (excluding taxes) [EUR/GJ]

According to the data provided by Eurostat, the prices of natural gas for households in the D2 category in the European Union increased by 0.2% from 2012 to 2013.

Figure 5.3.7 shows the average natural gas prices for households in the D2 category in European countries for the period from July to December 2013, with and without calculated taxes.

The retail price of natural gas with taxes included for households in the D2 category in the second half of 2013 was highest in Sweden (34.01 EUR/GJ), Denmark (30.89 EUR/GJ) and Italy (26.29 EUR/GJ), and lowest in Romania (8.52 EUR/GJ), Turkey (10.30 EUR/GJ) and Hungary (11.67 EUR/GJ). It is evident that the proportion of taxes in the total price of natural gas for the aforementioned consumer category significantly varied and was the largest in Denmark (56.4%), Romania (47.6%) and Sweden (44.7%), and the lowest in the United Kingdom (4.8%), Luxembourg (10.2%) and Slovakia (16.6%).

[13] *The prices are calculated as the average values of retail prices from July to December of the observed years.*

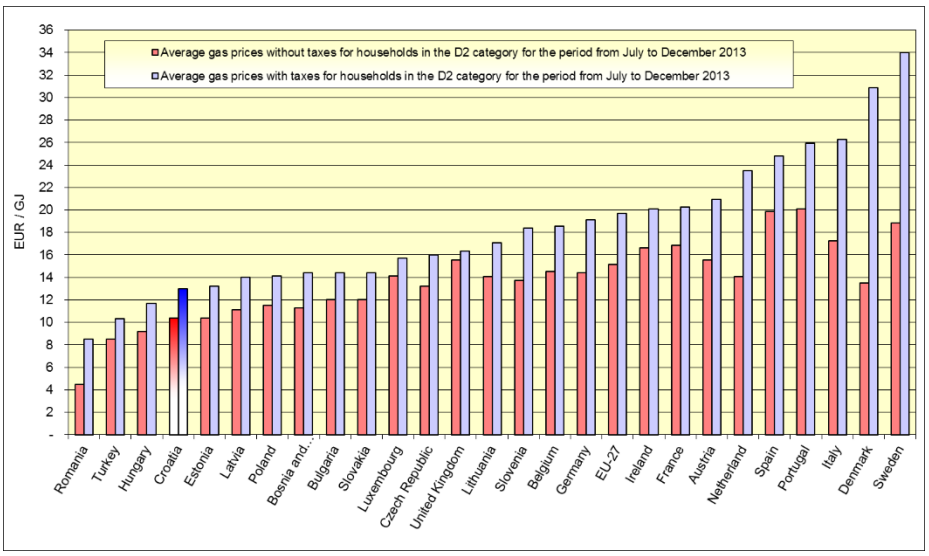


Figure 5.3.7 Average natural gas prices for households in the D2 category for the period from July to December 2013 (with and without calculated taxes)

Figure 5.3.8 shows a comparison of natural gas retail prices for households in the D2 category, taxes included, in European countries from July to December 2012 and from July to December 2013. The international PPS/GJ[14] unit has been used as the price unit to eliminate differences in the prices of goods/services in the respective countries.

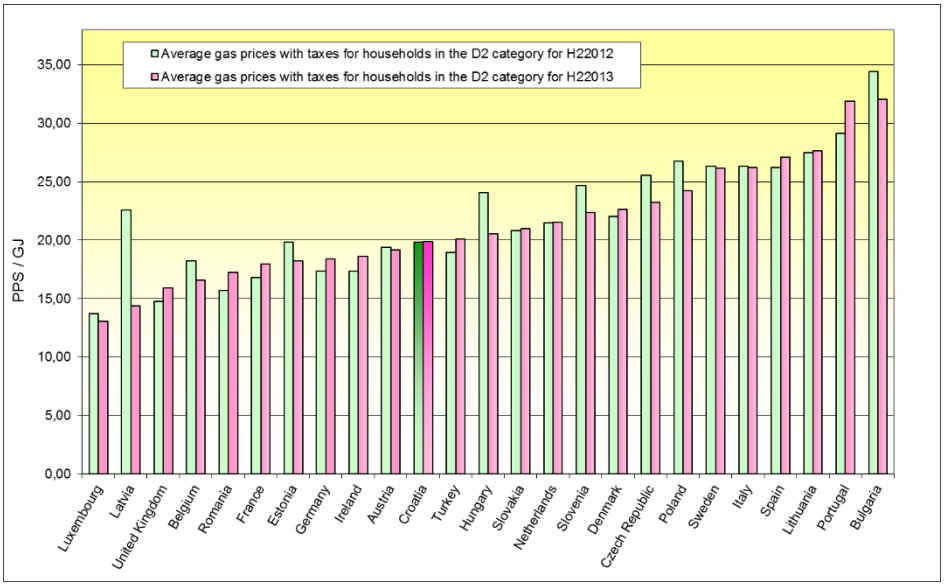


Figure 5.3.8 Comparison of average natural gas prices for households in the D2 category with the prices of goods/services in European countries (taxes included) from July to December 2012 and from July to December 2013

According to Eurostat data for the period from 2012 to 2013, natural gas prices in the European Union, taxes included, increased on average by 5.1% for industrial customers of the I3 category with an annual natural gas consumption from 10,000 to 100,000 GJ, which approximately corresponds to a natural gas consumption of 300,000 to 3,000,000 m^3/year.

[14] *The PPS (purchasing power standards) represents a unit that allows purchasing of the same quantities of goods/services in all countries.*

Figure 5.3.9 shows the average natural gas prices for industrial customers in the I3 category in European countries for the period from July to December 2013, with and without taxes.

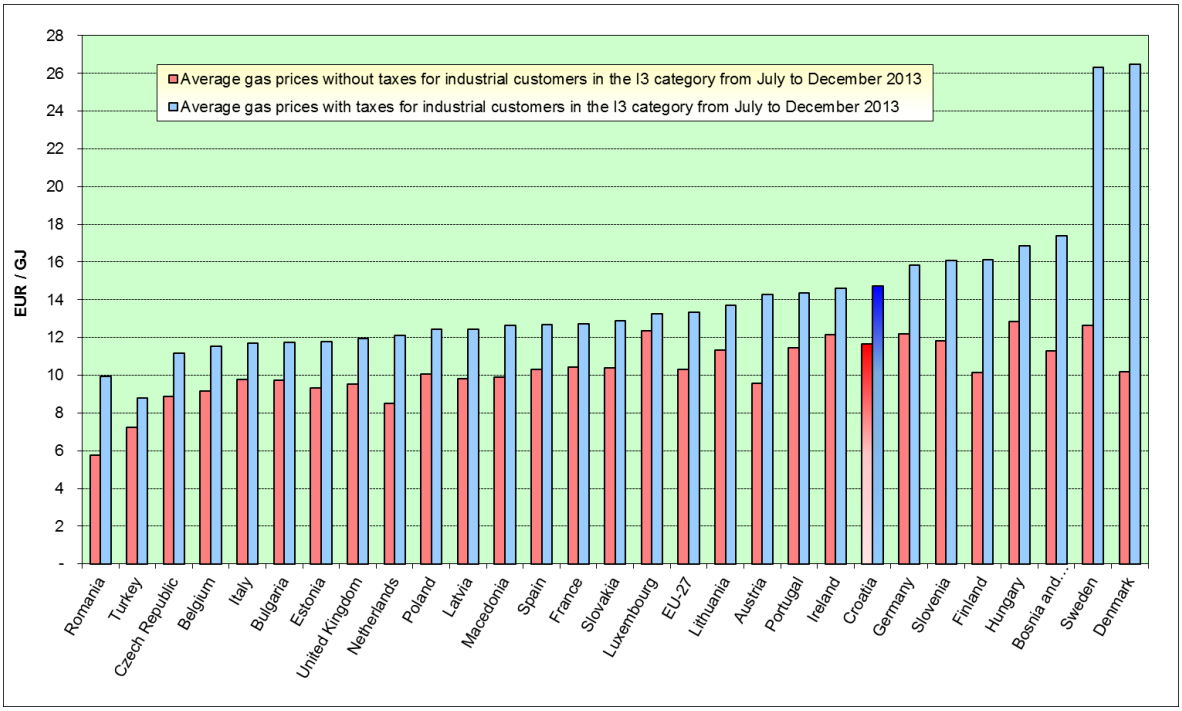


Figure 5.3.9 Average natural gas prices for industrial customers in the I3 category for the period from July to December 2013 (with and without taxes)

The retail price of natural gas with taxes included for industrial customers in the I3 category in the second half of 2013 was highest in Denmark (26.50 EUR/GJ), Sweden (26.30 EUR/GJ), and Bosnia and Herzegovina (17.40 EUR/GJ), and lowest in Romania (9.93 EUR/GJ), Turkey (8.78 EUR/GJ) and the Czech Republic (11.15 EUR/GJ). It is evident that the proportion of taxes in the total price of natural gas for the aforementioned consumer category varied significantly and was highest in Denmark (61.6%%), Sweden (51.9%) and Romania (42.0%), and lowest in Luxembourg (6.9%), Italy (16.4%) and Ireland (16.8%).

