National Energy and Utilities

Regulatory Commission

Work

Report

of the National Energy and Utilities Regulatory Commission

for 2020

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CONTENTS

1. ON THE NEURC

1.1. General information

The National Energy and Utilities Regulatory Commission (hereinafter referred to as the NEURC or the Regulator) is a permanent central executive body with a special status established by the Cabinet of Ministers of Ukraine.

The special status of the Regulator is determined by its tasks and powers and defined by the Law of Ukraine "On National Energy and Utilities Regulatory Commission" (hereinafter referred to as the Law on NEURC) and other laws; this status includes, in particular, the organization and procedure of the Regulator, the procedure for appointing commissioners and terminating their powers, the special procedural principles of the Regulator's activity and guarantees of its independence in decision-making within its powers as defined by law and establishing the terms of remuneration for members and employees of the Regulator.

The provisions of the Law on NEURC also regulate the procedure for appointing members of the board, for selection of candidates for positions of members of the Regulator and commissioners themselves based on the results of an open competition without relevant bodies and officials exceeding their powers. The provisions of the Law on NEURC prohibit the dismissal of commissioners in case of resignation of the Cabinet of Ministers of Ukraine before the newly elected Verkhovna Rada of Ukraine, resignation of the Cabinet of Ministers of Ukraine being accepted by the Verkhovna Rada of Ukraine, or formation of a new Cabinet of Ministers of Ukraine.

The Regulator is a collegial body that carries out government regulation, monitoring and oversight of the activities of economic entities in the areas of energy and utilities. Information on regulatory bodies in energy and utilities of Ukraine

The Energy Regulator of Ukraine, named at the time the National Electricity Regulatory Commission of Ukraine (NERC), was established as an independent, non-departmental, permanent government regulatory body by the Decree of the President of Ukraine No. 738 of December 8, 1994.

Ukraine became the third European country to introduce economic regulation of natural monopolies in the energy industry (the Regulator of England and Wales (OFFER) was founded in 1989, and the Regulator of Hungary (HEO) – in 1994). By now, energy regulation bodies have been established and operate in almost all European countries.

In its 25th year, the Ukrainian Regulator lost its independent status for the second time in its history, as the Constitutional Court of Ukraine on June 13, 2019 ruled unconstitutional and repealed (effective on December 31, 2019) the Law on NEURC, which provided that the NEURC was a permanent independent collegial government body, charged with government regulation, monitoring and oversight of the activities of economic agents in the fields of energy and utilities. The Constitutional Court of Ukraine stated that the Constitution of Ukraine provides for a system of public authorities which may be adjusted by authorized entities only within the constitutionally defined limits. Establishment of a new public authority outside this system and in a manner not provided for by the Constitution of Ukraine is possible only after enacting the respective amendments to the Basic Law of Ukraine.

In order to implement the decision of the Constitutional Court of Ukraine with respect to creation of legal grounds for functioning of the Regulator, the Verkhovna Rada of Ukraine adopted on December 19, 2019 the Law of Ukraine No. 394-IX "On Amending Certain Laws of Ukraine to Ensure Observance of the Constitutional Principles in Energy and Utilities" (hereinafter referred to as the Law). This Law amended, in particular, the Law on NEURC with respect to its legal status and special provisions for appointment and termination of powers of commissioners. Taking into account the decision of the Constitutional Court of Ukraine, the Law defines the NEURC as a permanent central executive body with a special status established by the Cabinet of Ministers of Ukraine.

The provisions of the Law also regulate the procedure for appointing members of the board, for selection of candidates for positions of commissioners based on the results of an open competition without relevant bodies and officials exceeding their powers.

The adopted amendments to the legislation do not reflect the provisions of the EU Third Energy Package (EU Directive 2009/72 2009/73) with respect to independence of the Regulator.

Solving this problem requires a systematic approach, which involves amending the Constitution of Ukraine in a way which would take into account the actually existing economic models of Ukraine and the EU, and these amendments should introduce into the structure of government the institution of independent economic regulators for natural monopolies.

between 1994 to 2020 (legal status, areas of regulation, procedure for appointing commissioners, procedure for financing the Regulator) is provided in Annex 1.1.1.

Legal Framework for the NEURC's Activity

In its activity, the NEURC shall be guided by the Constitution of Ukraine and the Laws of Ukraine "On NEURC", "On Electricity Market", "On Natural Gas Market", "On Natural Monopolies", "On Heating", "On Combined Heat and Electricity Generation (Cogeneration) and Use of Waste Energy Potential", "On Drinking Water and Drinking Water Supply", "On Alternative Energy Sources", "On Government Regulation of Utilities", "On Licensing of Economic Activities", "On Housing and Utility Services", "On Commercial Accounting for Heat and Water Supply", "On Special Provisions for Access to Information in the Areas of Electricity, Natural Gas, Heat Supply, Centralized Hot Water Supply, Centralized Drinking Water Supply and Sanitation", acts of the President of Ukraine, acts of the Cabinet of Ministers of Ukraine and other laws and regulations of Ukraine.

When performing its functions and powers, the Regulator shall act independently within the limits set by the Law on NEURC. Written or oral instructions, orders, mandates of a public authority, other government body, local government body, their officers and officials, economic entities, political parties, non-government organizations, trade unions or their bodies as well as other persons, which limit the powers of commissioners and officials of the Regulator shall constitute illegal influence.

Public authorities, local government bodies, their officers and officials, economic entities, political parties, non-government organizations, trade unions or their bodies shall be prohibited from exerting illegal influence on the processes of government regulation in the areas of energy and utilities.

Persons exerting illegal influence on the performance of their functions and powers by commissioners and officials of the Regulator shall be held administratively and criminally liable in accordance with the law.

In accordance with Article 5.3 of the Law on NEURC, the decisions of the Regulator are not subject to approval by public authorities, except as provided by law.

Decisions of the Regulator may be appealed in court. Appealing against decisions of the Regulator does not suspend their execution.

Principal tasks of the Regulator shall be:

1) ensure an effective functioning and development of energy and utilities markets;

2) promote an effective opening of energy and utilities markets to all customers and suppliers and ensure non-discriminatory access of users to networks/pipelines;

3) promote integration of Ukraine's electricity and natural gas markets with their counterparts in other countries, in particular within the Energy Community, cooperation with the Energy Community's Regulatory Board, the Energy Community Secretariat and national energy regulators of other countries;

4) ensure protection of the rights of customers for goods and services in the areas of energy and utilities to obtain these goods and services of appropriate quality in sufficient quantities at reasonable prices;

5) promote cross-border trade in electricity and natural gas, ensuring investment attractiveness of infrastructure development;

6) implement pricing and tariff policy in the areas of energy and utilities;

7) promote implementation of energy efficiency measures, increasing the share of energy generation from renewable energy sources and enhance environmental protection;

8) create favorable conditions for attracting investments in the development of energy and utilities markets;

9) promote development of competition in the energy and utilities markets;

10) other tasks provided by law.

The main principles of the Regulator's activity shall be legality, autonomy and independence within the limits set by law; competence, efficiency, fairness, predictability and timeliness of decision-making, targeted character of regulation, impartiality and objectivity in decision-making, openness, transparency and publicity of the government regulation process, non-discrimination and taking responsibility for decisions made.

The Regulator shall consist of 7 members, including the Chairperson. The term of office of the commissioners shall be 6 years. Appointment to the position of a commissioner shall be based on the results of open competitive selection, except for the cases provided by the Law on the NEURC. The Chairperson of the Regulator shall be elected by commissioners of the Regulator by secret ballot for a two year term.

Pursuant to the Law of Ukraine "On Amending Certain Laws of Ukraine to Ensure Observance of the Constitutional Principles in the Areas of Energy and Utilities", the President of Ukraine approved the rotation scheme for the NEURC commissioners. According to the Decree of the President of Ukraine[1], the NEURC commissioner Olena Antonova was placed the first on the rotation list with the rotation set for July 1, 2020.

As of December 31, 2020, the NEURC consisted of the Chairperson and five commissioners: Valerii Tarasiuk served as the Chairperson of the NEURC, while Olha Babii, Ruslan Kaidash, Dmytro Kovalenko, Oksana Kryvenko and Oleksii Mahda served as the NEURC commissioners.

The Chairperson and members of the NEURC shall have equal rights in resolving issues within their competence in accordance with the Division of Functional Responsibilities between the Chairperson of the NEURC, NEURC commissioners and the Chief of Staff, which shall be approved by a NEURC order[2].

In 2020, the NEURC's activity was supported by the headquarters and local offices having 600 full-time positions. The Regulator's staff is led by the Chief of Staff.

There are 482 full-time positions in the NEURC's headquarters.

The NEURC's local bodies are 24 units with 118 full-time positions.

The NEURC's structure as of December 31, 2020 is provided in Annex 1.1.2.

According to the Law on the NEURC and the Regulations of the NEURC[3], the main form of the NEURC's work shall be meetings, held in the form of open hearings. In case of the Regulator considering an issue that involves classified information the procedure for access to which is regulated by law, the Regulator shall consider such an issue at a closed hearing. Decisions made at the meetings of the NEURC shall be issued as orders, except for decisions on elimination of violations detected in performance of oversight, which shall be issued as directives.

During 2020, the NEURC held 84 meetings in the form of open hearings, which resulted in 2, 879 resolutions adopted and 84 minutes drawn up.

Decisions of the Regulator are binding on economic agents operating in the areas of energy and utilities.

Information on budget

The NEURC was financed following Articles 11 and 13 of the Law on NEURC, Articles 11 and 14 of the Law of Ukraine "On 2020 State Budget of Ukraine" out of regulatory contributions paid to the special fund of the State Budget of Ukraine by economic agents operating in the areas of energy and utilities under the budget program 6341010 "Management and Administration in the Areas of Energy and Utilities Regulation".

The rate of regulatory contribution was determined in accordance with the Procedure for Calculation and Setting of the Regulatory Contribution Rate[4] and was as follows:

- planned for 2020 – 0.060%[5];

[1] Decree of the President of Ukraine of June 30, 2020 No. 258/2020 "On Approval of the Rotation Scheme of Commissioners of the National Energy and Utilities Regulatory Commission".
[2] NEURC Order No. 17 of June 6, 2018 "On Division of Functional Responsibilities".
[3] NEURC Order No. 2133 of December 6, 2016 "On Approval of Regulations of the National Energy and Utilities Regulatory Commission".
[4] NEURC Order No. 491 of April 6, 2017

- for the Ist quarter of 2020 – 0.071 %[6];
- for the IInd quarter of 2020 – 0.049 %[7];
- for the IIIrd quarter of 2020 – 0.048 %[8];
- for the IVth quarter of 2020 – 0.092 %[9];

The average regulatory contribution rate was 0.0065% in 2020.

During 2020, regulatory contributions paid to the special fund of the State Budget of Ukraine by economic agents operating in the areas of energy and utilities amounted to UAH 531,823.3 thousand as compared to planned revenues of UAH 487,522.5 thousand (the budget execution rate was 109.1 as a percentage).

Following the Law on NEURC, the Report on fulfilment of the Regulator's estimate is published on the NEURC's official website.

1.2. **Priorities and Achievements in 2020**

For the NEURC, as well as for the entire energy sector of Ukraine, 2020 was marked by deepening integration with the EU energy market.

In the year under review, the NEURC focused its efforts on improving the efficiency of energy and utilities areas, enhancing the regulatory framework to ensure stable and uninterrupted functioning of energy markets, implementing modern European rules for their functioning and more.

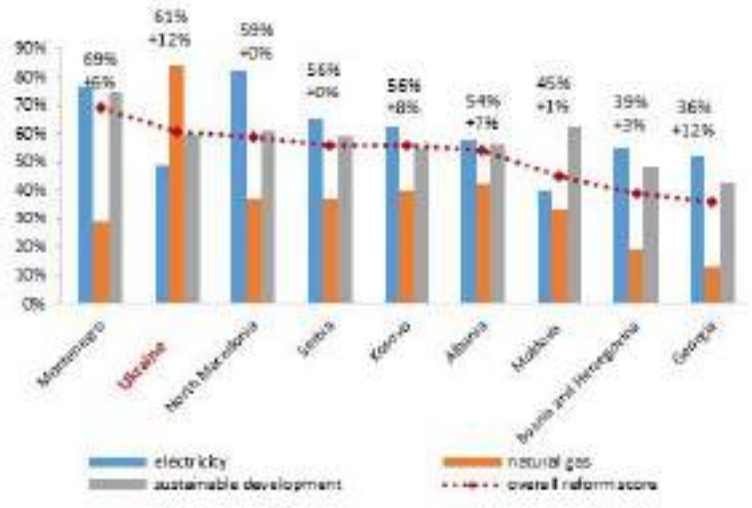


Fig. 1.2.1. Ranking of the Energy Community member states according to the European legislation implementation ratio

When reforming energy markets in Ukraine one should take into account the obligations of Ukraine as a Contracting Party to the Energy Community Treaty and the requirements of the Association Agreement between Ukraine and the EU.

According to the Energy Community Secretariat[10], *Ukraine was among the leaders* of the Energy Community *concerning the pace of implementation of energy reforms* in 2020 and ranks second in the overall ranking of member states according to the European legislation implementation ratio with 61% overall score (Fig. 1.2.1).

Reforming the electricity market

The new electricity market has been functioning in Ukraine for over a year. Since the launch of the wholesale electricity market in July 2019, the Regulator has been constantly monitoring the market situation and promptly taking measures to improve its functioning.

The NEURC managed to make significant progress in the electricity market in 2020:

- improved pricing in the balancing market (introduced incentive prices for imbalances, which led to their significant reduction and improvement of balance conditions in the IPS of Ukraine);

[5] NEURC Order No. 596 of April 22, 2019.
[6] NEURC Order No. 2872 of December 17, 2019.
[7] NEURC Order No. 717 of March 20, 2020.
[8] NEURC Order No. 1212 of June 24, 2020.
[9] NEURC Order No. 1775 of September 23, 2020.
[10] Energy Community Secretariat, Annual Implementation Report 2020.

- initiated a revision of PSO mechanism to maintain socially acceptable electricity tariffs for households that helped to reduce artificial imbalances and stabilize market prices;
- made the ancillary services market fully operational;
- improved the pricing methodology for universal service suppliers (USS)[11] (introduced the imbalance settlement price as a component and monthly price formation);
- introduced a mechanism to reimburse RES producers for the cost of electricity lost due to fulfillment of instructions given by dispatcher of the transmission system operator to reduce the load of RES producers in order to ensure security of supply in the IPS of Ukraine.

In the context of COVID-19, spread the NEURC took a number of measures in 2020 to ensure energy security and stable functioning of electricity market participants, namely:

- restriction of commercial operations for importing electricity from countries that are not parties to the Energy Community Treaty;
- gradual release of the guaranteed buyer from the obligation to apply price restrictions when applying for electricity sale on the day-ahead market and on the intraday market of electricity purchased from producers of electricity from alternative energy sources;
- imposing on the settlements administrator the obligation to analyze and verify the registered amounts of electricity under bilateral agreements with detailed tracking of final origin of electricity sources according to actual data;
- revision of price restrictions on balancing electricity;
- abolition of block orders on the intraday market;
- revision of the price limit on the day-ahead market and the intraday market during the minimum load hours.

The positive dynamics of increasing capacity of electricity facilities generating electricity from alternative sources was maintained in 2020. For instance, the amount of electricity generated from the RES increased to 10,219 billion kWh in 2020 compared to 5,570 billion kWh in 2019. However, a significant increase in capacity of RES facilities in Ukraine in 2020 was accompanied by a critical reduction in peak electricity consumption by 10% compared to previous years. This dynamics came about due to abnormally warm weather and declining global demand for metal products as well as the introduction of lockdown measures related to COVID-19. All this, as well as the preservation of cross-subsidization of household customers, has led to formation of a significant financial imbalance in the market and, as a consequence, mutual indebtedness between market participants.

The NEURC took an active part in resolving the resulting situation, in particular in terms of reaching mutual understanding with investors in RES, which formed the basis of the Law of Ukraine "On Amending Certain Laws of Ukraine to Improve Support Terms for Electricity Production from Alternative Energy Sources", which introduced, in particular, reduction coefficients for "green" tariffs (for solar and wind power plants). Following this Law, the NEURC revised the levels of "green" tariffs using the reduction coefficients, effective August 1, 2020.

Introduction of incentive tariff formation for electricity distribution system operators (introduction of RAB-tariffs).

In 2020, the price regulation system was reformed, in particular concerning setting tariffs for electricity distribution services for 2021 using the incentive-based regulation. The NEURC decisions on establishment of long-term incentive-based regulation parameters as well as setting of respective tariffs for electricity distribution services for 2021 for 25 distribution system operators were preceded by a broad public discussion, which ensured compliance with the principle of achieving a balance of interests of the state, customers and market participants.

The introduced tariff formation system is focused on attracting investments for construction and modernization of the electricity network and substation infrastructure, which, in turn, will reduce

[11] NEURC Orders No. 547 of March 3, 2020, No. 1968 of October 30, 2020 and No. 2387 of December 9, 2020.

costs and time for connection of new customers to the network. At the same time, the new tariff methodology creates incentives for distribution system operators to reduce the inefficient expenses and losses of electricity in networks as well as to improve the quality of electricity supply to customers.

The transition to incentive-based regulation has increased the size of investment programs of distribution system operators by, in average, 59%.

Connection to electricity networks

To create favorable conditions for attracting investments in the energy industry of Ukraine and strengthen Ukraine's position in the World Bank's Doing Business ranking, the NEURC simplified the procedure for calculating standard connection fees and improved the procedure for calculating fees for connection of electrical installations intended for electricity generation to electricity networks[12].

It has adopted a number of amendments to the codes governing distribution and transmission systems, which have strengthened the responsibility of distribution system operators for providing connection services as well as regulated the connection to the transmission system of customer electric facilities using voltage of 110 kV and above (energy consumption facilities).

Compared to 2020, there has been a decrease in the cost of connection to electricity networks:

- approved rates of standard connection fees for 2021 are on average 5.7% lower;
- approved rates of nonstandard connection fees for 2021 are on average 14.7% lower;

Short-, medium- and long-term planning of Ukraine's energy system development following the requirements of the EU legislation

In the year under review, the Regulator approved for the first time the Report on Assessment of Generating Capacity Adequacy to the Need (Sufficiency)[13] to Cover Forecasted Electricity Demand and Provide the Necessary Reserve and the Transmission System Development Plan for 2020-2029[14], which are developed by NEC Ukrenergo transmission system operator in accordance with applicable law.

These strategically important documents form the first link in the chain of measures which are to ensure reliable operation of the IPS of Ukraine in the short-, medium- and long term, security of electricity supply and conformity of the transmission system to the needs of the electricity market, national economy and society, to become the basis for investment solutions aimed at development of the transmission system, including infrastructure for cross-border exchange, distribution systems, generating capacity and renewable energy facilities.

Natural gas market

Following the provisions of paragraph 22^2 of Article 17.1 of the Law on NEURC, it took the following measures in 2020:

- approved the Methodology for Determining the Amounts of Normative and Production and Technological Losses/Consumption of Natural Gas[15];
- set the amount of normative and production and technological losses/consumption of natural gas for 2021 for 42 operators of gas distribution systems.

The key to success of Ukraine's natural gas market integration with the EU gas market is reforming the rules for providing access to gas transmission infrastructure. To this end, the Regulator has introduced structural changes in legislation and implemented a number of Commission (EU) Regulations and Decisions (Commission Regulation (EU) #2015/703 of 30 April 2015, Commission Regulation (EU) #2017/459 of 16 March 2017; Commission (EU) Decision #2012/490 of 24 August 2012).

[12] NEURC Order No. 1209 of November 25, 2020.
[13] NEURC Order No. 605 of March 13, 2020.
[14] NEURC Order No. 764 of April 3, 2020.
[15] NEURC Order No. 2033 of November 6, 2020.

As a result of these amendments to the NEURC regulations, the capacity of all cross-border points was for the first time distributed on European auction platforms in 2020. The first auction for interconnection capacity distribution was held on July 6, 2020.

The amendments also allow for that the interactions of the GTS operator of Ukraine with GTS operators of neighboring countries will be regulated by interaction agreements. Such agreements are concluded taking into account the requirements of European legislation, which allows to use the virtual reverse mode potential.

At the same time, the introduction of new rules for contractual congestion management helps to increase an efficiency of capacity utilization of the Ukrainian gas transmission system.

In addition, to ensure gradual and effective opening of the retail natural gas market for household customers and to enhance competition among natural gas suppliers for household customers, the NEURC has simplified the procedure for changing the natural gas supplier by household customers and facilitated making of a natural gas supply contract between a household customer and a new supplier.

At the same time, to ensure uninterrupted supply of natural gas in an opening natural gas market to household customers who due to circumstances beyond their control have been left without a natural gas supplier or in cases where the current supplier fails to fulfill the obligations under the natural gas supply contract, the NEURC improved the rules for functioning of the last resort supplier in the natural gas market.

Implementation of EU legislation provisions

As part of its effort to deliver on Ukraine's commitments concerning implementation of the EU energy legislation and integration of energy markets of Ukraine and the EU, the NEURC is deepening cooperation with European institutions to make the Ukrainian energy legislation better compliant with EU legislation, in particular to make the updated Annex XXVII compliant with the Association Agreement and the Energy Community Treaty.

The integration of Ukraine's IPS with the pan-European energy system ENTSO-E is one of the key strategic goals of Ukraine and the priority tasks envisaged by the Association Agreement between Ukraine and the EU. It is an important component of enhancing Ukraine’s energy security as a synchronous operation with the European Energy Union will improve reliability and sustainability of Ukraine’s IPS, expand electricity exchange opportunities between neighboring countries, enhance competition in the domestic market and create new opportunities for operating in Europe’s energy market.

Achieving these goals should be ensured both through technological integration and through synchronization of the IPS of Ukraine with the energy systems of ENTSO-E member states and through the integration of energy markets. Following the passage of sectoral laws, the first step towards such integration is to implement provisions of the ENTSO-E and ENTSO-G codes.

In the year under review, the NEURC continued to transpose and implement provisions of the EU legislation included in the acquis list established by the Energy Community Council of Ministers.

For instance, on April 3, 2020, the NEURC approved the Rules for Constraint Management and the Procedure for Allocation of Cross-Border Section Capacity[16], which were developed following the EU Regulation #714/2009 of 13 July 2009 on conditions for access to the network for cross-border exchanges.

Adoption of these documents and amending the Law of Ukraine “On Electricity Market” will open the possibility of joint auctions with transmission systems operators of neighboring countries to allocate cross-border section capacity, which will significantly expand cross-border electricity trade.

To ensure transposition and implementation into Ukrainian legislation of an adapted version of the Regulation (EU) No. 1227/2011 of 25 October 2011 on wholesale energy market integrity and transparency (so-called **REMIT**[17]) the Regulator drafted in the year under review the Law of Ukraine

[16] NEURC Order No. 763 of April 3, 2020.

[17] Regulation #1227/2011 of the European Parliament and of the Council of 25 October 2011 on wholesale energy market integrity and transparency.

"On Amending Certain Laws of Ukraine on Prevention of Abuses in Wholesale Energy Markets", which would establish at the national level such requirements and rules that will ensure transparency and integrity of wholesale energy markets (electricity and natural gas markets) and prevent abuses committed by participants of these markets, in particular with regard to manipulation, insider information trading, etc.

On December 23, 2020, the Regulator approved the Compliance Program for the Gas Transmission System Operator of Ukraine LLC, which was developed by the GTS Operator in accordance with the applicable law. Approval of the Compliance Program marks an important step in creation of a regulatory environment for operation of the certified GTS Operator, which would comply with legislation, and principles of the EU and the Energy Community.

To ensure transposition of provisions of the Directive 2012/27/EC of the European Parliament and of the Council of 25 October 2012 on energy efficiency concerning the powers of the Regulator, the NEURC takes part in revision of the draft Law of Ukraine "On Energy Efficiency".

Utilities

The Law of Ukraine "On Housing and Utility Services" (hereinafter referred to as the Law No. 2189)[18] has significantly changed the principles of relations arising in the process of providing and consuming housing and utility services, in particular, by introducing new terminology and classification of utility services and making changes to of utility services provision. Following this Law, the NEURC took measures in the year under review to improve the regulatory framework governing the tariff formation and setting, in particular, those for heat and respective utilities, by adopting:

- Procedure for Tariff Formation on Heat Supply[19];
- Procedure for Tariff Setting on Heat Supply[20];
- Procedure for Tariff Formation on Hot Water Supply[21];
- Procedure for Tariff Setting on Hot Water Supply[22];

In addition, amendments were introduced to the current NEURC regulatory framework, which regulates the methodology of tariff formation for licensees of the NEURC, in particular to the Procedure for Tariff Setting on Heat, Its Generation, Transportation and Supply[23].

In 2020, the Regulator set for the first time economically justified tariffs for heat, differentiated by customer category, according to the new methodology by revising all components of tariff structure for respective utilities. The NEURC also responded on short notice to changes in the natural gas market, in particular, on price fluctuations.

Based on the experience of 2020, the main factors that had a positive impact on regulation of centralized water supply and centralized sanitation areas should be listed as follows:

- improvement of tariff formation mechanisms by amending the Procedure for Tariff Formation on Centralized Water Supply and Centralized Sanitation[24];
- electricity market reform;
- implementation of resource-saving measures included in investment programs.

As a result, energy intensity decreased and energy efficiency increased in the industry, 25 water supply companies reduced their electricity consumption by a total of 21.5 million kW or 5%, and 25 sanitation companies reduced their annual energy consumption by 7.4 million kW or 3%. Compared to the beginning of 2020, 22 licensees (43%) reduced their indebtedness to energy suppliers by a total of UAH 71.0 million. Thus, at the end of the year, 27 licensees (53%) had no debts and had made advance payments to energy suppliers. Another result of the implementation of resource-saving measures was a reduction of excess water consumption and losses compared to the previous year by a total of 14.4 million m^3 or 12%, which had a positive impact on the level of actual cost recovery by tariffs.

[18] In full effect since May 1, 2019.
[19] NEURC Order No. 416 of February 18, 2020.
[20] NEURC Order No. 417 of February 18, 2020.
[21] NEURC Order No. 767 of April 8, 2020.
[22] NEURC Order No. 768 of April 8, 2020.
[23] Approved by NEURC Order No. 1174 of June 25, 2019.
[24] NEURC Order No. 486 of February 25, 2020.

Licensing and license oversight

Table 1.2.1. Distribution of licensees by regulation area

Regulation area	Number of valid licenses as of January 1, 2021
Electricity industry	1,943
Oil and gas industry	837
Heat supply services	170
Centralized water supply and sanitation services	55
Total	3,005

In 2020, the NEURC continued, in accordance with the tasks assigned to it, license economic activities in the areas of electricity industry, centralized water supply and sanitation services, heat supply services and oil and gas industry. As of January 1, 2021, there were 3,005 valid NEURC licenses, which was 21% more than on January 1, 2020. The distribution of licensees by regulation area is provided in Table 1.2.1.

Oversight of the activities of economic entities in the areas of electricity industry, heat supply services, centralized water supply and sanitation services as well as on the natural gas, oil and oil products markets was carried out by the Regulator by conducting scheduled and unscheduled field and desk inspections. In 2020, the NEURC carried out 695 inspections (compared to 500 in 2019) of licensees' compliance with requirements of the law and license conditions (36 scheduled, 420 unscheduled field and 239 unscheduled desk inspections) (Fig. 1.2.2). This marked the largest annual number of inspections since the NEURC started its operations. It should be mentioned that following the Law of Ukraine "On Amending Certain Laws of Ukraine Aimed at Preventing COVID-19", no scheduled inspections were carried out after March 17, 2020.

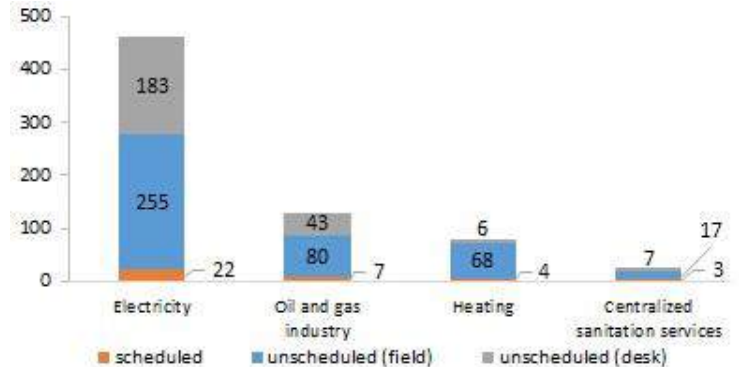


Fig. 1.2.2. Distribution of government oversight measures in 2020 by area

Based on examination of violations detected during inspections, the penalties were imposed on violating licensees in the form of fines totaling over UAH 56 million, which were payable to the State Budget of Ukraine, namely:

- UAH 48,085,135.89 in electricity industry;
- UAH 7,157,000 on natural gas, oil and oil products markets;
- UAH 421,591.51 in the area of heat supply services;
- UAH 765,000 in the area of centralized water supply and sanitation.

To protect the rights of customers and balance the interests of customers, economic entities and the state, the Regulator conducted in 2020 more than 240 unscheduled inspections of licensees on the basis of substantiated complaints filed by individuals and/or legal entities concerning violations by economic entities operating in the areas of energy and utilities of their legal rights and interests (a total of more than 280 complaints filed by individuals and more than 120 complaints filed by legal entities).

In most cases, the fact of violations was confirmed, the rights of customers of goods and services in the areas of energy and utilities were restored or the licensee obliged to eliminate the violations within the appropriate time and notify the NEURC on such elimination.

Based on the results of the above-mentioned inspections, 28 sanctions in the form of caution and one sanction in the form of license revocation were imposed on licensees as well as fines in the amount exceeding UAH 20 million.

The following measures were taken in the areas of government oversight and monitoring of electricity and natural gas markets and the utilities sector in 2020:

- amendments were introduced to the Procedure for Monitoring Compliance by Licensees Operating in the Areas of Energy and Utilities with Applicable Legislation and License Conditions[25]; in particular, it was supplemented with new chapters on determining the amounts of excess income or shortfall in income from licensed electricity distribution activities and activities for supplying electricity to customer by the USS;
- the Procedure for Investigation of Violations of Legislation on Electricity and Natural Gas Markets Operation was approved[26].

In addition, with adoption of the Law of Ukraine "On Amending Certain Laws of Ukraine to Ensure Observance of the Constitutional Principles in the Areas of Energy and Utilities" on December 19, 2019, a conflict of laws was eliminated, which enabled the NEURC to perform government oversight measures in the year under review following the Law on NEURC.

Transparency and openness

In the conditions prevailing both worldwide and in Ukraine due to the COVID-19 pandemic and the resulting need to limit mass events, including meetings of the NEURC in the form of open hearings with public participation, the use of Internet resources to ensure openness and transparency of the NEURC activity, in particular by holding online meetings, became of paramount importance in 2006. For instance, the official NEURC website (www.nerc.gov.ua), which promptly and systematically posted current information and important news, became a powerful resource for covering the activities of the Regulator. The increase in the number of the website's users to 837 thousand (compared to 794 thousand in 2019) is a convincing indication of the growing interest in the information posted there.

The Regulator kept working on modernizing the website and improving its online services. In particular, it improved the Google map featuring contacts of Customer Service Centers established by electricity distribution companies and electricity suppliers, gas distribution companies and natural gas suppliers. The increase in the number of user views of the online service to 36.7 thousand, when compared to the previous period (5.3 thousand), indicates a marked increase in its popularity and accessibility.

The popular channels of 2020 included the YouTube video hosting site, where the Regulator posted videos with stories about the NEURC work and comments of its leadership on important issues, as well as the Internet resource SlideShare, where the number of views of presentations and documents almost doubled in 2020 year-on-year (154 thousand views in 2020 and 87 thousand in 2019).

The NEURC's efforts to ensure transparency and openness of its work were commended in DiXi Group's study "Energy Transparency Index 2020", which assessed whether the authorities that shape and regulate Ukraine's energy policy had necessary and sufficient conditions in place to ensure that stakeholders regularly receive clear, comprehensive and relevant information they need to make informed decisions.

1.3. **Ensuring Open and Transparent NEURC Activity**

The main principles of the NEURC's functioning are openness, transparency and publicity of the government regulation process, which is ensured through an open decision-making process, involvement of stakeholders in their discussion, disclosure of necessary information, issuing clarification decisions etc.

[25] NEURC Order No. 601 of March 11, 2020.
[26] NEURC Order No. 1760 of September 23, 2020.

Ensuring stakeholder participation in the NEURC regulatory decision-making process

The high level of transparency of the Regulator's activity is caused, in particular, by the fact that **the main form of the NEURC's activity is weekly meetings held in the form of open hearings involving stakeholders, media and the public**, during which regulatory decisions are considered and adopted, including ones on tariff formation and setting.

Information on the date, time, venue and agenda of the Commission's meetings held in the form of open hearings as well as their results are promptly made available to the public by posting on the NEURC's official website. After meetings, the NEURC management held briefings for the media on topical issues. In 2020, the NEURC Chairperson and commissioners gave numerous interviews to TV channels and news agencies, including those on topical issues of regulatory policy and the main tasks of the Commission.

The NEURC livestream meetings held in the form of open hearings on its official website. Records of such livestreams are kept and free access to them was provided for at least one year from the date of the meeting. In addition, all decisions are registered with the possibility of free access to them on the official website in the manner approved by the Regulator.

An important element of the NEURC's activity is rule making, the transparency of which is achieved due to **the openness of the process of the NEURC regulations preparation** following the legislation requirements.

In order to ensure compliance with the legally established principles of government regulatory policy, openness, transparency, publicity, attention to public opinion, openness to individuals, legal entities and their associations and accessibility of the government regulation process in the areas of energy and utilities, the NEURC approved the Procedure for Open Discussions[27], which provides that an open discussion should be held before the NEURC considers issues of pricing (tariff-setting), approval of investment programs/development plans, comments and proposals concerning draft NEURC decisions which bear the marks of regulations, or other issues. Open discussions needed to set prices (tariffs)/change them and approval of investment programs/ development plans should be conducted by licensees on site. Representatives of local executive bodies and/or local government bodies (if the draft decision concerns the development of a particular region and/or territorial community) and other stakeholders may be present at open discussions.

It should be emphasized that **the NEURC holds open discussions of draft decisions** in a transparent and non-discriminatory manner in order to balance interests of customers, licensees and the government, ensure unimpeded access of customers, customers, licensees, public authorities and local government bodies, customer organizations, non-government organizations, mass media and other stakeholders to information and their awareness on the basis of publicity, openness, voluntariness and freedom of expression.

Ensuring open access to information

To ensure information openness of the NEURC and to comply with the basic principles governing its activity the Commission maintains an official website (www.nerc.gov.ua) where news and information on the authority's activity are promptly and systematically posted and all decisions and draft regulations to be discussed are published from time to time. The openness of the Regulator's activities is also achieved by **publishing the following information on the official website** in the form of **open data**:

- meeting agendas;
- draft decisions and justifications for them;
- meeting minutes and video records;
- decisions adopted;
- results of market monitoring in the areas of energy and utilities (quarterly);

[27] NEURC Order No. 866 of June 30, 2017.

- records of inspections of economic entities and remarks, explanations and justifications appended to such records by economic entities;
- draft estimate and approved estimate of the Regulator (changes to it), the report on its execution;
- Regulator's annual work report etc.

In addition, there are **convenient online services** that speed up and simplify the process of accessing the requested information, namely:

- calendar of meetings – by choosing the date of meeting, you can get complete information on the meeting's agenda, prepared materials, minutes, video record and decisions made at it;
- online registration – the service registers participants of an open NEURC meeting through the website;
- NEURC news on your mail – the service allows you to quickly receive current news by e-mail from the official website;
- fee calculators for connection to gas distribution networks and electrical facilities, which enable you to immediately get answers to the following questions:
  - how much will the connection service cost?
  - when will the connection occur?
  - who is the service provider?
  - what is the provider's liability for delayed service provision?

Following its policy of informing energy customers and interacting with them, the NEURC posted on the website in the year under review information on the average electricity consumption by household customers in 2019 by oblast (Fig. 1.3.1).

To improve its activity on informing electricity and natural gas customers, the NEURC makes a sustained effort to enhance its online services. In particular, it improved the Google map featuring contacts of Customer Service Centers established by electricity distribution companies and electricity suppliers, gas distribution companies and natural gas suppliers (Fig. 1.3.2), as a result of which accessibility of this online service increased, as evidenced by user views growing to 36.7 thousand

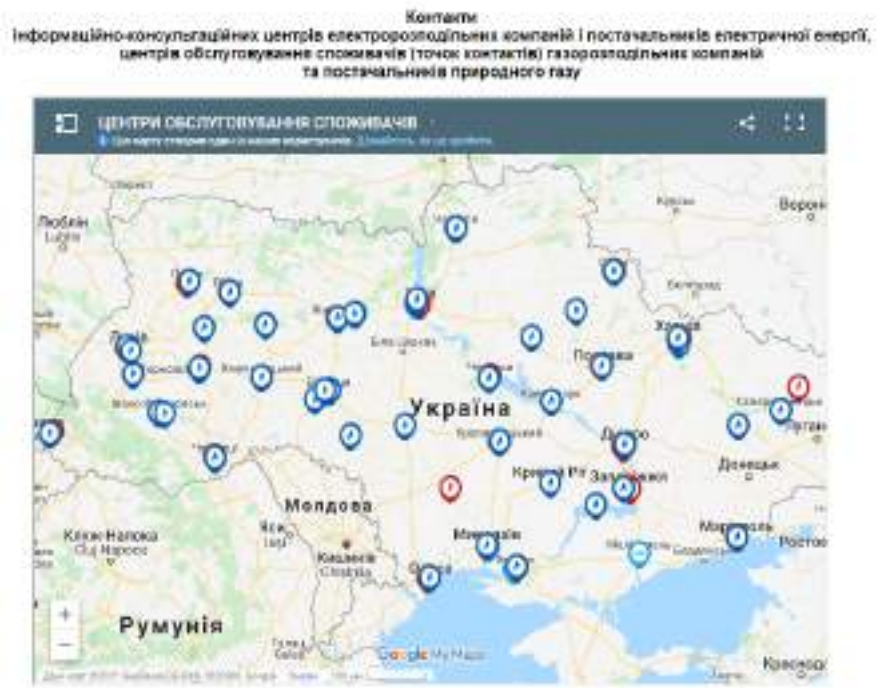


Fig. 1.3.2. Google map of Customer Service Centers established by electricity distribution companies and electricity suppliers, gas distribution companies and natural gas suppliers

compared to 5.3 thousand times in the previous period.

In addition, an interactive tool functioned on the NEURC website, called the List of Electricity Suppliers Operating in the Territories of Distribution System Operators (DSO) (Fig. 1.3.3). The List was created in accordance with the powers granted by legislation of Ukraine to the Regulator to ensure effective exercise of customers' rights in the electricity market, creation of a transparent information environment for market participants, classification of licensee information which system operators and electricity suppliers are required to post on their websites at the request of the Regulator and following the Law and the Rules for Retail Electricity Market as well as facilitation of customer access to such information.

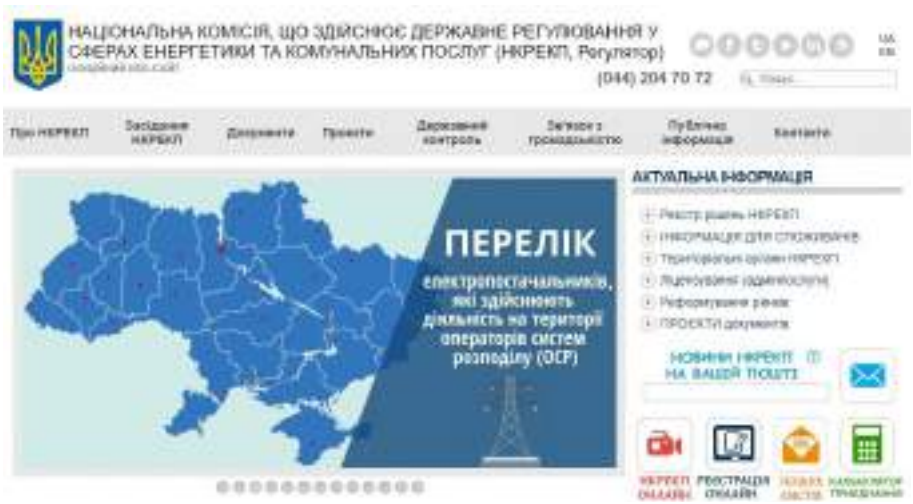


Fig. 1.3.3. Information on the website about the List of Electricity Suppliers Operating in the Territories of Distribution System Operators

This List enables customers to quickly find in each oblast suppliers who have entered into distribution agreements with the respective system operators and get links to their official websites.

Apart from the official website, the NEURC maintains **pages on social networks** where current news are published and users have the opportunity to actively comment on the posted information: **Facebook** – www.facebook.com/nerc.gov.ua (184 posts in 2020); **Twitter** – www.twitter.com/NKREKP (142 tweets during 2020); **YouTube** – www.youtube.com/channel/UCR-iJgGoHV1MjZ43dOzidJA; **Slideshare** (presentations) – http://www.slideshare.net/NKREKP.

The NEURC channel of the popular video hosting site YouTube posted videos with stories about the NEURC's activity and comments of its leadership on important issues. 39 presentations and documents on various topics have been posted on the SlideShare Internet resource, and their high viewership (154 thousand views in 2020 compared to 87 thousand in 2019) provides evidence of the popularity and relevance of the issues covered (Fig. 1.3.4).

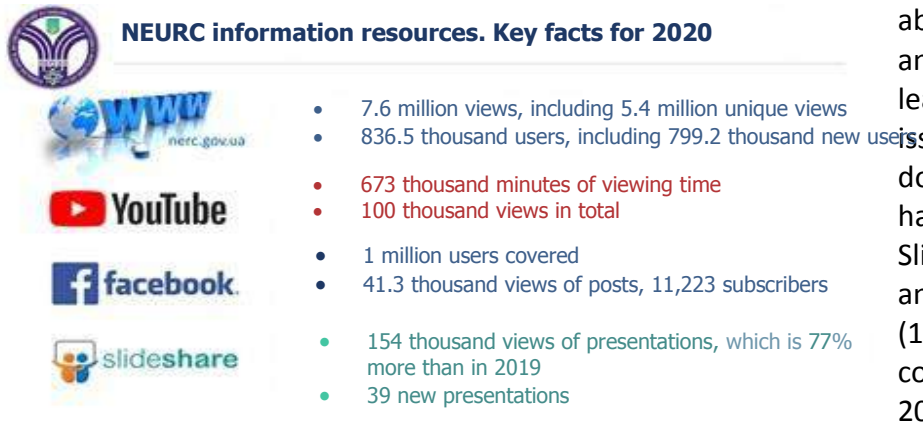


Fig. 1.3.4. NEURC information resources

The NEURC posts information materials on implementation of operational monitoring of the electricity market by the Regulator since it became operational on July 1, 2019 and up to the present time.

When preparing such materials the NEURC uses information provided to it by a market operator or a transmission system operator, in particular in its capacity as a settlements administrator or commercial metering administrator, organizers of electronic auctions for electricity sales under bilateral contracts, operators of commodity exchanges and other organized market places where electricity is traded, following the requirements of the Law, Market Rules, Rules of Day-

Ahead/Intraday Market and other regulations. In the process of operational monitoring the NEURC collects data on an hourly, daily and decadal basis, analyzes and classifies it and establishes detailed indicators of functioning of such segments of the electricity market as the bilateral contract market, the day-ahead market, the intraday market, the balancing market, transmission of electricity via cross-border electricity networks of Ukraine for the purposes of export-import electricity operations as well as supply (generation) and offtake (consumption) of electricity.

Visit https://www.nerc.gov.ua/?id=57238 to examine the information materials presented by the NEURC, in particular the indicators of the electricity market operation, which allow user to choose individual trading zones within Ukraine (the Burshtyn TPP trading zone and the IPS of Ukraine trading zone) and period of operation of any segment of the electricity market. The information materials created by the NEURC are interactive, display dynamics for rather long periods of time and may be downloaded by any interested person.

Thus, the NEURC official website and its pages on social networks (mainly Facebook) is a powerful tool for ensuring transparency of the Regulator's activities, including the process of tariff formation and setting.

The NEURC annual work reports are also an important tool for ensuring transparency of the regulatory system as the Regulator uses them to describe in a language accessible to the public how it performs regulatory and control functions, how regulated sectors function, what the market rules are, what principles and approaches govern pricing and tariff policy, what factors can influence the changes in prices and tariffs, what problematic issues are solved by the Regulator, what reforms are planned to be implemented in the future, etc. **Annual reports** are published on the NEURC official website and are a source of information on not only directions, results and priorities of the NEURC's activity but also on the technical, financial, and economic condition of regulated sectors as they offer a lot of statistical and analytical information.

Transparency and openness of the NEURC's activity is also ensured by organizing effective **interaction with the media and the public**, in particular through:

- informing the public about the Commission's activity by holding press conferences, briefings, hotlines, posting on the NEURC's official website and in the media articles, interviews, comments, preparing and disseminating information and presentation materials on its operations etc.;
- monitoring media reports on its activity and responding to critical remarks.

The Regulator actively interacted with national and regional editorial offices and journalists of industry and business publications, news agencies, TV channels and radio stations. It constantly updated the contact database and it can be concluded from reviewing that database that the NEURC interacted with about 900 media representatives in 2020.

Fig. 1.3.5. NEURC Chairperson Valerii Tarasiuk's interview for members of the media

The NEURC management provided numerous official comments, answers and interviews to members of the media and the public, including on issues of public interest.

To build a higher level of customers' awareness, the NEURC regularly conducts **information campaigns** to explain government policies, in particular on customers' rights to freely choose suppliers, guaranteed service quality standards, procedures

for customer's complaints and appeals, protection of their rights, etc.

To inform the regional public, information about the Regulator's activity on current issues was disseminated in regional groups on Facebook.

The NEURC decisions were also published in the print media outlet **Informatsiinyi Biuleten NKREKP** [NEURC Information Bulletin]. 12 issues of the bulletin were published during the year amounting to 2551 pages in total, and all the orders of the Commission were published there. At the same time, new orders and selected NEURC directives and letters were systematically added to the Verkhovna Rada of Ukraine "Zakonodavstvo" Legal Information and Research System and "LIGA:Zakon" Information and Legal Support System.

Public participation in the NEURC activity

In the framework of its interaction with the public, the NEURC cooperates with organizations representing the interests of customers, informs such organizations and customers about the activities of natural monopolies and economic entities operating in adjacent markets.

NEURC uses direct and indirect forms of public engagement. For instance, public consultations are conducted in the form of public discussions, electronic public consultations (direct forms) and public opinion polls (indirect form).

Fig. 1.3.6. A meeting of the NEURC Public Council

The Public Council is a consultative and advisory body supporting NEURC activity.

Two meetings of the Public Council were held in 2020, and NEURC specialists took an active part in them.

There is the Public Council section on the NEURC official website where information about its activity (constitutional documents, membership of the council, news, minutes of meetings, etc.) is posted.

1.4. Ensuring Effective Representation of the NEURC's Interests in Ukrainian Courts

During 2020, the NEURC participated in 730[28] court cases, with some of them active since September 2014 (Fig. 1.4.1).

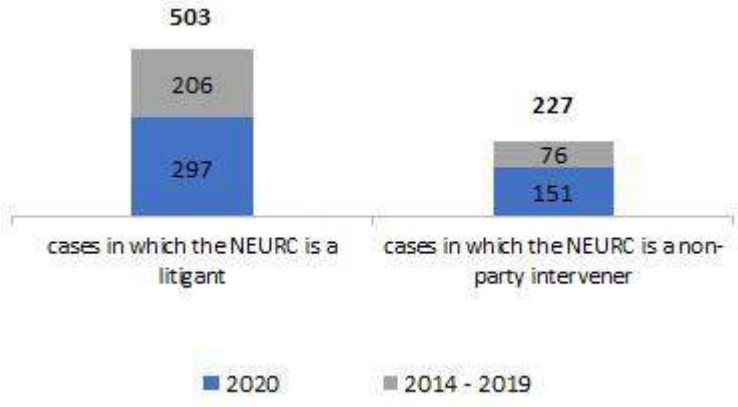


Fig. 1.4.1. Court cases in which the NEURC participated in 2020

To balance interests of customers, economic entities operating in the areas of energy and utilities and the government as well as to ensure energy security and European integration of electricity and natural gas markets of Ukraine, the Regulator adopts regulations and individual acts as well as it takes government regulatory actions which are then challenged by participants in the respective markets.

However, the legality of most

[28] Number of cases in which the NEURC's interests and legal positions were represented in 2020 (including cases opened since September 2014).

such acts and actions has been confirmed by courts, which indicates that the NEURC market regulation is effective.

However, the number of court cases where the NEURC is involved as a non-party intervener depends on the position of the respective court on the need to safeguard the NEURC rights in cases involving legal relationships in the energy and utilities areas, and in most cases it is justified by the need for the Regulator to provide courts of Ukraine with competent explanations of current legislation in energy and utilities in specific cases that are subject to litigation.

It should be noted that 23 final judgments were delivered in favor of the NEURC in 2020 in cases opened from 2014 – 2020 and challenging the NEURC decisions that bear the marks of regulations and NEURC regulations (as compared to 4 judgments that repealed such regulations).

In addition, 10 judgments confirmed the legality and validity of tariffs approved by the NEURC in the relevant area of regulation, while in 5 cases, the courts of Ukraine repealed the relevant tariffs.

In addition, case law confirmed the validity of the following acts in 2020:

- Rules for Supplying Natural Gas[29];
- Methodology for Setting the Fee on Connection to Gas Transmission and Gas Distribution Systems[30];
- Gas Distribution System Code[31];
- Standard Natural Gas Supply Contract for Household Customers[32];
- Standard Natural Gas Distribution Contract[33];
- Procedure for Tariff Formation on Ammonia Transportation by Main Pipelines[34];
- Rules for Retail Electricity Market[35].

In addition, the NEURC prevented parties in court cases recovering damages from the government in the total amount of UAH 29.97 billion.

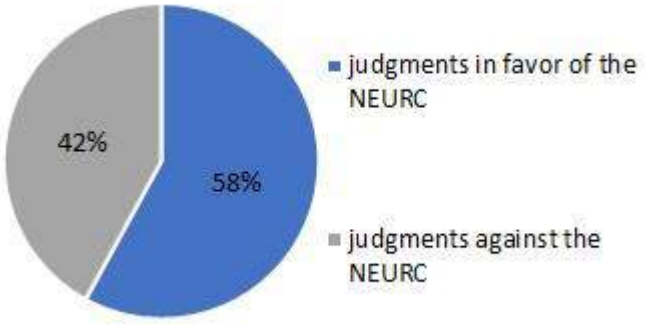
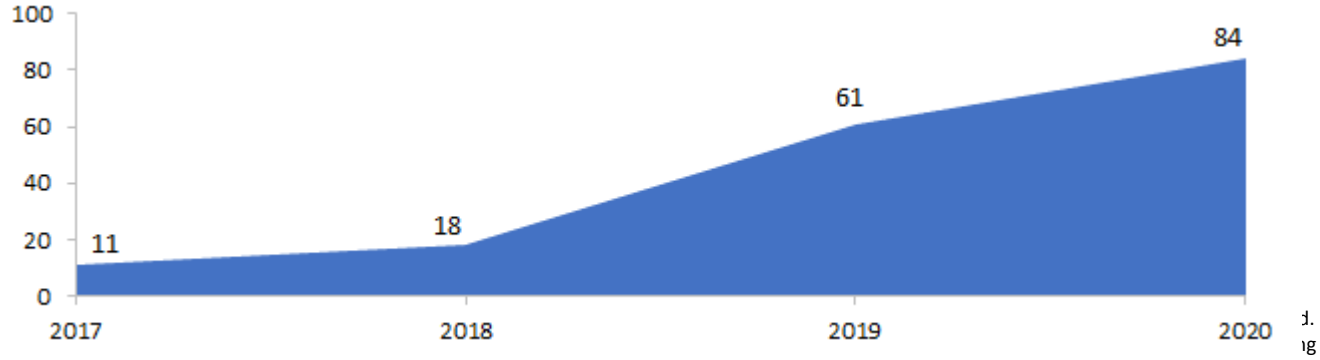


Fig. 1.4.2. Distribution of final judgments delivered in 2020 in cases in which the NEURC was a litigant

At the same time, the Regulator protected the rights and interests of customers by preventing the inclusion of compensation amounting to UAH 2.2 billion in the tariffs for natural gas transportation services.

At the same time, the Regulator's efforts to protect the rights and interests of the NEURC in Ukrainian courts resulted in 201[36] judgments delivered in 2020 which have become final under the procedural codes of Ukraine, out of which 116 judgments were delivered in favor of the NEURC and 85 judgments in favor of the other party in the case (Fig. 1.4.2).

At the same time, the NEURC filed 84 lawsuits to protect its legal rights and interests in 2020, which is 37.7% more than in 2019 (Fig. 1.4.3).



to open the appeal proceedings, closing the appeal proceedings or issuing a ruling as a result of the appellate review (Article 255 of the Code of

Fig. 1.4.3. Number of lawsuits filed

2. ELECTRICITY INDUSTRY

2.1. General information

In the electricity industry, the NEURC regulates the operations of natural monopolies (electricity transmission and distribution operators) and to some extent economic entities operating in adjacent markets (electricity generation and supply), in particular by approving the rules for the sale of electricity on the electricity market (and its segments), settlement of contractual relations in the retail market during the sale of electricity between the electricity supplier(s) and the customer (using it for its own consumption), distribution and supply of electricity, and exercise of the customer's right to free choice of electricity supplier; provides protection of the rights of electricity customers, including through reviewing customer appeals, settling disputes and providing clarifications on the application of regulations issued by the NEURC; monitors the functioning of the electricity market, promotes competition and ensures the effective functioning of the electricity market.

2.1.1. General description of the electricity industry

Key indicators of the electricity industry of Ukraine for 2020 are presented in Table 2.1.1.

Table 2.1.1. Key indicators of the electricity industry for 2020

		2020	
Generation: installed capacity*		**MW**	**%**
	TPP GCs	21,842	39.9%
	NPPs	13,835	25.3%
	HPPs	4,829	8.8%
	Pumped storage power stations	1,488	2.7%
	CHP	6,105	11.1%
	WPP	1,111	2.0%
	SPP	5,363	9.8%
	Biofuel/biomass power stations	200	0.4%
Generation: supply amounts*		**MWh**	**%**
	TPP GCs	39,562.6	26.6%
	NPPs	76,202.5	51.7%
	HPPs	6,026.2	4.0%
	Pumped storage power stations	1,557.3	1.0%
	CHP and CGU	14,643.3	9.5%
	WPP	3,094	2.3%
	SPP	6,059	4.3
	Biofuel/biomass and other power stations	1,160	0.7%
Transmission: length of network*		**km****	**%**
	800 kV	84.01	0.35
	750 kV	4,403.17	18.10
	500 – 400 kV	567.47	2.33
	330 kV	12,676.76	52.10
	220 kV	2,059.42	8.46
	110 – 150 kV	505.55	2.08

	35 kV	95.01	0.39
	Cable power line (CPL) 110 – 0,4 kV	3,938.35	16.19
Transmission: number of substations*		**units****	**Apparent power, MVA**
	750 kV	9	19,735
	500 – 400 kV	2	1,699
	330 kV	78	42,326.9
	220 kV	14	4,236.8
	110 kV	4	170
Transmission: line losses		**million kWh**	**% of supply to network**
		3,078.15	
Distribution: length of network*		**km*****	
	Overhead power line (OPL) 220 kV	81	
	OPL 110 (150) kV	35,079	
	OPL 35 kV	60,858	
	OPL 6 (10) kV	267,034	
	OPL 0.4 kV	384,245	
	CPL 110 (150) – 35 kV	712	
	CPL 6 (10) kV	41,931	
	CPL 0.4 kV	30,205	
Distribution: number of substations*		**units*****	
	110 (150) kV	1,495	
	35 kV	6,633	
	TSS, DSS 6 (10) kV	204,860	
Distribution: line losses		**million kWh**	**% of supply to network**
		12,377	10.13
Consumption: number of customers*		**customers**	
	Non-household	512,950	
	Household	17,179,357****	
Consumption: amounts		**million kWh**	**%**
	Non-household	79,940	
	Household	36,311	

**without the Crimean power system (PS) and non-controlled part of the Donbas PS.*

*** information is based on the data of Table 3.1 "Summary of Technical Condition of the NEC Ukrenergo Electric Network Facilities as of January 1, 2021", Investment Program of NEC Ukrenergo for 2021.*

**** information is based on the data of Annex 1 "Summary of Technical Condition of the DSO Electric Network Facilities as of January 1, 2021", Investment Programs of the DSOs for 2021.*

***** individual and collective household customers.*

The network map of the integrated power system of Ukraine in 2020[37] is shown in Fig. 2.1.1.

[37] Source: PJSC NEC Ukrenergo

Fig. 2.1.1. Network map of the integrated power system of Ukraine

2.1.2. Electricity generation

During 2020, most electricity was generated by the state-owned enterprise NNEGC Energoatom, which was administered by the Ministry of Energy of Ukraine. SOE NNEGC Energoatom operates all operating NPPs in the country and generates over 51.7% of all electricity in Ukraine's IPS.

In Ukraine, about 5% of electricity is generated by hydroelectric power plants, which are mainly operated by PJSC Ukrhydroenergo, while some of them are owned by other generators. Also, approximately 6% of the 2020 total electricity output was generated at thermal power plants owned by the state company PuJSC Centerenergo, which mostly uses thermal coal. DTEK private group of companies generates electricity at coal-fired thermal power plants, which accounts for about 18.6% of the total electricity output for the reporting year[38]. In addition, PuJSC Donbasenergo also supplies electricity to the IPS of Ukraine, making up about 2% of the total electricity output of the country's existing thermal power plants.

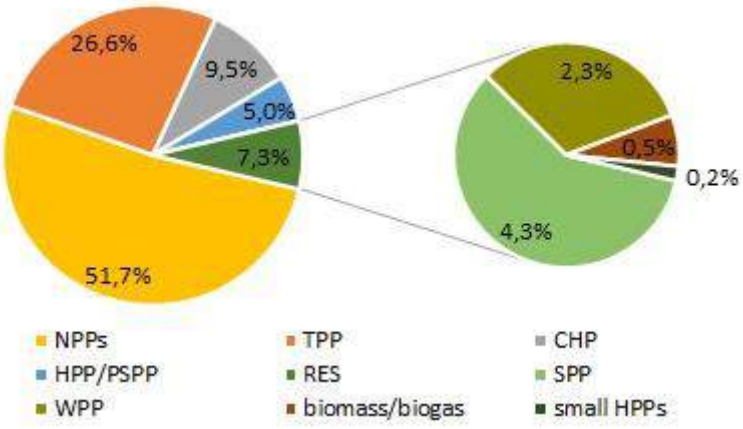


Fig. 2.1.2. RES electricity generation share in the total annual generation for 2020, %

The electricity that is generated at the 24 largest CHPs and CGUs is supplied to the IPS of Ukraine. Most generators operating combined heat and power and cogeneration units are public utilities of territorial communities, state-owned enterprises, and private enterprises.

The total electricity output of generators conducting economic activity at CHPs and CGUs of Ukraine amounted to about 9.5% of the total output in 2020.

The share of RES electricity generation in the total annual output was 7.3% in 2020 (Fig. 2.1.2).

The dynamics of the number of economic agents and power facilities generating RES electricity are shown in Fig. 2.1.3.

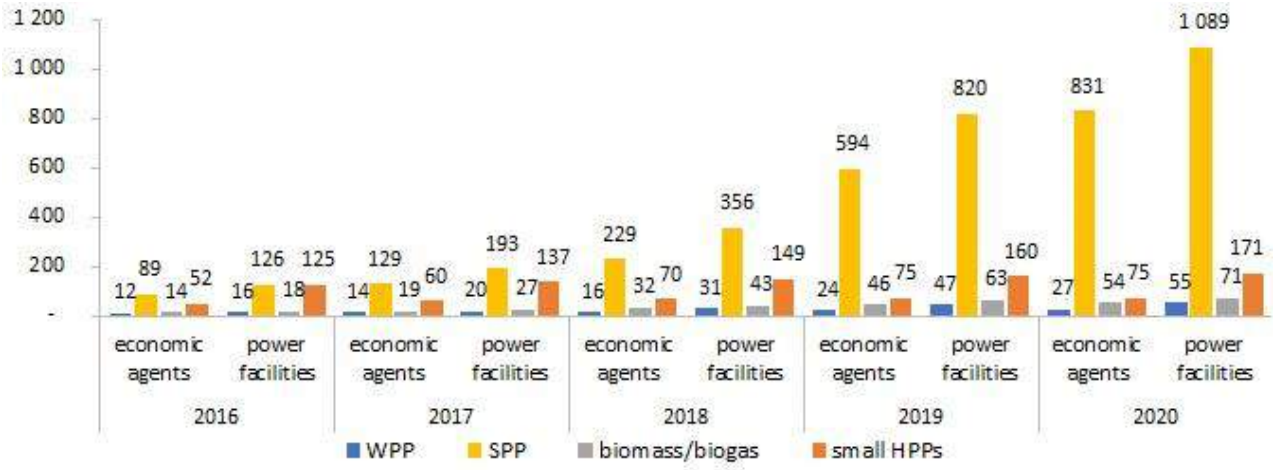


Fig. 2.1.3. Dynamics of the number of economic agents and power facilities generating RES electricity

[38] DTEK group of companies is the largest vertically integrated holding company in Ukraine, operating in various sub-industries and at various stages of generation in the energy industry.

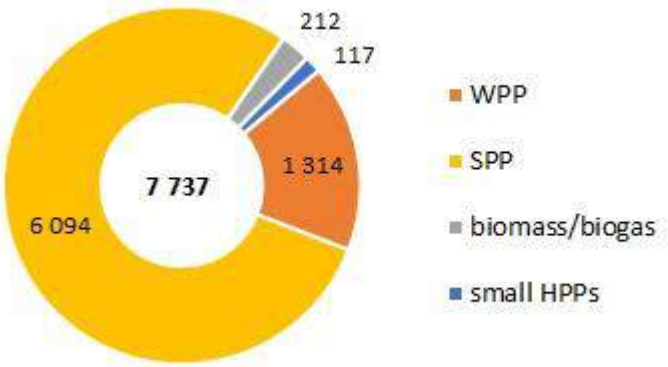


Fig. 2.1.4. Installed capacity of RES electricity generators using a green tariff in 2020, MW

In 2020, NEURC established a green tariff for 296 new power facilities generating electricity from alternative energy sources. The installed capacity of power facilities generating electricity from alternative energy sources increased by 21% in 2020, reaching 7,737 MW (Fig. 2.1.4).

The total installed capacity of new power facilities for generating electricity from alternative energy sources, which were covered by a green tariff in 2020, was 1,358 MW (of which WPP 144 MW, SPP 1,169 MW, biomass/biogas plants 42 MW, micro, mini and small hydropower plants 3 MW). The dynamics of the installed capacity of RES electricity generators using a green tariff are shown in Fig. 2.1.5. The dynamics of the weighted average values of green tariffs are shown in Annex 2.1.1.

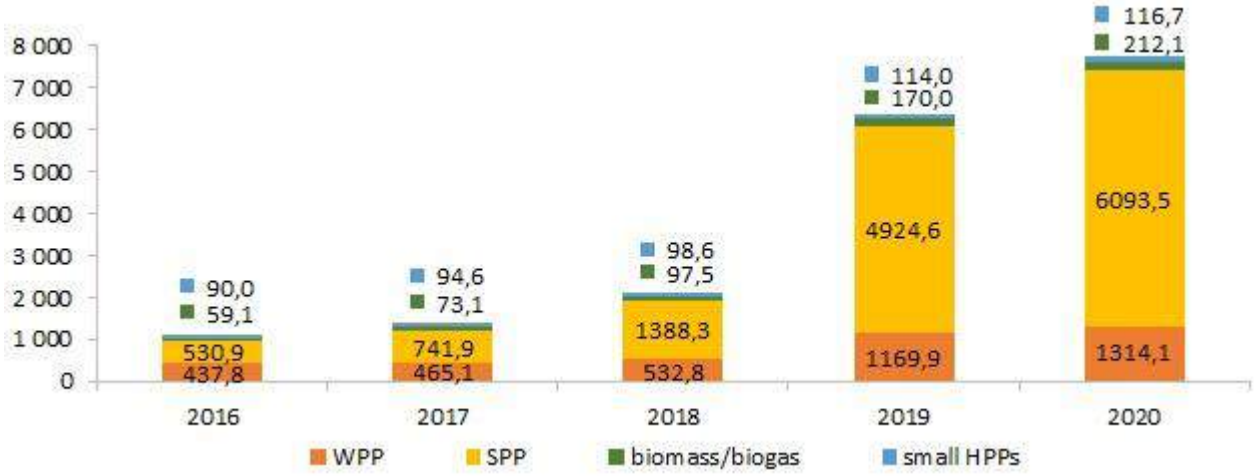


Fig. 2.1.5. Dynamics of installed capacity of RES electricity generators using a green tariff, MW

At the same time, the supply of electricity by power facilities covered by a green tariff increased in 2020 compared to 2019 by 4,613 million kWh and amounted to 10,219 million kWh (according to SOE Guaranteed Buyer) (Fig. 2.1.6).

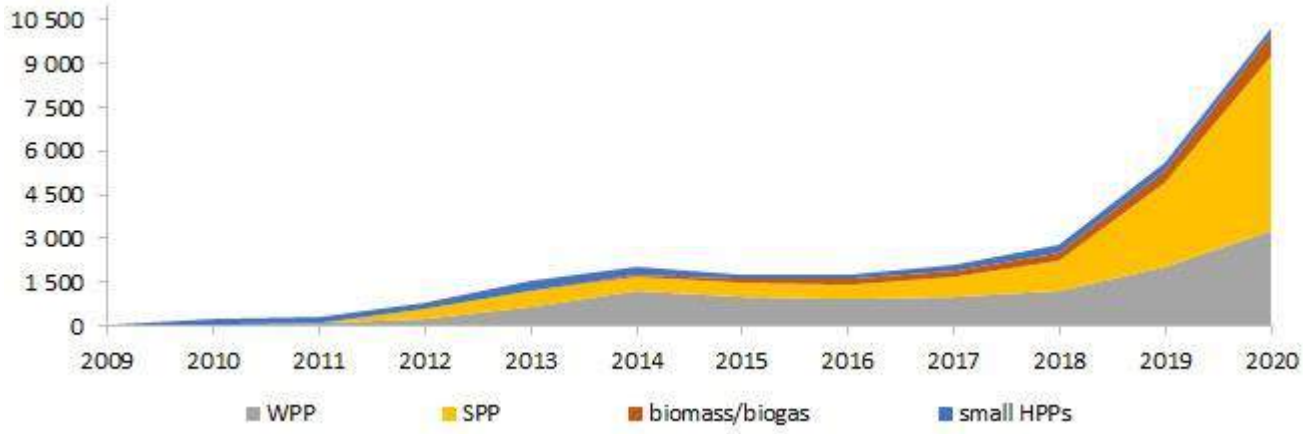


Fig. 2.1.6. Dynamics of net electricity supply of RES electricity generators using a green tariff, million kWh

2.2. **Regulating natural monopolies in the electricity industry**

2.2.1. Operator unbundling

The transmission system operator (TSO) and distribution system operators (DSOs) plan the development of transmission/distribution systems, ensure the long-term ability of these systems to meet reasonable demand for transmission/distribution of electricity and their safe, reliable, and efficient operation. To promote competition in the electricity market, the TSO and DSOs must ensure non-discriminatory access to their systems for all market participants and users. For that purpose, the Law sets requirements for unbundling and independence of the TSO and DSOs.

Unbundling of the transmission system operator

The Law provides in Article 32 for a model of the transmission system operator's ownership unbundling, according to which the TSO must be a legal entity that is not part of a vertically integrated economic agent and carries out economic activities that are independent of generating, distributing and supplying electricity as well as trading. The Law also provides that only the owner of the transmission system may be the TSO.

Under the Law, the TSO must be an economic agent licensed to transmit electricity. Meanwhile, the license to transmit electricity is issued after the final decision on the certification of the transmission system operator. The TSO certification process was started in 2019 at the request of PJSC NEC Ukrenergo (successor of SOE NEC Ukrenergo) in accordance with the Certification Procedure for the Electricity Transmission System Operator, approved by the NEURC Order No. 1016 of August 10, 2017 (hereinafter referred to as the Certification Procedure). Based on the results of consideration of the request for a certification by the Regulator, a preliminary decision on certification of PJSC NEC Ukrenergo was issued on October 7, 2019, and approved by the NEURC Order No. 2094 of October 7, 2019 (hereinafter referred to as the preliminary decision). The preliminary decision established that the final decision on the certification of PJSC NEC Ukrenergo could be issued only after taking the following necessary measures: amending the charter of PJSC NEC Ukrenergo and amending Article 32.3 of the Law concerning assigning to the distribution system operator the ownership of the distribution system on the basis of operational control. Pursuant to the Law and the Certification Procedure, the NEURC sent the preliminary decision together with all information related to the decision to the Energy Community Secretariat, requesting its opinion concerning the compliance of preliminary decision and the TSO with requirements of the EU Third Energy Package.

On February 5, 2020, the Energy Community Secretariat issued Opinion 1/20, stating that based on the received documents, PJSC NEC Ukrenergo could not be certified according to the ownership unbundling model, taking into account the peculiarities of the Ukrainian law.

Unbundling distribution system operators

Articles 47 and 48 of the Law set out the requirements for the organizational and functional unbundling of the DSOs from generating and/or transmitting and/or supplying electricity within a vertically integrated economic entity (hereinafter referred to as referred to as a VIEA), except as exempted under Article 47.11 of the Law.

The Law requires any DSO which is a part of a VIEA to develop and implement a compliance program, as well as to appoint a compliance commissioner (hereinafter referred to as a Commissioner) approved by the Regulator.

Decisions to approve compliance programs (amendments to compliance programs) and Commissioners were made by the NEURC under Procedure No. 1406[39]. Thus, 20 distribution system operators had operational compliance programs as of December 31, 2020, 3 of which were approved by the NEURC in 2020. In addition, the NEURC approved 25 amendments to compliance

[39] NEURC Order No. 1406 of December 27, 2017.

programs and replaced the JSC Ukrzaliznytsia Commissioner due to the expiration of their employment contract in 2020.

As of December 31, 2020, 11 DSOs are not part of a vertically integrated economic agent, while 3 DSOs left the VIEA in 2020 by alienating (selling) their shares in the authorized capital of the respective electricity suppliers/generators.

According to the provisions of Article 47.11 of the Law, if a DSO has less than 100 thousand connected customers and its average monthly electricity distribution does not exceed 20 million kWh, the Regulator may exempt such DSO from unbundling and independence requirements. Pursuant to the Procedure for Exempting a Distribution System Operator from Compliance with the Requirements for Unbundling and Independence, the NEURC granted an exemption from the requirements of Article 47 of the Law to Naftogaz Teplo LLC in 2020[40].

Information on DSOs' VIEA status and the approval of compliance programs and Commissioners as of December 31, 2020, is shown in Table 2.2.1.

Pursuant to the Law, the NEURC supervised in 2020 the compliance of distribution system operators and vertically integrated economic entities with the requirements for unbundling and independence set out by the Law, including by monitoring the contractual relations of DSOs with VIEAs (and economic entities that are part of them or affiliated to them), monitoring implementation of compliance programs according to the reports of Commissioners, submitting requests to DSOs for provision of information on the implementation of DSO compliance program requirements and Article 47 of the Law.

In 2020, in accordance with Procedure No. 1406, the Commissioners submitted to the Regulator for the first time annual reports on the implementation of the compliance programs for 2019 (annual Commissioner reports). Having reviewed the annual reports of the NEURC Commissioners, the Commission issued opinions on compliance with requirements for compiling and deadlines for submitting the report on implementation of the compliance program, completeness, accuracy, and currency of information and data provided in the report, mandatory measures to be taken by the DSO for eliminating non-compliance with the independence and unbundling requirements (in case of detecting non-compliance with the DSO independence and unbundling requirements set out by the Law and the compliance program).

The Regulator's opinions on the annual Commissioner reports and the annual Commissioner reports (without confidential information and information constituting a trade secret) have been posted on the official website of the Regulator[41].

On June 11, 2020, Article 47.2 of the Law came into force, according to which DSOs are prohibited from owning or managing shares (shares in the authorized capital) of an economic entity engaged in generating and/or supplying (including supplying to customers) or transmitting electricity, while economic entities engaged in generating and/or supplying (including supplying to customers) or transmitting electricity are prohibited from owning or managing shares (shares in the authorized capital) of a distribution system operator.

[40] NEURC Order No. 1387 of July 15, 2020.
[41] https://www.nerc.gov.ua/?id=50443.

Table 2.2.1. DSOs' VIEA status and the approval status of compliance programs and Commissioners

No.	DSO	DSO status as of December 31, 2020	Compliance program and Commissioner[42] *as of December 31, 2020*
1	PuJSC VINNYTSIAOBLENERGO	Part of a VIEA	Approved
2	PJSC VOLYNOBLENERGO	Part of a VIEA	Approved
3	JSC DTEK DNIPRO ELECTRIC NETWORKS	Part of a VIEA	Approved
4	PJSC ZAKARPATTIAOBLENERGO	Part of a VIEA	Approved
5	PuJSC ZAPORIZHZHIAOBLENERGO	Part of a VIEA	Approved
6	PJSC DTEK KYIV ELECTRIC NETWORKS	Part of a VIEA	Approved
7	JSC MYKOLAIVOBLENERGO	Part of a VIEA	Approved
8	JSC DTEK ODESA ELECTRIC NETWORKS	Part of a VIEA	Approved
9	OJSC TERNOPILOBLENERGO	Part of a VIEA	Approved
10	JSC KHARKIVOBLENERGO	Part of a VIEA	Approved
11	JSC KHMELNYTSKOBLENERGO	Part of a VIEA	Approved
12	PuJSC CHERKASYOBLENERGO	Part of a VIEA	Approved
13	JSC DTEK DONETSK ELECTRIC NETWORKS	Part of a VIEA	Approved
14	PJSC DTEK PEM-ENERGOVUHILLIA	Part of a VIEA	Approved
15	DTEK HIGH-VOLTAGE NETWORKS LLC	Part of a VIEA	Approved
16	STATE-OWNED ELECTRIC NETWORK ENTERPRISE PJSC ATOMSERVICE	Part of a VIEA	Approved
17	JSC UKRZALIZNYTSIA	Part of a VIEA	Approved
18	PJSC DTEK KYIV REGIONAL ELECTRIC NETWORKS	Part of a VIEA	Approved
19	SOE REGIONAL ELECTRIC NETWORKS	Part of a VIEA	Approved
20	LUHANSK ENERGY ASSOCIATION LLC	Part of a VIEA	Approved
21	PuJSC CHERNIHIVOBLENERGO	Not a part of a VIEA	Terminated
22	PuJSC POLTAVAOBLENERGO	Not a part of a VIEA	Terminated
23	PuJSC SUMYOBLENERGO	Not a part of a VIEA	Terminated
24	JSC ZHYTOMYROBLENERGO	Not a part of a VIEA	Terminated
25	PJSC KIROVOHRADOBLENERGO	Not a part of a VIEA	Terminated
26	PJSC LVIVOBLENERGO	Not a part of a VIEA	Terminated
27	JSC PRYKARPATTIAOBLENERGO	Not a part of a VIEA	Terminated
28	PJSC RIVNEOBLENERGO	Not a part of a VIEA	Terminated
29	JSC KHERSONOBLENERGO	Not a part of a VIEA	Terminated
30	JSC CHERNIVTSIOBLENERGO	Not a part of a VIEA	Terminated
31	NAFTOGAZ TEPLO LLC	Exemption granted	
32	PJSC PEEM TSEK	Not a part of a VIEA	

At the same time, following monitoring of the compliance with the unbundling and independence requirements, the NEURC detected non-compliance with the above-mentioned requirement of Article 47.2 of the Law on part of 7 DSOs (PuJSC Zaporizhzhiaoblenergo, JSC Mykolaivoblenergo, OJSC Ternopiloblenergo, JSC Khmelnytskoblenergo, PuJSC Cherkasyoblenergo, and Luhansk Energy Association LLC).

