



REPUBLIC OF CROATIA

CROATIAN ENERGY REGULATORY AGENCY



**SUMMARY OF THE ANNUAL REPORT
2024**

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INTRODUCTION



1.

PRELIMINARY REMARKS

In accordance with the obligations under the Act on the Regulation of Energy Activities, the Croatian Energy Regulatory Agency is obliged to submit to the Croatian Parliament, by 30 June of the current year, the Annual Report on the Work of the Croatian Energy Regulatory Agency and the Budget Execution Report for the previous year. The Annual Report for 2024 provides an overview of key developments and changes in the energy sector and an overview of ordinary and extraordinary regulatory activities. The report provides an analysis and assessment of the development of energy markets in accordance with the methodological recommendations and instructions of the Council of European Energy Regulators (CEER), while its content follows the regulatory reporting practices of the Agency for the Cooperation of Energy Regulators (ACER).

Highlighted ordinary regulatory activities described in this report include issuing, revoking and renewing licences for the performance of energy activities, adopting methodologies, tariff items, prices and fees, drafting by-laws under the authority of the agency, giving opinions and approvals to laws and by-laws, approving plans for investments, infrastructure development and construction, activities related to the eligible electricity producer status, monitoring the functioning of the energy market, oversight of energy entities, resolving appeals and complaints, international activities and more.

All activities carried out by the Croatian Energy Regulatory Agency are compliant with the key objectives and strategic determinants of the Agency, namely: ensuring the security and reliability of energy supply, protecting final customers, encouraging competition, efficiency and transparency, protecting end users, and improving the regulatory framework in accordance with EU directives.

In accordance with its regulatory obligations and powers, the Croatian Energy Regulatory Agency significantly contributed to maintaining the stability and functioning of the energy market in the Republic of Croatia in 2024. The consequences of the extremely volatile 2022 are still present, and although there was already a significant drop in energy prices in the first half of 2023, in 2024 prices were still higher compared to the pre-crisis period. In order to prevent disruptions, the Government of the Republic of Croatia implemented crisis mitigation measures throughout 2024, and the Croatian Energy Regulatory Agency monitors the application of the Regulation on Eliminating Domestic Energy Market Disruptions and monitors the application of prices established by the provisions of the Regulation.

The Annual Report has 10 chapters. Preliminary remarks are followed by a summary overview of the key developments and activities of the Croatian Energy Regulatory Agency. The organisational structure, agency powers and activities are presented in the third chapter, followed by extensive analyses of individual sectors: electricity, natural gas, oil and petroleum products, biofuels, and thermal energy.

Board of Commissioners of the Croatian Energy Regulatory Agency:

Nikola Vištica – President of the Board of Commissioners

Željko Vrbanić – Deputy President of the Board of Commissioners (until 13 June 2025)

Alenka Kinderman Lončarević – Member of the Board of Commissioners

Zlatko Zmijarević – Member of the Board of Commissioners

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SUMMARY OVERVIEW OF THE ACTIVITIES OF THE CROATIAN ENERGY REGULATORY AGENCY



2. SUMMARY

In its annual report for 2024, the Croatian Energy Regulatory Agency provides a detailed overview of key developments in domestic and international energy markets, an overview of the fulfilment of its statutory obligations, an overview of results and statistical indicators of development and changes by sector, as well as operating results of regulated entities. This chapter provides a summary overview of the operating characteristics of individual sectors, measures and activities implemented by the Croatian Energy Regulatory Agency and key indicators by sector.

2.1. Electricity

Characteristics of the electricity sector

In 2023 and 2024, EU regulations were adopted that raise new challenges in the electricity sector and that will significantly determine the direction in which the electricity market develops in the upcoming period:

- Directive (EU) 2024/1711 of 13 June 2024 amending Directives (EU) 2018/2001 and (EU) 2019/944 as regards improving the Union's electricity market design (**Directive 944**)
- Regulation (EU) 2024/1747 of the European Parliament and of the Council of 13 June 2024 amending Regulations (EU) 2019/942 and (EU) 2019/943 as regards improving the Union's electricity market design (*Regulation 943*)
- Directive (EU) 2023/2413 of the European Parliament and of the Council of 18 October 2023 amending Directive (EU) 2018/2001, Regulation (EU) 2018/1999 and Directive 98/70/EC as regards the promotion of energy from renewable sources, and repealing Council Directive (EU) 2015/652 (**RED III**)
- Regulation (EU) 2023/1804 on the deployment of alternative fuels infrastructure (*AFIR Regulation*)
- Directive (EU) 2023/1791 of the European Parliament and of the Council of 13 September 2023 on energy efficiency and amending Regulation (EU) 2023/955 (**EED**)
- Directive (EU) 2024/1275 of the European Parliament and of the Council of 24 April 2024 on the energy performance of buildings.

One of the most important indicators of the state of the electricity sector is electricity prices in wholesale markets, which can be observed long-term (monthly, quarterly, annually and multi-annually) or short-term (day-ahead and intra-day).

At the long-term level, the most important indicator is the price of electricity of annual products on the forward market (e.g. HUDEX) which, after the 2022 crisis, stabilised at about 100 EUR/MWh in 2024. Stability and price movements of long-term products give a market signal to investors for the construction of power-generating installations and the conclusion of long-term PPAs¹ (either market PPAs or PPAs that provide state support) and also give final customers, especially large final customers, signals about the predictability of costs in future periods.

¹ Long-term agreement for the purchase of electricity (power purchase agreement).

CROPEX's short-term day-ahead and intra-day markets in 2024 also saw a decrease in average hourly prices compared to 2023. In 2024, on the day-ahead market, the average price for baseload energy was 94.69 EUR/MWh and the average price for peakload energy was 95.11 EUR/MWh, and on the intra-day market, the average weighted price was 97.34 EUR/MWh; in 2023, these prices were 103.72 EUR/MWh, 107.01 EUR/MWh, and 105.48 EUR/MWh, respectively. However, prices in short-term markets can be very volatile. For example, in July, August and September 2024, very high prices were recorded in Eastern and Southeast Europe, especially during the evening hours. Such high wholesale prices in electricity markets are the result of a combination of factors, primarily high demand, reduced electricity production in hydroelectric power plants and wind power plants, and a lack of flexible power-generating installations and energy storage. Average prices on CROPEX were among the higher in the EU during this period.

CROPEX short-term markets are also experiencing an increasing number of hours with negative prices (more than double the number of hours in 2024 compared to 2023). For example, there were a total of 94 hours with negative prices in the day-ahead market in 2023, 196 hours with negative prices in 2024, and 68 hours with negative prices in April 2025 alone. Although the negative prices on the CROPEX market were mainly caused by the coupling of the day-ahead market, it is to be expected that, in the coming period, the occurrence of negative prices will be caused by the production of electricity from RES in Croatia. Thus, in terms of market coupling, for example, the occurrence of low or negative prices during sunny Sundays in the EU market is also reflected in CROPEX, which is coupled with other EU markets on the day-ahead and intra-day level. Negative prices, as well as a large daily ranges of intra-day prices, are an opportunity for energy storage facility operators.

In the retail market, the *Regulation on Eliminating Domestic Energy Market Disruptions* (Official Gazette nos. 31/2023, 74/2023, 107/2023, 122/2023, 32/2024, 104/2024, 132/2024, 56/2025) continued to apply in 2024, which limited the electricity prices for a significant share of final customers (for households, non-households – institutions and non-households with consumption under 250 MWh).

Statistically speaking, in 2024, for the non-household category, there was an annual decrease in the average price of electricity compared to 2023 because there was a decrease in electricity prices on the wholesale market, which is reflected in the prices in the retail market for the non-household category. However, electricity prices for the non-household category are still significantly higher compared to the pre-crisis 2021 as wholesale prices are also higher.

The Regulation on Amendments to the Regulation on Eliminating Domestic Energy Market Disruptions (Official Gazette no. 104/2024) increased the energy price cap for non-households by 13% as of 1 October 2024, and for households by 13% as well as of 1 November 2024. Furthermore, by the *Decision on Tariff Items for Electricity Distribution* and the *Decision on Tariff Items for Electricity Transmission* of December 2024 adopted by HERA, the network charge increased on average by 12% as of 1 January 2025. Based on the aforementioned regulations, the estimated total cost of electricity for the average household customer increased by 11% from 1 January 2025 compared to October 2024, from EUR 431 to EUR 477, or about EUR 47 per year, which is an increase of about EUR 3.90 per month.

According to Eurostat, the end selling price of one kWh of electricity for the household consumption band² DC is among the lower in the EU27, while the prices for the non-household consumption bands IB, ID and IE are among the higher in the EU27.

With regard to the security of supply in the transmission system for 2024, the comparison of the available transmission capacities and production capacities with the mean hourly loads of the transmission system shows that the production and import capacities are sufficient to meet the required quantities of electricity for final customers. Although relatively favourable hydrological conditions and the increasing integration of solar power plants reduced import needs in 2024,

² The consumption bands are listed in section 4.6.1. The "Basic Features of Electricity Consumption" of this Annual Report.



further improvements are needed in order to achieve the long-term self-sufficiency of the Croatian electric power system (EPS).

It should be noted in particular that, on 21 June 2024, a significant incident occurred in Southeast Europe leading to a major disruption in the electric power system of continental Europe. The incident resulted in a significant loss of load and production, which affected the operation of transmission system operators in several countries, including Albania (OST), Bosnia and Herzegovina (NOSBIH), Montenegro (CGES) and Croatia (HOPS). The event was marked by a series of unforeseen events in the transmission network, which eventually led to a (partial) interruption of electricity supply in those four countries. In the Republic of Croatia, the incident resulted in a power interruption in part of the distribution system, which was experienced by almost 200,000 network users. Power was restored gradually, following the restoration of voltage in the transmission network, so the interruption of power supply to individual network users lasted from 16 to 231 minutes. Also, on 28 April 2025, the power systems of Spain and Portugal experienced a total blackout state, starting around 12:30 p.m. and lasting for 10 hours. The European Network of Transmission System Operators for Electricity (ENTSO-E) established an expert panel whose task is to investigate the root causes of the blackout, conduct a comprehensive analysis and publish a final report³.