5.3.5 Customer protection

In 2013, the Customer Complaint Committees of the distribution system operators resolved a total of 624 complaints lodged by customers/users. 62.8% of all complaints received were upheld, and 33.6% denied. At the time of data compilation, the number of complaints in the process of being resolved amounted to 3.5%.

In 2013, HERA received a total of 138 submissions (one appeal and 41 complaints) from end customers, as shown in Table 5.3.1.

Table 5.3.1 End customers´ appeals and complaints by type

Case type	Number	Share
Appeal against the conditions of access to the distribution system under the issued energy compliance certificate	1	2.4%
End customer complaints	41	97.6%
Total	**42**	**100%**

Besides the appeals and complaints shown in Table 5.3.1, in 2013 HERA also received 96 other submissions, inquiries and requests for an opinion or interpretation of regulations.

5.4 Security of the natural gas supply

Gas market stakeholders are responsible for the security of the natural gas supply as part of their activities. The Ministry competent for energy is responsible for the following:

- monitoring the relation between gas market supply and demand,
- preparing estimates of future consumption and available supply,
- planning the construction and development of additional gas system capacities, and
- proposing and taking measures in the case of a crisis.
- Regional self-government units are responsible for the following:
- monitoring the relation between supply and demand in their area,
- preparing estimates of future consumption and available supply,
- planning the construction and development of additional distribution system capacities in their area, and
- proposing and taking measures within their powers under the law.

In order to define measures to secure the natural gas supply, the Government of the Republic of Croatia adopted the Regulation on the security of the natural gas supply (Official Gazette, Nos. 112/08, 92/09 and 152/09), which ceased to be valid on the day the Republic of Croatia became a member of the European Union, i.e. on 1 July 2013. On the same day, Regulation (EU) No. 994/2010 concerning measures to safeguard security of gas supply and repealing Council Directive 2004/67/EC became binding in the Republic of Croatia.

5.5 Public service gas supply

Energy-related activities may be conducted as public services in compliance with the Energy Act. A public service is defined as a service available at all times to all customers and energy entities at regulated prices and/or with regulated conditions for accessing and using the service, taking safety, the regularity and quality of service, environmental protection, efficiency of energy utilisation and climate protection into account, and is performed according to the principles of transparency of operations and supervised by the competent authorities.

Energy-related activities in the gas sector are carried out as market or regulated activities. Regulated activities which are carried out as public services include gas transport, gas distribution, gas storage, LNG terminal operation, gas supply as part of public service, guaranteed supply and gas market organisation. In connection with this, the Energy Act stipulates and defines the guaranteed supply, a new form of gas supply, as the mandatory public service gas supply under regulated conditions to end customers left without a supplier under certain conditions.

Supply as part of the obligation of the public service is laid down in the Gas Market Act and refers to gas supply carried out under regulated conditions for households, and the supplying with gas of those energy entities, and legal and natural persons which use such gas to generate thermal energy supplied to households in compliance with the act regulating thermal energy. In connection with this, the Act also provides for the definition of the public service supplier.

6 OIL AND OIL DERIVATIVES

6.1 Legislative framework for oil and oil derivatives

The oil and oil derivative market, and energy activities in the oil and oil derivative sector are governed by the Energy Act, the Regulation of Energy Activities Act, the Oil and Oil Derivatives Market Act, and ordinances adopted thereunder. In addition, the Air Protection Act (Official Gazette, No. 130/11) served as the basis for the Regulation on liquid petroleum fuel quality (Official Gazette, No. 113/13), which stipulates the frameworks for establishing and monitoring the quality of liquid petroleum fuel.

The 2013 Programme for monitoring liquid petroleum fuel quality (Official Gazette, No. 4/13) stipulates the method for sampling liquid petroleum fuel (especially for service stations and storage facilities), the number of samples and sampling frequency, sampling locations depending on the quantity of liquid petroleum fuel placed by a supplier on the Croatian market or used for personal needs, and laboratory analyses of liquid petroleum fuel samples.

The requirements for wholesale and cross-border trading in oil derivatives are governed by the Regulation on requirements for wholesale and cross-border trading in certain goods (Official Gazette, Nos. 58/09, 27/10, 37/11, 145/12 and 51/13).

The Ordinance on the determination of the highest retail prices for oil derivatives was amended to include the calculation, disclosure and application of the highest retail price level (Official Gazette, Nos. 145/12, 18/13, 62/13 and 109/13).

Compulsory stocks of oil and oil derivatives are covered by the 2013 Decision on the quantity and structure of compulsory oil and oil derivative stocks (Official Gazette, No. 35/13).

6.2 Regulation of oil transportation through pipelines

The activity of oil transportation through pipelines in the Republic of Croatia is performed by Jadranski naftovod d.d. (hereinafter: JANAF d.d.). Pursuant to the Oil and Oil Derivatives Market Act, it undertakes to provide legal and natural persons with access to the transportation system in an impartial and transparent manner.

The oil pipeline system of JANAF d.d. is used for oil imports by tankers through the offshore terminal in Omišalj on the island of Krk, for the transportation of oil through pipelines to the oil refineries in Rijeka and Sisak, as well as for the requirements of refineries in Bosnia and Herzegovina, the Republic of Serbia and the Republic of Hungary, as shown in Figure 6.2.1. In addition, the system can also be used for oil imports by land.

Figure 6.2.1 JANAF d.d. oil pipeline system

In 2013, a total of 5.4 million tons of crude oil were transported through the oil pipeline system, which was an increase of 20% in comparison to the year before. Figure 6.2.2 shows the oil quantity transported in the period 2005-2013.

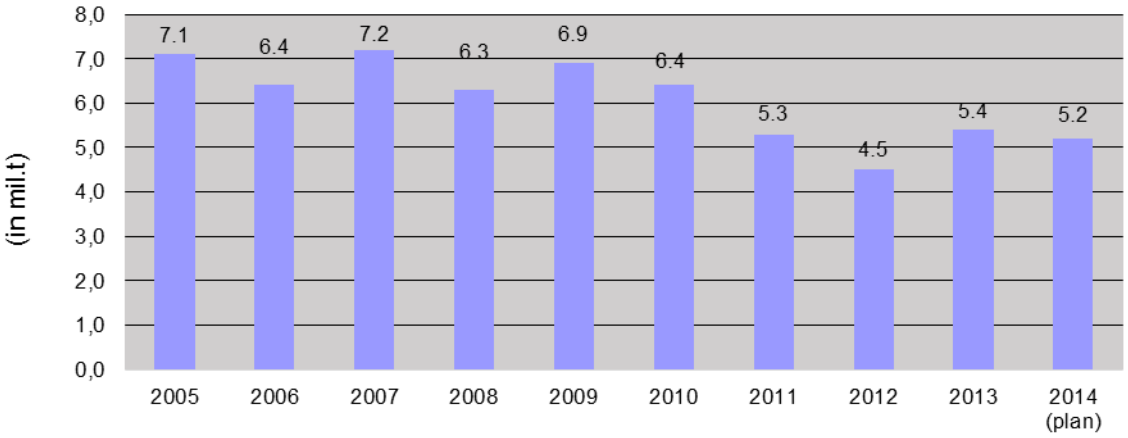


Figure 6.2.2 JANAF oil pipeline system – Transported quantities [in millions of tons]

Other activities of JANAF d.d. regarding oil pipeline system development in 2013 included investment in pipelines (restructuring), investment in the technical protection system, measuring stations and other infrastructure, and the setting up of the JANAF geographic information system.

The applicable Decision on tariff amounts for oil transportation by pipeline (Official Gazette, No. 53/11) sets out the highest tariff for oil transportation by the JANAF d.d. pipeline for respective user categories. The tariff for R1 category users, which use oil pipelines for oil transportation through oil pipelines up to 20 km long and coastal terminals, amounts to HRK 19.96 per ton. The tariff for R2 category users, which use oil pipelines for oil transportation through oil pipelines over 20 km long and offshore and onshore terminals, amounts to HRK 24.29 per ton per 100 km.