The reasons for non-compliance with the requirements of Article 47.2 of the Law were: for 5 DSOs – their inability to hold a general meeting in 2020 to approve the alienation due to restrictions imposed due to COVID-19; being subject to bankruptcy proceedings (for Luhansk Energy Association LLC); the absence of the respective decision of the general meeting (JSC Ukrzaliznytsia).

[42] Decisions of the NEURC on approval of compliance programs and Commissioners and termination of compliance programs and dismissal of Commissioners have been posted on the NEURC website https://www.nerc.gov.ua/?id=50451.

2.2.2. Network functioning

Reliability (continuity) of electricity supply, quality of electricity

The NEURC[43] has established the main indicators of reliability (continuity) of electricity supply for DSOs: the system average interruption duration index (SAIDI), the system average interruption frequency index (SAIFI), and the estimated energy not supplied (ENS), as well as the procedure for collection of primary information, its processing and reporting to the Commission in order to monitor these indicators.

The overall SAIDI for Ukraine increased by 19.6% in 2020 compared to the previous year, including SAIDI, which increases by 21 DSOs in 2020 (see Annex 2.2.1). The increase of the overall SAIDI for Ukraine in 2020 came due to the measures taken by the Regulator to increase the reliability of data provided by companies on reliability (continuity) of electricity supply, in particular through government control measures and continuous monitoring of licensees' compliance with legislation on reliability (continuity) of electricity supply.

The dynamics of the SAIDI and ENS indicators in 2013 – 2020 is shown in Fig. 2.2.1.

Fig. 2.2.1. Dynamics of the SAIDI and ENS indicators in 2013 – 2020

The SAIDI indices for 2020 for each electricity distribution licensee are shown in Annex 2.2.1. Compared to 2019, 21 companies experienced growing SAIDI through the fault of the company. The SAIDI through the fault of the company grew the most in PJSC Rivneoblenergo (by a factor of 2.53), SOE Regional Electric Networks (by a factor of 2.49), JSC Chernivtsioblenergo (by a factor of 2.12), JSC Sumyoblenergo (by a factor of 2.08), JSC Vinnytsiaoblenergo (by a factor of 1.94 times), LLC Luhansk Energy Association (by a factor of 1.86). Fig. 2.2.2 shows data on the SAIDI indices for 2020 for each electricity distribution licensee, reflecting interruptions through the fault of the company (scheduled unannounced interruptions and interruptions caused by technological disruptions in electricity supply) from the highest to the lowest.

[43] NEURC Order No. 374 of June 12, 2018 "On Approval of Reporting Forms for Quality Indicators of Electricity Supply and Instructions for their Completion", Chapter 11.4 of Section XI of the Distribution System Code, approved by the NEURC Order No. 310 of March 14, 2018.

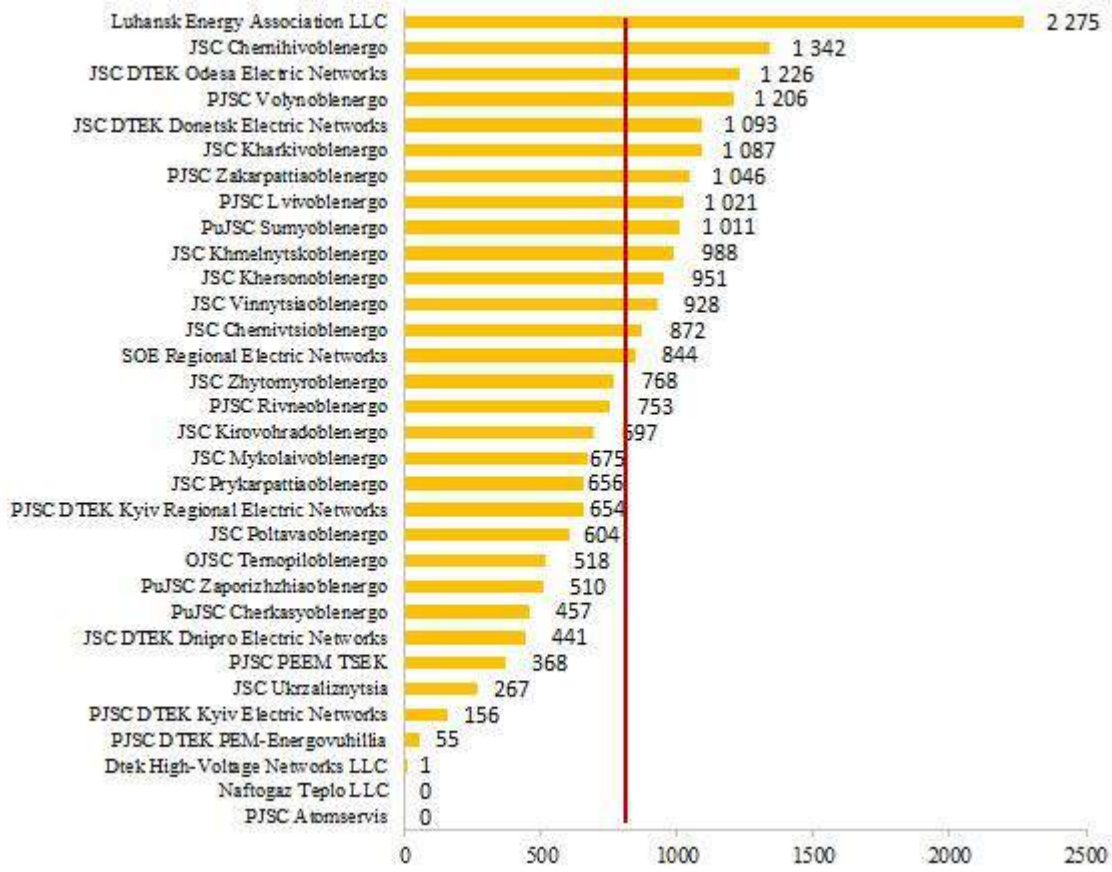


Fig. 2.2.2. The SAIDI indices for 2020 for each electricity distribution licensee, reflecting interruptions through the fault of company (scheduled unannounced interruptions and interruptions caused by technological disruptions in electricity supply), min

Compared to the EU countries, the SAIDI indicators are much higher in Ukraine. This is due, among other things, to the fact that the EU countries not just monitor the reliability of electricity supply, but also monitor it. The SAIDI indicators of European countries[44] and Ukraine are shown in Fig. 2.2.3.

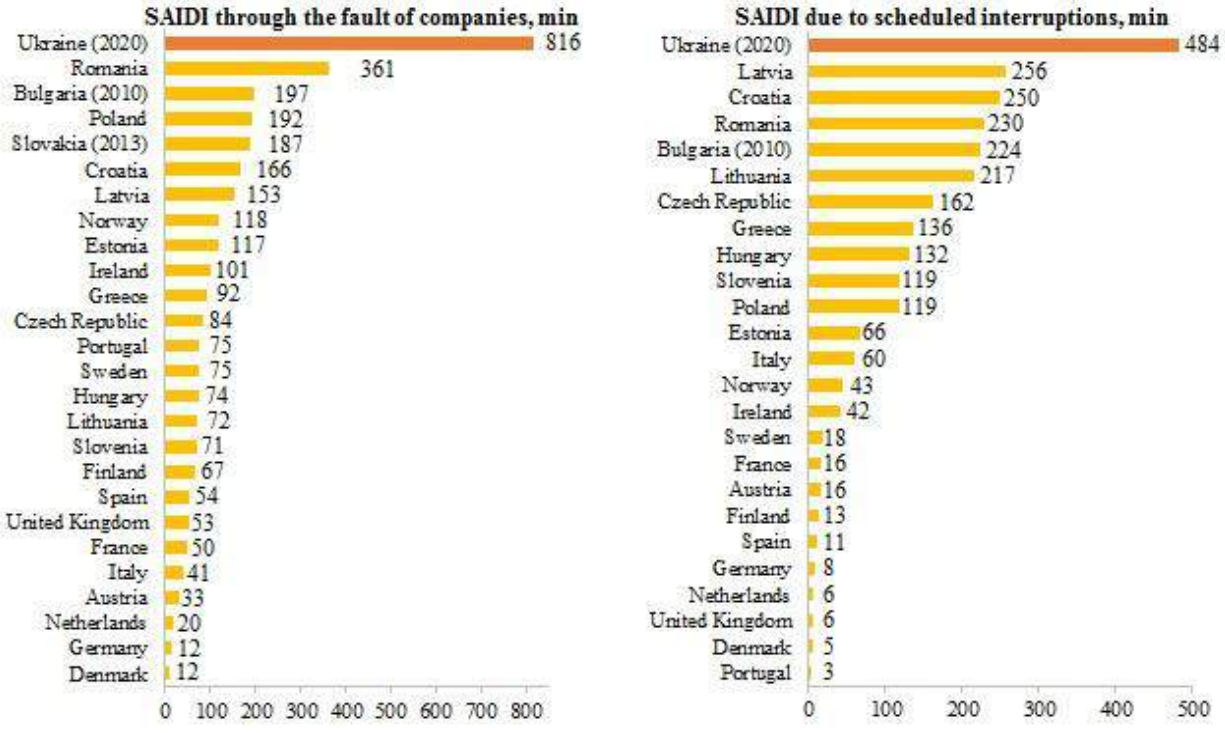


Fig. 2.2.3. The SAIDI indicators of European countries (2016) and Ukraine (2020)

[44]CEER Benchmarking Report 6.1 on the Continuity of Electricity and Gas Supply, Ref: C18-EQS-86-03, 26-July-2018.

By now, the NEURC has created a regulatory framework for regulating the SAIDI indicators for companies that are transitioning to incentivizing regulation [45]by adjusting the company's required income based on its performance in achieving the target values of the SAIDI indicators. In particular, such companies have been set annual SAIDI targets for gradual achievement of set target values of 150 minutes for urban and 300 minutes for rural areas, to be achieved in 13 years from the start of the transition to incentivizing regulation (for companies that switched to incentivizing regulation in 2021, the set target values of the SAIDI indicators are to be achieved over the 2021 – 2033 period).

Fig. 2.2.4 shows data on the weighted average targets for achieving the set target values of the SAIDI indicators for urban and rural areas in Ukraine for 2021 – 2033.

Actual values of the system average interruption duration indices (SAIDI) for interruptions

Fig. 2.2.4. The SAIDI indicators of European countries (2016) and Ukraine (2020)

through the fault of companies scheduled unannounced interruptions and interruptions caused by technological disruptions in electricity supply at voltage levels of 0.4 – 20 kV for urban and rural areas) for the 2020 year are given in Annex 2.2.2.

The NEURC has continued monitoring the reliability (continuity) of electricity transmission as well. The main indicators of continuity of electricity transmission are the estimated energy not supplied to distribution networks and direct customers (ENS) and the average interruption time in the system (AIT).

According to the NEC Ukrenergo reporting form No. 13-NKREKP (annual)[46], the ENS due to technological interruptions in the licensee's networks amounted to 5,625.33 thousand kWh (compared to 1,779.0 thousand kWh in 2019, 1,257.04 thousand kWh in 2018, and 1,978.7 thousand kWh in 2017), while the AIT for technological interruptions in the licensee's networks amounted to 33.80 minutes (compared to 9.91 minutes in 2019, 5.83 minutes in 2018, and 9.0 minutes in 2017).

Fig. 2.2.5. Dynamics of the AIT and ENS indicators in 2017 – 2020

The dynamics of the AIT and ENS indicators in 2017 – 2020 are shown in Fig. 2.2.5.

[45] NEURC Orders No. 1009 of July 23, 2016 "On Establishing Long-Term Regulatory Parameters for the Purposes of Incentivizing Regulation" and No. 1175 of October 5, 2018 "On Approval of the Procedure for Setting (Forming) Tariffs for the Electricity Distribution Services".

[46] NEURC Order No. 374 of June 12, 2018 "On Approval of Reporting Forms for Quality Indicators of Electricity Supply and Instructions for their Completion".

The NEURC powers include setting the quality indicators for electricity (such as the level of voltage, frequency, overvoltage, etc.), performing their monitoring, and regulation.

Indicators of electricity quality at the common coupling points connecting customers to the distribution system are set in Chapter 11.4 of Section XI of the Distribution System Code, in particular, they must meet the parameters defined in DSTU EN 50160: 2014 “Characteristics of Supply Voltage in General Purpose Electric Networks”.

Indicators of electricity quality at the common coupling points connecting customers to the transmission system are set in Chapter 2 of Section XI of the Transmission System Code.

Network losses

Main electric networks

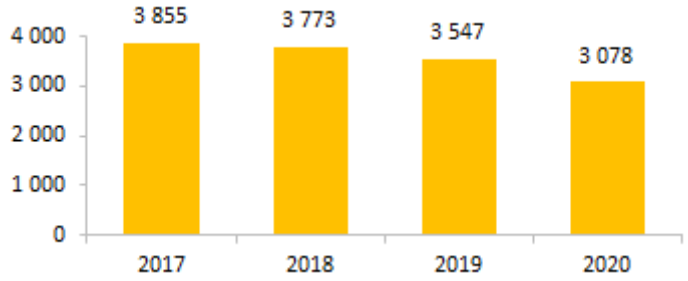


Fig. 2.2.6. Actual electricity losses in main electric networks of Ukraine, 800 – 220 kV in 2017 – 2020, million kWh

Reported technical losses in main electric networks of Ukraine (800 – 220 kV voltage class) in 2020 amounted to 3,078.15 million kWh.

The dynamics of electricity losses in main networks for 2017 – 2020 are shown in Fig. 2.2.6.

Distribution electric networks

Reported technical electricity losses in distribution electric networks (154 – 0.38 kV) in 2020 amounted to 12,377.2 million kWh or 10.13% of electricity supply to network (122,155.7 million kWh), which was 509.5 million kWh less than in 2019.

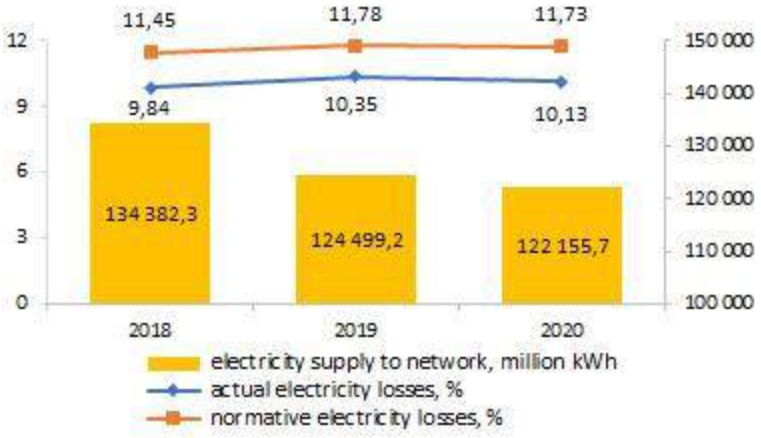


Fig. 2.2.7. Technical electricity losses in 0,38 – 150 kV distribution networks of Ukraine in 2018 – 2020

Normative technical electricity losses in distribution electric networks in 2020 amounted to 14,333.3 million kWh or 11.73% of electricity supply to network, which was 333.4 million kWh less than in 2019. The dynamics of electricity losses in distribution networks for 2018 – 2020 are shown in Fig. 2.2.7.

27 DSOs did not exceed the normative electricity loss indicators in 2020 (the reporting year). Meanwhile, the actual electricity losses of PuJSC Zaporizhzhiaoblenergo, Luhansk Energy Association LLC, OJSC Ternopiloblenergo, and PuJSC Cherkasyoblenergo exceeded the normative technical electricity losses.

Measures for reduction of technical electricity losses in electric networks

During 2020, the NEURC continued to work on improving the mechanism of incentives for electricity distribution companies to reduce technical electricity losses by approving their investment programs that included measures to improve electricity metering systems and means, as well as modernization, reconstruction, and new construction of electric networks using optimal schemes. To implement these measures, appropriate funds were included in the tariffs for the distribution of electricity.

Connection to networks

Connection of an electric installation means the transmission system operator or distribution system operator providing the customer with a service of creating technical capacity for transmission (receipt) of electricity in the required amount at the customer's electric installation's coupling point (provided that installation has the required capacity) with the electricity transmission system or distribution system networks (including newly built ones) and complying with quality and reliability requirements for electricity supply.

The procedure for connecting to the electricity transmission system or distribution system networks is regulated by the Transmission System Code[47] and the Distribution System Code that have been adopted by the NEURC[48].

Connections of electric installations to electric networks can be standard or non-standard.

A standard connection means the connection of the customer's electrical installation to the existing networks of the distribution system operator at a distance not exceeding 300 meters in a straight line from the customer's coupling point to the electricity supply point, which has two grades according to capacity (the Ist grade covers connections of up to 16 kW inclusive, and the IInd stage covers connections from 16 kW to 50 kW inclusive).

All other connections are non-standard.

There are turnkey non-standard connection services and non-standard connection services where the customer designs the line section of the connection.

The turnkey non-standard connection service involves performing a set of operations that corresponds to the standard connection and follows the same procedure.

The service of non-standard connection where the customer designs the line section of the connection involves the customer designing and getting the operator's approval for the line section of the connection (electric network from the nearest point in existing networks where the customer can get the required capacity to the customer's electric installation's coupling point). The procedure for providing the connection service is shown in Fig. 2.2.8.

The procedure of providing the service of connection to the DSO network begins after the

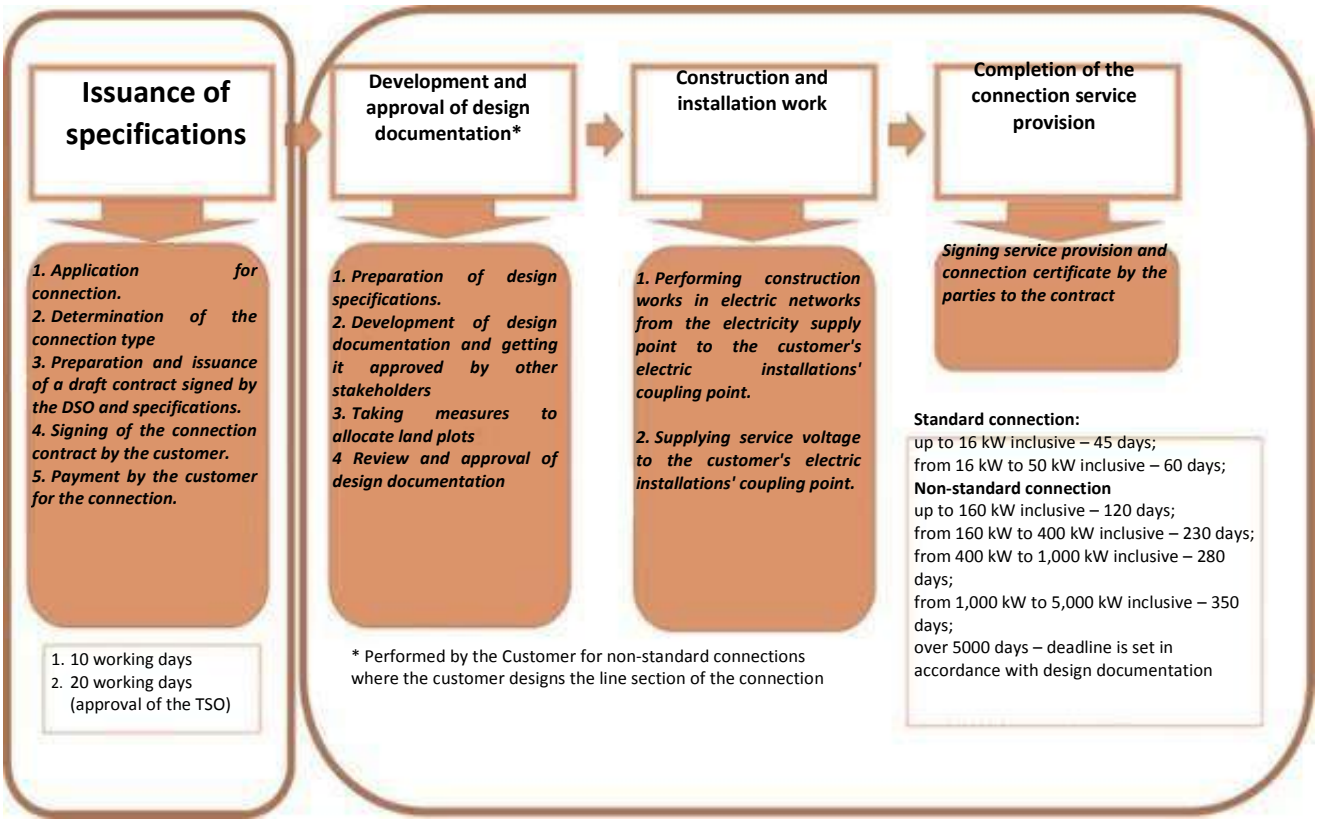


Fig. 2.2.8. Procedure for providing the connection service

[47] Approved by NEURC Order No. 309 of June 14, 2018.
[48] Approved by NEURC Order No. 310 of June 14, 2018.

DSO receives all the documents required by the Distribution System Code, starting on the next working day after the registration of the connection application.

The connection service is provided after signing a connection contract, of which specifications form an integral part (annex).

Specifications are issued for a new connection or in case of a change of technical parameters: an increase of the permitted capacity of an electric installation due to reconstruction or technical re-equipment of the facility in question, an increase of reliability of electricity supply provided by the electric installation, a change of voltage grade and/or change of electricity supply scheme used by the customer's electric installation.

The term for providing the connection service starts on the next working day after the day of the customer paying the DSO the connection fee in accordance with the connection contract.

The connection service is deemed to have been provided after the signing of the connection service certificate by the parties to the contract.

The non-standard connection service where the customer designs the line section of the connection is provided by the DSO within the terms set by the Distribution System Code, except for the term required for designing electric networks of the line section of the connection.

The terms for providing the connection service are determined by the Distribution System Code and may be changed with the consent of the parties to the connection contract in case of significant factors impacting the duration of construction and installation work or for other reasons agreed by the parties to the connection contract.

In case of the electric network connection service being provided with a delay, the customer is eligible for reimbursement and payment of damages for the violation of the terms for providing the connection service in accordance with the Distribution System Code.

Statistical information on the services of connecting customers' electric installations to electric networks which were provided by distribution system operators and the transmission system operator between January 1, 2016, and December 1, 2020, is given in Table 2.2.2.

Table 2.2.2. Statistical information on the services of connecting customers' electric installations to electric networks that were provided by distribution system operators and the transmission system operator between January 1, 2016, and December 1, 2020

		2016	2017	2018	2019	2020
STANDARD CONNECTION, IN TOTAL	Number of connection applications submitted	81,935	83,775	82,900	79,186	84,981
	Number of refusals to issue specifications and execute connection contract, including due to:				1,686	2,483
	irregularities in documents attached to the application				372	1,190
	incomplete set of documents attached to the application				192	276
	other				1,122	1,017
	Number of connection services provided:	52,448	58,842	71,629	74,684	65,606
	Connection services provided as a percentage of connection applications submitted	64.01%	70.24%	86.40%	94.31%	77.20%
	including those started and completed during the calendar year	45,565	41,790	45,609	49,875	45,791
	Amount of the requested connection capacity for the connection services provided, kW	511,696	707,048	1,004,219	942,178	857,509
	The average number of days required to provide the connection service	29	43	64	58	60
	The number of connection services provided with a delay (compared to normative service provision terms and excluding supplementary contracts with customers, planning permission procedures, etc.)	15,676	19,376	24,145	34,493	21, 276
	Percentage of connection services provided with a delay (compared to normative service provision terms and excluding supplementary contracts with customers, planning permission procedures, etc.)	29.89%	32.93%	33.71%	46.19%	32.43%

NON-STANDARD CONNECTION, IN TOTAL	Number of connection applications submitted	13,396	7,947	12 ,304	10 ,100	10,230
	Number of refusals to issue specifications and execute connection contract, including due to:				480	575
	irregularities in documents attached to the application				271	189
	incomplete set of documents attached to the application				146	284
	other				63	102
	Number of connection services provided	3,009	2,921	2,960	4,028	4,996
	including turnkey connection services provided				1,002	2,755
	Connection services provided as a percentage of connection applications submitted	22.46%	36.76%	24.06%	39.88%	48.84%
	Amount of the requested connection capacity for the connection services provided, kW	293,569	732,351	1,615,402	2,210,270	2,468,306
	The average number of days required to provide the connection service	49	85	162	145	158
	The number of connection services provided with a delay (compared to normative service provision terms and excluding supplementary contracts with customers, planning permission procedures, etc.)	118	119	148	166	524
	Percentage of connection services provided with a delay (compared to normative service provision terms and excluding supplementary contracts with customers, planning permission procedures, etc.)	3.92%	4.07%	5.00%	4.12%	10.49%

**information based on the results of government control measures*

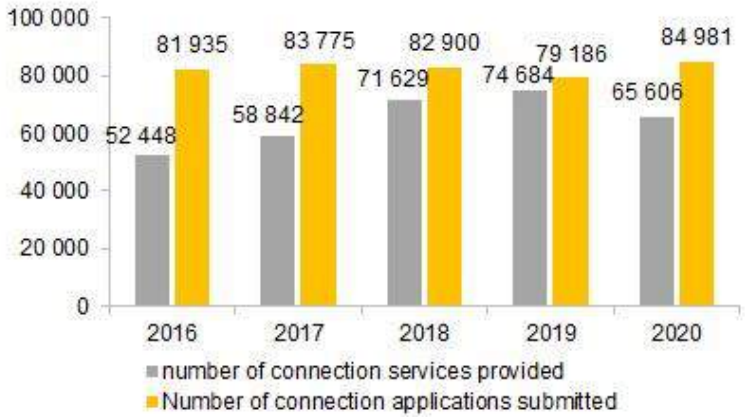


Fig. 2.2.9. Dynamics of standard connection services provided

The number of connection (standard connection) applications submitted by customers has increased by 3.7% since 2016 (from 81,935 in 2016 to 84,981 in 2020), while the number of standard connection services provided by DSOs increased by 25.1% (from 52,448 in 2016 to 65,606 in 2020). A chart describing the dynamics of connection services provided to customers by DSOs is shown in Fig. 2.2.9.

The amount of the requested connection capacity for the standard connection services provided has increased by 67.6% (from 511,696 kW in 2016 to 857,509 kW in 2020). The dynamics of changes in the requested connection capacity for the standard connection services provided in 2016 – 2020 are shown in Fig. 2.2.10.

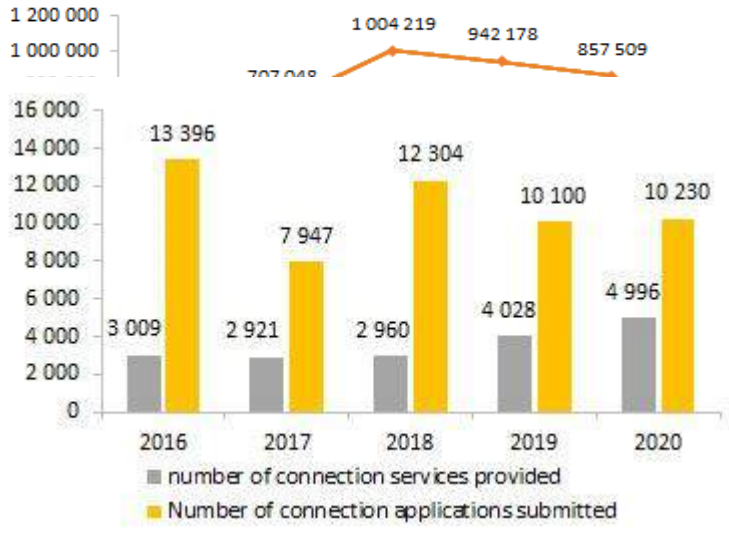


Fig. 2.2.11. Dynamics of non-standard connection services provided

The number of connection (non-standard connection) applications submitted by customers has decreased by 23.6% since 2016 (from 13,396 in 2016 to 10,230 in 2020), while the number of non-standard connection services provided by DSOs increased by 66.03% (from 3,009 in 2016 to 4,996 in 2020). A chart describing the dynamics of connection services provided to customers by DSOs is shown in Fig. 2.2.11. The number of turnkey non-

standard connection services provided to customers by DSOs increased by almost 175% compared to 2019 (from 1,002 in 2019 to 2,755 in 2020).

The amount of the requested connection capacity for the non-standard connection services provided has increased by almost 741% (from 293,569 kW in 2016 to 2,468,306 kW in 2020). The dynamics of changes in the requested connection capacity for the non-standard connection services provided in 2016 – 2020 are shown in Fig. 2.2.12.

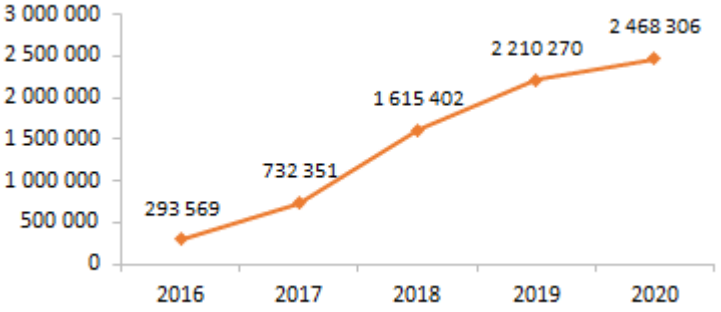


Fig. 2.2.12. Amount of the requested connection capacity for the non-standard connection services provided, kW

The NEURC held a meeting on June 3, 2020, in the form of an open hearing and adopted Order No. 1070 “On Approval of Amendments to the Transmission System Code”, regulating the following issues:

- connection to the transmission system of customers' electric installations having voltage levels of 110 kV and above (energy consumption facilities) in accordance with feasibility studies;
- connection to the transmission system of existing customers' electrical installations, particularly concerning changing the permitted capacity without increasing the reliability level of the electricity supply of the electric installation, changing the voltage grade, and/or changing the electricity supply scheme;
- prohibiting the transmission system operator from refusing to connect the customer's electric installations to the transmission system provided that the customer complies with the requirements of the Transmission System Code, the transmission system operator's network, or its individual elements to which the customer wishes to connect face no transmission capacity restrictions, and reliable electricity supply and compliance with operational safety standards of the IPS of Ukraine are ensured.

The NEURC held a meeting on June 24, 2020, in the form of an open hearing and adopted Order No. 1209 “On Approval of Amendments to the Distribution System Code”, regulating the following issues:

- connection to electric networks of the customer's electric installations (facility) on land plots located on the territory of dacha housing cooperatives, gardening societies, and garage/garage-building cooperatives;
- connection of electrical installations of apartments or built-in premises which are a part of the building's internal volume;
- connection of photovoltaic stations located on architectural works (roof, facade);
- prohibiting distribution system operators from demanding payment from the customer for the use of engineering (external) electricity supply electric installations (including elements of substation buildings), which are involved in the customer's electricity supply scheme as a result of the latter receiving the connection service.

The NEURC held a meeting on November 25, 2020, in the form of an open hearing and adopted Order No. 1209 “On Amendments to the NEURC Order No. 1965 of December 18, 2018”, which:

- simplified the procedure for calculating the standard connection fee;
- ensured reasonableness and transparency of the procedure for calculating the fee for the connection of electric installations intended for the production of electricity to electric networks;
- settled the relations between the economic agents which occupy a monopoly position and the customers of the electric network connection services concerning the provision of equitable access to distribution systems;

- ensured the balance of interests of electric network owners and customers when calculating the fee for connection to distribution systems;
- implemented the provisions of the Law of Ukraine “On the Electricity Market”;
- improved Ukraine's position regarding the Getting Electricity indicator in the Doing Business ranking of the business environment, which is compiled annually by the World Bank (TWB) and the International Finance Corporation (IFC).

2.2.3. Tariff regulation

Article 7 of the Law of Ukraine “On Electricity Market” (hereinafter referred to as the Law) provides that electricity market tariffs shall be subject to state regulation, including tariffs for electricity transmission services, tariffs for dispatching (operational and technological control) services, and tariffs for electricity distribution services.

Tariffs for electricity transmission services and dispatching services

Concerning the tariff for electricity transmission services

In accordance with the requirements of the Procedure for Setting (Forming) Tariffs for Electricity Transmission Services, approved by the Order of the NEURC No. 585 of April 22, 2019, and the Order of the NEURC No. 866 of June 30, 2017 “On Approval of the Procedure for Holding Open Discussions on Draft Decisions of the National Energy and Utilities Regulatory Commission” (hereinafter referred to as the Procedure No. 866), the NEURC adopted the Order No. 2688 of December 10, 2019 “On Setting the Tariff for Electricity Transmission Services Delivered by PJSC NEK Ukrenergo in 2020,” according to which the tariff for the electricity transmission services stood at UAH 155.40/MWh (VAT excluded).

The main factors determining the tariff for the electricity transmission services are economically justified costs of the transmission system operator. The Law provides for:

- including in the tariff for the electricity transmission services the cost item *“costs associated with purchasing electricity to compensate for technical electricity losses”* (according to Article 33.6 of the Law, the cost of electricity purchased to compensate for technical electricity losses incurred in its transmission via electric networks shall be taken into account when determining electricity transmission tariffs);
- including in the tariff for the electricity transmission services the cost item “*Costs of fulfilling public service obligations to protect the public interest in ensuring an increase of the share of electricity generation from alternative sources”* (according to Article 33.8 of the Law the transmission system operator performs functions associated with the imposition on it of public service obligations to protect the public interest in increasing the share of energy generation from alternative sources, improving the efficiency of combined heat and power generation, and other public service obligations. According to the third paragraph of Article 33.5 of the Law, the tariff for the electricity transmission services includes, among other things, as a separate component of the transmission system operator's costs incurred by it in case of public service obligations being imposed on it in order to protect the public interest in the process of functioning of the electricity market).

“Labor costs” are calculated in accordance with the Procedure for Determining Labor Costs which are Included in the Tariffs for Electricity Distribution, Electricity Transmission, Dispatching (Operational and Technological Control), and Universal Service Supplier Services, Heat and Electricity Generation as approved by the NEURC Order No. 2645 of October 26, 2015; these costs are based on the statistical data concerning the average industrial wage for January-August 2019, which amounted to UAH 11,456, and use the coefficient β set as 0.6 (which is used to optimize the growth rate of wages). The average labor costs growth rate is 40.7%. Pursuant to current legislation, the cost item “social security deductions” was recalculated as 22% of the labor costs.

The calculation of the cost item *"costs associated with purchasing electricity to compensate for technical electricity losses"* was made on the basis of the purchase price of electricity at the DAM in October 2019. In doing so, the purchase price of electricity at the DAM in October 2019 was determined based on information on hourly purchase prices of electricity at the DAM for every day (including in the Burshtyn TPP Island regulatory zone) in October 2019, posted on the website of SOE Market Operator, and information on hourly amounts of technical electricity transmission losses for every day in October 2019 (including in the Burshtyn TPP Island regulatory zone), received from NEC Ukrenergo.

On June 10, 2020, the Cabinet of Ministers of Ukraine, the Ministry of Energy of Ukraine and the officials of the European-Ukrainian Energy Agency and the Ukrainian Wind Energy Association signed the Memorandum of Understanding on Settlement of Problematic Renewable Energy Issues in Ukraine (hereinafter referred to as the Memorandum), under which public authorities of Ukraine were to propose and support amendments to the Laws of Ukraine "On Alternative Energy Sources", "On the Electricity Market" and other laws which would be aimed at introducing a mechanism for restructuring the "green" tariffs. Among other things, the Ukrainian authorities undertook to take all necessary measures to ensure timely current payments and repayment of existing debts to generators of electricity from alternative energy sources (hereinafter referred to as the RES generators) by the state-owned enterprise Guaranteed Buyer (hereinafter referred to as the Guaranteed Buyer).

At the same time, the NEURC held a meeting in the form of an open hearing and adopted Order No. 1141 of June 17, 2020 "On Approval of the Memorandum of Understanding on Settlement of Problematic Renewable Energy Issues in Ukraine", under which the NEURC Chairperson signed the Memorandum with reservations, including a reservation concerning the increase in the tariff for the electricity transmission services, which may affect the competitiveness of Ukrainian industry.

Clause 7 of Section III of the Memorandum stipulates the obligations according to which the NEURC together with other public authorities of Ukraine must revise the NEC Ukrenergo tariff for the electricity transmission services and consider using other financial revenue flows to ensure timely compliance by the Guaranteed Buyer with its current financial obligations to the RES producers no later than one month after the coming into force of the Law on Arrangements.

Due to this, the tariff for the electricity transmission services was set at UAH 240.23/MWh (VAT excluded) by the Order of the NEURC No. 1329 of July 11, 2020 "On Amendments to NEURC Order No. 2668 of December 10, 2019". The tariff had been increased by 54.6% compared to the level set by the NEURC Order No. 2668 of December 10, 2019.

The NEURC decision was made taking into account the proposals of NEC Ukrenergo submitted by the letter on the need to revise the tariff for the electricity transmission services due to the financial deficit concerning certain cost components of tariff structure, including the cost item "*costs of fulfilling the public service obligations to protect the public interest, including in increasing the share of electricity generation from alternative sources*".

For instance, when calculating the tariff for the electricity transmission services, the NEURC took into account, among other things, the implementation of measures taken by the Anti-Crisis Energy Headquarters; in particular, the calculation took into account the transition model of imposing public service obligations, which was proposed by the NEURC, sent to the Cabinet for consideration and subsequently approved by the Order of the Cabinet of Ministers of Ukraine No. 694 of August 5, 2020, which enabled improvements in the financial condition of the Guaranteed Buyer, NNEGC Energoatom, PJSC Ukrhydroenergo, optimization of the tariff for the electricity transmission services, and minimization of the electricity imbalance.

In addition, in order to optimize the tariff for the electricity transmission services in accordance with the agreed position, the NEURC took into account, after a detailed discussion, partial funding of the cost item "*costs of fulfilling the public service obligations to protect the public interest, including in increasing the share of electricity generation from alternative sources,*"

also taking into account NEC Ukrenergo raising additional debt capital with financial institutions to ensure that the Guaranteed Buyer can settle its current accounts with electricity generators.

The tariff for the electricity transmission services was set at UAH 312.76/MWh (VAT excluded) by the NEURC Order 1998 of November 4, 2020 “On Amendments to the NEURC Order No. 2668 of December 10, 2019”. The tariff had been increased by 30.2% compared to the level set by the NEURC Order No. 1329 of July 11, 2020.

The decision was made taking into account NEC Ukrenergo's complaints about the financial deficit concerning certain cost components of tariff structure in 2020, namely the following cost items:

- “costs of fulfilling the public service obligations to protect the public interest in increasing the share of household electricity generation from alternative sources”;
- “deduction of a portion of profits for the payment of dividends to the state budget” and “income tax”;
- “costs of Chornobyl NPP services (as part of generation services)”.

At the same time, taking into account that the tariff structure for the electricity transmission services for 2020 was valid for only one month, namely December 2020, uncompensated costs of NEC Ukrenergo for the above-mentioned cost items offered for compensation during November 2020 were taken into account when adopting the decision on setting the tariff for the electricity transmission services for 2021.

The structure of the tariff for the electricity transmission services of NEC Ukrenergo for 2020, which was in effect at the end of the year, is shown in Annex 2.2.3.

Concerning the ways to repay the debt of state-owned enterprise Guaranteed Buyer to economic agents that produce electricity from alternative energy sources.

On August 1, 2020, the Law of Ukraine “On Amendments to Certain Laws of Ukraine Concerning Improving the Conditions for Providing Support to Generation of Electricity from Alternative Energy Sources” (hereinafter referred to as the Law No. 810) came into force. According to Part 4 of Section II “Final and Transitional Provisions” of the Law No. 810, the Cabinet of Ministers of Ukraine is to develop and submit to the Verkhovna Rada of Ukraine within three months from the date of coming into force of this Law, in particular, a bill on repayment of the debt of SOE Guaranteed Buyer to economic agents that generate electricity from alternative energy sources in the sum as of August 1, 2020, the repayment to occur in 2021-2022 by issuing domestic government bonds with a maturity of five years.

Law No. 810 amended Article 8 of the Law of Ukraine “On Alternative Energy Sources”, supplementing it by Part 3, according to which the Cabinet of Ministers of Ukraine envisages state budget expenditures for financial support of the Guaranteed Buyer to enable it to pay for electricity generated from alternative sources in accordance with funding requests of the central executive body which ensures the formation and implementation of government policy in the electricity industry based on calculations provided by the NEURC, in the amount of not less than 20 percent of the forecast generation of marketable electricity from alternative sources for the year.

On December 9, 2020, the Cabinet of Ministers of Ukraine issued its Order No. 1203 “Some Issues of Executing the Law of Ukraine ‘On the State Budget of Ukraine for 2020’”, including the following measures:

- to provide government guarantees in 2020 to ensure that debt obligations on loans taken by private joint-stock company National Energy Company Ukrenergo from public sector banks in order to repay debts to state-owned enterprise Guaranteed Buyer are met;
- approve the 2020 Terms for Providing Government Guarantees to ensure that debt obligations on loans taken by private joint-stock company National Energy Company Ukrenergo from public sector banks are met.

In order to stabilize the electricity market operations and increase the payment rate in the electricity market, taking into account the Order of the Cabinet of Ministers of Ukraine No. 1203 of December 9, 2020 “Some Issues of Executing the Law of Ukraine ‘On the State Budget of Ukraine for 2020’” (hereinafter referred to as the Order No. 1203), NEC Ukrenergo signed credit agreements (contracts) with state-owned banks, which provided for borrowings under government guarantees amounting to UAH 10.25 billion in total, intended for repaying debt obligations incurred in fulfilling public service obligations to protect the public interest in the process of functioning of electricity market.

Taking into account the difficult situation in the electricity market which arose due to the debt of NEC Ukrenergo to SOE Guaranteed Buyer and the latter's debts to economic entities that generate electricity and are of strategic importance to the national economy, as well as NEC Ukrenergo's request, the NEURC adopted at a meeting held in the form of an open hearing on December 31, 2020, the Orders Nos. 2874, 2875, and 2876 providing for the Commission signing contracts (agreements) on debt repayment with JSC Oschadbank, JSC Ukreximbank, and JSB Ukrgasbank concerning loans provided in accordance with Order No. 1203. In these contracts, the NEURC acts as the guarantor of the inclusion of the expenses needed to repay debts in the structure of tariff for electricity transmission services.

Concerning the tariff for the dispatching (operational and technological control) services

From January 1, 2020, the tariff for the dispatching (operational and technological control) services was set by the NEURC Order No. 2669 of December 10, 2019 “On Setting the Tariff for the Dispatching (operational and technological control) Services for PJSC NEC Ukrenergo for 2020” at UAH 10.23/MWh (VAT excluded).

The largest components of the tariff for the dispatching (operational and technological control) services provided by NEC Ukrenergo pursuant to the Law are costs of *“the services of the settlements administrator”*, *“the services of the commercial metering administrator”* and *“the purchase of ancillary services”*.

When setting the tariff for the dispatching (operational and technological control) services, the cost item *“labor costs”* was calculated in accordance with the Procedure for Determining Labor Costs Which Are Included in the Tariffs for Electricity Distribution, Electricity Transmission, Dispatching (operational and technological control), and Universal Service Supplier Services, Heat and Electricity Generation as approved by the NEURC Order No. 2645 of October 26, 2015; these costs are based on the statistical data concerning the average industrial wage for January-August 2019, which amounted to UAH 11,456 and use the coefficient β set as 0.6 (which is used to optimize the growth rate of wages). The average labor costs growth rate is 40.7%. Pursuant to current legislation, the cost item *“social security deductions”* was recalculated as 22% of the labor costs.

The calculation of the amount of cost items “costs of the services of the settlements administrator” and “costs of the services of the commercial metering administrator” was based on the number of employees of these divisions taken into account in the tariff structure of July 1, 2019, and used the average wage of NEC Ukrenergo employees for 2020.

The cost item *“costs of the purchase of ancillary services”* was included in the calculation with respect to the ancillary service to provide replacement reserves and taking into account the information available to the NEURC, (calculation was posted at https://www.nerc.gov.ua/index.php?id=45705).

The cost item *“costs of the settlement of system restraints”* was given zero value due to the fact that the current laws and regulations do not provide for payment for the settlement of system restraints by the transmission system operator.

From August 1, 2020, the tariff for the dispatching (operational and technological control) services was set by the NEURC Order No. 1330 of July 11, 2020 “On Amending the Order of the NEURC No. 2669 of December 10, 2019” at UAH 24.75/MWh (VAT excluded).

The main factor of changes in the tariff for the dispatching (operational and technological control) services is the adjustment of the cost item *"Costs of the purchase of ancillary services"* and the corresponding recalculation of the cost item "*regulatory fees*".

When calculating the cost item *"Costs of the purchase of ancillary services,"* the Commission took into account the absence of ancillary services in January and February 2020. The actual data provided by NEC Ukrenergo were used for March, April, and May 2020. For June – December 2020, the projected value of ancillary services was calculated, taking into account the following circumstances:

1) in June 2020, the volume of the frequency containment reserve (primary regulation) was zero, as a need emerged to revise the Procedure for Monitoring the Fulfillment of Ancillary Service Obligations by Ancillary Service Providers (Annex 6 to the Market Rules approved by the Order of the NEURC No. 307 of March 14, 2018) with respect to monitoring the provision of this ancillary service;

for July – December 2020, the volume of primary regulation was equal to the volume of certified equipment in accordance with the Letter of NEC Ukrenergo No. 01/21008 of June 11, 2020 (±115 MW);

2) the volume of secondary regulation was determined based on actual data for May 2020:

for loading – the sum of the average hourly volume of the automatic frequency restoration reserve (AFRR), divided in half because it is symmetrical (39 MW per hour), and the average hourly volume of the manual frequency restoration reserve for loading (MFRRL) (628 MW per hour);

for unloading – the sum of the average hourly volume of the automatic frequency restoration reserve (AFRR), divided in half because it is symmetrical (39 MW per hour), and the average hourly volume of the manual frequency restoration reserve for unloading (MFRRU) (33 MW per hour).

It also takes into account the letter of NEC Ukrenergo that informed the NEURC about the impracticality of purchasing an auxiliary service of replacement reserve (tertiary regulation) in 2020.

The structure of the tariff for the dispatching (operational and technological control) services of NEC Ukrenergo for 2020, which was in effect from August 1, 2020, is shown in Annex 2.2.4.

Tariffs for electricity distribution services

In 2020, the NEURC has been setting tariffs for electricity distribution services pursuant to the Law of Ukraine "On Electricity Market", the Procedure for Setting (Forming) Tariffs for Electricity Distribution Services approved by the Order No. 1175 of October 5, 2018 (hereinafter referred to as the Procedure), and the requirements of the Procedure for Holding Open Discussions on Draft Decisions of the National Energy and Utilities Regulatory Commission, approved by the NEURC Order No. 866 of June 30, 2017. The tariffs were revised with effective dates January 1, 2020, and August 1, 2020, using a single approach for all companies.

Thus, operating costs were revised with an effective date of January 1, 2020, due to inflation and rising prices of industrial producers in 2020; these costs were determined based on the level of costs included in the current tariffs for electricity distribution (or actual costs), using the projected customer price index for 2020 (105.5%) and the industrial producer price index for 2020 (108.2%) in accordance with the amended Order of the Cabinet of Ministers of Ukraine No. 555 of May 15, 2019 "On Approval of the Economic and Social Development Forecast for Ukraine for 2020 – 2022" (scenario 1).

Pursuant to the Law, the structures of tariffs for the electricity distribution services include "costs associated with purchasing electricity in order to compensate for technical electricity losses during its distribution".

For instance, the costs associated with purchasing electricity to compensate for the technical electricity losses during its distribution were calculated taking into account the Order of the Cabinet of Ministers of Ukraine No. 1003 of December 9, 2019 "On Amendments to the

Regulation on PSOs on Electricity Market Participants to Protect the Public Interest in the Process of Electricity Market Functioning," from which the rule was deleted which concerned the sale of electricity by the Guaranteed Buyer to the electricity distribution system operators and the electricity transmission system operator at the marginal price of electricity generated at nuclear power plants, amounting to 80 percent of the amounts required to compensate for the technical electricity losses during its transmission and distribution via electric networks.

The cost item "labor costs" was calculated in accordance with the Procedure for Determining Labor Costs Which Are Included in the Tariffs for Electricity Distribution, Electricity Transmission, Dispatching (Operational and Technological Control), and Universal Service Supplier Services, Heat and Electricity Generation as approved by the NEURC Order No. 2645 of October 26, 2015; these costs are based on the statistical data concerning the average industrial wage for January-August 2019, which amounted to UAH 11,456, use the coefficient β set as 0.6 (which is used to optimize the growth rate of wages), and take into account the number of employees involved in the distribution of electricity (that number was determined based on the total number of employees cited in the current tariffs for the electricity distribution services for 2019). The average labor costs growth rate is 33.9%. Pursuant to current legislation, the cost item "social security deductions" was recalculated as 22% of the labor costs.

Some cost items of "other costs" are determined using detailed justifications for changing them. In addition, the structure of tariffs now includes the item "adjustment," which is based on the NEURC decisions on the amounts of funds to be withdrawn (and/or returned) from the structures of tariffs for the electricity distribution services based on reviewing reports of scheduled inspections of licensees, the said review performed at NEURC meetings held in the form of open hearings.

Cost items "production facility development/production investment" (for individual licensees) and "other profit-associated costs" are calculated as 5% of operating costs less "depreciation", "costs of purchasing electricity to compensate for network electricity losses," "costs of the electricity transmission services," "costs of dispatching (operational and technological control) services," "cost adjustment" taking into account the adjustment to the level of actual implementation of the investment program for 2018.

Projected amounts of electricity distribution for 2020 were calculated based on actual data for the previous year.

Tariffs for the electricity distribution services for distribution system operators were revised with the effective date August 1, 2020, in particular, incorporating changes in tariffs for the electricity transmission services and dispatching (operational and technological control) services.

The overall structure of tariffs for the electricity distribution services for 2020 is shown in Table 2.2.3.

Table 2.2.3. The overall structure of tariffs for the electricity distribution services for 2020

List of cost components of the electricity distribution services which are included in the tariff calculation	Total costs of electricity distribution (required revenue) for 2020, UAH thousand
Operating costs:	53,478,172
Tangible costs, including:	8,612,543
services of the transmission system operator	2, 383,999
dispatching (operational and technological control) services	2,044,477
Costs associated with purchasing electricity to compensate for the technical electricity losses during its distribution	16,956,633
Labor costs	18,164,168
Social security deductions	3,996,118
Depreciation	3,299,035
Other operating costs	1,652,669
Costs adjustment	-525,957
Profit-based costs:	1,710,860
production development/production investments	629,545

other profit-linked costs	1,081,315
Overall costs (required revenue) in total	**55,189,032**

Average tariffs for the electricity distribution services for 2020 are given in Annex 2.2.5. Meanwhile, the weighted average of electricity distribution tariffs in 2020 was:

- 102.98 UAH/MWh for the 1st voltage class;
- 687.41 UAH/MWh for the 2nd voltage class.

Connection fee

In accordance with the requirements of the Methodology (Procedure) for the Formation of Fees for Connection to the Transmission System and Distribution System, approved by the NEURC Order No. 1965 of December 18, 2018 (hereinafter referred to as the Methodology), works, goods and services required for providing connection services (construction, reconstruction and/or technical re-equipment of electric power facilities (to the customer's electric installations' coupling point) shall be purchased by the transmission system operator or distribution system operator in a competitive bidding process in the manner prescribed by law.

Thus, in accordance with the requirements of the Methodology, distribution system operators shall provide the NEURC by April 1 of each year with information in the form given in Annex 1 to the Methodology on actual costs (VAT excluded) of connecting customers' electric installations which have the features of a standard connection and an explanatory note containing justification of costs, as well as information on actual costs (VAT excluded) of connecting customers' electric installations which have the features of a non-standard connection and an explanatory note containing justification of costs and calculations of load factors of transformer substations of the distribution system operator's principal network with a voltage of 35 – 110 (154) kV, calculated in accordance with the requirements of Chapter 5 of the Methodology (for each territorial unit of the distribution system operator).

After receiving from distribution system operators information on the actual costs (VAT excluded) of connecting customers' electric installations and analysis of acceptance certificates and design documentation related to the provision of services of connecting customers' electric installations to electric networks in the base period, and review and verification of source data for calculations and explanatory notes containing justification of calculations provided by distribution system operators, the NEURC calculates values of standard capacity connection fees and values of non-standard capacity connection fees taking into account the cost optimization coefficient concerning costs associated with connecting customers' electric installations to electric networks in the base period, and sets these fees for the next settlement period for each distribution system operator.

Taking into account the aforementioned circumstances, the NEURC set:

- standard connection fees for 2020 which were 18.9% lower compared to 2019 (Table 2.2.4);

Table 2.2.4. Standard connection fees for 2020

Value	2020		2019 – 2020	
	Urban areas, UAH thousand/kW	Rural areas, UAH thousand/kW	Urban areas, Δ%	Rural areas, Δ%
Minimum value	0.31	0.28	-50%	0%
Average value	1.08	1.25	-30%	-17%
Maximum value	1.95	2.42	-29%	-35%

- non-standard connection fees for 2020 which were 12.5% lower compared to 2019 (Table 2.2.5);

Table 2.2.5. Non-standard connection fees for 2020

Value	2019	2020
Minimum value	0.200	0.067
Average value	1.840	1.747
Maximum value	3.830	3.772

2.2.4. Investment in electric network development

Investment in the electricity transmission system

In accordance with the requirements for the formation of the transmission system development plan for the next 10 years[49], in 2020, the NEURC has approved the 2020-2029 Transmission System Development Plan in the amount of UAH 68,715 million (VAT excluded).

The main measures envisaged by this Plan for 2020 – 2029 are:

1. New construction:

- Increase of transformer capacity by 12,451 MVA;
- Transmission line construction:
  - 750 kV – 611 km;
  - 500 kV – 61 km;
  - 400 kV – 55 km;
  - 330 kV – 2,259 km;
  - 220 kV – 90 km;

2. Reconstruction:

- 79 substations;
- 1,537 km of 330 kV power lines;
- 10 km of 220 kV power lines.

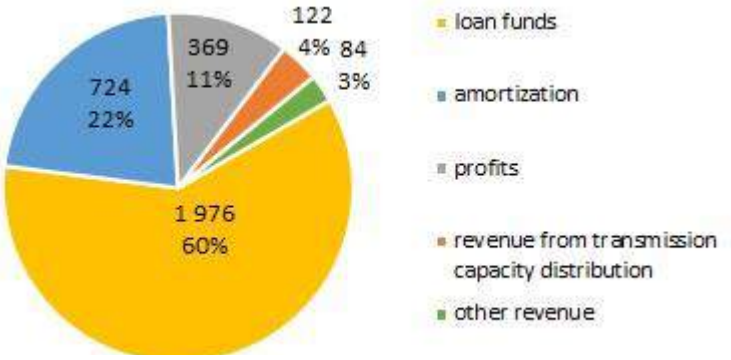


Fig. 2.2.13. Financing sources of the NEC Ukrenergo Investment Program for 2020, UAH million (net of VAT), %

The Regulator also reviewed and approved the Investment Program of NEC Ukrenergo for 2020 in the amount of UAH 3,275 million (VAT excluded). Its funding sources were envisaged as loans (60%), tariff revenue (33%), revenue from transfer capacity allocation (4%), and other revenue flows (Fig. 2.2.13).

Target areas of the NEC Ukrenergo Investment Program for 2020 are shown in Fig. 2.2.14.

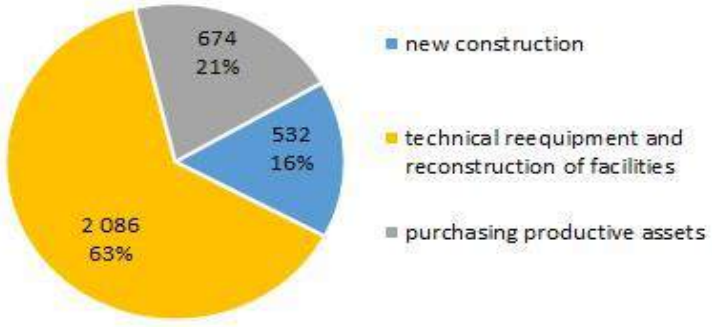


Fig. 2.2.14. Target areas of the NEC Ukrenergo Investment Program for 2020, UAH million (net of VAT), %

In 2020, funding was mostly directed to measures for technical re-equipment, reconstruction, and construction of transmission system energy facilities.

In particular, measures were taken to build strategically important transmission system facilities in 2020 (Table 2.2.6).

The actual amount of funding (implementation) of the NEC Ukrenergo Investment Program for 2020 stood, according to a report submitted by it, at UAH

[49] Section II of the Transmission System Code, approved by the Order of the NEURC No. 309 of March 14, 2018.

3,120 million (VAT excluded) or 95.3% of the plan (Annex 2.2.6), which is one of the highest values both in absolute terms and percentage-wise in recent years.

Table 2.2.6. Funding measures for technical re-equipment, reconstruction, and construction of strategically important objects of main networks in 2020

Measures	Plan	Fact
	UAH million (VAT excluded)	
Reconstruction of open switchgear of 750 kV and 330 kV classes, equipment of 150; 35; 15.75 kV classes and covering own needs of 750 kV substation Zaporizka in Zaporizhia Oblast	366	504
Introduction of the balancing market	337	294
Reconstruction of open switchgear of 330 kV, 150 kV, and 110 kV classes; 330/110 kV substation Novokyivska	269	224
Reconstruction of open switchgear of 750 kV, 330 kV, 110 kV, 35 kV classes on the 750 kV substation Dniprovska in Dnipropetrovsk Oblast	183	211
Reconstruction of open switchgear of 330 kV and 110 kV classes at 330 kV substation Kremenchuk	163	136
New construction of 330 kV OPL Zakhidnoukrainska – Bohorodchany with the reconstruction of 330 kV Bohorodchany substation and 750 kV Zakhidnoukrainska substation, Lviv and Ivano-Frankivsk Oblasts	142	142
Reconstruction of open switchgear of 330 kV and 110 kV classes at 330 kV substation Sumy	118	102
Reconstruction of communication facilities using the fiber-optic line attached to an OPL on the following sections: 330 kV substation Lviv Pivdenna – 220 kV substation Rozdil – 220 kV substation Stryi – 220 kV substation Boryslav – 220 kV substation Volovets – 400 kV substation Mukacheve – the State Border of Ukraine	100	25
750 kV OPL Zaporizhia NPP – Kakhovska with 750 kV substation Kakhovska and connections to 330 kV OPLs	82	148
Reconstruction of 400 kV Mukacheve substation with replacement of AT-3 autotransformer, Zakarpattia Oblast, the village of Kliucharky	65	71
750 kV substation Vinnytsia Technical re-equipment with replacement of autotransformer AT-2 and parallel transformer AT-2 and implementation of advanced technological solutions, compound No. 1, Komariv village council, Vinnytsia Raion, Vinnytsia Oblast	61	67
Reconstruction of 330 kV substation Rivne with the introduction of supervisory control and data acquisition system (SCADA), the city of Rivne	59	63
Reasonable monitoring and management technologies	56	56
Introduction of an information control system	56	15

Investment in electricity distribution systems

In accordance with the requirements for the formation of distribution system development plans for the next five years[50] (hereinafter referred to as the DSDP), the NEURC continued to consider the relevant development plans in 2020. In particular, it verified the compliance of the content of development plans with the requirements of the Distribution System Code, analyzed the consistency of the DSDP and the Transmission System Development Plan for 2020-2029, as well as the consistency of distribution system development plans and relevant long-term development schemes. It considered the technical feasibility and soundness of measures envisaged in the DSDP, the focus of these measures on improving the quality of the electricity distribution services and energy efficiency of electric networks, increasing their transfer capacity, reducing the technical electricity losses in electric networks, etc.

Based on the work done, the Regulator approved the following development plans in 2020:

- for 2020 – 2024 for 14 distribution system operators for the total amount of UAH 48,926 million (VAT excluded);
- for 2021 – 2025 for 28 distribution system operators for the total amount of UAH 115,741 million (VAT excluded);

[50] Section III of the Distribution System Code, approved by NEURC Order No. 310 of March 14, 2018, the Procedure for Development and Submission for Approval of Plans for the Development of Distribution Systems and Investment Programs of Distribution System Operators, approved by NEURC Order No. 955 of September 4, 2018.

The NEURC also considered and approved investment programs for 2020 for 31 DSOs, totaling UAH 6,390.3 million (VAT excluded). The programs envisage quarterly work plans and funding for them. The main source of funding for investment programs (61.4%) is the electricity distribution tariff of the respective company. Along with this, funds that companies received as payments for reactive energy from customers (24.9%), unused funds of previous periods (6.7%), and customer funds (0.06%) were identified as additional sources of funding for investment programs (Fig. 2.2.15).

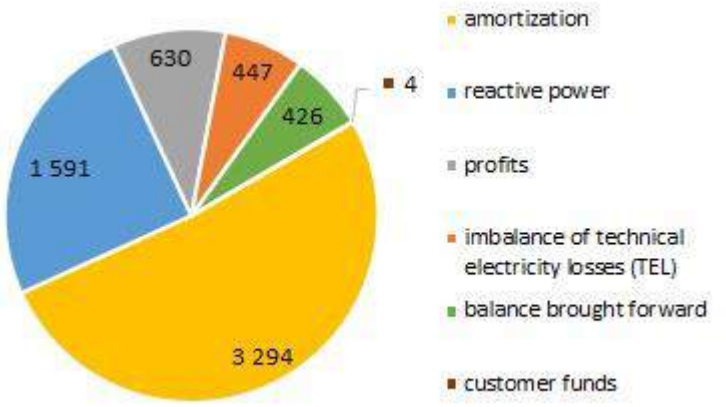


Fig. 2.2.15. Financing sources of the distribution system operators' investment programs for 2020, UAH million (net of VAT), %

The NEURC paid special attention to soundness of measures proposed by companies and the amounts of their funding as well as funding priority of technical re-equipment and reconstruction of electric networks (Fig. 2.2.16).

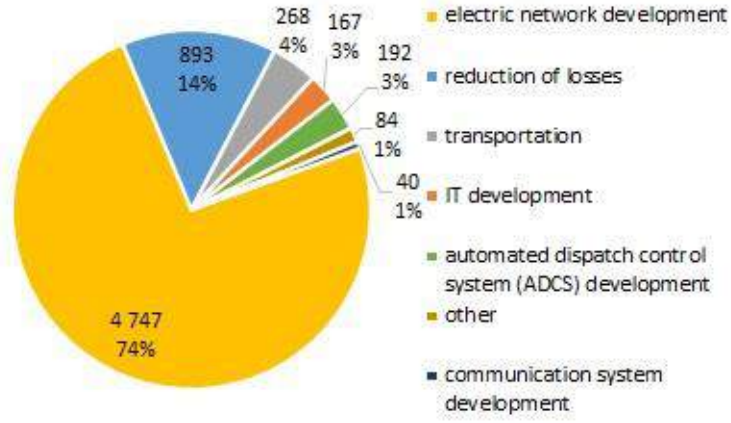


Fig. 2.2.16. Target areas of investment programs for 2020, UAH million (net of VAT), %

In 2020, approved funding for construction, modernization, and reconstruction of electric networks and equipment (sections I of investment programs) reached UAH 4.7 billion (VAT excluded), which is 74.3% of the total amount of approved investment programs. 14% of the total amount of investment programs was allocated to finance work aimed at consistent reduction and prevention of non-technical electricity losses. The rest of the funds were to be used to finance measures to implement automated dispatch control systems (ADCS), build up communication systems, reconstruct production facilities, upgrade companies' computer equipment, transport fleet, etc.

The NEURC kept using a comprehensive approach to the reconstruction of distribution electric networks with changes in their configuration, introduction of reactive power compensators, increasing the level of network automation, including automation of electricity metering systems, as well as increasing the average voltage.

Throughout the year, the NEURC has been approving changes to investment programs at the request of the DSOs, aimed at resolving urgent issues of ensuring electricity supply.

Important measures to ensure the stable operation of the IPS of Ukraine, envisaged in the DSO investment programs for 2020, are shown in Table 2.2.7.

Table 2.2.7. Measures to ensure the stable operation of the IPS of Ukraine

Region	Name of measure	Plan, UAH thousand (VAT excluded)	Fact, UAH thousand (VAT excluded)
Kyiv City	Reconstruction of Vulkan substation with replacement of T-1 and T-2 transformers	46,952	44,965
Kyiv City	Reconstruction of Bilychi 110/35/10 kV substation	19,608	19,805
Kyiv City	Reconstruction of Troieshchyna substation	27,247	28,608
Kyiv Oblast	Construction of Kozyn 110/35/10 kV substation	60,378	60,832

Kyiv Oblast	Reconstruction of Hostomel 110 kV substation	42,559	42,917
Kirovohrad Oblast	Technical re-equipment of Haivoron HPP 35 kV substation	15,396	15,140
Volyn Oblast	Technical re-equipment of Lutsk 102 110/10/10 kV substation	19,219	19,732
Volyn Oblast	Reconstruction of No. 26 Shatsk 110/35/10 kV substation with installation of a T-2 transformer	13,715	13,999
Donetsk Oblast	Reconstruction of 110 kV OPL YuDV – Vuhledar	24,507	25,169
Donetsk Oblast	Reconstruction of 110 kV OPL Kotliarevska – Zhelanna	21,094	20,329
Donetsk Oblast	Reconstruction of 110 kV open switchgear and Horod-4 110 kV substation	21,691	22,524
Zakarpattia Oblast	Reconstruction of Uzhhorod-7 35/10 kV substation, its transfer to 110 kV voltage level	21,622	21,638
Zaporizhia Oblast	Reconstruction of F-1 150 kV substation with installation of a T-6 transformer	18,623	15,330
Ivano-Frankivsk Oblast	Technical re-equipment of 10 kV power lines TP-266 and Mahurka from Vorokhta substation with their transfer to the 35 kV voltage class and construction of Polianytsia 35 kV substation in the village of Polianytsia	62,485	63,515
Rivne Oblast	Reconstruction of Zakhidna 110/10 kV substation	15,234	15,234
Dnipropetrovsk Oblast	Construction of 35 kV L-404/405 CPL with a branch to Novomoskovsk City 35 kV substation	5,163	4,116
Lviv City	Construction of Lviv-24 110-20/10 kV substation with connections to 110 kV OPL	47,547	45,362
Lviv Oblast	Reconstruction of Vynnyky 110/35/10 kV substation	21,392	21,717
Odesa Oblast	Construction of Chubaivka 110/20 kV substation	133,894	119,419
Odesa Oblast	Reconstruction of Chumka 110 kv substation	36,698	24,247
Luhansk Oblast	Construction of 35 kV OPL – a branch line from Slovianoserbska –Triokhizbenka 35 kV OPL to Raihorodska 110 kV OPL	10,954	11,501
Poltava Oblast	Reconstruction of 110 kV open switchgear and Suprunivka 110/10 kV substation	5,705	5,990
Sumy Oblast	Technical re-equipment of Hlukhiv 110 kV transformer substation	29,202	29,202
Ternopil Oblast	Reconstruction of Zahrebellia 110/10 kV substation with installation of an additional power transformer	11,620	12,177
Chernihiv Oblast	Technical re-equipment of Pryluky 110/35/10 kV substation	15,156	15,883
Chernihiv Oblast	Technical re-equipment of Talalaivka 35/10 kV substation	12,932	13,481

The actual amount of financing (implementation) of DSO investment programs amounted to UAH 5.6 billion (VAT excluded) in 2020 or 87.4% of the planned amount, which marks the highest implementation rate for investment programs implemented in the last ten years (Annexes 2.2.7 and 2.2.8).

2.2.5. Commercial electricity metering

At the end of 2020, there were 18.4 million electricity meters in Ukraine, of which 17.2 million or 93.5% served household customers. For almost 136 thousand commercial metering points, accounts are settled without installing an instrument-metering device (if they rely on electric installations with a connected capacity of up to 0.1 kW). The number of non-profiled meters installed by electricity customers is 15.2 million units or 82.5%, while profiled meters number 1.4 million or 7.6%. The total number of smart meters with remote reading capacity, which are installed by electricity customers, is 1.8 million units or 9.9% of the total number of electricity meters.

In 2020, about 400,000 meters of accuracy class 2.5 were replaced. In addition, the number of smart meters grew by 300,000 units in Ukraine overall.

General information on the state of commercial electricity metering is shown in Table 2.2.8.

Table 2.2.8. State of commercial electricity metering

	Total meters of them:	non-profiled	profiled	smart meters with remote reading
Household	17,217,831	14,334,779	1,162,261	1,720,791
Non-household	1,206,759	866,630	236,144	103,985
Total	18,424,590	15,201,409	1,398,405	1,824,776
Non-metered metering points	135,805			

To address issues associated with commercial electricity metering on the market, the NEURC prepared amendments to the Commercial Electricity Metering Code in 2020, approved by the NEURC Order No. 311 of March 14, 2018. In particular, the draft amendments to the Code envisage settling the following issues:

- aligning the Code with the requirements of the Law of Ukraine "On Alternative Energy Sources" (in connection with amending that Law on July 21, 2020);
- improving the provisions of the Code governing the commercial metering relationship between system operators and other market participants;
- establishing clearer rules for the formation of calculated data of commercial metering in the absence of actual data for the settlement period;
- narrowing requirements concerning system operators who collect data on the amount of electricity used by customers who have installed meters allowing remote access to data.

In addition, to ensure control over the activities of commercial metering service providers (hereinafter referred to as the CMSPs) NEC Ukrenergo developed and submitted for approval to the NEURC the Procedure for inspections of commercial metering service providers and the state of commercial metering, which would resolve the issues concerning grounds and arrangement of inspections and their documentation. As a result, the preconditions would be created for the CMSPs to conscientiously perform their duties with respect to generation, processing, verification, validation, storage, archiving, and transmission of validated commercial metering data, as well as installation of metering units and systems on the premises of electricity customers.

It should also be noted that NEC Ukrenergo, in order to ensure that business processes in the electricity market unfold in accordance with the requirements of the Commercial Electricity Metering Code and the Rules of the Retail Electricity Market, began working on implementation of the DataHub central information and telecommunications platform, which will ensure the maintenance of a centralized register of commercial metering points in the electricity market, administration of processes of changing electricity supplier and terminating electricity supply, as well as management and information exchange of commercial metering data for the purpose of effecting settlements in the electricity market.

Creation of the DataHub platform is part of the process of electricity market liberalization in Ukraine, which started in 2019 to increase competition in the market for the benefit of customers. NEC Ukrenergo has already recruited a DataHub team and started developing such a system.

2.2.6. Access to cross-border networks

Description of cross-border links

The Ukrainian power system is connected to the power systems of Eastern European countries (Hungary, Slovakia, Poland, and Romania) and the energy systems of Russia, Belarus, and Moldova with powerful transmission lines that can provide significant volumes of electricity exchange.

Only the southwestern part of the IPS of Ukraine, the so-called "Burshtyn TPP Island", which is physically separated from the main part of the IPS of Ukraine, is synchronized and operates in parallel with the ENTSO-E energy association. This allows for the export/import of electricity from/to Ukraine to/from Eastern European countries (Hungary, Romania, and Slovakia), ensuring a reliable electricity supply for Ukrainian customers of the Burshtyn TPP Island.

Constraints on available transmission capacity between the power systems of Ukraine (the Burshtyn TPP Island) and ENTSO-E member countries were imposed in accordance with the Rules for the Management of Constraints approved by the NEURC Order No. 763 of April 3, 2020, taking into account the agreement on parallel operation with the ENTSO-E synchronous zone and operational safety standards.

When assessing the operational safety of the transmission system when working in the ENTSO-E synchronous association, we took into account:

- conditions concerning the algebraic sum of capacity export flow from the Burshtyn TPP Island, which shall not exceed 650 MW in accordance with the Agreement on Parallel Operation and Metering of the Polish Regulatory Unit which includes the Burshtyn Power Plant Island and is connected to the Continental Europe Regional Group network;
- requirements for frequency and active power regulation in order to maintain the overall balance between generation and consumption, including requirements for the regulation of own net flow to prevent emergency situations in accordance with the Agreement on Parallel Operation and Metering of the Polish Regulatory Unit which includes the Burshtyn Power Plant Island and is connected to the Continental Europe Regional Group network, and in accordance with the Transmission System Code.

Allocation of transmission capacity

Market participants gain access to the transmission capacity of cross-border electric networks of Ukraine based on the results of auctions held by the auction office of NEC Ukrenergo. Until April 8, 2020, electronic auctions for access to the transmission capacity of cross-border electric networks of Ukraine were organized and conducted in accordance with the Procedure for Electronic Auctions for Allocation of the Transmission Capacity of Cross-Border Electric Networks, and after that day, in accordance with the Procedure for Allocation of the Transmission Capacity of Cross-Border Sections.

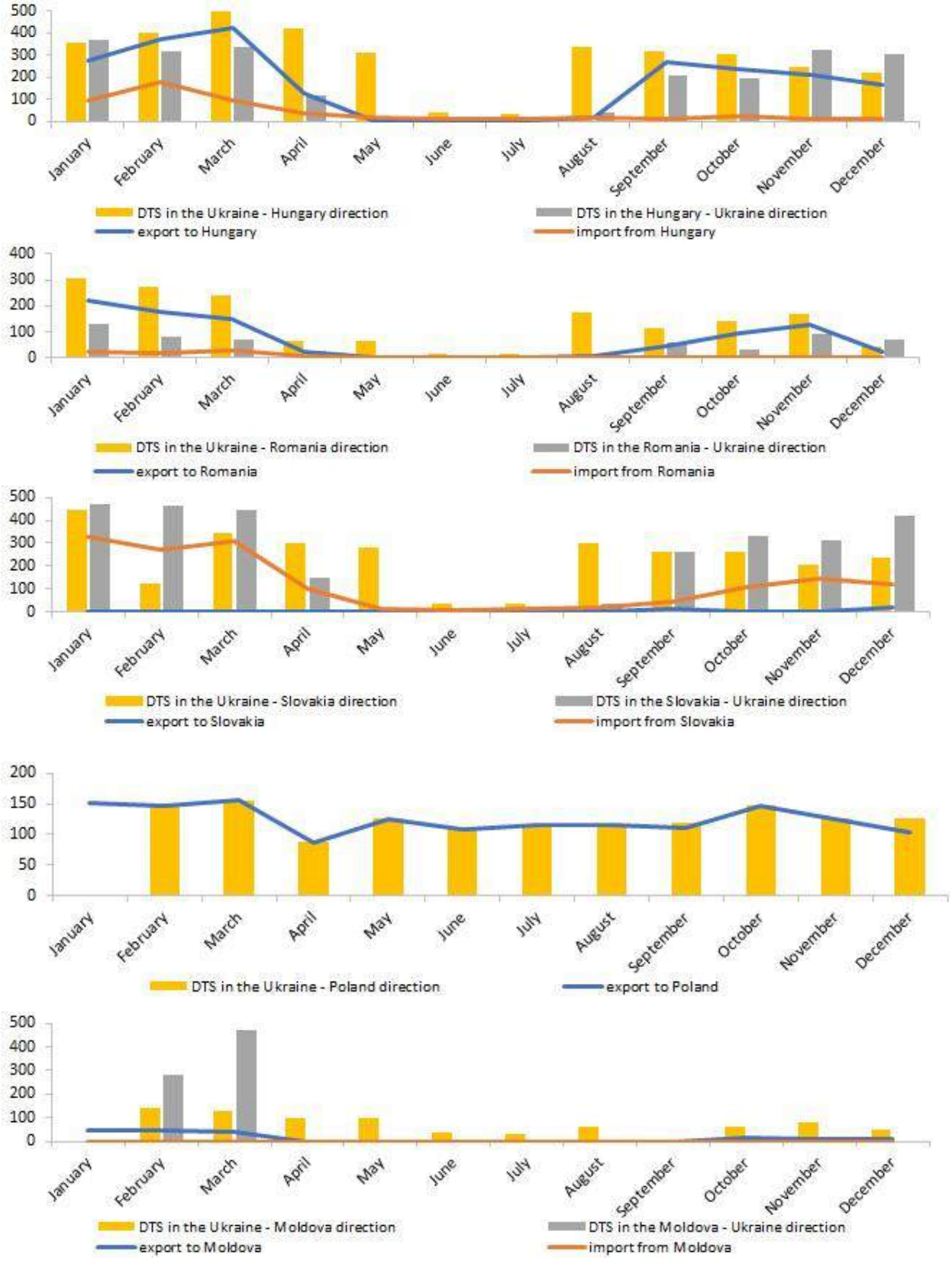
Table 2.2.9. Available transmission capacity of cross-border sections in 2020

Section	Available transmission capacity (NTC), MW	
	exports	imports
Hungary	650	450
Slovakia	600	600
Romania	400	400
Poland	210	0
Moldova	550	1,200
Belarus	900	900
Russia	1,800	2,200

The available transmission capacity is calculated by NEC Ukrenergo in accordance with the Methodology for Determining the Available Transmission Capacity of Cross-Border Sections (Cross-Border Electric Networks of Ukraine), approved by the NEURC Order NEURC No. 893 of August 23, 2018 (Table 2.2.9).