Regarding the production of electricity from RES, the biggest shifts occurred in terms of the increase in the number and total connection capacity of solar power plants connected to the distribution network. In 2024, compared to 2023, their number increased by almost 11 thousand, and the connection capacity increased by 334 MW. According to April 2025 data, the total installed plant capacity connected to the distribution network, including the total connection capacity of consumers with their own power production and users of power plants for self-supply, is almost 1,300 MW. In 2024, compared to 2023, the transmission network saw no significant increase in the total amount of RES connection capacity. Wind power plant connection capacity increased from 1,094 MW to 1,114 MW, while the solar power plant connection capacity increased from 12 MW to 102 MW.

In 2024, the share of electricity from RES covering the total electricity consumption of the Croatian electric power system amounted to 54% and was thus among the larger shares achieved in the last ten years (in 2023, due to extremely favourable hydrological conditions, it was 62%).

The Act on Amendments to the Renewable Energy Sources and High-Efficiency Cogeneration Act (Official Gazette no. 78/2025) introduced new rules on the production of electricity to meet own electricity consumption (so-called electricity self-consumption or self-supply) by introducing a net-billing model instead of the current net-metering model, applicable from 1 January 2026. It should be noted that the net-metering model will continue to apply (10 years from the issuance of the permanent operation certificate) for households that are already subject to or will become subject to that model by the end of 2025. It can be assumed that the aforementioned provisions will increase interest in entering the net-metering model by the end of 2025, which will, in turn, intensify household final-customer requests for connection to the distribution network.

Overview of measures and activities in the electricity sector

Regular activities

As a regular activity, HERA conducts the issuance, renewal and transfer of licences for the performance of energy activities and the status of an eligible electricity producer. In 2024, HERA issued 45 and renewed 17 licences for the performance of energy activities in the field of electricity.

³ In June 2025, ENTSO-E set up a dedicated website that serves as a source of information for stakeholders throughout the investigation of this event: <https://www.entsoe.eu/publications/blackout/9-may-2025-iberian-blackout/>.

In addition, HERA issued 19 decisions granting the eligible electricity producer status to producers using wind, solar and hydro energy.

Of the 45 licences issued, 3 licences were issued for the first time for the performance of the electricity activity of organisation of a citizen energy community. In accordance with the **Electricity Market Act**, HERA has prepared and published on its website the Register of Citizen Energy Communities, registering three citizen energy communities as of 31 December 2024. The register is available here: https://www.hera.hr/hr/html/registar_EZG.html.

One of HERA's most important regular activities is handling complaints about the work of energy entities as well as appeals regarding connections to the electricity network. In 2024, HERA handled 839 submissions, i.e. complaints, appeals, inquiries and other submissions in the field of electricity. Most of the cases were related to network connection and calculation of electricity consumption.

In accordance with the Electricity Market Act, HERA, as part of its monitoring of the Croatian transmission system operator Hrvatski operator prijenosnog sustava d.d. (HOPS) as an independent transmission operator within a vertically integrated entity, has given HOPS its preliminary approval to the conclusion of nine commercial and financial agreements with a vertically integrated entity (HEP d.d.), the most important of which are agreements for the provision of ancillary services, cross-border redispatch, and provision of balancing services, etc.

Adoption of tariff items

Based on the submitted requests of the transmission system operator and distribution system operator and the conducted analysis, in December 2024 HERA issued decisions on the amount of tariff items for electricity transmission and tariff items for electricity distribution, which increased the network charges for all categories and models by an average of 12%.

In preparation for the adoption of tariff items, HERA also issued several decisions regarding investments in the network, procurement of electricity to cover losses, procurement of ancillary services, etc.

HERA has approved a *Ten-year Development Plan for the Distribution Network 2024-2033, with a detailed elaboration for the initial three-year and one-year period* of HEP-ODS, which contains an overview of the necessary investments in the distribution network and elaborates and proposes measures and timeframes for investment projects that guarantee sustainable development of the distribution network and ensures the long-term capacity of the network to meet reasonable requirements for electricity distribution, with granted access to and use of the distribution network to existing and future customers and producers connected to the distribution network.

HERA has conducted a procedure for the transmission system operator and distribution system operator to approve the assessment of the quantity and total cost of electricity procurement to cover electricity losses in the transmission or distribution network for 2025. Estimated costs of losses are one of the higher costs taken into account when deciding on the amount of tariff items for the transmission or distribution of electricity.

HERA has approved HOPS' request for the procurement of products and services (for the provision of ancillary services to the system and flexibility services) that cannot be procured in the market for 2025. The cost of procurement of these services is part of the operational costs of HOPS that are taken into account when determining the amount of tariff items.

In August 2024, HERA adopted the Decision on the Issuance of the Report on the Use of Revenues of the Croatian transmission system operator Hrvatski operator prijenosnog sustava d.d. from Cross-zonal Capacity Allocation in 2023. If the revenue has not been used for priority purposes under *Regulation (EU) 2019/943*, it may be taken into account when determining tariff items for electricity transmission. HERA found that, in 2023, HOPS spent revenues from the cross-zonal capacity allocation in accordance with the aforementioned *Regulation* and the revenue did not affect the determination of tariff items.

In October 2024, HERA issued a Decision Approving the Proposal to Contribute to the Settlement of the Costs of Establishing, Changing and Operating a Single Day-ahead and Intra-day Coupling

for 2025. This decision allows HOPS to repay CROPEX, which is currently the only nominated electricity market operator (NEMO) in the Republic of Croatia, part of the costs of market coupling from the network charge revenues.

In addition to tariff items for the use of the network, in 2024, HERA issued four decisions on the amount of tariff items for the guaranteed supply of electricity, i.e.

- in February for the period from April to June 2024
- in June for the period from July to September 2024
- in August for the period from October to December 2024 and
- in December for the period from January to March 2025.

As an input parameter for the implementation of guaranteed continuity of supply quality standards in accordance with the *Regulation on the Requirements for the Quality of the Electricity Supply*, HERA issued the Decision on the Reference Price of Electricity for Low-voltage Final Customers and the Reference Price of Electricity for Medium- and High-voltage Final Customers.

Adoption and approval of by-laws

In 2024, HERA adopted the *Regulation on Amendments to the Regulation on General Conditions for Network Use and Electricity Supply*, which further regulates the conclusion of agreements on the use of the network related to the implementation of strategic infrastructure projects for the construction, reconstruction, modernisation, renewal and maintenance of railway infrastructure or public roads of interest to the Republic of Croatia.

Additionally, at the beginning of February 2025, HERA adopted the *Regulation on Amendments to the Regulation on General Conditions for Network Use and Electricity Supply*, which allowed for the conclusion of fixed-term network use agreements for an electricity generation installation during trial operations.

In addition, HERA has adopted the *Methodology and Criteria for the Assessment of Investments in Energy Infrastructure Projects*, which sets out the method for assessing investments in energy infrastructure priority corridors and areas of common interest in the European Union, the criteria and procedure for risk assessment for projects of common interest, and measures for reducing or eliminating risks.

HERA gave HEP-ODS its consent to the Proposal for the *Rules of Application of Substitute Load Profiles*, which determine the substitute load profiles of characteristic groups of customers, the method of determining the share of the supplier's output for final customers whose billing metering points are not equipped with an interval meter, the method of determining the projected consumption and projected monthly consumption for a future semi-annual billing period for a final customer with a semi-annual billing period, and the publication of data and information.

Electricity supply security

HERA gave an opinion to the transmission system operator and distribution system operator on the annual report on the security of supply in the transmission system or distribution system for 2023. After obtaining HERA's opinion, the operators submitted a report to the competent ministry and published it on their website. Based on the report, the Ministry prepares its own annual report on the state of electricity supply security for the previous calendar year and the expected electricity needs in the Republic of Croatia for the upcoming ten-year period. In May 2024, ACER approved the EU long-term security of supply (ERAA) report, which also covers Croatia.

Calculation of surplus market revenues

In 2024, HERA continued to carry out activities related to the calculation of surplus market revenues in accordance with the *Regulation on Emergency Intervention to Address High Energy Prices* and the **Act on the Implementation of the Regulation**, which began in December 2022. HERA collected data from HOPS, HEP-DSO, HROTE, CROPEX and from each payer of surplus market revenues. The processing and calculation of surplus market revenues was carried out for each liable payer. The processing was used to verify whether the liable payer was obliged to pay surplus market revenues related to a specific billing metering point, whether the price from the agreement corresponds to the price defined in the bill issued under the agreement, and whether the amount of sold electricity from the bill corresponds to the data on the electricity fed into the network submitted to HERA by HEP-ODS or HOPS. HERA periodically informed the Environmental Protection and Energy Efficiency Fund about the processing as prescribed by the **Act on the Implementation of the Regulation**, by submitting a report on the calculation of surplus market revenues for each of the liable payers.

International cooperation

HERA cooperates with other EU regulators within which it approves by-laws, which in 2024 mainly referred to the calculation and allocation of cross-zonal transmission capacity. HERA also participated in the preparation of ACER's documents.

The aforementioned cooperation in 2024 notably led to HERA approving the Proposal of the *Methodology for the Calculation of Cross-zonal Capacity in the Core Region Within the Balancing Timeframe for the Exchange of Balancing Energy or for the Implementation of the Imbalance Netting Process*, to the Proposal of the third amendments to the *Day-ahead Capacity Calculation Methodology of the Core Capacity Calculation Region* and to HAR's *Border Specific Annex for the Bidding Zone border Croatia–Serbia* and the *Rules for Explicit Daily Capacity Allocation on Bidding Zone border Croatia-Serbia*.