6.3 Oil and oil derivative market development

6.3.1 Oil and oil derivative storage

In 2013, the activity of oil and oil derivative storage was carried out by 21 energy entities. The storage of oil and oil derivatives involves storage in special premises for personal needs (producers, users and transportation companies) and storage for the purpose of supply security and/or trading. The price of oil and oil derivative storage is not regulated, i.e. it is based on market principles. According to data supplied by energy entities, the total storage capacities available in 2013 amounted to 2.1 million m^3 (storage capacities of the oil refineries of INA d.d. excluded). The geographical positions of major oil and oil derivative storage facilities in the Republic of Croatia are shown in Figure 6.3.1 according to the type of goods stored in individual storage facilities.

Figure 6.3.1 Geographical positions of oil and oil derivative storage facilities according to the type of goods stored and total storage capacities in 2013

6.3.2 Oil derivative production and trading

Oil derivative production

The activity of oil derivative production in the Republic of Croatia is performed by INA d.d. The oil derivatives produced in the Rijeka and Sisak oil refineries and at the Etan Gas Treatment Plant in Ivanić Grad include motor, industrial and household fuels. Imported crude oil and crude oil and condensates produced in Croatian oil and gas fields are used as the raw material in oil derivative production. Figure 6.3.2 shows the structure of raw material for refinery processing in 2013.

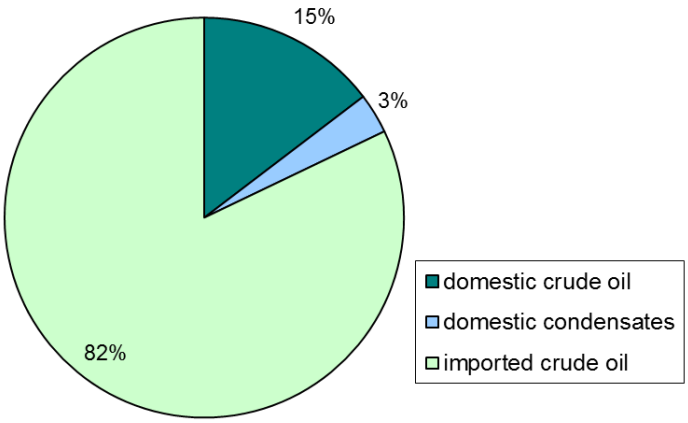


Figure 6.3.2 The structure of raw material for refinery processing in 2013

The total production of oil derivatives in 2013 amounted to 3.1 million tons, which was a decrease of 12% in comparison to 2012. The total quantity of oil derivatives produced in the period from 2006 to 2013 is shown in Figure 6.3.3.

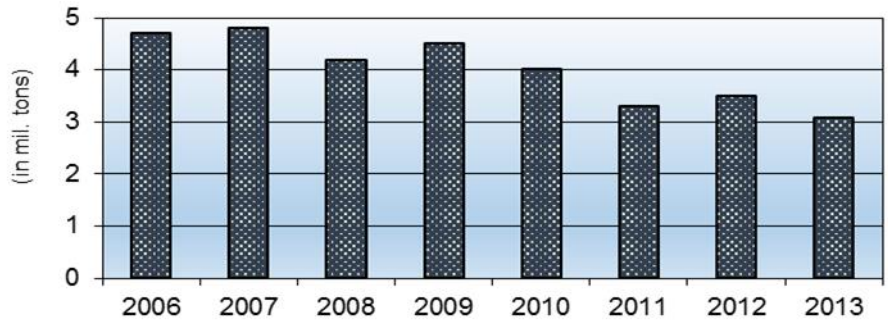


Figure 6.3.3 Quantity of oil derivatives produced in the period from 2006 to 2013 [in millions of tons]

It is worth noting that in 2013 INA d.d. continued the production of fuels which comply with EURO V quality requirements. The replacement of catalysers and the introduction of biofuels characterised the development of the oil derivative production system of Rijeka Oil Refinery in 2013. Further development and modernisation of the oil derivative production system of Sisak Oil Refinery in 2013 included the replacement of coking chambers, the construction of a new recompression station, the introduction of biofuels, and the replacement of catalysers.

Figure 6.3.4 shows the quantity of liquefied petroleum gas (LPG) produced in the period 2006-2013.

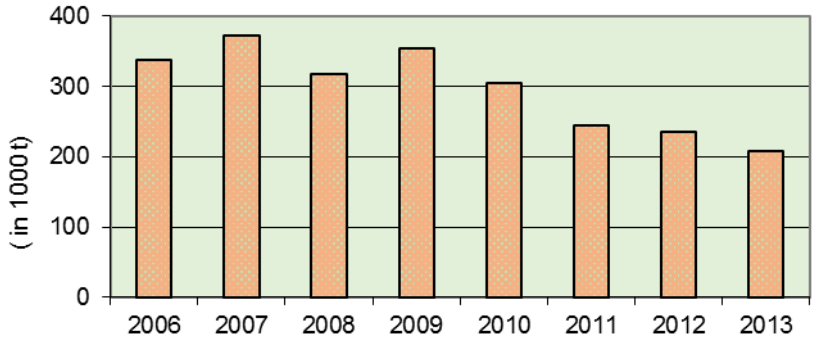


Figure 6.3.4 Quantity of LPG produced in the period from 2006 to 2013 [in thousands of tons]

Oil derivative trading

Oil derivative trading involves the following activities:

- Oil derivative wholesale trading,
- Oil derivative retail trading,
- LPG wholesale trading, and
- LPG retail trading.

A licence from HERA is issued for oil derivative and LPG wholesale trading activities. In addition, the performance of the aforementioned activities requires approval by the Ministry, as stipulated by the Regulation on requirements for wholesale and cross-border trading of certain goods (Official Gazette, Nos. 58/09, 27/10, 37/11 and 145/12).

In 2013, oil derivative wholesale trading was carried out by 35 energy entities, and LPG wholesale trading was carried out by five energy entities.

The price of oil derivatives is not regulated, i.e. it is based on market principles. However, the calculation, disclosure and application of the highest retail price level for oil derivatives are laid down in the Ordinance on the determination of the highest retail prices for oil derivatives (Official Gazette, No. 145/12), and the highest LPG price level is laid down in the Ordinance on the determination of LPG prices (Official Gazette, Nos. 147/10 and 59/11). Besides oil derivatives from domestic production, imported oil derivatives represent a significant share in the market of the Republic of Croatia. According to data supplied to the Agency by energy entities in 2013, a total of 0.78 million tons of oil derivatives were imported. A comparison of the quantities of oil derivatives imported in the period from 2006 to 2013 is shown in Figure 6.3.5.

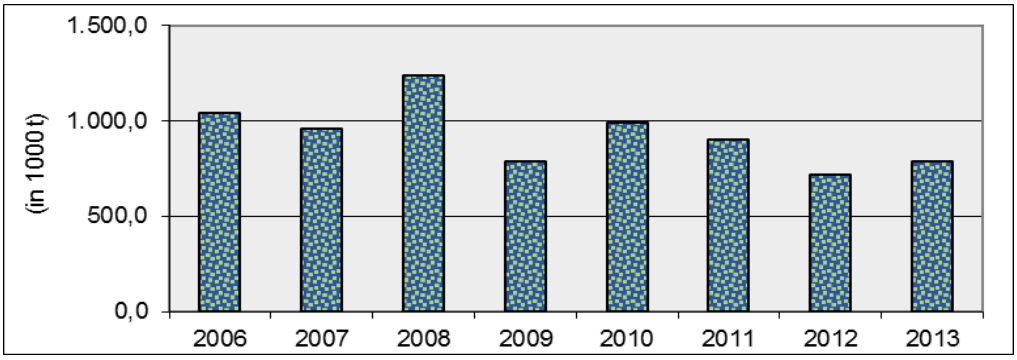


Figure 6.3.5 Oil derivatives imported in the period from 2006 to 2013 [in thousands of tons]

6.4 Security of oil and oil derivative supply

The prerequisites for the security of the oil and oil derivative supply on the Croatian market are stipulated by the Oil and Oil Derivatives Market Act transposing Council Directive 2009/119/EC of 14 September 2009 imposing an obligation on Member States to maintain minimum stocks of crude oil and/or petroleum products. In this context, the Ministry of the Economy establishes the necessary conditions and monitors the secure, regular and quality supply of the oil and oil derivative market in the Republic of Croatia, and is responsible for co-ordination and co-operation with the European Commission and the International Energy Agency, while expert assistance to the Ministry is provided by the Croatian Compulsory Oil Stocks Agency (HANDA).