Monthly amounts of allocated transmission capacity (hereinafter

referred to as the APS) at auctions (taking into account the reduction, termination, and transfer of the APS) and amounts of exports and imports of electricity for 2020 are shown in Fig. 2.2.17.



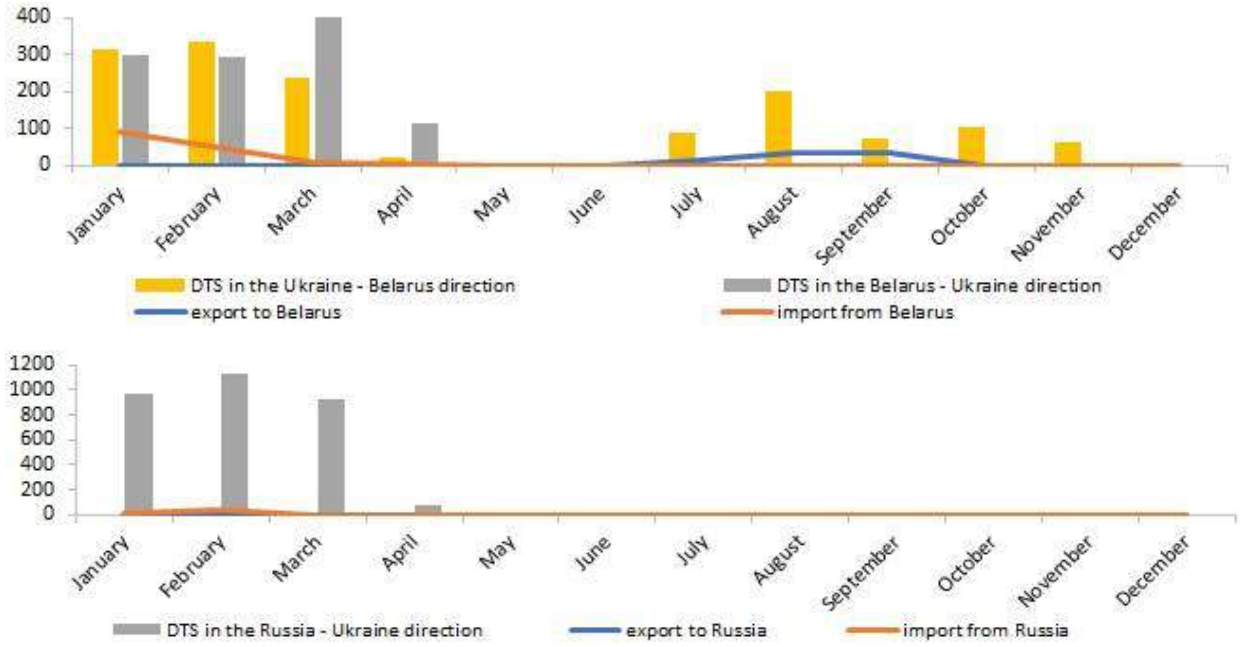


Fig. 2.2.17. Monthly allocated transmission capacity and amounts of electricity exports and imports in 2020, million kWh

In 2020, Ukraine exported 4,762 million kWh of electricity, which was 26% less than in 2019. Compared to 2019, the largest decreases occurred in electricity exports to Slovakia, which fell by 46.3% to 1,817 million kWh, and to Moldova, where they fell by 74% to 477 million kWh. Meanwhile, electricity exports to Romania almost doubled, increasing by 466 million kWh.

The amount of imported electricity decreased by 15% in 2020, standing at 2,286 million kWh.

The Law of Ukraine "On the Electricity Market" granted the Regulator the time-limited power, expiring on December 31, 2020, to limit the available transmission capacity allocated at daily and monthly auctions with respect to cross-border sections between Ukraine and countries that are not parties to the Energy Community Treaty, and also the right to cancel the results of the annual auction which allocated capacity for 2020 with respect to cross-border sections between Ukraine and countries that are not parties to the Energy Community Treaty. In such a case, the sums paid for the allocated capacity shall be reimbursed.

Due to introduction in Ukraine of the lockdown and other restrictions related to COVID-19, the implementation of the above provisions of the Law is provided for in the NEURC Order No. 766 of April 8, 2020 "On Actions of Electricity Market Participants During the Lockdown and Other Restrictions Related to COVID-19".

Given the above, imports of electricity from Belarus and Russia were suspended starting in April 2020, due to which imports from these countries decreased, compared to 2019, by 82%, that is, by 697 million kWh, and 81%, that is, by 233 million kWh, respectively.

At the same time, imports from Slovakia increased by 62%, that is, by 564 million kWh, and imports from Romania almost quadrupled, growing by 68.3 million kWh in 2020.

Amounts of electricity exports and imports in 2019 – 2020 are shown in Fig. 2.2.18.

Cross-border electricity flows took place in 2020, caused by parallel operation of the

Fig. 2.2.18. Amounts of electricity exports and imports in 2019 – 2020, million kWh

Ukrainian power system and power systems of its neighbors:

- technological net electricity flows to the IPS of Ukraine from the power system of Moldova in the amount of 0.481 million kWh;
- unplanned net electricity flows to the IPS of Ukraine from the power systems of Russia and Belarus in the amount of 58.934 million kWh;
- technological net electricity flows from the IPS of Ukraine, caused by parallel operations of the IPS of Ukraine (Burshtyn TPP Island), in the amount of 0.481 million kWh;

The TSO's revenue from transmission capacity allocation and its use

In 2020, NEC Ukrenergo received UAH 1,475,481 thousand (excluding funds repaid due to termination or reduction) of revenue from transmission capacity allocation.

At the same time, NEC Ukrenergo repaid funds amounting to UAH 870,971,714 due to termination and reduction of access to the transmission capacity. Data on revenue received by NEC Ukrenergo from allocation of the transmission capacity of cross-border sections, which is based on the results of annual, monthly, and daily auctions and takes into account the termination and reduction of access to the transmission capacity, is shown on a monthly basis in Table 2.2.10.

Table 2.2.10. NEC Ukrenergo revenue from allocation of the transmission capacity

Year	Revenue sum, UAH thousand (VAT excluded)
2015	67,346
2016	73,443
2017	157,120
2018	704,872
2019	1,197,644
2020	604,510
including:	
January	96,729
February	128,790
March	202,678
April	84,175
May	6,842
June	3,559
July	7,441
August	11,121
September	34,449
October	7,333
November	8,855
December	12,537

Funds from revenues received from the allocation of the transmission capacity of cross-border sections in the amount of UAH 121,788 thousand (VAT excluded) were included in the NEC Ukrenergo Investment Program for 2020 and applied as follows:

ew construction of 330 kV OPL Zakhidnoukrainska – Bohorodchany with the reconstruction of 330 kV Bohorodchany substation and 750 kV Zakhidnoukrainska substation, Lviv and Ivano-Frankivsk Oblasts;

econstruction of communication facilities using the fiber-optic line attached to an OPL on the following sections: 330 kV substation Lviv Pivdenna – 220 kV substation Rozdil – 220 kV substation Stryi – 220 kV substation Boryslav – 220 kV substation Volovets – 400 kV substation Mukacheve – the State Border of Ukraine;

- reconstruction of 400 kV Mukacheve substation with replacement of AT-3 autotransformer, Zakarpattia Oblast, the village of Kliucharky;
- reconstruction of the 400 kV OPL Mukachevo Sajoszoged between transmission towers No. 1 and No. 67 (state border), Zakarpattia Oblast, Mukachevo, and Berehove Raions.

UAH 38,232 thousand (VAT excluded) were spent on construction and reconstruction of these facilities.

The Law of Ukraine No. 810-IX of July 21, 2020 “On Amending Certain Laws of Ukraine on Improving Conditions for Supporting Electricity Generation from Alternative Energy Sources” amended the Law of Ukraine “On Electricity Market”, establishing, in particular, that due to the lockdown imposed by the Cabinet of Ministers of Ukraine throughout Ukraine in order to prevent COVID-19 in Ukraine, funds received by the transmission system operator from allocation of the

cross-border section transmission capacity as of July 1, 2020, are to be temporarily used for the following purposes:

- 30 percent – to guarantee the actual availability of the allocated transmission capacity, maintenance, and increased transmission capacity by investing in the transmission system, in particular in the construction of new cross-border power lines, payments into the State Budget of Ukraine to discharge obligations that arise upon recognizing of revenues from the allocation of the cross-border section transmission capacity and repayment of debts under agreements on access to the cross-border section transmission capacity;
- 70 percent – to repay the debt to the guaranteed buyer for the services provided by it to ensure an increase in the share of electricity production from alternative sources. The guaranteed buyer is obliged to transfer 50 percent of the funds received under this paragraph to the economic agent that produces electricity at nuclear power plants, and to use the remaining 50 percent to pay for electricity generated at power plants that use alternative energy sources (and in case of hydropower, only for electricity produced by micro, mini and small hydropower plants), at a set "green" tariff or at an auction price.

Given the above, according to NEC Ukrenergo and SOE Guaranteed Buyer:

- NEC Ukrenergo transferred UAH 1,559 million to SOE Guaranteed Buyer;
- SOE Guaranteed Buyer transferred UAH 779.5 million to producers of electricity from alternative energy sources and UAH 779.5 million to the economic agent that produces electricity at nuclear power plants.

2.3. **Electricity market**

2.3.1. General Information

The legal basis of the new model of electricity market, which began operating on July 1, 2019, is determined by the Law of Ukraine "On Electricity Market" (hereinafter referred to as the Law).

Structure-wise, the new market model is similar to the structure of European electricity markets.

Just like in the EU countries, Ukraine's electricity market consists of organized segments (a day-ahead market (DAM), an intraday market (IDM) and a balancing market (BM)), and a bilateral contracts market (BCM). There is also an ancillary services market. Electricity is sold to customers on a retail market. The scheme of the new electricity market model is shown in Fig. 2.3.1.

The day-ahead electricity market is a segment of the electricity market in which electricity is purchased and sold for the day following the day of trading.

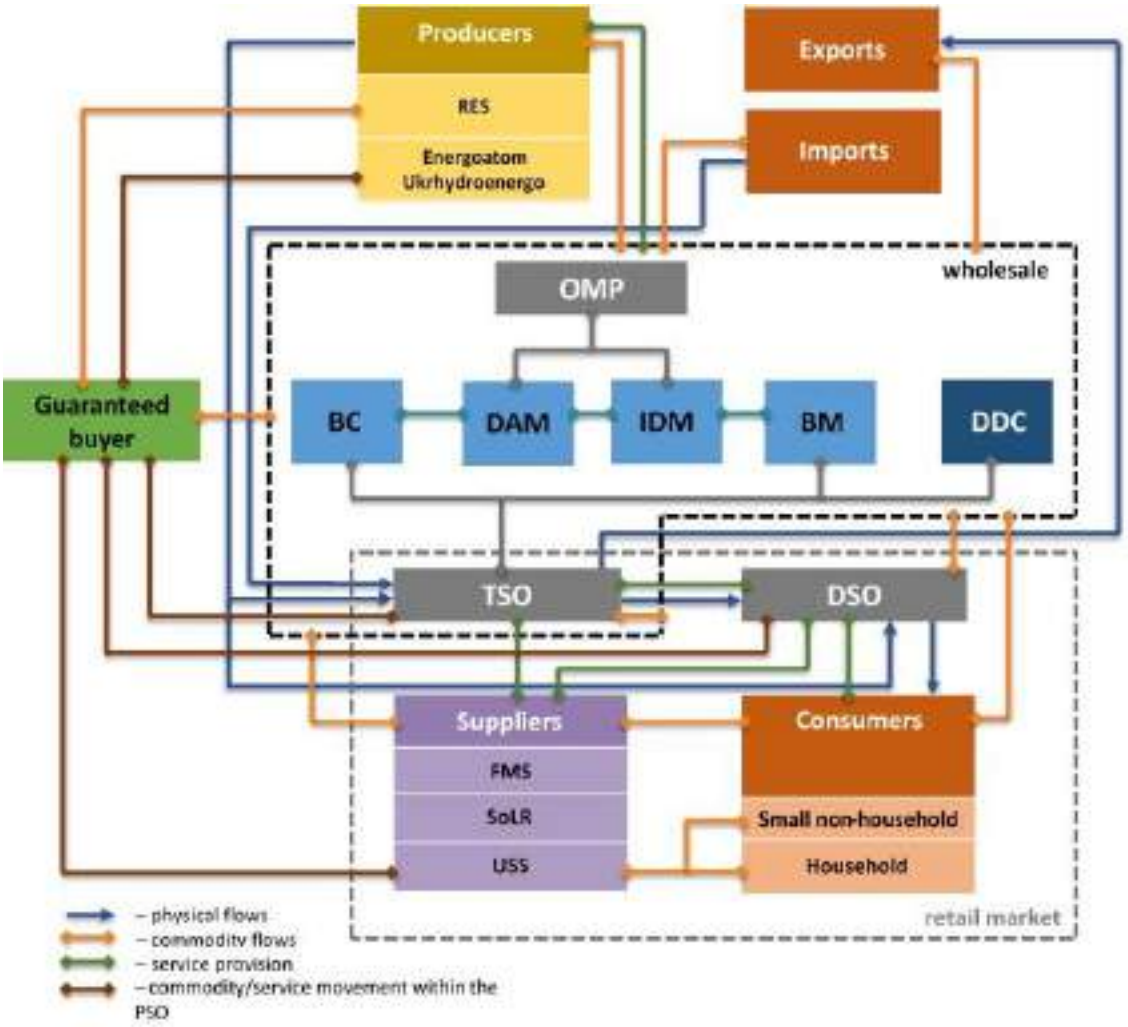


Fig. 2.3.1. Functional scheme of the new electricity market model

The intraday electricity market is a segment of the electricity market in which electricity is purchased and sold continuously after the end of trading on the day-ahead market and during the day when electricity is physically delivered.

The balancing electricity market is a market organized by the electricity transmission system operator in order to provide sufficient amounts of generating capacity and electricity required for the real-time balancing of electricity generation and imports and electricity consumption and exports, settlement of system constraints in the Integrated Power System of Ukraine, as well as financial settlement of electricity imbalances.

The ancillary services market, in which the transmission system operator purchases ancillary services on a market and transparent basis, operates to ensure the reliable operation of the IPS of Ukraine and the proper quality of electricity.

The organization and operation of the day-ahead/intraday market is the task of a market operator, whose role is performed by the SOE Market Operator.

To ensuring the operation of the balancing market/ancillary services market is responsibility of the transmission system operator, which is NEC Ukrenergo. Pursuant to the Law, NEC Ukrenergo also performs centralized functions of a settlement administrator (organization of settlements on the balancing market and ancillary services market) and a commercial metering administrator (organization and administration of electricity commercial metering on the electricity market, as well as a central aggregation of commercial metering data).

Government guarantees regarding the purchase of all electricity generated at power plants that use alternative energy sources (and in case of hydropower, only for the electricity generated by micro, mini and small hydropower plants) at a set feed-in tariff are fulfilled by the guaranteed buyer and universal service suppliers.

In addition to typical electricity market participants (generators, suppliers, distribution system operators), as well as the above-mentioned centralized infrastructure entities of the electricity market, new participants appeared in the market with introduction of a new market model and new relations in the electricity market, namely traders (economic entities that resell electricity).

At the same time, the Law allows an independent participation of customers in the electricity market (purchase and sale of electricity on the market) subject to conclusion of an imbalance settlement agreement with the transmission system operator.

In addition, since two separate trade areas have been created within Ukraine, namely the Burshtyn TPP Island trade area and the IPS of Ukraine trade area, their wholesale market segments operate independently.

The main indicators of Ukraine's electricity market operation as established by NEURC operational monitoring by trade areas are shown in Table 2.3.1.

Over 2020, the electricity imports into the IPS of Ukraine trade area markedly decreased compared to the second half of 2019 due to the ban on electricity imports from Russia and Belarus. And while the share of imports into the IPS of Ukraine trade area in the total amount of electricity imported to Ukraine was 49.9% in the second half of 2019, it was just 9.1% in 2020.

Meanwhile, the electricity imports into the Burshtyn TPP Island trade area accounted for 44.8% of the total amount of electricity offtake from the networks of this trade area.

Intra-area ratios between network electricity offtake and electricity supply to networks did not change. In 2020, the overall offtake of electricity from the operators' networks stood at 118.77 million MWh, while the electricity supply to networks was 136.61 million MWh.

A visual representation of the daily physical indicators of Ukraine’s power system operation by trade areas is given in Annexes 2.3.1 and 2.3.2.

The total amount of electricity sold by market participants under bilateral contracts amounted to 211.3 million MWh in 2020.

The ratio of the amount of electricity sold on the DAM to the amount of electricity sold under bilateral contracts was 17%, standing at 54% in the Burshtyn TPP Island trade area and 16% in the IPS of Ukraine trade area.

The sales of electricity on the intraday market were equal to just 3% of the total amount of electricity sold under bilateral contracts in 2020.

The amount of positive electricity imbalance in the system in 2020 was 2.8 times larger than the amount of negative imbalance.

Accordingly, the amount of balancing electricity for down-regulation was 19.3 million MWh in 2020, while the amount of balancing electricity for up-regulation was 5.64 million MWh.

Table 2.3.1. Main indicators of the electricity market operation in Ukraine in 2020

INDICATOR	Name of the trade area			Ratio between the trade arras	
	Burshtyn TPP Island	IPS of Ukraine	Total (two trade areas)	percentage of the Burshtyn TPP Island trade area	percentage of the IPS of Ukraine trade area
Imports, millions MWh	2.08	0.21	2.29	90.9%	9.1%
Network electricity losses in the IPS networks, million MWh	0.74	14.69	15.43	4.8%	95.2%
Electricity offtake, million MWh	4.64	114.13	118.77	3.9%	96.1%
Electricity supply, million MWh	6.32	130.29	136.61	4.6%	95.4%
Electricity exports, million MWh	3.02	1.74	4.76	63.4%	36.6%

Total amount of electricity sold under BCs, million MWh	6	205.3	211.3	2.8%	97.2%
Declared amount of DAM sales, million MWh	5.69	67.03	72.72	7.8%	92.2%
Declared amount of DAM purchases, million MWh	4.10	33.91	38.01	10.8%	89.2%
DAM size, million MWh	3.26	33.46	36.72	8.9%	91.1%
Weighted average DAM price, UAH/MWh	1,618	1,341	1,366		
Declared amount of IDM sales, million MWh	0.71	26.92	27.63	2.6%	97.4%
Declared amount of IDM purchases, million MWh	0.79	9.96	10.75	7.3%	92.7%
IDM size, million MWh	0.11	5.89	5.99	1.8%	98.2%
Weighted average IDM price, UAH/MWh	1,474	1,300	1,303		
Weighted average negative imbalance price, UAH/MWh	1,597	1,432	1,448	-	-
Negative imbalance amount, million MWh	0.78	7.16	7.94	10%	90%
Weighted average positive imbalance price, UAH/MWh	1,213	900	909	-	-
Positive imbalance amount, million MWh	0.63	20.94	21.57	2.9%	97.1%
Weighted average price for up-regulation in the merit order, UAH/MWh	1,706	1,907	1,892		
Amount of up-regulation in the merit order, million MWh	0.25	3.06	3.31	7.5%	92.5%
Amount of up-regulation, million MWh	0.54	5.11	5.64	9.5%	90.5%
Weighted average price for down-regulation in the merit order, UAH/MWh	925	793	804		
Amount of down-regulation in the merit order, million MWh	0.29	3.25	3.54	8.2%	91.8%
Amount of down-regulation, million MWh	0.38	18.95	19.33	2%	98%

The daily distribution of sizes of electricity market segments in 2020 and the amounts of electricity offtake from the networks of the IPS of Ukraine and Burshtyn TPP Island trade areas are given in Annexes 2.3.3 and 2.3.4.

2.3.2. Bilateral contracts

According to the Law, the bilateral contract is a contract for electricity purchase and sale concluded between two market participants outside organized market segments, except for a contract for electricity supply to customer.

Market participants may freely choose counterparties under bilateral contracts, to conclude these contracts in any form and on terms determined by an agreement of the parties, but subject to the restrictions set by the Law.

Following amendments made to the Law in 2020, in order to ensure a sufficient level of liquidity in the electricity market, the Regulator may set limits on the monthly sales of electricity under bilateral contracts between generators and other electricity market participants that are part of the same vertically integrated economic entity or are affiliated with each other, which sales may not exceed 50% of their monthly electricity sales.

Trading in electricity under bilateral contracts makes up the largest share of trading in all segments of the electricity market. For instance, according to the results of NEURC's operative monitoring in 2020, the number of sales under bilateral contracts was almost six times higher than the volume of trading on the day-ahead market and 35 times higher than the intraday market size.

Trading under bilateral contracts accounts for almost 68% of total electricity trading in other segments. Fig. 2.3.2 shows the percentage distribution of electricity trading amounts between segments of the electricity market in the whole of Ukraine and by trade area in 2020.

The total amount of electricity sales under bilateral contracts during 2020 amounted to

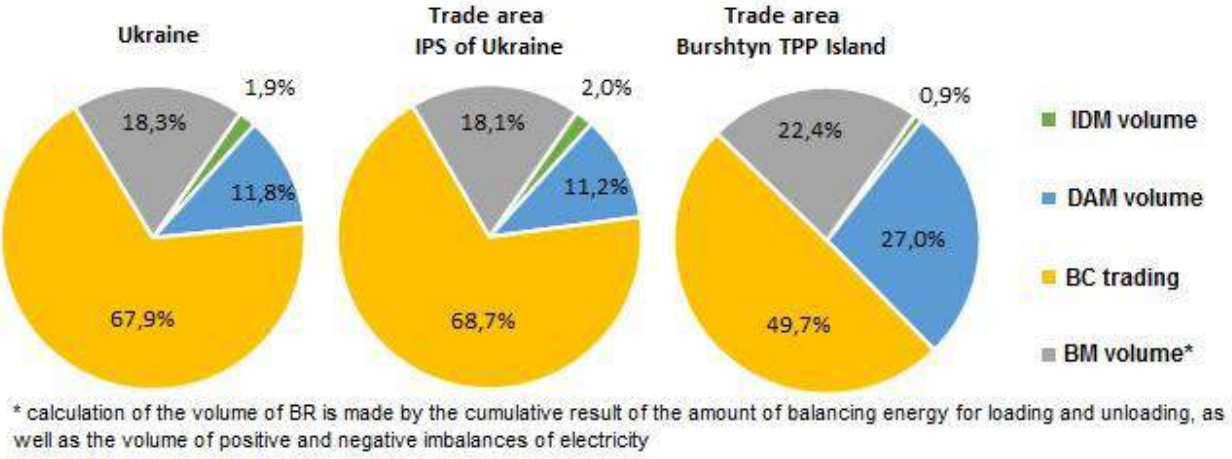


Fig. 2.3.2. Distribution of electricity trading amounts between segments of the electricity market in the whole of Ukraine and by trade area in 2020, %

211.3 million MWh, of which 205.3 million MWh (97.2%) were sold in the IPS of Ukraine trade area, and 6 million MWh (2.8%) in the Burshtyn TPP Island trade area.

The IPS of the Ukraine trade area recorded a continuous month-on-month increase in the amount of electricity sales under bilateral contracts. The average monthly sales under bilateral contracts in this trade area increased by 18.5% in 2020 (compared to the second half of 2019) and amounted to 17.1 million MWh.

In the Burshtyn TPP Island trade area, the average monthly sales under bilateral contracts in this trade area decreased by 21.2% in 2020 and amounted to 0.5 million MWh.

Monthly dynamics of sales under bilateral contracts in 2020 by trade area is shown in Fig. 2.3.3.

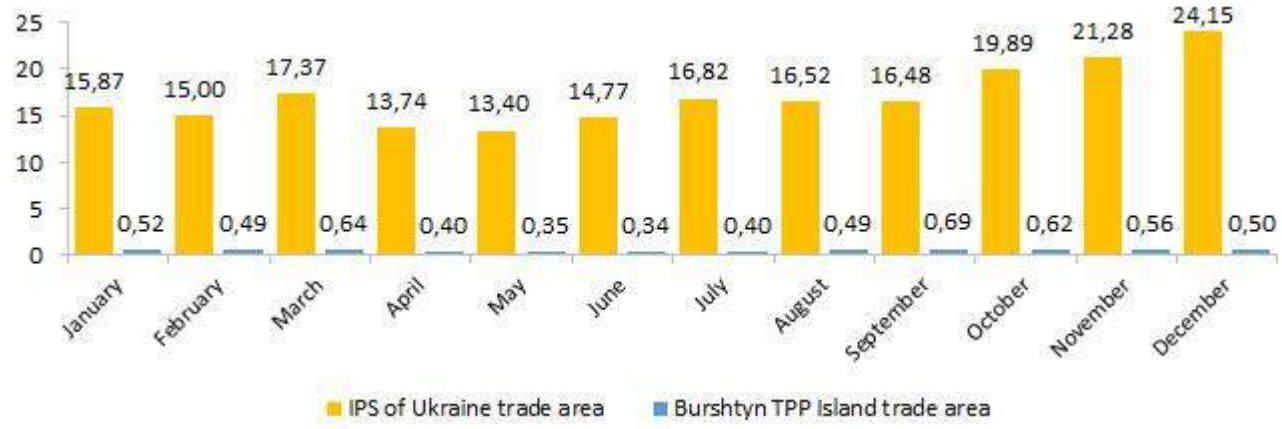


Fig. 2.3.3. Monthly dynamics of sales under bilateral contracts in 2020 by trade area, million MWh

In the IPS of Ukraine trade area, the largest amounts of electricity under bilateral contracts were sold in 2020 to SOE NNEGC Energoatom, SOE Guaranteed Buyer, and United Energy LLC. The combined share of these market participants in sales in the bilateral contracts segment amounted to 53%

(Fig. 2.3.4).

Of them, SOE NNEGC Energoatom sold 54.1 million MWh (26%), SOE Guaranteed Buyer sold 38.6 million MWh (19%), and United Energy LLC sold 17.7 million MWh (9%).

In the bilateral contracts segment agreements of the Burshtyn TPP Island trade area, the largest seller of electricity was JSC DTEK Zakhidenergo, which sold almost 2 million MWh, amounting to 36% of the total sales of electricity under bilateral contracts.

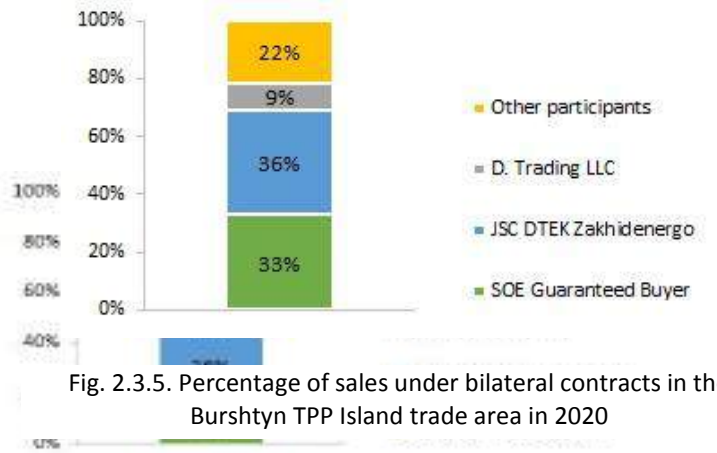


Fig. 2.3.4. Percentage of sales under bilateral contracts in the IPS of Ukraine trade area in 2020

Meanwhile, SOE Guaranteed Buyer sold 1.8 million MWh (33%), and D. Trading LLC – 0.5 million MWh (9%).

Thus, the share of these three largest sellers of electricity under bilateral contracts in the Burshtyn TPP Island trade area was 78% in 2020

(Fig. 2.3.5).

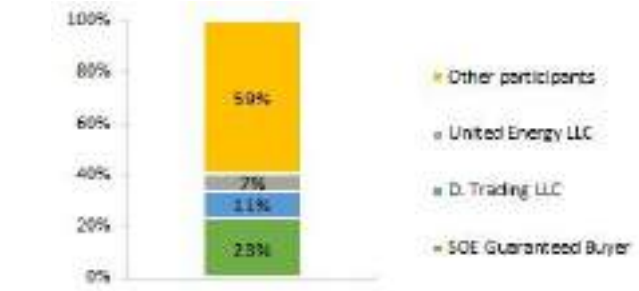


Fig. 2.3.6. Percentage of purchases under bilateral contracts in the IPS of Ukraine trade area in 2020

The largest buyers of electricity under bilateral contracts in the IPS of Ukraine trade area in 2020 were SOE Guaranteed Buyer, D. Trading LLC, and United Energy LLC. The share of these three market participants in purchases in the bilateral contracts segment in this trade area was 41% (Fig. 2.3.6).

For instance, SOE Guaranteed Buyer purchased 47.8 million MWh (23%), D.Trading LLC purchased 21.8 million MWh (11%) under bilateral contracts, and United Energy LLC purchased 14.7 million MWh (7%).

Electricity supplier D. Trading LLC was the largest electricity buyer under bilateral contracts in the Burshtyn TPP Island trade area. It bought 1.7 million MWh or 31% of all electricity sold under bilateral contracts.

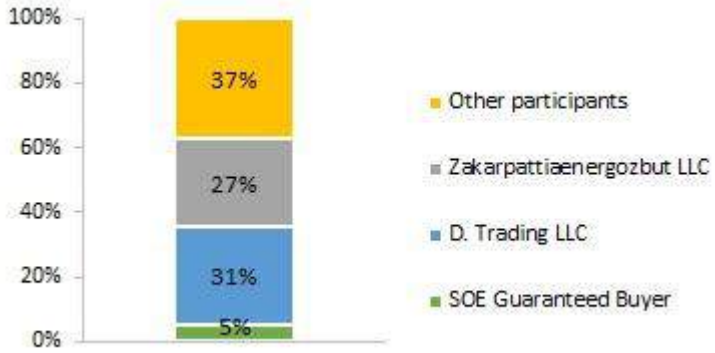


Fig. 2.3.7. Percentage of purchases under bilateral contracts in the Burshtyn TPP Island trade area in 2020

Other big buyers in the Burshtyn TPP Island trade area in 2020 were Zakarpattiaenergozbut LLC and D. Trading LLC. Fig. 2.3.7 shows the percentage distribution of purchases under bilateral contracts in 2020 in the Burshtyn TPP Island trade area between the three largest buyers and other participants.

The Law imposes restrictions on the conclusion of bilateral contracts, including for electricity generators that are state-owned enterprises, as well as companies where the state share in the authorized capital is 50 percent or more, companies in which 50 percent or more of shares in the

authorized capital belongs to other companies which have the state as the controlling shareholder, as well as subsidiaries, representative offices, and branches of such enterprises and companies.

Such electricity generators must sell electricity under bilateral contracts at electronic auctions, which are conducted in accordance with the Procedure for Conducting Electronic Auctions for the Sale of Electricity under Bilateral Contracts.

The Ukrainska Enerhetychna Birzha Commodity Exchange (hereinafter referred to as the UEB CE), which conducted purchases and sales of electricity in commercial and specialized sessions, has been designated as the organizer of electronic auctions for the sale of electricity under bilateral contracts based on the results of a selection conducted in accordance with the Procedure for Selection of Organizers of Electronic Auctions for the Sale of Electricity under Bilateral Contracts, approved by the Resolution of the CMU No. 499 of June 5, 2019.

Trading in specialized sessions was conducted in the following areas:

- auctions pursuant to Article 66 of the Law;
- special sessions in the framework of implementation by market participants of the Regulation on the Imposition of Public Service Obligations on Electricity Market Participants to Safeguard the Public Interest in the Operation of the Electricity Market, approved by the Resolution of the Cabinet of Ministers of Ukraine No. 483 of June 5, 2019.

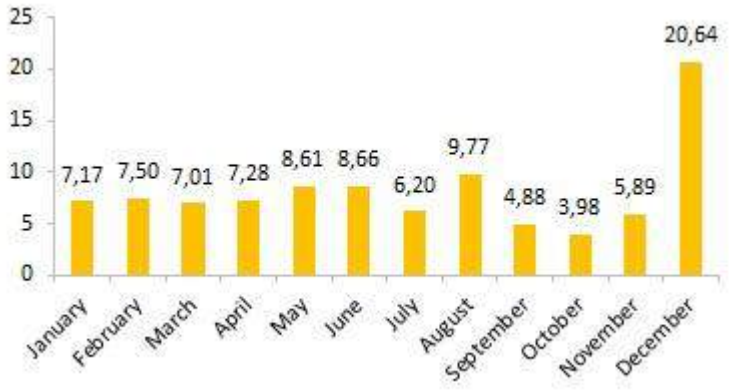


Fig. 2.3.8. Dynamics of electricity sales at all types of sessions on the UEB Commodity Exchange platform in 2020, million MWh

According to the UEB CE, market participants, including privately owned ones, sold a total of 97,594 million MWh of electricity on its platform in 2020. Monthly electricity sales for all types of sessions[51] on the UEB CE platform are shown in Fig. 2.3.8.

2.3.3. Day-ahead market and intraday market

The main provisions governing the day-ahead market and the intraday market are set in Article 67 of the Law. Thus, in accordance with part 1 of this Article, there are a single day-ahead market and an intraday market in Ukraine.

Thus, in accordance with Article 2.2 of the Law, the rules of the day-ahead market and the intraday market are developed and administered by the market operator and approved by the Regulator.

To participate in the day-ahead market and the intraday market, market participants enter into agreements with the market operator to participate in the day-ahead market and the intraday market, the template of which is an integral part of the day-ahead market and intraday market rules.

The market operator may not refuse to enter into an agreement for participation in the day-ahead market and the intraday market if the market participant has duly fulfilled all the conditions of the day-ahead market and the intraday market rules concerning an access to the day-ahead market and the intraday market.

During 2020, the MOP registered 173 agreements for participation in the day-ahead market and the intraday market. Since the beginning of the new market's operation (July 1, 2019),

[51] The electricity sales amounts are given in accordance with the date of the auction, and not the electricity delivery period.

557 agreements have been registered, and as of December 31, 2020, there were 502 active agreements for participation in the DAM/IDM. The DAM/IDM participants include 35 generators, 31 distribution system operators, 412 suppliers, 21 traders, 1 customer, the transmission system operator, and the guaranteed buyer.

The dynamics of the number of active participants in 2020 in the day-ahead market and the intraday market are shown in Fig. 2.3.9.

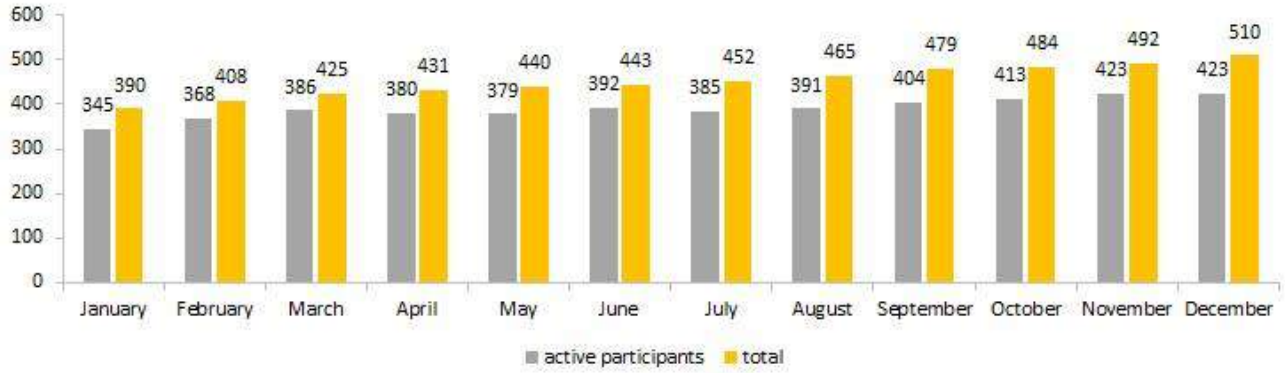


Fig. 2.3.9. Information on DAM and IDM participants

The total sales of electricity on the day-ahead market in two trade areas of the Burshtyn TPP Island and the IPS of Ukraine amounted to 36.72 million MWh. The total value of electricity sold in this segment of the electricity market in 2020 amounted to UAH 50,152 million.

Accepted amount of electricity purchased on the day-ahead market in the Burshtyn TPP Island trade area during 2020 was 3.26 million MWh. The largest buyers were: SOE Guaranteed Buyer with 36% of the total amount of purchased electricity, D. Trading LLC with 16%, PJSC Zakarpattiaoblenergo with 9%, Lvivenergozbut LLC with 6%, Nova-Enerhetychna Kompaniia LLC (hereinafter NEK LLC) with 5%, Prykarpatenergotrade with 3%, PJSC Lvivoblenergo with 3%, and NEC Ukrenergo with 3%.

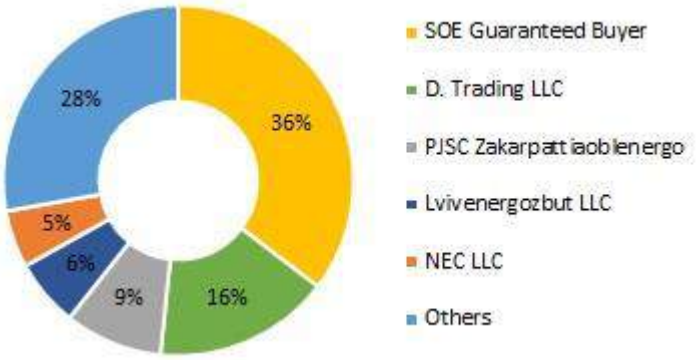


Fig. 2.3.10. Distribution of DAM electricity purchases in the Burshtyn TPP Island trade area during 2020, %

Distribution of DAM electricity purchases in the Burshtyn TPP Island trade area between participants during 2020 is shown in Fig. 2.3.10.

Accepted amount of electricity purchased on the day-ahead market in the IPS of Ukraine trade area during 2020 was 33.46 million MWh. The largest buyers were D. Trading LLC with 24% of the total amount of purchased electricity, United Energy LLC with 10%, NEC Ukrenergo with 7%, Kharkivenergozbut LLC with 3%, NEK LLC with 3%, JSC DTEK Dnipro Electric Networks with 2%, and PuJSC Zaporizhiaoblenergo with 2%.

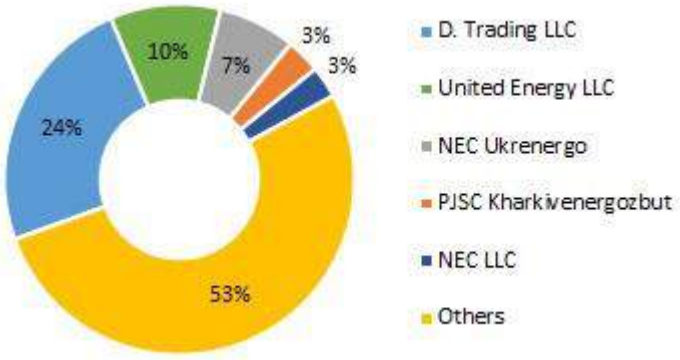


Fig. 2.3.11. Distribution of DAM electricity purchases in the IPS of Ukraine trade area during 2020, %

Distribution of DAM electricity purchases in the IPS of Ukraine trade area between participants during 2020 is shown in Fig. 2.3.11.

The largest sellers of electricity in the day-ahead market in the Burshtyn TPP Island trade area were: DTEK Zakhidenergo LLC with 32%, SOE Guaranteed Buyer with 12%, Jen-I Kyiv

LLC with 10%, Kaluska TETs-Nova with 9%, D. Trading LLC with 8%, ERU Trading LLC with 8%, ETG LLC with 5%, LE Trading Ukraine with 5%, and DE Trading LLC with 3% of the total amount of electricity sold.

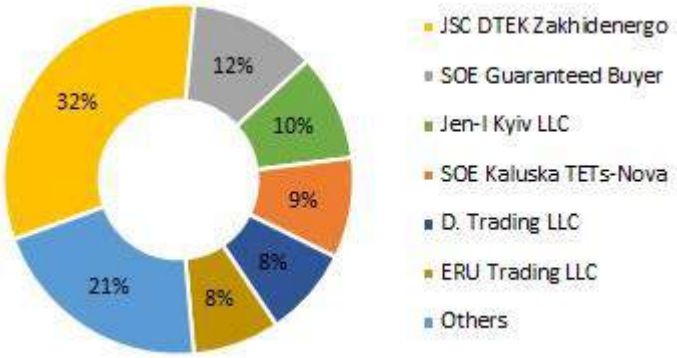


Fig. 2.3.12. Distribution of DAM electricity sales in the Burshtyn TPP Island trade area during 2020, %

Distribution of DAM electricity sales in the Burshtyn TPP Island trade area between participants during 2020 is shown in Fig. 2.3.12.

The largest sellers of electricity in the day-ahead market in the IPS of Ukraine trade area were SOE Guaranteed Buyer with 27%, SOE NNEGC Energoatom with 22%, Energix LLC with 9%, PuJSC Centerenergo with 5%, PJSC Ukrhydroenergo with 4%, PJSC Kharkivska TETs-5 with 3%, and Energozakhid LLC with 2% of the total amount of electricity sold.

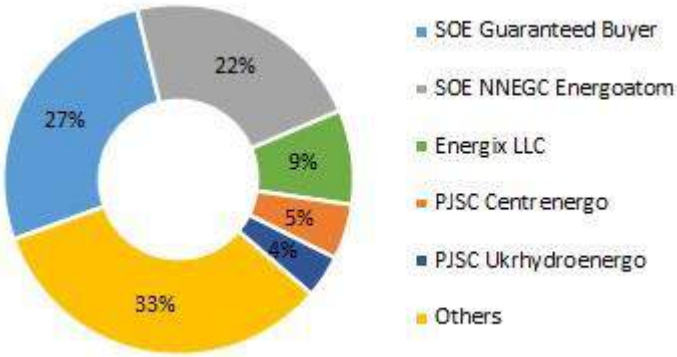


Fig. 2.3.13. Distribution of DAM electricity sales in the IPS of Ukraine trade area during 2020, %

Distribution of DAM electricity sales in the IPS of Ukraine trade area between participants during 2020 is shown in Fig. 2.3.13.

Accepted amount of electricity purchased on the intraday market in the Burshtyn TPP Island trade area during 2020 was 0.11 million MWh. The largest buyers were SOE Guaranteed Buyer with 29%, D. Trading LLC with 14%, PJSC Zakarpattiaoblenergo with 11%, NEK LLC with 10%, JSC Lvivenergozbut with 7%, ETG LLC with 5%, and First Electric Company LLC with 3% of the total amount of electricity purchased.

Fig. 2.3.14. Distribution of IDM electricity purchases in the Burshtyn TPP Island trade area during 2020, %

Distribution of IDM electricity purchases in the Burshtyn TPP Island trade area between participants during 2020 is shown in Fig. 2.3.14.

Accepted amount of electricity purchased on the intraday market in the IPS of Ukraine trade area during 2020 was 5.89 million MWh. The largest buyers of electricity I n the intraday market in the trading area were NEK LLC with 16%, United Energy with 9%, Energozakhid LLC with 6%, Energo Zbut Trans LLC with 4%, TEK LLC with 4%, Kharkivvodokanal ME with 3%, and Kryvorizka Enerhetychna Kompania LLC with 3% of the total amount of electricity purchased .

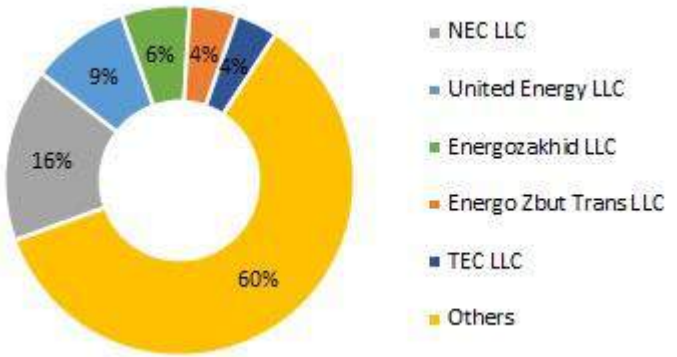


Fig. 2.3.15. Distribution of IDM electricity purchases in the IPS of Ukraine trade area during 2020, %

Distribution of IDM electricity purchases in the IPS of Ukraine trade

area between participants during 2020 is shown in Fig. 2.3.15.

The largest sellers of electricity in the intraday market in the Burshtyn TPP Island trade area were JSC DTEK Zakhidenergo with 50%, D. Trading LLC with 9%, De Trading with 8%, NEK LLC with 5%, Jen-I Kyiv LLC with 4%, and Techno Art Style LLC with 3% of the total amount of electricity purchased.

Distribution of IDM electricity sales in the Burshtyn TPP Island trade area between participants during 2020 is shown in Fig. 2.3.16.

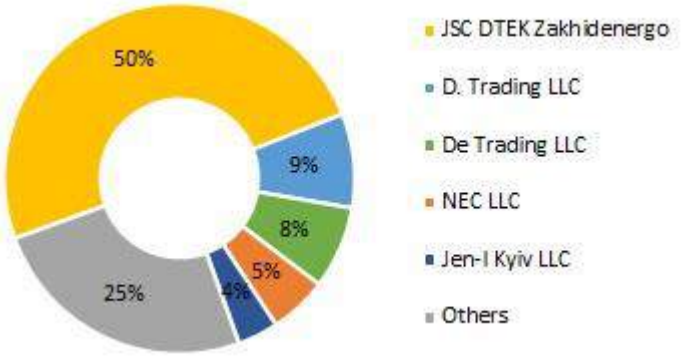


Fig. 2.3.16. Distribution of IDM electricity sales in the Burshtyn TPP Island trade area during 2020, %

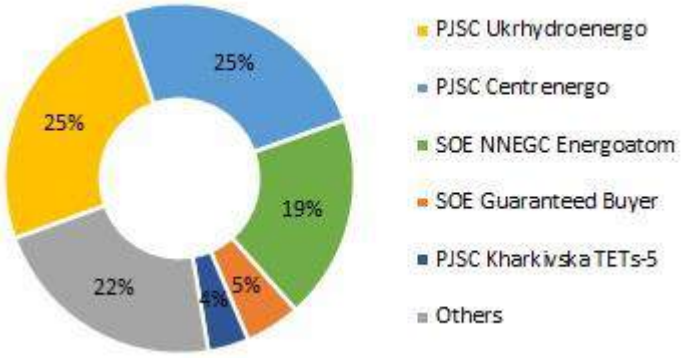


Fig. 2.3.17. Distribution of IDM electricity sales in the IPS of Ukraine trade area during 2020, %

The largest sellers of electricity in the intraday market in the IPS of Ukraine trade area were PJSC Ukrhydroenergo with 25%, PuJSC Centerenergo with 25%, SOE NNEGC Energoatom with 19%, SOE Guaranteed Buyer with 5%, and PJSC Kharkivska TETs-5 with 4% of the total amount of electricity sold.

Distribution of IDM electricity sales in the IPS of Ukraine trade area between participants during 2020 is shown in Fig. 2.3.17.

The weighted average prices on the day-ahead market and the intraday market in the first half of 2020 were lower than in the second half of 2019. For instance, the day ahead weighted average price in 2020 was UAH 1,417.61/MWh (VAT excluded), which was 6.34% lower compared to the second half of 2019. The weighted average price on the intraday market in the second half of 2020 was 13.46% lower than in the second half of 2019 and amounted to UAH 1,351.16/MWh (VAT excluded).

Figs. 2.3.18 and 2.3.19 show the monthly dynamics of weighted average prices for DAM and IDM in both trade areas in 2020.

Fig. 2.3.18. Dynamics of weighted average prices on the day-ahead market and the intraday market in the IPS of Ukraine trade area in 2020, UAH/MWh

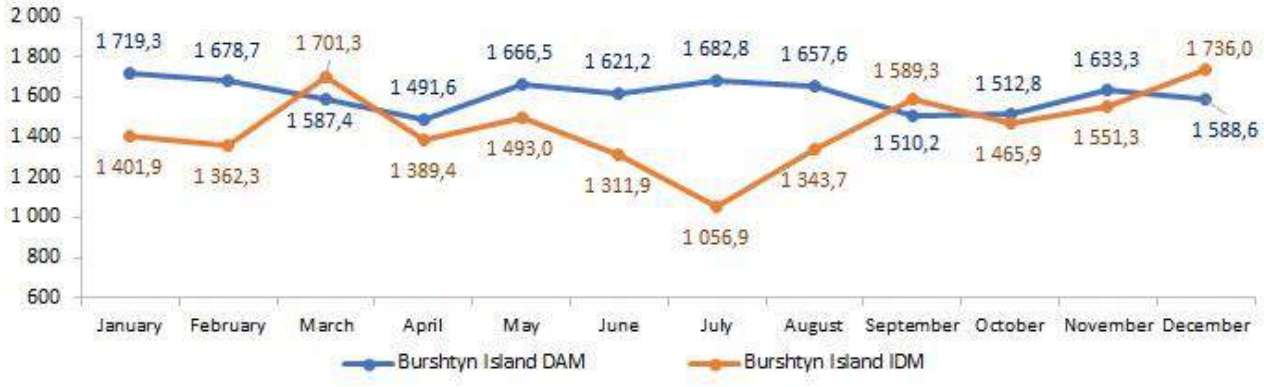


Fig. 2.3.19. Dynamics of weighted average prices on the day-ahead market and the intraday market in the Burshtyn TPP Island trade area in 2020, UAH/MWh

During 2020, the NEURC amended the Rules of the Day-Ahead Market and the Intraday Market regarding establishing an obligation for each market participant to apply the maximum prices that may be specified by market participants in their bids separately for each trade area and increasing the length of the minimum and maximum load periods towards expanding the daytime portion of each day.

It also set for the transmission system operator and distribution system operators in each settlement period the lower limit of the mandatory purchase of electricity on the day-ahead market in order to compensate for technical electricity losses in its transmission and distribution by electric networks in the amount of 50% of the actual technical electricity losses in its transmission or distribution by electric networks in the respective settlement period.

In 2020, prices reached 95% of the established maximum price limit for the minimum load period on the day-ahead market in two trade areas of the electricity market in 65% of hours, and on the intraday market – in 54% of hours. During 2020, prices reached 95% of the established maximum price limit in the maximum load period on the day-ahead market in two trade areas of the electricity market in 17% of hours, and on the intraday market – in 21% of hours.

Figs. 2.3.20 – 2.3.23 show the percentage distribution of the number of hours in each calendar month of 2020, in which the level of price caps was reached on the DAM and the IDM, depending on the period of the power system load (hours of minimum (night hours) and maximum (day hours) load)) in each trade area.

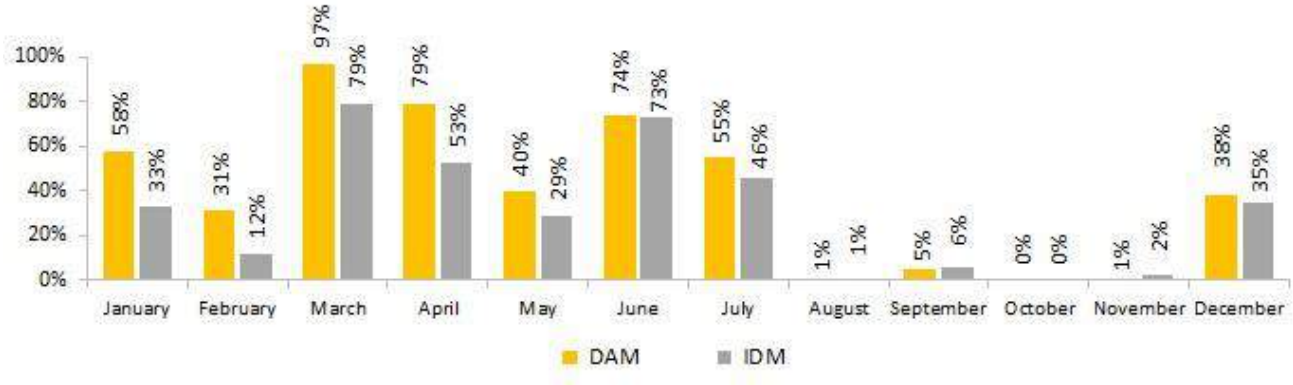


Fig. 2.3.20. Number of hours in which the price cap level was reached during the minimum load period (nighttime) in the IPS of Ukraine trade area, 2020,%

Fig. 2.3.21. Number of hours in which the price cap level was reached during the maximum load period (daytime) in the IPS of Ukraine trade area, 2020,%

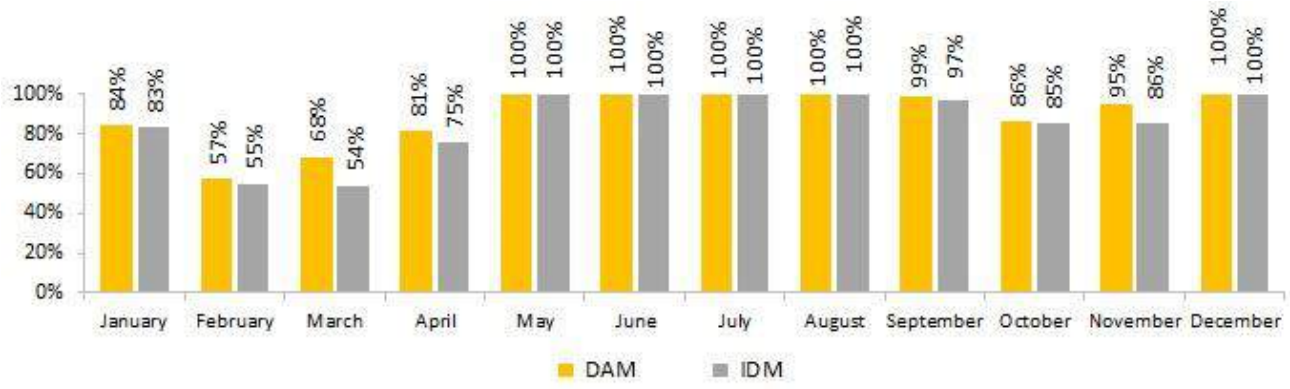


Fig. 2.3.22. Number of hours in which the price cap level was reached during the minimum load period (nighttime) in the Burshtyn TPP Island trade area, 2020,%

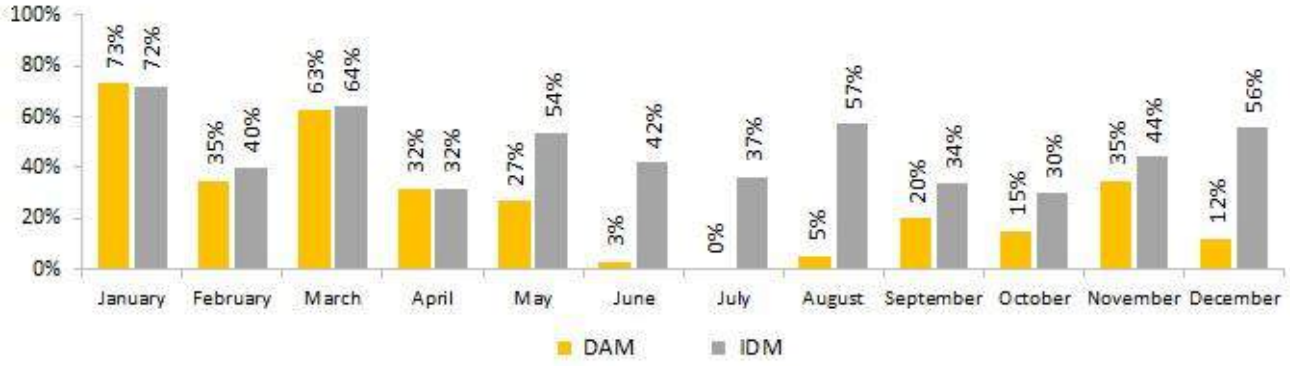


Fig. 2.3.23. Number of hours in which the price cap level was reached during the maximum load period (daytime) in the Burshtyn TPP Island trade area, 2020,%

2.3.4. Balancing market and imbalance settlement

The balancing electricity market (hereinafter referred to as the balancing market) is a market organized by the electricity transmission system operator (TSO) to provide sufficient amounts of generating capacity and electricity required for the real-time balancing of electricity generation and imports and electricity consumption and exports, settlement of system constraints in the Integrated Power System of Ukraine.

The transmission system operator performs the following operations in the balancing market:

1) purchase and sell electricity to balance the supply and demand of electricity within the current day;

2) purchase and sell electricity to settle electricity imbalances created by the balance responsible parties.

Balancing is done by providing appropriate instructions to the BSP to regulate up or down.

In 2020, the NEURC systematically conducted operative monitoring of operation of the balancing electricity market.

Monthly dynamics of up-regulation and down-regulation instruction amounts on the balancing market in the IPS of Ukraine trade area in 2020 are shown in Fig. 2.3.24.

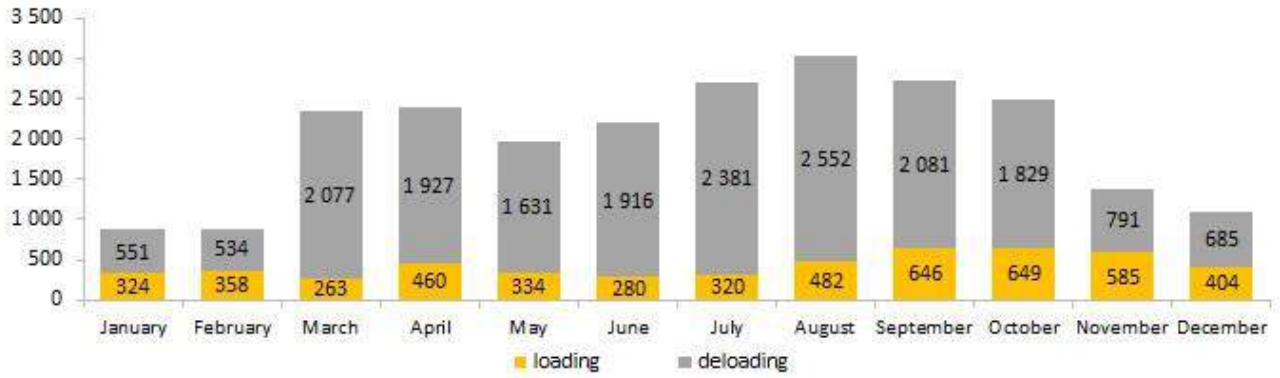


Fig. 2.3.24. Monthly dynamics of up-regulation and down-regulation instruction amounts on the balancing market in the IPS of Ukraine trade area in 2020, thousands MWh

Of these, Figs. 2.3.25 and 2.3.26 show the dynamics of the volume of down-regulation and up-regulation instructions in the merit order and beyond the merit order in the balancing market in the IPS of Ukraine trade area in 2020.

Fig. 2.3.25. Dynamics of down-regulation instruction amounts in the merit order and beyond the merit order on the balancing market in the IPS of Ukraine trade area in 2020, thousands MWh

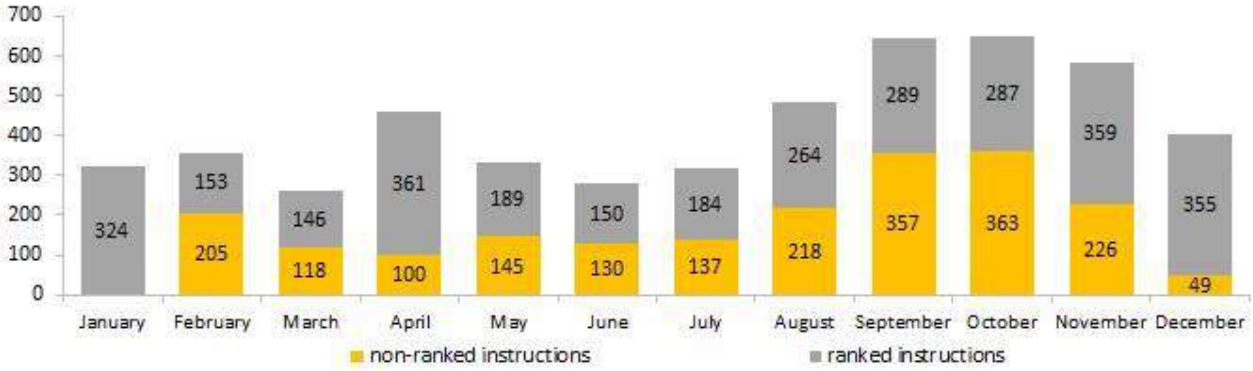


Fig. 2.3.26. Dynamics of up-regulation instruction amounts in the merit order and beyond the merit order on the balancing market in the IPS of Ukraine trade area in 2020, thousands MWh

Dynamics of up-regulation and down-regulation instructions on the balancing market in the Burshtyn TPP Island trade area in every calendar month of 2020 is shown in Fig. 2.3.27.

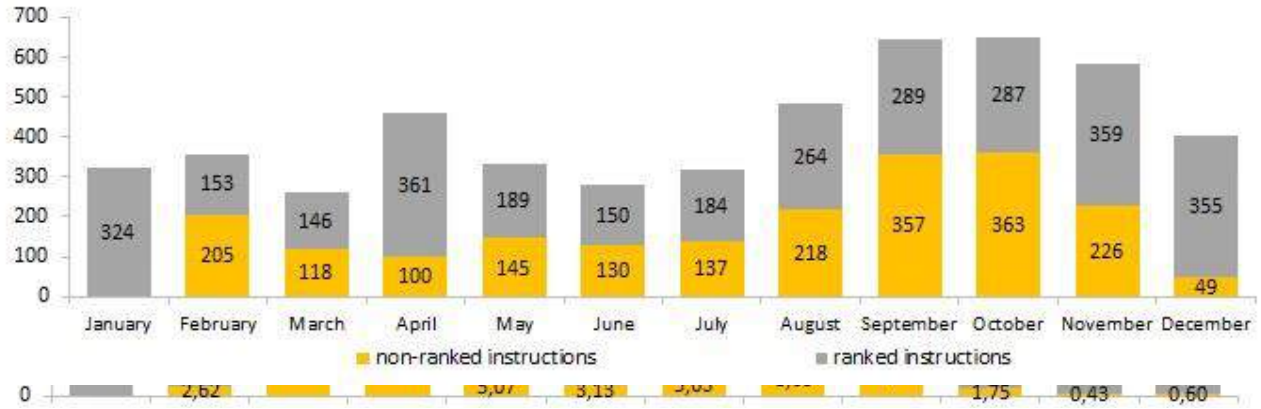


Fig. 2.3.27. Monthly dynamics of loading and deloading instructions on the balancing market in the Burshtyn TPP Island trade area in 2020, thousands MWh

Fig. 2.3.28. Dynamics of down-regulation instruction amounts in the merit order and beyond the merit order on the balancing market in the Burshtyn TPP Island trade area in 2020, thousands MWh

Fig. 2.3.29. Dynamics of up-regulation instruction amounts in the merit order and beyond the merit order on the balancing market in the Burshtyn TPP Island trade area in 2020, thousands MWh

Of these, Figs. 2.3.28 and 2.3.29 show the dynamics of down-regulation and up-regulation instructions in the merit order and beyond the merit order on the balancing market in the Burshtyn TPP Island trade area in each month of 2020.

The weighted average prices for up-regulation and down-regulation which prevailed in each month of 2020 in the IPS of Ukraine and Burshtyn TPP Island trade areas are shown in Figs. 2.3.30 and 2.3.31 respectively.

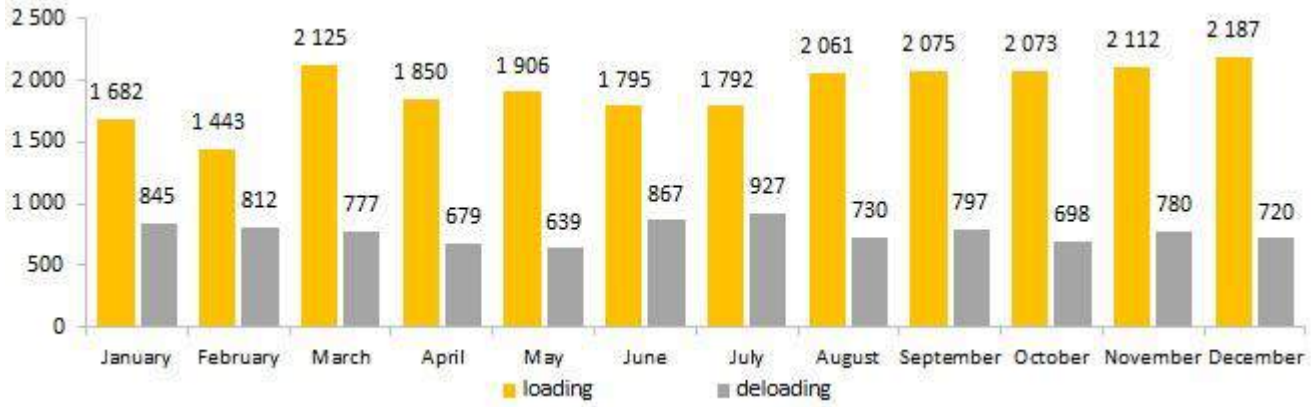


Fig. 2.3.30. Dynamics of weighted average up-regulation and down-regulation prices in the IPS of Ukraine trade area in 2020, UAH/MWh

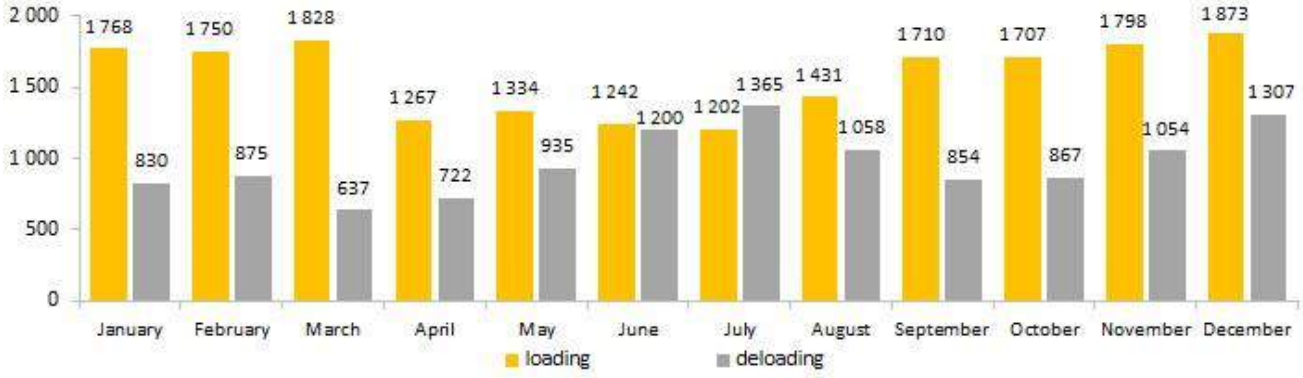


Fig. 2.3.31. Dynamics of weighted average up-regulation and down-regulation prices in the Burshtyn TPP Island trade area in 2020, UAH/MWh

As a result of NEC Ukrenergo's actions regarding non-fulfillment of the principal purpose of the balancing market, which is to minimize the cost of covering the imbalance of electricity in the system and untimely invoicing for collection of charges on the sub-account UA-1 (residual value of electricity imbalance fee) charges on the sub-account UA-1 amounted to UAH 5,543.1 million as of December 31, 2020.

To consider and resolve this issue, and taking into account the Resolution of the NEURC No. 1559 of August 12, 2020 “On Conducting an Unscheduled Field Inspection of NEC Ukrenergo,” the NEURC carried out an unscheduled field inspection of NEC Ukrenergo regarding it issuing the above-mentioned invoices, and based on the results of this inspection, the NEURC drew up the Report No. 435 dated November 11, 2020. NEC Ukrenergo's activities in terms of issuing instructions in the balancing market in November 2020 are shown in Fig. 2.3.32.

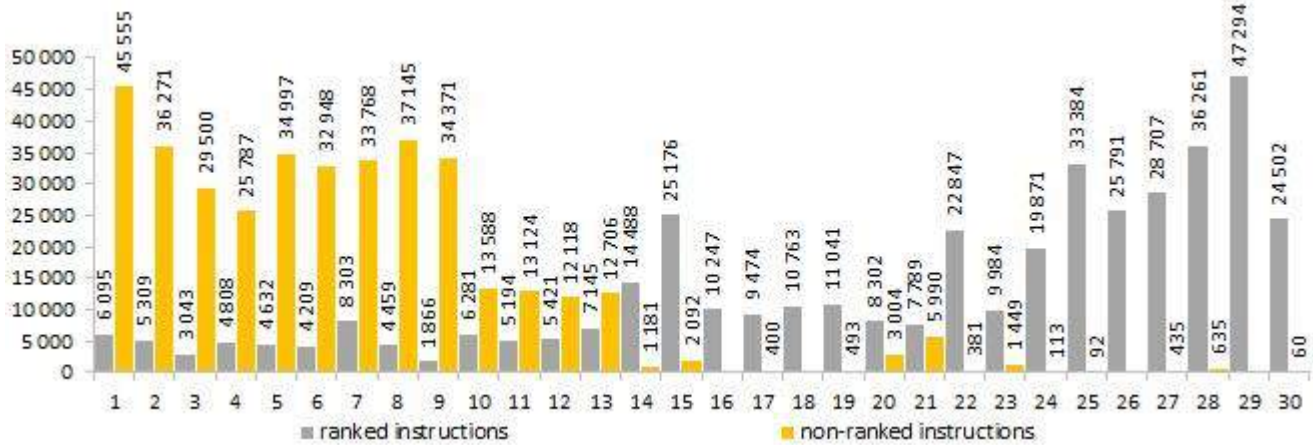


Fig. 2.3.32. Volumes of down-regulation instructions in the merit order and beyond the merit order issued by the TSO, MWh

Based on the results of this inspection, the NEURC developed and approved at a meeting held on December 4, 2020, amendments to the Market Rules approved by the Resolution of the NEURC No. 307 of March 14, 2018, aimed at improving the working conditions of the balancing market (making it impossible for the TSO to issue up-regulation /down-regulation instructions to units that cannot physically execute such instructions; establishing an obligation for the settlement administrator to verify the alignment of applications submitted by the BSP with the physical properties of the respective units; clarifying the algorithm of making payments to the BSP for which the TSO activates balancing electricity for up-regulation and down-regulation owing to the management of system constraints) and minimization of charges on the subaccount UA-1.

To resolve the problematic situation on the balancing market, the NEURC made amendments to the Market Rules[52], according to which, inter alia, the following clarifications were provided:

- procedures for changing the balancing group;
- using the imminent default status and financial guarantees;
- imposing balancing service obligations on market participants;
- procedure for forming payments for imbalances and balancing electricity;
- procedure for forming electricity sale documents for settlement of imbalances and balancing electric energy;
- procedure for calculating the balancing market marginal price;
- procedure for calculating the electricity imbalance price;
- procedure for calculating imbalance settlement payments.

2.3.5. Ancillary services market

The operation of the ancillary services market is determined by the Market Rules, approved by NEURC Resolution No. 307 of March 14, 2018.

On the ancillary services market, ancillary services can be purchased/provided to ensure:

1) regulation of frequency and active power in the IPS of Ukraine, namely by providing:

- frequency containment reserves (primary regulation) (hereinafter referred to as the FCR);
- frequency restoration reserves (secondary regulation) (hereinafter referred to as the FRR);
- replacement reserves (tertiary regulation) (hereinafter referred to as the RR);

2) maintaining the parameters of reliability and quality of electricity in the IPS of Ukraine, namely:

- voltage and reactive power regulation services;
- services for ensuring the restoration of the IPS of Ukraine after system blackouts.

The Market Rules may provide for other ancillary services to ensure the regulation of frequency and active power, maintaining the balance of power and energy in the IPS of Ukraine, and the parameters of reliability and quality of electricity in the IPS of Ukraine.

The list of ancillary services that must be offered and provided to the transmission system operator by the ancillary service provider is determined by the Market Rules.

Generators are obliged to participate in the ancillary services market and provide ancillary services in cases specified by the Market Rules.

Requirements for ancillary service providers, including requirements for electricity equipment necessary to ensure the proper provision of relevant ancillary services, are determined by the Transmission Network Code.

Prices for ancillary services are set in accordance with the Ancillary Service Pricing Methodology[53].

[52] NEURC Resolutions No. 516 of February 28, 2020 and No. 2328 of December 4, 2020.

Auctions for ancillary services for 2020 (the annual auction as well as the auction for the first quarter of 2020) failed due to the lack of certified ancillary services providers as of the date of publication of details and the date of each auction. Therefore, during the first quarter of 2020, ancillary services for the reporting period were purchased only at daily auctions and in the IPS of Ukraine trade area.

In the second quarter of 2020, only two certified market participants actually provided ancillary services: PJSC Ukrhydroenergo and DTEK Skhidenergo LLC.

In the third and fourth quarters of 2020, the following certified market participants actually provided ancillary services: PJSC Ukrhydroenergo, DTEK Skhidenergo LLC, JSC DTEK Dniproenergo and PJSC Kharkivska CHP-5 in the IPS of Ukraine trade area, and JSC DTEK Zakhidenergo in the Burshtyn TPP Island trade area.

As of December 31, 2020, a total of 15 power plants had been certified on the ancillary services market and could participate in auctions for ancillary services, namely: 8 HPPs that are part of PJSC Ukrhydroenergo (Dnieper HPP-1, Middle Dnieper HPP, Kaniv HPP, Kakhovka HPP, Dnieper HPP-2, Kremenchuk HPP, Kyiv HPP, Dniester HPP), Kurakhove TPP of DTEK Skhidenergo LLC, Zaporizhia TPP, Prydniprovia TPP and Kryvyi Rih TPP of JSC DTEK Dniproenergo, Ladyzhyn TPP and Burshtyn TPP of JSC DTEK Zakhidenergo, and Kharkiv CHP-5.

Power and cost of purchased ancillary services for the first to fourth quarters of 2020 are shown in Fig. 2.3.33.

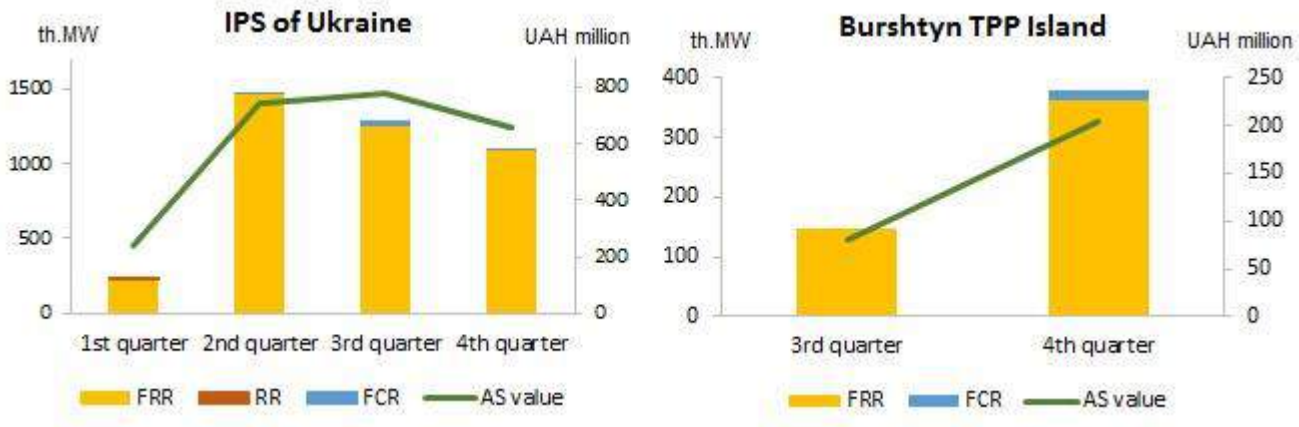


Fig. 2.3.33.Power and cost of purchased ancillary services for the first to fourth quarters of 2020

Until the synchronization of the IPS of Ukraine with the associations of power systems of the EU-member states (European Network of Transmission System Operators for Electricity ENTSO-E), the price caps for providing AS to ensure the FCR, FRR, and RR are introduced on the AS market.