Key indicators of the state of the electricity sector

Security of supply

The total connection capacity of all the power plants in the territory of the Republic of Croatia amounted to 6,736 MW at the end of 2024. It should be noted here that this is the connection capacity from the connection agreements, and not the installed or available capacity. In connection with this, HEP d.d. made several decisions in the past period on closing, decommissioning or limiting the power and limiting the hours of operation for individual power-generating installations of thermal power plants and combined heat and power plants.

The majority of total electricity consumption in the Croatian EPS in 2024 (18,943 GWh) was covered by electricity fed into the network by power-generating installations located in the territory of the Republic of Croatia (13,888 GWh, 73.3%), while the remainder was covered by physical net imports of electricity (5,055 GWh, 26.7%). The total electricity consumption of the Croatian EPS is 4% higher compared to 2023.

The peak load of the system (transmission and distribution) in 2024 was 3,589 MW. The annual peak load of the transmission system occurred on 17 July 2024 at 8:00 p.m. and amounted to 3,226 MW.

The security of supply reports of the Croatian transmission system operator Hrvatski operator prijenosnog sustava d.d. (HOPS) and the Croatian distribution system operator HEP-Operator distribucijskog sustava d.o.o. (HEP-ODS), as well as the currently available data submitted to HERA, show that the security of the electricity supply in the Croatian EPS was at a satisfactory

level in 2024. According to the approved ERAA Report of May 2024, which considers long-term security of supply, the security of supply in Croatia is satisfactory.

Retail market

The supply of electricity to final customers in 2024 was marked by the application of the *Regulation on Eliminating Domestic Energy Market Disruptions*, which, among other things, determined electricity prices for certain categories of final customers and regulated reduction of electricity bills that suppliers were obliged to apply and report on bills.

Total electricity sales in 2024 (17,126 GWh) increased by 3.9% compared to 2023, which is the highest amount in the last ten years. Electricity sales in the medium-voltage non-household category increased by 2.6%, while the sales to final customers in the household category for the White tariff model⁴ was 6.0% higher. The increase in sales is caused, among other things, by the improvement in the economic situation and climate conditions in 2024, as well as by the price caps in the *Regulation on Eliminating Domestic Energy Market Disruptions*, which have made electricity prices for the household category among the lowest in the EU.

The public supply service within the universal service, the guaranteed supply and the guaranteed purchase of electricity in 2024 were performed by HEP ELEKTRA. Although the price of electricity for the public supply service within the universal service for household customers (the so-called universal supply) is not regulated and is freely set by HEP ELEKTRA, this price was temporarily determined by the *Regulation on Eliminating Domestic Energy Market Disruptions*. During the same period, the prices applied for guaranteed supply were the ones set by HERA's decisions on tariff items for guaranteed electricity supply.

Of the total electricity sold to households in 2024, 90% refers to supply within the universal service, while the share for non-household customers within the framework of the guaranteed supply service was 8%. The share of suppliers that are subsidiaries of HEP d.d. (HEP-Opkrba d.o.o. and HEP ELEKTRA d.o.o.) in the supply to all customers in 2024 amounted to 92%.

Protection of network users

The largest number of complaints and appeals by network users received by HERA in 2024 concerned the connection and the amount of electricity bills. Regarding complaints about connections, most submissions are concerned exceeding the prescribed deadlines for activities for the purpose of connection. Regarding complaints about the electricity bills amounts, the most complaints concerned metering data (i.e. timeliness and accuracy of meter readings).

There are problems with the metering data (meter reading) and the time required for connection activities that are more pronounced for household network users. When handling complaints, HERA regularly asks for statements from the system operator. However, the distribution system operator often fails to meet the time-limit for submitting its statement, particularly in cases concerning connection procedures, for which it is currently under review.

The Regulation on the Requirements for the Quality of the Electricity Supply lays down the obligations of the transmission system operator, the distribution system operator and the suppliers regarding reporting and submission of data to HER, and the publication of the report on the quality of supply. The timeliness and quality of data delivery to HERA in 2024 was relatively satisfactory, but the timeliness and quality of publishing the report on websites is unsatisfactory. Suppliers continue to receive the most complaints for the calculation, collection, and debt claim proceedings, which include the issues of non-standard service bills, the administrative cost of contract termination, joint electricity consumption bills, the recovery of overpaid bills, and the metering service fee and disconnection for late payment or non-payment. The indicators for the time needed

⁴ This tariff model is significant because it covers the largest number of billing metering points of household final customers (see section 4.6.1. "Basic Features of Electricity Consumption" of this Annual Report).

to handle complaints are still unsatisfactory, and energy operators have to make additional efforts for improvements in that area.

Quality of the electricity supply

HERA systematically monitors the electricity supply quality indicators on the basis of regulations governing the quality of electricity supply.

HEP-ODS has improved the existing power interruption monitoring system; however, in order to significantly improve the SAIDI and SAIFI indicators, an additional set of measures to improve the continuity of supply needs to be implemented in certain distribution areas. Programmes for the introduction of advanced networks and network automation should improve the aforementioned indicators.

Although fees are prescribed in cases when the permissible power interruption durations are exceeded, as well as deadlines for network connection and deadlines for technical services, only four requests were approved in 2024, so HERA plans to improve the mechanism for the payment of prescribed fees.

Connection to the network

In 2022, HERA adopted the *Methodology for Determining the Network Connection Fee* (Official Gazette no. 84/2022). In the period from 1 to 15 May 2024, six creators of optimum technical connection solution studies (EOTRP) submitted requests to HOPS for the data needed to carry out the EOTRP, for 45 projects with a total connection capacity of 2,628 MW. On 28 November 2024, HERA received seven complaints electronically about the conduct and operation of HOPS in the process of connecting the power plants in question to the transmission network. After the analysis of 45 EOTRPs, at the end of April 2025, HERA issued an *Instruction* to HOPS for further action on the complaint. Based on the approved Ten-year Development Plan for the Transmission Network, harmonised with the Ten-year Development Plan for the Distribution Network, a decision will be made on the unit fees for connection to the network.

Incentives for the production of electricity from renewable energy sources

Due to the extremely high prices on the wholesale electricity markets during the energy crisis in 2022 and 2023, eligible producers in the incentive system terminated the electricity purchase agreements with the incentive price concluded with HROTE, but the termination trend ceased in 2024.

New admissions to the incentive system will depend on the dynamics of HROTE's public tenders for the conclusion of new market premium agreements and new incentive agreements with feed-in-tariffs, as well as the dynamics of the construction of installations for which such agreements will be concluded or have been concluded on the basis of public tenders conducted from 2020 to 2024.

Due to a significant increase in the cost of raw materials needed for the production of electricity from biogas power plants as a result of market disruptions, eligible producers of electricity from biogas power plants have been allowed to return to the incentive system by the *Regulation on Eliminating Domestic Energy Market Disruptions*.

In 2024, there were 1,232 eligible producers with a total capacity of 654 MW in the system, which produced 1.9 TWh of electricity, for which EUR 345,882,315.97 was charged. The largest inflows in the incentive system were fees for renewable energy sources and high-efficiency cogeneration (RES&HEC) and sales of electricity. The RES&HEC fee is collected from the supplier. Some undertakings are entitled to a reduced fee.

In 2024, HROTE conducted two public tenders, one for awarding the market premium and one for incentivising using feed-in-tariffs. The total quota for the conclusion of the agreements was 607.25

MW in the tender for the award of the market premium and 11 MW in the tender for incentivising using feed-in-tariffs. In the tender for the award of the market premium, 86 agreements were concluded, for a capacity of about 404 MW. Most of the concluded agreements concern solar power plants, 84 of them with a total connection capacity of about 400 MW, while the remaining two concluded agreements concern hydroelectric power plants with a total connection capacity of 4 MW. There were 46 winning bids in the tender for incentivising using feed-in-tariffs, all for solar power plant projects, with a total connection capacity of about 6 MW.

Investments in the network

According to the *Report on the Implementation of the Annual Investment Plan for 2024* (HOPS, March 2025), the realised amount of investments in the transmission network in 2024 amounted to EUR 125.9 million, which is a historic high; with the largest portion of the funds being invested in the revitalisation, replacement and reconstruction on account of the age of the transmission network and to increase transmission capacity. The largest part of the funding was provided from grants in the total amount of EUR 91.4 million, of which EUR 76.7 million came from the NRRP and EUR 14.7 million from REPowerEU.

According to HEP-ODS data, the realised amount of investments in the distribution network in 2024 amounted to EUR 214 million. Of that, 42.2% or EUR 90.4 million was financed from the connection fee.

Transmission and distribution tariffs

The *Regulation on Eliminating Domestic Energy Market Disruptions* (Official Gazette no. 31/2023) stipulated that HOPS and HEP-ODS would not submit a request to HERA to change the tariff amounts before 31 March 2024. The *Regulation on Amendments to the Regulation on Eliminating Domestic Energy Market Disruptions* (Official Gazette no. 107/2023) amended this provision to state that HOPS and HEP-ODS would not submit a request to HERA to increase the tariff amounts before 31 March 2024. Then the *Regulation on Amendments to the Regulation on Eliminating Domestic Energy Market Disruptions* (Official Gazette no. 104/2024) amended this provision to state that, for 2025, HOPS and HEP-ODS may submit a request to HERA to increase the tariff amounts up to 12%. In accordance with that provision, HEP-ODS and HOPS submitted requests to HERA on 30 September 2024 to change the amounts of tariff items for electricity distribution and the amount of tariff items for electricity transmission.

Based on the proposed amounts of tariff items and HERA's *Decision on Tariff Items for Electricity Distribution* (Official Gazette no. 145/2024) and *Decision on Tariff Items for Electricity Transmission* (Official Gazette no. 145/2024), the network charges increased for all categories for network use and tariff models by an average of 12%. The average monthly costs for the network charges increased by EUR 1.3 per month for the household category and by EUR 9.5 per month for the low-voltage non-household category.