A representative of the Croatian Energy Regulatory Agency takes part in the work of the Expert Committee on monitoring the regular market supply of oil and oil derivatives. This committee puts into action an Intervention Plan in the case of a supply disruption in the oil and oil derivative market (Official Gazette, No. 111/12). The Intervention Plan stipulates the procedures and criteria for establishing that there has been a sudden disruption, as well as competence and accountability in such a case, and procedures for supply normalisation in the oil and oil derivative market. These involve measures for the reduction of oil derivative consumption, conditions for consumption, and the renewal of compulsory oil and oil derivative stocks.

Regarding the constitution of quantities of compulsory oil and oil derivative stocks, HANDA is obliged to build up compulsory stocks to the amount of 90 days' average consumption. The quantity and structure of compulsory stocks for a particular year is determined by the Government of the Republic of Croatia. The Government of the Republic of Croatia adopted the Decision on the quantity and structure of compulsory oil and oil derivative stocks for the year 2013 (Official Gazette, No. 35/13), and set the amounts shown in Table 6.4.1.

Table 6.4.1 Quantity and structure of compulsory oil and oil derivative stocks for the year 2013

Obliged party	Gasoline [t]	Diesel fuel [t]	Gas oil [t]	Jet fuel [t]	Crude oil [t]
HANDA	57,000	151,000	33,000	20,000	410,000

The Plan for providing, building up and renewing compulsory stocks of oil and oil derivatives, and for storage organisation and regional distribution (Official Gazette, No. 149/09) stipulates that the quantity and structure of compulsory stocks of oil and oil derivatives are public data, whereas the distribution of compulsory stocks of oil and oil derivatives in terms of quantity and structure is confidential. In addition, HANDA is obliged to submit to the Ministry of the Economy monthly reports on the quantity of total compulsory stocks of oil and oil derivatives. In compliance with the above, since 2010 HANDA has been publishing the state of compulsory oil and oil derivative stocks on its website in the form of weekly reports on the state of oil and oil derivative stocks.

Biofuels as a supplement or substitute for diesel fuels or gasoline for transportation purposes

The Oil and Oil Derivatives Market Act recognises the utilisation of biofuels as a supplement for oil derivatives if they comply with the Regulation on the quality of biofuels.

The Regulation on the quality of biofuels (Official Gazette, Nos. 141/05 and 33/11) stipulates the value limits of biofuels which represent a supplement or substitute for diesel fuel or gasoline for transportation purposes.

The Biofuels for Transportation Act stipulates the incentives for the generation and consumption of biofuels in the Republic of Croatia, particularly in terms of fostering the utilisation of biofuels and other renewable transportation fuels, thus aligning Croatian legislation with the EU acquis.

7 BIOFUELS

7.1 Biofuels legislative framework

The biofuels market and corresponding energy activities are regulated under the Energy Act, the Regulation of Energy Activities Act, the Biofuels for Transportation Act, and ordinances adopted on the basis of the aforementioned legislation.

The Biofuels for Transportation Act regulates the production, trade and storage of biofuels, the use of biofuels for transportation, and the adoption of programmes, plans and measures promoting the production and use of biofuels for transportation.

In June 2013, the Ordinance on the method and conditions for the application of requirements pertaining to sustainable biofuel production and use (Official Gazette, No. 83/13) was adopted. As a result of this, the Directive of the European Parliament and of the Council 2009/28/EC on the promotion of the use of energy from renewable sources was transposed into the legal order of the Republic of Croatia.

In December 2013, the Decision on the unit fee of the financial incentive for biofuel production in 2014 was issued (Official Gazette, No. 141/13).

7.2 Development of the Biofuels Market

The area of biofuels includes the following energy activities:

- biofuel production,
- biofuel storage,
- biofuel wholesale and
- biofuel retail.

The aforementioned energy activities require a permit to be obtained from HERA, with the exception of the production of biofuels exclusively for one's own purposes or annual energy production below 1 TU, biofuel retail, and biofuel storage exclusively for one's own purposes. Biodiesel wholesale activity, in addition to a HERA permit, requires consent to be obtained from the Ministry of the Economy in the manner regulated under the Regulation on the terms and conditions for wholesale and trade with foreign countries in specific goods (Official Gazette, Nos. 58/09, 27/10, 37/11 and 145/12).

There are three energy entities which have obtained permits for the abovementioned energy activities. In 2013, these entities produced and distributed a total of 33,435 t of biodiesel, which represents a 15.3% reduction in production in comparison with 2012. These entities have total storage capacities of 1,768 m^3. In 2013, the total biofuel production capacity amounted to 179 t/day. Figure 7.2.1 indicates the structure of raw materials in biofuel production.[15] Oilseed rape accounts for the largest share with 97.2%, whereas waste edible oil amounts to only 2.8%.

[15] *Only for biodiesel in 2013.*

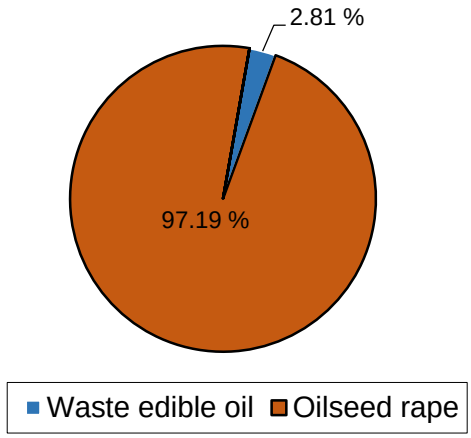


Figure 7.2.1 The structure of raw materials in biodiesel production in 2013

8 THERMAL ENERGY

8.1 Legislative framework for thermal energy

In mid-2013, the new Thermal Energy Market Act (Official Gazette, Nos. 80/13, 14/14) entered into force, with the purpose of creating conditions for a safe and quality supply and distribution of thermal energy, market development, the protection of end customers, the effective production and use of thermal energy, as well as a reduction in adverse environmental effects, and sustainable development, all in line with European Union regulations.

The Thermal Energy Market Act has introduced significant new features in the regulation, organisation and operation of the energy sector regarding the positions of energy entities, end customers and the competent authorities. Heating systems are divided into independent, closed and centralised heating systems. Energy activities, i.e. thermal energy generation and supply, are carried out as market activities, whereas the activity of thermal energy distribution is carried out as a public service. Exceptionally, the activity of thermal energy production in a centralised heating system is carried out as a public service under the condition that the percentage of a single thermal energy generator does not exceed 60% of the thermal energy needs in the centralised heating system.

A new participant in the thermal energy sector has been introduced. This is the thermal energy consumer, i.e. a legal or natural person who, in the name and on behalf of the building owner and/or co-owner, performs thermal energy consumer activities in an independent, closed or centralised heating system. The activities of the thermal energy consumer are not considered to be an energy activity. They include the professional management, handling, and maintenance of internal installations, thermal energy distribution for thermal energy calculation, and issuing receipts to the end customer in a building with an independent, closed or centralised heating system.

A licence to perform thermal energy production activities is required for thermal energy generation in heating systems in boiler rooms with an installed production power greater than 2 MW.

Another new feature refers to keeping separate accounting records for activities. Energy entities that perform energy activities in the thermal energy sector are required to keep separate accounting records of their activities in order to apply the principle of non-discrimination of heating system users to prevent the undermining of market competitiveness and mutual subsidising of energy activities performed as market activities and energy activities performed as public services. HERA issued a Decision on the manner and procedure for keeping separate accounting records for energy entities (Official Gazette, No. 103/13) which regulates the manner and procedure for keeping separate accounting records and business events, the rules for keeping separate business records, and the form, content and submission of financial statements and financial documents of energy entities required for the regulation of energy activities. Energy entities in the thermal energy sector are required to keep separate accounting records as of 1 January 2014.

During 2013, the thermal energy sector and thermal energy generation activities, distribution and supply were governed by the subordinate legislation applicable before the entry into force of the Thermal Energy Market Act.

8.2 Thermal energy sector organisation, activities and indicators

8.2.1 Thermal energy sector organisation

Energy entities for thermal energy generation, distribution and supply in the Republic of Croatia provide heating services and preparation services for sanitary hot water for approximately 155,000 end customers. Households represent more than 95% of the total number of end customers.

The thermal energy required for heating services and the preparation of sanitary hot water is generated in cogeneration thermal power plants in Zagreb and Osijek and in local heating plants and separate boiler rooms present in almost all major towns.