Until such synchronization occurs, no price proposals for providing AS to ensure the FCR, FRR, and RR that exceed the price cap calculated in accordance with these Rules may be submitted.

The price cap for 2020, calculated according to the AS Pricing Methodology, is shown in Table 2.3.2.

Table 2.3.2. The price caps for 2020, calculated according to the AS Pricing Methodology

Product/direction of procurement	FCR, UAH/MW	aFRR, UAH/MW	mFRR, UAH/MW
Symmetrically	801.54	801.54	–
For up-regulation	–	512.27	512.27
For down-	–	289.2	289.2

Table 2.3.3. Reserve requirement in 2020

Regulation area	AS reserve, MW		
	FCR	FRR	RR
IPS of Ukraine, in	±126	+1000	+1000

[53] NEURC Order No. 635 of April 26, 2019 “On Approval of the Methodology of Ancillary Services Pricing”.

total		-421	-500
Burshtyn Energy Island, in total	±9	+200 -100	+200 -100

Reserve requirement in 2020 is shown in Table 2.3.3.

Amount of certified equipment as of December 17, 2020, is shown in Table 2.3.4.

During 2020, 2 monthly auctions (November, December), 14 weekly auctions, and daily auctions were held.

Table 2.3.4. Amount of certified equipment as of December 17, 2020

AS supply	AS reserve, MW		
	FCR	aFRR	mFRR
IPS of Ukraine, in	+157	1 629	3 960

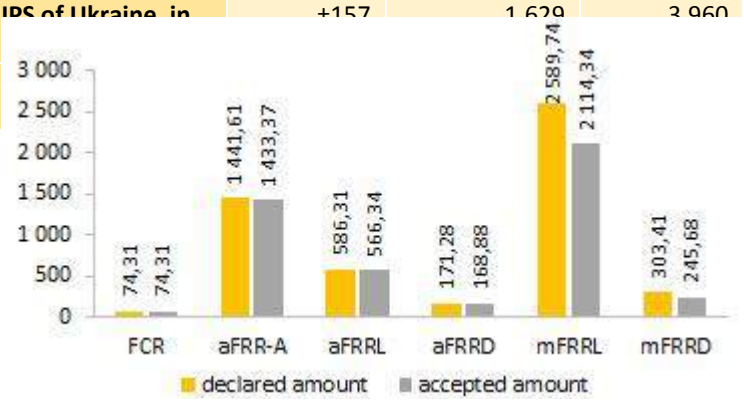


Fig. 2.3.34. Information on offered and accepted AS volumes during 2020, thousand MWh

In the whole of 2020, the volume of FCR AS offers amounted to 74,308 MWh, and it was accepted in full. The total cost of FCR AS was UAH 58,015 thousand.

The volume of aFRR AS proposed in 2020 was 2,199,198 MWh (of which 1,441,609 MWh in the symmetrical direction, 586,306 MWh for up-regulation and 171,283 MWh for down-regulation), 2, 168,597 MWh of it was accepted (of which 1,433,370 MWh in the symmetrical direction, 566,344 MWh for up-regulation, 168,883 MWh for down-regulation), and the total cost of aFRR AS in 2020 amounted to UAH 1,465,814 thousand.

The volume of mFRR AS proposed in 2020 was 2,893,144 MWh (of which 2,589,736 MWh for up-regulation and 303,408 MWh for down-regulation), 2, 360,015 MWh of it was accepted (of which 2,114,336 MWh for up-regulation and 245,679 MWh for down-regulation), and the total value of mFRR AS in 2020 amounted to UAH 1,195,386 thousand.

Fig. 2.3.35. Cost of AS provided in 2020, UAH million

2.3.6. Public interest services

The Law of Ukraine "On Electricity Market" provides that to safeguard the public economic interest in the electricity sector of Ukraine which is necessary to meet the needs of citizens, society, and the state, and ensure the sustainable long-term development of the electricity sector and competitiveness of the national economy of Ukraine, public service obligations may be imposed on market participants.

Public service obligations that are or may be imposed on electricity market participants include:

1) ensuring an increase in the share of electricity generation from alternative energy sources;

2) operating as a universal service supplier;

3) operating as a supplier of last resort;

4) providing services to ensure the generating capacity development;

5) increasing an efficiency of combined heat and power generation.

According to Article 62 of the Law, the Cabinet of Ministers of Ukraine may impose other public service obligations on market participants to safeguard the public interest. A decision to impose public service obligations must contain the public interest with regard to which public service obligations are imposed on market participants; the content and scope of public service obligations; market participants on whom such obligations are imposed; the scope of rights which market participants on whom such obligations are imposed need to fulfill such obligations; the categories of customers in respect of whom public service obligations apply; the territory and term in respect of which public service obligations apply; the funding sources and the procedure for determining the compensation to be paid to market participants on whom such obligations are imposed.

Decisions on the imposition of public service obligations are made by the Cabinet of Ministers of Ukraine. The Regulator prepares proposals on the scope and terms of public service obligations and submits them to the Cabinet of Ministers of Ukraine after consultations with the Energy Community Secretariat.

The principles, content, and mechanism of each type of public service obligation are defined by the provisions of the Law. At the same time, detailed descriptions of individual public service obligations, including ensuring an increase in the share of electricity generation from renewable energy sources, operating as a universal service supplier, and increasing the efficiency of combined heat and power generation, are provided directly by the Law, without need for separate decisions of the Cabinet of Ministers of Ukraine.

Public service obligations to ensure an increase in the share of electricity generation from alternative energy sources, which are imposed on the guaranteed buyer

Part 2 of Article 71 of the Law provides that electricity generators benefitting from the feed-in tariff have the right to sell electricity generated at power plants that use alternative energy sources (and in case of hydropower, only electricity generated by micro, mini and small hydropower plants) at the feed-in tariff including the surcharge to the guaranteed buyer in accordance with this Law.

Electricity generators who have acquired the right to support as a result of an auction shall sell electricity generated at power plants that use alternative energy sources (and in the case of hydropower, only electricity generated by micro, mini and small hydropower plants) to the guaranteed buyer in accordance with this Law at the auction price including the surcharge to it.

Article 65 of the Law provides that the guaranteed buyer is obliged to buy from economic entities benefitting from the feed-in tariff or from economic entities that have acquired the right to support as a result of an auction, all electricity they supply that is generated at power plants that use alternative energy sources (and in case of hydropower, only electricity generated by micro, mini and small hydropower plants) at the feed-in tariff or auction price including the surcharge to it for the entire period of application of the feed-in tariff or the term of support provision, provided that such entities are part of the guaranteed buyer's balancing group.

The guaranteed buyer is obliged to buy electricity generated by generating installations of customers, including energy cooperatives, with an installed capacity not exceeding 150 kW, at the feed-in tariff in the amount exceeding the monthly electricity consumption by such customers.

The purchase and sale of such electricity at the feed-in tariff including the surcharge to it are carried out on the basis of a bilateral contract between the generator or customer benefitting from the feed-in tariff and the guaranteed buyer. Such a contract is drawn on the basis of a standard purchase and sale contract for electricity at the feed-in tariff. The template of purchase and sale contract for electricity at the feed-in tariff is approved by the Regulator.

The purchase and sale contract for electricity at the feed-in tariff is concluded between the guaranteed buyer and the generator or customer that produces electricity from alternative energy sources (except for blast furnace and coke oven gases, and in the case of hydropower, only for electricity generated by micro, mini and small hydropower plants) for the entire duration of the feed-in tariff's application.

To cover the economically justified expenses incurred by the guaranteed buyer to fulfill public service obligations to buy electricity at the feed-in tariff and at an auction price, the guaranteed buyer provides the TSO with the service of ensuring an increase in the share of electricity generation from alternative sources.

According to the third paragraph of part 5 of Article 33 of the Law, the tariff for electricity transmission services includes, among other things, separate components of the TSO expenses incurred by it in case of public service obligations being imposed on it to safeguard the public interest in the operation of the electricity market, and the expenses of the load reduction service incurred by a generator who sells electricity at the feed-in tariff or at an auction price.

The value of the service of ensuring an increase in the share of electricity generation from alternative sources, provided by the guaranteed buyer, is calculated in the respective settlement period as:

- difference between the value of electricity purchased by it at the feed-in tariff including the surcharge to it, and its value when sold on the day-ahead market, the intraday market, and under bilateral contracts;
- difference between the value of electricity purchased by it at an auction price including the surcharge to it, and its value when sold on the day-ahead market, the intraday market, and under bilateral contracts;
- expenses associated with the settlement of electricity imbalances of generators and customers, who are part of the guaranteed buyer's balancing group;
- expenses envisaged by the budget estimate of the guaranteed buyer for its activities.

Also, in accordance with clause 9^1 of Section XVII “Final and Transitional Provisions” of the Law, until July 1, 2023, the value of the service provided by the guaranteed buyer will be determined taking into account the difference between revenues and expenses incurred by the guaranteed buyer while fulfilling the public service obligations imposed on it by the Cabinet of Ministers of Ukraine to safeguard the public interest (except for the public service obligations to ensure an increase in the share of electricity generation from alternative energy sources) in accordance with this Law.

The calculation of value of the service to ensure an increase in the share of electricity generation from alternative sources is carried out by the guaranteed buyer in accordance with the procedure for purchasing electricity generated from alternative energy sources by the guaranteed buyer. The value of the service to ensure an increase in the share of electricity generation from alternative sources is approved by the Regulator.

Pursuant to the requirements of the Law, the following documents have been approved: The Procedure for Purchasing Electricity Generated from Alternative Energy Sources by the Guaranteed Buyer (hereinafter referred to as the Procedure); Methodology of Forming a Budget Estimate for the Guaranteed Buyer; Standard Contract for Purchase and Sale of Electricity at the Feed-in Tariff; Standard Contract for the Provision of Services to Ensure an Increase in the Share of Electricity Generation from Alternative Sources; Procedure for Sale and Metering of Electricity Generated by Customers and Payments for It; Standard Contract for Purchase and Sale of Electricity between the Guaranteed Buyer and an Economic Entity That Has Acquired the Right to Support as a result of an Auction.

Value calculation and the procedure for payment for the service to ensure an increase in the share of electricity generation from alternative energy sources which is provided by the guaranteed buyer are determined by Chapter 12 of the Procedure. In 2020 and January 2021, taking into account the calculations of the value of the service to ensure an increase in the share of electricity generation from alternative energy sources which are provided by the guaranteed buyer, relevant calculation materials, and service acceptance certificates, the NEURC approved the value of the service to ensure an increase in the share of electricity generation from alternative energy sources provided by the guaranteed buyer in January - December 2020.

The value of the service to ensure an increase in the share of electricity generation from alternative energy sources provided by the guaranteed buyer in 2020 is UAH 36,158.5 million (VAT excluded). Monthly amounts of the aforementioned service and its components are given in Annex 2.3.5.

In 2020, the guaranteed buyer purchased electricity from generators of electricity from alternative sources in the amount of 10,218.9 thousand MWh. In the same period, the weighted average feed-in tariff was 399.6 kopecks/kWh.

The amount of electricity purchased by the guaranteed buyer from generators of electricity from alternative sources and the weighted average feed-in tariff is shown in Fig. 2.3.36.

Fig. 2.3.36. The amount of electricity purchased by the guaranteed buyer from generators of electricity from alternative sources and the weighted average feed-in tariff

Public service obligations to ensure an increase in the share of electricity generation from alternative energy sources, which are imposed on the USS

According to part 6 of Article 63 of the Law, the USS, simultaneously with the fulfillment of the obligation to purchase electricity at the feed-in tariff from private households the installed capacity of whose generating installations does not exceed 50 kW, provides the TSO with the service to ensure an increase in the share of electricity generation from alternative energy sources.

The value of the service of ensuring an increase in the share of electricity generation from alternative energy sources is calculated in the respective settlement periods as the difference between the value of electricity purchased by it at the feed-in tariff and its value calculated at the day-ahead market prices. The calculation of the value of the service to ensure an increase in the share of electricity generation from alternative energy sources is carried out by the USS in accordance with the procedure for purchasing electricity generated from alternative energy sources by the guaranteed buyer. The value of the service is approved by the Regulator.

Procedures for value calculation and payment for the service to ensure an increase in the share of electricity generation from alternative energy sources which is provided by the USS are determined by Chapter 13 of the Procedure for the Guaranteed Buyer's Purchases of Electricity Generated from Alternative Energy Sources, approved by the NEURC Order No. 641 of April 26, 2019.

During 2020 and January 2021, taking into account the calculations of the value of the service to ensure an increase in the share of electricity generation from alternative energy sources which were provided by the USS, relevant calculation materials, and service acceptance certificates, the NEURC approved the value of the service to ensure an increase in the share of electricity generation from alternative energy sources provided by the guaranteed buyer in January – December 2020.

The value of the service to ensure an increase in the share of electricity generation from alternative energy sources provided by the USS in 2020 is UAH 2,874.3 million (VAT excluded).

In 2020, the USS purchased electricity at the feed-in tariff from private households in the amount of 732.6 thousand MWh. In the same period, the average weighted feed-in tariff was 392.35 kopecks/kWh.

The value of the service to ensure an increase in the share of electricity generation from alternative energy sources provided by the USS in 2020 and the amount of electricity purchased by the USS at the feed-in tariff from private households are given in Annex 2.3.6.

The amount of electricity purchased by the USS at the feed-in tariff from private households and the average weighted feed-in tariff is shown in Fig. 2.3.37.

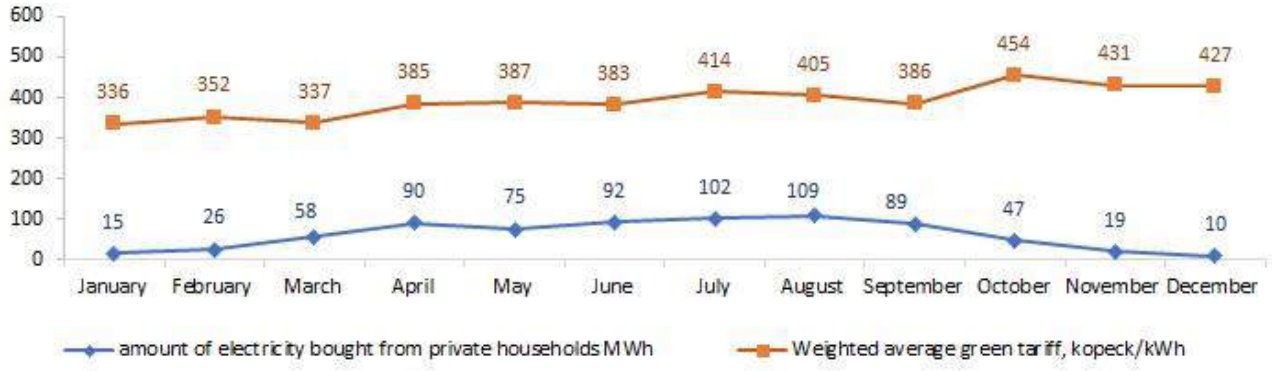


Fig. 2.3.37. The amount of electricity purchased by the USS at the feed-in tariff from private households and the average weighted feed-in tariff

Services to ensure electricity affordability for household customers

According to Article 62 of the Law, the Cabinet of Ministers of Ukraine may impose other public service obligations on market participants to safeguard the public interest. For instance, the Cabinet of Ministers of Ukraine approved with its Order No. 483 of June 5, 2019, the Regulation on Imposing the Public Service Obligations on Electricity Market Participants to Safeguard the Public Interest in Electricity Market Operation (hereinafter referred to as the Regulation).

This Regulation defines the scope and conditions of fulfillment by electricity market participants of the public service obligations to safeguard the public interest in the operation of the electricity market (hereinafter referred to as the public service obligations), which include, in particular, the provision of services to ensure electricity affordability for household customers in order to ensure the stability, proper quality and affordability of electricity, maintain an adequate level of security of its supply to customers without compromising the principal goal of creating a proper electricity market based on free competition and adherence to the principles of transparency and non-discrimination.

According to the Order of the Cabinet of Ministers of Ukraine No. 1003 of December 9, 2019 “On Amending the Regulation on Imposing the Public Service Obligations on Electricity Market Participants to Safeguard the Public Interest in Electricity Market Operation,” starting on January 1, 2020:

transmission system operator, the distribution system operators, and the guaranteed buyer stopped electricity purchase and sale at the maximum price of the nuclear power plant electricity generator in amounts corresponding to 80% of the amounts required to compensate for the technological consumption of electricity for its transmission and distribution through electricity networks;

SOE NNEGC Energoatom and PJSC Ukrhydroenergo have kept selling electricity under bilateral contracts at electronic auctions to the guaranteed buyer at maximum electricity prices, which are set at the level of the weighted average actual price of electricity generated by the respective generator in April - May 2019, and have included the excise tax on the value of electricity sold at the price since July 1, 2019. Meanwhile, electricity generators are still obliged, just like at the end of 2019, to sell to the guaranteed buyer at electronic auctions in the manner prescribed by law the entire projected amount of electricity generated at nuclear power plants (except for the amount of electricity subject to mandatory sale on the day-ahead market which may not be less than 10% of their monthly electricity output for the corresponding period of

the previous year) and 35% of the projected electricity output at hydropower plants (including pumped storage power plants), as approved in the projected balance of the integrated power system of Ukraine for the respective month;

universal service suppliers are obliged to purchase electricity from the guaranteed buyer in the projected hourly amounts required for supplying household customers, with subsequent adjustments to reflect the actual hourly electricity consumption by household customers;

projected amounts of electricity shall be adjusted in accordance with the data of universal service suppliers on the actual amounts of electricity corresponding to the amounts required to supply household customers, as confirmed by the distribution system operator in whose license area the universal service supplier operates;

the guaranteed buyer shall be compensated by the universal service supplier for any positive difference between hourly projected amounts of electricity and its actual amounts at the price prevailing at the respective hour and on a respective day on the day-ahead market;

in case of the actual amounts of electricity exceeding the projected ones, the universal service supplier shall have the right to purchase additional amounts of electricity in subsequent supply periods at a price calculated in accordance with clause 7 of this Regulation.

In 2020, the Regulation was repeatedly amended (the Orders of the CMU No. 400 of May 20, 2020, No. 694 of August 5, 2020, No. 749 of August 19, 2020, and No. 1325 of December 28, 2020), changing the range of market participants on whom public service obligations are imposed, content and scope of public service obligations, the funding sources and the procedure for determining the compensation to be paid to market participants on whom such obligations are imposed.

The Order of the Cabinet of Ministers of Ukraine No. 400 of May 20, 2020, introduced changes, obliging electricity generators:

to sell to the guaranteed buyer in each settlement period at electronic auctions in the manner prescribed by law 80% of the projected electricity output at NPPs and 35% of the projected electricity output at HPPs, as approved in the projected balance of the IPS of Ukraine for the respective month;

to sell up to 5% of the projected electricity output at nuclear power plants, as approved in the projected balance of the integrated power system of Ukraine for the respective month, under bilateral contracts at special sessions of electronic auctions.

The Regulation was amended by the Order of the CMU No. 694 of August 5, 2020, according to which electricity generators started selling electricity under bilateral contracts at electronic auctions to the guaranteed buyer at a price of UAH 10/MWh.

Meanwhile, the electricity generator SOE NNEGC Energoatom is obliged to sell electricity to the guaranteed buyer at electronic auctions in every settlement month in the manner prescribed by law in the hourly amounts required to cover the needs of household customers in the IPS of Ukraine trade area. The hourly amounts required to cover the needs of household customers are calculated and provided by the guaranteed buyer to SOE NNEGC Energoatom on or before the 20th day of the month preceding the settlement month. The amount for each settlement hour is determined by the guaranteed buyer as the total amount for the respective hour for all universal service suppliers and calculated on the basis of information received in accordance with subclause 1 of clause 13 of this Regulation.

The electricity generator PJSC Ukrhydroenergo is obliged to sell 30% of the projected electricity supply from HPPs, as approved in the projected balance of the IPS of Ukraine for the respective month, to the guaranteed buyer at electronic auctions in every settlement period in the manner prescribed by law.

To ensure the fulfillment of the public service obligations, SOE NNEGC Energoatom and PJSC Ukrhydroenergo shall independently set the weighted average electricity-selling price in all commercial market segments (day-ahead market, intraday market, balancing market, bilateral contracts market, and market of ancillary services) in every settlement month at least at the cost level.

Meanwhile, electricity generators are still obliged to sell up to 5% of the projected electricity output at NPPS, as approved in the projected balance of the IPS of Ukraine for the respective month, under bilateral contracts at special sessions of electronic auctions.

The Order of the Cabinet of Ministers of Ukraine No. 749 of July 19, 2020, amended the Regulation, improving its definition of the weighted average electricity-selling price in all commercial market segments at least at the cost level.

The Order of the Cabinet of Ministers of Ukraine No. 1325 of December 28, 2020, extended the public service obligations to March 31, 2021.

It once again changed the selling price of electricity sold by electricity generators under bilateral contracts at electronic auctions to the guaranteed buyer, setting it:

for NNEGC Energoatom at UAH 150/MWh;

for PJSC Ukrhydroenergo at UAH 10/MWh;

Apart from it, the CMU set the fixed electricity prices for household customers. The weighted average fixed price is determined taking into account the actual amounts of electricity consumed by household customers in the month preceding the previous settlement month.

A scheme of the present mechanism for imposing public service obligations is shown in Fig.

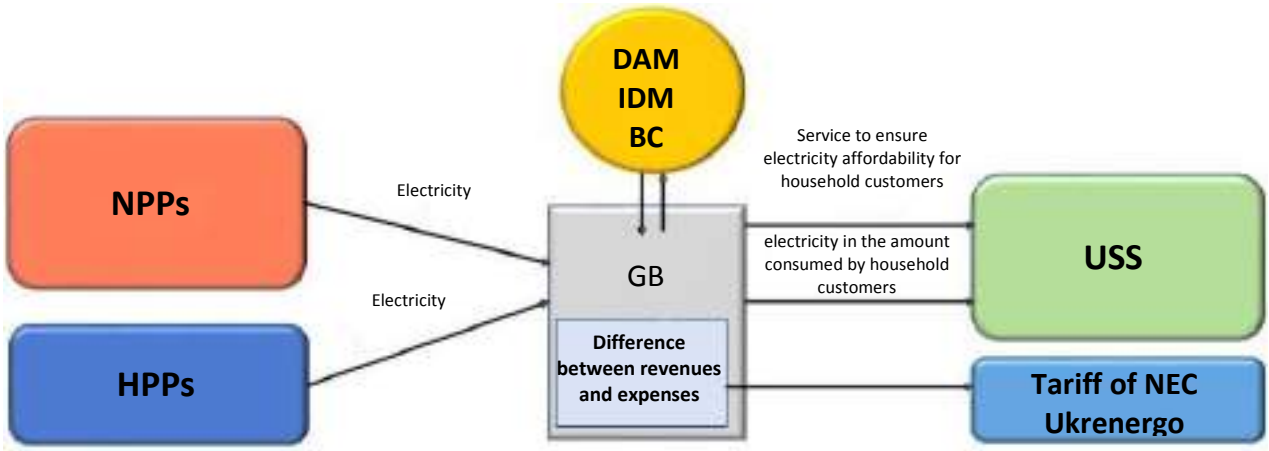


Fig. 2.3.38. Current mechanism of imposing public service obligations

2.3.38.

The amount and value of electricity purchased by guaranteed buyer from electricity generators in the IPS of Ukraine trade area in 2020 are shown in Figures 2.3.39 and 2.3.40.

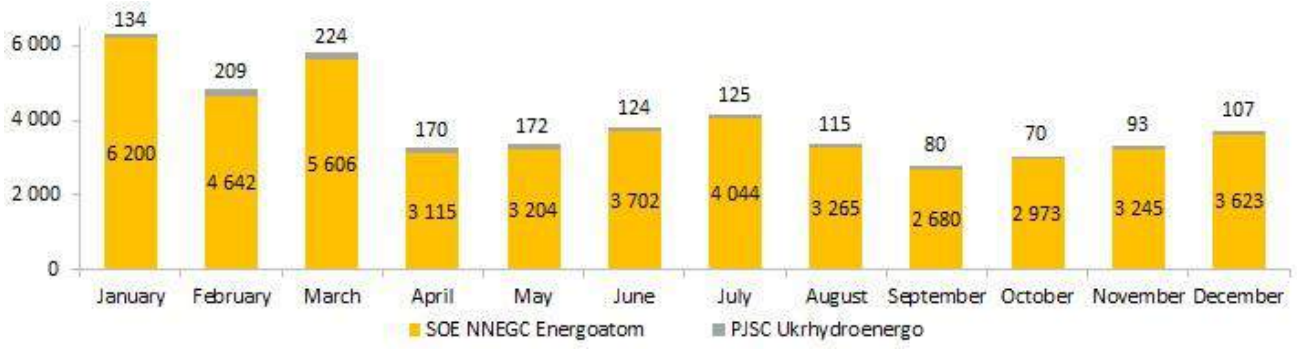
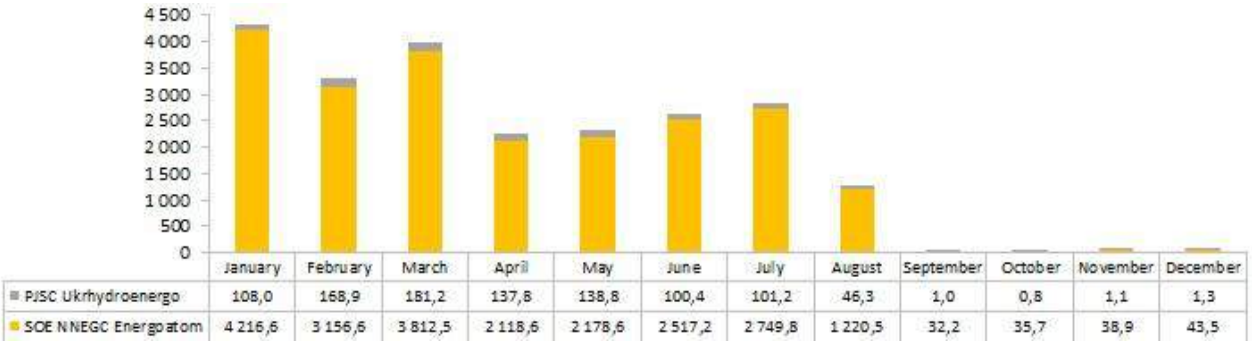


Fig. 2.3.39. Amount of electricity purchased by guaranteed buyer from electricity generators in the IPS of Ukraine trade area in 2020, thousand MWh



	January	February	March	April	May	June	July	August	September	October	November	December
PJSC Ukrhydroenergo	108,0	168,9	181,2	137,8	138,8	100,4	101,2	46,3	1,0	0,8	1,1	1,3
SOE NNEGC Energoatom	4 216,6	3 156,6	3 812,5	2 118,6	2 178,6	2 517,2	2 749,8	1 220,5	32,2	35,7	38,9	43,5

Fig. 2.3.40. Value of electricity purchased by the guaranteed buyer from electricity producers in the IPS of Ukraine trade area in 2020, UAH million

The status of guaranteed buyer's payments for electricity purchased from generators in the IPS of Ukraine trade area in 2020 is shown in Fig. 2.3.41.

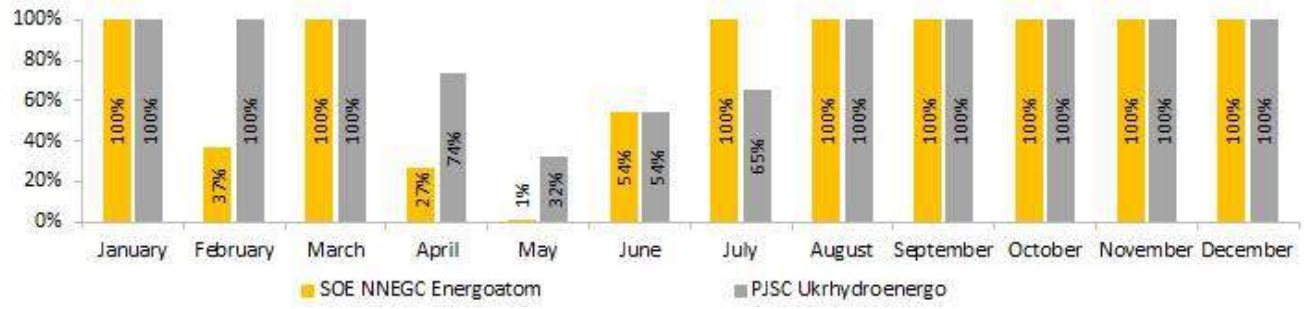


Fig. 2.3.42. Status of guaranteed buyer's payments for electricity purchased from generators in the IPS of Ukraine trade

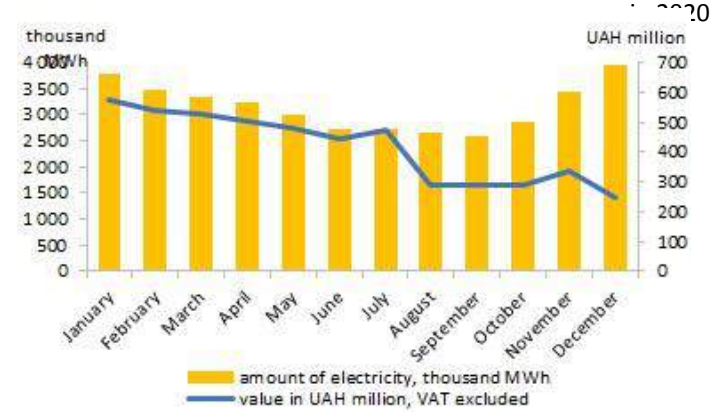


Fig. 2.3.41. Amount and value of electricity sold to universal service suppliers in 2020 taking into account the adjustment based on actual data on hourly amounts of electricity consumed by household customers

The total amount of electricity sold by guaranteed buyer to universal service suppliers taking into account the adjustment based on actual data on hourly amounts of electricity consumed by household customers in 2020 was 37,787,961.322 MWh, valued at UAH 4,996 million excluding VAT (monthly information on the amount and value of electricity sold to universal service suppliers is shown in Fig. 2.3.42).

If the calculated electricity price used by guaranteed buyer for selling electricity to universal service suppliers is less than UAH 10/MWh, the guaranteed buyer pays the universal service supplier under the contract for the provision of services to ensure the affordability of electricity for household customers. The value of services to ensure the affordability of electricity for household customers is calculated as the product of the amount of electricity consumption by household

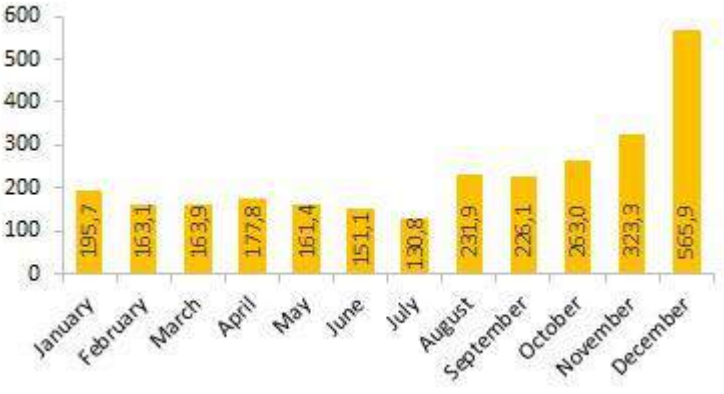


Fig. 2.3.43. Value of services to ensure electricity affordability for household customers for 2020, UAH million excluding VAT

customers multiplied by the difference between the electricity price set at UAH 10/MWh and the calculated electricity price.

The value of the service to ensure the affordability of electricity for household customers, paid by the guaranteed buyer to universal service suppliers in 2020, is shown in Fig. 2.3.43.

Providing services to ensure the generating asset development

According to the provisions of Article 29 of the Law, if available generating assets, including those authorized for construction, are insufficient to cover the projected electricity demand, and demand management measures are insufficient as well, tender procedures are then used to ensure the security of electricity supply through the construction of generating capacity and demand management measures, which include, among other things, measures for the construction of new generating assets, reconstruction (modernization) of existing generating assets, and extension of the service life of nuclear power units.

Pursuant to part 7 of Article 29 of the Law, the Cabinet of Ministers of Ukraine approved with its Order No. 677 of July 10, 2019, the Procedure for the Tender for the Construction of Generating Assets and Implementation of Demand Management Measures (hereinafter referred to as the Procedure), which determines the procedure for holding tenders for the construction of generating assets and implementation of demand management measures (hereinafter referred to as the tender).

In accordance with the terms of the Procedure, the transmission system operator within 30 calendar days from the date of approval by the Regulator of the report on the assessment of generating asset conformity to the need (sufficiency) to cover forecast electricity demand, and taking into account the conclusions and measures envisaged in the approved transmission system development plan and the report on the results of monitoring the security of electricity supply, drafts and submits to the Ministry of Energy conclusions and proposals on the need for a tender together with the relevant justification.

The decision to conduct the tender is made by the Cabinet of Ministers of Ukraine upon submission of the Ministry of Energy.

The Report on Assessment of Generating Asset Adequacy to the Need (Sufficiency) To Cover Forecast Electricity Demand and Provide the Necessary Reserve (hereinafter the Report), drafted by the transmission system operator in accordance with part 3 of Article 19 of the Law and the Transmission System Code approved by the Order of the NEURC No. 309 of March 14, 2018, was approved by the Order of the NEURC No. 605 of March 13, 2020, and published on the website of NEC Ukrenergo at https://ua.energy/wp-content/uploads/2020/03/Zvit-z-otsinky-dostatnosti-generuyuchyh-potuzhnostej-2019.pdf.

The Report identifies a detailed baseline (most probable) scenario for the development of generating assets of the integrated power system of Ukraine (hereinafter the IPS of Ukraine) for the medium term (ten-year period), taking into account the planned generation development measures, the need for additional measures for its development, implementation of demand management measures to satisfy security of supply and operational security requirements based on the assessment of adequacy (sufficiency) of generating assets, performs risk analysis regarding the probability of their violation and identifies, where possible, measures to minimize such risks.

Based on the performed analysis of the assessment of adequacy (sufficiency) of generating assets and conclusions drawn from it, the transmission system operator proposed to implement, among other things, in order to safeguard energy security, balance reliability, the endurance of the power system and its normal mode of operation, the following measures to ensure the development of generation and FCRS, as well as accumulation systems required to meet the requirements for adequacy (sufficiency) of generating assets:

- construction already in 2021 2 GW of new flexible assets with a fast start, FCRS with a capacity of 2 GW, as shown in the TSO target scenario, and in the absence of reserves of primary regulation by 2021, commissioning at least 0.2 GW of electricity storage systems for the rated frequency containment reserve;

to prevent any issues concerning the sufficiency of generation due to non-compliance with the NERP at the level of 2025 in the short term, to start the reconstruction of TPP units or new construction of 1.2 – 1.5 GW of intermediate capacity.

No decisions on tendering were made by the Cabinet of Ministers of Ukraine in 2020.

Indebtedness for purchased electricity on the electricity market

Indebtedness for electricity imbalances

According to part 4 of Article 75 of the Law of Ukraine "On Electricity Market" (hereinafter referred to as the Law), balancing service providers (hereinafter the BSP) and balance responsible parties (hereinafter referred to as the BRP), which have incurred obligations to the TSO as a result of their operations in the balancing market, make payments for electricity exclusively to the TSO's current account with a special regime of use in an authorized bank.

Funds from the TSO's current account with a special regime of use are transferred according to the Market Rules to:

1) current accounts of the BSP and BRP, except for electricity suppliers;

2) current accounts of electricity suppliers with a special regime of use;

3) current account of the TSO.

According to part 5 of Article 75 of the Law, funds from electricity suppliers' current accounts with a special regime of use are transferred in accordance with an algorithm established by the Regulator.

This algorithm for allocating funds from an electricity supplier's current account with a special regime of use envisages, under normal conditions, the transfer of all funds received from customers into the electricity supplier's current account with a special regime of use in full to the electricity supplier's current accounts.

Changes to this algorithm may be made only in the event that the electricity supplier fails to pay for its electricity imbalances within the time and in the manner prescribed by the Market Rules. Such changes to the algorithm are valid until the full repayment of the electricity supplier's indebtedness to the TSO. Changes to the algorithm are made on the basis of a submission made by the TSO in the event of the electricity supplier becoming indebted to the TSO. Changes to the algorithm should provide for transferring funds from the electricity supplier's current account with a special regime of use to the TSO's current account with a special regime of use until full repayment of arrears for the electricity imbalance purchased by the electricity supplier.

Taking into account the provisions of the Law, the NEURC approved the Procedure for Allocation of Funds from Electricity Suppliers Current Accounts with a Special Regime of Use and the algorithm for allocation of funds.

At the same time, a financial guarantee mechanism is provided in accordance with the Market Rules to ensure that electricity market participants fulfill their financial obligations to pay for electricity imbalances.

The scope of the financial guarantee should ensure the fulfillment of all potential financial obligations that may be incurred by a market participant as a result of its participation in the balancing market on the relevant trading day d.

For an economic entity, the obligation to provide a financial guarantee arises immediately after the conclusion of the agreement with the TSO on the settlement of electricity imbalances.

Information on charges and payments for electricity imbalances in 2020 is shown in Table 2.3.5.

Table 2.3.5. Information on charges and payments for electricity imbalances in 2020

Month of	The BRP's and BSP's payments to the transmission	The transmission system operator's payments to

2020	system operator for electricity imbalances			the BRP and BSP for electricity imbalances		
	Charged (VAT included)	Actually paid (VAT included)	Indebtedness to the TSO (VAT included)	Charged (VAT included)	Actually paid (VAT included)	Indebtedness to the BRP and BSP (VAT included)
	UAH million	UAH million	UAH million	UAH million	UAH million	UAH million
January	1,735.80	1,489.79	246.01	1,871.83	1,806.69	65.13
February	1,972.93	1,756.42	216.51	2,202.63	2,152.48	50.14
March	2,560.19	2,263.15	297.04	3,040.09	2,977.11	62.98
April	2,410.60	2,153.34	257.25	2,769.60	2,690.38	79.22
May	1,839.95	1,559.46	280.48	2,177.00	2,093.47	83.53
June	2,291.31	2,070.01	221.31	2,525.83	2,478.89	46.94
July	3,020.10	2,757.16	262.94	3,212.61	3,153.46	59.15
August	2,419.54	2,100.70	318.84	3,315.32	2,562.76	752.55
September	2,155.27	1,855.53	299.74	3,104.05	0.00	3,104.05
October	1,750.02	1,495.45	254.56	2,755.78	0.00	2,755.78
November	1,548.14	1,197.51	350.63	1,873.69	0.00	1,873.69
December	1,100.42	630.79	469.62	959.62	0.00	959.62
Sum total	**24,804.26**	**21,329.33**	**3,474.93**	**29,808.04**	**19,915.24**	**9,892.79**

The total indebtedness of the BRP and BSP to the TSO for electricity imbalances as of December 31, 2020, was UAH 4,776.3 million (VAT included), of which the indebtedness for 2020 was UAH 3,474.9 million (VAT included) (structure of indebtedness for electricity imbalances to the TSO is shown in Fig. 2.3.44).

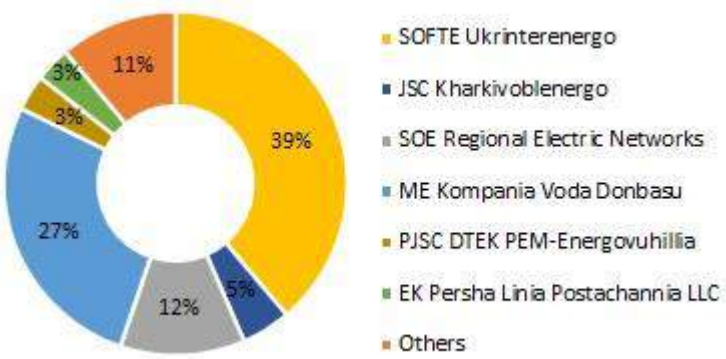


Fig. 2.3.44. Structure of NEC Ukrenergo receivables for electricity imbalances

In that, the largest debtors were (Fig. 2.3.44):

OFTE Ukrinterenergo – UAH 1,854.5 million (VAT included);

U Kompania Voda Donbasu – UAH 1,288.3 million (VAT included);

OE Regional Electric Networks – UAH 561.0 million (VAT included);

JSC Kharkivoblenergo – UAH 221.7 million (VAT included);

PJSC DTEK PEM-Energovuhillia – UAH 161.6 million (VAT included);

EK Persha Linia Postachannia LLC – UAH 159.3 million (VAT included);

Since the launch of the new electricity market model, market participants have repaid debts for electricity imbalances by applying the algorithm for allocation of funds and financial guarantees in the amount of UAH 744.3 million, including UAH 451.9 million in 2020.

In particular, in 2020 market participants repaid their debts to the TSO for electricity imbalances in accordance with:

algorithm of allocation of funds, UAH 383.2 million were transferred from electricity suppliers' current accounts with a special regime of use to the TSO's current account with a special regime of use;

financial guarantee mechanism – UAH 68.6 million.

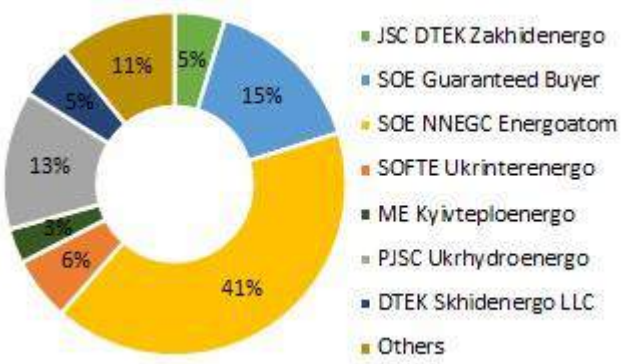


Fig. 2.3.45. Structure of NEC Ukrenergo accounts payable for electricity imbalances

In that, the total indebtedness of the TSO to the BRP and BSP as of December 31, 2020, was UAH 10,319.4 million (VAT included), of which the indebtedness for 2020 was UAH 9,892.8 million (VAT included) (structure of the TSO's indebtedness for electricity imbalances to the BRP and BSP is shown in Fig. 2.3.45).

The largest creditors of NEC Ukrenergo were (Fig. 2.3.45):

OE NNEGC Energoatom – UAH 4,261.2 million (VAT included);
SOE Guaranteed Buyer – UAH 1,593.4 million (VAT included);
PJSC Ukrhydroenergo – UAH 1,348.8 million (VAT included);
SOFTE Ukrinterenergo – UAH 617.1 million (VAT included);
DTEK Skhidenergo LLC – UAH 540.9 million (VAT included);
JSC DTEK Zakhidenergo – UAH 490.2 million (VAT included);
PU Kyivteploenergo – UAH 339.3 million (VAT included);

Indebtedness of NEC Ukrenergo to SOE Guaranteed Buyer for the service to ensure an increase in the share of electricity generation from alternative energy sources and indebtedness to electricity generators from alternative energy sources.

Description of SOE Guaranteed Buyer providing to NEC Ukrenergo the service to ensure an increase in the share of electricity generation from alternative energy sources (hereinafter referred to as the Service) is given in paragraph 2.3.6 of Chapter 2.3, Section 2 of the Report.

Procedures for value calculation and payment for the service to ensure an increase in the share of electricity generation from alternative energy sources that are provided by guaranteed buyer are determined by Chapter 12 of the Procedure for the Guaranteed Buyer's Purchases of Electricity Generated from Alternative Energy Sources.

The main source of funding for the operations of guaranteed buyer regarding its payments to electricity generators from alternative sources for the purchased electricity is NEC Ukrenergo's payments for the Service provided by guaranteed buyer to the TSO. Such payments are made from expenses for performance of public service obligations to safeguard the public interest, in particular, to ensure an increase in the share of electricity generation from alternative sources other than private households.

In view of the above, the NEURC was approving the value of the Service in 2020 and January 2021, taking into account the calculations of the value of the Service provided by guaranteed buyer, the relevant calculation materials, and Service acceptance certificates.

The value of the Service provided by guaranteed buyer in 2020, which is UAH 36,158.5 million (VAT excluded), and its components are given in Annex 2.3.5.

According to the information of guaranteed buyer, **the indebtedness of the transmission system operator** (hereinafter the TSO) **for the Service provided by guaranteed buyer in January - December 2020 was, as of February 5, 2021** (*taking into account the value of the Service provided by guaranteed buyer in December 2020 as approved by the Regulator and repayment by the TSO of indebtedness for the service provided by the guaranteed buyer in February 2020 from loans obtained by NEC Ukrenergo under state guarantees in accordance with the Order of the Cabinet of Ministers of Ukraine No. 1203 of December 9, 2020*) **UAH 18,454.3 million (VAT excluded)** (the share of the Service paid for by the TSO was 49.0%).

The TSO's payments for the Service provided by guaranteed buyer in 2020 as of February 5, 2021, are shown in Figs. 2.3.46 and 2.3.48.

Fig. 2.3.46. Status of the TSO's payments for the Service provided by the guaranteed buyer in 2020

Meanwhile, the indebtedness of guaranteed buyer for electricity purchased from electricity generators using alternative sources was, as of February 5, 2021, UAH 18,031.6 million (VAT excluded) (the share of electricity that was paid for was 55.8%).

The guaranteed buyer's payments for electricity purchased from electricity generators using alternative sources in 2020 as of February 5, 2021, are shown in Figs. 2.3.47 and 2.3.48.

Fig. 2.3.47. Status of the guaranteed buyer's payments for electricity purchased from electricity generators using alternative sources in 2020

Background information as of December 31, 2020:

- indebtedness of the TSO for the Service provided by guaranteed buyer in January-November 2020 and in 20 days of December 2020 amounted to UAH 25,540.4 million (VAT excluded) (the share of the Service paid for by the TSO was 28.6%);
- the guaranteed buyer's indebtedness for electricity purchased from electricity generators using alternative sources in the same period was UAH 21,348.4 million (VA excluded) (the share of electricity paid for was 46.7%).

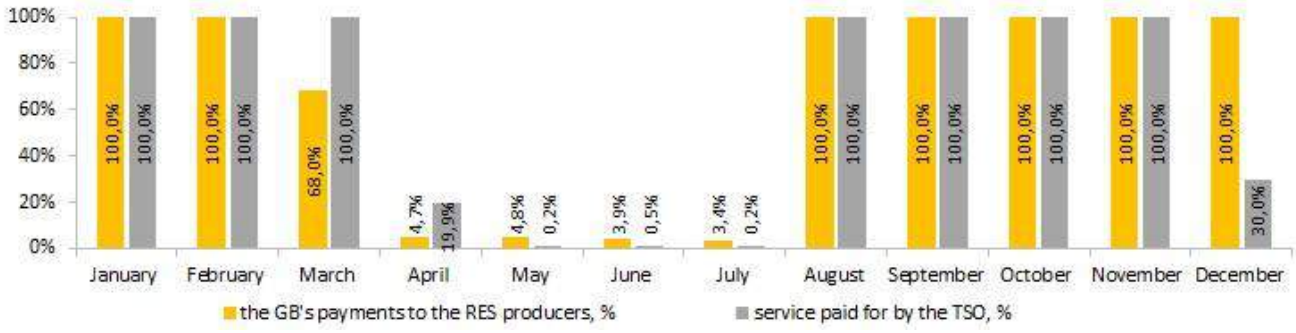


Fig. 2.3.48. Status of the TSO's payments for the Service and the guaranteed buyer's payments to the RES generators in 2020

Information on the monthly payments made by the TSO for the Service provided by guaranteed buyer in 2020, and, accordingly, the latter's payments to electricity generators using alternative sources for electricity purchased in 2020 as of December 31, 2020, and February 5, 2021, is given in Annexes 2.3 .7 and 2.3.8.

The main factors and causes of the TSO incurring debts to SOE Guaranteed Buyer and, accordingly, the latter incurring debts to electricity generators using alternative sources include:

- a significant increase in the capacity of electricity generators using alternative sources during 2020. Accordingly, the amount of funds due to such generators for electricity sold increased, and, in turn, the value of the Service increased as well;
- incomplete compliance with provisions of the Law No. 810, in particular regarding the state budget providing for expenditures for financial support of guaranteed buyer to enable it to pay for electricity generated from alternative sources; repayment of debts that were incurred in 2020 during 2021 – 2022 by issuing domestic government bonds with a maturity of five years; granting generators of electricity from alternative sources the right to leave the balancing group of guaranteed buyer and freely sell electricity on the market;
- delayed adoption by the Government of the transitional model of the Regulation on the PSOs Imposing on Electricity Market Participants to Safeguard the Public Interests in the Electricity Market Functioning.

2.4. **Retail Electricity Market**

2.4.1. General information on the retail electricity market

The retail electricity market (hereinafter referred to as the retail market) is a system of relationships that arise between an electricity customer and an electricity supplier in the process of supplying electricity, as well as between other market participants that provide services related to electricity supply.

The retail market operates to satisfy the customers' needs for electricity and related services.

Participants of the retail electricity market are as follows:

- Customers ;
- transmission system operator;
- distribution system operators (small distribution system operators);
- electricity suppliers;
- commercial metering service providers;
- electricity generators that meet the definition of distributed generation;
- other market participants providing services related to electricity supply to customers .

Relations between retail market participants are governed, among other things, by the Electricity Retail Market Rules (hereinafter referred to as the Retail Market Rules), the Transmission System Code, the Distribution System Code, and the Commercial Metering Code.

The Retail Market Rules set out, among other things, general terms for electricity supply to customers , a system of contractual relations between retail market participants, rights and obligations of market participants, procedure for electricity supplier change by customer, conditions, and procedure for termination and resumption of electricity supply to customer , customer complaint consideration procedure, and special provisions for electricity supply by the universal service supplier or the last resort supplier.

The Retail Market Rules also determine the model of the system of contractual relations

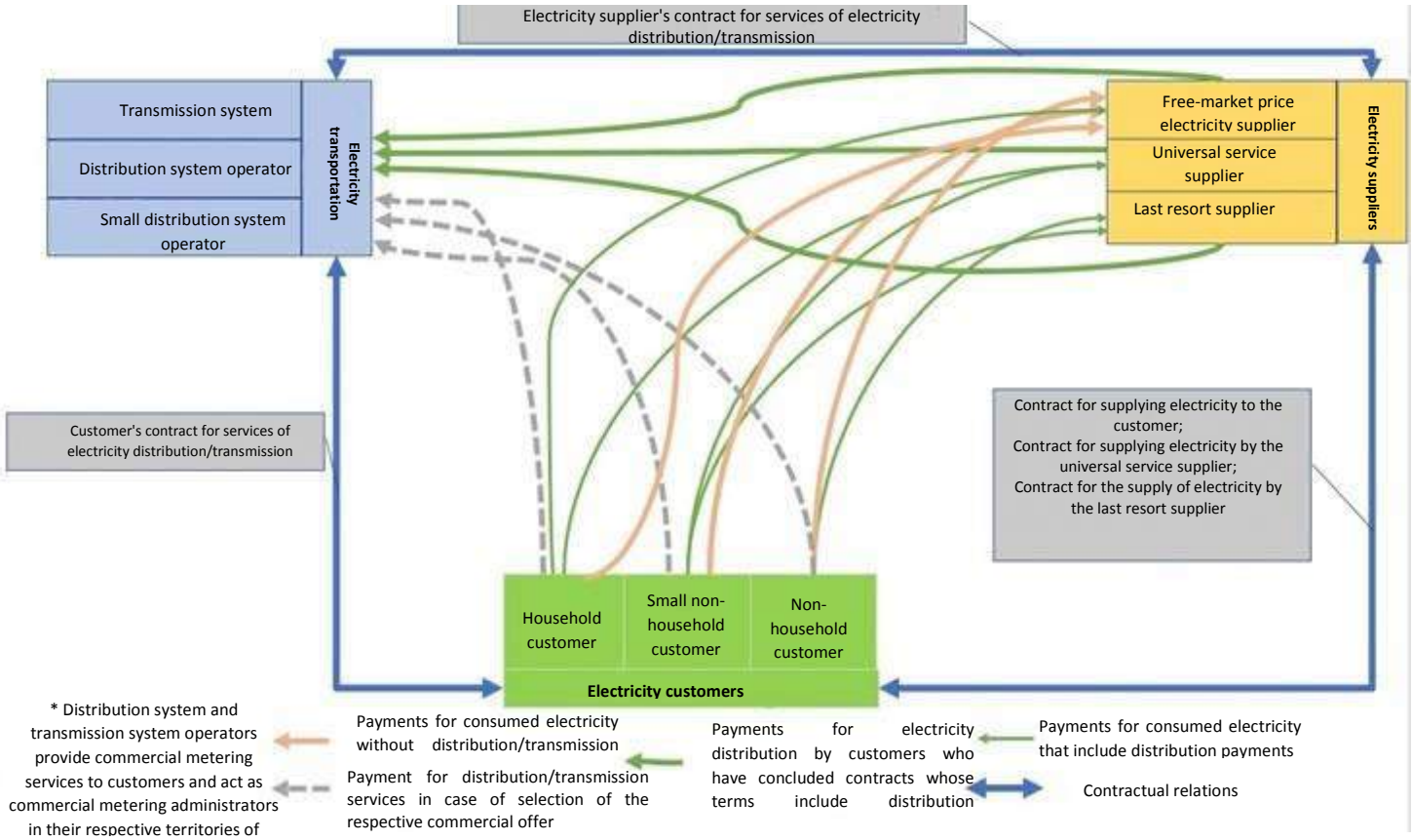


Fig. 2.4.1. Functional scheme of the retail electricity market

system in the retail market, which has been active since January 1, 2019 (Fig. 2.4.1).

To provide for their electricity consumption, the customer enters into the following contracts:

1) for electricity distribution (transmission) services with the relevant system operator;

2) for supply of electricity to customer with the selected electricity supplier or for supply of electricity by a universal service supplier (for household or small non-household customers), or for supply of electricity by the last resort supplier (if customer, including the household one, has been left without a supplier on the grounds specified in Article 64 of the Law).

Customers' contracts for electricity distribution (transmission) services, for supply of electricity by a universal service supplier or the last resort supplier, are public connection contracts and are concluded on the basis of a contract template approved by the Retail Market Rules.

It should be noted that a contract for supply of electricity might be concluded only after customer concludes a contract for electricity distribution services.

Thus, a customer's contract for electricity distribution (transmission) services, which is a public contract, sets out the terms for provision of electricity distribution services, including the procedure for payments for the service provided; reliability (continuity) of power supply, quality of electricity, the procedure for termination (restriction) of power supply, etc.

The contract for supply of electricity to customer sets out the terms of electricity sale to customer as a commodity at market prices and determines, in particular, the price and/or procedure for calculating the price of electricity, payment methods, payment methods for electricity distribution services (through a single electricity supplier in one bill or directly to the distribution system operator), etc. Such a contract is concluded with the selected electricity supplier, usually by customer acceding to the contract drafted by electricity supplier on the terms of a commercial offer published by electricity supplier. Meanwhile, a customer has the right to freely choose and change electricity suppliers.

If a customer, including a household one, is left without an electricity supplier, then such a customer is supplied with electricity by the last resort supplier on the terms of the relevant standard contract. This Contract is a public contract and regulates the procedure and terms for continuing the supply of electricity to a customer until they choose a new electricity supplier or until the termination of supply to such customer in the cases provided by the Law, Retail Market Rules, and this Contract.

Household and small non-household customers have the right (not obligation) to get electricity on the terms of universal service at economically reasonable, transparent, and non-discriminatory prices, which are formed in accordance with the methodology approved by the NEURC.

In accordance with requirements of the Law, the functions of the universal service supplier in the assigned territory, defined as an oblast, either of the cities of Kyiv and Sevastopol or the Autonomous Republic of Crimea, are to be performed for three years by the electricity supplier formed during the unbundling of electricity distribution activities from other activities of the respective vertically integrated economic entity (oblenergo).

The system of contractual relations in the retail electricity market model is designed by the Regulator so as to ensure maximum simplicity and ease for customer, including household and small non-household customers, as they select, change, combine in different periods of time the most profitable commercial offers of electricity suppliers.

Electricity distribution/transmission in the retail market

32 DSO were active in the electricity distribution business in 2020.

A DSO provides electricity distribution services on the basis of a public customer contract for electricity distribution services.

As of December 31, 2020, a total of 17,602,832 customer contracts for electricity distribution services were concluded, of which 17,096,020 or 97.1% were concluded with household customers. The largest number of customer contracts for electricity distribution services in 2020 were concluded by the following companies: JSC Dnipro Electric Networks with 1,414,676 or 8.0% of the total number of concluded contracts, JSC Kharkivoblenergo with 1,254,337 or 7.1%, PJSC DTEK Kyiv Electric Networks with 1,236,927 or 7.0%, PJSC DTEK Odesa Electric Networks with 1,019,079 or 5.7%, and PJSC DTEK Kyiv Regional Electric Networks with 1,015,103 or 5.7 % (Fig. 2.4.2).

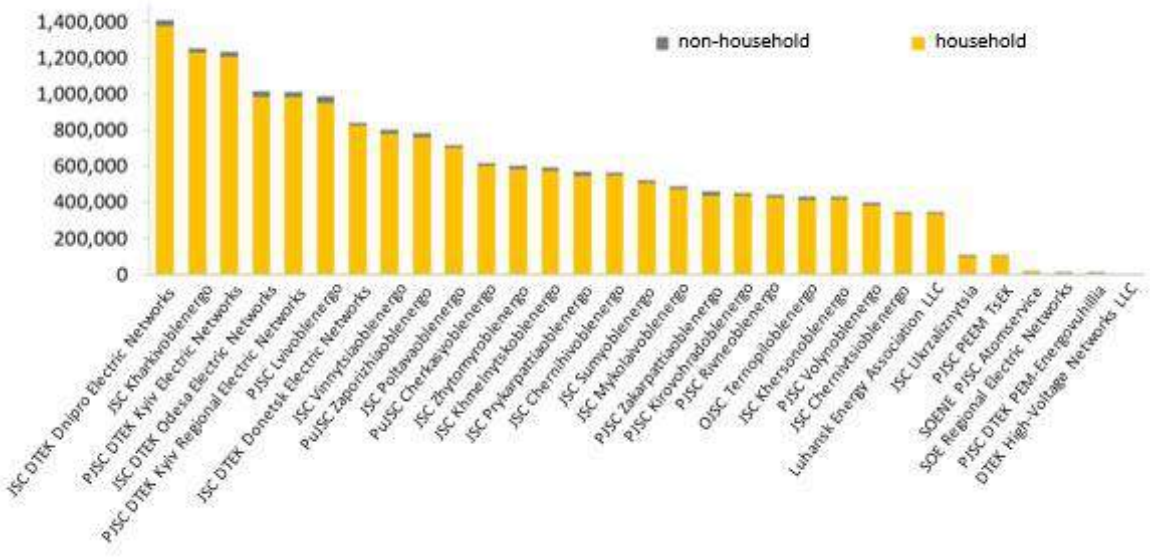


Fig. 2.4.2. Number of concluded contracts for electricity distribution services

Electricity supply on the retail market

According to provisions of the Law, electricity supply is a competitive activity and is carried out by electricity suppliers on the basis of license for supply of electricity to customers, which are issued by the NEURC. According to provisions of the License Terms[54], the area of electricity supply to customers is the territory of Ukraine, except for provision of universal service and a last resort

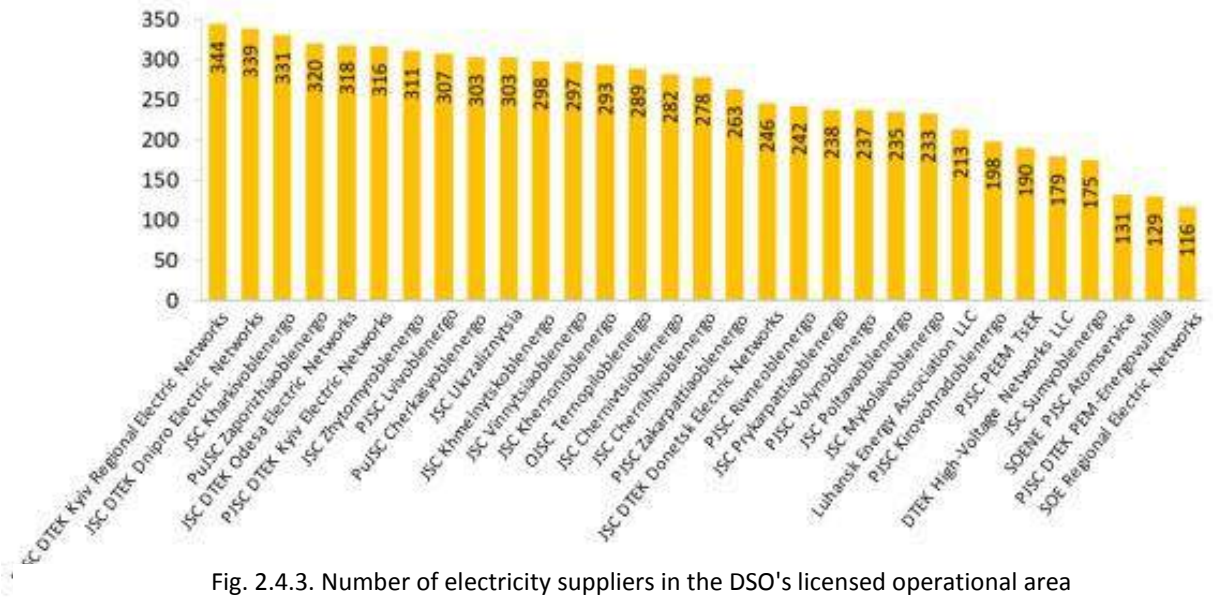


Fig. 2.4.3. Number of electricity suppliers in the DSO's licensed operational area

service, for which the area of economic activity is a territory determined in accordance with provisions of the Law (Fig. 2.4.3).

Final pricing by electricity suppliers selling electricity to customers is not subject to regulation, except as provided by the Law for the universal service supplier and the last resort supplier.

Electricity supply by suppliers at free-market prices

Suppliers supply electricity at free-market prices on the basis of a contract for supply of electricity to customer. Such contract is drafted by electricity supplier on the basis of a model contract for supply of electricity to customers, the form of which is approved by the Retail Electricity Market Rules. Electricity is supplied under such a contract at free-market prices. The difference between this type of contract and other types of contracts for supply of electricity to customers is that where supplier and customer agree, they can enter into a contract on mutually beneficial terms different from those contained in commercial offers posted on the official website of the supplier, including with regard to the value/price of the service, the method and procedure of payments, the procedure of electricity metering, the procedure of termination and resumption of electricity supply, etc.

As of December 31, 2020, a total of 38,291 contracts for the supply of electricity to customersat free-market prices were concluded, with 31,555 or 81.2% of these contracts concluded by 25 electricity suppliers, which perform, inter alia, the function of universal service suppliers.

Shares of customer electricity supply contracts concluded with non-household customers as of year-end 2020 are shown in Fig. 2.4.4.

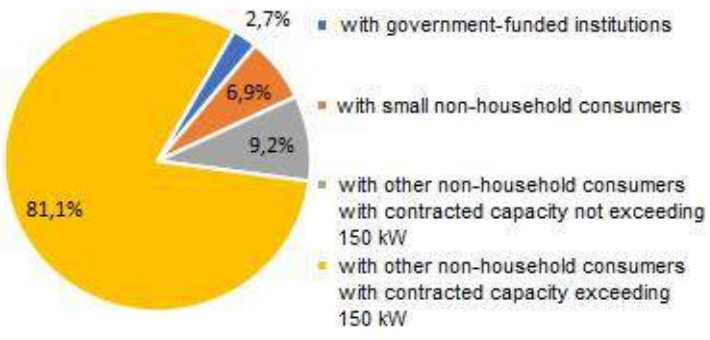


Fig. 2.4.4. Shares of customer electricity supply contracts concluded with non-household customers as of year-end 2020

[54] License terms for electricity supply to customers, approved by NEURC Order No. 1469 of December 27, 2017.

Electricity supply by a universal service supplier (USS)

A USS is an electricity supplier that fulfills a public service obligation to supply electricity to household and small non-household customers at economically reasonable, transparent, and non-discriminatory prices (until December 31, 2020, these prices were set by the Regulator in accordance with requirements of the Law). For the period from January 1, 2019, to December 31, 2020, universal services were also provided to government-funded institutions regardless of the size of the contracted capacity and other customers whose electrical installations were connected to electric networks with a contracted capacity of up to 150 kW. During this period, these customers had all the rights and obligations provided by the Law for small non-household customers with regard to receiving universal services provided for in Article 63 of the Law. The USS also purchase electricity generated by installations of private households with an installed capacity not exceeding 50 kW at the feed-in tariff in the amount exceeding the monthly electricity consumption of such private households, in accordance with the sales contract concluded by private household for electricity under the feed-in tariff, which is an annex to the contract with the universal service provider for supply of electricity.

Starting on January 1, 2019, the functions of universal service suppliers in the assigned territories (oblasts and the city of Kyiv) are performed by 25 electricity suppliers established as a result of DSO unbundling measures in accordance with clause 13 of Section XVII “Final and Transitional Provisions” of the Law. The universal service supplier supplies electricity on the basis of a contract for the supply of electricity by the universal service provider, which is drafted by the USS on the basis of the Standard Contract for the Supply of Electricity by the Universal Service Supplier, the form of which is approved by the NEURC as part of the Retail Electricity Market Rules (REMR). The USS posts the universal service supply contract on its official website.

As of December 31, 2020, a total of 17,555,902 contracts for the supply of electricity by universal service suppliers were concluded, of which 506,812 contracts were concluded with non-household customers.

Most contracts for the supply of electricity by universal service suppliers in 2020 were concluded by the following companies: Dnipro Energy Services LLC – 1,529,421 or 8.7% of the total number of concluded contracts, PJSC Kharkivenergozbut – 1,266,575 or 7.2 %, Kyiv Energy Services LLC – 1,227,557 or 6.9%, Odesa Oblast Energy Supply Company LLC – 1,024,797 or 5.8%, and Kyiv Regional Energy Supply Company – 1,030,622 or 5.8 % (Fig. 2.4.5).

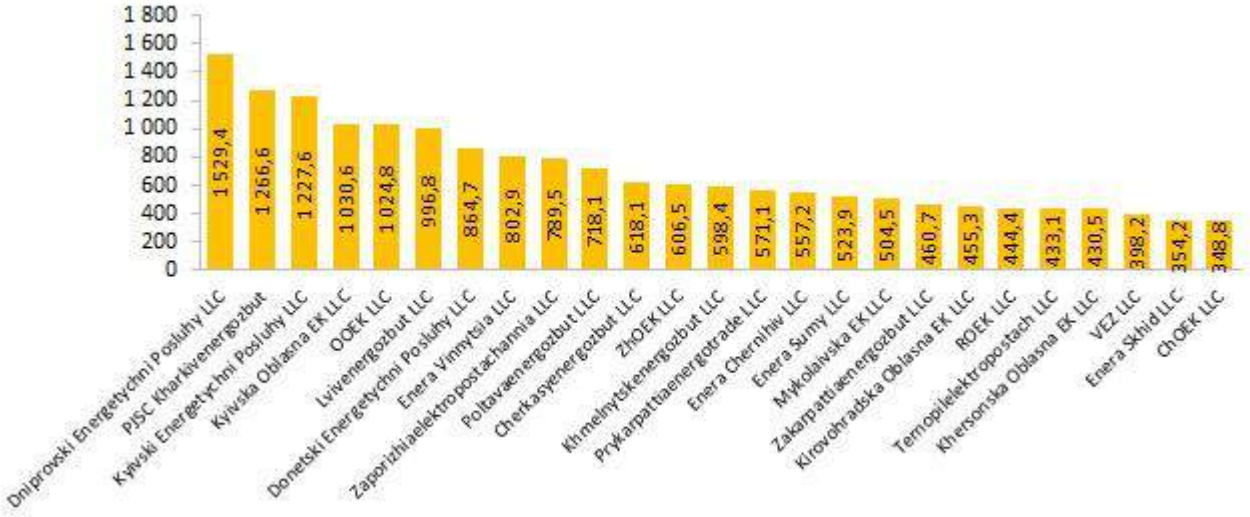


Fig. 2.4.5. Number of concluded contracts for the supply of electricity by universal service suppliers, thousands

Supply of electricity by the last resort supplier

Last resort supplier (LRS) is an electricity supplier designated in accordance with the Law, which in the circumstances established by the Law ensures an uninterrupted supply of electricity

to customers for a limited period of time. The LRS supplies electricity on the basis of the Standard Contract for the Supply of Electricity by the Last Resort Supplier, approved by the REMR, and in cases provided by the Law.

The contract for the supply of electricity between the last resort supplier and customer is deemed to have been concluded from the start of the actual supply of electricity to such customer. The last resort supplier supplies electricity to customer for a period not exceeding 90 days. After the expiration of this term, the last resort supplier terminates the electricity supply to customer.

In order to safeguard the public economic interest in the electricity sector of Ukraine which is necessary to meet the needs of citizens, society, and the state, the Cabinet of Ministers of Ukraine designated by its Order No. 1023-r of December 12, 2018 (as amended) the State-Owned Foreign Trade Enterprise Ukrinterenergo as the last resort supplier for the period from January 1, 2019, by December 31, 2021. The operational area of Ukrinterenergo as a last resort supplier is the territory of Ukraine, except for the territory where public authorities temporarily do not exercise or do not fully exercise their powers.

As of December 31, 2020, there were 86 customers under the LRS contract. At the same time, the main reason for the last resort supplier providing electricity supply services to a customer was the customer's failure to choose an electricity supplier.

40 customers have debts of more than UAH 1 million, and 23 of them have debts of more than UAH 10 million. Debts of customers who were supplied with electricity under the contract for the supply of electricity by the last resort supplier amounted, as of the end of 2020, to about UAH 2.3 billion (VAT excluded).

Customers of SOFTE Ukrinterenergo during 2020 were, inter alia, coal mines, water supply and sanitation enterprises, and utility services.

Joint use of network owners' technological electric networks by the DSO

Where a DSO uses technological electric networks of a network owner who does not perform the functions of the system operator in accordance with the terms of its license or legislation, in order to ensure transportation of electricity by electric networks not owned by the system operator, the relationship between the owner of these networks and the system operator, including their mutual liabilities, is regulated by a contract for joint use of technological electric networks, which sets the procedure and rate of payments for joint use of technological electric networks.

As of December 31, 2019, the DSO concluded a total of 20,356 contracts for joint use of technological electrical networks with network owners, of which 918 were concluded during 2020. Most contracts for joint use of technological electric networks with network owners were concluded by the following companies: PJSC DTEK Kyiv Regional Electric Networks – 2,051 or 10.1% of the total number of concluded contracts, JSC DTEK Dnipro Electric Networks – 1,890 or 9.3 %, JSC Khersonoblenergo – 1,515 or 7.4%, PuJSC Zaporizhiaoblenergo – 1,413 or 6.9%, JSC Poltavaoblenergo –1,242 or 6.1% (Fig. 2.4.6).

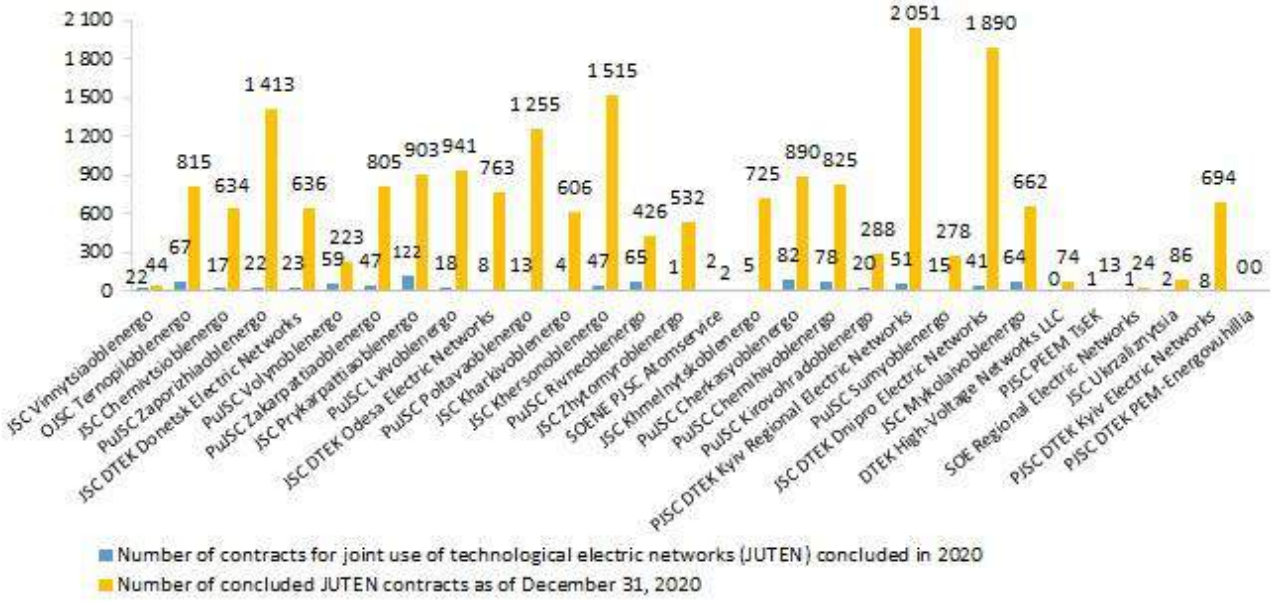


Fig. 2.4.6. Number of concluded contracts for joint use of technological electric networks with network owners as of December 31, 2020 and the number of contracts concluded in 2020

Reasonable costs of maintenance of technological electrical networks are reimbursed to the main customer in accordance with its cost estimate for this activity.

Determining the unit costs for maintenance of electrical networks in the amount of one conventional unit is needed to determine the maximum costs for maintenance of technological electrical networks of the network owner according to the standard costs per one conventional unit.

If the sum of estimated costs exceeds the maximum level of costs for maintenance of jointly used technological electric networks, the estimate is approved at the level of costs determined by the network owner's amount of conventional units of electrical installations and the standard costs per conditional unit determined for DSO operations in the licensed operational area where the electrical installations of the network owner are connected.

In accordance with requirements of Section IV of the Methodology for Calculating the Payments for Joint Use of Technological Electric Networks[55], the unit costs for maintenance of electric networks in the amount of one conventional unit were calculated based on the results of economic activity of companies licensed for electricity distribution through local electric networks and electricity transmission through the trunk and international electric networks, namely on the basis of the amount of operating costs of licensees (maintenance and operation of local or trunk and international electric networks) according to the cost structure for the tariff for electricity distribution (transmission) (excluding profit costs) and size of local electric networks for the DSO and trunk and international electric networks for the TSO in conventional units, which are annually submitted by each electricity distribution (transmission) licensee to the NEURC (Figs. 2.4.7 – 2.4.8).

[55] Approved by NEURC Order No. 691 of June 12, 2008, registered with the Ministry of Justice of Ukraine as No. 732/15423 on August 8, 2008.