Losses in the network

Losses in the transmission and distribution network increased slightly in absolute terms in 2024 compared to 2023, and decreased in relative terms.

The losses in the transmission network in 2024 were 19 GWh (4%) higher than planned. The costs for the procurement of electricity to cover transmission losses amounted to EUR 48.7 million or 104 EUR/MWh.

The losses in the distribution network in 2024 were 115 GWh (9%) higher than planned. The costs for the procurement of electricity to cover distribution losses amounted to EUR 157 million or 114 EUR/MWh.

Pursuant to the *Regulation on Eliminating Domestic Energy Market Disruptions*, the Government of the Republic of Croatia reimbursed HOPS the costs for the procurement of electricity to cover losses in the transmission network in the amount of EUR 14.86 million, and reimbursed HEP-ODS the costs for the procurement of electricity to cover losses in the distribution network in the amount of EUR 49.4 million. If the income generated by HOPS and HEP-ODS on the basis of this reimbursement is taken into account, the unit cost for covering electricity losses in the transmission network for HOPS amounted to 73 EUR/MWh, and for HEP-ODS to 78 EUR/MWh.

Wholesale market

HEP d.d. and its subsidiaries dominate in the installed capacity of power-generating installations, produced electricity and electricity sold on the wholesale market. The total trading volume⁵ on the Croatian market in 2024 was 72.1 TWh (with the net volume of CROPEX and the quantities of HROTE, HOPS and HEP-ODS included), and HEP d.d. companies accounted for 41.2 TWh (not including HEP-ODS and HOPS).

According to HROTE's records, the number of market balance groups on the electricity market in the Republic of Croatia was 33 (as at 31 December 2024), not including special balance groups of system operators, energy market operators and energy exchanges. Furthermore, in 2024, HROTE concluded an agreement on participation in the electricity market with 41 market participants, and terminated such an agreement with 18 of them. At the end of 2024, the number of participants who met the requirements for participation in the electricity market (as at 31 December 2024) was 115, of which 56 were producers, 22 were producers in trial operation, 8 were suppliers, and 29 were traders. This number does not include special market participants (HOPS, HEP-ODS, HROTE and CROPEX). Compared to 93 market participants at the end of 2023, this is an increase of 23.7%, i.e. increase by 22 market participants.

In 2024, 32 members were active on the CROPEX day-ahead market, 29 of which were also active on the CROPEX intra-day market. In addition, the Slovenian and Hungarian exchanges participated in both of these markets in order to integrate these markets into the European single day-ahead coupling (SDAC) and into the European single intra-day coupling (SIDC) across the Croatia–Slovenia and Croatia–Hungary borders. In doing so, the role of the exchanges, which are NEMOs, is to enable cross-border electricity trade, thus contributing to the single coupled day-ahead and intra-day market. Trading on the day-ahead market is based on the principle of auction, and trading on the intra-day market on the principle of continuous trading.

At the beginning of January 2024, CROPEX introduced a 15-minute trading interval on the intra-day continuous market. Starting from 9 January 2024, in addition to hourly products, 15-minute products can be traded in this market, which provides market participants with greater flexibility and precision in matching supply and demand in electricity markets where the share and impact of electricity generated using RES are increasing.

In June 2024, CROPEX, together with all NEMOs and transmission system operators, introduced intra-day auctions (IDA), i.e. intra-day auction market (IDA Market). As 13 June 2024, intra-day implicit auctions of cross-border capacity between bidding zones are conducted on this market, which enable the pricing of cross-border capacity within an intra-day framework. CROPEX conducts three auctions daily: at 10:00 a.m., 3:00 p.m. and 10:00 p.m. No continuous intra-day cross-border trade is performed during these auctions. The auction in this market is conducted according to the principles of the day-ahead market, at a 15-minute level. Complementing the existing intra-day continuous trading method, intra-day auctions enhance the single coupled intra-day market (SIDC) by introducing a new intra-day capacity pricing mechanism.

⁵ Total trading volume is the total amount from all contractual schedules containing netted amounts of purchase and sale of electricity between market participants.

By the end of 2024, 15 members were active on the CROPEX IDA market, all of whom were also active on the day-ahead and intra-day continuous markets⁶. The Croatian IDA market is coupled with the European IDA market over the Croatia–Slovenia and Croatia–Hungary borders, so the Slovenian and Hungarian exchanges participate in this market along with CROPEX members. The total trading volume on the IDA market in 2024 was 26.851 GWh.

In CROPEX's day-ahead market, 11 members used algorithmic trading during 2024; 14 members used it on the intra-day continuous market, while two members used algorithmic trading on the intra-day auction market. In the intra-day continuous market, 75% of the volume was traded using algorithmic trading, which is a trend present in other markets within the EU. For the purpose of procuring electricity to cover losses during 2024, HOPS used advanced tools to automatically place orders on the organised intra-day market.

Cross-zonal trading

HERA particularly monitors the allocation of cross-zonal capacities⁷ on the borders of the Republic of Croatia based on the data provided to it by HOPS. The coordinated regional allocation of cross-zonal capacities in all the time frames on a market basis has been established at all borders except for intra-day capacity allocations at the borders with Serbia and Bosnia and Herzegovina.

In the last several years, revenue from cross-zonal capacity allocation has increased significantly, which can be linked to the beginning of regional day-ahead capacity allocations in the Core region⁸, as well as generally higher prices on wholesale markets. During 2021, HOPS earned EUR 13.9 million on this basis, and in 2022, revenue increased to EUR 48.2 million; in 2023, EUR 67.4 million was collected, while in 2024, as much as EUR 97.2 million was collected.

Electric power system balancing and imbalance settlement

The electric power system (EPS) must constantly be in balance, i.e. the production and consumption of electricity in the EPS, or the feeding of electricity into the network and the withdrawal of electricity from the network must be in balance in order to ensure the operational security of the EPS (by maintaining the frequency of the EPS within the prescribed (narrow) limits). Balancing the EPS, or keeping the EPS in balance, is the task of the transmission system operator – if there is an excess or deficit of electricity in the EPS, the transmission system operator takes action to bring the EPS back into balance.

In a liberalized electricity market, market participants form and announce their plans, the so-called market positions, for the day ahead based on the contracted quantities of electricity from different agreements concluded in the electricity market. The actual supply, i.e. the input and off-take of electricity takes place in accordance with physical laws. For various reasons, there may be a difference, i.e. a deviation between the actually delivered and the planned (contracted) amount of electricity, which may lead to an imbalance in the power system. In such cases, for balancing the EPS, the transmission system operator procures balancing services (capacity and energy) from the balancing service provider. In doing so, the energy with which the transmission system operator balances the EPS is called balancing energy.

Each market participant is financially responsible for the imbalances it causes in the EPS either directly as the entity responsible for the imbalance, or indirectly when it contractually transfers its

⁶ https://www.cropex.hr/images/monthly_reports/CROPEX%20Godinji%20izvjetaj%202024.pdf

⁷ Cross-zonal capacity – capacity between two trading zones that serves for electricity trading between neighbouring bidding zones or at the regional level for capacity calculation.

⁸ Capacity Calculation Region (CCR) is a geographical area where a coordinated capacity calculation for electricity transmission between bidding zones is applied. The Core region consists of bidding zone borders between the bidding zones of the following EU Member States: Austria, Belgium, Croatia, Czech Republic, France, Germany, Hungary, Luxembourg, the Netherlands, Poland, Romania, Slovakia, and Slovenia. These countries are located in the heart of Europe, which is why the Core CCR programme is significant for the further integration of the European market.

responsibility for the imbalance to the balance group manager to which it belongs. An imbalance is, in simple terms, the difference between the realised values (outputs), which are generally determined by metering, and the market position in one settlement interval. The imbalance settlement is a mechanism for the financial calculation of imbalance liability, by which the entities responsible for the imbalance or balance groups are charged or paid for their imbalances.

HERA regularly monitors imbalance settlement based on data and information on market positions and their outputs at the level of the settlement interval, which are submitted to it by HROTE every month.

In 2024, there were nine market active balancing service providers in the Croatian EPS and balancing market for the balancing service of mFRR power reserve and/or balancing energy, and three active balancing service providers for the aFRR power reserve. In 2024, HOPS' total net costs for balancing energy from power reserves amounted to EUR 20.2 million. The total cost of providing ancillary services amounted to EUR 49 million, of which 89% was related to the balancing power reserve.

In accordance with the EBGL Regulation, HOPS should procure balancing energy through the common EU exchange platforms for balancing energy for the EPS, i.e. through the European platform for the imbalance netting process (IGCC platform)⁹ and through the aFRR platform (PICASSO) and the mFRR platform (MARI). Hops is already involved in the imbalance netting process through the IGCC platform, while it has yet to join the PICASSO and MARI platforms. Connecting transmission system operators to these two platforms in EU countries is gradual and in "blocks". Thus, the Croatian EPS, or HOPS, should connect to these platforms across the borders of the Hungarian and Slovenian electric power systems, and neither the Hungarian nor Slovenian power systems, or their transmission system operators, have yet been connected to these platforms.

In 2023, the time interval for the imbalance settlement procedure and for trading on electricity markets in Croatia was one hour, and from 1 January 2024 it was switched to a 15-minute interval. The CROPEX day-ahead market continued to operate on an hourly basis, while the CROPEX intra-day market switched to the fifteen-minute basis in January 2024.

In 2024, HROTE settled imbalances of the balancing groups for the first imbalance settlement in the amount of EUR 34.2 million. The highest average weighted monthly price for negative deviation C_n was achieved in November (172 EUR/MWh), as was the highest average weighted monthly price for positive deviations C_p (117 EUR/MWh).