In 2013, energy entities supplied 2 TWh of thermal energy to households and industrial consumers (Figure 8.2.1).

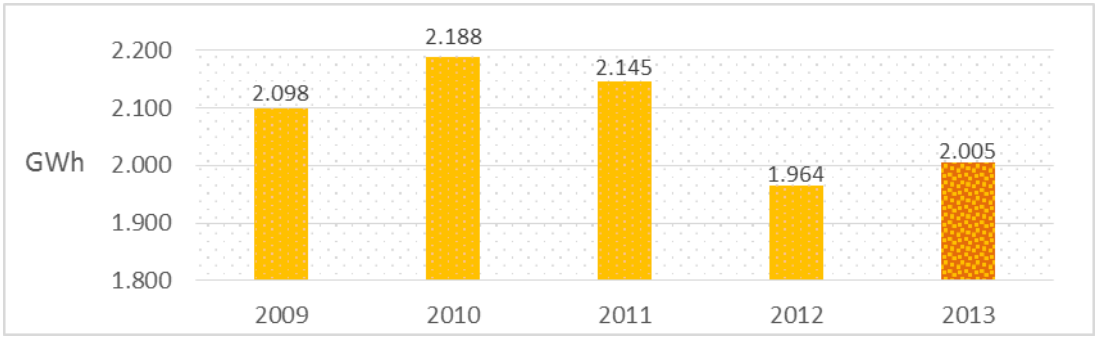


Figure 8.2.1 Thermal energy supplied in the Republic of Croatia per year from 2009 to 2013

More than 11% of the total number of households in the Republic of Croatia are connected to district heating systems, consuming approximately 15% of the total energy used for heating households and the preparation of sanitary hot water.

Basic technical data on heating systems in major Croatian towns are given in the following tables and figures.

Table 8.2.1 Data on energy entities active in the thermal energy sector in the Republic of Croatia

ENERGY ENTITY	No. of end customers	Network length	Total installed power	Supplied thermal energy	Heated area	Fuel**
		km	MWt	GWh/year	m^2	
HEP-Toplinarstvo d.o.o *	124,180	367.6	205.7	1,775.4	9,884,101	NG, FOEL, FOL
Zagreb	98,708	270.2	89.1	1,435.3	7,957,525	NG, FOEL, FOL
Osijek	11,699	56.2	7.9	181.4	1,106,188	NG, FO
Sisak	4,134	26.6	-	61.5	297,730	FO
Velika Gorica	5,893	9.8	69.6	63.8	335,569	NG, FOEL, FOL
Zaprešić	2,369	1.7	20.4	19.4	108,509	NG, FOEL
Samobor	1,377	3.1	18.8	13.9	78,580	NG, FOEL, FOL
Gradska toplana d.o.o., Karlovac	8,097	21.3	117.6	67.7	517,010	NG, FO, FOEL
Energo d.o.o., Rijeka	10,010	16.0	104.0	67.6	580,685	NG, FOEL, FO
Brod-plin d.o.o., Slavonski Brod	3,769	7.1	40.5	38.8	199,071	NG
Tehnostan d.o.o., Vukovar	3,712	7.2	46.0	19.1	205,616	NG
Grijanje Varaždin d.o.o., Varaždin	1,289	1.7	31.3	12.2	69,874	NG

GTG Vinkovci d.o.o., Vinkovci	1,698	1.6	17.6	8.9	89,616	NG, FO
Plin VTC d.o.o., Virovitica	482	0.9	9.8	3.4	30,050	NG
Tekija d.o.o., Požega	417	0.7	7.2	2.4	19,840	NG
Hvidra d.o.o., Split	908	1.2	9.8	2.1	64,639	FO
SKG d.o.o., Ogulin	193	0.6	4.4	2.0	11,690	FOL
Ivakop d.o.o., Ivanić-Grad	3	1.0	5.3	0.8	6,451	NG
Top-terme d.o.o., Topusko	191	1.5		4.1	23,817	GEO
TOTAL	**154,949**	**428.3**	**599.2**	**2,004.6**	**11,702,460**	
** In 2013, HEP-Toplinarstvo delivered 576,671 tons of technological steam*						
*** NG - natural gas, FO - fuel oil, FOEL - extra light fuel oil, FOL - light fuel oil, GEO - geothermal energy*						

These data show that HEP-Toplinarstvo d.o.o. supplies 80% of the total number of end customers and distributes approximately 90% of thermal energy.

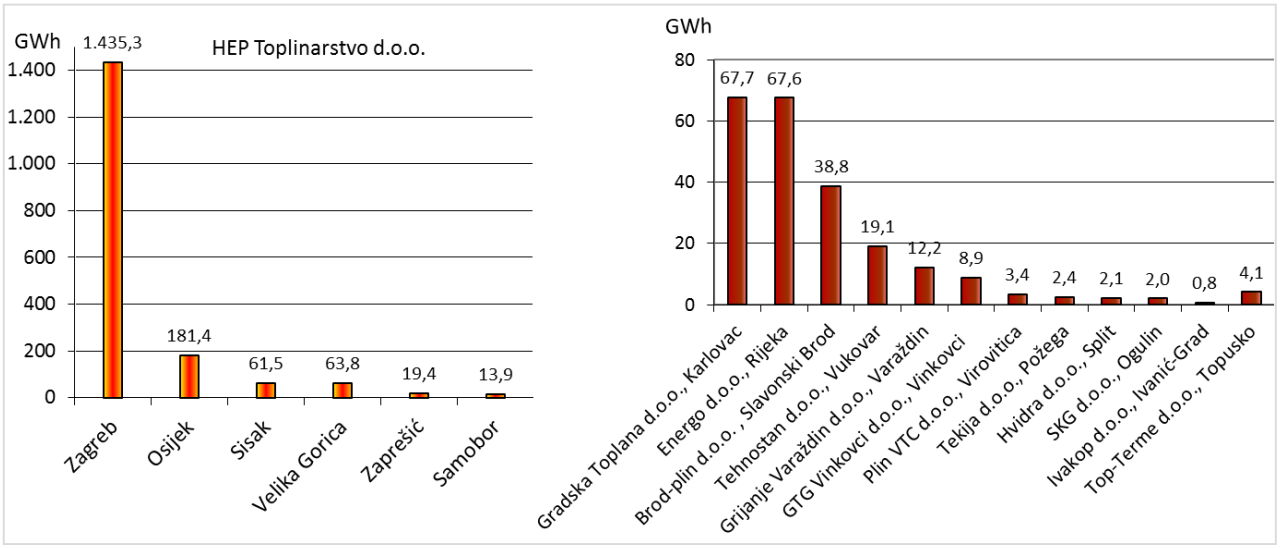


Figure 8.2.2 Thermal energy distributed in 2013

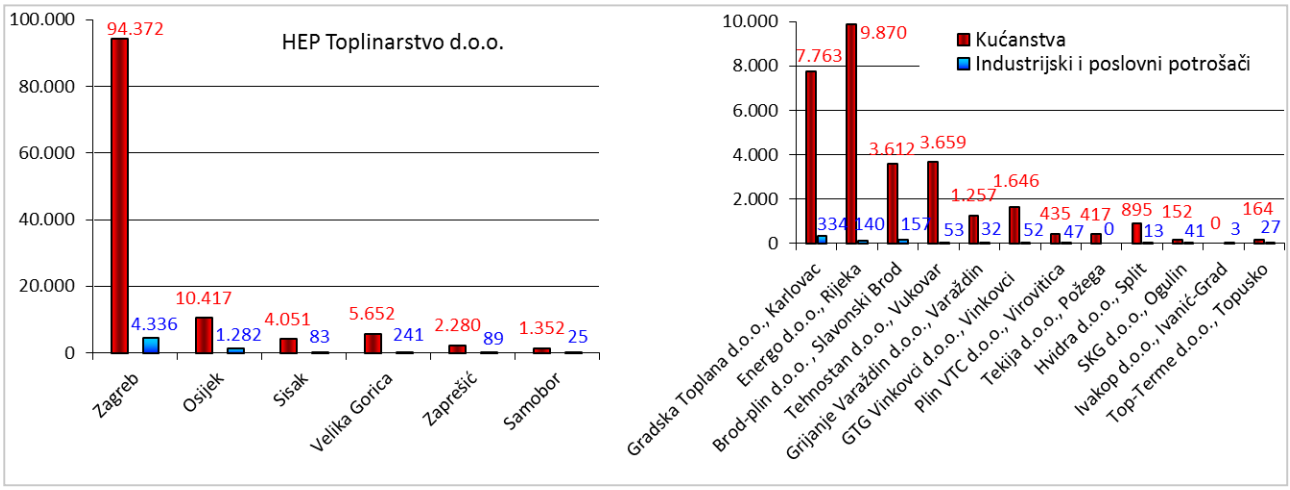


Figure 8.2.3 Number of thermal energy end customers in 2013

In 2013, HEP-Toplinarstvo d.o.o., Grijanje Varaždin d.o.o., Gradska toplana d.o.o. and Termalna voda d.o.o. provided energy activity services related exclusively to thermal energy generation, distribution and supply.