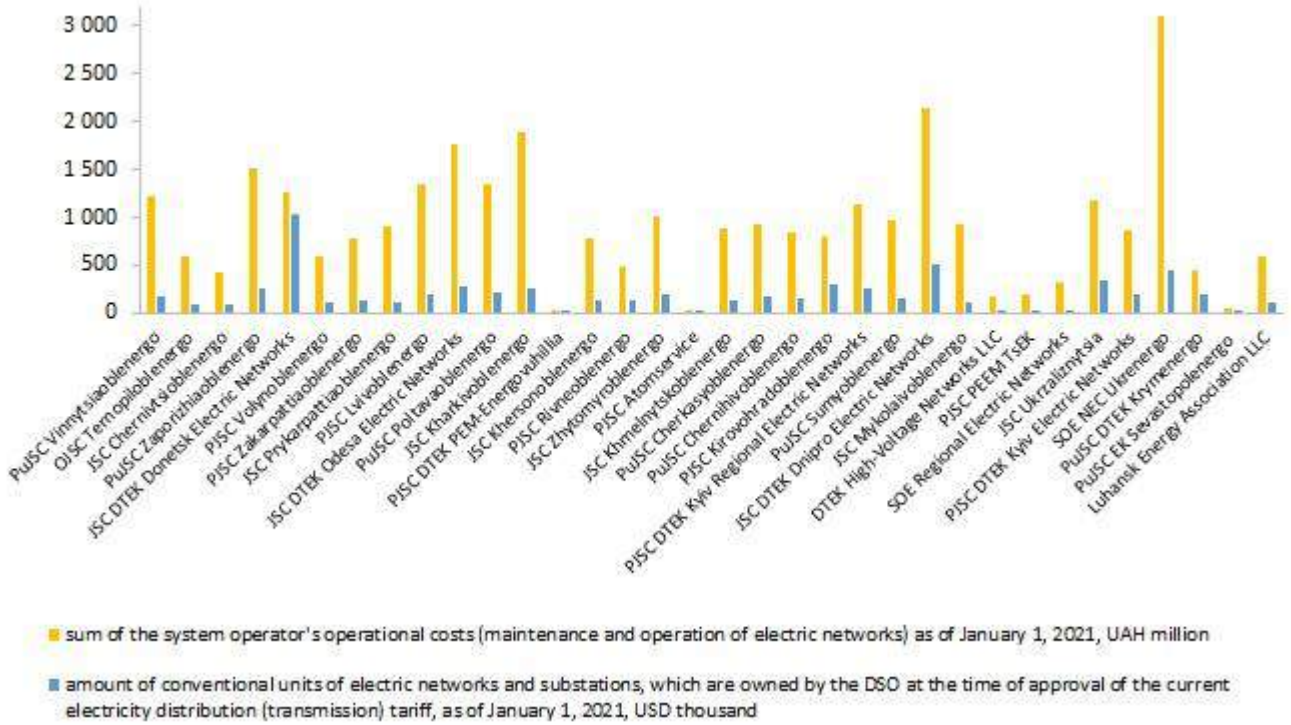


Fig. 2.4.7. Sizes of system operators' electric networks in conventional units and costs of their maintenance and operation

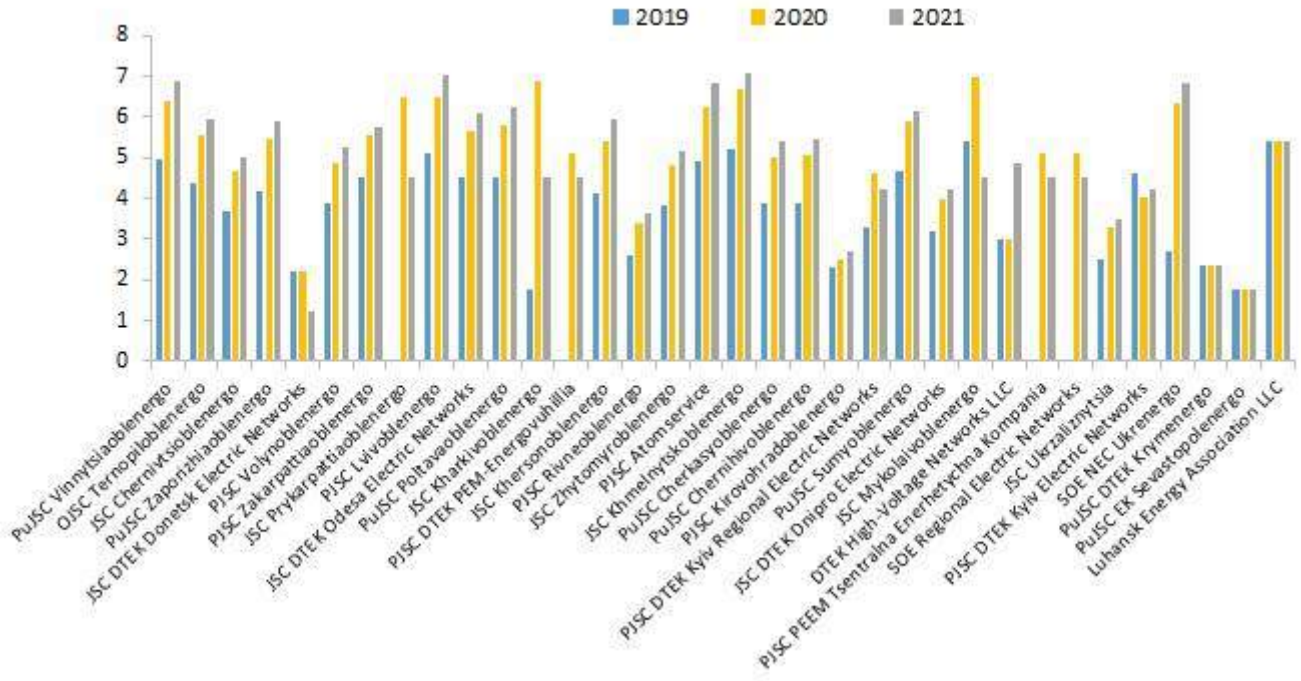


Fig. 2.4.8. Dynamics of change in unit costs of system operators to maintain a conventional unit of electric networks in 2019 – 2021

Practice of disconnecting customers for non-payment for consumed electricity

Electricity is supplied without interruption to a customer who does not violate its contractual obligations to the transmission system operator and/or distribution system operator and electricity supplier, except as provided by the terms of contracts concluded by customers with electricity supplier and system operator and regulations, including the REMR.

Restriction or termination of electricity supply to protected customers is carried out in compliance with requirements of the Procedure for Ensuring the Supply of Electricity to Protected Customers[56]. A customer of electricity is recognized as a protected customer if a special regime of disconnection and/or restriction of electricity supply is applied with regard to it in order to prevent a man-made emergency.

The grounds for complete or partial termination of electricity supply to the customer are set out in clauses 7.5 and 7.6 of Section VII of the REMR. In such case, the customer must be notified by the operator no later than 5 working days before the day of disconnection, and by the electricity supplier no later than 10 working days before the day of disconnection, and in case of disconnection on the grounds specified in subclause 7.6 of section VII of the REMR – when drawing up the report on violation of the REMR and the contract. The main reasons for disconnections include arrears for distribution/supply services; non-payment for unmetered electricity due to violation by the customer of the REMR or unauthorized connection of load-using equipment by the customer; non-admission of authorized representatives of the electricity supplier to the commercial electricity metering means located on the premises of customer.

The electricity supply of the customer's electric installations is terminated by the system operator in accordance with the procedure established by the Transmission System Code and the Distribution Systems Code.

Overall, in 2020, distribution system operators (at the initiative of the DSO or the electricity supplier) performed 134,779 disconnections of customers, of which 116,382 or 86% were disconnections of household customers. The most common reason for the termination of electricity supply to the customer is arrears for consumed electricity, which make up 89,417 or 66% of all cases of disconnections.

It should be noted as well that compared to 2019, the number of customer disconnections decreased in 2020 by 129,794 or 49%. This decrease is due to the adoption of the Law of Ukraine "On Amending Certain Laws of Ukraine to Prevent COVID-19", namely the ban on termination/suspension of utility services to citizens of Ukraine in case of non-payment or incomplete payment for duration of the lockdown and restrictive measures related to COVID-19 spread and for 30 days following the termination of lockdown.

Restoration of electricity supply to the customer's electric installations which was terminated on the grounds specified in clauses 7.5 and/or 7.6 of Section VII of the REMR is carried out by the system operator in the manner prescribed by the Transmission System Code and Distribution Systems Code within 3 working days in cities and 5 working days in rural areas after receiving from the initiator of the disconnection a notice on the elimination of violations by customer , which is confirmed by the respective document prepared by the market participant at the request of which the electricity supply termination was performed. The initiator of such disconnection notifies the system operator of the elimination of the grounds for disconnection on the day it learns about it.

Practice of detecting unmetered consumption. The DSO drawing up reports on customers' violations of the Retail Electricity Market Rules.

Article 77 of the Law of Ukraine "On Electricity Market" provides that offenses in the electricity market include theft of electricity, unauthorized connection to electricity facilities, and unmetered consumption of electricity.

The Retail Electricity Market Rules provide that the DSO/TSO in case of detection of violations of the Retail Electricity Market Rules and/or concluded contracts have the right to draw up violation reports and, in case of customer involvement in the violation, calculate the amount and cost of unmetered electricity on the basis of such reports.

[56] Approved by the Order of the Cabinet of Ministers of Ukraine No. 1209 of December 27, 2018.

During 2020, the DSO drew up 29,576 violation reports, which is 2,023 or 7.3% more than in 2019.

The sum total of the charged value of unmetered electricity on the basis of violation reports amounted to UAH 519.66 million in 2020, which is UAH 58.2 million or 12.6% more than in 2019.

The dynamics of the number of violation reports drawn up by the DSO during 2019 – 2020, and the value of unmetered electricity charged by the DSO on their basis, as well as the charged sums, are shown in Figs. 2.4.9 and 2.4.10.

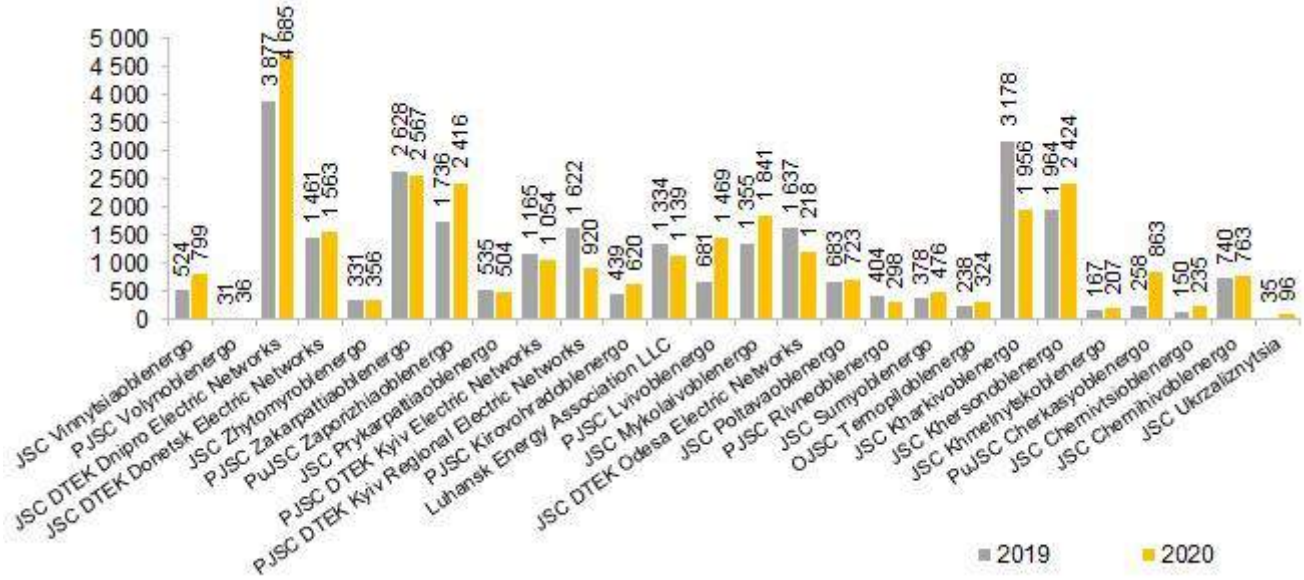


Fig. 2.4.9. Number of violation reports drawn up by the DSO

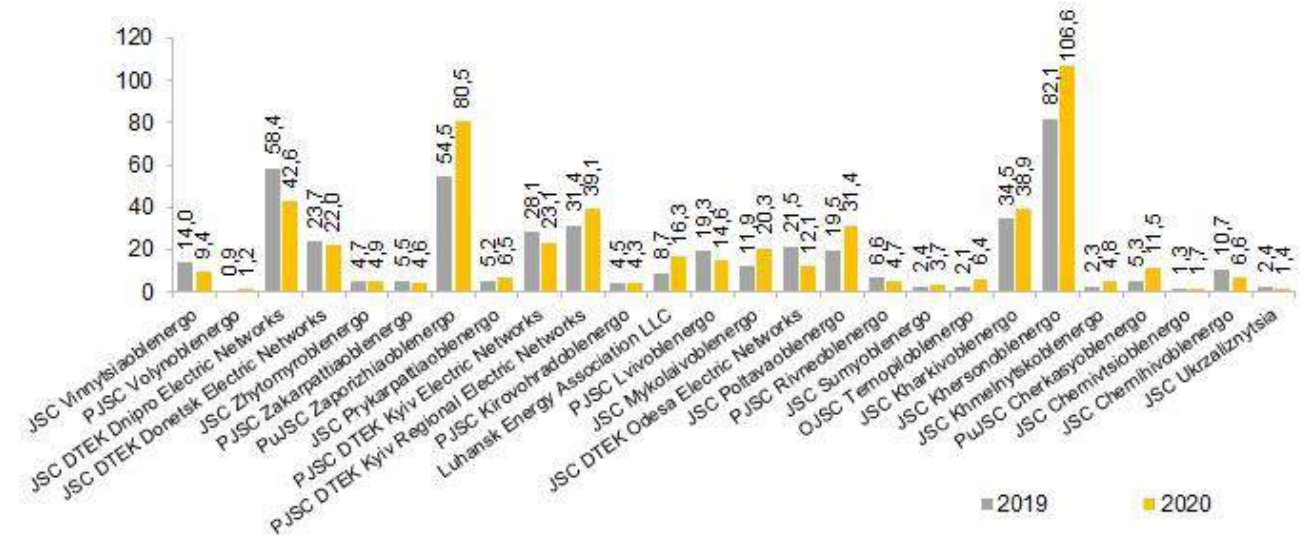


Fig. 2.4.10. Sum total of unmetered electricity value charged by the DSO on the basis of REMR violation reports in 2019 – 2020, UAH million

An increase in the number of violation reports drawn up by the DSO in 2020 compared to 2019 is observed almost throughout Ukraine, in particular in the licensed territories of JSC DTEK Dnipro Electric Networks (+20.8%), PuJSC Zaporizhiaoblenergo (+39.2%), PJSC Lvivoblenergo (+115.7%), JSC Mykolaivoblenergo (+35.9%), JSC Khersonoblenergo (+23.4%), JSC Cherkasyoblenergo (+234.5%). At the same time, there was a decrease in the number of DSO violation reports in 2020 compared to 2019 in some DSO's licensed territories, in particular in the territories of PJSC DTEK Kyiv Regional Electric Networks (-43.3%), JSC DTEK Odesa Electric Networks (- 25.6%), and JSC Kharkivoblenergo (-38.5%).

Household customers who have installed generating installations in their private households

A fundamental principle of government policy in the field of alternative energy sources is to encourage installation of generating installations by household customers in order to increase generation and consumption of energy generated from alternative sources to ensure economical consumption of traditional fuel and energy resources and reduce Ukraine's dependence on their imports.

Amendments to Article 63.5.4 of the Law of Ukraine "On Electricity Market"[57] provide for the USS obligation, in particular, to buy electricity generated by installations of private households with an installed capacity not exceeding 50 kW at the feed-in tariff in the amount exceeding the monthly electricity consumption of such private households, and to make priority payments for it in each settlement period.

It should be noted that according to Article 9[1] of the Law of Ukraine "On Alternative Energy Sources" the feed-in tariff coefficient for electricity generated by installations of private households with an installed capacity not exceeding 50 kW, provided they are located on roofs and/or facades of buildings and other long-term structures, was applied to household customers who submitted and registered with energy suppliers applications-notifications on the installation of generating installations on or before December 31, 2019.

Starting on January 1, 2020, the feed-in tariff coefficient for electricity generated at installations of private households applies in accordance with the above article of the Law of Ukraine "On Alternative Energy Sources" only to generating installations of private households with an installed capacity not exceeding 30 kW.

According to provisions of that Law, the feed-in tariff for private households that generate electricity using alternative energy sources will be in effect until January 1, 2030. The fixed minimum level of the feed-in tariff for private households is determined by converting into euro the feed-in tariff calculated in accordance with provisions of this Law as of January 1, 2009, at the official exchange rate of the National Bank of Ukraine on that date.

The main purpose of introduction and application of the feed-in tariff or private households is to encourage use of electricity from renewable energy sources for their own consumption and to meet the utility needs of such households.

At the same time, the use of electricity generated by installations by household customers in private households does not include professional and commercial activities.

According to the information provided by the USS, 8,029 sales contracts for electricity sold at the feed-in tariff were concluded by private households in 2020 (taking into account the concluded supplementary contracts to valid sales contracts for electricity sold at the feed-in tariff regarding the installation of additional generating installations to which different feed-in tariff coefficients are applied).

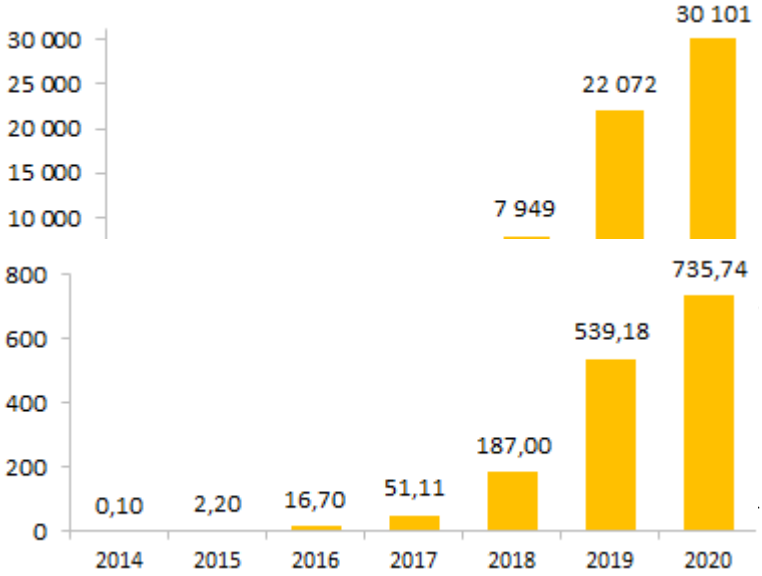


Fig. 2.4.12. Total connected capacity of generating installations installed in private households, 2014 – 2020, MW

Therefore, the total number of sales contracts for electricity sold at the feed-in tariff, which was concluded by the USS in Ukraine, reached 30,101 as of December 31, 2020 (Fig. 2.4.11).

It should be noted that the total connected capacity of generating installations put into operation in 2019 – 2020 increased compared to 2014 – 2018 by the factor of 3.5 and

· Electricity Generation from Alternative Energy Sources"

amounted to 735.74 MW (Fig. 2.4.12).

Dnipropetrovsk, Kyiv, Zakarpattia, Ternopil, and Ivano-Frankivsk oblasts are the leaders in installing generating installations in private households. The total number of installed generating installations in these oblasts is 45% of the total number of such installations in Ukraine as a whole (Fig. 2.4.13).

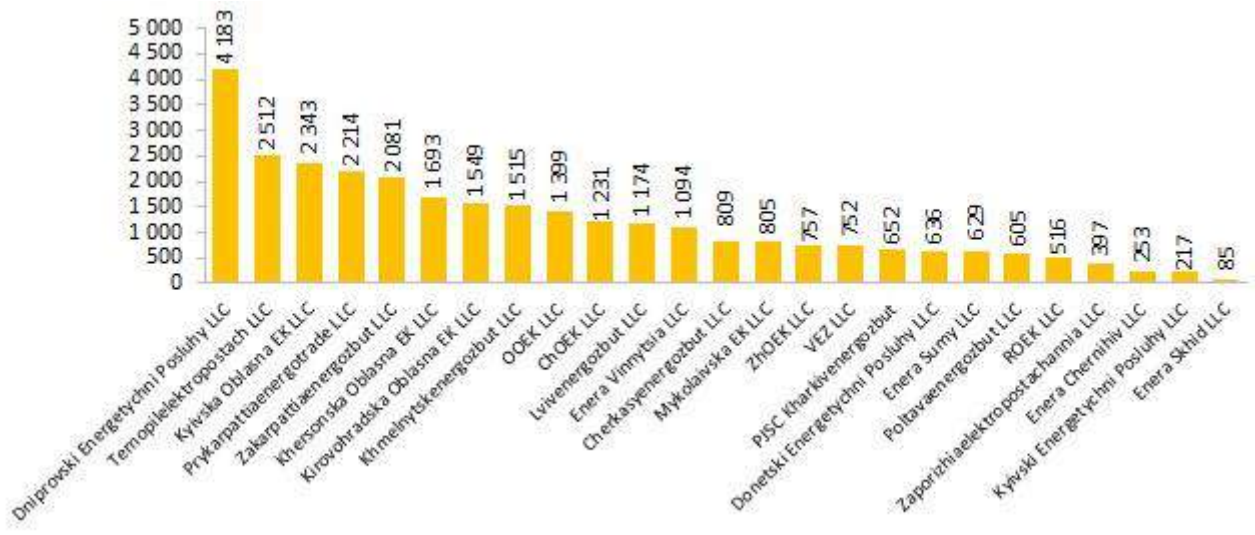


Fig. 2.4.13. The number of generating installations installed by private households which are intended for electricity production from solar radiation energy, by electricity suppliers as of December 31, 2020, units

The total amount of electricity supplied to electricity suppliers' networks and generated by installations of private households (from solar radiation energy) in 2020 was 714,263,232 MWh compared to 324,405,833 MWh in 2019. At the same time, payments to households that supplied such electricity-to-electricity suppliers' networks totaled UAH 3.3 billion in 2020.

2.4.2. Retail electricity prices

Part 6 of Article 72 of the Law of Ukraine “On Electricity Market” (hereinafter referred to as the Law) specifies that starting on January 1, 2019, electricity is to be supplied to customers at free-market prices, except as otherwise provided by this Law, namely the supply of electricity to customers by universal service suppliers and last resort suppliers.

Household and small non-household customers are entitled to universal services[58], while the USS may not refuse to conclude electricity supply contracts with such customers if they are resident in its operational territory.

Moreover, according to clause 13 of section XVII “Final and Transitional Provisions” of the Law, in addition to household and small non-household customers, government-funded institutions regardless of the size of the contracted capacity and other customers whose electrical installations were connected to electric networks with a contracted capacity of up to 150 kW were also entitled to universal services on a temporary basis between January 1, 2019, and December 31, 2020.

According to Article 63.3 of the Law, the supplier provides universal services at economically reasonable, transparent, and non-discriminatory prices, which are set by it in accordance with the methodology approved by the NEURC and cover, inter alia, the purchase

[58] A small non-household customer is a customer who is not a household customer and buys electricity for its own consumption and whose electric installations are connected to electric networks with a contracted capacity of up to 50 kW; a household customer is an individual household customer (a natural person who uses electricity to satisfy their own household needs, not including professional and/or economic activities) or a collective household customer (a legal entity created by uniting natural persons who are household customers which settles accounts for electricity according to the readings of the shared metering device in the amount of electricity consumed to satisfy own household needs of such natural persons that do not include professional and/or economic activities).

price of electricity on the electricity market, the price (tariff) for the services of the universal service supplier, the prices (tariffs) for the services of the transmission system operator and the distribution system operator in accordance with the concluded contracts for respective services.

The electricity pricing mechanism for household and small non-household customers during the provision of universal services is determined by the Procedure for Universal Service Pricing, approved by NEURC Order No. 1177 of October 5, 2018 (hereinafter referred to as the Procedure No. 1177).

Several amendments were introduced to Procedure No. 1177 during 2020, including:

- improvement of the electricity pricing mechanism for small non-household customers[59]. Thus, when setting the prices for universal services for small non-household customers of each universal service supplier, hourly electricity prices in the day-ahead market of the respective trade area (the Burshtyn TPP Island and the IPS of Ukraine) are taken into account, as well as hourly consumption of small non-household customers in the respective territory. The calculations of the projected electricity purchase price on the electricity market used by the universal service provider for the supply of small non-household customers take into account the deviation of the amount of payment for the purchased electricity;
- change of the calculation period used for electricity pricing for small non-household customers from the quarter to the calendar month[60], which allowed, inter alia, to reduce fluctuations in the universal service price level;
- inclusion of additional expenses to pay for imbalances that arise for the USS when purchasing electricity for the needs of small non-domestic customers[61].

The projected electricity purchase price on the electricity market used by the universal service provider for supply to small non-household customers, which is a component of the universal service price, was calculated in January – November 2020 based on electricity prices on the day-ahead market in the second month of the previous settlement quarter and starting in December 2020 – based on electricity prices on the day-ahead market in the month that preceded the settlement month by two months.

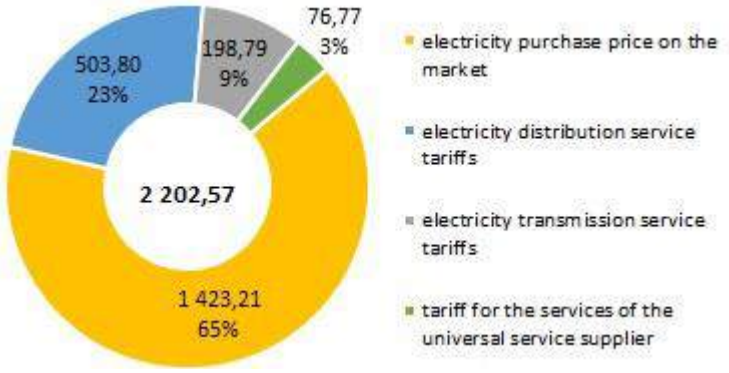


Fig. 2.4.14. Structure of weighted average universal service price in 2020, UAH/MWh (VAT excluded)

The weighted average universal service price in 2020 was 2,202.57 UAH/MWh (VAT excluded). The structure of the weighted average universal service price in 2020 is shown in Fig. 2.4.14. The dynamics of universal service supplier prices for 2020 is given in Annex 2.4.1.

As provided by Article 64 of the Law, the last resort supplier which provides electricity supply services to customers in cases specified by law (for example, in cases of bankruptcy or liquidation of the previous electricity supplier; non-selection of the electricity supplier by customer , in particular upon termination of the contract with previous electricity supplier, etc.) is obliged to supply electricity to customers at the price set by it in accordance with the procedure approved by NEURC Order No. 1179 of October 5, 2018, and covering, inter alia, the purchase price of electricity on the electricity market, the price (tariff) for the services of the last resort supplier, and the prices (tariffs) for the services of the transmission system operator and the distribution system operator in accordance with the concluded contracts for respective services.

[59] NEURC Order No. 547 of March 3, 2020 "On Amending the Universal Service Pricing Procedure"
[60] NEURC Order No. 1968 of October 30, 2020 "On Approving Amendments to the Universal Service Pricing Procedure"
[61] NEURC Order No. 2387 of December 9, 2020 "On Approving Amendments to the Universal Service Pricing Procedure"

Since the supply of electricity by the last resort supplier to customer is a short-term supply, the maximum duration of which in accordance with the law may not exceed 90 days, the calculation of LRS prices is carried out monthly taking into account the average price of electricity for the first 20 days of the previous month.

The weighted average price for electricity, at which electricity was supplied to customers by the last resort supplier during 2020, was UAH 2,645.84/MWh (VAT excluded), including UAH 2,376.39/MWh (VAT excluded) for voltage class 1 and UAH 2,773.49/MWh (VAT excluded) for 2 class voltage.

Dynamics of tariffs for the USS and LRS services

Clause 13 of Section XVII "Final and Transitional Provisions" provides, inter alia, that as long as the electricity supplier created as a result of unbundling measures performs the functions of the universal service supplier, the tariff for the universal service supplier services is set by the Regulator in accordance with the methodology approved by it.

Procedure and mechanism for setting the tariff for the universal service supplier services are determined by the Methodology for Calculating the Tariff for the Universal Service Supplier Services, approved by NEURC Order No. 1176 of October 5, 2018 (hereinafter referred to as the Methodology No. 1176).

Tariffs for the universal service supplier services were set for 25 universal service suppliers in accordance with Methodology No. 1176 by NEURC Orders Nos. 2701 – 2725, which came into effect on January 1, 2020. Tariffs for the universal service supplier services were revised for 15 universal service suppliers during the year. Thus, the weighted average tariff for the universal service supplier services stood at 93.16 UAH/MWh (VAT excluded) at the end of 2020.

Tariffs of 2020 for the universal service supplier services are given in Annex 2.4.2.

If the tender to determine the last resort supplier failed, the procedure and mechanism for setting the tariff for the last resort supplier services are determined by the Methodology for Calculating the Tariff for the Last Resort Supplier Services, approved by NEURC Order No. 1178 of October 5, 2018 (hereinafter referred to as the Methodology No. 1178).

The quarter is the calculation period for which the tariff for the last resort supplier services is calculated.

Tariff levels for the last resort supplier services, calculated in accordance with Methodology No. 1178, were as follows in 2020 (value-added tax excluded):

- 1st quarter – 402.68 UAH/MWh;
- 2nd quarter – 367.73 UAH/MWh (-8.7% compared to the previous quarter);
- 3rd quarter – 377.19 UAH/MWh (+2.6%);
- 4th quarter – 239.28 UAH/MWh (-36.6 %);

Tariffs for household customers

According to the legislation, NEURC does not set electricity tariffs for household customers on the electricity market.

Clause 13 of Section XVII "Final and Transitional Provisions" of the Law provides that until the introduction of bilateral contracts, the day-ahead market, the intraday market, and the balancing market, the universal service supplier purchased electricity for supplying to customers in accordance with the Law of Ukraine "On Power Industry", while prices at which the universal service supplier supplied electricity to household customers were set by the NEURC.

Thus, starting on July 1, 2019 (the day of the new electricity market becoming operational), the NEURC lacks authority to set electricity prices for household customers (population).

According to Clause 2.1. of the Procedure for Universal Service Pricing, approved by NEURC Order No. 1177 of October 5, 2018, electricity is supplied to household customers by the universal service supplier at a fixed price as part of the public service obligations imposed on it to ensure the affordability of electricity for household customers.

According to the Regulation on PSOs Imposing on Electricity Market Participants to Safeguard the Public Interests in the Electricity Market Operation as approved by the Order of the

Cabinet of Ministers of Ukraine No. 483 of June 5, 2019 (as amended), the fixed electricity price for household customers is set by the Cabinet of Ministers of Ukraine.

Until the decision is made to set a fixed price, such a price is equal to electricity tariffs for household customers(taking into account tariffs which are differentiated by time periods) which were in effect as of June 30, 2019, namely, the tariffs set by NEURC Order of 26.02.2015 № 220 "On Setting the Tariffs for Electricity Supplied to Population", taking into account the rules of the Procedure for the Application of Electricity Tariffs, approved by the Order of the National Energy and Utilities Regulatory Commission No. 498 of April 23, 2012.

At the same time, it should be noted that the Cabinet of Ministers of Ukraine issued on December 28, 2020, its Order No. 1325 "On Amending the Order of the Cabinet of Ministers of Ukraine No. 483 of June 5, 2019", according to which the public service obligations imposed on electricity market participants were extended until March 31, 2021, and fixed electricity prices were set for all household customers for the period from January 1 to March 31, 2021, at 168 kopecks per 1 kWh (value-added tax included).

Within the framework of fulfilling the public service obligations to provide services to ensure affordability of electricity for household customers, electricity produced by SOE NNEGC Energoatom and PJSC Ukrhydroenergo is sold to universal service suppliers (in the amount consumed by household customers) at a price which allows the suppliers to supply electricity to household customers at fixed prices without suffering losses.

2.4.3. Competition level and effectiveness of the retail market opening

Change of the supplier by customers who are connected to the distribution system operators' networks

The procedure for changing the supplier is determined by the Retail Electricity Market Rules, approved by NEURC Order No. 312 of March 14, 2018.

The procedure for changing the electricity supplier is an essential term of the contract for supply of electricity to customer.

No provision of the contract for the supply of electricity to customer may create restrictions on the customer's right to change the electricity supplier. In addition, the contract may not contain provisions that impose additional financial obligations on customer who exercises this right. Otherwise, such a provision is deemed to have been invalid since the contract was concluded.

At the same time, the presence of a contract for electricity distribution (transmission) services, concluded by customer with the system operator, is an important precondition for the successful exercise of the right to free choice of the electricity supplier.

A customer changes its electricity supplier free of charge.

If a customer chooses another electricity supplier, the consent of the previous electricity supplier is not required to terminate the contract with it for supply of electricity to customer.

While the contract for the supply of electricity to customer remains valid, the previous electricity supplier is obliged to ensure supply of electricity to customer under the terms of the valid contract.

A change of the electricity supplier at an initiative of customer must be completed within three weeks from the day of such customer sending a notification of its intention to change the electricity supplier (Fig. 2.4.15).

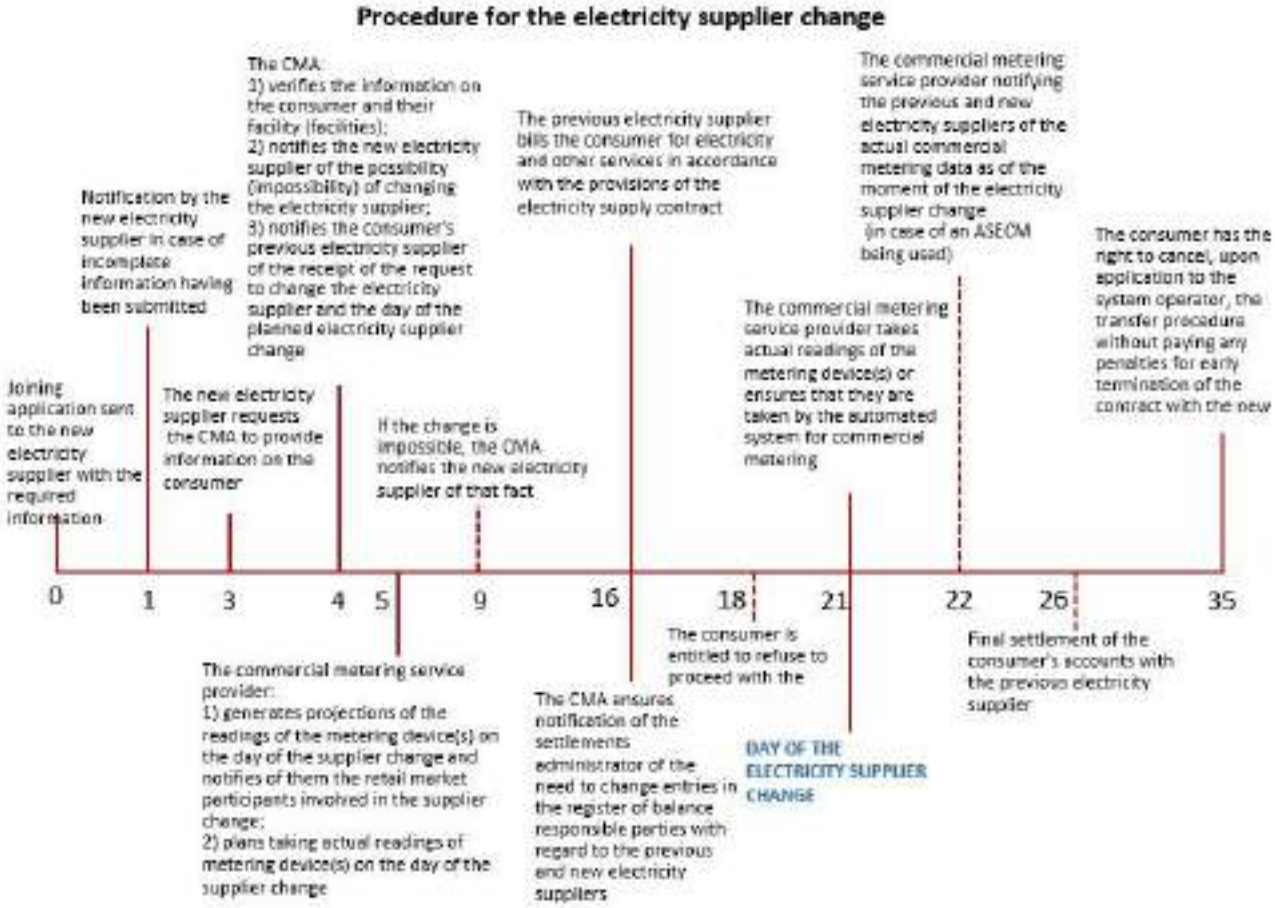


Fig. 2.4.15. Timetable for the customer changing its electricity supplier, days

The process of the customer changing its electricity supplier is supported by electricity market entities (participants) and retail electricity market participants, which are involved in the process of changing the electricity supplier and support change and information exchange during such change free of charge.

As of December 31, 2020, the distribution system operators conducted: 12,632 procedures to change the electricity supplier at the initiative of the customer (of which the most were conducted by JSC DTEK Dnipro Electric Networks with 1,717 cases, JSC DTEK Odesa Electric Networks with 882, and JSC Vinnytsiaoblenergo with 844) and 1,249 procedures for changing the electricity supplier to the last resort supplier in the cases provided for by the Law of Ukraine "On Electricity Market" (of which most customers were transferred to LRS from PJSC DTEK Kyiv Regional Electric Networks, 596 such cases). There were 757 denials of electricity supplier change (of which most occurred in PJSC Sumyoblenergo with 180 such cases).

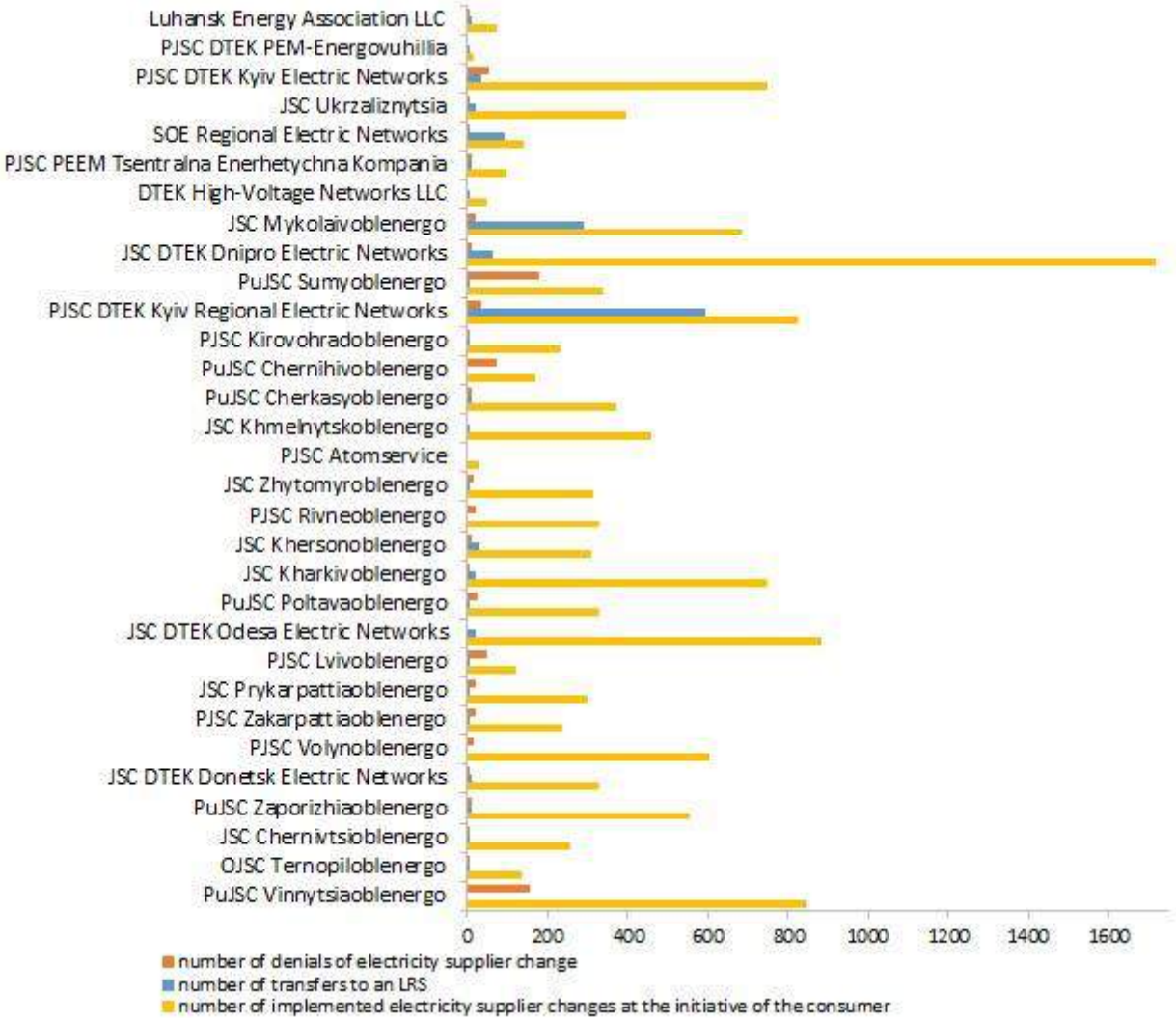


Fig. 2.4.16. Number of electricity supplier changes and denials of electricity supplier change that occurred in 2020, by DSO

3. OIL AND GAS SECTOR

This section is compiled based on the data that the NEURC received from natural gas market entities in accordance with the approved reporting forms and at the official requests of the NEURC. The obtained data can be edited (adjusted) by natural gas market entities.

3.1. **General Information**

3.1.1. General description of the oil and gas sector

The mandate and functions the NEURC in the oil and gas sector are defined by the Law of Ukraine "On National Energy and Utilities Regulatory Commission" and the Law of Ukraine "On Natural Gas Market" (hereinafter referred to as the Law).

Economic activity in the oil and gas sector includes natural gas transportation, distribution, storage, supply, LNG installation services, transportation of oil and oil products, and is subject to obtaining a license issued by the Regulator under the procedure as established by law. The Regulator carries out the regulation and monitoring of, and control over the activities of economic entities involved in the above activities.

According to the Law, natural gas market entities in Ukraine are the gas transmission system operator (hereinafter referred to as GTS operator), gas distribution system operator (hereinafter referred to as GDN operator), gas storage operator, LNG installation operator, wholesaler, wholesale buyer, supplier, and customer (including protected customers).

Natural gas transportation through the territory of Ukraine is carried out by the GTS operator, and natural gas storage in underground gas storages is carried out by the gas storage operator.

According to the GTS operator (LLC "GTS Operator of Ukraine") and gas storage operator (JSC "Ukrtransgaz"), in 2020, there were 473 customers of transportation services on the natural gas market (65 customers more than in the previous year) and 457 customers of storage services (nearly as many as in the past year).

Natural gas distribution (movement of natural gas through the gas distribution system in order to physically deliver it to customers, including households, but not including the natural gas supply) is carried out by GDN operators. As of today, 46 GDN operators have licenses for natural gas distribution. At the same time, NEURC Resolution #1841 of October 07, 2020 suspended the license entitling the holder to conduct economic activities for the natural gas distribution for Montazhnyk subsidiary enterprise of Trading House "Valinor" LLC for a period of six months from the date this resolution entered into force.

Natural gas purchase and sale, as well as imports, are carried out by wholesale buyers and wholesalers of natural gas. According to available information, 399 wholesalers and wholesale buyers operated in the natural gas market in 2020.

The sale of natural gas to customers for their own needs, rather than for resale or as a feedstock, is carried out by the supplier in accordance with the obtained license for natural gas supply on the basis of agreements concluded with customers. In 2020, 286 suppliers actually supplied natural gas to end users.

Table 3.1.1. Main indicators of the gas sector

Year	2016	2017	2018	2019	2020
Natural gas production (billion m^3)	19.12	19.42	19.28	19.75	19.73
Import (billion m^3)	11.08	14.05	10.59	11.55	9.24
Export (billion m^3)	0	0	0	0	0
Gas stocks change (billion m^3)****	2.01	-2.71	0.82	-5.16	-4.88
Gross consumption (billion m^3)	32.28	30.77	30.68	28.84	29.78
Technical capacity of interconnections at the entry point to the GTS (million m^3/day)	902.18	902.18*	902.18*	904.6*	457.2**
Technical capacity of interconnections at the exit point from the GTS (million m^3/day)	443.60	473.60	473.60	473.60	559.4***
Active capacity of the gas storages (billion m^3)	30.95	30.95	30.95	30.95	30.95
Length of gas transmission networks (thousand km)	35	35	35	35	33
Length of gas distribution networks (thousand km)	309	292	285	290	289
Final consumption of natural gas (billion m^3)	29.30	27.47	27.49	25.04	27.52
household customers	11.88	11.23	10.63	8.33	8.17
Number of customers (thousand persons):	12,271	12,397	12,436	12,570	12,584
household	12,169	12,288	12,322	12,459	12,471
non-household	102	109	114	111	113

* 906.7 during the heating period.
** 459.3 during the heating period.
*** 561.6 during the heating period.
**** The difference between the volumes withdrawn from and volumes injected into gas storage.

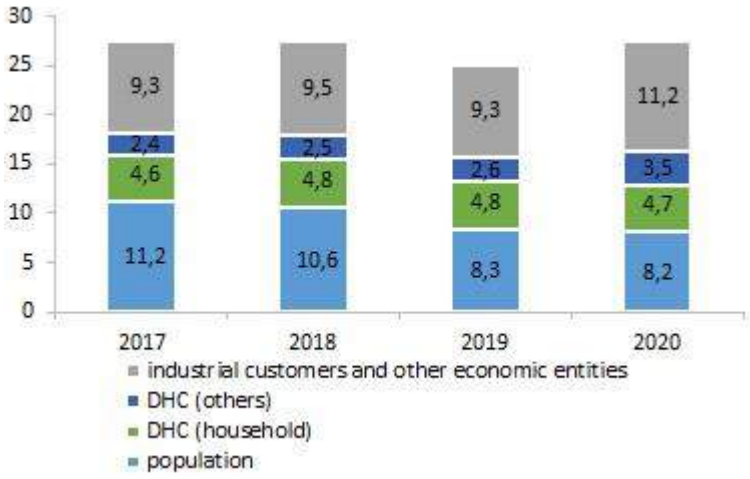


Fig. 3.1.1. Natural gas final consumption by main categories of customers in 2017–2020, billion m^3

Final consumption in 2020 increased by 10% compared to the previous year and amounted to 27.52 billion m^3; at the same time, there were changes in its structure (Fig. 3.1.1). Thus, household consumption decreased by 2% and amounted to 8.17 billion m^3, and consumption by heat producers that supplied to households decreased by 3% and amounted to 4.65 billion m^3 in 2020 compared to 2019. At the same time, industrial customers and other economic entities consumed 21% more in 2020 vs. 2019, and heat producers for non-household customers consumed by 33% more than in 2019. Thus, natural gas consumption by households has been declining over the last four years: its share in overall consumption was 29.7% in 2020 compared to 41% in 2017. Natural gas consumption by heat producers for the needs of households has hardly changed during the years 2017–2020.

It should be noted that over the past two years, natural gas consumption by households has been lower than that of industrial customers and other economic entities.

The dynamics of natural gas final consumption in terms of other categories of customers in Ukraine from 2012 to 2020 are given in Annex 3.1.1.

The dynamics of gross and final consumption in Ukraine during the years 2010–2020 is shown in Fig. 3.1.2.

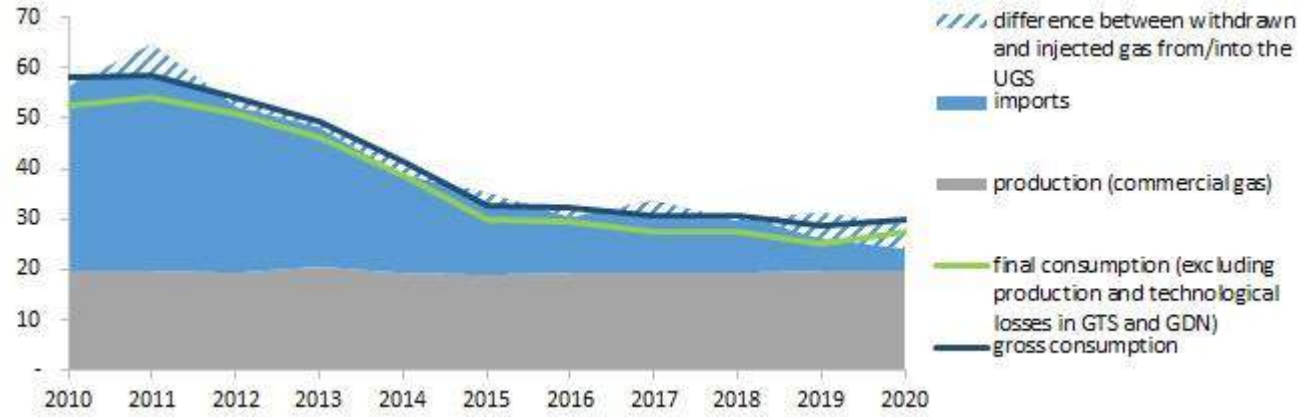


Fig. 3.1.2. Natural gas injection and consumption, 2010–2020, billion m^3

The volume of natural gas production has changed insignificantly over the last 10 years. Thus, in 2020, 19.73 billion m^3 of natural gas were produced. At the same time, the volume of natural gas production in 2020 covered 71.7% of final consumption (78.9% in 2019). The demand for natural gas has declined since 2012 along with the significant decline in the total volume of natural gas imports: by 55% in 2015 (compared to 2012), by 33% in 2016 (compared to 2015), and by 20% (or 2.3 billion m^3) in 2020 (compared to 2019). The exceptions were 2017 and 2019, when natural gas imports increased by 27% (or 2.97 billion m^3) and 9% (or 0.96 billion m^3), respectively, compared to the previous year, which resulted in more natural gas being injected into the gas storages than withdrawn. The total volumes of production and imports in 2020 did not fully cover the gross consumption of natural gas, and the shortage was withdrawn from gas storages. It should also be noted that all natural gas imports come from the European Union since 2016.

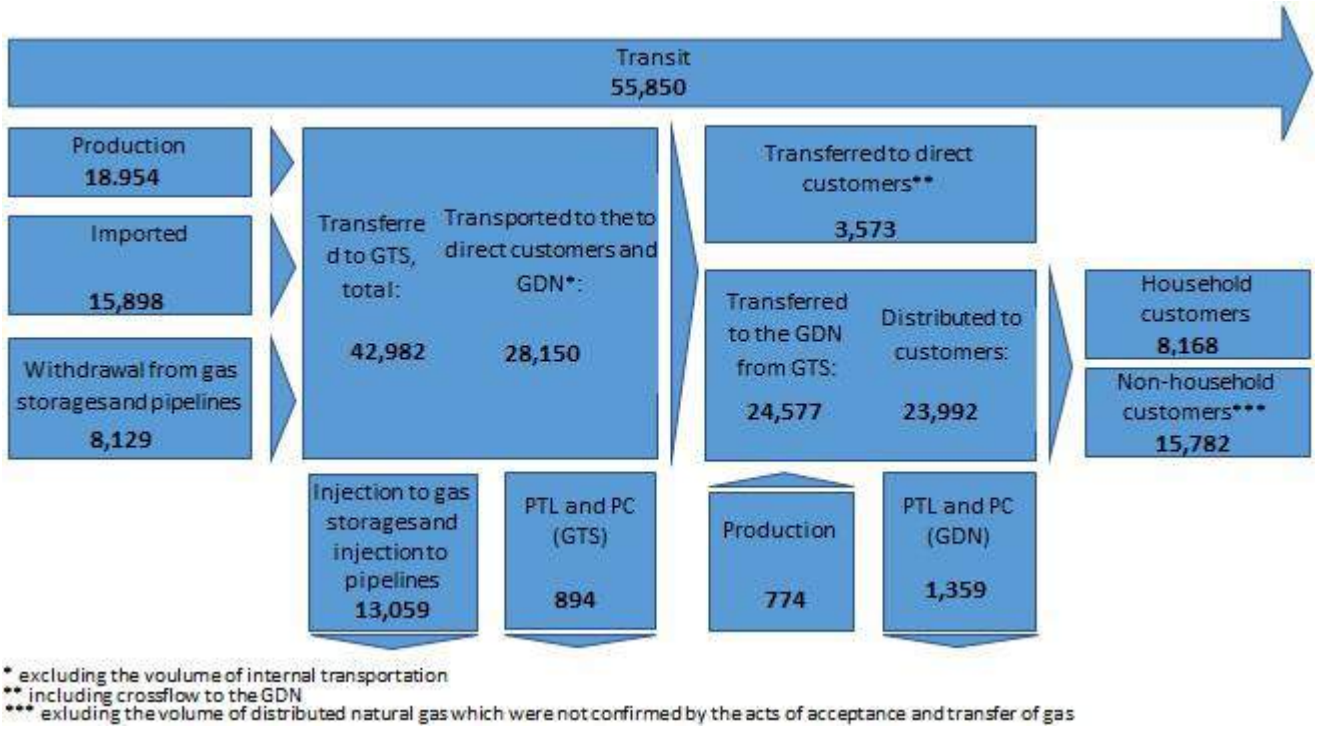


Fig. 3.1.3. Balance of natural gas volumes in 2020, million m^3

In 2020, the total volume of natural gas transported by the gas transmission system to direct customers and gas distribution systems was 28.15 billion m^3 (Fig. 3.1.3). The total volume of natural gas transferred to the gas transmission system of Ukraine amounted to 43 billion m^3 (transit excluded): 18.9 billion m^3 (44.1%) were produced (excluding production and technological losses of the producers), 15.9 billion m^3 (36.9%) were imported with 10.2 billion m^3 being imported to the "Customs Warehouse" of gas storages for storage, of which 3.5 billion m^3 cleared through the customs for consumption and sale on the Ukrainian market, and 8.13 billion m^3 (19%)

were withdrawn from gas storages and pipelines. The total volume of natural gas withdrawn from the gas transmission system amounted to 41.2 billion m^3 (transit excluded 3.57 billion m^3 (8.7%) were withdrawn by customers connected to the GTS (including the crossflow to the GDN), 24.58 billion m^3 (59.7%) were transferred to the GDN, and 13.06 billion m^3 (31.6%) were injected into gas storages and pipelines.

In 2020, GDN operators distributed 23.95 billion m^3 of natural gas to Ukrainian customers. At the same time, 8.17 billion m^3 were distributed to household customers and 15.78 billion m^3 to non-household customers.

The volumes of natural gas transferred to the gas transmission system through entry points in 2020 are shown in Fig. 3.1.4.

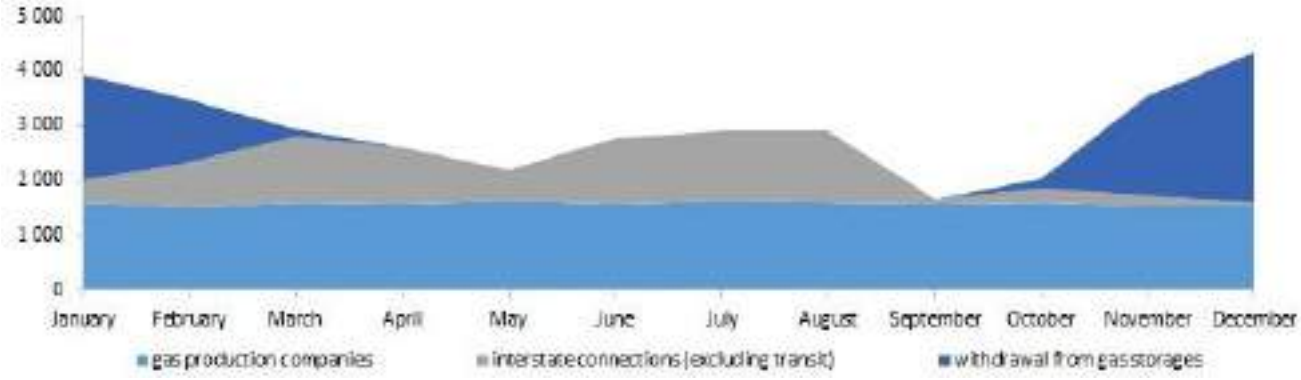


Fig. 3.1.4. Natural gas volumes transferred to the GTS of Ukraine through entry points (transit excluded) in 2020 (monthly), million m^3

Volumes of natural gas transferred to the gas transmission system in 2020 peaked in November and the winter months (January, February, and December) due to the heating period. During these months, the increased demand was covered through gas withdrawal from gas storages and imports. In addition, extremely large volumes of injection and withdrawal of natural gas into/from the GTS were recorded in the summer months (June, July, and August), which was caused by the import of large volumes of natural gas and their subsequent injection into gas storages. The volumes of own natural gas production in 2020 did not change significantly.

During the heating season, high demand for natural gas was maintained by customers who are connected to gas distribution systems (Fig. 3.1.5), while the demand of customers connected to the GTS was uniform throughout the year. In April-October 2020, significant natural gas volumes were actively injected into gas storages.

Fig. 3.1.5. Natural gas volumes withdrawn from the GTS of Ukraine through exit points (transit excluded) in 2020 (monthly), million m^3

3.1.2. Reforming the natural gas market

Following the adoption of the Law of Ukraine “On Natural Gas Market” in 2015, the Regulator adopted a number of secondary legislation in accordance with the requirements of the EU Third Energy Package in a form adapted for the Energy Community, which was the basis for the liberalization of the natural gas market.

Later, the Regulator successfully implemented one of the key reforms in the energy sector of Ukraine: the natural gas market switched from monthly to daily balancing on March 1, 2019. This reform was implemented through provisions of Commission Regulation (EU) #312/2014 of March 26, 2014, which encourage suppliers to resolve their own imbalances and promote the development of the wholesale natural gas market, which in turn increases the attractiveness of the Ukrainian gas market for energy companies and positively affects integration into the European gas market.

In 2020, the Regulator's work was aimed at the development and sustainable functioning of the natural gas market, implementation of measures to ensure the effective functioning of the liberalized domestic natural gas market, including by improving provisions of secondary legislation adopted to comply with the Law, taking into account the norms of EU Directives and Regulations.

The Regulator decided to certify the GTS operator, so there has been an independent operator “GTS Operator of Ukraine” on the natural gas market of Ukraine since January 01, 2020.

In accordance with EU Regulation #2017/460, tariffs for natural gas transportation services for entry and exit points have been set for a new certified gas transmission system operator on the basis of incentive regulation.

Other provisions of the European Union regulations, the implementation of which is determined by the Treaty establishing Energy Community and the Association Agreement between Ukraine, on the one part, and the European Union, the European Atomic Energy Community and their Member States, on the other part, were introduced to the NEURC statutory instruments by adopting Resolution #370 of February 11, 2020 “On Amendments to Certain Resolutions of the NEURC”.

Thus, as a result of the implementation of provisions of EU Regulation 459/2017 of March 16, 2017, capacity distribution at interconnection points of the gas transmission system is carried out on the European auction platforms: GSA on the border with Poland, and RBP on the borders with Hungary, Slovakia, Romania, Moldova, Russia, and Belarus.

Customers of transportation services have the opportunity to order capacity on interconnections during the day, which improves their ability to import natural gas.

Due to implementation of provisions of EU Regulation #2015/703 of April 30, 2017, the interaction of the gas transmission system operator with operators of adjacent gas transmission systems is regulated according to the principles applied in EU Member States and allows harmonizing the process of natural gas transportation on interconnections.

It should also be noted that due to the implementation of provisions of Commission Decision (EU) #2012/490 of August 24, 2012, dealing with contractual overloading on interconnections in the gas transmission system is carried out according to the rules of EU Member States, which increases the efficiency of the gas transmission system of Ukraine.

At the same time, in order to reduce the financial burden on customers of transportation services and improve the capacity allocation at the interconnection points, the NEURC adopted Resolution #1235 of June 30, 2020 “On approval of Amendments to Some Resolutions of the NEURC”, which amended the Gas Transmission System Code and the Standard contract for the transportation of natural gas in terms of eliminating the requirement for customers of transportation services to provide auction fee or auction obligation to the gas transmission system operator to participate in auctions for capacity allocation on interconnections.

In order to stimulate the development of the short-term wholesale gas market, as well as encourage customers of transportation services to take actions required to properly balance of

their own balancing portfolio, the NEURC adopted Resolution #1611 of August 26, 2020 “On Approval of Amendments to Some Resolutions of the NEURC”. This Resolution reduced the permissible tolerance from 10% to 3% for customers of transportation services, and from 15% to 7.5% for customers of transportation services that are operators of gas distribution systems, and increased the amount of adjustment.

Thus, in the case of imbalances from 3% to 5% (inclusive) (or from 7.5% to 15% (inclusive) for gas distribution system operators), an adjustment amount of 10% is applied today.

In the case of imbalances greater than 5% (15% for gas distribution system operators), and an adjustment at 20% is applied.

In 2020, amendments were also made to the GTS Code in terms of improving the procedure for determining the sufficient amount of financial security and its provision by customers of transportation services in favor of the gas transmission system operator.

However, in order to harmonize the costs included in the calculation of the balancing neutrality charge and the costs of the GTS operator for the physical balancing of the gas transmission system, as well as to bring provisions of statutory instruments governing the natural gas market in line with provisions of Commission Regulation (EU) #312/2014, the NEURC adopted Resolution #1779 of September 30, 2020 “On Amendments to the Gas Transmission System Code and the Gas Storage Code”.

Provisions of the above resolution extended the first stage of introduction of the balancing neutrality charge for the 2020/2021 gas year in order to invent the best approaches to calculating the balancing neutrality charge, which will reduce the financial burden on customers and improve its application mechanisms.

This resolution also deprived the gas transmission system operator of the opportunity to use the capacity of gas storages when balancing the gas transmission system, which meets the requirements of Commission Regulation (EU) #312/2014 and will stimulate the development of natural gas market liquidity.

To promote the creation, development, and increase of the liquidity of the short-term natural gas market in Ukraine, the NEURC signed a Memorandum with the Secretariat of the Energy Community, the Commodity Exchange “Ukrainian Energy Exchange”, and GTS Operator of Ukraine. Within the framework of this Memorandum, cooperation is carried out to find the best solutions for creating a liquid natural gas market on the Ukrainian Energy Exchange platform and enabling the GTS Operator to use the prices to be formed on the Ukrainian Energy Exchange platform to determine the daily imbalance charge.

In addition, the GTS operator faced obstacles at the legislative level when purchasing natural gas on the trading platform within one gas day in 2020, as according to the Law of Ukraine “On Public Procurement”, the GTS operator was obliged to make such purchases solely under a tender procedure. To address this problem, a new law is drafted to amend the Law of Ukraine “On Public Procurement”, in particular the provisions regulating the purchase of natural gas. The Regulator provided comments and suggestions to the draft Law under the procedure as established by law.

It should be noted that on December 2, 2020, the Verkhovna Rada of Ukraine adopted the Law of Ukraine “On Amendments to the Law of Ukraine ‘On Public Procurement’ with Regard to Natural Gas Procurement”, which was signed by the President of Ukraine on January 21, 2021 (registration number of the Law of Ukraine is 1021-IX of December 02, 2020).

As part of the reform of the natural gas retail market, the Regulator has changed the approaches to determining the cost of natural gas distribution services since January 1, 2020, as a result of which the customer now pays for distribution services in equal parts throughout the year based on the ordered capacity. This approach provides a number of advantages, namely payment for natural gas distribution services in equal parts avoids a large burden on the customer during the heating period, and uniform inflows allow gas distribution companies to provide a high level of service to gas distribution networks and their components.

Thus, tariffs for natural gas distribution services for gas distribution system operators have been set as payment for the ordered capacity since January 1, 2020.

At the same time, in order to reduce the financial burden on new household customers (with an actual period of natural gas consumption of less than nine months) and customers, who did not consume natural gas in the previous gas year, the NEURC adopted the Resolution #580 of March 06, 2020 "On Amendments to the Gas Distribution System Code", which improved the mechanism for determining fees for natural gas distribution services for new household customers, or those who did not consume natural gas within the previous gas year, by reducing the final payment for such customers for the service received on the natural gas distribution.

In addition, NEURC Resolution #1469 of July 29, 2020 "On Approval of Amendments to the Gas Distribution System Code and Amendments to the Standard Contract for Distribution of Natural Gas" improved the capacity allocation mechanism of the gas distribution system, increased the time period (more than two months), during which a non-household customer can submit an application for clarification (increase/decrease) of the ordered annual capacity for the current calendar year to the GDN operator, and reduced the coefficients to calculate the excess of the customer's ordered annual capacity (from 1.5 by 1.1 in the case of the initial order of annual capacity by a new non-household customers, and/or for the needs of a new customer facility, and from 2 to 1.5 in the case of ordering annual capacity by a non-household customer).

To ensure consistent and effective opening of the retail market of natural gas for household customers and increase competition among suppliers to households, the NEURC adopted Resolution #1080 of June 10, 2020, which amended the Gas Transmission System Code, the Gas Distribution System Code, the Rules of Natural Gas Supply, and the Standard Contract for the supply of natural gas to household customers.

The provisions of this resolution are aimed at easing the conditions for concluding a natural gas supply contract between a household customer and a new supplier and, as a consequence, simplifying the procedure for changing the natural gas supplier.

Thus, to switch, the household customer must submit an application to the newly chosen supplier indicating the personal EIS code as a participant of the natural gas market. The switching requires no involvement/confirmation of/from the current supplier.

All further measures necessary to complete the supplier change procedure will be carried out by the new natural gas supplier through the information platform of the gas transmission system operator using modern information technologies.

However, in order to ensure an uninterrupted supply of natural gas to household customers in the opening of the retail natural gas market, which due to objective circumstances were left without a natural gas supplier, or if the current supplier has not fulfilled its obligations under the natural gas supply contract, the NEURC adopted Resolution #1752 of September 23, 2020 "On Approval of Amendments to Certain Resolutions of the NEURC", amending the Gas Transmission System Code, the Rules of natural gas supply, and the Standard Contract for the supply of natural gas by the last resort supplier in terms of improving the rules of operation of the last resort supplier in the natural gas market.

Thus, in case of bankruptcy, liquidation of the natural gas supplier, suspension or revocation of its natural gas license, as well as in the event when the selected natural gas supplier cannot provide the customer with the required amount of natural gas, the natural gas supply to such household customers will be automatically provided by the last resort supplier.

In addition, in accordance with provisions of Paragraph 22^2, Part 1, Article 17 of the Law of Ukraine "On National Energy and Utilities Regulatory Commission", the functions and powers of the Regulator include approval of the methodology to determine normative gas losses and process gas, and associated costs since January 1, 2020.

In order to meet the requirements of the legislation of Ukraine, the NEURC developed and adopted Resolution #2033 of November 06, 2020 "On Approval of the Methodology for Determining the Amount of Normalized and Production and Technological Losses/Costs of Natural

Gas in the Distribution of Natural Gas and Amendments to Some NEURC Regulations" (hereinafter referred to as the Methodology). The Methodology determines the procedure for calculating the amount of normative gas losses and process gas, and associated costs for the gas distribution system operators, taking into account the following technical, technological, operational, statistical data, and indicators, in particular:

1) quantitative composition and nomenclature of components of the gas distribution system of the GDN Operator to the commercial metering units;

2) the quantitative composition of household gas appliances and equipment installed at household customers and at communal facilities;

3) data on replacement or reconstruction of obsolete equipment (pipelines), commissioning of new pipelines and equipment;

4) service life of gas networks and their components;

5) metrological characteristics of measuring instruments used for commercial calculations, as well as their location;

6) actual values of pressure in pipelines, facilities, equipment, and devices.

At present, the Regulator will continue to monitor the process of ensuring the necessary conditions for the natural gas market functioning and make every effort to ensure its proper operation.

It should be noted that in November 2020, the ECS Annual Implementation Report noted that Ukraine had made the greatest progress among all other Energy Community Contracting Parties in reforming the energy market by fulfilling its obligations under the Treaty establishing Energy Community.

3.1.3. Ownership structure in the natural gas market

Gas transmission system operator: GTS Operator of Ukraine

The Joint-Stock Company 'Main Gas Pipelines of Ukraine' owns 100% of the authorized capital of Gas Transmission System Operator of Ukraine. The Government of Ukraine (represented by the Ministry of Finance of Ukraine) owns 100% of the Company's shares.

Storage System Operator: Ukrtransgaz

The founder and sole shareholder of Ukrtransgaz is National Joint Stock Company Naftogaz of Ukraine (hereinafter referred to as Naftogaz).

Gas distribution system operators

According to the information available at the end of 2020, part of the stake (shares, common shares) of 16 GDN operators was owned by the state, one of the operators is 100% owned and another one with a stake of more than 50%. Only one GDN operator — Kyivgaz — has 28.46% stake (shares, common shares) communally owned. The remaining shares and shares of other GDN operators are owned by other legal entities and individuals (Annex 3.1.2).

Gas distribution systems

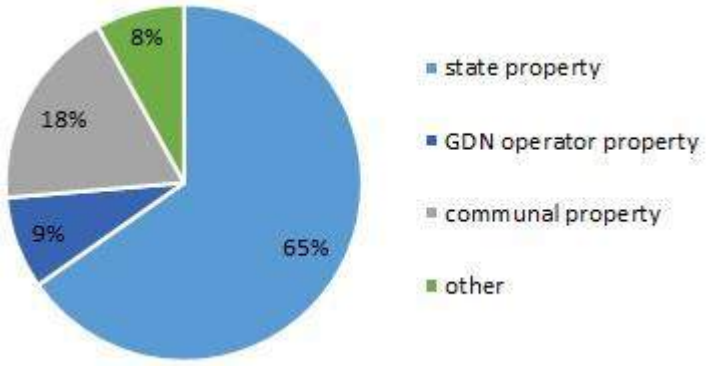


Fig. 3.1.6. Fig. 3.1.6 Gas distribution systems in terms of ownership as of the end of 2020, %

According to the information available at the end of 2020, 65% of gas distribution systems were state-owned, 18% were communally-owned, 9% were owned by GDN operators, and 8% were owned by other economic entities (Fig. 3.1.6).

Detailed information on the length of gas distribution systems in terms of ownership as of the end of 2020 is given in Annex 3.1.3.

3.2. **Regulating natural monopolies in the oil and gas sector**

3.2.1. Unbundling

Gas transmission system operator

The Law of Ukraine "On Natural Gas Market" defines two unbundling models out of the three possible ones envisaged by Directive 2009/73/EC: Article 23 of the Law sets out general requirements for unbundling and independence of the gas transmission system operator according to the OU (Ownership Unbundling) model, and Articles 27–29 of the Law define special requirements for unbundling and independence of the gas transmission system operator according to the ISO (Independent System Operator) unbundling model.

Under Article 24 and considering the Energy Community Secretariat's positive Opinion #4/19 of December 17, 2019 concerning the NEURC's tentative decision to certify Gas Transmission System Operator of Ukraine, as approved by NEURC Resolution #2482 of November 22, 2019, the NEURC, by its Resolution #3010 of December 24, 2019, adopted the final decision, effective as of January 01, 2020, to certify the gas transmission system operator, i.e., the Limited Liability Company "Gas Transmission System Operator of Ukraine", under the ISO model (hereinafter referred to as the Final Decision on Certification). At the same time, under NEURC Resolution #3011 of December 24, 2019, a decision was adopted to issue a license to the Gas Transmission System Operator of Ukraine authorizing the operator to pursue the activity of natural gas transmission from January 01, 2020.

Throughout the year, the NEURC monitored the implementation of the final certification decision by the GTS operator, in particular the submission of documents and information as required by the final certification decision to the NEURC. These documents and information were to confirm the transfer of state-owned property used in the natural gas transportation through main pipelines to the GTS operator, transfer as of January 1, 2020 from Ukrtransgaz to GTS Operator of Ukraine of all employees necessary for effective transportation of natural gas, and availability of all the permits required to perform the basic functions of the gas transmission system operator.

Following Article 31 of the Law, the GTS operator must develop and implement the Compliance Program, which defines measures to avoid discriminatory actions by the GTS operator, and monitor the implementation of such measures. The Compliance Program defines the functional responsibilities of the GTS operator employees to achieve these goals and must be approved by the Regulator. The implementation of the Compliance Program is monitored by the controller.

Following Article 31 of the Law and the final decision on certification of GTS Operator of Ukraine, a draft Compliance Program of GTS Operator of Ukraine (hereinafter referred to as the Compliance Program) was submitted to the NEURC in January 2020, and the NEURC provided comments and suggestions. Taking into account the discussions between the representatives of the GTS operator and the NEURC on certain provisions of the draft Compliance Program, on December 9, 2020, GTS Operator of Ukraine submitted to the NEURC the revised draft Compliance Program of GTS Operator of Ukraine for approval.

On December 23, 2020, the NEURC approved the Compliance Program of the Gas Transmission System Operator of Ukraine LLC at the NEURC meeting held in the form of a public hearing.[62] The Compliance Program is published on the website of Gas Transmission System Operator of Ukraine LLC.

[62] NEURC Resolution #2679 of December 23, 2020.

Article 31 of the Law defines the requirements for the independence of the controller, its operational environment, and the procedures for its appointment and dismissal. Following Parts 4 and 5, Article 31 of the Law, the gas transmission system operator shall notify the Regulator of the controller's candidacy and proposed terms of the contract between the controller and the gas transmission system operator, including conditions, terms, and grounds for termination of the controller's duties, terms of payment for the controller's services, substantive and other rights of the controller.

Within three weeks from the date of receipt of the information specified in Part 4, Article 31 of the Law, the Regulator may object to the proposed candidacy or terms of the contract between the controller and the gas transmission system operator in the event when the requirements in Part 3, Article 31 of the Law on controller independence are not met.

Order of the Ministry of Finance of Ukraine #606 of October 09, 2020 approved a new Charter of JSC Main Gas Pipelines of Ukraine, according to which the appointment of a controller (a person responsible for monitoring and reporting on compliance with requirements regarding the unbundling and independence of the gas transmission system operator) of the company, which is the gas transmission system operator and the sole participant of which is the Company is within the competence of the Supervisory Board of JSC Main Gas Pipelines of Ukraine, in case the supervisory board of such company is not appointed.

Following Article 31 of the Law, in November 2020, the Gas Transmission System Operator of Ukraine LLC submitted to the NEURC a candidacy of the GTS operator's controller for approval along with a package of the documents required for the approval of the controller's candidacy.

Having reviewed the submitted documents, the NEURC requested GTS Operator LLC to provide information and supporting documents necessary to analyze the compliance of the GTS operator's candidacy with the requirements of Subparagraphs 2 and 4 of, Part 3, Article 31 of the Law. The GTS operator provided such additionally requested information and documents. Having studied these additionally submitted documents, the NEURC found that the documents provided by the GTS operator did not fully confirm the compliance of the candidacy for the position of GTS operator controller with the requirements of Part 3, Article 31 of the Law.

In view of the above and based on the considered documents and information, the NEURC rejected the proposed candidate for the position of controller of GTS Operator of Ukraine LLC.[63] According to NEURC Resolution #2870 of December 30, 2020, GTS Operator must submit for approval the candidacy of the controller along with the information and supporting documents required to analyze the compliance of the proposed candidacy with the requirements of Part 3, Article 31 of the Law of Ukraine “On Natural Gas Market” within two months from the date this resolution enters into force.

Gas distribution system operators

The requirements for the unbundling and independence of the GDN operator are defined by provisions of Article 39 of the Law.

On July 1, 2015, the natural gas supply and natural gas distribution were legally separated.

Thus, today, the distribution services are provided to customers by GDN operators on the basis of a contract concluded in accordance with the Standard Natural Gas Distribution Contract.

Natural gas supply services to household customers are provided by natural gas suppliers on the basis of a contract that must comply with the Standard Contract for the supply of natural gas to household customers. At the same time, the natural gas supply to other customers is carried out by natural gas suppliers under of the contracts concluded in accordance with the requirements of the Civil Code of Ukraine and Economic Code of Ukraine, and are to provide for some essential conditions defined by Article 12 of the Law and Natural Gas Supply Rules.