Energy efficiency

Directive 2012/27/EU, or the **Directive 2018/2002/EU**, and the **Energy Efficiency Act** generally define HERA's obligations regarding energy efficiency. The obligations primarily refer to taking account of energy efficiency in decisions and tariff methodologies related to the transmission and distribution of electricity, and to enabling and promoting demand response. HERA fulfils these obligations by adopting by-laws that direct HOPS, HEP-ODS and network users to behave in accordance with energy efficiency principles.

The proposal of the Ten-year Development Plan for the Transmission Network 2025–2035, with a detailed elaboration for the initial three-year and one-year periods and the Proposal of the Ten-year Development Plan for the Distribution Network (2025–2034), with a detailed elaboration for the initial three-year and one-year periods, contain measures that will be implemented by HOPS and HEP-ODS with the aim of improving energy efficiency. The measures listed in these draft plans elaborate the measures generally given in the *Integrated National Energy and Climate Plan for the Republic of Croatia for the period 2021–2030* (NECP) and the *National Energy Efficiency Action Plan for the period 2022–2024* (measures "ENE-15: Energy efficiency of the electricity transmission

⁹ *Imbalance Netting*

system” and “ENE-16: Reducing losses in the electricity distribution network and introducing advanced networks”).

The methodology for determining the amount of tariff items for electricity distribution adopted by HERA in 2022 directly introduced energy efficiency into financial incentives to reduce the amount of losses through the cost financed through tariff items.

2.2. Natural gas

Characteristics of the gas sector

Decisions by the Government of the Republic of Croatia to extend measures mitigating disruptions in the gas market into 2024 continued to have the most significant impact on the situation in the gas sector during that year. Gas prices on the markets in the European Union fluctuated, but not as significantly as in 2023, and ranged from 28 EUR/MWh in the first quarter of 2024 to 44 EUR/MWh at the end of 2024. At the annual level, 2024 saw an average drop in gas prices of just over 15% compared to 2023.

Changes in gas prices on the European wholesale markets also affected the gas market in the Republic of Croatia, where in 2024 the average selling price of gas on the wholesale market decreased by an average of 15.8% compared to 2023. The reduction of gas prices on the wholesale market also affected, with a certain delay, the reduction of gas prices on the retail gas market in the non-household category. Thus, the average retail price of gas, excluding VAT, for final customers in the non-household category connected to the distribution system in Croatia in 2024 was 0.0562 EUR/kWh, which is 17.4% lower compared to 2023, while the average selling price of gas, excluding VAT, for final customers in the non-household category connected to the transmission system in Croatia in 2024 was 0.0490 EUR/kWh, which is 52.9% lower compared to 2023. Final customers in the household category who used the public gas supply service in 2024 were still protected from fluctuating and unpredictable gas prices, as the prices were guaranteed and unchangeable throughout the entire year by the decisions on the amount of tariff items for the public gas supply service issued by HERA.

The extension of the measures to subsidise the final price of the gas supply adopted by the Government of the Republic of Croatia, in the period from 1 April 2023 to 31 March 2024, kept the final price of gas for households at the same levels as in the previous period, and it enabled a significant subsidisation of the final price of the gas supply for micro, small and medium-sized enterprises. In 2024, the Government of the Republic of Croatia adopted two new decisions to continue subsidising the final price of gas supply for household customers until 31 March 2025. In March 2025, a new *Decision* extended the period of subsidisation until 30 September 2025. In March 2024, the Government of the Republic of Croatia adopted the *Regulation on Amendments to the Regulation on Eliminating Domestic Energy Market Disruptions* (Official Gazette no. 32/2024), which, among other things, extended certain measures concerning the stability of natural gas supply.

The amendments to the *Regulation* provide for the right of distribution system operators to reimbursement for the difference in the price of gas for losses in the distribution system for the period from 1 April 2022 to 31 March 2024. In September and November 2024, the *Regulations on Amendments to the Regulation on Eliminating Domestic Energy Market Disruptions* (Official Gazette nos. 104/2024 and 132/2024) were adopted, extending the duration of the *Regulation* until 31 March 2025, and extending the period for which the trader or gas supplier supplying the supplier in the public service or the supplier in the public service itself may apply for the reimbursement of the price difference for the quantities of gas delivered for the public gas supply service. The *Regulation on Amendments to the Regulation on Eliminating Domestic Energy Market Disruptions* (Official Gazette no. 56/2025), adopted in March 2025, extended the duration of the *Regulation* until 30 September 2025.



Overview of measures and activities in the gas sector within the competence of the HERA

During 2024, HERA continued to implement measures and undertake activities related to making relevant decisions, issuing instructions, and providing information to participants in the gas market, while giving particular attention to the adopted *Regulation on Eliminating Domestic Energy Market Disruptions*.

Determining the supplier in the public service

The most significant event on the gas market in the Republic of Croatia for customers in the household category was the selection of a supplier in the public service for the period from 1 October 2024 to 30 September 2027, carried out by HERA in the spring of 2024. Namely, given that the period for which suppliers in the public service were selected expired on 30 September 2024, and also having in mind the statutory public service model and the regulation of the final price as a mechanism for the protection of household final customers, a public tender for suppliers in the public service was to be conducted for the period from 1 October 2024, which are selected for a period of three gas years, i.e. for the period from 1 October 2024 to 30 September 2027.

In the period from 22 March 2024 to 19 April 2024, HERA conducted the first public tender for the selection of suppliers in the public service for gas supply for the period from 1 October 2024 to 30 September 2027. Given that the analysis of the received bids in the aforementioned public tender indicated the risk of a significant increase in concentration in the segment of public gas supply service, as well as possible related problems in the security of gas supply, on 24 April 2024, HERA adopted the *Decision to Annul the Procedure for the Selection of Suppliers in the Public Gas Supply Service*.

In the period from 16 May to 24 May 2024, HERA conducted a second public tender for the selection of suppliers in the public gas supply service for the period from 1 October 2024 to 30 September 2027, which stipulated the criteria for the selection of bids and the allocation of distribution areas in such a way as to protect the public interest and create the prerequisites for the optimal functioning of the market in the existing market circumstances, and protect household customers as the most sensitive group of customers supplied with gas at a regulated price.

After the completion of the second public tender, on 29 May 2024, HERA adopted decisions on gas suppliers in public service for the period from 1 October 2024 to 30 September 2027 and designated 13 gas suppliers in public service for 27 gas distribution areas.

Guaranteed gas supply

Guaranteed gas supply is a public service of supplying gas to a final customer that, under certain conditions, has been left without a supplier, and therefore, such a customer is supplied by a guaranteed supplier under regulated conditions. Guaranteed gas supply is also a mechanism for ensuring the continuity of gas supply to the final customer.

In March 2022, HERA adopted a *Decision* designating the energy entity HEP-PLIN d.o.o. as the guaranteed gas supplier in the Republic of Croatia for the period from 10 March 2022 to 30 September 2024. Given that 30 September 2024 marked the expiration of the period for which the guaranteed gas supplier was designated, by the Decision of September 2024, and based on the tender conducted in accordance with the legal provisions in August 2024, HERA designated the energy entity HEP-PLIN d.o.o. as the guaranteed gas supplier for the Republic of Croatia for the period from 1 October 2024 to 30 September 2027.

Under the *Regulation on Eliminating Domestic Energy Market Disruptions*, the Government of the Republic of Croatia enabled all non-household customers who were left without a supply contract, or who did not receive a single offer from a gas supplier for the period until 30 September 2024, to

use the guaranteed gas supply in accordance with the conditions that apply to guaranteed supply. As at 31 December 2024, the guaranteed gas supply was used by 8,581 final non-household customers, which reduced the number of such customers by 47.1% compared to the previous year.

The amounts of tariff items for guaranteed supply for final customers entitled to a public gas supply service (households) according to the *Methodology for Setting Tariff Items for Public Service Gas Supply and Guaranteed Supply* are set in the amounts equal to the amounts of the tariff items for public gas supply service for a supplier in public service in a particular distribution area adopted by the HERA. Households can use the guaranteed supply for an indefinite period, i.e. until a supply agreement is concluded under market conditions or until a new supplier in the public service is selected for a certain distribution area, based on a public tender procedure conducted, in accordance with the **Gas Market Act**, by HERA. Until 30 September 2024, the guaranteed gas supply continued to apply based on the decisions of HERA from 2022 for the distribution area of the distribution system operator IVAPLIN, Ivanić-Grad, for the distribution area of the distribution system operator BROD-PLIN, Slavonski Brod and for the distribution area of the distribution system operator ZELINA-PLIN, Sveti Ivan Zelina. For these distribution areas, new suppliers in the public service were selected in 2024, for the period from 1 October 2024 to 30 September 2027, as a result of which the guaranteed gas supply to households in these distribution areas ended at the beginning of October 2024. For a small part of non-households in these distribution areas that have not contracted a gas supply service on the market, the guaranteed gas supply continued, with the stated increase in the cost of gas procurement of 30%, given the length of use of this service.

As regards the non-household category, i.e. final customers other than households, the price of the guaranteed supply is set for each quarter by the relevant decisions for guaranteed gas supply adopted by HERA.

Oversight of energy entities

During 2024 and the beginning of 2025, HERA conducted oversight procedures for the following: (1) performing the energy activity of gas supply over 13 energy entities in which it issued two decisions on the conducted oversight and initiated two minor offence proceedings by filing charges and (2) maintaining the qualification conditions for performing the energy activity over two energy entities in which it issued one decision on the permanent revocation of the licence.

Monitoring the functioning of the gas market

Within the framework of ordinary regulatory activities, HERA conducted continuous monitoring and supervision of the retail and wholesale market in 2024 by collecting and analysing quarterly data from all gas suppliers and traders, as well as annual data from all energy entities in the gas sector, with the aim of publishing the monitoring results in the HERA Annual Report.