In early 2013, the energy entity Grijanje Varaždin d.o.o. started insolvency proceedings, and in December 2013 the town of Varaždin established a new company, Vartop d.o.o., for maintenance, management and heating. Vartop d.o.o. from Varaždin obtained licences to perform thermal energy generation and supply activities in early 2014.

In addition, during 2013 licences to perform thermal energy generation, distribution and supply activities were transferred from the energy entity Termalna voda d.o.o. to the company Top-terme d.o.o.

The total number of end customers did not change significantly compared to previous years. During 2013, some energy entities continued the trend of disconnecting from the thermal energy system. An increase in the number of end customers was visible only in HEP-Toplinarstvo d.o.o. In Split, Hvidra d.o.o. ceased performing thermal energy generation, distribution and supply activities at the end of the heating season 2012-2013.

As for the amount of supplied thermal energy, in the past several years it has amounted to around 2 TWh. Unless there is a significant rise in the number of end customers, we can expect that the separate measurement of thermal energy, activities to increase the energy efficiency of heating systems, the rational use of thermal energy, and the upgrading of the energy efficiency of old buildings will have an additional effect on the reduction in thermal energy consumption.

The majority of the energy entities in the thermal energy sector have a significant reserve of installed power in comparison with rented power. HEP-Toplinarstvo d.o.o. generates only a small portion of its supplied thermal energy in its own facilities and buys most of it from the energy entity HEP-Proizvodnja d.o.o. The installed power of the facilities used for thermal energy generation by HEP-Proizvodnja d.o.o. amounts to 1,755 MWt. In 2013, HEP-Proizvodnja d.o.o. supplied 824,250 tons of technological steam and 1,655.2 GWh of heat to HEP-Toplinarstvo d.o.o. The percentage of thermal energy generation in cogeneration power plants in 2013 amounted to 75% for technological steam and 88% for heat.

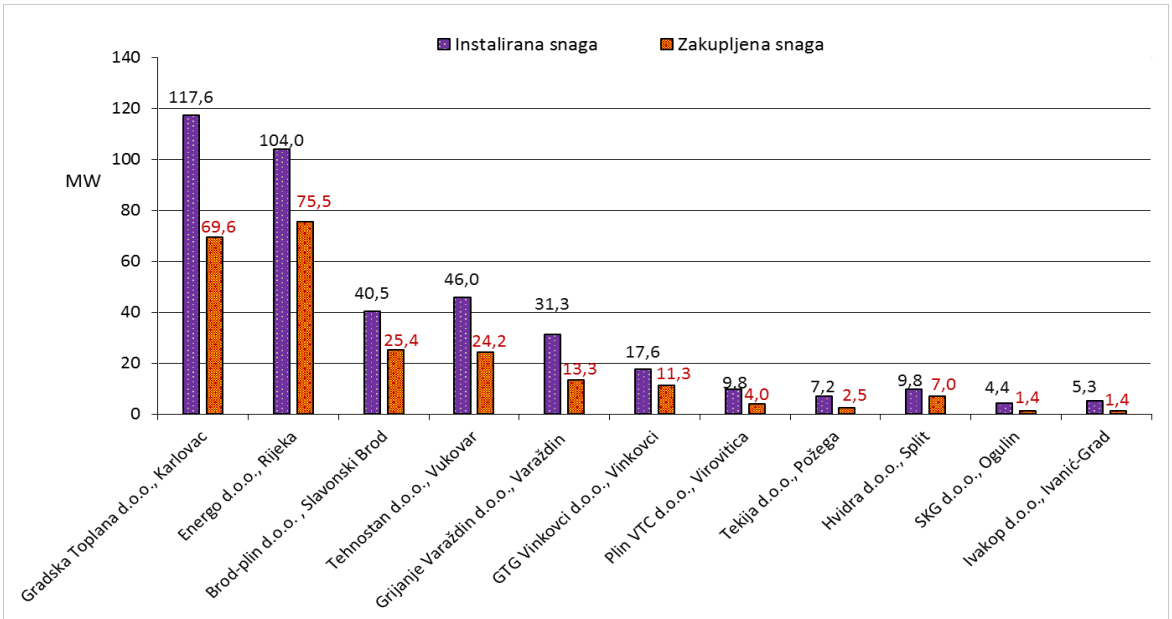


Figure 8.2.4 Total installed power of facilities for thermal energy generation and rented power in 2013

Energy entities engaged in thermal energy generation, distribution and supply are mostly owned by local self-government units, i.e. by the state, whereas only a smaller portion of energy entities are

privately owned. In addition to thermal energy activities, these mainly provide gas distribution and other utility services.

8.2.2 Thermal energy sector activities

HERA received and resolved a total of 122 different cases regarding the thermal energy sector, as shown in table 8.2.2.

Table 8.2.2 End customer complaints and requests for HERA's opinion

Case type	Number	Percentage
End customer complaints, objections and inquiries	106	87%
Opinions and Decisions on proposals concerning the amounts of tariff items	6	5%
Requests by energy entities and competent public authorities for an opinion	10	8%
Total	**122**	**100%**

During 2013, HERA renewed three licences to carry out energy activities related to thermal energy generation, distribution and supply to Tekija d.o.o., an energy entity from Požega for the generation and distribution of thermal energy, and to SKG d.o.o., an energy entity from Ogulin for thermal energy supply. HERA also carried out a transfer of licences for thermal energy generation, distribution and supply from the energy entity Termalna voda d.o.o. to Top-terme d.o.o., a company from Topusko.

In the same period, four licences expired. The licences of the thermal energy generation and distribution of energy entity Top-terme d.o.o. expired on 28 November 2013. The energy entity Top-terme d.o.o. continues to hold a thermal energy supply licence, which is sufficient for the professional management, handling and maintenance of a closed heating system in accordance with the Thermal Energy Market Act.

The licence for thermal energy supply held by HVIDRA d.o.o. from Split has expired. This entity no longer performs any thermal energy sector activities even though it is the only entity in the city of Split still holding valid licences for thermal energy generation and distribution as well as a concession for thermal energy distribution.

In November 2013, the licence for thermal energy supply held by DIOKI d.d. expired as well. However, this energy entity is not performing and will not carry out any energy activities.

At the request of the energy entity Termoplin d.d. from Varaždin, in November 2013 HERA decided to revoke the licence to perform thermal energy generation, distribution and supply activities.

On 31 December 2013, the status with regard to licences was as follows:

- - thermal energy generation 21,
- - thermal energy distribution 13,
- - thermal energy supply 19.

The Thermal Energy Market Act (Official Gazette, Nos. 80/13, 14/14) entered into force in 2013 and HERA developed and adopted the following subordinate legislation:

- - Network rules for thermal energy distribution,
- - General requirements for thermal energy supply,

- - General requirements for thermal energy delivery,
- - Methodology for establishing tariff items for thermal energy generation,
- - Methodology for establishing tariff items for thermal energy distribution.

In the process of adopting the aforementioned subordinate legislation and pursuant to the Regulation of Energy Activities Act (Official Gazette, No. 120/12), consultations with the concerned public for a duration of 30 days were held at the end of 2013. Energy entities, and the concerned public and experts submitted their remarks, opinions and comments on the proposed subordinate legislation, which was adopted in early 2014.

8.2.3 Thermal energy prices

Pursuant to the provisions of the Energy Act (Official Gazette, Nos. 120/12, 14/14) and the Regulation of Energy Activities Act (Official Gazette, No. 120/12), during 2013 the Board of Commissioners of HERA reached five (5) decisions on the amounts of tariff items in the tariff system for thermal energy generation, distribution and supply services upon receiving proposals from the following energy entities: Grijanje Varaždin d.o.o., GTG Vinkovci d.o.o., Gradska toplana d.o.o., Plin VTC d.o.o. and SKG d.o.o. The amounts of the tariff items for heat and technological steam applied by energy entities in the Republic of Croatia in 2013 are outlined in tables 8.2.3 and 8.2.4.