In 2020, the number of economic entities licensed to distribute natural gas was 46, five of which, guided by the provisions of Article 39 of the Law on the possibility of exemption of a gas distribution system operator with less than 100,000 connected customers from the requirements

[63] NEURC Resolution No. 2870 of December 30, 2020.

of this Article, were exempted from the requirements of this Article set out in the Law based on NEURC Order #15-p of August 17, 2016, and NEURC Resolution #2115 of 28.12.2018.

At the same time, NEURC Resolution #1841 of October 07, 2020 suspended the license entitling the holder to conduct economic activities for the natural gas distribution for Montazhnyk subsidiary enterprise of Trading House "Valinor" LLC for a period of six months from the date, on which this resolution entered into force.

In addition, the GDN operator develops and implements the compliance program following the provisions of Article 39 of the Law. This program should include measures to ensure unimpeded operation of the GDN operator provided for in Part 1, Article 37 of the Law, as well as measures to avoid discriminatory actions and undue influence on the activities of the GDN operator. The report on the implementation of the compliance program is submitted annually to the Regulator by the official responsible for monitoring and implementation of the compliance program and is published on the website of the Regulator. The candidacy of such an official shall be approved by the Regulator.

Based on the above, NEURC Resolution No. 1289 of October 24, 2017 "On Approval of Candidates for Officials of Gas Distribution System Operators Responsible for Monitoring the Implementation of Compliance Program" (as amended by NEURC Resolution No. 355 of February 07, 2020) approved the list of candidates for positions responsible for monitoring the compliance program with the gas distribution system operators.

In pursuance of the requirements of the Law, the gas distribution system operators sent to the NEURC reports on the implementation of the compliance program, which have been duly reviewed and published on the official website of the NEURC.

It should be noted that the NEURC constantly monitors the compliance of the unbundling requirements by the licensees provided for in provisions of Article 39 of the Law. Such monitoring provides for reviews and analysis of the reports on the implementation of the compliance program.

In addition, compliance with the requirements for unbundling and independence of the gas distribution system operator established by Article 39 of the Law of Ukraine "On Natural Gas Market" is subject to the scheduled inspections of GDN operators to ensure their overall compliance with the legislation and the Terms of License to perform activities associated with natural gas distribution.

3.2.2. Network operation

The distribution of natural gas to the final customer is carried out by means of branched gas transmission and gas distribution systems. These systems include a large number of gas pipelines operating in a variety of geological and man-made environments, as well as thousands of units of technological equipment to control pressure purification, flow, etc.

As of the end of 2020, the length of gas distribution systems accounted for on the balance (in service) of GDN operators was 289.11 thousand km, which included 47.09 thousand km of high-pressure pipelines, 118.28 thousand km of medium-pressure ones, and 123.74 thousand km of low-pressure ones.

The operation of gas distribution systems makes inevitable certain gas losses for maintenance and repair to keep the equipment in a due condition. The amount of these technological losses depends on both objective factors (number of equipment, length of gas pipelines) and subjective factors (correct choice of equipment modes).

Technological losses accompany the operating costs of natural gas in the gas distribution system. Some of these losses are due to the level of technology used to build gas networks and the natural conditions, in which the systems operate (e.g., losses due to leaks in pipelines and equipment, losses through to safety valves).

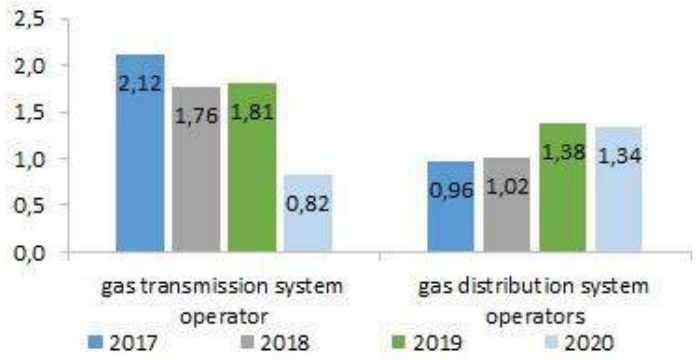


Fig. 3.2.1. Actual volumes of production and technological losses/costs of natural gas of the GTS operator and GDN operators for 2017–2020, billion m^3

In 2020, the NEURC for the first time adopted 42 resolutions, which set the level of normative losses, process gas and associated costs for gas distribution system operators for 2021. Information on the established volumes of losses/costs is provided in Annex 3.1.4.

The dynamics of the actual volumes of production and technological losses/costs in the gas transmission system and gas distribution systems for the last four years are shown in Fig. 3.2.1.

3.2.3. Operation of gas storages

Today, the Ukrainian natural gas market has 12 underground gas storage facilities (Table 3.2.1), two of which are in aquifers, and the rest are in depleted gas fields. In 2020, the total effective capacity of these was 31 billion m^3. The largest gas storage facility is Bilche-Volytsia UGS — 17.05 billion m^3 (55.09% of the total maximum storage volume (design capacity)). The maximum (design) capacity of gas injection into gas storage is 252 million m^3/day, and the maximum (design) capacity of natural gas withdrawal from gas storage facilities is 260 million m^3/day.

Table 3.2.1. Technical characteristics of gas storages of Ukraine

Gas storage name	Active gas volume	Buffer gas volume	Design capacity of injection	Design capacity of withdrawal
	mln m^3	mln m^3	mln m^3/day	mln m^3/day
Uherske	1,900	782	17	17
Bilche-Volitsko-Uherske	17,050	6,780	120	102
Dashavske	2,150	1,803	26	26
Oparske	1,920	2,228	14	14
Bogordchaske	2,300	0	26	50
Olushivske	310	260	2	2
Chervonopartyzanske	1,500	1,474	11	14
Solohivske	1,300	746	8	10
Proletarske	1,000	653	10	10
Kehychivske	700	380	7	9
Krasnopopivske	420	190	5	4
Verhunske	400	303	6	3
Total	**30,950**	**15 599**	**252**	**260**

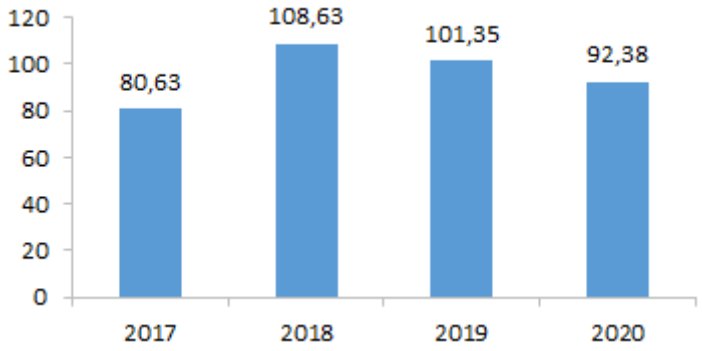


Fig. 3.2.2. Volumes of production and technological costs and normalized losses of natural gas of the gas storage operator for 2017–2020, million m^3

Volumes of production and technological costs of gas storage operator (Ukrtransgaz) in 2020 decreased compared to the previous year by 9% and amounted to 92.38 million m^3 (Fig. 3.2.2).

At the end of the storage year, which lasted from April 1, 2019 to March 31, 2020, the level of filling of gas storages in Ukraine was 51%, which is 23 percentage points more than at the end of the previous storage year. During this storage year, the maximum filling level of gas storages was 70% in October 2019. During the last three years of storage (period from April 1, 2017 through March 31, 2020), the maximum level of filling of gas storages was also in October, which was due to the preparation for the heating season (Fig. 3.2.3).

Thus, the capacity of gas storages is sufficient to meet the needs of the customers of transportation services and to ensure uninterrupted supply of natural gas and its reliable transit through Ukraine to European countries, creating long-term natural gas reserves in case of emergencies.

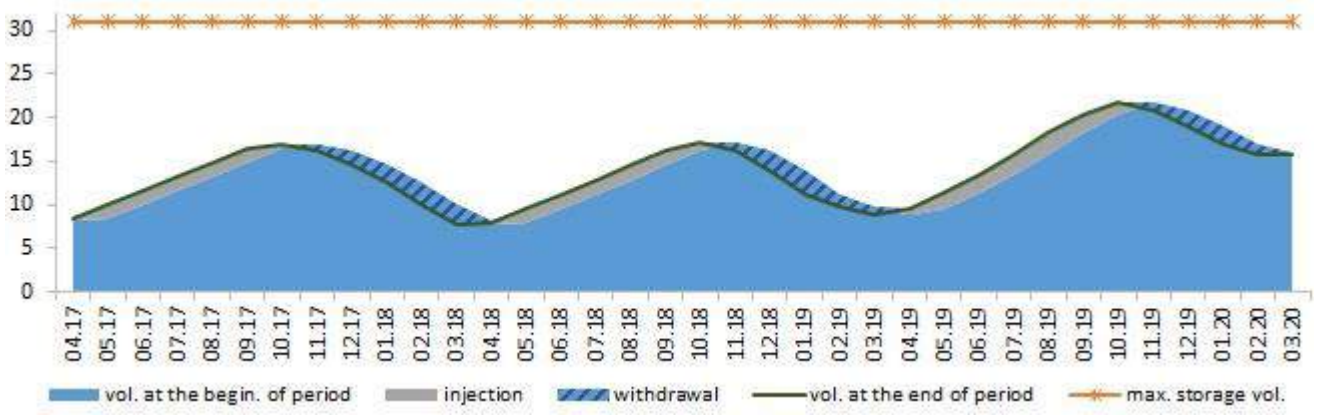


Fig. 3.2.3. Dynamics of volumes of natural gas stored in gas storages in the period from April 1, 2017 to March 31, 2020 (3 years of storage), billion m^3

3.2.4. Tariffs for natural gas transportation services

To ensure the full operation of a new certified gas transportation system operator, the Regulator has set tariffs for natural gas transportation services for entry and exit points for the regulatory period 2020–2024 for Gas Transmission System Operator of Ukraine since January 01, 2020,[64] which are given in Annexes 3.2.1 and 3.2.2.

[64] NEURC Resolution No. 3013 of December 24, 2019.

Comparative tariffs for natural gas transportation services at interconnection points and for domestic points are given in Fig. 3.2.4.

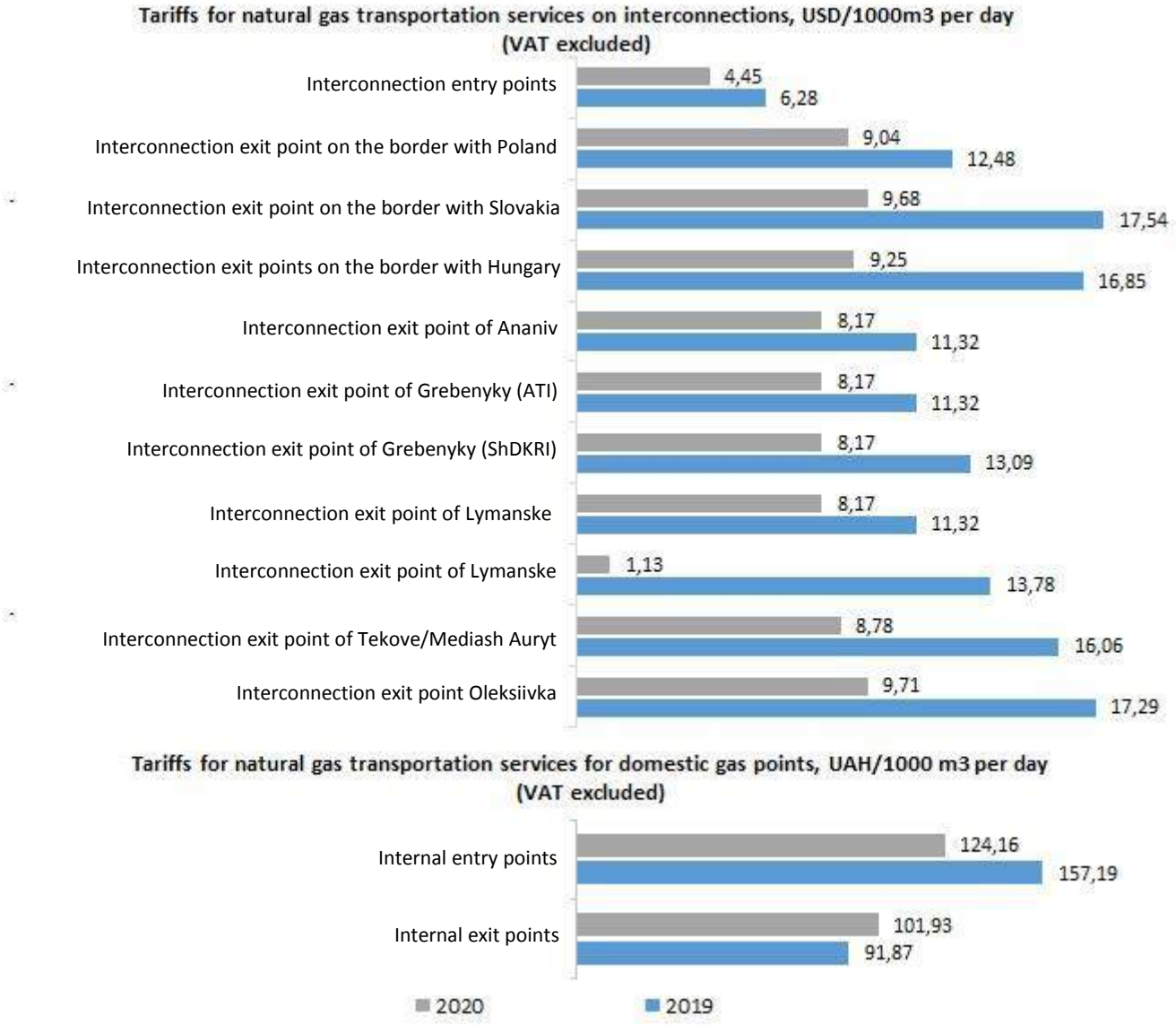


Fig. 3.2.4. Comparison of tariffs for natural gas transportation services

The calculation of tariffs for natural gas transportation services for entry and exit points is based on the methodology for calculating the base price based on the capacity weighted distance in accordance with the Methodology for determining and calculation of tariffs for the natural gas transportation services for entry and exit points based on multiyear incentive regulation and EU Regulation #2017/460, thus providing a single approach to the calculation of tariffs for all entry/exit points to/from the gas transmission system and the integration of entry/exit points to/from the gas transmission system within homogeneous groups, providing equal conditions for the relevant customers of natural gas transportation services.

In addition, from January 01, 2020, the Regulator for the first time approved the coefficients that take into account the period and season of capacity order.

Thus, the coefficients that take into account the period of capacity order and are applied to the tariffs for natural gas transportation services for internal entry and exit points to/from the gas transmission system have the following values:

- from March 1, 2020, the coefficient used when ordering capacity for the day ahead is 1.10 conventional units;
- from April 1, 2020, the coefficient used when ordering capacity for a monthly period is 1.04 conventional units;

- from October 1, 2020, the coefficient used when ordering capacity for the quarterly period is 1.02 conventional units.

Coefficients taking into account the period and season of capacity order applicable to the tariffs for natural gas transportation services for entry and exit points to/from the gas transmission system at interconnection points are given in Annex 3.2.3.

These coefficients are to stimulate long-term capacity booking to optimize the use of natural gas transmission infrastructure, fair consideration of transportation costs, which in the medium- and long-term perspective will reduce the cost of natural gas transportation in the case of long-term booking.

Together with this, the Regulator constantly analyzes the proposals received from natural gas market participants and takes measures to address current issues.

In 2020, the GTS Operator of Ukraine and customers of natural gas transportation services applied to the NEURC regarding the need to revise the coefficients that take into account the period and season of capacity order applied to tariffs for natural gas transportation services for entry and exit points to/from the gas transmission system at interconnection points, without taking into account the season of capacity order.

Thus, from October 01, 2020, the Regulator approved new coefficients that take into account the period of capacity order applied to the tariffs for natural gas transportation services for entry and exit points to/from the gas transmission system at interconnection points for the regulatory period 2020–2024:

- the coefficient applied when ordering capacity for the day ahead is at the level of 1.45 conventional units;
- the coefficient applied when ordering capacity for a monthly period is at the level of 1.2 conventional units;
- the coefficient applied when ordering capacity for the quarterly period is at the level of 1.1 conventional units, except for ordering capacity for the period of the first quarter of the gas year 2020–2021, at which the coefficient is at the level of 1.

Changing the coefficients applied to the tariffs for natural gas transportation services for entry and exit points to/from the gas transmission system at interconnection points will reduce the financial burden on customers of transportation services and increase the competitiveness of the Ukrainian gas transmission system.

At the same time, on January 01, 2020, the NEURC approved the reduction coefficients for capacity with restrictions on tariffs for natural gas transportation services for entry and exit points to/from the gas transmission system at interconnection points offering restricted capacities , which are provided in Annex 3.2.4 (short-haul coefficients), which contributed to the increase of regional transit flows through the gas transmission system of Ukraine, efficient use of the infrastructure, and record loading of Ukrainian gas storages, including at the expense of European customers.

Thus, in 2020, the load on Ukrainian gas storages was 30% higher than in the previous year.

At the same time, about 6.1 billion cubic meters of natural gas were transported to the underground natural gas storages of Ukraine in the short-haul mode, which amounted to 22% of the filling of the Ukrainian gas storages.

3.2.5. Tariffs for natural gas distribution services

Following provisions of the Law of Ukraine “On the Natural Gas Market,” the cost of the natural gas distribution service is unbundled from the total final payment for natural gas. At the same time, the transition to the methodology as payment for the ordered capacity was made, and the principle of determining the cost of natural gas distribution services for customers of such services was changed.

The Regulator set tariffs for natural gas distribution services based on the planned annual ordered natural gas distribution capacity by adopting Resolutions Nos. 3014–3057 of December 24, 2019. Also, in order to avoid a sharp increase of/minimize the financial burden on natural gas customers, the revision of tariffs for natural gas distribution services was carried out in two stages: from January 1, 2020 and from July 1, 2020.

At the same time, taking into account the decrease in the natural gas price in the unregulated segment of the wholesale natural gas market in Ukraine, NEURC Resolutions Nos. 1152–1193 of June 24, 2020 amended the Regulator's above-mentioned resolutions and reduced the tariffs for natural gas distribution services on June 24, 2020.

The tariffs for natural gas distribution services effective in 2020 are given in Annex 3.2.5.

It should be noted that the introduction of the tariffs based on the new methodology as a fee for the ordered capacity, and the unbundling the cost of natural gas distribution services from the cost of natural gas as a commodity provided a number of advantages for the final customer. In particular, the application of European approaches to payments for natural gas distribution services allows customers to understand for which services and to which company they pay. Payment for natural gas distribution services in equal parts avoids a large burden on the customer during the heating period, when natural gas consumption is the greatest.

The formation of tariffs for natural gas distribution services is based on economically justified costs of the respective economic entity and directly depends on the level of its costs for maintenance of the company’s gas distribution networks and their components, and the amount of work performed to service them.

The change in the average monthly wage of workers employed in Ukrainian industry, as well as the analysis of key macroeconomic and social development indicators of Ukraine during 2020, suggest an increase in costs required to ensure the main technological process, including fuel, electricity, raw materials, basic and auxiliary materials, spare parts, purchased components, semi-finished products, and other resources directly attributed to natural gas distribution services.

Taking into account the above, the NEURC established tariffs for natural gas distribution services for 2021 by Resolutions Nos. 2765–2787 of December 16, 2020 (as amended) and of December 30, 2020 (as amended). These tariffs for natural gas distribution services are given in Annex 3.2.6.

Tariffs for natural gas distribution services should provide gas distribution companies with the funds necessary for the operation of gas distribution systems, operation of gas equipment, and support of round-the-clock operation of emergency services to prevent possible natural gas leaks and emergencies.

3.2.6. Tariffs for injection, storage, and withdrawal of natural gas in gas storages

The calculation of tariffs for injection, storage, and withdrawal of natural gas is carried out in accordance with the Methodology for determining and calculation of tariffs for gas storage, including injection/withdrawal of natural gas to/from the gas storages, to which the regulated access regime is applied.

Until July 01, 2020, the following tariffs for injection, storage, and withdrawal of natural gas in underground storages for Ukrtransgaz (VAT excluded) were in force:

- tariff for natural gas injection was UAH 93.30 per 1000 m³ per day;
- tariff for natural gas storage was UAH 0.172 per 1000 m³ per day;
- tariff for natural gas withdrawal was UAH 97.20 per 1000 m^3 per day.

Taking into account the change in the volume of storage (injection/withdrawal) of natural gas in underground gas storages in recent years and changes in the main macroeconomic indicators of economic and social development of Ukraine, including the minimum wage, the NEURC has revised the tariffs for natural gas injection, storage, and withdrawal services.

Thus, on July 01, 2020, new tariffs for injection, storage, and withdrawal of natural gas in underground storages for Ukrtransgaz (VAT excluded) came into force:

- tariff for natural gas injection was UAH 110.16 per 1000 m³ per day;
- tariff for natural gas storage was UAH 0.19 per 1000 m³ per day;
- tariff for natural gas withdrawal was UAH 63.41 per 1000 m^3 per day.

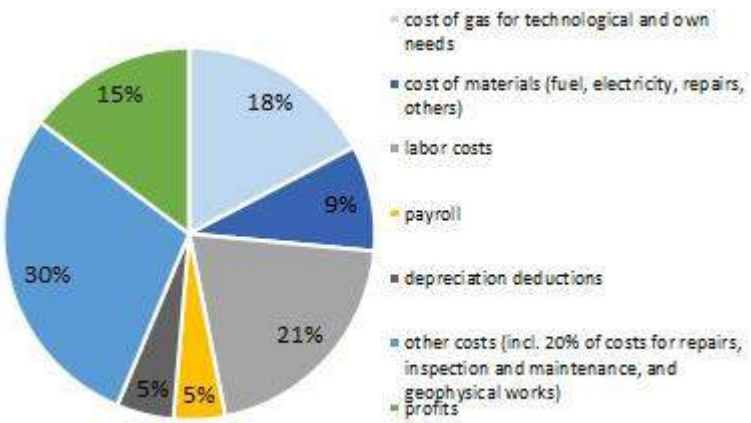


Fig. 3.2.5. Structure of current tariffs (planned tariff revenue) for injection, storage, and withdrawal of natural gas for Ukrtransgaz, %

The structure of current tariffs (planned tariff revenues) for natural gas injection, storage and extraction services is shown in Fig. 3.2.5.

In addition, in order to encourage customers to use long-term services of gas storages, the NEURC has established coefficients applicable to tariffs for natural gas injection, storage, and withdrawal services, namely:

- coefficient that takes into account the order of individual services of storage, injection, withdrawal of natural gas for a period of one month is at the level of 1.1;
- the coefficient that takes into account the order of individual services of injection, withdrawal of natural gas for the day ahead is at the level of 1.2.

3.2.7. Connection of customers to gas networks

Following the provisions of Part 9, Article 19 of the Law, the technical and commercial conditions for connection to the gas transmission or gas distribution system are defined in the Gas Transmission System Code or the Gas Distribution System Code.

Following Part 2, Article 19 of the Law, the GTS operator and the GDN operator are obliged to provide an entity in the natural gas market (customer) with access to the gas transmission or gas distribution system at its request.

Following provisions of Part 9, Article 19 of the Law, the connection of the customer's facility to the gas transmission or gas distribution system is carried out in the following order:

- obtaining a permit from the gas transmission or gas distribution system operator to connect;
- receipt of initial data by the customer or the designer;
- development of design documentation and conducting its examination in cases provided by law;
- approval of design documentation;
- performance of preparatory and construction works;
- connection of the facility to the gas transmission or gas distribution system;
- commissioning the completed facility.

Design and construction of gas transmission or gas distribution system facilities are carried out in accordance with the legislation in the field of urban planning, as well as the technical conditions of connection provided by the GTS Code or the GDN Code.

The customer is entitled to choose at its discretion the contractor of design and construction works for connection among the providers authorized to carry out the relevant type of activity in accordance with the requirements of the legislation. In this case, the costs of the customer associated with the design and construction works are not included in the fee for connection to the gas transmission or gas distribution system, which makes it possible to reduce the costs required to create external and internal gas supply networks.

Today, the technical and commercial conditions for connection to the gas distribution system are defined in the GDN Code.

If, when providing connection services, the straight line distance in a from the power supply point to the customer's connection point does not exceed 25 meters for rural and 10 meters for urban areas for gas consumption facilities with a capacity of up to 16 m^3 per hour, such connection is defined as standard. The key features of a connection that meet the requirements of standard connection are determined by Section V of the GDN Code.

Other connections that do not meet the requirements of standard connection to gas distribution systems are defined as non-standard and are carried out in accordance with the requirements of provisions of Section V of the GDN Code for non-standard connection.

The fee for connection to the gas transmission or gas distribution system is determined in accordance with the agreement between the customer and the operator of the gas transmission or gas distribution system on the basis of the methodology[65] approved by the Regulator (hereinafter referred to as the Methodology).

The Methodology for determining the fee for connection to gas transmission and distribution systems determines the types of connection based on the specific connection features, and the basic requirements and conditions for calculating the fee for connection of customer facilities to the gas transmission or distribution system.

In accordance with provisions of Paragraph 5, Section II of the Methodology, the NEURC considers the estimated (projected) connection fees proposed by gas distribution system operators, and annually establishes the connection fee for the Autonomous Republic of Crimea, oblasts, cities of Kyiv and Sevastopol, which is deemed standard according to the criteria defined by the Methodology. Thus, on December 24, 2019, the NEURC adopted Resolution No. 3105, which set the maximum levels of fees for standard connection to gas distribution systems for 2020.

In 2017, the Regulator's website has introduced a calculator for connection to gas distribution systems,[66] which informs customers about the cost of providing a service for connection to gas distribution systems, which is standard, about the licensee who can carry out relevant work in the natural gas distribution business, terms of services providing for the standard connection, as well as the responsibility for late performance of these works (Fig. 3.2.6).

[65] Approved NEURC Resolution No. 3054 of December 24, 2015.
[66] http://www.nerc.gov.ua/?calc_gas

This calculator determines the amount of connection fee, which is standard (the cost of the GDN Operator's service to connect the customer's facility), which is provided in the draft Agreement for connection to the gas distribution system (for connection, which is standard).

Connection that is standard — connection to the gas distribution system of the GDN Operator of the customer's facility with a capacity of up to 16 cubic meters per hour inclusive at a distance not exceeding 25 meters for rural and 10 meters for urban areas in a straight line from the power supply to the land boundary customer sites.

Region, area

Kyiv region

Locality

Urban area, township

Countryside

Power ordered before connection

Enter a numeric value up to 16
A power connection greater than 16 m^3/ h is not standard

Calculate

The amount of the connection fee, which is standard, to the gas distribution networks		
The cost of joining will be	0	incl. VAT 0 thousand
Approximate size of the gas meter that will be used to account for natural gas at the facility connected to the gas distribution system		

Term of service provision: up to 3 calendar months from the date of payment for the service.
By agreement of the parties, the accession agreement may specify a longer or shorter period of implementation of these measures.

The maximum level of payment for connection, which is standard, to gas distribution systems for 2020 was approved by NEURC Resolution #2488 of December 16, 2020 and comes into force on January 01, 2020.

In case of violation of the terms of the agreement on connection to the gas distribution system (except for the temporarily occupied territory of Ukraine and the territories of the anti-terrorist operation), please inform the NEURC in writing at the address:
19 Smolenska St., 03057 Kyiv or e-mail box@nerc.gov.ua with the provision of supporting documents.

Fig. 3.2.6. Calculator for determining the amount of connection fee, which is standard (the cost of the service of the GDN Operator to connect the customer's object)

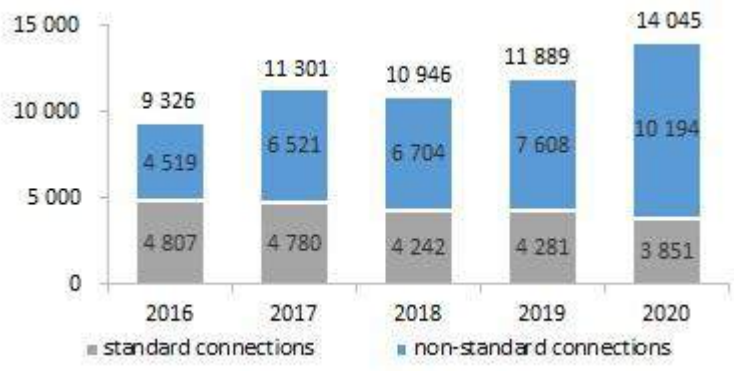


Fig. 3.2.7. Dynamics of the number of new connections to gas distribution systems in 2016–2020

The available data suggest that by the end of 2020, 12.6 million customers were connected to the gas distribution system. Throughout 2020, 15,686 potential customers applied to be connected, of which 12,672 were households and 3,014 – non-household customers.

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According to the GDN operators, there were 14,045 new connections in 2020, which is 18% more than in 2019 (11,889) (Fig. 3.2.7).

The largest number of connections in 2020 was made by household customers — 12,614, the number of new connections among the non-household customers was 1,431. It should be noted that the share of non-standard connections in the total number of connections among all categories of customers has grown over the past four years: 58% in 2017, 61% in 2018, 64% in

2019, and 72% in 2020. In general, in 2020, the share of standard connections of household customers was 32% and the share of non-household customers was 4%. Of all the connections made in 2020, 3,851 were identified as standard and 10,194 as non-standard.

The dynamics of the number of new connections to gas distribution systems during the last three years in the context of each oblast is given in Annex 3.2.7. In 2020, the largest number of new connections to gas distribution systems among all oblasts of Ukraine was made in Lviv, Zakarpattia, and Kyiv oblasts: 2,968, 1,334, and 1,173, respectively.

The average duration of a standard connection of household customers to gas distribution systems in 2020 was 99 days. It should be noted that the term for providing the population with the standard connection service in 2020 increased by 20 days compared to 2019 due to the lockdown in Ukraine introduced by Resolution of the Cabinet of Ministers of Ukraine #211 of March 11, 2020 "On Prevention of the Spread of COVID-19 Acute Respiratory Disease Caused by the SARS-CoV-2 Coronavirus in Ukraine". At the same time, the average duration of a standard connection for non-household customers in 2020 was 43 days. In general, the average duration of a standard connection for all categories of customers in 2020 increased by 15 days compared to 2019 and amounted to 99 days (Fig. 3.2.8).

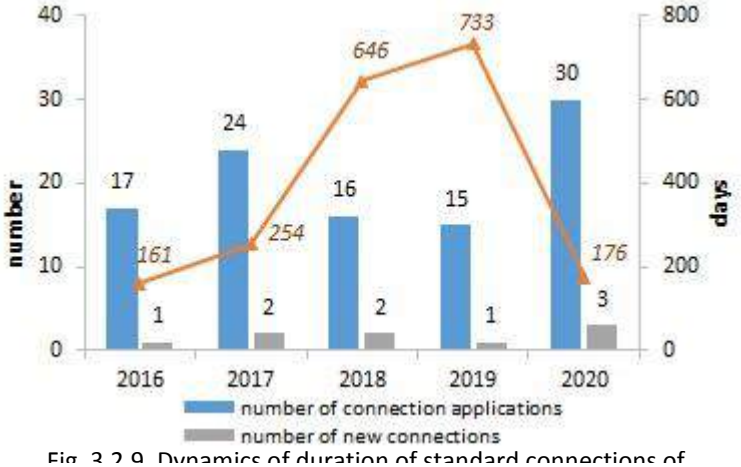


Fig. 3.2.8. Dynamics of the number of applications for connection, new connections to the gas transmission system and their average duration, 2016–2020

Connection to the gas transmission system belongs to the category of non-standard connection, as the gas consumption facilities connected to the gas transmission system exceed the capacity of 16 m^3 per hour.

In 2020, three new connections of gas production enterprises were made by GTS Operator of Ukraine, the average duration of which was 176 days (Fig. 3.2.9). It should be noted that in 2016—2020, only gas production companies were being connected to the main networks of the gas transmission system operator. In addition, 30 customers applied for connection in 2020, which is 15 customers more than in 2019.

3.2.8. Investment in network development

Following the Law and to ensure safety, reliability, regularity, and quality of natural gas supply by gas distribution (gas transmission) system, as well as provide storage (injection/ withdrawal) services and taking into account environmental and energy efficiency legislation, in 2016, the NEURC approved development plans for gas distribution operators, gas transmission operators, and gas storages for the next 10 years. These documents consist of:

- investment program for the first planned year of the ten-year development plan with the indication of measures at the expense of the confirmed investments;
- action plan for the second and third planned years of the ten-year development plan at the expense of the confirmed investments and new investments;
- action plan for the fourth through tenth planned years of the ten-year development plan, indicating the need for investments to implement it.

An investment program is a section of the ten-year plan for the development of the gas distribution system/gas transmission system/gas storages for the first planning year, which provides a plan to use funds to increase reliability and ensure efficient operation of the gas

distribution system/gas transmission system/gas storages. The document contains a set of obligations of a licensee for the period of implementation of the investment program for the enterprise development and improvement of service quality indicators, and provides for appropriate calculations and justifications confirming the feasibility of investment activities, sources of funding, and schedule.

The target areas of the investment program of the gas distribution system/gas transmission system/gas storages are overhaul, reconstruction, and modernization of main (distribution) gas pipelines, gas storages and associated facilities, special purpose vehicles, measures aimed at reducing production and technological costs, excessive losses of natural gas, as well as the purchase of modern diagnostic and inspection devices and the introduction of emergency protection systems for gas supply systems.

The ten-year plan for the development of the gas distribution system/gas transmission system/gas storages identifies the main gas infrastructure facilities, construction, reconstruction, or overhaul of which is expedient for the next ten years, as well as sources of funding and deadlines for all investment projects.

The procedure for forming plans for the development of gas distribution systems for the next 10 years is determined by the GDN Code, for the gas transmission system – by the GTS Code, and for gas storages – by the Gas Storage Code.

The development of the gas distribution (gas transmission) system is carried out taking into account the development of the administrative territory, within which this system is located, the current and future needs for natural gas and long-term efficiency of the gas distribution (gas transmission) system.

When planning the development of the gas distribution system, the GDN operator is researching the market needs for new gas distribution infrastructure. When preparing a ten-year plan for the development of the gas distribution system, the GDN operator makes reasonable assumptions about the growth of natural gas consumption.

The GDN operator is responsible for reliable and safe operation, maintenance, and development (construction), including new construction, reconstruction, overhaul, and technical re-equipment of gas distribution system facilities owned or used by the operator, including the rights of economic management, use, or operation.

Financing of measures for design and construction of gas distribution system facilities is carried out on the basis of the gas distribution system development plan of the GDN operator approved by the Regulator, and at the expense of funds provided in tariffs for natural gas distribution services and from other sources not prohibited by law.

In 2020, GDN operators implemented the Gas Distribution System Development Plan for 2020–2029 approved by the NEURC, including Sections I of the Development Plan — investment programs for 2020 for the total planned amount of UAH 2.031 billion (VAT excluded) from the available tariff sources, as well as additional sources, in particular envisaged by the decisions of the NEURC as a result of state control measures.

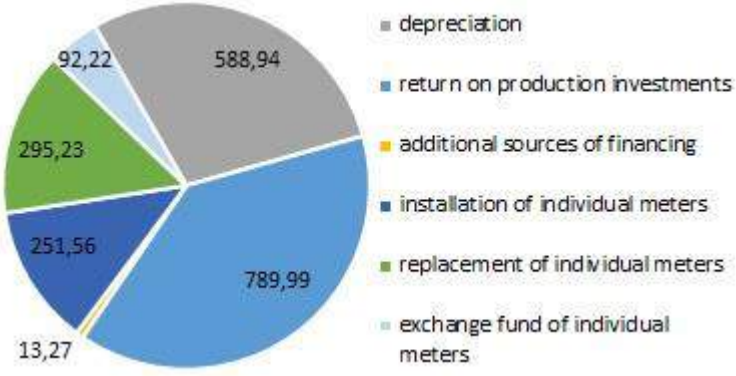


Fig. 3.2.10. Structure of investment programs of GDN operators for 2020 by sources of financing, UAH million VAT excluded

The structure of investment programs of GDN operators for 2020 by sources of financing is shown in Fig. 3.2.10.

According to the reporting information of GDN operators, the following measures were financed in 2020, in particular:

- 207 km of gas networks (replacement, reconstruction, overhaul);
- 1,697 shutdown devices

(replacement);

- 349 units of GCP (replacement, reconstruction, overhaul);
- 582 units of CGCP (replacement, reconstruction);
- 15,596 units of regulating/control equipment (replacement, reconstruction);
- 1,670 units of ECP (replacement, reconstruction);
- 20,728 units of individual gas meters for households (installation);
- 117,991 units of individual meters (replacement);
- 84,132 units of gas meters for the exchange fund;
- 6,011 units of remote meter-reading system;
- 211 units of special purpose equipment and vehicles;
- 624 units of specialized devices;
- 3,473 units of IT equipment;
- 98 units of overhaul of industrial buildings.

At the same time, in 2020, gas distribution system development plan for 2021–2030 was approved for 42 gas distribution companies, including Sections I of the development plan — investment programs for 2021 for the total planned amount of UAH 2.4 billion (VAT excluded) at the expense of the available tariff sources, as well as additional sources, in particular envisaged by the decisions of the NEURC as a result of state control measures.

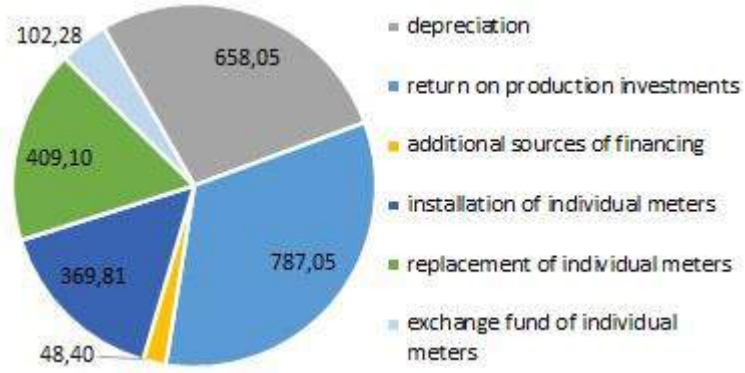


Fig. 3.2.11. Structure of investment programs of GTN operators for 2021 by sources of financing, UAH million VAT excluded

The structure of investment programs of GDN Operators for 2020 by sources of financing is shown in Fig. 3.2.10.

The main planned measures of the investment program for 2021 of GDN operators are:

- 303 km of gas networks (replacement, reconstruction, overhaul);
- 5,222 shutdown devices (replacement);
- 526 units of GCP (construction, reconstruction, overhaul, replacement);
- 1,379 units of CGCP (construction, reconstruction, overhaul, replacement);
- 36,780 units of regulating/control equipment (replacement, reconstruction);
- 2,193 units of ECP (construction, replacement, reconstruction);
- 162,002 units of individual gas meters for households (installation);
- 209,553 units of individual meters (replacement);
- 167,539 units of gas meters for the exchange fund;
- 30,797 units of remote meter-reading system;
- 345 units of special purpose equipment;
- 158 units of GCP (CGCP) metering facilities and backup metering;
- 4,842 units of specialized devices;
- 6,210 units of IT equipment;
- 107 units of overhaul of industrial buildings.

The GTS operator is developing a plan for the development of the gas transmission system for the next 10 years on the basis on actual and projected indicators of supply and demand for natural gas transportation services. The gas transmission system development plan for the next 10 years should ensure that the gas transmission system meets the needs of the natural gas market and safety of natural gas supply. When elaborating the development plan of the gas transmission system for the next 10 years, the GTS operator must take into account possible changes in production, sales, supply, consumption of natural gas (including cross-border trade in natural gas),

as well as plans for gas transmission systems of neighboring countries, gas distribution systems, and gas storages.

NEURC Resolution No. 619 of March 17, 2020 approved the Gas Transmission System Development Plan of the Gas Transmission System Operator "Gas Transmission System Operator of Ukraine LLC" for 2020–2029 for the total amount of UAH 41.3 billion, including Section I of the Development Plan — investment program for 2020 for the total planned amount of financing of UAH 1.8 billion (VAT excluded).

The main measures of the investment program of the GTS operator for 2020 are:

- 19 units of gas pipelines (construction, reconstruction, overhaul);
- 62 units of gas distribution stations (reconstruction, technical re-equipment);
- 44 units of compressor stations (construction, reconstruction, overhaul, technical re-equipment);
- 362 units of purchased equipment;
- 244 units of purchased diagnostic and inspection devices and implementation of emergency protection systems for gas transportation systems;
- 199 units of production equipment;
- 392 units of communication, network, server equipment.

The main measures of the investment program of the GTS operator for 2020 are:

- 19 units of gas pipelines (construction, reconstruction, overhaul);
- 62 units of gas distribution stations (reconstruction, technical re-equipment);
- 44 units of compressor stations (construction, reconstruction, overhaul, technical re-equipment);
- 362 units of purchased equipment;
- 244 units of purchased diagnostic and inspection devices and implementation of emergency protection systems for gas transportation systems;
- 199 units of production equipment;
- 392 units of communication, network, server equipment.

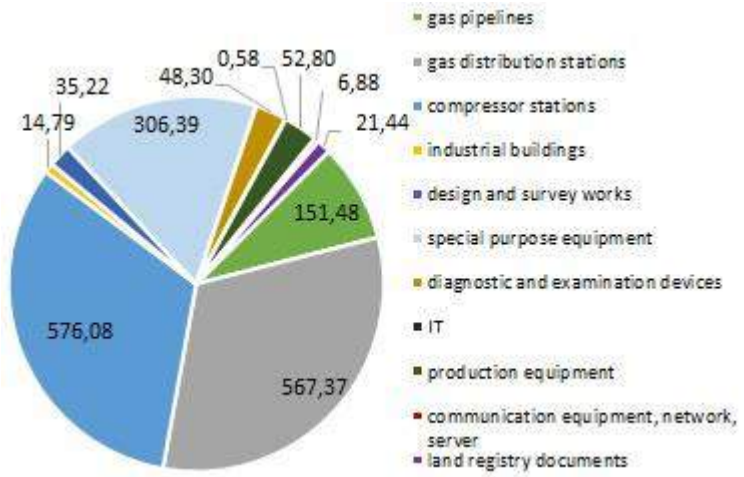


Fig. 3.2.12. The main measures of the investment program of the GTS operator for 2020, UAH million VAT excluded

The main measures of the investment program of the GTS operator for 2020 are shown in Fig. 3.2.12.

As of January 01, 2021, the Gas Transmission System Development Plan of the Gas Transmission System Operator "Gas Transmission System Operator of Ukraine LLC" for 2021—2030 has not been approved.

The gas storage operator develops a plan for the development of gas storages for the next 10 years, compiled on the basis of data on actual and forecast indicators of demand and supply for storage (injection, withdrawal) services of natural gas. The gas storage development plan for the next 10 years should ensure that the gas storages meet the needs of the natural gas market and ensure safety of natural gas supply. When elaborating the development plan for gas storages for the next 10 years, the gas storage operator is obliged to take into account possible changes in the volume of natural gas storage (including cross-border trade in natural gas), as well as plans for the development of gas storages in neighboring countries.

NEURC Resolution No. 1151 of June 24, 2020 approved the Gas Storage Development Plan of the Gas Storage Operator JSC Ukrtransgaz for 2020–2029 for the total amount of UAH 13.450

billion, including Section I of the Development Plan — investment program for 2020 for the total planned amount of financing of UAH 0.577 billion (VAT excluded).

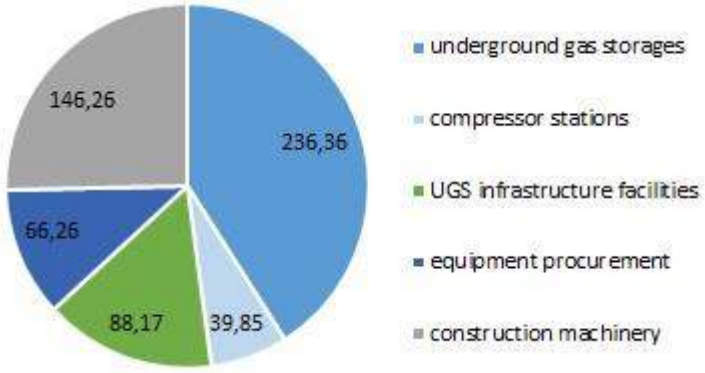


Fig. 3.2.13. The main measures of the investment program of the gas storage operator for 2020, UAH million VAT excluded

The main measures of the investment program of the gas storage operator for 2020 are:

- 5 units of underground gas storages;
- 4 units of compressor stations;
- 21 units of underground gas storages;
- 224 units of purchased equipment;
- 27 units of construction machinery.

The structure of the investment program of the gas storage operator for 2020 in terms of sources of funding is shown in Fig. 3.2.13.

As of January 01, 2021, the Gas Storage Development Plan of the Gas Storage Operator JSC Ukrtransgaz for 2021–2030 has not been approved.

3.2.9. Natural gas metering

Following provisions of Article 2 of the Law of Ukraine “On Ensuring Commercial Metering for Natural Gas” (as amended on December 21, 2017), the supply of natural gas to the population residing in apartments and private homes is subject to commercial metering.

In this case, following provisions of Part 1, Article 6 of this Law, the economic entities that distribute natural gas in the respective territory are required to ensure the installation of gas meters:

- comprehensively, including for heating: until January 1, 2012;
- for water heating and cooking: until January 1, 2016;
- only for cooking: until January 1, 2021.

Financing of works to equip the population with gas meters is carried out at the expense of:

- funds of GDNs in the relevant territory;
- funds of the relevant budget, except for local budgets;
- other sources not prohibited by law.

The providers of installation services are GDN operators or other economic entities that have received the appropriate permits to perform works on installation of natural gas metering units.

In case of non-installation of gas meters for the population by January 1, 2021 due to the fault of GDN operators in the respective territory, termination of natural gas distribution to such customers is prohibited, and until the installation of gas meters, its metering is carried out according to consumption norms established by the Cabinet of Ministers of Ukraine (Provisions of Part 1, Article 6 of the Law of Ukraine “On Ensuring Commercial Metering for Natural Gas” (as amended on December 21, 2017)).

According to the information available to the NEURC, as of today, the population residing in apartments and private homes, where natural gas is used for cooking only, is not provided with 100% commercial metering for natural gas.

The costs of installing individual gas meters for the population are determined taking into account the number of customers, who are not provided with commercial natural gas metering in the territory of the GDN operator, and the technical possibility of installing metering devices by

the relevant gas distribution company. For example, in the cities of Kyiv and Kharkiv, the annual numbers of individual natural gas meters to be installed are limited by the technical capacities of the gas distribution companies there.

As of January 1, 2021, the total percentage of commercial metering for natural gas used by the population in Ukraine is 92%.

Over the past three years, the percentage of commercial metering for natural gas used by the population has increased from 87% to 92%, including:

- from 95% to 100%: customers in Vinnytska, Volynska, Ivano-Frankivska, Zhytomyrska, Zakarpatska, Kyivska (except the city of Kyiv), Rivnenska, Sumska, Ternopilska, Khersonska, Khmelnytska, Chernivetska, and Chernihivska oblasts;
- from 80% to 95%: customers in Dnipropetrovska, Zaporizka, Kirovohradska, Lvivska, Luhanska, Mykolaivska, Odeska, Poltavska, Kharkivska (except the city of Kharkiv), and Cherkaska oblasts;
- less than 80% of customers are metered in Donetska oblast, as well as in the cities of Kyiv and Kharkiv.

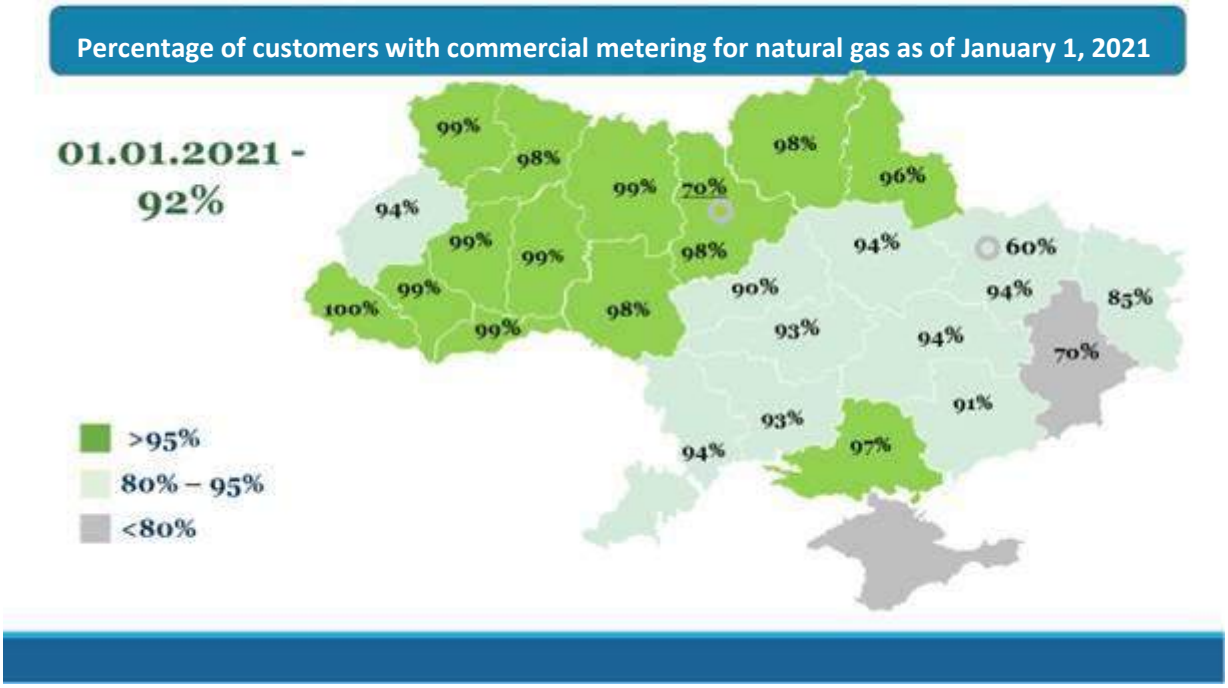


Fig. 3.2.14. Percentage of customers with commercial metering for natural gas (by regions, as well as the cities of Kyiv and Kharkiv) as of January 1, 2021

Following provisions of the Law of Ukraine “On Ensuring Commercial Metering for Natural Gas” (hereinafter referred to as the Law of Ukraine), and in order to ensure 100% commercial metering of natural gas used by the population for cooking purposes only, the gas distribution companies are to install individual meters within investment programs — Section I of the ten-year Gas Distribution Systems Development Plan at the expense of planned tariff sources.

Thus, the investment programs of GDN operators for 2020 — Section I of the Gas Distribution Systems Development Plan for 2020–2029 provided for measures to install 126,730 units of individual gas meters worth UAH 251.6 million in total (VAT excluded) in 2020.

On November 5, 2020, the Verkhovna Rada of Ukraine registered the draft Law of Ukraine “On Amendments to the Law of Ukraine ‘On Ensuring Commercial Metering for Natural Gas”(regarding the revision of deadlines for installing natural gas meters) (registration number is 4248-1), which proposes to extend the deadline for installation of gas meters by natural gas distribution entities for the population residing in apartments and private homes, in which gas is used for cooking purposes only, to January 01, 2023 and postpone the date, from which the

distribution of natural gas to customers who refused to have gas meters installed in their dwellings is to be terminated to January 01, 2023.

To continue providing commercial metering of natural gas used for cooking only, the investment programs of GDN operators for 2021 — Section I of the Gas Distribution System Development Plan for 2021–2030 provide for measures to install 162,002 units of individual gas meters for the population worth a total of UAH 369.81 million (VAT excluded).

3.2.10. Distribution and use of capacity of interconnection points, other cross-border issues

The capacity of cross-border gas pipelines is used to transport (transit) natural gas through the territory of Ukraine to neighboring countries and to ensure a reliable supply of natural gas to Ukraine. In 2019, natural gas was not exported from Ukraine, but an insignificant use of the capacity of exit interconnection points was recorded as “capacity with restrictions”. The volume of natural gas transit through the territory of Ukraine in 2020 dropped by 38% compared to 2019 and amounted to 55.85 billion m^3 (Fig. 3.2.15). In 2020, the volume of natural gas transportation to direct customers and gas distribution systems increased by 10% compared to the previous year and amounted to approximately 28.15 billion m^3. At the same time, the volume of natural gas imports in 2020 decreased by 20% compared to 2019 and amounted to 9.42 billion m^3.

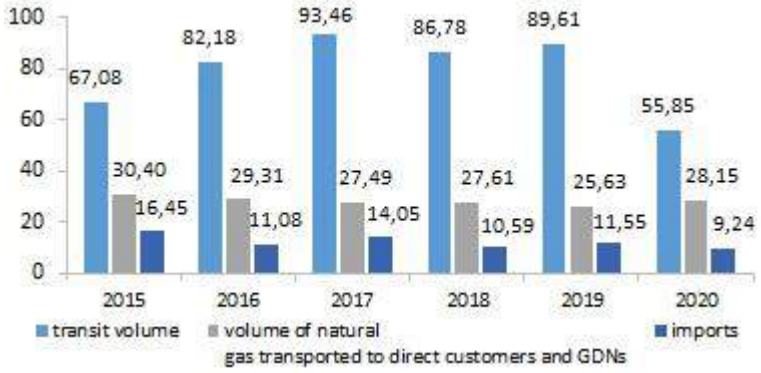


Fig. 3.2.15. Volumes of import, transit, and transportation of natural gas for 2014–2019, billion m^3

Most of the interconnection capacity of Ukraine's gas transmission system is used for the transit of natural gas to Europe. According to the information shown in Fig. 3.2.16, the most used interconnection points in 2020 were Russia–Ukraine and Ukraine–Slovakia (Uzhhorod/Velke Kapushany); on average, 152.7 and 105.2 million m^3, respectively, were transported through these per day in 2020. The average capacity used on interconnections of Slovakia–Ukraine, Poland–Ukraine, and Hungary–Ukraine increased by 18%, decreased by 33%, and increased by 14%, respectively, in 2020 compared to 2019. In the directions of Ukraine–Slovakia, Ukraine–Romania, Ukraine–Poland, and Ukraine–Hungary. There was a significant decrease in capacity utilization in contrast to the direction of Ukraine—Moldova, where the growth was 39% in 2020 compared to 2019. A significant reduction in capacity utilization at exit points from Ukraine is associated with a significant reduction in the transit volume of Russian natural gas to European countries through Ukraine.

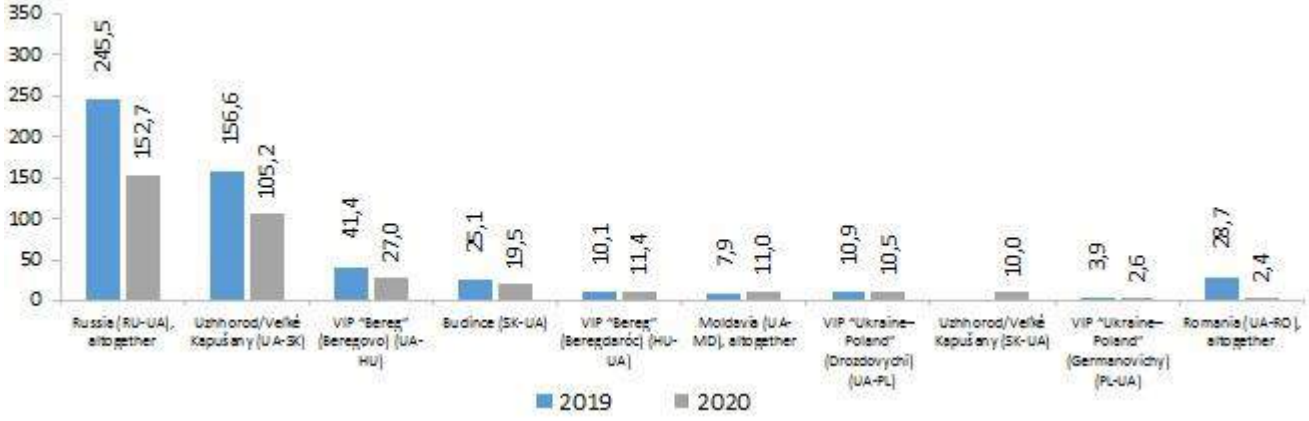
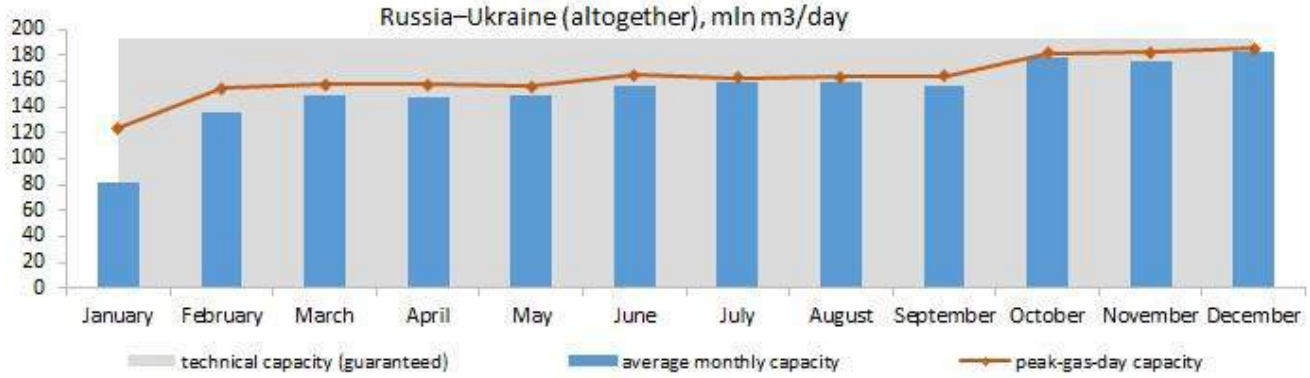
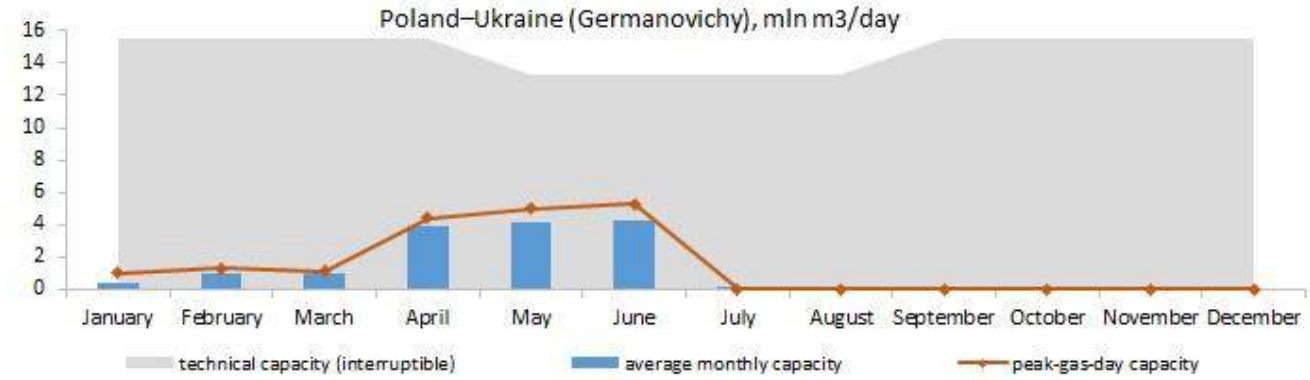
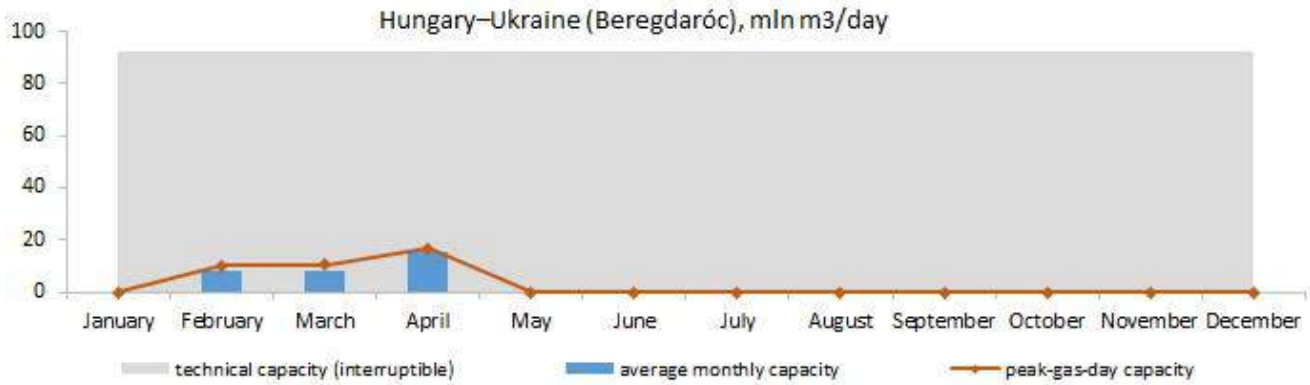


Fig. 3.2.16. The size of the average used capacity for 2019–2020 at interconnection points of Ukraine, million m^3/day

According to GTS Operator of Ukraine, the total technical capacity of the cross-border gas pipelines in 2020 at the entry point to the GTS of Ukraine from Russia was 193.1 million m^3/day (according to the cooperation agreement), at the exit points from the GTS of Ukraine to EU member states and Moldova, it was 561.6 million m^3/day, and at the entry points from Slovakia, Hungary, Poland, Romania, and Moldova, it was 266.2 million m^3/day. The maximum level of technical capacity utilization at the entry points to Russia was about 96%, 34% at the exit points from EU member states and Moldova, and 28% at the entry points to EU member states. The dynamics of the maximum (peak) capacity used, and the average monthly capacity used in terms of interconnections are shown in Fig. 3.2.17.







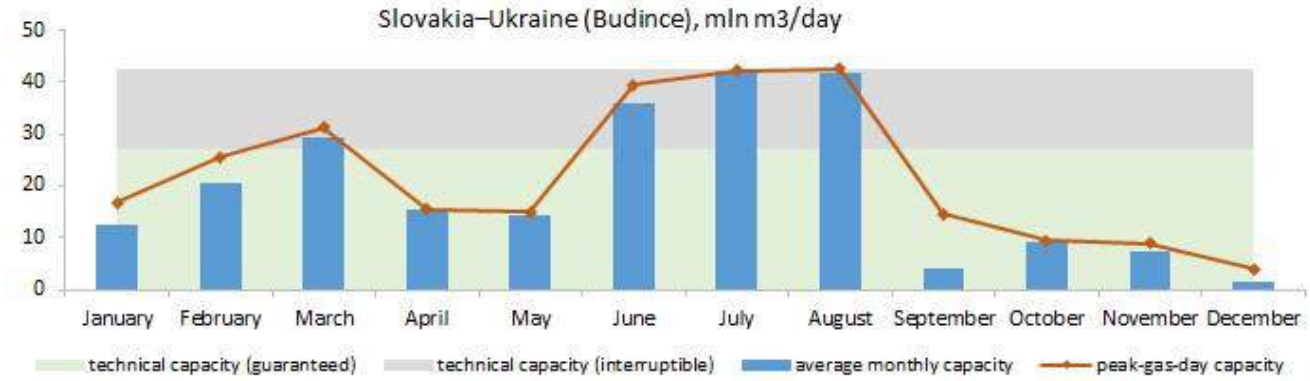


Fig. 3.2.17. Dynamics of average monthly values and maximum (peak) physical use of daily capacity in terms of interconnections in 2020

It should be noted that the physical entry interconnection points of “Beregdarots” (Hungary–Ukraine) and “Germanovychi” (Poland–Ukraine) have not been used in the direction to Ukraine since May 01, 2020 and July 01, 2020, respectively, due to the creation of virtual connection points (VIP) “Bereg” on May 01, 2020 and “Ukraine–Poland” on July 01, 2020, in which capacities of entry points to Ukraine are utilized through virtual substitution of natural gas.

Occurrence of contractual congestion in the gas transmission system is possible in case of excess demand for capacity over the supply of the GTS operator. One of the tools for settling contractual congestion is the capacity allocation procedure. The GTS Code provides for such periods of capacity distribution at entry/exit interconnection points as annual, quarterly, monthly, and daily. Capacity distribution was divided into annual, quarterly, monthly, and daily in the 2019/2020 gas year. At the same time, capacity distribution was carried out only for the daily period in the 2018/2019 gas year, while monthly, quarterly, and annual capacity distribution products were not ordered (Fig. 3.2.18).

Fig. 3.2.18. Distributed capacity of entry points of VIP “Poland–Ukraine” (Germanovychi), VIP “Bereg” (Beregdarots), Budintse in 2019–2020, million m^3/day

In the 2018/2019 gas year, the amount of distributed capacity was equal to the amount of used capacity. But in the 2019/2020 gas year, the distributed capacity usually exceeded the average used capacity (Fig. 3.2.19).

Fig. 3.2.20. The size of the average used capacity of the entry points of VIP “Poland–Ukraine” (Germanovichi), VIP “Bereg” (Beregdarots), Budintse in 2019–2020, million m^3/day

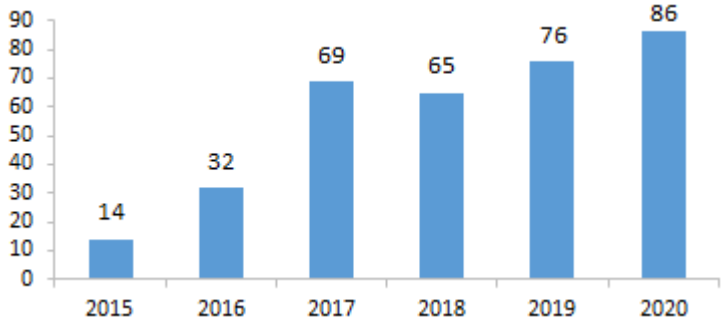


Fig. 3.2.19. Number of customers of transportation services who used capacity at interconnection points, 2015–2020

In 2020, eighty-six customers of transportation services (hereinafter referred to as customers) ordered and used the capacity of entry/exit interconnection points of Ukraine, which is 10 customers more than in 2019. Over the last six years, the number of service customers who

used the capacity of entry/exit interconnection points has been gradually increasing, and in 2020, they were already 6 times more than in 2015 (Fig. 3.2.20), which indicates the increase in competition for interconnection.

The largest number of customers in 2020 used the "Budince" point (Slovakia–Ukraine) — 48 entities, which is about 56% of all customers (Fig. 3.2.21).

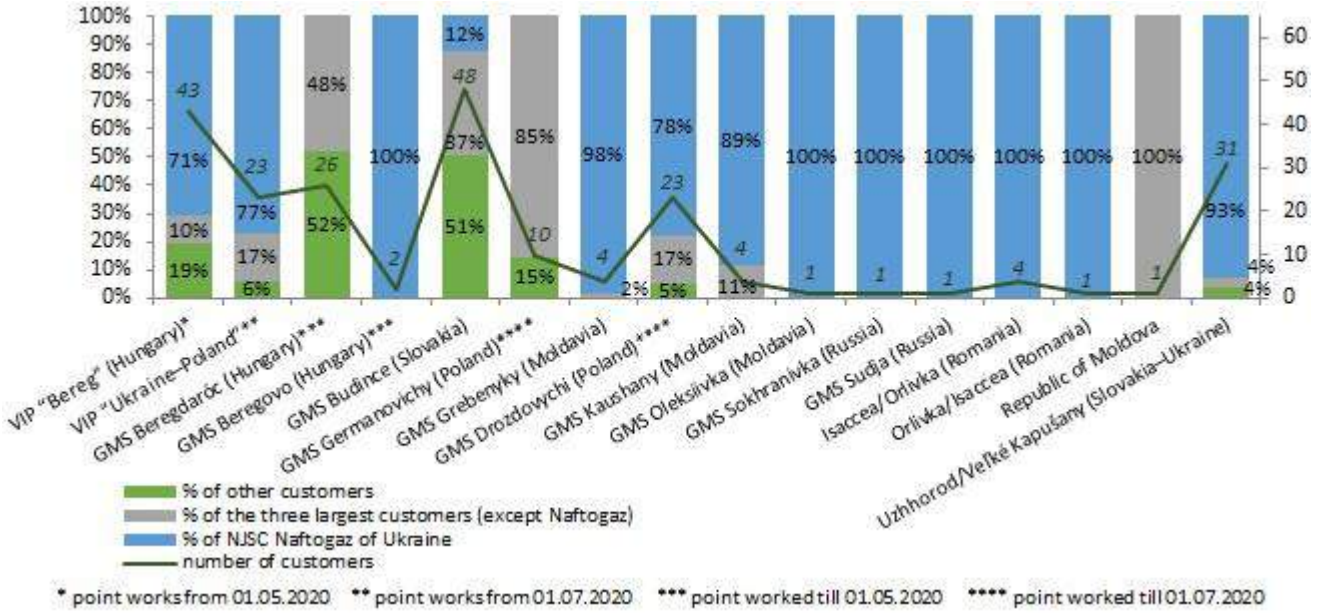


Fig. 3.2.21. Number of customers of transportation services in terms of interconnection and their share in these connections (%) in 2020

The share of the three largest customers (except Naftogaz), which used the capacity of the Budince entry point (Slovakia–Ukraine), was 37%, the share of Naftogaz was 12%, and the share of other customers was 51% in 2020. At the same time, the Uzhhorod/Velke Kapushany point (Slovakia) was used by 31 customers of transportation services, which is about 36% of all customers. The share of the three largest customers (except Naftogaz) that used the capacity of the Uzhhorod/Velke Kapushany entry point (Slovakia) was 4%, the share of Naftogaz was 93%, and the share of other customers was 4% in 2020. Such a high share of Naftogaz at this point is explained by its use, including for the purpose of transit of Russian gas to European countries through the territory of Ukraine.

Regarding interconnection agreements

At the request of the NEURC, the following information was received from GTS Operator of Ukraine regarding agreements on cooperation at entry/exit interconnection points of Ukraine as of the end of 2020.

Ukraine–Poland interconnection points

On November 29, 2019, GTS Operator of Ukraine, together with Ukrtransgaz, signed an addendum to the Agreement on Interaction with the Polish Operator GAZ-SYSTEM S.A.

On June 5, 2020, GTS Operator of Ukraine and GAZ-SYSTEM S.A. concluded a new cooperation agreement, which regulated the merger of two interconnection points — Drozdovychi and Germanovychi — into a single virtual connection point of the two VIP Ukraine—Poland systems as of July 1, 2020.

Ukraine–Hungary interconnection points

On December 20, 2019, GTS Operator of Ukraine and the Hungarian FGSZ operator signed an inter-operator technical agreement on cooperation in accordance with European rules, which entered into force on January 1, 2020.

And on April 29, 2020, the operators signed a new cooperation agreement, which regulated the merger of two interconnection points — Beregovo and Beregdarots — into a single virtual connection point of two VIP Bereg systems as of May 1, 2020.

Ukraine–Slovakia interconnection points

On December 31, 2019, GTS Operator of Ukraine and the Slovak operator EUSTREAM signed an inter-operator technical agreement on cooperation in accordance with European rules, which entered into force on January 1, 2020.

A virtual reverse has been launched through the Velky Kapushany/Uzhhorod interconnection point since March 1, 2020.

Ukraine–Romania interconnection points

On December 18, 2019, GTS Operator of Ukraine and the Romanian operator TRANSGAZ signed an inter-operator technical agreement on cooperation in accordance with European rules, which entered into force on January 1, 2020. The concluded agreement on cooperation in the transportation of natural gas applies to the interconnection point of Isaccea–Orlivka-1.

Ukraine–Moldova interconnection points

On December 27, 2019, GTS Operator of Ukraine and Moldovatransgaz and Moldovagaz signed an inter-operator technical agreement on cooperation in accordance with European rules, which entered into force on January 1, 2020.

Ukraine–Russia interconnection points

On December 30, 2019, GTS Operator of Ukraine and GAZPROM signed an inter-operator technical agreement on cooperation in accordance with European rules, which entered into force on January 1, 2020.

3.3. **Competition Issues**

3.3.1. Wholesale natural gas market

General information on the wholesale natural gas market

The wholesale natural gas market is a part of the natural gas market of Ukraine. This market can be described as system of relations between wholesalers and wholesale buyers. A wholesale buyer is an economic entity that purchases natural gas for reasons other than own consumption, and a wholesaler is an economic entity that sells natural gas to a wholesale buyer or supplier.

In the process of purchasing and selling natural gas, the relations between market participants is governed by gas purchase and sale agreements, which are executed between the natural gas supplier/wholesale buyer and the wholesaler on a common basis, and regulate the transfer of ownership of natural gas from various sources at market prices (except as provided by Article 11 of the Law). It should be noted that the activities of the wholesaler are not subject to licensing. According to available information, the number of wholesalers and buyers, who operated in the natural gas market in 2020, is about 399 economic entities.

The wholesale market of natural gas can be divided into two segments: the regulated segment, which operates in accordance with Article 11 of the Law, and the unregulated segment with free pricing.

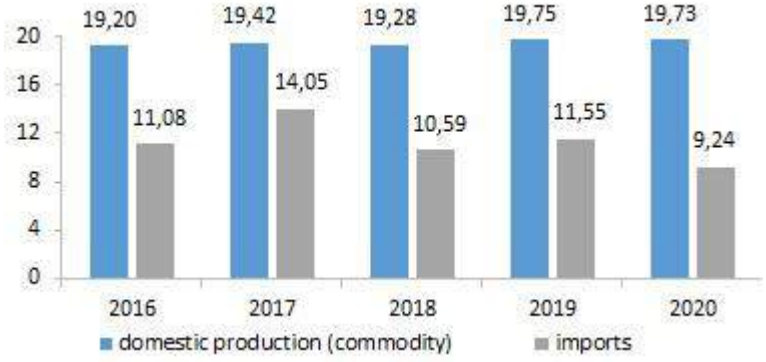


Fig. 3.3.1. Volumes of production and import of natural gas, billion m^3

The sources of natural gas reception on the wholesale market are domestically produced natural gas and imported natural gas. In 2016–2020, the natural gas import was characterized with rather uneven dynamics. Thus, after a significant drop (by 3.5 billion m^3, or 25%) of natural gas imports in 2018 compared to 2017, 2019 recorded an increase of

1 billion m^3, or 9% compared to 2018 (Fig. 3.3.1). In 2020, there was a decline in natural gas imports compared to 2019 by 2.3 billion m^3, or 20%. At the same time, compared to 2016, there was a decline in natural gas imports of 17% in 2020. Volumes of domestic production[67] changed insignificantly.

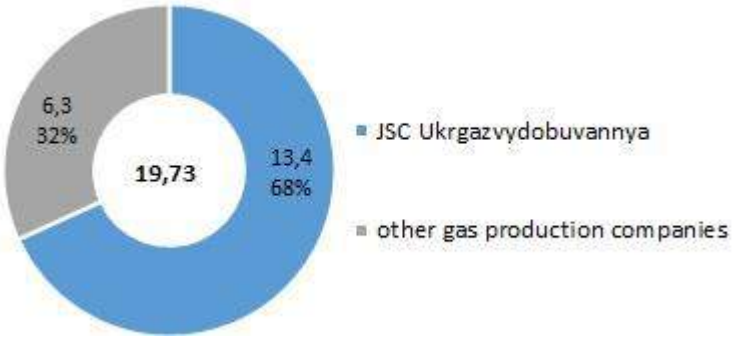


Fig. 3.3.2. Volumes of extracted natural gas of Ukrgazvydobuvannya and other gas production enterprises in 2020, billion m^3, %

In 2020, gas production enterprises produced 19.73 billion m^3 of natural gas (excluding process gas, production and technological costs, and own needs of gas production enterprises), 13.4 billion m^3 of them were natural gas produced by Ukrgazvydobuvannya, and 6,3 billion m^3 were natural gas produced by other gas production enterprises (Fig. 3.3.2). The share of natural gas produced by Chornomornaftogaz in the volume of gas production by other gas production enterprises was 0.13%.