Consumer protection

In order to protect final customers, HERA continuously instructed all gas suppliers in 2024 to ensure conditions that safeguard their final customers from unfair and misleading sales methods, that the provisions of gas supply contracts are fair to the final customers, and that these contracts clearly, simply, and unambiguously describe the rights and obligations of both the supplier and the customer. The HERA continuously analyses offers, standardised contracts and contractual conditions of gas suppliers in the procedures for issuing and extending licences for the performance of gas supply activities.

Upon receiving complaints and inquiries from final customers and other participants in the gas market, HERA collects additional information and statements from stakeholders in specific cases, informs final customers of their rights and, if necessary, gives instructions and orders to energy entities with the aim of eliminating identified deficiencies in procedures. In 2024, HERA received a total of 364 petitions from natural and legal persons within its jurisdiction relating to gas.

After conducting public tenders for the selection of suppliers in the public service and based on information on gas suppliers offering gas supply to households according to market principles, HERA, prompted by numerous complaints and inquiries from household final customers, informed the public several times during 2024 about the statutory rights of final customers and obligations of gas suppliers on its website. Oversight over the work of individual gas suppliers in the public service was also carried out.

Activities under the Regulation on Eliminating Domestic Energy Market Disruptions

In order to reduce the impact of high gas prices on network operators, the *Regulation on Eliminating Domestic Energy Market Disruptions* also provided for gas quantities to cover losses in the distribution system at a certain regulated price, which was determined by the *Decision on the Price and Allocation of Natural Gas Capacity, which was off-taken by Hrvatska elektroprivreda d.d. from natural gas producers*. Likewise, the March 2024 amendments to the *Regulation* provide for the right of distribution system operators to reimbursement for the difference in the price of gas for losses in the distribution system for the period from 1 April 2022 to 30 September 2025. Following the above, in 2024, HERA adopted 26 individual decisions allowing the reimbursement of the costs of the price difference to distribution system operators.

For the purpose of monitoring the implementation of the *Regulation*, at the end of each month, the HERA collected from HEP data on the delivered quantities of gas, as well as data on the total remaining quantities of gas and a projection of the gas off-take and delivery balance by month.

Change in the method of determining the final price of gas for households within public gas supply service provision

In March 2024, the HERA adopted the new *Methodology for setting tariff items for public service gas supply and guaranteed supply* (Official Gazette no. 30/2024) amending the manner of determining the cost of gas procurement as the wholesale component in the structure of the final price of gas supply. According to the *Methodology*, the cost of gas procurement is determined on the basis of prices for seasonal futures trading (winter and summer) on the reference European gas market (the Dutch TTF – *Title Transfer Facility*) published during May and June of the current year. This method, i.e. shortening the reference period for determining the cost of gas procurement, contributes to the reduction of risks linked to gas procurement by suppliers in the public service on the wholesale market. In April 2024, HERA issued an amendment to the *Methodology* in question due to the need to harmonise the reference period for determining the cost of procurement, in connection with the tender for the selection of a supplier in the public service that HERA conducted in 2024.

The share of the gas procurement cost in the total average regulated final gas price in 2024 was 69.8%, while the share of the gas distribution cost was 15.0%. The gas supply cost, which includes the cost of transmission, cost of storage, other related costs and the supply margin of suppliers, was 15.2%.

Key indicators of the state of the gas sector

Wholesale market

The significant drop in gas prices on the European wholesale markets also affected the gas market in Croatia, resulting in a significant drop in gas prices in 2024 compared to 2023. The average wholesale price of gas, excluding VAT, in Croatia in 2024 amounted to 0.0432 EUR/kWh, which was 15.8% lower than in 2023, when it amounted to 0.0513 EUR/kWh.

Retail market

The average retail price of gas, excluding VAT, for final customers in the non-household category connected to the distribution system in Croatia in 2024 was 0.0562 EUR/kWh, which is 17.4% lower compared to 2023, while the average selling price of gas, excluding VAT, for final customers in the non-household category connected to the transmission system in Croatia in 2024 was 0.0490 EUR/kWh, which is 53.0% lower compared to 2023.

The average retail price of gas in Croatia, excluding VAT, for all final customers in the non-household category¹⁰ in 2024 was 0.0515 EUR/kWh, which is a decrease of 44.9% compared to 2023. The lowest price was recorded in the third quarter when it was 0.0416 EUR/kWh, and the highest was recorded in the first quarter when it was 0.0598 EUR/kWh.

In 2024, the average gas selling price for final customers in the household category¹¹ in Croatia was 0.0553 EUR/kWh, which represents a decrease of 6.6% compared to 2023. The price is expressed without the measures of the Government of the Republic of Croatia, i.e. without tax relief and subsidising the price of gas for final customers in the household category.

The final price of gas for households, excluding taxes, in Croatia in 2024 was still significantly lower than the EU average, by 48.5%, while the final price of gas for households, including taxes, in Croatia in 2024 was 61.3% lower than the European average.

The final price of gas for non-household customers, excluding taxes, in Croatia in 2024 was 3.1% lower than the EU average, while the final price of gas, including taxes, for non-household customers in Croatia in 2024 was 24.6% lower than the European average.

Natural gas production

In 2024, INA produced a total of about 5,600 GWh of gas in the Croatian gas fields and delivered it to the transmission system, while Vermilion Zagreb Exploration, as the future new gas producer in Croatia, delivered about 600 GWh of gas to the transmission system as part of their trial production. With this, gas production in the territory of the Republic of Croatia meets about 25% of domestic gas needs, and also accounts for 16% of the total quantities of gas transmitted.

Gas import

In 2024, 69% of all quantities of natural gas delivered to the transmission system of the Republic of Croatia was delivered through the LNG terminal, which received a total of 28 LNG carriers from 5 exporting countries. In 2024, the gasification capacity of the LNG terminal was 2.96 billion m³ of natural gas per year, and the capacities are fully leased until 2037. The shares of the total contracted capacity of the LNG terminal for the 2021–2040 period, by users of the LNG terminal, with the balance at the end of 2024, were: PPD 44.6%, MVM CEEnergy Croatia 18.7%, HEP 15.5%, MET Austria 9.0%, MET Croatia Energy Trade 3.9%, INA 5.4% and Geoplin 2.9%.

Gas transmission

The total quantity of natural gas measured at the entrance to the transmission system in 2024 was 38,774 GWh (domestic production 6,191 GWh, imports at interconnections 959 GWh, imports from the LNG terminal 26,800 GWh, and entrance from the storage facility 4,824 GWh), which was 3.9% less than in 2023. At the LNG terminal entrance to the Croatian transmission system, the transmitted quantity of gas amounted to 26,800 GWh, or 69.1% of the total transmitted quantity of

¹⁰ The non-household category includes all final gas customers that are not households. The Gas Market Act (Official Gazette nos. 18/18 and 23/20) defines non-household final customers as customers that buy gas not intended for use in their own household.

¹¹ Including final customers in the household category that use the public supply service and final customers in the household category using the market service.

gas, which is 4.6% less than in 2023. The total transmitted quantities of gas for exit groups from the Croatian transmission system in 2024 amounted to 38,787 GWh, which is 3.8% less compared to the total transmitted quantities recorded at the exit in 2023.

Gas storage

On 31 March 2023, the Government of the Republic of Croatia adopted a *Decision on Securing Gas Supplies on the Territory of the Republic of Croatia for the 2023/2024 Heating Season* (Official Gazette no. 37/2023), which stipulates that the gas storage capacities provided by other users of the gas storage system to the company HEP for the purpose of securing gas supplies in the territory of the Republic of Croatia remain at the disposal of the company HEP from 1 April 2023 to 31 March 2024. After 31 March 2024, HEP no longer had the storage capacities of other users at its disposal. In March 2024, the Government of the Republic of Croatia adopted the *Regulation on Amendments to the Regulation on Eliminating Domestic Energy Market Disruptions* (Official Gazette no. 32/2024), under which gas storage system users were required to fill the storage with gas amounting to 63% of their total leased gas storage capacity by 1 August 2024, 74% of their total leased storage capacity by 1 October 2024, and 90% of their total leased storage capacity by 1 November 2024. All the storage filling targets have been met.

In 2024, activities on the construction of a new underground gas storage at the Grubišno Polje exploitation field continued, and in the fourth quarter of 2024, the service of creating a 3D geological model of the Grubišno Polje reservoir was contracted for the purpose of planning and designing the future development of the reservoir, the completion of which is planned for the second quarter of 2025. The start of operations for the new underground storage facility is planned for 2027 or 2028.

In March 2025, the Government of the Republic of Croatia extended the duration of certain measures related to the stability of natural gas supply and defined new gas storage targets for storage system users for 2025 so that the leased gas storage capacity of users was 90% full by 1 November 2025.

Gas market development indicators

The total quantity of natural gas delivered to final customers in Croatia on the retail market in 2024 amounted to 24,592 GWh, which was 5.5% less than in 2023. Of this amount, a total of 6,160 GWh of gas was delivered to final customers in the household category, which represents an increase of 1.6% compared to 2023. A total of 5,315 GWh of gas was delivered to final customers in the non-household category connected to the distribution system, which represents an increase of 2.8% compared to 2023. A total of 13,118 GWh of gas was delivered to industrial final customers connected to the transmission system, which represents a decrease of 11.3% compared to 2023. At the same time, gas exports at interconnections amounted to 9,903 GWh, which represents a decrease of 16.4% compared to 2023.

Natural gas in Croatia was procured from multiple sources: domestic production, imports at interconnections with Slovenia and Hungary, and the LNG terminal. This demonstrates the diversity of supply routes and serves as a significant factor in the security of supply.