Table 8.2.3 Amounts of tariff items of energy entities for heat applied in 2013 (VAT excluded)

Energy entity		Households	Industrial and commercial consumers	Households	Industrial and commercial consumers
		Tariff element - Energy		Tariff element - Power	
		HRK/kWh		HRK/kW	
HEP-Toplinarstvo d.o.o.	Zagreb	0.17	0.34	11.41	15.49
	Osijek	0.16	0.31	11.41	15.49
	Sisak	0.18	0.34	13.09	16.96
	Samobor, Zaprešić and Velika Gorica	0.30	0.34	16.96	16.96
Gradska toplana d.o.o.,	until 31/05/2013	0.38	0.50	24.70	37.10
Karlovac	from 01/06/2013	0.38	0.50	18.00	24.00
Energo d.o.o., Rijeka		0.37	0.37	19.30	20.00
Brod-plin d.o.o., Slavonski Brod		0.34	0.49	22.00	22.00
Tehnostan d.o.o., Vukovar		0.39	0.50	19.00	19.00
Grijanje Varaždin d.o.o.,	until 31/01/2013	0.34	0.34	18.70	18.70
Varaždin	from 01/02/2013	0.44	0.44	20.00	20.00
GTG Vinkovci d.o.o., Vinkovci	until 28/02/2013	0.37	0.42	18.07	18.07
	from 01/03/2013	0.43	0.49	21.28	21.28
Plin VTC d.o.o., Virovitica	until 31/08/2013	0.22	0.23	18.00	18.00
	from 01/09/2013	0.43	0.48	22.00	22.00
Tekija d.o.o., Požega		0.39	-	19.00	-
Hvidra d.o.o., Split		0.40	0.46	11.42	14.85
SKG d.o.o., Ogulin	until 31/10/2013	5.74 HRK/m^2	12.18 HRK/m^2		
	from 01/11/2013	0.41	0.51	22.00	22.00
Top-terme d.o.o., Topusko	until 31/01/2013	5.10 HRK/m^2	6.80 HRK/m^2	-	-
	until 31/01/2013	0.05	0.07	12.60	19.89

Table 8.2.4 Amounts of tariff items for technological steam applied in 2013 (VAT excluded)

Energy entity	Tariff element - Energy HRK/t	Tariff element - Power HRK/t/h
HEP-Toplinarstvo d.o.o.		
Zagreb	288.26	8,178.33
Osijek	265.57	8,178.33
Sisak	288.26	14,138.38

All changes in thermal energy prices during 2013, presented in tables 8.2.3 and 8.2.4, are a result of processing proposals for modification of the amount of tariff items submitted before the entry into force of the new Thermal Energy Market Act (Official Gazette, Nos. 80/13, 14/14) and in accordance with the Thermal Energy Production, Distribution and Supply Act (Official Gazette, Nos. 42/05, 20/10) applicable at the time.

With regard to the amounts of tariff items for the energy entity Termalna voda d.o.o, HERA gave its opinion on the subject on 22 October 2012. The Municipal Council of Topusko Municipality accepted the new tariff items, which applied from 1 February 2013. Since that date, thermal energy has been charged according to readings from common thermal energy meters, and not using a flat rate per square metre. During 2013, licences to perform thermal energy generation, distribution and supply activities were transferred from the energy entity Termalna voda d.o.o. to the company Top-terme d.o.o.

Since 1 November 2013, a new method of calculating thermal energy consumption has been used in Ogulin, where the energy entity SKG d.o.o. also started applying a new calculation method based on readings from common thermal energy meters, and not using a flat rate per square metre.

For the energy entities Grijanje Varaždin d.o.o., GTG Vinkovci d.o.o. and Plin VTC d.o.o., the increase in the price of thermal energy is a consequence of the increase in the price of the primary energy source, the natural gas used in thermal energy production.

In early 2013, the energy entity Gradska toplana d.o.o. submitted a request to determine, i.e. modify the amount of the tariff items in the tariff system for thermal energy generation, distribution and supply services. HERA decided to reject their proposal and, taking into consideration the positive changes in Gradska toplana d.o.o., determined new amounts for the tariff items, i.e. reduced the amount of the tariff items for power.

In other towns, the amounts of the tariff items applied during 2013 corresponded to the decisions reached by the representative bodies of local self-government units in 2011 and 2012, having previously received HERA's opinion.

8.2.4 Customer protection

During 2013, HERA received a total of 106 complaints, objections and inquiries by end customers concerning the thermal energy sector (table 8.2.2). Of the total number, there were 47 end customer complaints and objections. The composition of the received complaints and objections is shown in table 8.2.5.

Table 8.2.5 End customer complaints and objections concerning thermal energy by type

Case type	Number	Percentage
Complaints against refusing requests for disconnection from the heating system	4	9%
Complaints against preliminary thermal energy approval	1	2%
Complaints concerning the actions of energy entities	8	17%
Complaints concerning the calculation of thermal energy consumption	10	21%
Complaints against decisions on increasing the amounts of tariff items	2	4%
Complaints concerning the quality of thermal energy delivery	1	2%
General complaints	21	45%
Total	**47**	**100%**

In addition to the end customer complaints and objections presented in table 8.2.5, there were an additional 59 various inquiries, statements and requests for HERA's opinion and interpretation of regulations.

9 LIST OF TABLES AND FIGURES

9.1 List of tables

9.2 List of figures

10 APPENDIX – LICENCES FOR ENERGY ACTIVITIES

List of energy entities to whom HERA issued, extended or transferred licences to perform energy activities in 2013 per energy activity:

List of licences issued in the period 01/01/2013 – 31/12/2013	No. of licences issued
Electricity generation	**9**
Energija Gradec d.o.o. for electricity generation, distribution and trade Trg Dražena Petrovića 3 10000 Zagreb	
VJETROELEKTRANA PONIKVE d.o.o. for generation of energy Vukovarska 17 20000 Dubrovnik	
ZAGREBAČKI HOLDING d.o.o. for public transportation, water supply, waste management, travel agency, sports, management of buildings and real estate transactions Ulica grada Vukovara 41 10000 Zagreb	
VJETROELEKTRANA JELINAK d.o.o. for research and development of renewable energy sources Zrinsko-Frankopanska 64 21000 Split	
OŠTRA STINA d.o.o. for services Jurišićeva 1/a 10000 Zagreb	
HIDRO-WATT d.o.o. for electricity generation and distribution Ožujska 21 10000 Zagreb	
EKO ZADAR DVA d.o.o. for services Knezova Šubića Bribirskih 15/B 23420 Benkovac	
GUMIIMPEX - GUMI RECIKLAŽA I PROIZVODNJA d.d. Pavleka Miškine 64/c 42000 Varaždin	
AGROKOR-ENERGIJA d.o.o. for electricity generation, distribution and trade Trg Dražena Petrovića 3 10000 Zagreb	
Electricity supply	**7**
Axpo Trgovina d.o.o. for trade and services Bosutska 30 10000 Zagreb	
PRVO PLINARSKO DRUŠTVO - TRGOVINA ENERGIJOM d.o.o. A. Stepinca 27 32000 Vukovar	
RUDNAP energija d.o.o. for trade, intermediation and representation on the energy market Poljička 23 10000 Zagreb	
Hrvatski Telekom d.d. Savska cesta 32 10000 Zagreb	
ISKON INTERNET d.d. for IT and telecommunications Garićgradska 18 10000 Zagreb	
Danske Commodities d.o.o. for electricity and gas trade Hektorovićeva 2 10000 Zagreb	

List of licences issued in the period 01/01/2013 – 31/12/2013	No. of licences issued
ENERGY DELIVERY SOLUTION d.o.o. for trade and services Jarnovićeva 3 10000 Zagreb	
Electricity trade	**2**
HEP-Trgovina d.o.o. for electricity trade Ulica grada Vukovara 37 10000 Zagreb	
DILIGO VIGOR d.o.o. for trade and services Medveščak 54 10000 Zagreb	
Gas supply	**8**
HEP-Trgovina d.o.o. for electricity trade Ulica grada Vukovara 37 10000 Zagreb	
Axpo Trgovina d.o.o. for trade and services Bosutska 30 10000 Zagreb	
HRVATSKA ELEKTROPRIVREDA - d.d. Grada Vukovara 37 10000 Zagreb	
PRVO PLINARSKO DRUŠTVO - TRADING d.o.o. A. Stepinca 27 32000 Vukovar	
GEN-I Zagreb d.o.o. electricity trade and sales Radnička cesta 54 10000 Zagreb	
RWE ENERGIJA d.o.o. for energy supply Buzinska cesta 58 10000 Zagreb	
MET Croatia Energy Trade d.o.o. for trade and services Radnička cesta 80 10000 Zagreb	
ELEKTROMETAL-DISTRIBUCIJA PLINA d.o.o. for gas distribution Ferde Rusana 21 43000 Bjelovar	
Biofuels wholesale trade	**1**
MEBU d.o.o. for production, trade and services Netretić bb 47271 Netretić	
Oil derivatives wholesale trade	**10**
APIOS d.o.o. for trade and services Vinogradska 20 10312 Kloštar Ivanić	
RIJEKATANK ekologija i zaštita okoliša d.o.o. Bartola Kašića 5/2 51000 Rijeka	
AGS HRVATSKA d.o.o. for trade and services Zagrebačka avenija 100 A 10000 Zagreb	
SIRO-NEK d.o.o. for trade and services Zagrebačka avenija 104 10000 Zagreb	
CRODUX PLIN d.o.o. for trade and services Kaptol 19 10000 Zagreb	