In 2020, the share of natural gas imports by wholesale buyers from European countries was 100%, as in 2016–2019 (Fig. 3.3.3).

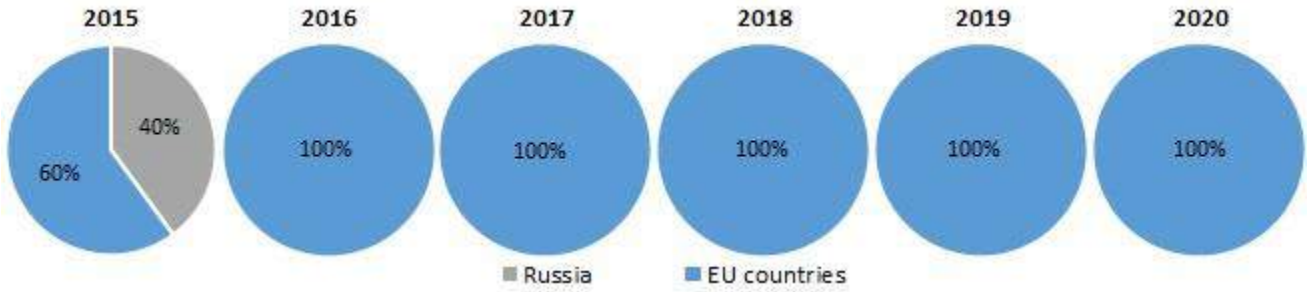


Fig. 3.3.3. Sources of natural gas imports in 2015–2020, %

Pricing in the wholesale market

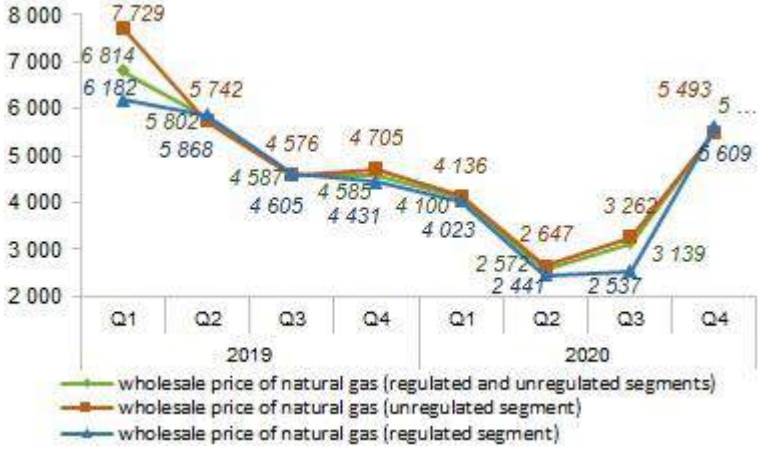


Fig. 3.3.4. Dynamics of wholesale prices in the natural gas market in 2019–2020, UAH/thousand m^3 (VAT excluded)

In 2020, the weighted average wholesale price of natural gas amounted to UAH 4,068 per thousand m^3 (VAT excluded) and decreased by 26% compared to 2019 (UAH 5,470 per thousand m^3) (Fig. 3.3.4). In 2019–2020, the weighted average wholesale price of natural gas was the highest in the first quarter of 2019 (UAH 6,814 per thousand m^3), and the lowest in the second quarter of 2020 (UAH 2,572 per thousand m^3). To analyze the factors influencing the formation of this price, the wholesale market of natural gas in Ukraine can be divided into regulated and unregulated segments.

[67] Excluding losses, production and technological costs, and own needs of gas companies.

The regulated wholesale price in 2020 was UAH 673 per thousand m^3 (or 16%) lower than the price in the unregulated segment of the wholesale natural gas market, and UAH 207 per thousand m^3 (or 4%) lower in 2019. In the first quarter of 2020, the wholesale price in the regulated market segment was closest to the wholesale price in the free market, but starting from the second quarter of 2020, the difference between regulated and unregulated wholesale prices began to grow and amounted to UAH 724 per thousand m^3 in the third quarter of 2020. At the same time, the price in the regulated segment of the wholesale natural gas market was lower than the wholesale price in the free market in the first, second, and third quarters of 2020. In the fourth quarter of 2020, the situation changed, and the wholesale price in the regulated segment of the natural gas market was UAH 116 per thousand m^3 (or 2%) higher than the wholesale price in the free market. At the same time, the difference between wholesale prices in the regulated and unregulated segments of the natural gas market has narrowed.

Regulated segment of the wholesale natural gas market

In 2020, the regulated segment of the wholesale natural gas market operated within the framework of Article 11 of the Law and CMU Resolution No. 867 of October 19, 2018 "On Approval of the Regulation on Public Service Obligations being Imposed on Natural Gas Market Participants to Protect the Public Interests in the Process of Natural Gas Market Operation", which is effective November 1, 2018 (hereinafter referred to as Regulation on PSO 867).

Regulation on PSO 867 within the wholesale natural gas market imposed PSOs on:

- JSC Ukrgazvydobuvannia and JSC PJSC Chornomornaftogaz: until August 1, 2020, to sell natural gas extracted by Naftogaz of Ukraine to create a natural gas resource for household customers, religious organizations (except for the volumes used for any productive/commercial activities of such religious organizations, and the state enterprise of Ukraine "International Children's Center 'Artek'" under the procedure as established by Regulation on PSO 867;
- Ukrgazvydobuvannia and Chornomornaftogaz: until May 1, 2021, to sell natural gas extracted by Naftogaz to create a natural gas resource for heat producers for all categories of natural gas use under the procedure as established by Regulation on PSO 867;
- Naftogaz: until August 1, 2020, to purchase natural gas extracted by Ukrgazvydobuvannia and Chornomornaftogaz to create a natural gas resource for household customers and religious organizations (except for the volumes used for any productive/commercial activities of such religious organizations) and the state enterprise of Ukraine "International Children's Center 'Artek'" under the procedure as established by Regulation on PSO 867, and other wholesalers, including those abroad, provided that the volume of natural gas extracted by Ukrgazvydobuvannya and Chornomornaftogaz are insufficient for the creation of the natural gas resource mentioned above;
- Naftogaz: until May 1, 2021, to purchase natural gas extracted by Ukrgazvydobuvannya and Chornomornaftogaz to create a natural gas resource for heat producers for all categories of natural gas use under the procedure as established by Regulation on PSO 867, and other wholesalers, including those abroad, provided that the volume of natural gas extracted by Ukrgazvydobuvannya and Chornomornaftogaz is insufficient to create the natural gas resource mentioned above;
- Naftogaz: until August 1, 2020, to sell natural gas to suppliers who, following Regulation on PSO 867, are subject to PSOs, for the needs of household customers, religious organizations (except for the volumes for any commercial activities of such religious organizations), and state enterprise of Ukraine "International Children's Center 'Artek'" at prices and under the procedure as established by Regulation on PSO 867.

It should also be noted that the regulated segment of the wholesale natural gas market in 2019 operated within Regulation on PSO 867 and CMU Resolution #293 of April 03, 2019 “Some Issues of Activity of JSC ‘JNSC Naftogaz of Ukraine’” (hereinafter referred to as Resolution 293).

Resolution 293 established additional parameters for determining the price of natural gas, according to them, Naftogaz purchased and sold natural gas within the framework of Regulation on PSO 867. The said CMU decision provided an opportunity for Naftogaz to purchase and sell natural gas within the requirements of Regulation on PSO 867 at a price that may be lower than that specified in Regulation on PSO 867.

The key findings of the PSO monitoring of r as envisaged by Regulation on PSO 867 is provided in Section 3.3.3.

In 2020, the weighted average regulated wholesale price of natural gas was UAH 3,545 per thousand m^3 (VAT excluded), which was 34% lower than in 2019 (UAH 5,363 per thousand m^3). The weighted average wholesale price of natural gas of Ukrgazvydobuvannia and Chornomornaftogaz for Naftogaz was UAH 3,541 per thousand m^3 (VAT excluded), which was 32% lower than in the previous year (UAH 5,230 per thousand m^3). It should be noted that Naftogaz in 2020 carried out wholesale sales of natural gas to suppliers subject to PSOs following Regulation on PSO 867 to supply natural gas for the needs of customers defined by this Regulation, until August 1, 2020 (Fig. 3.3 .5).

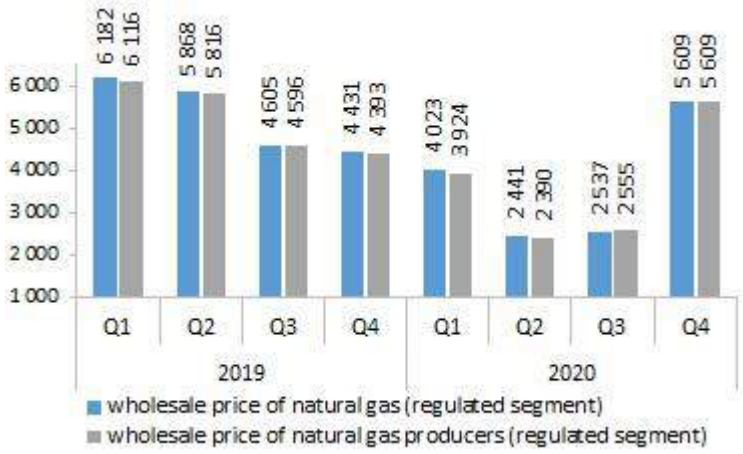


Fig. 3.3.5. Dynamics of wholesale prices in the regulated segment of the wholesale natural gas market, UAH/thousand m^3 (VAT excluded), 2019–2020

Wholesale prices for natural gas in 2020 were determined on a monthly basis, taking into account Regulation on PSO 867.

In Q2 2020, there was a significant decrease in the weighted average wholesale price of natural gas in the regulated market segment (by 39% compared to Q1 2020).

At the same time, the weighted average regulated wholesale price increased significantly (by 121%) in Q4 compared to Q3 2020.

The increase in the regulated wholesale price in Q4 2020 was probably due to the increase in natural gas prices on the European gas exchanges, as, following Regulation on PSO 867, the natural gas price for Ukrgazvydobuvannya and Chornomornaftogaz is determined, in particular, taking into account the gas price at the Dutch TTF.

Unregulated segment of the wholesale market with free pricing

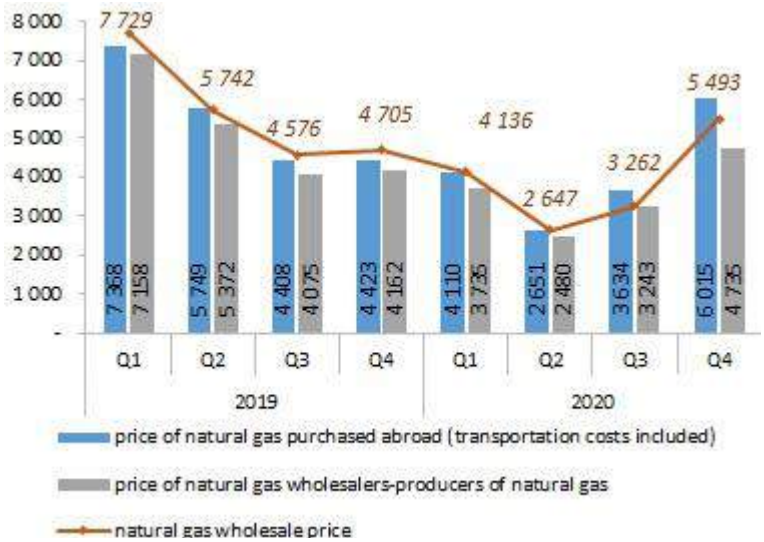


Fig. 3.3.6. Dynamics of the weighted average prices of wholesalers-gas production companies, prices of natural gas purchased abroad, and wholesale prices of natural gas in the unregulated segment in 2019–2020, UAH/thousand m^3 (VAT excluded)

Within the segment of the wholesale market with free pricing, the weighted average wholesale price of natural gas in 2020 was UAH 4,218 per thousand m^3 (VAT excluded), which is 24% lower than in 2019 (UAH 5,570 per thousand m^3) (Fig. 3.3.6). It should be noted that fluctuations in wholesale prices in the unregulated market segment are usually influenced by seasonal factors (prices go up in the heating season and go down in the interheating period), exchange rates, and prices in European natural gas

markets, as natural gas imports were made exclusively from EU member states.

In 2020, the wholesale price of natural gas in the unregulated segment of the wholesale natural gas market decreased during Q1 and Q2, which was probably due to a significant decrease in natural gas prices in the European market (European gas exchanges) (Fig. 3.3.7).[68]

Fig. 3.3.7. The weighted average price of a futures contract for NCG with the supply of natural gas next month and the euro exchange rate in 2019–2020

However, in Q3 and Q4 2020, there was a gradual increase in wholesale natural gas prices in the unregulated segment of the natural gas market, which was probably due, in particular, to the beginning of the heating season, rising of natural gas prices in the European market (European gas exchanges), and the depreciation of the hryvnia against foreign currencies (euro and USA dollar).

The weighted average price of natural gas purchased abroad in 2020 was UAH 4,262 per thousand m^3 (VAT excluded), it decreased by 7% in Q1 2020 compared to the Q4 2019, decreased by 35% in Q2 2020 compared to Q1 2020, increased by 37% in Q3 compared to Q2 2020, increased by 65% in Q4 compared to Q3 2020. At the same time, the weighted average wholesale price of natural gas by gas production companies in the unregulated segment of the wholesale market in 2020 amounted to UAH 3,628 per thousand m^3 (VAT excluded) and decreased in Q1 and Q2 2020: by 10% in Q1 compared Q4 2019, by 34% in Q2 2020 compared to Q1 2020, and increased by 31% and 46% in Q3 and Q4 2020, respectively.

Competition in the wholesale market

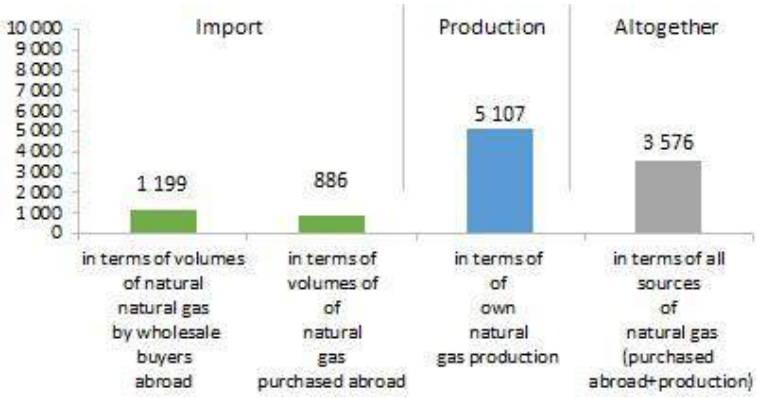


Fig. 3.3.8. The Herfindahl–Hirschman index (HHI) on the Ukrainian wholesale market of natural gas in terms of volumes of natural gas purchased by wholesale buyers abroad, volumes of sources of purchased natural gas abroad, sources of own production

The Herfindahl-Hirschman index (HHI is a measure of market concentration) for the wholesale market of natural gas in Ukraine in terms of the volume of natural gas purchased by wholesale buyers[69] abroad in 2020 was 1,199 out of a maximum of 10,000 (Fig. 3.3.8), which means the average level of concentration of wholesale buyers of natural gas abroad in this market.. It should be noted that the value of this indicator was significantly influenced by the share of Naftogaz in the total volume of natural gas purchased abroad, which in 2019 was 50% (66% in 2018, 62% in 2017, and 74% in 2016). However, the share of Naftogaz in the total volume of natural gas purchased abroad was only 7% in 2020.

According to available information, HHI on the wholesale market of natural gas in Ukraine in terms of sources of natural gas purchased abroad[70] in 2020 was 886 out of a maximum of

[68] Data are taken from https://www.powernext.com/ and https://bank.gov.ua/control/uk/curmetal/currency/search/form/period.

[69] HHI is calculated by squaring the share of natural gas purchased by each customer of transportation services abroad and then summing the resulting numbers.

[70] HHI is calculated by squaring the share of natural gas purchased from each customer of transportation services abroad and then summing the resulting numbers.

10,000 (Fig. 3.3.8), which indicates a fairly low level of concentration of the sources of natural gas coming from abroad when entering the wholesale market of Ukraine.

Also, the HHI on the wholesale natural gas market in terms of Ukraine's own natural gas production[71] in 2020 was 5,107 out of a maximum of 10,000 (Fig. 3.3.8), which means a high concentration of wholesalers-producers in the wholesale market. But the share of natural gas production of the three largest gas production companies in 2020 was 84% of all production (86% in 2019, 86% in 2018, and 88% in 2017).

At the same time, HHI on the wholesale market of natural gas in Ukraine in terms of all sources of natural gas (purchased abroad and produced)[72] in 2020 amounted to 3,576 out of a maximum of 10,000 (Fig. 3.3.8).

Purchase/sale of natural gas in gas storages

In 2020, the customers of storage services actively purchased and sold natural gas in gas storages. At the same time, out of all 457 customers of storage services in 2020, 338 customers of storage services sold natural gas to other customers in gas storages, and 328 customers purchased natural gas from other customers in gas storages. The total volume of trade in natural gas in gas storages in 2020 was about 29 billion m^3, which is 3.9 times more than in 2019 (7,426 million m^3) and 14 times more than in 2018 (2,029 million m^3). These statistics show a significant increase in trade in natural gas in gas storages and, accordingly, trade liquidity.

At the same time, it should be noted that trade in the customs warehouse of gas storages, which in 2020 amounted to 11.3 billion m^3 (2.4 billion m^3 in 2019), had a significant impact on the growth of trade in gas storages.

Settlement of gas transmission imbalances

In order to balance the gas transmission system, the GTS operator takes balancing actions. If the customers of transportation services have not settled their negative/positive imbalance within the terms established by the legislation, a daily imbalance fee shall be applied to them pursuant to the legislation:

if the daily imbalance volume of the customer of natural gas transportation services per gas day is positive, it is assumed that the customer of natural gas transportation services, on the basis of prior consent given under the natural gas transportation contract, sold natural gas to the gas transmission system operator in the amount of daily imbalance, which means that it has the right to receive funds from the gas transmission system operator in the amount of the daily imbalance fee;

if the daily imbalance of the customer of natural gas transportation services for the gas day is negative, it is assumed that the customer of natural gas transportation services, on the basis of prior consent provided under the natural gas transportation contract, purchased natural gas from the gas transmission system operator in the amount of daily imbalance and is obliged to pay the gas transmission system operator the daily imbalance fee.

The daily imbalance fee should reflect the costs, including the cost of balancing actions by the gas transmission system operator, as well as the adjustment.

The daily imbalance fee for the customer of natural gas transportation services is calculated without taking into account the adjustment (up for negative imbalances and down for positive imbalances) if the amount of daily imbalance does not exceed the permissible range of natural gas volumes delivered to exit points (positive imbalance) or entry points (negative imbalance).

[71] HHI is calculated by squaring the shares of natural gas production by each gas production enterprise in the total volume of its own natural gas production and then summing the resulting numbers.

[72] HHI is calculated by squaring the shares of the natural gas production volume by each gas production enterprise and the natural gas volume purchased abroad by each customer of transportation services in total and then summing the resulting numbers.

In order to calculate the daily imbalance fee, the marginal purchase/sale price of natural gas, as determined pursuant to the legislation, is applied.

In December 2020, the marginal purchase and sale prices for imbalances less than the permissible range were the highest during 2020 and amounted to UAH 7,420 thousand m^3 (VAT excluded) and UAH 7,736 thousand m^3 (VAT excluded), respectively, and the lowest values were recorded in May and June 2020: the marginal purchase price was UAH 2,533 thousand m^3 (VAT excluded), which was almost three times less than in December, and the marginal sale price was UAH 2,538 thousand m^3 (VAT excluded), which was three times less than in December (Fig. 3.3.9).

Fig. 3.3.9. Dynamics of the marginal purchase/sale price of natural gas for negative/positive imbalances greater and less than the permissible range in 2020, UAH/thousand m^3 (VAT excluded)

In general, the marginal purchase/sale price in the second quarter of 2020 was the lowest throughout 2020.

The amount of daily positive imbalances in 2020 was twice less than the amount of daily negative imbalances (Fig. 3.3.10). At the same time, the amount of daily negative imbalances in Q3 2020 amounted to 846 million m^3 and was almost twice as much as in Q1 and Q4 2020, and 37% more than in Q2 2020. It should be noted that the share of daily negative imbalances in the final consumption of natural gas in 2020 was 8.6%.

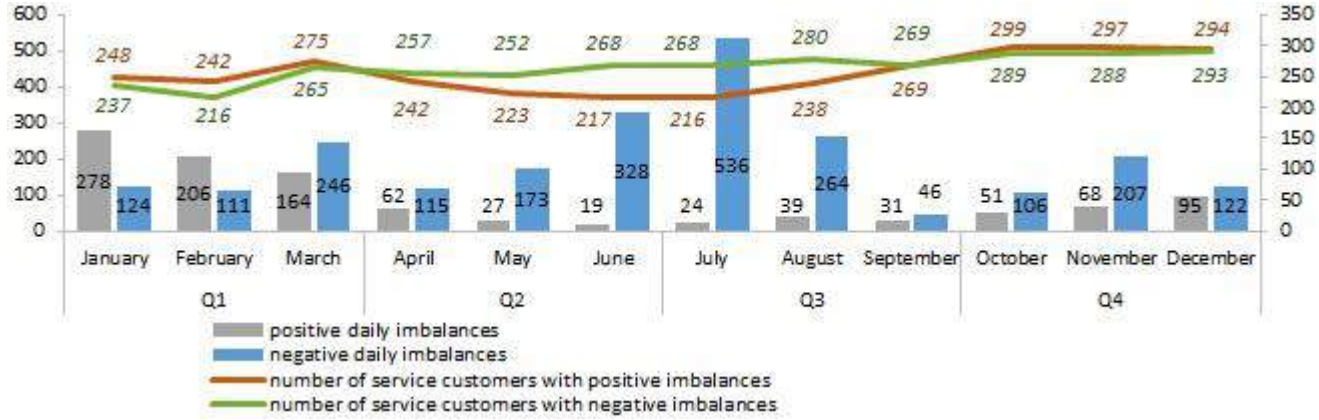


Fig. 3.3.10. Dynamics of daily positive/negative imbalances (million m^3) and the number of customers of transportation services who had imbalances in 2020

The dynamics of the shares of daily positive and negative imbalances of transportation service customers that do not exceed the permissible range in the total amount of positive and negative imbalances in January–December 2020, respectively, are shown in Fig. 3.3.11.

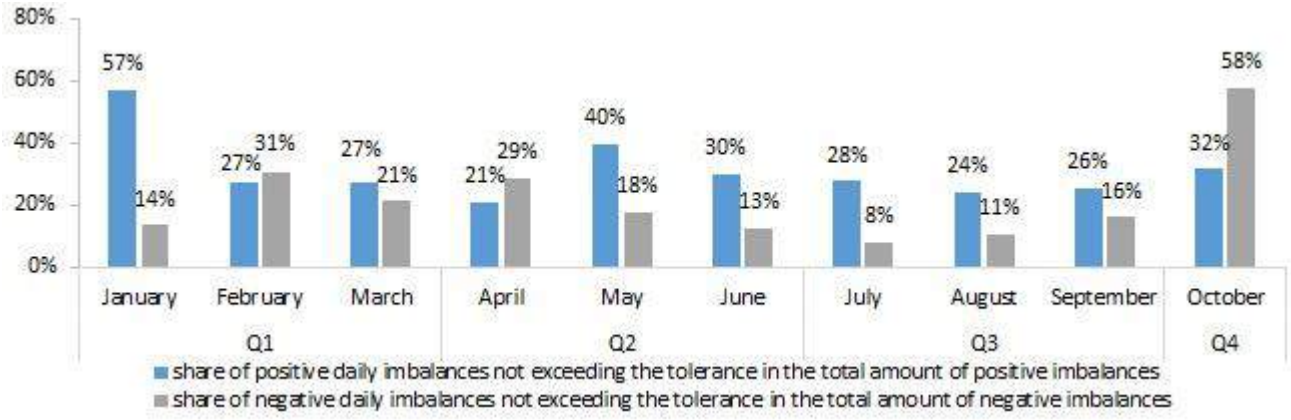


Fig. 3.3.11. Dynamics of shares of daily positive and negative imbalances that do not exceed the permissible range in the total amount of positive and negative imbalances in 2020, %

3.3.2. Retail natural gas market

General information on the retail natural gas market

Suppliers subject to licensing provide for the natural gas needs of customers, who use natural gas for own industrial and domestic needs, as opposed to resale.

The supply of natural gas is carried out in accordance with the contract, under which the supplier undertakes to supply the customer with natural gas of proper quality, quantity, and in the manner prescribed by the contract, and the customer undertakes to pay the cost of the accepted natural gas. The quality and other physicochemical properties of natural gas are determined in accordance with the standards established by law.

Thus, to obtain natural gas, the customer must conclude:

- natural gas supply agreement with the supplier;
- natural gas distribution agreement with the GDN operator in case of connection of the customer's facility to the gas distribution system of this operator;
- natural gas transportation agreement with the GTS operator in case of connecting the customer's facility to the gas transmission system.

It should be noted that natural gas supply to household customers is carried out under a contract concluded in accordance with the Standard Contract for natural gas supply to household customers (approved by NEURC Resolution #2500 of September 30, 2015).

Legal relations between the supplier and the customer that is not household are regulated by the Natural Gas Supply Contract, which is concluded in accordance with the requirements of the Civil Code of Ukraine and Economic Code of Ukraine. Thus, the parties may determine the content of the contract on the basis of free will and have the right to agree at their discretion any terms of the contract that do not contradict the law. However, the natural gas supply contract must contain the essential conditions provided for in Part 5, Article 12 of the Law.

All customers are guaranteed by Law to choose and change their natural gas supplier. The rules of natural gas supply determine the procedure and conditions of the customer's transition from one supplier to another.

In 2020, 286 natural gas suppliers operated in the market that is 15% more than in 2019, (249) and 22% more than in 2018 (234). Natural gas supply to household customers and religious organizations (in addition to the volumes used for production and/or any commercial activities of such religious organizations) was carried out by 37 natural gas suppliers, which were required by Regulation on PSO 867 to supply natural gas to these customers before changing natural gas supplier at the prices and under the conditions established by the Cabinet of Ministers of Ukraine. Until August 01, 2020, these suppliers supplied natural gas within the PSO framework within the territories defined by Regulation on PSO 867 as the territories subject to licensed natural gas

distribution activities (Annex 3.3.1). In addition, Naftogaz supplied natural gas to heat producers for heat and electricity generation at prices, on the terms, and in the manner prescribed by Regulation on PSO 867.

Starting from August 01, 2020, natural gas is being supplied to household customers and religious organizations at market prices.

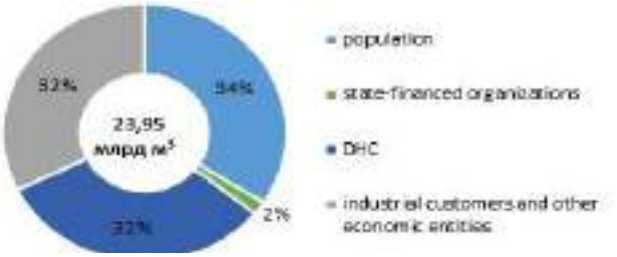


Fig. 3.3.13. Structure of natural gas consumption by customers connected to gas distribution systems in 2020, billion m^3 and %

Fig. 3.3.12. The level of payment (by the amount of funds) by household customers and religious organizations to natural gas suppliers in 2020

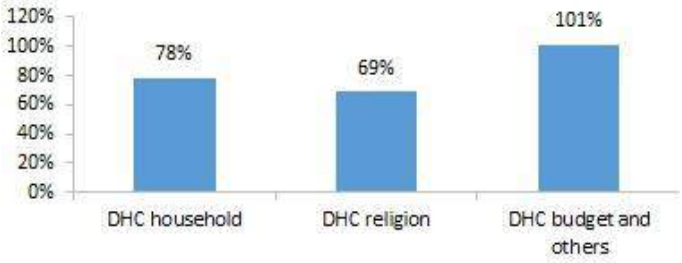


Fig. 3.3.14. The level of payment (in gross of funds) by non-household customers to natural gas suppliers subject to Regulations on PSOs for natural gas in 2020

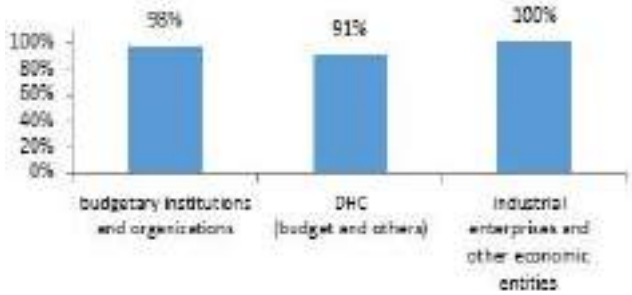


Fig. 3.3.15. The level of payment (in gross of funds) by customers (except for customers defined by Regulation on PSO 867) to natural gas suppliers for natural gas in 2020

In 2020, 12.58 million customers were supplied in the retail market of natural gas, 113 thousand were non-household customers (158 of them were direct customers) and 12.47 million were household customers. Consumption by direct customers (connected to the gas transmission system) amounted to 3.57 billion m^3, and to 23.95 billion m^3 by customers connected to gas distribution systems. The structure of consumption by customers connected to gas distribution systems is shown in Fig. 3.3.12.

Information on the gross level of payment[73] (for natural gas in 2020 by household customers and religious organizations to natural gas suppliers is shown in Fig. 3.3.13.[74] Information on the gross level of payment[75] (for natural gas in 2020 by non-household customers defined by Regulation on PSO 867 to natural gas suppliers is shown in Fig. 3.3.14.[76] Information on the gross level of payment for natural gas in 2020 by other customers (except for customers defined by Regulation on PSO 867) to natural gas suppliers is shown in Fig. 3.3.15.

High level of payments among non-household customers is partly due to upfront payment requirements of natural gas suppliers. Upfront payment requirement does not apply to household customers, as it is not provided by the Standard Contract of natural gas supply to household customers approved by NEURC resolution #2500 of September 30, 2015. According to the information available to the NEURC, 135 natural gas suppliers did not require upfront payment for natural gas from industrial enterprises and other economic entities in 2020.

[73] Taking into account benefits and subsidies.
[74] Taking into account benefits and subsidies.
[75] Taking into account benefits and subsidies.
[76] Taking into account benefits and subsidies.

Pricing in the retail natural gas market

According to provisions of the Law, the NEURC does not have the authority to ensure the pricing policy in the natural gas market. The law provides for state regulation of natural monopolies, as well as the development of free and fair competition in the retail natural gas market, where the principle of free pricing applies (except in the cases specified by Article 11 of the Law).

Thus, Regulation on PSO 867 in the framework of the retail market of natural gas in 2020 imposed PSOs on:

natural gas suppliers: until August 1, 2020, to supply natural gas to household customers, religious organizations (except for the volumes used for any productive/commercial activities of such religious organizations), and the state enterprise of Ukraine “International Children's Center ‘Artek’” at prices, under the conditions and procedure as established by Regulation on PSO 867;

Naftogaz: until August 1, 2020, to supply natural gas to household customers, religious organizations (except for the volumes used for any productive/ commercial activities of such religious organizations), and the state enterprise of Ukraine “International Children's Center ‘Artek’” that are not supplied by another supplier (including another supplier subject to PSOs in accordance with this Regulation) in the respective period (supply month) under the procedure as established by this Regulation;

Naftogaz: until May 1, 2021, to supply natural gas to heat energy producers for the production of heat and electricity at prices, on the terms, and under the procedure as established by Regulation on PSO 867.

It should also be noted that the regulated segment of the retail natural gas market in 2019 operated within the scope of Regulation on PSO 867. In addition, Resolution 293 of the Cabinet of Ministers of Ukraine provided in 2019 for the possibility for Naftogaz to sell natural gas to natural gas suppliers and supply natural gas to heat producers (subject to Regulation on PSO 867) under Regulation on PSO 867 at a price that may be lower than the price specified in Regulation on PSO 867.

Information on the results of monitoring the implementation of PSOs envisaged by Regulation on PSO 867 is provided in Section 3.3.3.

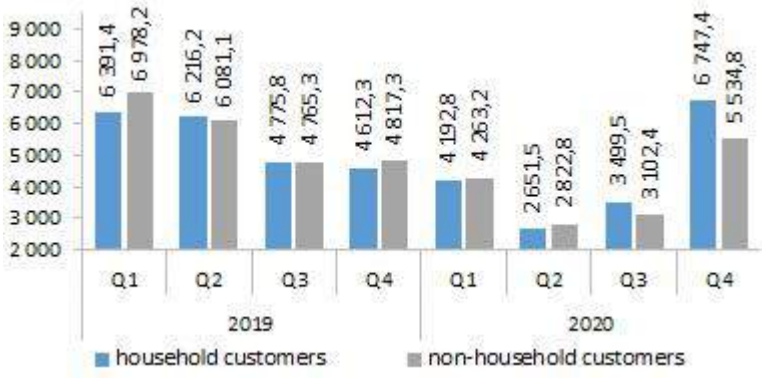


Fig. 3.3.16. Dynamics of weighted average retail prices for household and non-household customers in 2019–2020, UAH per thousand m^3 (VAT excluded)

In 2020, the weighted average retail price of natural gas[77] for household customers was UAH 4,827 per thousand m^3 (VAT excluded), which was 15% less than the previous year (UAH 5,692 per thousand m^3 (VAT excluded)), and the weighted average retail price[78] for non-household customers was UAH 4,263 per thousand m^3 (VAT excluded) and decreased by 27% compared to 2019 (UAH 5,858 per thousand m^3 (VAT excluded)) (Fig. 3.3.16).[79] The price for household and non-household customers was the highest in Q4 2020 and the lowest in Q2 2020. To analyze the factors influencing the formation of these prices, the retail market can be divided into regulated and unregulated segments.

Regulated segment of the retail natural gas market

In 2020, the retail price for natural gas in the regulated segment of the natural gas market was determined monthly under Regulation on PSO 867 for:

[77] Excluding natural gas transportation and distribution tariffs.
[78] Excluding natural gas transportation and distribution tariffs.
[79] Excluding natural gas transportation and distribution tariffs.

- household customers and religious organizations (except for the volumes used for any productive /commercial activities of such religious organizations) (until August 1, 2020);
- heat energy producers for the needs of the population, religious and budgetary organizations, and other economic entities defined by Regulation on PSO 867.

At the same time, retail prices for natural gas for household customers and religious organizations (except for the volumes used for any productive/commercial activities of such religious organizations), which were supplied under Regulation on PSO 867, differed from retail prices for heat producers (for the needs of the households, religious and budgetary organizations, and other economic entities defined by Regulation on PSO 867) in the amount of trade margin of the PSO supplier.

In 2019, retail prices for household customers and religious organizations (except for the volumes used for any productive/ commercial activities of such religious organizations), as well as for heat producers for the needs of the population, religious and budgetary organizations, and other economic entities defined by Regulation on PSO 867, were determined within the scope of Regulation on PSO 867 and Resolution 293. Resolution 293 of the Cabinet of Ministers of Ukraine provided for the possibility for Naftogaz to sell natural gas to natural gas suppliers and supply natural gas to heat producers (subject to Regulation on PSO 867) under Regulation on PSO 867 at a price that may be lower than the price specified in Regulations on PSO 867.

The dynamics of weighted average retail prices for these categories of customers in 2019–2020 are shown in Fig. 3.3.17.

In Q1 and Q2 2020, there was a monthly gradual decrease in regulated weighted average retail prices for natural gas for household and non-household customers.

The lowest weighted average retail prices for natural gas for household and non-household customers in the regulated segment of the natural gas market were in Q2 2020.

Thus, the decrease in weighted average retail prices for natural gas for these categories of customers was about 37% in Q2 2020 compared to Q1 of this year.

Since August 1, 2020, retail prices for natural gas for household customers and religious organizations were not determined on the basis of Regulation on PSO 867 but were freely set between supplier and customer, i.e., natural gas supply to these customers was carried out within the unregulated segment of the natural gas market.

Fig. 3.3.17. Dynamics of weighted average retail prices for heat producers (for the needs of the population and religious organizations), heat producers for the needs of budgetary organizations and other economic entities defined by Regulation on PSO 867, religious organizations and household customers in 2019–2020, UAH per thousand m^3 (VAT excluded)

Starting from Q3 2020, the weighted average retail prices for natural gas for heat producers in the regulated segment of the natural gas market began to grow gradually and were the highest for this category of customers in Q4 2020.

In general, the weighted average retail price for heat producers in the regulated segment of the natural gas market in 2020 was UAH 4,363 per thousand m^3 (VAT excluded) and was 21%

lower than the weighted average retail price for these categories of customers in 2019 (UAH 5,518 per thousand m^3 (VAT excluded)).

Unregulated segment of the retail natural gas market with free pricing

Dynamics of weighted average retail prices[80] of natural gas in the unregulated segment of the retail market in 2019–2020 is shown in Fig. 3.3.18[81].

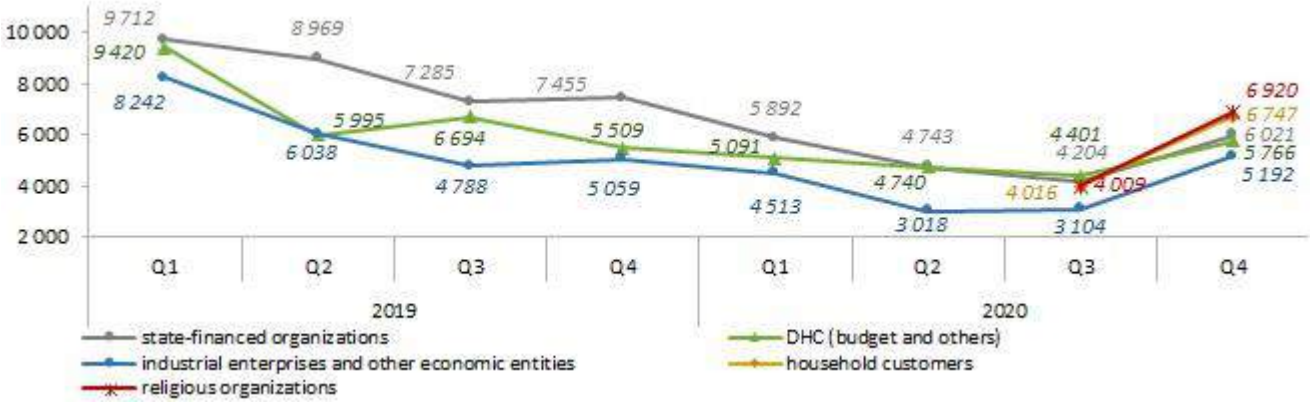


Fig. 3.3.18. Dynamics of weighted average retail prices for household customers, religious organizations, budgetary institutions and organizations, heat producers (for the needs of customers, except for the population and religious organizations), industrial enterprises, and other economic entities in 2019–2020, UAH per thousand m^3 (VAT excluded)

The weighted average retail price of natural gas for non-household customers in the unregulated segment of the retail natural gas market with free pricing was UAH 4,143 per thousand m^3 (VAT excluded) in 2020 and was 33.5% (UAH 6,232 per thousand m^3 (VAT excluded)) lower than in 2019.

Thus, in 2020, just like in 2019, the weighted average retail price of natural gas was the highest among non-household customers for budgetary institutions and organizations and amounted to UAH 5,879 per thousand m^3 (VAT excluded), which is 33% lower than in 2019 (UAH 8,796 per thousand m^3). The weighted average retail price for heat producers (for the needs of customers, except for the population and religious organizations) and electricity producers in the unregulated segment of the natural gas market in 2020 was UAH 5,328 per thousand m^3 (VAT excluded), UAH 4,050 per thousand m^3 (VAT excluded) for industrial enterprises and other economic entities, and it was 33% lower than in 2019 for these customers.

In Q1 and Q2 2020, there was a gradual decrease in the weighted average retail price of natural gas for non-household customers in the unregulated segment of the natural gas market; in Q3 2020, the weighted average retail price for these customers began to increase due to increase in the weighted average retail price for industrial customers.

In 2020, the highest retail prices for natural gas in the unregulated segment of the retail natural gas market, as well as in the regulated segment of the natural gas market, were in Q4 2020, while the weighted average retail price of natural gas for household customers in Q4 2020 was higher than that for non-household ones.

The weighted average retail prices for natural gas in the unregulated segment of the retail natural gas market in 2020 were formed under the influence of prices in the wholesale natural gas market (unregulated segment).

[80] Excluding natural gas transportation and distribution tariffs.
[81] Excluding natural gas transportation and distribution tariffs.

The final weighted average retail prices for the population in Ukraine and vs. in European countries are shown in Fig 3.3.19.[82]

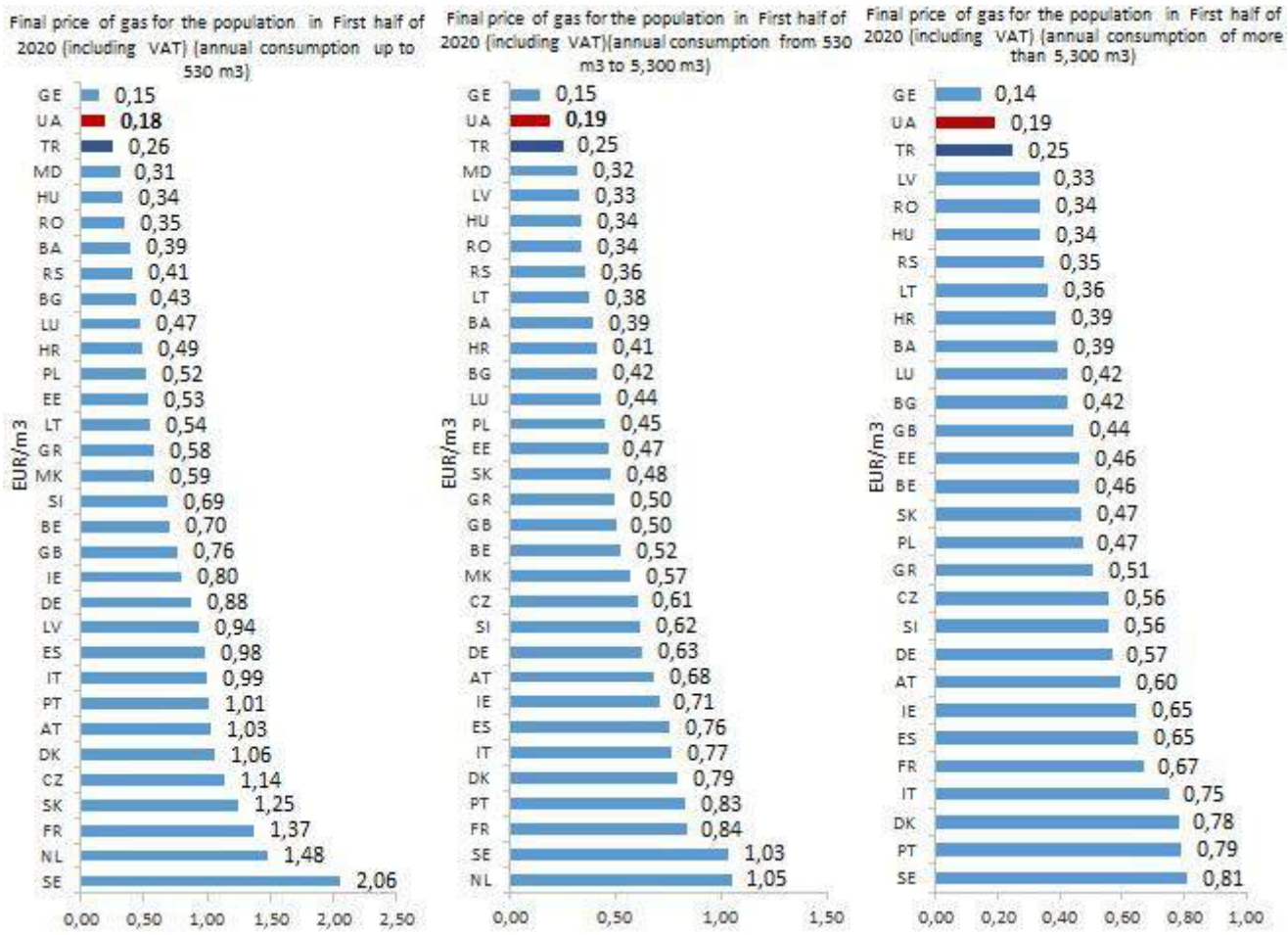


Fig. 3.3.19. Final weighted average retail prices for the population in the first half of 2020 in European countries (VAT included), EUR/m^3

The final weighted average retail prices for industrial customers in Ukraine vs. in European countries are shown in Fig. 3.3.20.[83]

[82] https://ec.europa.eu/eurostat/data/database
[83] https://ec.europa.eu/eurostat/data/database

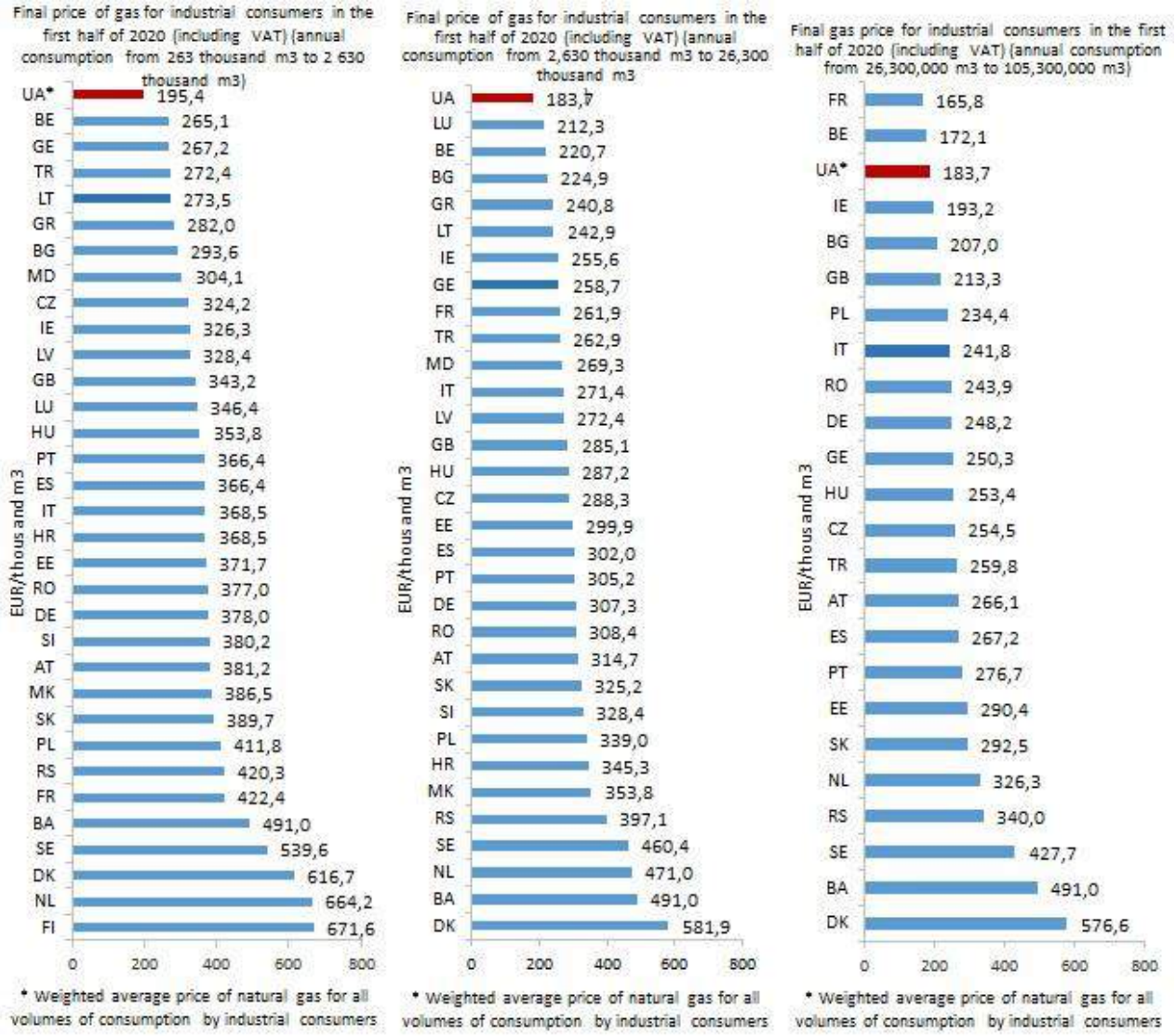


Fig. 3.3.20. Final weighted average retail prices for industrial customers in the first half of 2020 in European countries (VAT included), EUR/thousand m^3

Competition in the retail market

There were 286 natural gas suppliers in 2020. According to the NEURC, about 71% of natural gas supplies to the population in 2020 (68% in 2019, 71% in 2017–2018, 76% in 2016) were provided by suppliers with controlling interest/majority stake owned by GDN operators (united under the brand of "Regional Gas Company")[84] (hereinafter referred to as RGC suppliers), 4% of the volumes were provided by Naftogaz (2.4% in 2019), and the remaining volumes were provided by others suppliers (Fig. 3.3.21).

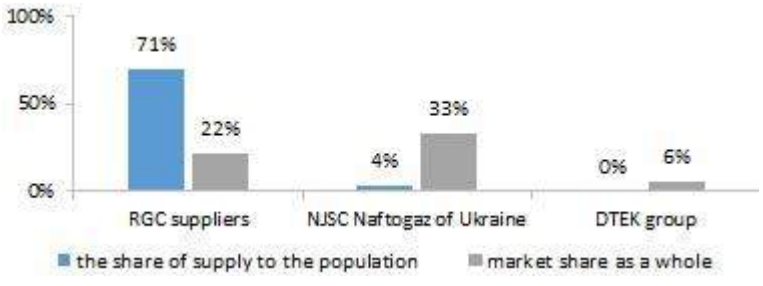


Fig. 3.3.21. Shares of natural gas supply to the population and the market as a whole of the main groups of companies in 2020, %

At the same time, the share of natural gas supplied by RGC suppliers in the retail market as a whole in 2020 was about 22% (24% in 2019, 31% in 2018), the share of the DTEK Group in the retail market in total was 6%, and 39% were supplied by other suppliers (except for Naftogaz).

[84] https://104.ua/ua/rgc/id/regionalna-gazova-kompanija-9539#sub9541.

The share of natural gas supplied by Naftogaz in the retail natural gas market in total in 2020 was about 33%, 30% of them were supplied by Naftogaz for the needs of heat energy producers (DHCs) due to Regulation on PSO 867.

3.3.3. Monitoring the fulfillment of PSOs to protect the public interests

Following Clause 14, Article 4 of the Law of Ukraine "On Natural Gas Market", the NEURC has monitored the implementation of PSOs to protect the public interests on the natural gas market.

Regarding the sale of natural gas extracted by Naftogaz to Ukrgazvydobuvannya and Chornomornaftogaz within the framework of PSOs to protect the public interests in the process of the natural gas market functioning

In 2020, the total volume of natural gas production of Ukrgazvydobuvannya amounted to about 14.22 billion m^3, including about 13.45 billion m^3 of commercial natural gas, Chornomornaftogaz produced about 8.36 million m^3, including about 8.06 million m^3 of commercial natural gas.

The volume of sales of natural gas produced by Ukrgazvydobuvannya to Naftogaz in 2020 amounted to about 11.42 billion m^3, Chornomornaftogaz sold about 7.93 million m^3.

The price for natural gas, at which Naftogaz purchased natural gas from Ukrgazvydobuvannia and Chornomornaftogaz, was determined in accordance with Regulation on PSO 867 and was as follows in 2020:

- 4,560.86 per thousand m^3 (VAT excluded) in January;
- 3,872.32 per thousand m^3 (VAT excluded) in February;
- 3,330.90 per thousand m^3 (VAT excluded) in March;
- 2,841.46 per thousand m^3 (VAT excluded) in April;
- 2,232.09 per thousand m^3 (VAT excluded) in May;
- 2,101.21 per thousand m^3 (VAT excluded) in June;
- 2,253.49 per thousand m^3 (VAT excluded) in July;
- 2,922.05 per thousand m^3 (VAT excluded) in August;
- 4,236.19 per thousand m^3 (VAT excluded) in September;
- 5,271.08 per thousand m^3 (VAT excluded) in October;
- 5,272.32 per thousand m^3 (VAT excluded) in November;
- 5,986.10 per thousand m^3 (VAT excluded) in December.

Regarding the sale of natural gas by Naftogaz to natural gas suppliers for the needs of household customers and religious organizations (except for the volumes used for any productive /commercial activities of such religious organizations) and the supply of natural gas to heat energy producers

The volume of natural gas sales of Naftogaz to natural gas suppliers for the needs of household customers in 2020 (January–July) amounted to about 3.22 billion m^3, the weighted average price was UAH 3,559.96 per thousand m^3 (VAT excluded).

The volume of natural gas sales of Naftogaz to natural gas suppliers for the needs of religious organizations (except for the volumes used for any productive/commercial activities of such religious organizations) in 2020 (January–July) amounted to about 4.9 million m^3, the weighted average price was 3 UAH 716.28 per thousand m^3 (VAT excluded).

The volume of natural gas supply of Naftogaz to heat energy producers within the framework of heat energy production for the purpose of providing heating and hot water supply services to the population in 2020 amounted to about 4.65 billion m^3, the weighted average price was UAH 4,548.25 per thousand m^3 (tariffs for natural gas transportation and distribution and VAT excluded).

The volume of natural gas supply of Naftogaz to heat energy producers within the framework of heat energy production for the purpose of providing heating and hot water supply services to religious organizations in 2020 amounted to 1.93 million m^3, the weighted average price was UAH 4,560.59 per thousand m^3 (tariffs for natural gas transportation and distribution and VAT excluded).

The volume of natural gas supply of Naftogaz to producers of heat energy for the production of heat energy (for all categories of customers, except for the population and religious organizations) and electricity, which are subject to Regulation on PSO 867, amounted in 2020 to about 3.46 billion m^3, the weighted average price was UAH 4,115.10 per thousand m^3 (tariffs for natural gas transportation and distribution services and VAT excluded).

The price of natural gas at which Naftogaz sold natural gas to natural gas suppliers for the needs of household customers and religious organizations (except for the volumes used for any productive/commercial activities of such religious organizations), which fall under Regulation on PSO, was determined in accordance with Regulation on PSO 867 and was as follows in 2020:

- 4,650.00 per thousand m^3 (VAT excluded) in January;
- 3,948.00 per thousand m^3 (VAT excluded) in February;
- 3,396.00 per thousand m^3 (VAT excluded) in March;
- 2,897.00 per thousand m^3 (VAT excluded) in April;
- 2,275.72 per thousand m^3 (VAT excluded) in May;
- 2,142.28 per thousand m^3 (VAT excluded) in June;
- 2,297.53 per thousand m^3 (VAT excluded) in July.

The price for natural gas (tariffs for natural gas transportation and distribution and VAT excluded), at which Naftogaz supplied natural gas to heat producers subject to Regulation on PSO, was determined in accordance with Regulation on PSO 867 and was as follows in 2020:

- 4,650.00 per thousand m^3 (VAT excluded) in January;
- 3,948.00 per thousand m^3 (VAT excluded) in February;
- 3,396.00 per thousand m^3 (VAT excluded) in March;
- 2,897.00 per thousand m^3 (VAT excluded) in April;
- 2,275.72 per thousand m^3 (VAT excluded) in May;
- 2,142.28 per thousand m^3 (VAT excluded) in June;
- 2,297.53 per thousand m^3 (VAT excluded) in July;
- 2,979.16 per thousand m^3 (VAT excluded) in August;
- 4,318.99 per thousand m^3 (VAT excluded) in September;
- 5,374.10 per thousand m^3 (VAT excluded) in October;
- 5,375.37 per thousand m^3 (VAT excluded) in November;
- 6,103.10 per thousand m^3 (VAT excluded) in December.

Regarding the natural gas supply by PSO suppliers to household customers and religious organizations (except for the volumes used any productive/commercial activities of such religious organizations)

The volume of natural gas supply by PSO suppliers to household customers in 2020 (January–July) amounted to about 4.9 billion m^3, the weighted average price was UAH 3,757.96 per thousand m^3, taking into account the trade margin of the PSO supplier (tariffs for natural gas transportation and distribution and VAT excluded), religious organizations (except for the volumes used for any productive/ commercial activities of such religious organizations) in 2020 (January–July) amounted to about 10.1 million m^3, the weighted average price was UAH 3,988.47 per thousand m^3, taking into account the trade margin of a PSO supplier (tariffs for natural gas transportation and distribution services and VAT excluded).

The difference between the volumes of natural gas sales of Naftogaz to natural gas suppliers to household customers and religious organizations (except for the volumes used for any productive/ commercial activities of such religious organizations), and the volumes actually

supplied to these customers was due to the purchases from other wholesalers in the Ukrainian market by the suppliers. .

The weighted average price of natural gas, taking into account the trade margin of PSO suppliers (tariffs for natural gas transportation and distribution and VAT excluded), at which PSO suppliers supplied natural gas to household customers was as follows in 2020:

- 4,766.24 per thousand m^3 (VAT excluded) in January;
- 4,046.20 per thousand m^3 (VAT excluded) in February;
- 3,478.76 per thousand m^3 (VAT excluded) in March;
- 2,969.07 per thousand m^3 (VAT excluded) in April;
- 2,331.59 per thousand m^3 (VAT excluded) in May;
- 2,195.83 per thousand m^3 (VAT excluded) in June;
- 2,354.97 per thousand m^3 (VAT excluded) in July;

The weighted average price of natural gas, taking into account the trade margin of PSO suppliers (net of tariffs for natural gas transportation and distribution services, and VAT), at which PSO suppliers supplied natural gas to religious organizations (except volumes used for any productive/ commercial activities of such religious organizations) was as follows in 2020:

- 4,765.39 per thousand m^3 (VAT excluded) in January;
- 4,044.55 per thousand m^3 (VAT excluded) in February;
- 3,478.29 per thousand m^3 (VAT excluded) in March;
- 2,969.43 per thousand m^3 (VAT excluded) in April;
- 2,332.61 per thousand m^3 (VAT excluded) in May;
- 2,195.84 per thousand m^3 (VAT excluded) in June;
- 2,354.95 per thousand m^3 (VAT excluded) in July;

According to the results of monitoring the PSO fulfillment to protect the public interests in the process of the natural gas market functioning:

the weighted average price of natural gas, taking into account the trade margin of PSO suppliers (net of tariffs for natural gas transportation and distribution services, and VAT), at which PSO suppliers supplied natural gas to household customers, was as follows:

- UAH 4,190.99 per thousand m^3 in Q1 2020 and was 7.1% lower than for non-household (industrial) customers who do not fall under Regulation on PSO 867;
- UAH 2,651.47 per thousand m^3 in Q2 2020 and was 12.1% lower than for non-household (industrial) customers who do not fall under Regulation on PSO 867;

the weighted average price of natural gas, taking into account the trade margin of PSO suppliers (net of tariffs for natural gas transportation and distribution services, and VAT), at which PSO suppliers supplied natural gas to religious organizations (except volumes used for any productive/ commercial activities of such religious organizations) was as follows:

- UAH 4,211.56 per thousand m^3 in Q1 2020 and was 6.7% lower than for non-household (industrial) customers who do not fall under Regulation on PSO 867;
- UAH 2,705.96 per thousand m^3 in Q2 2020 and was 10.3% lower than for non-household (industrial) customers who do not fall under Regulation on PSO 867;

the weighted average price at which Naftogaz supplied natural gas to heat producers subject to Regulation on PSO 867 (net of tariffs for natural gas transportation and distribution services, and VAT) was as follows:

- UAH 4,066.88 per thousand m^3 in Q1 2020 and was 9.9% lower than for non-household (industrial) customers who do not fall under Regulation on PSO 867;
- UAH 2,501.70 per thousand m^3 in Q2 2020 and was 17.1% lower than for non-household (industrial) customers who do not fall under Regulation on PSO 867;
- UAH 3,094.44 per thousand m^3 in Q3 2020 and was 0.3% lower than for non-household (industrial) customers who do not fall under Regulation on PSO 867;

- UAH 5,734.75 per thousand m^3 in Q4 2020 and was 10.5% lower than for non-household (industrial) customers who do not fall under Regulation on PSO 867;

3.3.4. Last resort supplier

Following provisions of the Law of Ukraine "On Natural Gas Market", a "last resort" supplier is a supplier designated by the Cabinet of Ministers of Ukraine that has no right to refuse to enter into a limited term natural gas supply contract.

If a supplier is liquidated, declared bankrupt, has its supplier license revoked/suspended, as well as in other cases provided by the rules for the last resort supplier, the supply of natural gas to the customer is carried out in the manner prescribed by the rules for the last resort supplier, and under the terms of a standard supply contract of last resort supplier approved by the Regulator.

Thus, the main purpose of the last resort supplier is to ensure the continuity of natural gas supply to those customers who, due to objective circumstances, were left without a supplier, especially during the heating season, giving customers time to find a new natural gas supplier and leveling unscrupulous suppliers in relation to natural gas customers.

The supply contract between the last resort supplier and the customer is deemed to be concluded from the moment of the actual supply of natural gas to such customer, and the supply of natural gas to the customer is carried out in the manner prescribed by the rules for the last resort supplier and on the terms of a standard supply contract by the last resort supplier.

The last resort supplier is determined by the Cabinet of Ministers of Ukraine for a term of three years based on the results of a tender held in accordance with the procedure established by the Cabinet of Ministers of Ukraine.

Thus, following order of the Cabinet of Ministers of Ukraine No. 917-p of July 22, 2020 "On Determining the Limited Liability Company 'Gas Supply Company Naftogaz of Ukraine' as a Last Resort Supplier" Naftogaz was recognized as a last resort supplier for a period of three years as the tender winner.

A last resort supplier is obliged to supply natural gas to customers at the price, at which it undertook to supply natural gas to customers in accordance with the terms of the tender for the selection of the last resort supplier.

The price of natural gas is published on the website of the last resort supplier.

It should be noted that prior to September 30, 2020, in order to ensure adherence to the contract of natural gas supply by the last hope supplier, the customers had to fill in the application form published on the last resort supplier's website in the form of an annex to the standard contract and send it to the last resort supplier in the manner specified on the last resort supplier's website.

However, such an application mechanism did not facilitate the prompt conclusion of a contract with the last resort supplier, as it took some time.

It should also be noted that in conditions when the customer was left without a natural gas supplier or if the current supplier did not provide natural gas to such a customer, including during the heating period, this mechanism could lead to termination of natural gas supply to the customer.

Due to the above and in order to optimize the procedure for concluding a contract for the supply of natural gas by the last resort supplier and improve the relationship between natural gas customers and the last resort supplier, the NEURC adopted Resolution No. 1752 of September 23, 2020, which came into force on October 01, 2020. This resolution introduced a simplified mechanisms of customer registration were in the last resort supplier's register on the information platform of the gas transmission system operator.

So, since October 01, 2020, the changes resulted in that the registration of the customer in the last resort supplier's register on the information platform of the gas transmission system operator of Ukraine was carried out automatically in the following cases:

- bankruptcy/ liquidation of the previous natural gas supplier;
- suspension or revocation of the natural gas supply license of the previous supplier;
- absence of the confirmed nomination and renomination of the operating supplier, except for cases when the last resort supplier initiates the shutdown on the facility of such customer (provisions of this paragraph are applied at delivery of natural gas to a household customer);
- absence of a household customer (customer metering point) in the customer register of any supplier on the information platform of the GTS operator (provisions of this paragraph apply to the supply of natural gas to a household customer).

Thus, in the conditions of opening the natural gas market, the NEURC has taken all necessary measures for ensuring uninterrupted supply of natural gas to customers.

It should be noted that the natural gas supply by the last resort supplier is time constrained, so the customer must take all measures to choose another natural gas supplier.

The first supply of natural gas by the last resort supplier was recorded in Q4 2020 (in October–December 2020). The volume of supply amounted to 84.347 million m^3 and was provided only to household customers.

3.3.5. Change of suppliers by customers

Provisions of Part 1, Article 14 of the Law of Ukraine “On Natural Gas Market” stipulate that all customers are guaranteed the right to choose a supplier.

The law prohibits charging or requiring any other financial compensation associated with switching a supplier (except in cases where such payment or compensation is expressly provided for in the supply contract with a customer, who does not fall under the category of household customers). The current supplier has no right to set conditions for termination of the supply contract, which would limit the customer's right to change supplier. According to the information available to the NEURC, 21 natural gas suppliers that supplied natural gas to non-household customers in 2020 demanded financial compensation (fee) in natural gas supply contracts in the event of changing a supplier.

The dispute between a current supplier and a customer that has declared its intention to change the supplier is not a ground for delay in the performance of the supply contract with the new supplier.

Until the termination of the supply contract, the current supplier is obliged to ensure the supply of natural gas to the customer under the terms of the current contract.

Fig. 3.3.22. Number of customers who changed supplier in 2020, persons

The conditions of activity of natural gas suppliers, as well as the procedures for their change by customers are regulated by the Rules of Natural Gas Supply and the Gas Transmission System Code.

The information available to the NEURC on the number of customers who changed suppliers in 2020 is shown in Fig. 3.3.22.

Regarding the change of natural gas supplier by non-household customers

The procedure for switching the natural gas supplier by non-household customers is established by Section IV of the Rules of Natural Gas Supply and remained unchanged in 2020.

Thus, each customer who intends to change the supplier must fulfill its obligations to pay for natural gas to the current supplier (or enter into a schedule with it to restructure the debt for

natural gas, which must be observed) and sign a contract with the current supplier to terminate the natural gas supply contract or suspend the contract in part of the natural gas supply from the date on which the natural gas supply will be carried out by a new supplier.

In this case, to conclude a natural gas supply contract with a new supplier, the customer must provide the supplier with documents, including a certificate (act of reconciliation) on the absence of overdue debt of the customer to the supplier for natural gas, signed by the supplier (if any).

Regarding the change of natural gas supplier by household customers

To improve provisions of the NEURC statutory instruments regulating the activities on the natural gas market, as well as to simplify the procedure for changing the supplier for household customers, on June 10, 2020, the NEURC adopted Resolution #1080, which entered into force on July 1, 2020.

Thus, in accordance with provisions of the Rules of natural gas supply (as amended), a household customer that intends to change the supplier must apply to a new supplier to join the terms of the natural gas supply contract to household customers (the procedure for submitting such an application for connection is determined by Section III of the Rules of Natural Gas Supply).

In this case, household customers have the right to provide the supplier with information and documents for concluding a contract for the natural gas supply to household customers in the form of electronic documents with mandatory identification and authentication of household customers in accordance with the legislation on electronic document management and use of electronic documents. The transfer of information and documents is carried out using information (automated) systems of the supplier and/or e-mail to the address of the supplier, which is specified on its website.

The current supplier receives on the information platform a notification of the intention of its customer to enter into a contract for the natural gas supply with another supplier. Such notification shall be sent automatically as soon as the new supplier submits a notice of the customer's intention to change the natural gas supplier.

The new natural gas supplier considers the documents submitted by the household customer and makes a decision on concluding or refusing to conclude a contract for the natural gas supply.

If the supplier agrees to enter into a contract with the household customer, the supplier shall take measures to register such customer in the supplier's customer register.

The natural gas supply by a new supplier takes place no later than the twenty-first day from the date of registration of the customer's application to join the contract for the natural gas supply.

Thus, the change of supplier must be completed within no more than three weeks from the date of receipt by the new supplier of the application for joining to the contract for the natural gas supply from the household customer.

Upon completion of the supplier change procedure, the new supplier shall notify in writing the household customer of the date on which the natural gas is to be supplied by the new supplier within three working days.

Given the above, to change the natural gas supplier, the household customer must apply to a new supplier to join the terms of the contract for the natural gas supply to household customers, and the new natural gas supplier (in case of agreement to enter into contract with the household customer) takes all necessary measures determined by provisions of the current legislation to ensure supplier change. At the same time, the participation or confirmation of the current natural gas supplier in the process of changing the supplier by the household customer is not required.

4. HEAT SUPPLY SERVICES

4.1. General Information

The Law of Ukraine “On Heat Supply” (hereinafter referred to as the Law “On Heat Supply”) defines basic legal, economic, and organizational principles of operations on heat supply facilities and regulation of relations linked to generation, transportation, supply, and use of heat energy in order to ensure energy security of Ukraine, increase the energy efficiency of heat supply systems, protect rights and interests of customers, create conditions for the heat supply sector functioning on the principles of self-sufficiency, and promote the development of competition in the heat energy market.

State management and regulation of relations in the heat supply sector and price and tariff policy formation is one of the principles on which the state policy in the heat supply sector is based.

The Law of Ukraine “On Natural Monopolies” (hereinafter referred to as the Law “On Monopolies”) designates economic activity of heat energy transportation as belonging to the scope of natural monopoly activities; it designates heat energy generation and supply as adjacent markets and provides that the activities of natural monopolies and economic entities in adjacent markets shall be subject to licensing (regulation). According to the Law “On Monopolies”, state regulation of natural monopolies and economic entities in adjacent markets shall be carried out by national commissions for the regulation of natural monopolies, and in cases established by law, it may be carried out also by the executive government bodies and local self-government bodies (hereinafter referred to as the LSB).

The general principles of tariff policy formation in the heat supply sector, as determined by the Law “On Heat Supply”, provide that the setting of tariffs for heat energy, its production, transportation, and supply is a responsibility of the NEURC and LSB.

Thus, the NEURC sets tariffs for heat energy for economic entities that are its licensees, and the LSB do the same for economic entities licensed by the oblast and Kyiv city state administrations.

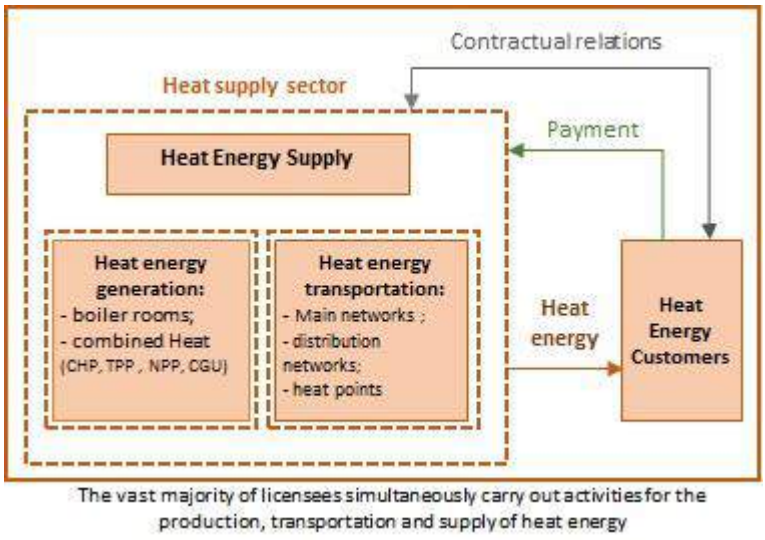


Fig. 4.1.1. Scheme of relations in the heat supply sector

Regulation of relations in the heat supply sector has some peculiarities due to certain objective conditions of functioning of heat supply systems, including the division of economic activity in the heat supply sector into production, transportation, and supply of heat energy (Fig. 4.1.1).

The aforementioned peculiarities of this sector of economic activity, in turn, shape the complexity of the process of state regulation of activities and relations in the heat supply sector, namely the fact that every listed below measure is taken separately for each licensed activity: tariff setting (with the final tariff for heat energy being the sum of tariffs for heat energy generation, transportation, and supply), planning of expenses included in the full cost of a certain licensed activity (heat energy production, transportation, and supply), and determination of annual plans of licensed activities and reporting forms; and generally speaking, recording of financial, economic and technical indicators of each activity is done separately in accordance with its technological peculiarities.

In addition, development plans and financial plans for the use of investment program funds of NEURC licensees are drafted separately by licensed activity as the sets of measures aimed at increasing reliability and ensuring efficient operation of district heating systems as well as creating favorable conditions for attracting investment to develop the heat supply sector.

Therefore, the NEURC performs legal regulation for economic entities in the heat supply sector separately on the following issues:

- economic activity in the field of heat energy generation, transportation, and supply;
- setting and regulating tariffs for economic activity in the field of heat energy generation, transportation, and supply;
- financial accounting, reporting, and control of economic activity of generation, transportation, and supply of heat energy;
- drafting development plans and financial plans for the use of investment program funds of licensees by licensed activity.

Ensuring the efficient functioning and development of markets, including the heat supply sector, is one of the main goals of the NEURC's work.

Requirements concerning economic entities that engage (intend to engage) in generation of heat energy, its transportation through main and local (distribution) heating networks, and heat energy supply, are determined by the License Terms for Economic Activity in the Heat Supply Sector, approved by the NEURC Order No. 308 of March 22, 2017, which stipulate that economic entities engaged in generation, transportation, and supply of heat energy are to be licensed by the NEURC, oblast and Kyiv city state administrations.

One of the main tasks of state regulation in the heat supply sector, as determined by the Law of Ukraine “On the National Energy and Utilities Regulatory Commission” (hereinafter referred to as the Law “On the NEURC”), is to achieve a balance of interests of customers, economic entities operating in the energy and utilities sectors and the government, and ensuring that balance, together with the creation of conditions for the sustainable and loss-free operation of heat supply enterprises, is carried out by the NEURC through the direct exercise of its powers to set economically justified tariffs for heat energy and utilities for NEURC licensees.

4.2. **State Regulation in Heat Supply Sector**

4.2.1. Price Regulation

Government policy, including in the heat supply and utilities sectors, is based on the principles of ensuring that enterprises, institutions, and organizations engaged in economic activities in these sectors operate as self-financing entities with prices covering economically justified costs of production.

Concerning state regulation of economic entities' activities in the energy and utilities sectors, the NEURC ensures the formation of price and tariff policies, including in the heat supply and utilities sectors, and is guided in this work by the requirements of effective legislation, which stipulate, inter alia, that:

- state-regulated prices must be economically justified (ensure that the price of good covers the costs of its production and sale and allows for a profit from its sale) (Part 2, Article 12 of the Law of Ukraine “On Prices and Pricing”);
- utility tariffs of natural monopolies and economic entities operating in adjacent markets must cover all economically justified planned costs of their production, incorporating the planned profit. Setting utility tariffs lower than the economically justified costs of production is not allowed and may be challenged in court (Parts 2 and 4 of Article 10 of the Law of Ukraine “On Government Regulation of Utilities” (hereinafter referred to as the Law “On Regulation”));

- heat energy tariffs must cover all economically justified costs of heat energy generation, transportation, and supply (Part 1 of Article 20 of the Law “On Heat Supply”).

As the public authority that regulates the activities of natural monopolies and economic entities in adjacent markets, the NEURC provides regulatory and methodological support for the functioning of NEURC licensees in the heat supply sector, the setting of economically justified tariffs for heat energy and utilities (namely heat energy supply service and hot water supply service) in order to create conditions for the efficient and loss-free operation of the industry's enterprises.

Heat energy

Pursuant to the laws “On the NEURC”, “On Regulation” and “On Heat Supply”, the NEURC, in accordance with its tasks, inter alia, sets heat energy and utility tariffs for natural monopolies and economic entities in adjacent markets which are licensed by the NEURC, and changes such tariffs based on the results of an inspection or monitoring.

At present, the procedure for formation and setting of tariffs for heat energy, its generation, transportation, supply for economic entities in the heat supply sector which are NEURC licensees is determined by the Procedure for Formation of Tariffs for Heat Energy, Its Generation, Transportation, and Supply, approved by the NEURC Order No. 1174 of June 25, 2019 (hereinafter referred to as the Procedure No. 1174), and the Procedure for Setting Tariffs for Heat Energy, Its Generation, Transportation, and Supply, approved by the NEURC Order No. 528 of March 31, 2016 (hereinafter referred to as the Procedure No. 528).