The management of the transmission system in 2024 was significantly affected by the overall changes on the gas markets in the European Union and Croatia caused by the war in Ukraine and restrictions on the import of Russian gas. The LNG terminal remains the main supply route and filling gas storages, in order to enter the winter period with the largest gas supplies possible, is an obligation and priority of all European Union Member States. Both interconnections were used primarily for gas export.

For the period from 1 August 2024 to the end of the calendar year 2024, the users of the transmission system at the auctions of monthly (August and September) and quarterly (October – December) capacity products contracted all free firm capacity at the exit on the Rogatec

interconnection and there was no more free firm capacity for those months available for bidding at the next auctions at IMS Rogatec. In 2024, the technical and technological requirements for the start of the trial exploitation of the Cerić and Berak gas fields at UMS Stari Jankovci were also fulfilled. The number of commercial transactions related to daily and intra-day reservations, nominations and renominations, and the pairing of gas quantities with related operators in the Republic of Croatia and neighbouring countries has increased, and the actions of balancing the transmission system have been intensified.

In early 2024, a grant agreement was signed, granting the energy entity Plinacro a grant of EUR 553 million under the Recovery and Resilience Facility for the construction of four gas pipelines (Zlobin – Bosiljevo, Bosiljevo – Sisak – Kozarac and Zabok – Lučko) that will transport gas from the LNG terminal to Slovenia and Hungary, and then to other Southeast European countries. The project was launched with the aim of ensuring the energy independence of the Republic of Croatia, as well as ensuring the continuity and security of the natural gas supply to household and non-household customers in the territory of the Republic of Croatia and other Member States of the European Union.

In 2024, a total of 18 gas suppliers and traders organised as balance group managers participated on the wholesale gas market. A moderate level of competition was maintained on the wholesale gas market, dominated by several major suppliers. Specifically, the market concentration index – the Herfindahl-Hirschman Index (hereinafter: HHI) – on the Croatian wholesale gas market amounted to 2,025 in 2024, and although it was at a similar level as in 2023 (2,068), there is still additional progress and it is approaching the recommended level of 2000, since some of the dominant shares, which were present in 2023, were diversified to other participants in 2024. The largest shares in the total natural gas quantities sold on the wholesale market belong to several largest market participants: Prvo plinarsko društvo, MVM CEEnergy Croatia, HEP Grupa, MET Croatia Energy Trade together with MET Austria Trade GmbH, INA and Geoplin.

The market concentration indicator (HHI) for the retail market in the non-household category was 2,323 in 2024 and is significantly lower than in 2023 when it was 3,085. In terms of competition, the above indicates a reduction in market concentration and a more balanced share of suppliers in the total gas trade on the retail market.

The majority of households in Croatia purchase gas at regulated prices since Croatia established a model for regulating the final price of gas that protects final customers in the household category that use the public gas supply service from fluctuations in the gas market, ensuring a predictable, guaranteed final price of gas throughout the regulatory year, and other conditions of gas supply are also regulated.

Compared to 2023, a significant increase in the number of completed gas supplier switches was recorded in 2024. In 2024, 208,682 completed supplier switches were recorded. Of these, 202,592 supplier switches were completed in the category of final household customers, which is 97% of the total completed switches. The reason for such a large number of initiated (212,590) and completed (208,682) supplier switches is the conducted tender for the selection of a supplier in the public service in May 2024, where HERA issued a decision selecting 13 suppliers in the public service for the period from 1 October 2024 to 3 September 2027. After that, for the period from 1 October 2024, a large number of households, especially in the Zagreb area, decided to change suppliers and start using the market service of gas supply.

2.3. Oil, petroleum products and biofuels

In 2024, the oil, petroleum products and biofuel sector in Croatia was marked by a slight increase in the production of petroleum products, an increase in petroleum product imports, and an increase in the quantities of crude oil transported via the oil pipeline system. In 2024, the Rijeka Oil Refinery refined 261,000 tonnes of crude oil, 39,000 tonnes of domestically produced condensates, 588,000

tonnes of other raw materials (domestic and imported) needed for refining, and 1.65 million tonnes of imported crude oil from Azerbaijan, Nigeria, Libya and Guyana. The total demand for raw materials for the production of petroleum products amounted to 2.54 million tonnes.

The production of petroleum products in 2024 amounted to 2.33 million tonnes, which represents an increase of 12.0% compared to the quantities produced in 2023. A total of 2.77 million tonnes of petroleum products were imported, which is an increase in imports of 0.13 million tonnes, or 4.8% compared to the quantities imported in 2023.

The total production of liquefied petroleum gas in 2024 amounted to 157,000 tonnes, which is an increase of 1,700 tonnes, or 1.1%, compared to 2023.

The production of biofuel in 2024 decreased significantly and amounted to 381 tonnes, which represents a decrease of 58.6% compared to 2023, when 920 tonnes of biofuel were produced.

Sources for the procurement of petroleum products are diversified; the majority of petroleum products are produced in the oil refinery in Rijeka, which is owned by INA, or procured through imports of petroleum products from surrounding countries, EU Member States and countries in North Africa, which indicates that the market is not dependent on only one source, i.e. the security of supply is satisfactory and does not rely on only one source for the procurement of petroleum products.

The prices of petroleum products in 2024 were restricted by the Government of the Republic of Croatia by adopting the Regulation on Determining the Maximum Retail Price of Petroleum Products several times, where the period for determining the highest retail prices of petroleum products was set to 14 days, as well as by adopting a number of Regulations amending the Regulation on the Amount of Excise Duty on Energy Products and Electricity.

2.4. Thermal energy

Characteristics of the thermal energy sector in 2024

In the thermal energy sector, three key factors have marked the operation of thermal systems and the production of electricity from biomass and biogas cogeneration, namely:

- Amendments to the legal framework, i.e. the beginning of the preparation of amendments to the **Thermal Energy Market Act** at the end of 2024 and the adoption of the Act in March 2025
- Government measures and regulations related to the continuation of the implementation of the *Regulation on Eliminating Domestic Energy Market Disruptions*, which allowed for the subsidising of a part of the costs of thermal energy production in district and closed heating systems due to the high costs of input energy product and
- The implementation of the **Act on the Implementation of the Council Regulation on an Emergency Intervention to Address High Energy Prices**, which provided for an exemption to the application of the cap of 180 EUR/MWh for the calculation of surplus market revenues, which could be used by producers of electricity from biomass and biogas cogenerations if they provided evidence of increased production costs, and in particular the costs of input raw materials in the period from 1 December 2022 to 30 June 2023.

Amendments to the Thermal Energy Market Act

The amendments to the *Thermal Energy Market Act* were started with the aim of harmonising the legislative framework of the Republic of Croatia with the regulatory framework of the European

Union, in particular with the *EU Energy Efficiency Directive*, which prescribes energy efficiency obligations, the need for individual metering and billing of thermal energy consumption, and the obligation for Member States to ensure transparent and publicly available national rules on the allocation of the cost of heating, cooling and domestic hot water consumption in multi-apartment and multi-purpose buildings. In March 2025, amendments to the Act entered into force, and by autumn 2025, amendments will be made to several related by-laws that are within HERA's competence.

Implementation of the Regulation on Eliminating Domestic Energy Market Disruptions

Due to the high share of natural gas in the production of thermal energy, the thermal energy sector in 2024 was still affected by gas prices, which, although lower than at the peak of the energy crisis in 2022, were still higher than the prices in the heating season of 2021/2022, i.e. in the period before the energy crisis. For this reason, during 2024, the implementation of the Government measures started in the autumn of 2022 continued. In the spring of 2024, the *Regulation on Amendments to the Regulation on Eliminating Domestic Energy Market Disruptions* was adopted, which ensured the application of measures until the end of September 2025.

The *Regulation on Eliminating Domestic Energy Market Disruptions* entered into force in September 2022 after a sharp rise in the price of natural gas, in order to mitigate the price shock on households and the economy and ensure supply security and customer protection. The Regulation limited energy entities in the heating sector from increasing thermal energy prices for the term of the Regulation, i.e. it limited the final unit price of thermal energy to the level of the price in force for final customers in the 2021/2022 heating season. Pursuant to this Regulation, for each individual district heating system and closed heating system, the Government adopts a *Decision on the Differences Between the Unit Prices of Thermal Energy in Relation to Final Unit Prices (Official Gazette no. 28/23)*, which includes the increase in the costs of heat production during the heating season of 2022/2023 due to rising fuel prices, all with the aim of keeping the unit price for the final customer unchanged. The Regulation adopted in the autumn of 2022 was amended several times, followed by the adoption of a new Regulation in 2023, and its amendments, which extended the previously described provisions on the prices of thermal energy in district and closed heating systems to the following seasons and continued to subsidise part of the cost of thermal energy production due to the increase in the price of fuel compared to the heating season 2021/2022.

In the autumn of 2024, amendments to the *Regulation on Eliminating Domestic Energy Market Disruptions* were adopted, which introduced significant changes for final customers of thermal energy from district and closed heating systems, allowing for an increase in the final unit price of thermal energy by up to 10%. In addition, if the increased tariff items for the production of thermal energy still did not cover the costs of energy product procurement, it allowed for additional subsidising of the cost of production that was not covered.

Implementation of the Act on the Implementation of the Council Regulation on an Emergency Intervention to Address High Energy Prices

In accordance with the *Act on the Implementation of the Council Regulation (EU) 2022/1854 on an Emergency Intervention to Address High Energy Prices (Official Gazette no. 71/23)*, plants producing electricity and heat from biomass and biogas can have the cap of EUR 180 per MWh of electricity produced lifted if they prove that their production costs exceed that limit. Also, biogas plants that have left the incentive system in the legally defined period, the *Regulation on Amendments to the Regulation on Eliminating Domestic Energy Market Disruptions* from March 2024 allowed for the re-entry into an agreement with the Croatian electricity market operator "Hrvatski operator tržišta električne energije", but only if they meet all obligations towards HROTE and towards the Republic of Croatia during the term of the Regulation, taking into account the obligations under the *Act on the Implementation of the Council Regulation (EU) 2022/1854 on an Emergency Intervention to Address High Energy Prices (Official Gazette no. 71/23)*.