List of licences issued in the period 01/01/2013 – 31/12/2013	No. of licences issued
DITA ENERGENT d.o.o. for services Pujanke 22 21000 Split	
LACINOX PETROL d.o.o. for trade and services Cvjetno naselje 4 10410 Velika Gorica	
GENITIV d.o.o. for trade and services Kažotićeva 1 10370 Dugo Selo	
RIJEKA TRANS d.o.o. for trade and real estate transactions Čavalsko 4/c 51000 Rijeka	
ETRADEX proizvodnja i trgovina d.o.o. Benazići 99 52332 Pićan	
Liquefied petroleum gas (LPG) wholesale trade	**1**
ISTRABENZ PLINI proizvodnja i distribucija industrijskih plinova d.o.o. Senjska cesta bb 51222 Bakar	
TOTAL	**38**

List of licences extended in the period of 01/01/2013 – 31/12/2013	No. of licences extended
Electricity generation	**1**
Vjetroelektrana Trtar - Krtolin d.o.o. for generation of energy Bože Peričića 30 22000 Šibenik	
Electricity supply	**1**
GEN-I Zagreb d.o.o. electricity trade and sales Radnička cesta 54 10000 Zagreb (before: Ružmarinka 25, 10000 Zagreb)	
Electricity trade	**2**
TLM-TVP d.d. for rolled products production Ulica Narodnog preporoda 12 22000 Šibenik	
PETROL d.o.o. for oil and oil derivatives trade and transport Oreškovićeva 6/h, Otok 10010 Zagreb	
Natural gas storage	**1**
PODZEMNO SKLADIŠTE PLINA d.o.o. for gas storage Veslačka 2-4 10000 Zagreb	
Gas distribution	**10**
ENERGO METAN d.o.o. for natural gas distribution Trg Matice Hrvatske 5 10430 Samobor	
PLINARA ISTOČNE SLAVONIJE d.o.o. for gas supply Ohridska 17 32100 Vinkovci	

List of licences extended in the period of 01/01/2013 – 31/12/2013	No. of licences extended
MONTCOGIM - PLINARA d.o.o. for distribution network development, gas distribution, and maintenance Trg Ante Starčevića 2 10431 Sveta Nedelja	
MOSLAVINA PLIN d.o.o. for gas pipeline construction and gas distribution Trg kralja Tomislava 6 44320 Kutina	
ZAGORSKI METALAC d.o.o. for gas distribution and supply Celine 2 49210 Zabok	
PLIN-PROJEKT d.o.o. for gas pipeline construction and gas distribution Alojzija Stepinca 36 35400 Nova Gradiška	
KOMUNALIJE-PLIN d.o.o. Radnička cesta 61 48350 Đurđevac	
RADNIK-PLIN d.o.o. for gas supply and distribution Ulica kralja Tomislava 45 48260 Križevci	
ELEKTROMETAL-DISTRIBUCIJA PLINA d.o.o. for gas distribution Ferde Rusana 21 43000 Bjelovar	
ZELINA-PLIN d.o.o. for gas distribution Katarine Krizmanić 1 10380 Sveti Ivan Zelina	
Gas supply	**10**
Komus d.o.o. for energy activities – in bankruptcy proceedings Kolodvorska cesta 18 49240 Donja Stubica	
Gradska plinara Krapina d.o.o. for gas distribution and supply Matije Gupca 6/1 49000 Krapina	
Komunalije d.o.o. for utility services Svetog Andrije 14 43240 Čazma	
Komunalac d.o.o. for utility services Mate Lovraka bb 43280 Garešnica	
IVAPLIN d.o.o. for gas distribution and supply Moslavačka 13 10310 Ivanić Grad	
ENERGO METAN d.o.o. for natural gas distribution Trg Matice Hrvatske 5 10430 Samobor	
KOMUNALNO PITOMAČA d.o.o. for water and gas supply, farmers' market, cemetery and public open space maintenance, retail and wholesale trade, and civil engineering Vinogradska 41 33405 Pitomača	
KOMUNALIJE-PLIN d.o.o. Radnička cesta 61 48350 Đurđevac	
CRODUX PLIN d.o.o. for trade and services Kaptol 19 10000 Zagreb	

List of licences extended in the period of 01/01/2013 – 31/12/2013	No. of licences extended
DUKOM PLIN d.o.o. for gas distribution Josipa Zorića 106 10370 Dugo Selo	
Gas trade	**1**
LUKOS ENERGIJA d.o.o. for energy activities Zagrebačka 21 51000 Rijeka (before: LUMIUS d.o.o. for energy activities Braće Radića 6 42000 Varaždin)	
Thermal energy supply	**1**
STAMBENO KOMUNALNO GOSPODARSTVO d.o.o. for utility services, property management and real estate transactions Ivana Gorana Kovačića 8 47300 Ogulin	
Thermal energy generation	**1**
Tekija d.o.o. for utility services Vodovodna 1 34000 Požega	
Thermal energy distribution	**1**
Tekija d.o.o. for utility services Vodovodna 1 34000 Požega	
Biofuels wholesale trade	**2**
VITREX d.o.o. for production and trade Zbora Narodne Garde 3 33000 Virovitica	
BIOTRON d.o.o. for biofuels generation Tomaševec 2 49290 Klanjec	
Oil derivatives wholesale trade	**5**
MASSILIA d.o.o. for trade and services Lučki prilaz 2 31000 Osijek	
JADRAN PETROL d.o.o. for oil derivatives trade Dolenica 20 10250 Donji Stupnik	
BHG Bitumen Adria d.o.o. for construction Ulica Petra Hektorovića 2 10000 Zagreb	
BIOTRON d.o.o. for biofuels generation Tomaševec 2 49290 Klanjec	
ENERGOSPEKTAR d.o.o. for trade, services and production Matije Divkovića 71 10000 Zagreb	
Liquefied petroleum gas (LPG) wholesale trade	**1**
BUTAN PLIN d.o.o. for wholesale and retail oil and oil derivatives trade Ulica rijeke Dragonje 23 52466 Novigrad	
TOTAL	**37**

Energy activity	Licences issued as at 31/12/2013
Electricity generation	28
Electricity transmission	1
Electricity distribution	1
Electricity supply	20
Electricity trade	15
Electricity market organisation	1
Gas generation	1
Delivery and sales of natural gas from own production	1
Gas procurement	1
Natural gas storage	1
Natural gas transport	1
Gas distribution	36
Liquefied natural gas (LNG) terminal management	0
Gas supply	55
Gas market intermediation	0
Gas market representation	0
Gas trade	3
Gas market organisation	1
Thermal energy generation	21
Thermal energy distribution	13
Thermal energy supply	19
Biofuels generation	3
Biofuels wholesale trade	4
Biofuels storage	3
Oil derivatives production	1
Transport of oil through oil pipelines and other means of transportation	2
Transport of oil derivatives through product pipelines and other means of transportation	1
Transport of oil, oil derivatives and biofuels by road vehicles	64
Oil derivatives wholesale trade	35
Oil and oil derivatives storage	21
Liquefied petroleum gas (LPG) wholesale trade	5
Trade, intermediation and representation on the energy market	5
Liquefied petroleum gas (LPG) retail and wholesale trade	1
UKUPNO:	**364**
Permanently revoked licences – Gas supply	**1**
Elektrometal d.d. Ferde Rusana 21 43000 Bjelovar	

As at 31 December 2013, HERA issued a total of 364 licences.

Information on entities licenced to carry out energy activities is available in the Summary of the licence registry managed by HERA on its website: http://www.hera.hr/hrvatski/html/dozvole.html.