Overview of measures and activities in the thermal energy sector

Regular activities

In 2024, the HERA conducted its regular regulatory activities in the heating sector: it issued two licences for the performance of thermal energy production activities and one licence for thermal energy supply, and extended 14 licences. Similar to the previous year, the new licences issued in 2024 are primarily the result of the construction of cogeneration plants participating in the incentives system for electricity production from renewable energy sources and high-efficiency cogeneration. In accordance with its duties and powers, HERA regularly supplements and maintains the *Register of Thermal Energy Buyers* and supplements the *Register of Renewable Energy Sources and Cogeneration, and Eligible Producers kept by the Ministry of Economy*.

Harmonisation of by-laws

Amendments to the **Thermal Energy Market Act** adopted in March 2025 defined the obligations of energy efficiency and the use of renewable sources in heating and cooling systems, the installation of individual metering and billing of thermal energy consumption, the installation of heat cost allocators or heat meters and the protection of the rights of final customers. They also expanded the obligations of all participants in the thermal energy market, especially the activity of thermal energy customers, and the building managers and local self-government units were granted additional powers and obligations. The aim of these amendments to the *Act* is to ensure transparent and publicly available national rules on the allocation of heating, cooling, and domestic hot water costs in multi-apartment and multi-purpose buildings. This is intended to achieve transparency in billing for individual thermal energy consumption and facilitate the implementation of separate metering, ensuring that the costs borne by end users align with actual consumption. In accordance with the amendments to the *Act*, HERA has started to harmonise the by-laws under its competence.

Implementation, oversight and monitoring under the Regulation on Eliminating Domestic Energy Market Disruptions

In accordance with the *Regulation on Eliminating Domestic Energy Market Disruptions* from 2022, HERA calculated new prices of thermal energy production in all district and closed heating systems, as well as the differences between the final unit prices of thermal energy, which include new prices of thermal energy production, and the “frozen” prices applicable in the heating season 2021/2022, based on the data on the purchase price of energy products submitted by energy entities for the heating season 2022/2023, and made the appropriate decisions in September and October 2022. In accordance with the amendments to the *Regulation* that followed after 2022, HERA repeated the same procedure for calculating the difference in unit prices of thermal energy, taking into account the increase and changes in the purchase price of energy products for the production of thermal energy for the following seasons. In addition, in accordance with the 2023 amendments to the *Regulation on Eliminating Domestic Energy Market Disruptions*, HERA issued decisions on the reimbursement of part of the cost of processing steam consumed for technological purposes in district heating systems. This reimbursement applies to the portion of the cost that does not include distribution costs and was paid in accordance with the contract with the supplier in the district heating system for the period from 1 October 2022 to 30 September 2023.

After the adoption of the amendments to the *Regulation on Eliminating Domestic Energy Market Disruptions* in September 2024, it was possible to increase the final price of thermal energy by 10%. Based on the data on energy product costs submitted by energy entities for the heating season 2024/2025, HERA again calculated new unit prices for thermal energy production and the difference between the final unit prices and the unit prices in the season 2021/2022 for all district and closed heating systems, taking into account the allowed increase in the final price of thermal energy by 10%, and issued new decisions in September and October 2024, which will be in force by the end of September 2025.

In addition to calculating the differences in the final unit price of thermal energy delivery for individual seasons, under the Regulation, HERA is responsible for the revision of the calculation of unit prices, and based on the actual fuel costs and the amount of energy product used to produce thermal energy, it carried out the control and corrections of the calculation of unit price differences per individual seasons for each individual district and heating system. HERA also carried out control over the issued bills for the purpose of transparently displaying the price of the delivered thermal energy to final customers and the stated difference in the price of thermal energy in accordance with the Government decision.

Eligible producers of electricity and heat from cogeneration plants

HERA issued three decision granting the eligible electricity producer status, one to a biomass cogeneration plant and two to biogas cogeneration plants. HERA regularly monitors the requirements for acquiring the status of an eligible electricity producer and, among other things, determines the annual efficiency of cogeneration plants using biomass and biogas, i.e. determines the primary energy savings of plants with high-efficiency cogeneration. The majority of the cogeneration plants participating in the incentives system for electricity production from renewable energy sources and high-efficiency cogeneration use the produced useful heat for their own needs or supply it to other consumers (district heating systems, wood processing industry or agricultural activities). A significant portion of useful heat regarded as used for own needs pertains to the preparation of the primary energy source: wood chip drying or the production of biogas. During 2024, the Croatian Energy Regulatory Agency, in accordance with the *Regulation on the Use of Renewable Energy Sources and High-Efficiency Cogeneration*, established a system for collecting data, analysing monthly reporting and monitoring the operation of plants that have the status of eligible electricity producers with the aim of timely and more accurate monitoring of electricity production and heat use.

Calculation of the new electricity production which is higher than 180 EUR/MWh

HERA's obligations regarding the *Act on the Implementation of the Council Regulation (EU) 2022/1854 on an Emergency Intervention to Address High Energy Prices* also included the measures to apply, i.e. calculate a higher caps on market revenues for individual electricity producers. HERA has received requests for a price cap higher than 180 EUR/MWh for 20 biogas and biomass cogeneration plants. HERA determined that the higher electricity production price of 180 EUR/MWh for a total of six cogeneration plants was justified. HERA based the calculation of the price higher than 180 EUR/MWh on the Methodology for calculating maximum reference values and feed-in tariffs and on the calculation of production costs according to the *Regulation on the Use of Renewable Energy Sources and High-Efficiency Cogeneration*.

Key indicators of the state of the thermal energy sector

District and closed heating systems

The thermal energy sector is regulated by the **Thermal Energy Market Act** (Official Gazette nos. 80/2013, 14/2014 and 67/2025). HERA establishes tariff items for thermal energy production activities and thermal energy distribution in a district heating system. The fee for the supply of thermal energy and the fee for performing the activities of thermal energy customers are agreed on freely. Also, when a final thermal energy customer predominantly uses this energy for business, the prices of all energy activities in district heating systems are determined according to separate agreements and prices. In accordance with the Act, in independent heating systems and closed heating systems, the prices of thermal energy supplied to thermal energy customers and final thermal energy customers are not regulated.

The manner and conditions for performing thermal energy production, thermal energy distribution and thermal energy supply activities are regulated depending on the type of heating system that supplies the final customers with thermal energy. Thermal energy supply is an energy activity of

delivering thermal energy from the thermal energy producer, through the thermal energy distributor to the thermal energy customer.

The Act recognises district, closed and independent heating systems. In district and closed heating systems, the activity of a thermal energy customer and all energy activities related to the thermal energy sector are performed mostly by the same vertically integrated energy entities. As for independent heating systems, the activity of a thermal energy customer is performed by entities that perform energy activities related to the thermal energy sector, as well as other thermal energy customers. Six of the largest energy entities in the heating sector are: HEP-TOPLINARSTVO d.o.o., Zagreb; GRADSKA TOPLANA d.o.o., Karlovac; Tehnostan d.o.o., Vukovar; GTG VINKOVCI d.o.o., Vinkovci; BROD-PLIN d.o.o., Slavonski Brod; ENERGO d.o.o., Rijeka, all of which perform the activity of a customer for more than 97% of final customers in Croatia. Additional entities include Vartop d.o.o., Varaždin; Poslovni park Virovitica d.o.o.; Komunalac d.o.o., Požega and SKG d.o.o., Ogulin.

The listed energy entities for thermal energy production, distribution and supply in Croatia provide the services of space heating and the preparation of sanitary hot water for more than 161,500 final customers in Zagreb, Osijek, Sisak, Samobor, Velika Gorica, Zaprešić, Rijeka, Karlovac, Vukovar, Slavonski Brod, Vinkovci, Varaždin, Virovitica, Požega and Ogulin. Almost 96% of the total number of final customers fall under the household category.

Thermal energy used for space heating and the preparation of sanitary hot water is produced in cogeneration thermal power plants, as well as in local heating plants, i.e. separate boiler rooms, which predominantly use natural gas for energy. The total installed capacity in heating systems where energy production, distribution and supply are performed by energy entities is 2,058.73 MWt, and the supplied thermal energy in 2024 was 1,831.95 GWh.

Biomass and biogas cogeneration plants and high-efficiency cogeneration

Thermal energy production in cogeneration plants that simultaneously produce electricity and thermal energy by using renewable energy sources and high-efficiency cogeneration is regulated by the *Renewable Energy Sources and High-Efficiency Cogeneration Act* (Official Gazette nos. 138/21 and 83/23) and the *Regulation on the Use of Renewable Energy Sources and High-Efficiency Cogeneration* (Official Gazette no. 28/23). For biomass and biogas cogeneration plants, the Act prescribes the conditions for energy efficiency, which are verified by HERA annually, i.e. it calculates it annually as efficiency in converting primary fuel energy into produced electricity and useful heat. According to the current tariff systems, biomass and biogas cogeneration plants are required to achieve a total annual energy efficiency of at least 50%. For high-efficiency cogeneration plants using fossil fuels and having the status of an eligible producer, the Act prescribes monitoring the fulfilment of the conditions for primary energy savings. On the basis of the submitted reports regarding the realisation of the annual production plans that the plants are required to submit to HERA, along with other available documentation and information, HERA determines the total annual energy efficiency for each individual plant in a decision.

The total installed capacity of cogeneration plants with eligible electricity producer status is 334 MW of thermal energy and 243 MW of electricity. Of this, biomass plants account for 209 MW of thermal energy and 93 MW of electricity, biogas plants account for 42 MW of thermal energy and 47 MW of electricity, and high-efficiency cogeneration plants account for 84 MW of thermal energy and 102 MW of electricity.