In 2020, the NEURC worked to ensure the economic reasonableness of tariffs for the NEURC licensees engaged in economic activities in the heat supply sector through regulatory actions and methodological support coupled with timely response to changes in effective legislation, including:

- amending the Procedure No. 1174 to improve the mechanism for setting tariffs for heat energy with regard to:
  - detailing the grounds and mechanism for setting tariffs for heat energy, its generation, transportation, and supply in a simplified manner;
  - providing for including in the planned production costs of heat energy costs of purchasing fuel, calculated incorporating current or projected prices (tariffs) for fuel and energy resources (including current or projected tariffs for their transportation and distribution);
  - settling the issue of including the amount of compensation for certain cost items of the tariff structure which are notionally independent of the amount of heat energy sales to customers in the tariff structure of the planned period at the next tariff setting by adding or subtracting the respective amount to/from the respective item of the heat energy generation and/or transportation and/or supply tariff structure during the period and in the amounts specified by the NEURC;
- amending the Procedure No. 528 to provide for:
  - simplification (acceleration) of the procedure for setting tariffs for heat energy for natural monopolies in the heat supply sector whose operations are regulated by the NEURC (with regard to publication and entry into force of NEURC decisions on setting tariffs for heat energy, its generation, transportation, and supply);
  - detailing the requirements for an application for setting tariffs, including determining sets of documents which are to be attached to the application depending on the grounds on which the setting of tariffs takes place;
  - changing the annual deadline for the licensee to submit to the NEURC an application for the setting of tariffs to November 1 of the year of planned period;

- changing the conditions making a revision of tariffs possible, including in case of a change of the connected heat load by customer category exceeding 5% from the one used when setting the current tariffs.

As a result of the rule-making work done, reflecting both the current and long-term requirements, the Commission has improved the regulatory framework for the regulatory actions of the NEURC as a state regulatory body in the heat supply and utilities sector; also, through creating a tariff formation system using a normative methodology of tariff formation for heat energy and utilities with elements of incentive-based tariff formation, the NEURC made it possible in 2020, with the Law of Ukraine "On the Housing and Utility Services" (hereinafter referred to as the Law "On the HUS") being in effect, to set for the first time economically justified tariffs for heat energy and relevant utilities by customer category using the new methodology by performing a comprehensive revision of all components of the tariff structure.

In 2020, the NEURC set 1,197 tariffs for heat energy, its generation, transportation, and supply by customer category for 27 NEURC licensees at the Commission's meetings held in the form of open hearings.

As of now, heat energy is generated by the vast majority of heat supply organizations, including for the needs of the population, using natural gas, the price of which directly determines the level of heat energy tariffs.

For NEURC licensees the expenses of buying fuel and purchased heat energy as well as the costs of heat energy generation by their own CHP plants and CGUs make up about 70% of heat energy tariffs, while the price of natural gas used for the generation of heat energy for the population is the most significant factor influencing the level of tariffs for heat energy used by the population and, accordingly, utility tariffs.

In accordance with paragraph 3 of the Regulation on Public Service Obligations being Imposed on Natural Gas Market Participants to Protect the Public Interests in the Process of Natural Gas Market Operation as approved by the Cabinet of Ministers of Ukraine Order No. 867 of October 19, 2018 (hereinafter referred to as the Regulation), public service obligations have been imposed on National Joint Stock Company Naftogaz of Ukraine (hereinafter referred to as NJSC Naftogaz of Ukraine or the Company), including the obligation to supply natural gas to heat energy generators till May 1, 2021, on the terms and in the manner specified by that Regulation.

Therefore, in order to prevent losses to enterprises and disruption of the heating season, acting in accordance with requirements of effective legislation governing activities and relations in the heat supply and utilities sectors, taking into account the principles of state regulatory policy mandating openness, transparency, taking into account public opinion and ensuring accessibility of the state regulation process in the heat supply sector, the current natural gas prices, determined by referring to the price list of NJSC Naftogaz of Ukraine, are to be used when forming tariffs for heat energy.

In March 2020, at the NEURC initiative and due to an increase in the natural gas price excluding VAT (excluding natural gas transportation and distribution tariffs) from UAH 5,500/thousand m^3 (which was incorporated in the current tariff) by UAH 3,948/thousand m^3 and changes in tariffs for heat energy generation at CHP plants and CGUs and purchased heat energy, the heat energy tariffs applied to NEURC licensees were adjusted with the effective date March 18, 2020.

In November 2020, also at the NEURC initiative and due to a change in the natural gas price, tariffs for heat energy generation at CHP plants, CGUs and purchased heat energy for a number of enterprises, natural gas distribution, electricity for technological needs, water supply, and sanitation, and the minimum subsistence level, the heat energy and utility tariffs applied to NEURC licensees were adjusted with the effective date December 1, 2020.

At the same time, the NEURC took measures to monitor licensees' compliance with legislation in the respective regulation field and license terms for economic activity, including with regard to compliance with the tariff structure and implementation of investment programs in the

heat supply sector, so as to eliminate misappropriation of funds and protect customers from covering fictitious supplier expenses; it resulted in funds that were not used for their intended purpose (to implement investment programs) during 2020, amounting to about UAH 0.135 billion, being excluded from the heat energy tariff structure of NEURC licensees.

In addition, in order to prevent losses to enterprises or generate additional income, including by reducing the natural gas price, the NEURC has developed a mechanism for reimbursement of expenses to cover losses (a component of costs in the tariff structure which can be either positive or negative), the implementation of which resulted in measure to compensate NEURC licensees for the expenses to cover losses totaling about UAH 0.154 billion (losses of enterprises UAH 0.683 billion and additional revenue UAH 0.529 billion).

The dynamics of changes in the weighted average heat energy tariffs in 2020 by customer category due to changes in some components of the tariff structure of NEURC licensees is shown in Fig. 4.2.1.

Fig. 4.2.1. Dynamics of changes in the weighted average heat energy tariffs in 2020 by customer category due to changes in some components of the tariff structure of NEURC licensees, UAH/Gcal (VAT excluded)

Data on the structure of the weighted average heat energy tariffs by customer category as of December 31, 2020, for NEURC licensees are shown in Fig. 4.2.2.

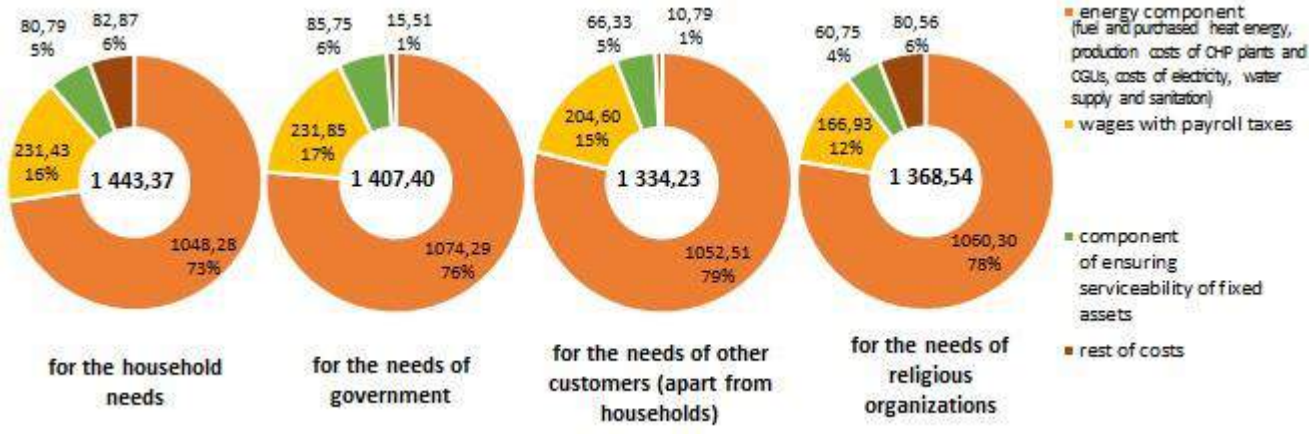


Fig. 4.2.2. Structure of the weighted average heat energy tariffs by customer category as of December 31, 2020 for NEURC licensees, UAH/Gcal (VAT excluded)

Data on dynamics of changes in the heat energy tariffs in 2020 by customer category and region of Ukraine for NEURC licensees are given in Annexes 4.2.1 - 4.2.4.

Data on the heat energy tariffs by customer category and NEURC licensee as of December 31, 2020, are given in Annexes 4.2.5 - 4.2.8.

Heat energy supply service and hot water supply service

With the implementation of innovative approaches and methods provided by the Law “On the HUS” in reforming the utilities sector (new terminology, classification of utilities, changing the

principles of contractual relations, implementing new models of such relations) the Regulator has taken comprehensive measures to bring NEURC regulations governing the formation and setting of tariffs for heat energy and, in particular, for utilities (heat supply service and hot water supply service) in line with the Law “On the HUS” and improved the regulatory framework governing operations of NEURC licensees in the heat supply sector that are the providers of respective utilities.

In particular, the NEURC issued Orders No. 416 of February 18, 2020 “On Approval of the Procedure for Tariff Formation for the Heat Energy Supply Service” and No. 417 of February 18, 2020 “On Approval of the Procedure for Tariff Setting for the Heat Energy Supply Service”, which provide for annual revision of tariffs for the heat supply service and the setting of these tariffs by customer category and enable the NEURC to set tariffs for the heat supply service in some cases without differentiation by customer category.

At the same time, the NEURC Orders No. 767 of April 8, 2020 “On Approval of the Procedure for Tariff Formation for the Hot Water Supply Service” and No. 768 of April 8, 2020 “On Approval of the Procedure for Tariff Setting for the Hot Water Supply Service” determined the mechanisms for calculating tariffs for the hot water supply service and formation of tariffs for the hot water supply service separately for each apartment block equipped with an individual heat substation (hereinafter referred to as IHS).

At the same time, taking into account changes made in accordance with the Law “On the HUS” with regard to approaches to the formation of utility tariffs and charging customers, which provide, inter alia, for a customer fee (which is a separate payment counting to the overall sum paid to the service supplier under an individual contract, as well as not included in the cost of services provided under a collective contract), the above procedures do not include the cost of maintaining the customer service in the structure of utility tariffs.

It is also worth noting that a significant period of time elapsed between the dates of the NEURC issuing its orders on approval of procedures for the formation and setting of utility tariffs and the adoption dates of regulations defining the procedure (including the amendment procedure) for formation and setting of heat energy tariffs due to the fact that with the Law “On the HUS” coming into force, the NEURC regulation of operations of its licensees in the heat supply sector has come to largely depend on the rule-making actions of other public authorities, including their actions aimed at bringing a number of laws and regulations in line with the Law “On the HUS”.

For instance, the Order of the Cabinet of Ministers of Ukraine No. 1182 “On Approval of the Rules for the Provision of the Hot Water Supply Service and Standard Contracts for the Provision of the Hot Water Supply Service” was issued on December 11, 2019, and only after its entry into force on February 11, 2020, the NEURC became able to bring its secondary legislation in line with the Law “On the HUS”, which was accordingly done as soon as possible.

At the same time, the NEURC has been empowered to set tariffs, including for the heat supply service, only since December 29, 2019, that is, since the date of entry into force of the Law of Ukraine “On Amending Certain Legislative Acts of Ukraine to Safeguard Constitutional Principles in Energy and Utilities Sectors” (the Law No. 394-IX of December 19, 2019), which, inter alia, amended the Law “On Regulation” by including tariffs for the heat supply service in the list of utility tariffs.

Based on the activities carried out by the NEURC to regulate operations of its licensees in the heat supply sector, the NEURC set economically justified heat supply service tariffs for its licensees in compliance with the law at a meeting held in the form of an open hearing on March 17, 2020.

The NEURC set economically justified hot water supply service tariffs for its licensees providing this service to customers who did not use IHSs by issuing appropriate orders at its meetings held in the form of an open hearing in June - September 2020.

Due to certain cost components changes in the structure of current tariffs, including the natural gas price for heat energy generators, which according to the price list for natural gas from the resources of NJSC Naftogaz of Ukraine was set at the level of UAH 5,375.37/thousand m^3 excluding VAT (excluding tariffs for transportation and distribution of natural gas) from November 1 to November 30, 2020 (inclusive), the NEURC adjusted (set) heat energy tariffs, as well as heat energy supply service and hot water supply service tariffs for its licensees in the heat supply sector (based on their calculations and supporting materials) following publication and open discussion of approved draft NEURC orders, held on November 23, 2020 in accordance with the Procedure for Open Discussion of Draft Decisions of the National Electricity and Utilities Regulatory Commission approved by the NEURC Order No. 866 of June 30, 2017 (hereinafter referred to as the Procedure No. 866) at a meeting of the NEURC held in the form of an open hearing on November 30, 2020, and these tariffs can be applied at the moment subject to the conclusion of new contracts for the provision of utility services under the Law "On the HUS".

In 2020, the NEURC set 240 tariffs overall for the heat energy supply service by customer category for 27 NEURC licensees in accordance with the new methodology at the Commission's meetings held in the form of an open hearing, and the NEURC licensees may apply these tariffs subject to the conclusion of new contracts under the Law "On the HUS".

Data on the weighted average heat energy supply service tariffs by customer category as of December 31, 2020, for NEURC licensees are shown in Fig. 4.2.3.

Fig. 4.2.3. Weighted average tariffs for the heat energy supply service by customer category as of December 31, 2020 for NEURC licensees, UAH/Gcal (VAT included)

Data on dynamics of changes in the heat energy supply service tariffs in 2020 by customer category and region of Ukraine for NEURC licensees are given in Annexes 4.2.9 - 4.2.12.

Data on the heat energy supply service tariffs by customer category and NEURC licensee as of December 31, 2020, are given in Annexes 4.2.13 - 4.2.16.

In 2020, the NEURC set 104 tariffs overall for the hot water supply service (without IHSs) by customer category for the 18 NEURC licensees providing such service in accordance with the new methodology at the Commission's meetings held in the form of an open hearing, and the NEURC licensees may apply these tariffs subject to the conclusion of new contracts under the Law "On the HUS".

Data on the structure of the weighted average hot water supply service tariffs by customer category for customers who do not use IHSs as of December 31, 2020, for NEURC licensees are shown in Fig. 4.2.4.

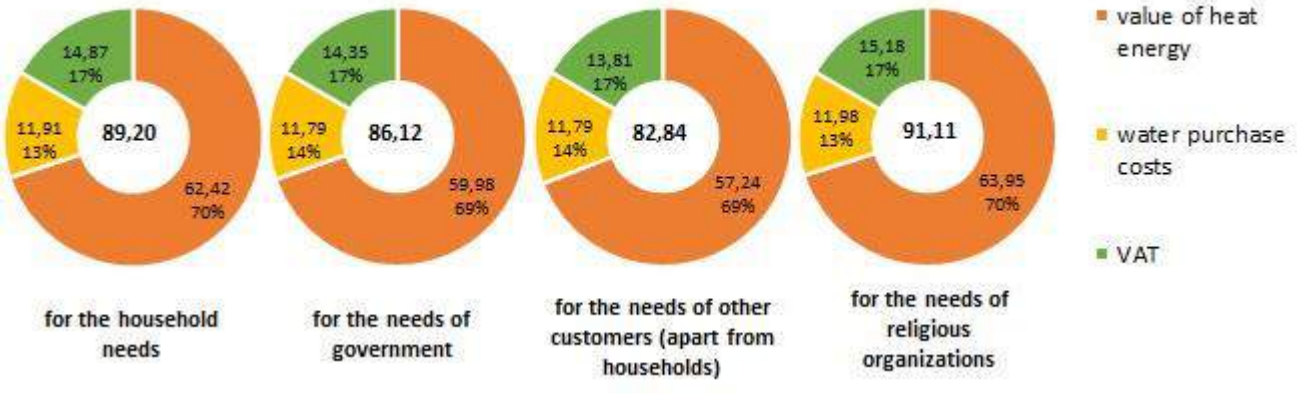


Fig. 4.2.4. Structure of the weighted average hot water supply service tariffs by customer category for customers who do not use IHSs as of December 31, 2020 for NEURC licensees, UAH/m³ (VAT included)

Data on dynamics of changes in the hot water supply service tariffs in 2020 by customer category and region of Ukraine for customers who do not use IHSs for NEURC licensees are given in Annexes 4.2.17 - 4.2.20.

Data on the hot water supply service tariffs by customer category for customers who do not use IHSs by NEURC licensee as of December 31, 2020, are given in Annexes 4.2.21 - 4.2.24.

Thus, the NEURC, acting as soon as possible, set economically justified tariffs for heat energy and respective utilities for its licensees and ensured the implementation of “structural benchmarks” in the heat supply sector, as provided in the Memorandum of Economic and Financial Policies agreed on June 2, 2020, between the Government of Ukraine and the International Monetary Fund, including with regard to ensuring the revision of all heating tariffs covered by the NEURC jurisdiction and their official adoption at the level fully reflecting the cost of gas and non-gas expenses (including capital expenses).

At the same time, it should be noted that, despite the NEURC's efforts to provide a regulatory framework for the setting and application of economically justified utility tariffs in order to create appropriate conditions for loss-free and efficient operation of NEURC licensees, the latter, for reasons beyond their (and the Regulator's) control, namely due to the flaws in some provisions of the Law “On the HUS”, still lack the legal basis for the application of the heat energy supply service and hot water supply service tariffs introduced by this Law effective May 1, 2019 (and for the actual provision of such services as well).

Transparency and accessibility of the decision-making process

To ensure compliance with the principles of state regulatory policy as determined by effective legislation, namely openness, transparency, taking into account public opinion and ensuring openness for natural and juridical persons and their associations and accessibility of the state regulation process in the energy and utility sectors, the NEURC approved Procedure No. 866, which stipulates that before submitting the issue of setting prices (tariffs)/making changes to them for open discussion at the NEURC, the licensee must hold open field discussions of the need to set prices (tariffs)/make changes to them. Representatives of local executive bodies and/or local governments (if the draft decision concerns the development of a particular region and/or territorial community) and other stakeholders may be present at open discussions.

Thus, licensees held several public discussions on the revision of tariffs in compliance with the requirements of Procedure No. 866 in 2020, the results of which were recorded as minutes, which were submitted to the NEURC together with applications and relevant sets of documents.

The minutes state that public discussions were held with the participation of licensees, public authorities and local governments, customer organizations, non-government organizations, the media, and all stakeholders. During the discussions, representatives of enterprises provided thorough (detailed) explanations of the reasons/grounds for revision of tariffs and factors that affect the tariff level, as well as professional explanations concerning the mechanism of tariff formation.

Having processed the applications submitted by the licensees and accompanied by the relevant sets of calculations and supporting materials, the NEURC approved at its meetings which took place in the form of an open hearing the draft orders setting tariffs for heat energy and respective utilities, which, in turn, went through the open discussion procedure at the place of provision of such services within the timeframe specified by law with the participation of representatives of local authorities, the public, and other stakeholders, with the results of such discussions being recorded as minutes. Following that, the NEURC made at its meetings which took place in the form of an open hearing appropriate decisions on setting economically justified tariffs for heat energy and relevant utilities.

It should be noted that the NEURC holds open discussions of draft decisions on setting prices (tariffs)/making changes to them, endorsing/approving investment programs/investment components/ development plans/changes to them, consideration of comments and proposals on draft decisions that have regulatory features and draft decisions on other issues in a transparent

and non-discriminatory manner in order to balance interests of customers, licensees, and the government, ensure unimpeded access of customers, licensees, public authorities and local governments, customer organizations, non-government organizations, the media and other stakeholders to information and their awareness on the basis of publicity, openness, voluntariness, and freedom of expression.

Oblast state administrations and respective city councils are directly involved in approving certain indicators of the tariff structure for heat energy and utilities, including:

- norms of specific fuel consumption for generation of 1 Gcal of heat energy, norms of specific electricity consumption for generation and transportation of 1 Gcal of heat energy, annual plan for generation, transportation, and supply of heat energy;
- net supply of heat energy by customer category, temperature schedule of heat networks' operations;
- plan of planned and preventive maintenance, staffing schedules of enterprises;
- decision to issue a permit for calculating two-tier heat energy tariffs;
- facility-by-facility register of connected heat energy customers.

Fuel and energy resource use

There was a significant change in some financial, economic, and technical performance indicators of NEURC licensees In 2020, compared to 2019.

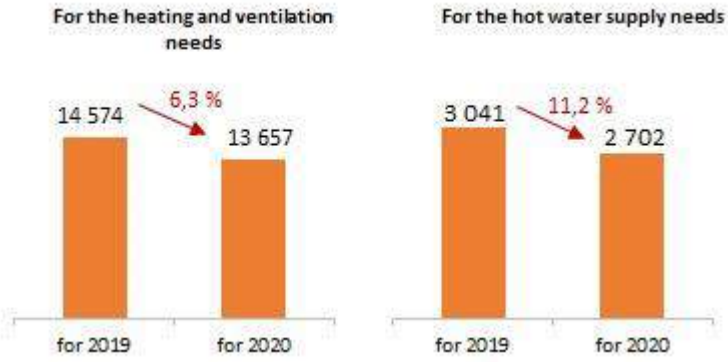


Fig. 4.2.5. Actual sales of heat energy for heating, ventilation and hot water supply purposes by NEURC licensees in 2019 and 2020, thousand Gcal

At present, there is a clear downward trend in the actual sales of both heat energy and respective utilities. For instance, the actual heat energy sales by NEURC licensees decreased by 8.3% in 2020 compared to 2019, while the actual sales of heat energy for heating and ventilation purposes decreased by 6.3%, and the sales for hot water supply purposes by 11.2% (Fig. 4.2.5).

The main factors reducing the actual sales of heat energy are, inter alia, changes in climatological indicators, disconnection of customer heat-using installations, and reduction of heat energy consumption due to heating modernization of buildings and installation of meters. In addition, a significant factor behind this trend is the decrease in the provision of the district hot water supply service, and even termination of this service in some regions due to its low competitiveness compared to individual hot water supply systems. Thus, inter alia, more than 40% of NEURC licensees either do not provide or have significantly limited the provision of the hot water supply service, while others display a downward trend in the provision of this service.

Information on the actual heat energy sales by NEURC licensee and region of Ukraine is given in Annex 4.2.25.

To eliminate external factors of influence beyond licensees' control, the NEURC provided in its Order No. 2814 of December 30, 2020, for licensees to have the right to receive compensation for the difference that appeared while specific heat energy tariffs were in effect between actual costs (by cost item of the tariff structure) and the corresponding actually funded costs which are notionally independent of the amount of heat energy sales to customers which, in turn, will ensure the balance of interests of both licensees (in case of underfunding of cost items which are notionally independent of the amount of heat energy sales to customers) and customers (in case of excessive funding of cost items which are notionally independent of the amount of heat energy sales to customers).

The actual losses of own heat energy in the heat networks of NEURC licensees as a percentage of the total heat supply to the network in 2019-2020 stood at 19.6% and 22.8%,

respectively. The main factors influencing the change of this indicator were the general decrease in heat energy sales (given that losses are notionally constant and do not directly depend on heat energy sales), increase in the share of metered heat energy sales, and aging of existing heat networks greatly exceeding the pace of modernization and reconstruction of networks.

Information on the actual level of own heat energy losses of NEURC licensees in heat networks by region of Ukraine is given in Annex 4.2.26.

Due to the decrease in heat energy generation by boiler houses of NEURC licensees, the consumption of natural gas for the generation of heat energy decreased accordingly. For instance, the decrease was 54.3 million cubic meters in 2019 - 2020. Information on the actual consumption of natural gas by boiler houses of NEURC licensees by region of Ukraine is given in Annex 4.2.27.

At the same time, the positive downward trend of electricity consumption by NEURC licensees for technological needs of heat energy generation and transportation has been sustained. For instance, this indicator was 10.1 million kWh in 2019 - 2020. Information on the electricity consumption by NEURC licensees for technological needs of heat energy generation and transportation by region of Ukraine is given in Annex 4.2.28.

Heat energy generation at CHP plants, TPPs and CGUs

Formation, calculation, and setting of tariffs for electricity and/or heat energy for business entities engaged in economic activity for the generation of electricity and/or heat energy at CHP plants, TPPs, and CGUs is carried out in accordance with the Methodology for Formation, Calculation and Setting of Tariffs for Electricity and/or Heat Energy Generated at CHP Plants, TPPs and CGUs (hereinafter referred to as the Methodology), approved by the NEURC Order No. 991 of August 1, 2017.

In accordance with the provisions of the Methodology, 22 licensees for the generation of electricity and/or heat energy at CHP plants and CGUs submitted to the NEURC their applications and attached materials for setting tariffs for heat energy generation for 2020. When processing the provided materials, the Commission took into account the projected volumes of electricity generation and supply to the Integrated Power System of Ukraine (hereinafter referred to as the IPS of Ukraine) by CHPs and CGUs in accordance with the Projected Electricity Balance of the IPS of Ukraine for 2020, any change of the generation program, annual plans for electricity and/or heat energy generation, current and planned costs calculated on the basis of the enterprise's generation program, and the projected macroeconomic indicators for 2020 as given in the Order of the Cabinet of Ministers of Ukraine No. 411 of May 31, 2017 “On Approval of the Forecast of Economic and Social Development of Ukraine for 2018 – 2020”. The costs which are included in the full cost of electricity and heat generation are planned based on operating costs and financial costs associated with electricity and heat generation. Costs of purchasing fuel, its transportation and/or distribution for electricity and/or heat energy generation are incorporated in accordance with the Methodology and determined based on the Projected Electricity Balance of the IPS of Ukraine for 2020, the planned heat energy generation according to the annual generation plan, specific norms of fuel and energy resource consumption, current prices (tariffs) for fuel and energy resources and services (costs) for transportation and distribution, caloric equivalents and volume of natural gas determined by the terms of the contract, supplier certificates or data of the base period.

In addition, in accordance with the provisions of the Methodology and due to the change in planned natural gas prices from January 1, 2020, as well as projected prices for thermal coal used for heat energy generation at CHPs and CGUs, the NEURC initiated a change in heat energy generation costs concerning costs of purchasing fuel for 16 licensees.

In accordance with the provisions of the Methodology, the planned (indicative) price for thermal coal and its transportation (incorporating also the data of Form 1-NKRE) was calculated in accordance with the supporting documents (agreements, certificates, reports on sampling and analysis of coal, commercial offers, etc.) provided by licensees. The calculations of tariffs for heat energy generation incorporate the coal price set at the level of licensee offers under contractual

(commercial) proposals, taking into account the actual caloric indicators for previous periods and sulfur content, but not higher than indicative prices determined in accordance with the Methodology. The price for domestically produced coal, which is a component of tariffs, includes only the cost of services for its transportation by rail through Ukraine in accordance with the current tariffs of PJSC Ukrzaliznytsia and other carriers.

Starting on January 1, 2020, the calculations of tariffs for heat energy generation for licensees incorporate the natural gas price for all categories of natural gas use, including for heat energy generation for the provision of heating and hot water services for all categories of customers, as well as for electricity generation, in accordance with the requirements of the Regulation, namely UAH 5,500.00/thousand m^3 excluding VAT (excluding tariffs for transportation and distribution of natural gas), which is subject to mandatory payment in accordance with the terms of contracts for transportation and distribution of natural gas. The cost of transportation and distribution of natural gas through Ukraine is incorporated in accordance with the planned levels of tariffs for natural gas transportation and distribution services.

In accordance with the provisions of Procedure No. 866, licensees held field open discussions (open hearings) on setting heat energy generation tariffs for 2020.

After the approval of draft orders setting heat energy generation tariffs for the respective licensees for 2020 at a NEURC meeting, open discussions of comments and proposals to the approved draft orders setting heat energy generation tariffs for 2020 which were submitted to the NEURC were held at the location of the NEURC headquarters.

At the meeting of the NEURC which took place in the form of an open hearing on December 24, 2019, the NEURC issued orders setting tariffs for heat energy generation for 38 licensees, effective January 1, 2020.

Also, in accordance with the Methodology and responding to the applications of NEURC licensees, the Commission resolved to set tariffs for heat energy generation, effective January 1, 2020, for the following TPP generators: PuJSC Centerenergo (Vuhlehirsk TPP, Zmiiv TPP, and Trypillya TPP), DTEK Skhidenergo LLC (Kurakhove TPP) and JSC DTEK Zakhidenergo (Burshtyn TPP).

In addition, due to changes in the natural gas price in 2020 for heat energy generators, the NEURC on its own initiative twice changed tariffs for the heat energy generation at CHP plants (effective March 17, 2020, and December 1, 2020).

4.2.2. Investment activities

In accordance with the requirements of the Law “On Heat Supply” economic entities active in the heat supply sector develop investment programs in accordance with the Procedure for the Development, Approval, Endorsement, and Implementation of Investment Programs of Economic Entities Active in the Heat Supply Sector Licensed by the National Energy and Utilities Regulatory Commission[85] (hereinafter referred to as the Procedure for the Development of IPs) and submit them to the NEURC with appropriate requests for their approval.

Based on the results of the examination and comprehensive processing of the documents provided by licensees concerning their compliance with the requirements of the Procedure for the Development of IPs and analysis of the market for services and goods (equipment and materials) included in the investment programs of NEURC licensees in the heat supply sector, the NEURC approved investment programs of 20 NEURC licensees in 2020 and ordered investment programs of 3 NEURC licensees approved in 2020 to be amended at its meetings held in the form of an open hearing.

It should be noted that 9 applications with attached materials, which were found to be non-compliant with the requirements of regulations, were dismissed, which fact was communicated to business entities by appropriate letters with detailed lists of non-compliant items.

[85] NEURC Order No. 1059 of August 31, 2017

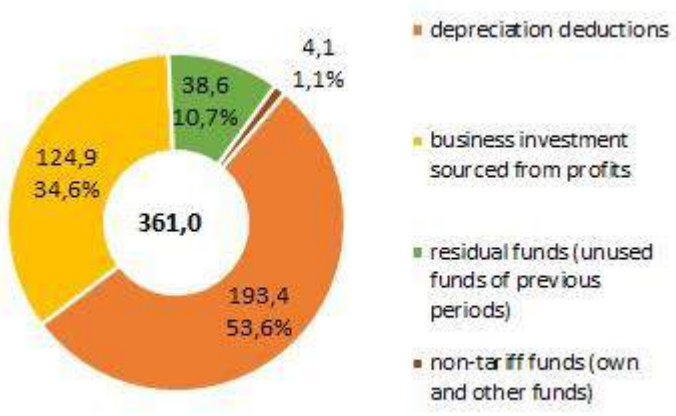


Fig. 4.2.6. Funding sources for approved IPs for 2020, UAH million (VAT excluded), %

The total funding for approved investment programs for 2020 amounted to UAH 361.0 million (VAT excluded) (Fig. 4.2.6), including:

- UAH 193.4 million – depreciation deductions;
- UAH 124.9 million – business investment sourced from profit;
- UAH 38.6 million – residual funds (unused funds of previous periods);
- UAH 4.1 million – non-tariff funds (own and other funds).

In the process of examining the materials of investment programs, the NEURC processed licensees' documents on the expediency and validity of the proposed investments, payback periods, and priority character of fund application for the reconstruction and modernization of equipment that has completed its standard service life and/or needs modernization (reconstruction).

Inter alia, the NEURC processed materials concerning 193 investment program measures, including:

- verifying the necessity and expediency of implementation of the planned measures (feasibility study, statements of defects, explanations and supporting documents, etc.);
- verifying calculations of the payback period and the economic effect of the implementation of the investment program;
- verifying materials analyzing possible alternative technical solutions;
- analyzing planned prices for equipment and materials in comparison with the actual market prices, price lists of official manufacturers (distributors), open sources of information (Prozorro), etc.;
- analyzing the design and estimate documentation, its components, and also corresponding expert findings;
- verifying reports (findings) issued following an energy and/or technical audit or expert and technical inspections and specifications for the reconstruction (modernization) of heat supply sector facilities.

Investment programs provide for the implementation of the following measures:

I. in the heat energy generation sector for the total amount of UAH 107.1 million (VAT excluded):

- reconstruction/modernization of boiler houses and boiler equipment (boilers, burners) – UAH 74.9 million;
- reconstruction/modernization of pumping equipment, including installation of frequency converters – UAH 18.2 million;
- other measures in the heat energy generation sector (drafting projects, modernization of heat metering units in boiler houses, etc.) – UAH 14.0 million.

II. in the heat energy transportation and supply sector for the total amount of UAH 253.9 million (VAT excluded):

- reconstruction of heat networks (including design and survey work costs) – UAH 223.1 million;
- reconstruction/modernization of pumping equipment, including installation of frequency converters – UAH 12.9 million;

- other measures in the heat energy transportation and supply sector (preparation of design and estimate documentation, purchase of special and specialized vehicles, etc.) – UAH 17.9 million.

Target funding areas in accordance with the approved investment programs for 2020 are shown in Fig. 4.2.7.

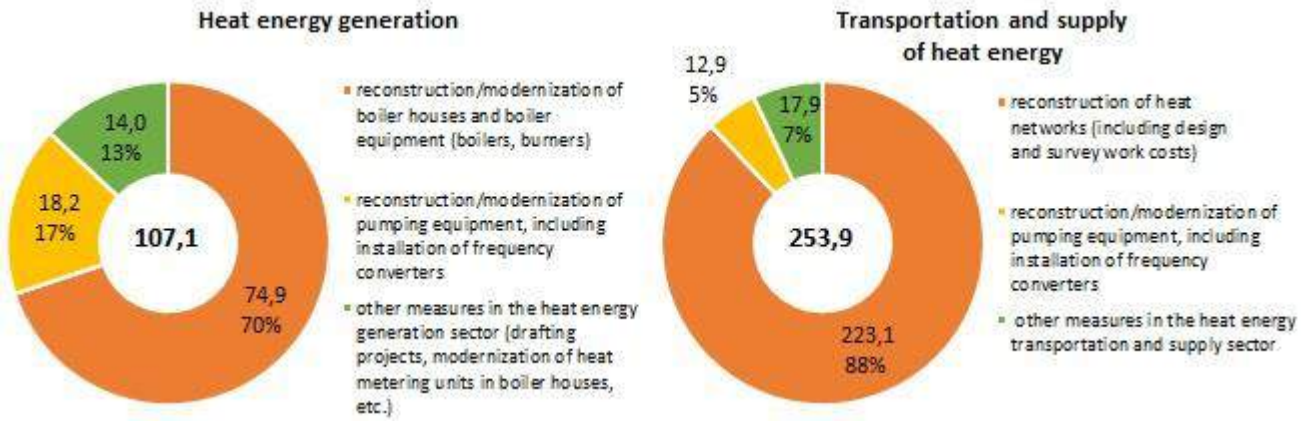


Fig. 4.2.7. Target areas of approved investment programs for 2020, UAH million

Quantitative indicators of these investment programs:

- 58 units of boiler equipment, including boilers, boiler burners, heat recovery units (modernization, replacement);
- 161 units of pumping equipment and frequency converters (replacement, installation);
- 44.3 km (in single-pipe measurement) of heat networks (reconstruction, replacement);
- 18 sets of design and estimate documentation (preparation);
- 3 heat energy metering units at boiler houses (replacement);
- 8 special and specialized vehicles;
- 26 specialized devices;
- 123 units of computer and office equipment.

The following estimated annual indicators are expected due to the measures included in the investment programs:

- fuel and energy resource savings – 4.31 thousand tons of oil equivalent (TOE), including natural gas – 3.56 thousand TOE, electricity – 0.75 thousand TOE;
- economic effect – UAH 73.25 million (VAT excluded);
- payback period for the implementation of investment program measures – 4.9 years (59 months).

As of December 31, 2020, the NEURC considered and tabled for its meetings held in the form of an open hearing draft decisions of the NEURC on approving investment programs for 2021 for 5 licensees with the total funding amount of UAH 62.5 million (VAT excluded), including:

- UAH 42.5 million – depreciation deductions;
- UAH 20.00 million – business investment sourced from profit;
- UAH 0.013 million – residual funds (unused funds of previous periods) and non-tariff funds (own and other funds).

Due to a reduction of net heat energy supply to customers, the actual funding sources (according to real-time data formed on the basis of licensee reports) of approved investment programs for 2020 amounted to UAH 298.4 million (VAT excluded), including:

- UAH 168.5 million – depreciation deductions;
- UAH 87.2 million – business investment sourced from profit;
- UAH 38.6 million – residual funds (unused funds of previous periods);

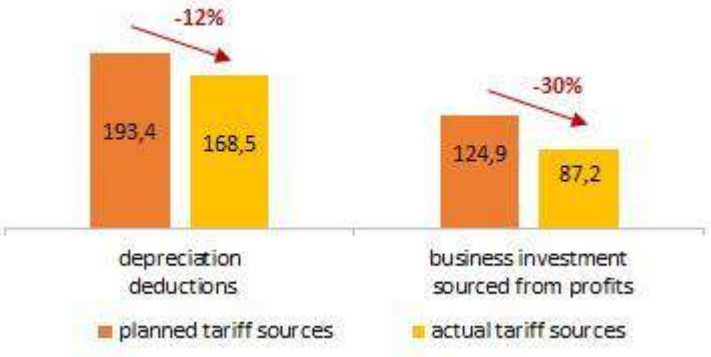


Fig. 4.2.8. Impact of the reduction of net heat energy supply on funding sources of approved investment programs for 2020, UAH million, %

- UAH 4.1 million – non-tariff funds (own and other funds).

The shortfall of tariff funds (depreciation deductions and business investment sourced from profit), which are funding sources for investment programs, amounts to UAH 62.5 million (VAT excluded).

The impact of the reduction of net heat energy supply on funding sources of approved investment programs for 2020 is shown in Fig. 4.2.8.

Many problems have accumulated in the heat supply sector that hinder its development and urgently need a solution. The technical condition of the heat supply sector infrastructure is approaching the critical level due to the high degree of equipment wear and outdated technologies that do not create the necessary incentives for investment in equipment upgrades and development in this area.

Fig. 4.2.9. Distribution of boilers by service life duration, units, %

Fig. 4.2.10. Distribution of heat networks by service life duration, km, % in one-line measurement

For instance, based on the results of monitoring, analysis, and evaluation of the efficiency of economic activity of NEURC licensees in the heat supply sector, the Commission has established that the following facilities need modernization/reconstruction:

- 41.0% of boilers have a service life of more than 30 years (Fig. 4.2.9);
- 78.5% of heat networks have a service life of more than 25 years (Fig. 4.2.10).

The total amount of investment programs approved by the NEURC in 2020 for 9 CHP plants engaged in economic activity for the generation of electricity and heat energy were UAH 343.6 million (VAT excluded). These investment programs were approved in accordance with the Procedure for the Formation of Investment Programs of Licensees for Electricity and Heat Energy Generation at Combined Heat and Power Plants and Cogeneration Units, approved by the NEURC Order No. 2585 of October 15, 2015, and were aimed at reconstruction, modernization, and development of fixed assets, including electrical and heating equipment, as well as general plant equipment. The funding sources of investment programs of licensees for electricity and heat energy generation at CHP plants in 2020 were mainly depreciation deductions, and for some CHP plants – profits and funds, which were identified by inspections of enterprises' operations in previous periods.

Components of CHP plants' investment programs for electricity and heat energy generation in 2020 are shown in Fig. 4.2.11.

Fig. 4.2.11. Components of CHP plants' investment programs in 2020, UAH million (VAT excluded), %

According to the reports on the implementation of investment programs for 2020 provided by licensees, the actual funding of investment programs of licensees for electricity and heat energy generation (relative to the annual plans approved by the NEURC) from tariffs (prices) for electricity supply and heat energy generation for 2020, as well as additional funds identified by NEURC inspections, was UAH 248.2 million (VAT excluded) or 72% of the annual plan. For 2020, the spent funds of these investment programs were UAH 254.1 million (VAT excluded) or 74% of the annual plan. The dynamics of implementation of CHP investment programs for 2016 - 2020 are given in Annex 4.2.29.

Attracting investment in the heat supply sector

One of the ways of replacing fixed assets is their modernization, reconstruction, and construction of new facilities, including at the expense of international financial institutions.

In the heat supply sector, 8 NEURC licensees participate in 7 projects intending to raise money from international financial institutions in the amount of USD 147.2 million and EUR 56.7 million.

International projects in the heat supply sector:

the International Bank for Reconstruction and Development (IBRD):
Ukraine District Heating Energy Efficiency Project, involving three NEURC licensees with the total funding of USD 147.2 million;

the European Bank for Reconstruction and Development (EBRD):
Lviv District Heating Project with the total funding of EUR 30 million;
Cherkasy Energy Efficiency Project with the total funding of EUR 12.9 million;
Ivano-Frankivsk District Heating Project with the total funding of EUR 11.8 million;

Nordic Environment Finance Corporation (NEFCO):
Vinnytsia Demonstration Project with the total funding of EUR 0.7 million;
Ivano-Frankivsk Demonstration Project with the total funding of EUR 0.7 million;
DemoUkrainaDH project in Poltava with the total funding of EUR 0.591 million;

The main investment areas of international financial institutions are:

- reconstruction and modernization of boiler houses;
- installation of biofuel boilers;
- reconstruction of heat networks;
- purchase of vehicles for maintenance of boilers and heat networks;
- other measures.

In accordance with Procedure No. 1174, which determines the mechanism of formation and setting of tariffs for heat energy, its generation, transportation, and supply for NEURC licensees, the financial costs include the costs of interest payments on IFI loans, while the planned profit includes, inter alia, funds to repay the principal of IFI borrowings.

On the basis of applications for setting heat energy tariffs with appropriate calculations and supporting materials, submitted by licensees in accordance with legislation then in force, funds to ensure repayment of liabilities to IFIs in the amount of UAH 173.6 million, including for repayment of the loan principal and interest, were included in the tariff structure in 2020 (Table 4.2.1).

Table 4.2.1. Funds to ensure repayment of liabilities to IFIs

No.	Enterprise	Repayment of loan interest, UAH million	Repayment of loan principal, UAH million	Total, UAH million
	The IBRD and the Clean Technology Fund			
1.	CU Kharkiv Heat Networks	31.8	92.8	124.7
2.	OCU Mykolaivoblteploenergo	4.3	9.9	14.3
3.	CU Miskteplovodenergia	1.9	4.8	6.6
	The EBRD			
4.	CHU Cherkasyteplokomunenergo	5.3	11.2	16.4
5.	SCU Ivano-Frankivskteplokomunenergo	2.1	6.6	8.7
	The NEFCO			
6.	POHU Poltavateploenergo	0.3	2.5	2.8
	Total:	**45.7**	**127.9**	**173.6**

To reduce the tariff burden on customers, the NEURC included in the heat energy tariffs the costs of credit provided that the technical and economic targets were met for the commissioned facilities, but the enterprise could not fully compensate for these costs by achieving the planned economic effect.

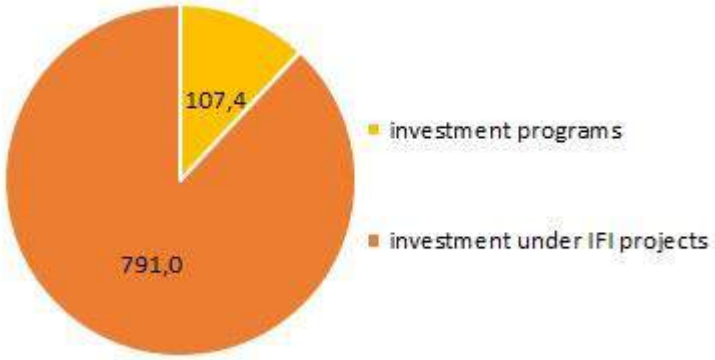


Fig. 4.2.12. Funding of fixed asset replacement in the heat energy sector, 2020 (UAH million)

The fixed asset replacement funding from IPs was UAH 107.4 million in 2020, while IFI project financing was UAH 791.0 million (Fig. 4.2.12) (this number is 7 times higher than the amount of funding from tariff sources).

The ratio of spent funds by the project is shown in Fig. 4.2.13.

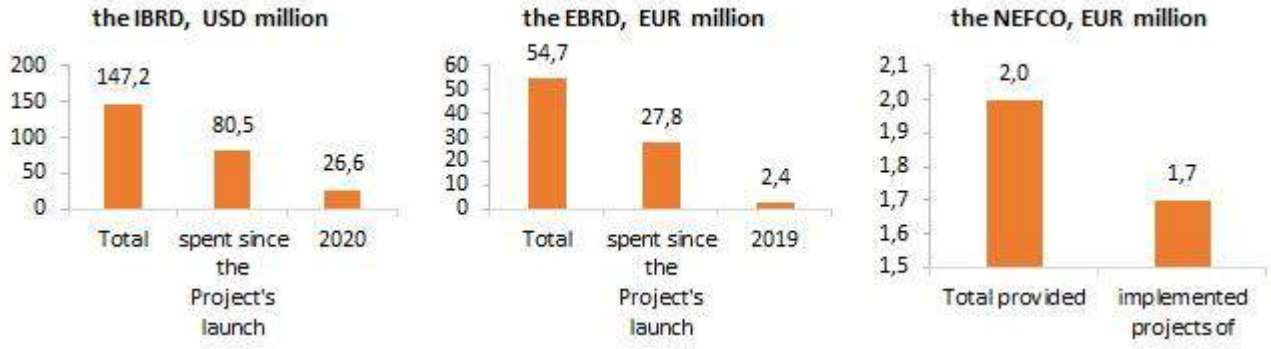


Fig. 4.2.13. Spending international funding for heat supply sector projects

4.2.3. Regulation of payment relations in the heat supply sector

To ensure disciplined gas consumption and the proper payments by heat supply and heat generation enterprises to NJSC Naftogaz of Ukraine for used natural gas and promote the sustainable operation of the gas sector of the fuel and energy industry of Ukraine, the NEURC regulated payment relations between natural gas market players and business entities operating in the heat supply sector.

For instance, to implement the Order of the Cabinet of Ministers of Ukraine No. 217 of June 18, 2014, which approved the Allocation Procedure for Funds Credited to Current Accounts with a Special Regime of Use for Settling Accounts with the Natural Gas Supplier Subject to the

Public Service Obligations (hereinafter referred to as the Allocation Procedure), the NEURC regularly set ratios for the allocation of funds credited to current accounts with a special regime of use for settling accounts with the natural gas supplier subject to the public service obligations by issuing respective orders of the NEURC approving the Register of Transfer Ratios for Funds Credited to Current Accounts with a Special Regime of Use by All Categories of Customers and as Payment of Heat Supply Entities for Heat Energy Generated by Heat Generating Entities (hereinafter referred to as the Register of Ratios), and ensuring its communication to the authorized bank for execution.

As a result of the performed work, the NEURC processed materials of about 134 economic entities in the heat supply sector on a monthly basis in 2020, which allowed it to calculate 17,509 transfer ratios for funds received as payment for heat energy and/or for district heating utility services, heat energy supply services, district hot water supply services, and hot water supply services from all categories of customers and as payment of heat supply entities for heat energy generated by heat generation entities.

For heat supply/heat generation entities which had no indebtedness for natural gas to the natural gas supplier subject to the public service obligations and gas distribution system operators for individual categories of customers, the Register of Ratios had ratios set at 0% for transferring funds to the accounts of the natural gas supplier subject to the public service obligations (hereinafter referred to as the PSO supplier) and gas distribution system operators (hereinafter referred to as the GDS operators), with these funds being credited instead to the current accounts of the heat supply/heat generation entities.

The average number of such enterprises for which fund allocation ratios were set in 2020 is, respectively:

- 43 – with no indebtedness for natural gas to the PSO supplier,
- 12 – with no indebtedness to the GDS operators.

At the same time, in order to settle problematic issues in the relations between natural gas market players and improve the regulatory framework in this area, representatives of the NEURC took an active part in drafting the Order of the Cabinet of Ministers of Ukraine No. 314 of April 29, 2020, which, in particular, changed the Allocation Procedure through supplementing the marginal ratio of fund transfer to the current account of the heat supply or heat generation entity (Rmarg) with electricity costs present in the structure of the effective tariff for the billing month.

4.2.4. Regulatory framework for regulation in the heat supply sector and its improvement

he principal secondary legislation regulatory framework of the NEURC, which regulates relations in the heat supply sector and is the result of professional work of NEURC specialists, is constantly improved and promptly updated to reflect changes in legislation and its practical application, which is effective since the effectiveness of rules (provisions, requirements) of the current regulatory framework can be assessed only through its direct application in practice, in particular when setting economically justified tariffs (during the inspection and analysis of the package of documents submitted by a business entity concerning its compliance with the effective legislation).

In 2020, the NEURC made a major effort to bring its regulations in line with effective legislation, including:

- the Law “On the HUS”, which came into force in full on May 1, 2019, and set a new classification of the housing and utility services, inter alia providing for the heat energy supply and hot water supply services, set a new system of relations that will arise in the process of providing and consuming services; provided for various models of contractual relations in the utility sector; changed approaches to the formation of

utility tariffs and charging customers, including by setting aside the subscription fee as a separate payment;

- the Law of Ukraine No. 394-IX of December 19, 2019 "On Amending Certain Legislative Acts of Ukraine to Safeguard Constitutional Principles in Energy and Utilities Sectors", which amended the Laws of Ukraine "On State Regulation in Utilities Sector" and "On the National Energy and Utilities Regulatory Commission" (came into force on December 29, 2019), inter alia concerning the inclusion of tariffs for the heat energy supply service in the list of tariffs for utilities regulated by the NEURC, improving the organization of the Regulator's work and decision-making process regarding the publication and coming into force of tariff-setting decisions of the NEURC.

With the Law "On the HUS" coming into force, and given that its provisions have made, besides a key impact on the utilities sector, also a direct impact on the heat supply sector, the NEURC regulation of operations of its licensees largely depended on the rule-making actions of other public authorities, including their actions aimed at bringing a number of laws and regulations in line with the Law "On the HUS".

For instance, due to the Cabinet of Ministers of Ukraine issuing its Orders No. 830 of August 21, 2019 "On Approval of the Rules for the Provision of the Heat Energy Supply Service and Standard Contracts for the Provision of the Heat Energy Supply Service" (came into force on September 4, 2019) and No. 1182 "On Approval of the Rules for the Provision of the Hot Water Supply Service and Standard Contracts for the Provision of the Hot Water Supply Service" (came into force on February 11, 2020), the NEURC, in order to bring into line with effective legislation as well as simplify, accelerate and improve procedures for the formation and setting of tariffs in the heat supply sector:

- amended the Procedure No. 1174[86];
- ensured a complete revision of the Procedure No. 528 by amending it[87];
- approved the Procedure for Tariff Formation for the Heat Energy Supply Service[88];
- approved the Procedure for Tariff Setting for the Heat Energy Supply Service[89];
- approved the Procedure for Tariff Formation for the Hot Water Supply Service[90];
- approved the Procedure for Tariff Setting for the Hot Water Supply Service[91];
- approved the Instruction for Monitoring in the Heat Supply Sector[92].

Thanks to the implementation of the provisions of NEURC-developed regulations, in particular the application of a new methodology for heat energy tariff formation through the normative method with elements of incentive-based tariff formation, which is erroneously and groundlessly considered a costs+ methodology, the Commission managed to facilitate the provision of NEURC licensees with adequate mechanisms (tools) to create appropriate conditions for their loss-free and efficient operations and setting of economically justified tariffs, which is confirmed, inter alia, by the following events:

- clear and transparent requirements having been set for the formation and setting of tariffs depending on the grounds for revision, namely: a complete revision of all components of the tariff structure; a revision of tariffs under a simplified procedure in case of fulfillment of all mandatory conditions of the Procedure No. 1174; setting tariffs at the current level for the new period, if during the tariffs' validity period the amount of costs has not changed; updating the tariff structure by redistributing costs between individual cost items for which changes have registered without changing the overall tariff level;

[86] Orders of the NEURC No. 1395 of July 15, 2020, and No. 2814 of December 30, 2020.
[87] Orders of the NEURC No. 1734 of August 23, 2019, No. 418 of February 18, 2020, No. 2305 of December 2, 2020, and No. 2814 of December 30, 2020.
[88] NEURC Order No. 416 of February 18, 2020.
[89] NEURC Order No. 417 of February 18, 2020.
[90] NEURC Order No. 767 of April 8, 2020.
[91] NEURC Order No. 768 of April 8, 2020.
[92] NEURC Order No. 2524 of December 23, 2020.

- the set tariffs may be revised during their validity period subject to the circumstances influencing results of the licensee's operations, including:
  - adjustment of certain components of the tariff structure for reasons beyond the licensee's control;
  - changes in fuel and energy prices over a period that is a multiple of a quarter (three, six, or nine months);
  - calculation of costs to cover losses arising from the delayed determination of the natural gas price;
  - non-performance or incomplete performance of the investment program by the licensee;
  - misuse of funds and/or savings on cost items;
- fuel and energy costs being calculated taking into account current or projected prices (tariffs) for these resources;
- settling the issue of including the amount of compensation for certain items of the tariff structure which are notionally independent of the amount of heat energy sales to customers in the tariff structure of the planned period at the next tariff setting. At the same time, certain cost items of the tariff structure which are notionally independent of the amount of heat energy sales to customers and for which adjustments may be made include labor costs (with the single mandatory state social employee insurance), costs of the natural gas distribution service used for generation of heat energy other than that generated by own combined heat and power plants and cogeneration units, costs of repairing fixed assets involved in the generation and transportation of heat energy, financial costs provided for in clause 6.5 of chapter 6 of the Procedure No. 1174, and the cost of repaying the principal provided for in paragraph 7.1 of chapter 7 of the Procedure No. 1174;
- providing for mandatory application of the provisions of the Procedure for Accounting for Losses of Heat Energy in Heat Networks in Tariffs for Heat Energy, Its Generation, Transportation, and Supply, approved by the NEURC Order No. 1214 of July 1, 2016, when calculating tariffs for heat energy in case of the actual heat energy losses in the networks for the base period exceeding those estimated for the planned period by 10% or more.

Thus, the NEURC has provided an appropriate regulatory and methodological basis for the effective functioning of the system of government regulation in the heat supply sector created by the Regulator, while incorporating such systemic requirements of legislation currently in force as ensuring, inter alia:

- economic justification of tariffs (taking into account also the issue of compensating to NEURC licensees their losses arising during the tariff-setting period);
- openness and transparency of government regulation and tariff setting processes;
- approval of investment programs (development plans) of business entities the activities of which are regulated by the NEURC;
- setting up a reporting system for financial, economic, and technical performance indicators of licensees as a basis for setting economically justified tariffs;
- exercise of control and taking corrective actions (on the basis of reporting data);
- introduction of incentive-based tariff formation in the heat supply sector, etc.

At the same time, the NEURC adopted at its meetings which took place in the form of open hearings in 2020 its Orders No. 1297 of July 9, 2020 “On Amending the Procedure for the Development, Approval, Endorsement, and Implementation of Investment Programs of Economic Entities Active in the Heat Supply Sector” and No. 1777 of September 30, 2020 “On Repealing the Order of the National Energy and Utilities Regulatory Commission No. 381 of December 14, 2012” (which approved the procedures for the development, approval, and endorsement of investment

programs of economic entities active in the heat supply, centralized water supply, and sanitation sectors).

The Commission also offered its proposals and comments concerning:

- the draft order of the Ministry for Communities and Territories Development of Ukraine (hereinafter referred to as the Minregion) “On Approval of the Procedure for the Development, Approval, and Endorsement of Investment Programs of Economic Entities Active in the Heat Supply, Centralized water supply and Sanitation Sectors Licensed by the Council of Ministers of the Autonomous Republic of Crimea, Oblast, Kyiv, and Sevastopol City State Administrations” with regard to the heat supply sector;
- the draft order of the Minregion “On Approval of the Methodology for Developing Heat Supply Schemes for Residential Settlements in Ukraine”;
- the draft Law of Ukraine No. 4507 of December 17, 2020 “On Energy Efficiency”;
- the draft Law of Ukraine of November 15, 2019 (Reg. No. 2458) “On Amending Certain Laws of Ukraine concerning the Regulation of Certain Issues in the Housing and Utility Services Provision Sector”;
- the draft Order of the Cabinet of Ministers of Ukraine “On the National Energy Efficiency Action Plan through 2030”;
- the draft Agreement on Exchange of Information Resources between the State Statistics Service of Ukraine and the NEURC;
- the License Terms for Economic Activity in the Heat Supply Sector, approved by the Order of the NEURC No. 308 of March 22, 2017;
- the draft Law of Ukraine No. 4356 of November 10, 2020 “On Amending Certain Laws of Ukraine concerning Stimulation of the Development of Energy Services”;
- the draft Law of Ukraine “On Amending Certain Legislative Acts concerning Reliable and Sustainable Provision of Electricity and Heat Energy to Customers”;
- the draft Law of Ukraine No. 4403 of November 19, 2020 “On Amending Certain Legislative Acts of Ukraine Concerning State Control (Supervision) in the Housing and Utilities Sector”;
- draft amendments to the Law of Ukraine “On Heat Supply” and other legislative acts to ensure the connection of construction projects to heat supply networks;
- the draft Code of Ukraine on Administrative Misdemeanors.

In accordance with the Law of Ukraine “On Amending Certain Laws of Ukraine concerning Regulation of Certain Issues in the Housing and Utility Services Sector” (hereinafter referred to as the Law No. 1060), which was adopted on December 3, 2020, by the Verkhovna Rada of Ukraine and provides for resolving the issue of inconsistency of certain provisions of regulations concerning the designation of the bodies authorized to regulate the activities of economic entities that generate and supply heat energy and provide utilities through autonomous heating systems, including with regard to setting respective tariffs, the NEURC worked to prepare drafts of respective regulations.

Thus, the NEURC has developed draft regulations which are to be submitted for approval after the coming into force of Law No. 1060, including:

- Procedure for Formation of Tariffs for Heat Energy Generated and Supplied through Autonomous Heating Systems;
- Procedure for Setting of Tariffs for Heat Energy Generated and Supplied through Autonomous Heating Systems;
- Procedure for Formation of Tariffs for the Heat Energy Supply and Hot Water Supply Services Generated through Autonomous Heating Systems;
- Procedure for Setting of Tariffs for the Heat Energy Supply and Hot Water Supply Services Generated through Autonomous Heating Systems.

In addition, to bring the NEURC's own regulations in line with the provisions of Law No. 1060, it has developed amendments to Procedure No. 1174 and Procedure No. 528.

To improve the effective legislation governing relations in the heat supply sector, the NEURC developed and submitted to the public authorities proposals and comments on 36 draft laws and 18 draft regulations of the Cabinet of Ministers of Ukraine in 2020.

Cooperation in the framework of international technical assistance

The NEURC actively cooperated with experts from the Energy Security Project, funded by the United States Agency for International Development (USAID) in the framework of international technical assistance, on issues related to the heat supply sector, namely:

- comprehensive reform of the district heating sector (presentation by USAID experts of a White Paper on transforming district heating in Ukraine);
- improvement of the regulatory framework to prepare for the introduction of incentive-based regulation in the district heating sector while taking into account the special regulatory provisions for municipally-owned enterprises;
- options for large-scale installation of IHSs on the basis of the best international practices;
- analysis of the report “Abolition of the Public Service Obligations Concerning Gas Supply for District Heating Utilities: Key Challenges for Enterprises”.

Participation in conferences and working group meetings

In 2020, the NEURC took part in:

- a conference with representatives of licensees on the issue of the approval status of investment programs for 2020, which took place on February 5, 2020;
- a working meeting with the participation of the NEURC Commissioners on amending the License Terms for Economic Activity in the Heat Supply Sector, approved by the Order of the NEURC No. 308 of March 22, 2017, which took place on February 5, 2020;
- a meeting of the working conference with representatives of the Ministry for Communities and Territories Development of Ukraine on reconciling the parties' positions on controversial issues concerning the Methodology for Developing Heat Supply Schemes for Residential Settlements in Ukraine, which took place on August 16, 2020;
- an online conference with representatives of licensees and the Mykolaiv City Council to consider the issue “Preparation of Heat Supply Facilities of OCU Mykolaivoblteploenergo and PJSC Mykolaiv CHP Plant for the Fall-Winter Period 2020/21”, which took place on September 4, 2020;
- a conference held to develop and agree on a work plan for cooperation between the NEURC and the USAID Energy Security Project (ESP) in the heat supply sector and review the project's presentation entitled “Incentive-Based Regulation in the Heat Supply Sector. Results of the heat supply company's financial model in the city of Zaporizhzhia”, which took place on October 15, 2020;
- a conference held to review project portfolios of the European Bank for Reconstruction and Development in Ukraine with representatives of the Ministry of Infrastructure of Ukraine, the Ministry of Finance of Ukraine, the Ministry of Economic Development, Trade and Agriculture of Ukraine, the Ukravtodor State Road Agency of Ukraine, PuJSC Ukrzaliznytsia, PuJSC Ukrposhta, SOE Ukraerorukh, the Antimonopoly Committee of Ukraine, the City State Administrations of Dnipro and Kharkiv, Dnipropetrovsk Oblast State Administration, Kherson Oblast State Administration, NJSC Naftogaz of Ukraine, GTS Operator of Ukraine LLC, PJSC Ukrtransgaz, PJSC Ukrgazvydobuvannia, NEC Ukrenergo, PJSC Ukrhydroenergo, and NJSC Energoatom which took place on November 3, 2020;
- an online conference with representatives of licensees on the issue of the approval status of investment programs for 2021, which took place on November 16, 2020;
- a meeting to discuss problematic issues and agree on further steps for the timely implementation of the District Heating Energy Efficiency Project, which is funded by the

International Bank for Reconstruction and Development, with representatives of participating utilities, city councils, the Ministry for Communities and Territories Development of Ukraine, the Ministry of Finance of Ukraine, coordinator of the District Heating Energy Efficiency Project, and the program manager for infrastructure and sustainable development at the World Bank, which took place on December 3, 2020;

- a meeting to discuss the White Paper on transforming district heating in Ukraine and the analytical report on options for large-scale installation of IHSs on the basis of the best international practices with representatives of the USAID Energy Security Project (ESP), which took place on December 4, 2020;
- a meeting of the Coordination Committee on the implementation of the Ukraine Municipal Infrastructure Program, a joint project with the European Investment Bank, which took place on December 23, 2020;
- a meeting with the USAID Energy Security Project (ESP) team, during which the ESP provided information on the development status and implementation plan of the NEURC Regulatory Information System (RIS) which is aimed at systematizing and unifying work with all types of information; automation of the process of collection, validation and further processing of reports received by the NEURC; ensuring prompt access of NEURC employees to up-to-date information on licensees' operations, etc., which took place on December 23, 2020.

5. CENTRALIZED WATER SUPPLY AND SEWERAGE SECTOR

5.1. General Information

Operations of water supply and sewerage companies have impact on all aspects of public life. Stable and reliable delivery of water supply and sewerage services is essential in supporting a comfortable day-to-day life, the well-being of the country's population, and environmental safety. Better living standards through accessibility of basic services, high-quality customer service while preserving the environment is only possible if central and local authorities, businesses, and the public join efforts. In view of this, the NEURC's strategy for regulation of activities in the centralized water supply and centralized sewerage sector relies on the principles of giving top priority to quality and availability of services in combination with efficient management, comprehensive vision of the regulated sector's status, assessment of current problems (including the need to maintain accessibility of tariffs and efficient operations of companies against the background of physical and moral deterioration of infrastructure) and projections of their long-term impact.

When implementing state regulation in the centralized water supply and centralized sewerage sector, which was launched in Ukraine in 2011, the NEURC is guided by the Laws of Ukraine on Natural Monopolies, on Housing and Communal Services, on State Regulation in the Communal Services Sector, on Potable Water, Potable Water Supply and Sewerage, on the National Energy and Utilities Regulatory Commission, and by other statutory instruments.

The concept of centralized water supply and centralized sewerage is defined by the Law of Ukraine on Potable Water, Potable Water Supply and Sewerage:

centralized water supply means economic activity of providing customers with potable water through a complex of facilities, structures, distribution water supply networks linked by a single technological process of potable water production and transportation;

centralized sewerage means economic activity of wastewater drainage and treatment by using a centralized sewerage system.

Schematic representation of centralized water supply and centralized sewerage technological processes is given in Annex 5.1.1.

Centralized water supply and centralized sewerage systems in Ukraine are predominantly community-owned, except isolated instances where ownership is public, private or mixed; local self-government authorities are thus vested with the powers of managing most aspects of their operations, such as approving annual operational plans of water supply and sewerage companies, production volumes, standards of specific consumption of fuel and power resources, investment programs, potable water supply standards (specifications), restrictions on potable water supplies down to environmental safety levels, etc.

In 2020, the License Terms for the pursuit of economic activity of centralized water supply and district sewerage, as approved by the NEURC Resolution No. 307 dated 03/22/2017, were in force[93]. Under paragraph 1.4 of these License Terms, the NEURC licenses the economic activity of centralized water supply (production and/or transportation and/or supply of potable water to customers) and/or centralized sewerage(wastewater drainage and/or treatment) where the economic entities' centralized water supply and/or centralized sewerage systems are located in one or more inhabited localities within one or more oblasts (including the city of Kyiv) whose total population exceeds one hundred thousand people, and where the sales of services are respectively as follows: centralized water supply — more than three hundred thousand cubic meters per year, and centralized sewerage— more than two hundred thousand cubic meters per year.

[93] As amended by the NEURC Resolutions No. 8 dated 01/09/2018, No. 220 dated 09/24/2019, No. 1482 dated 07/29/2020.

The economic activity of centralized water supply and/or centralized sewerage pursued by economic entities that do not fall under the NEURC's regulatory criteria is licensed by the oblast and Kyiv city state administrations.

In 2020, the NEURC licensees in the centralized water supply and centralized sewerage sector comprised 55 economic entities[94] (the dynamics of the number of economic entities whose activities between 2011 and 2020 were subject to state regulation is presented in Annex 5.1.2).

The changes taking place in the state-regulated segment of the centralized water supply and centralized sewerage sector in 2020 generally occurred along the same lines and at the tempos that were achieved in previous years, which is described in greater detail below.

As of 12/31/2020, the State regulated the activities of 3% of economic entities in Ukraine's centralized water supply and centralized sewerage sector, which account for 75% of the domestic services market[95] in this sector (Fig. 5.1.1). This ratio has remained since 2018.

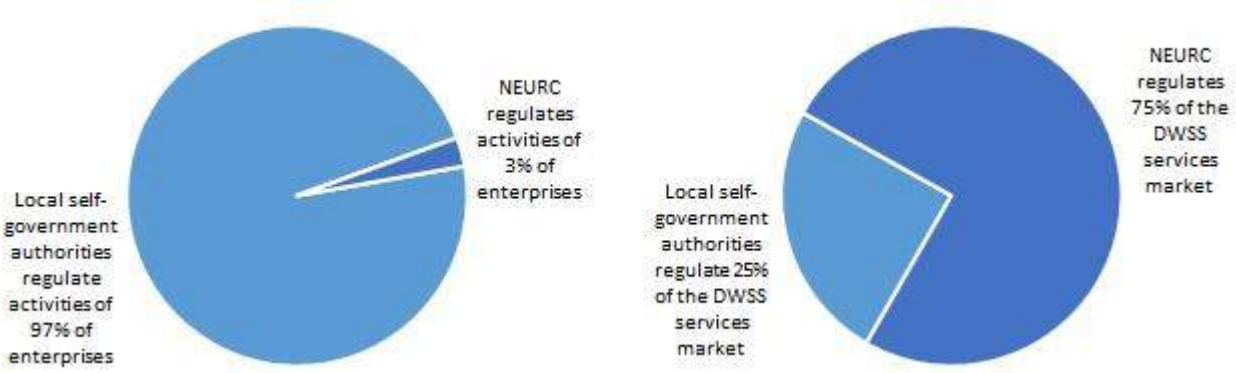


Fig. 5.1.1. Ukraine's economic entities and services market in the centralized water supply and centralized seweragesector disaggregated by respective regulatory authorities as of late 2020

Compared to previous years, the share of the services market held by the NEURC licensees in 2020 in the centralized water supply and centralized sewerage sector has not changed: Kyiv — 18%; oblasts: Dnipropetrovsk — 16%, Donetsk — 11%, Kharkiv — 11%, Odesa — 8%, Zaporizhzhia — 6%, Lviv — 4%, Poltava — 3%; four oblasts (Cherkasy, Mykolaiv, Kyiv, Kirovohrad) — 2% each; ten oblasts (Vinnytsia, Khmelnytskyi, Chernihiv, Kherson, Zhytomyr, Rivne, Sumy, Ternopil, Ivano-Frankivsk, Volyn) — between 1.7% and 1%; and three oblasts (Luhansk, Chernivtsi, Zakarpattia) — less than 1% each.

The NEURC licensees delivered a total of UAH 18.4 billion (excluding VAT) of water consumption services. The increase was UAH 2.7 billion, or 17%, against 2019. According to the State Statistics Service of Ukraine, UAH 24.4 billion of water consumption services were sold throughout Ukraine in 2020 — a 16% growth compared to the previous year.

5.2. **Principal changes in 2020. Key measures taken in the centralized water supply and centralized sewerage sector**

As part of its mandate, the NEURC applies all the existing regulatory tools and designs new ones, including continuous improvement of the tariff development mechanism, facilitates relations — based on mutual respect and understanding — between the centralized water supply

[94] Including 4 licensees located in the territory that is not controlled by Ukraine. Section 5 provides further information about operations of 51 NEURC licensees in the centralized water supply and centralized sewerage sector, which does not include data on 4 licensees located in the territory that is not controlled by Ukraine.

[95] Sourced from the website of the State Statistics Service of Ukraine http://www.ukrstat.gov.ua/operativ: "Industrial products sold, by activity types"; data according to the (monthly) Reporting Form No. 5-NEURC-water supply/sewerage "Reported and estimated data on settlements for centralized water supply and/or sewerage services," as approved by the NEURC Resolution "On approving the Rules for organization of reporting submitted to the National Energy and Utilities Regulatory Commission by economic entities in heat supply, centralized water supply and sewerage sectors" No. 717 dated 05/31/2017. The calculation is based on the volume of products sold (excl. VAT) by activity types that correspond to the NACE 2010 codes: 36 "Water collection, treatment and supply"; 37 "Waste collection, treatment and disposal activities."

and centralized sewerage sector companies and customers of their services, builds up information database to better understand the prospects of the regulated sector.

Transparency or regulatory decision-making

While performing the task of state regulation of operations of natural monopolies and economic entities in the centralized water supply and centralized sewerage sector by balancing their interests against public interests, the NEURC adheres to the basic principle of effective regulatory practice, i.e. ensures decision-making transparency, which makes the decisions authoritative, trustworthy and undoubtedly fair, thereby minimizing any negative response on behalf of customers to socially significant decisions (such as adoption of procedures for forming tariffs, setting tariffs, etc.).

To ensure transparency of the process of drafting and adopting the NEURC's decisions on approval of statutory instruments, setting of tariffs, etc., the following measures were taken:

- posting on the NEURC's official website (Drafts/Draft Regulatory Acts/2020 Drafts) of draft resolutions on making and approving changes to tariff formation procedures, regulatory impact analyses, and notices of publication of draft regulatory acts, indicating addresses to which natural and legal persons or their associations could forward their comments and suggestions in writing and/or electronically;
- in 2020, public discussions of draft decisions, comments and suggestions thereto, and public consultations to which all stakeholders were invited mostly took place online, via electronic means of communication;
- communicating to the public, by posting on the NEURC's website, the outcomes of public discussions of draft resolutions, drawn up as minutes and tables of agreed proposals;
- adopting decisions to approve resolutions at public meetings of the NEURC.

In this way, the implementation of the principle of accommodation of public opinion when adopting regulatory decisions on the formation and setting of tariffs was ensured as well, i.e. openness of the NEURC's actions for natural and legal persons or their associations at all stages of regulatory activities, mandatory consideration of initiatives, comments and suggestions submitted by natural and legal persons or their associations in the manner prescribed by law, the duty and promptness of communicating the adopted regulatory acts to natural and legal persons or their associations, informing the public of regulatory activities.

Approaches to tariff development

During 2020, the Procedure for forming tariffs for centralized water supply and sewerage (approved by the NEURC Resolution No. 302 dated 03/10/2016) underwent changes designed to improve the tariff development mechanism — the most powerful lever of state regulation. The NEURC Resolution No. 486 "On approving Amendments to the Resolution No. 302 dated March 10, 2016, of the National Energy and Utilities Regulatory Commission" was adopted on 02/25/2020.

These changes had impact on the following important aspects of tariff formation:

- costs incurred not only in the reporting, but also in the baseline periods are to be compensated when tariffs are set or adjusted in order to speed up the process of reimbursing the licensee's working capital;
- the list of reimbursable costs was supplemented with costs of reagents;
- additions were made to the provision on determining the electricity cost with regard to the electricity market prices;
- the licensees that have implemented a long-term investment program's items to save energy and labor resources through the use of loan funds now have the opportunity to use the saved resources during the payback period of such items in order to ensure the discharge of loan obligations;
- motivational provisions were supplemented to ensure observance by licensees of the established tariff structures: based on the outcomes of control measures, the NEURC may decide to include

costs in the tariff structure or to reduce tariff components in the event of their unintended use, savings or overspending on expenditure items, which results in discrepancies between the actual components and the approved tariff structure.

The main approaches to tariff development accumulated by the NEURC in previous years imply the application of the following principles and mechanisms:

- setting tariffs on an annual basis to ensure the licensees' stable financial position, with regard to changes in the country's economy;
- reimbursement of payroll expenses, purchase of electricity and heat, natural gas used for process and in-house needs, payment of taxes and fees, costs of purchasing water from other enterprises and/or treatment of own wastewater by other enterprises, as well as reimbursement of exchange rate differences on borrowings from international financial institutions;
- restrictions on reimbursement of costs (reimbursement is reduced by the amount received by the licensee on a non-refundable basis from the local and/or state budgets and intended to cover the reporting period costs);
- cost indexation (projected prices to calculate target costs of material resources and third-party water pumping services are determined with regard to the actual industrial and services producer price index for the baseline period and the projected index for the planning period);
- updating the target costs immediately prior to setting tariffs;
- possibility of reimbursement of expenses under energy service agreements;
- compliance with the Law of Ukraine on the Electricity Market;
- target profitability at up to 2% of the costs (additionally, apart from the funds to finance investment programs) to support the required working capital in the event of significant unexpected fluctuations in the prices for energy, fuel and other goods and services included in the cost of production;
- removal from tariffs (reduction of target costs because of the licensees' failure to observe structures of the established tariffs, unreasonable underfunding of their components and failure to implement the investment program items).

These principles and mechanisms are designed to achieve the following outcomes of price regulation in the centralized water supply and centralized sewerage sector:

- providing conditions for attainment of self-sufficiency in the licensees' activities and to prevent the occurrence of differences between the actual cost of services and the target one, which is included in the tariffs. This approach to tariff formation stipulates that if a difference occurs between the actual and the target cost of services in the reporting period, it is to be compensated by including the relevant amount in the costs of the following planning period, provided that the difference is caused by objective external factors, rather than by negligent management of the licensee's senior executives. Compensation applies only to specifically defined cost items;
- providing conditions for stabilization of the NEURC licensees' financial and economic position: inclusion, when setting tariffs, of the necessary amounts of working capital to prevent the emergence of new, and to reduce accumulated, accounts payable, to ensure the ability to settle promptly with energy suppliers, etc. This implies the application of the cost indexation mechanism in the target activity period and of the principle of mandatory annual tariff revision;
- the licensees' commitment to timely restoration of fixed assets and targeted use of funds under the approved tariff structures and the NEURC-approved investment programs.

Efficient use of resources

To produce potable water, the NEURC licensees mostly collect it from surface sources that provide 85% of its supply and lifted volume.

In order to motivate water supply companies to rational use of energy and water resources, reduce potable water losses during its production, transportation and distribution, the NEURC sets individual technological standards for potable water use (ITSPWU), which remain valid for 5 years. In 2020, ITSPWU 2020 was set, and preparatory work was performed to establish standards for those licensees whose ITSPWU expire in 2021. In the process of setting tariffs for centralized water supply and district sewerage, ITSPWU are used in the target cost calculations as a basis for determining the annual volume of water supply and the corresponding energy needs.

The current water loss values under the technological standards for potable water use (TSPWU) are 28–30% of the lifted water. The target industry-wide TSPWU water loss to be achieved in 2030 is 15% of the lifted water.

In 2020, a slight increase (i.e. by 2.2 million m^3 or 1%) in process water consumption occurred across all licensees. By contrast, potable water loss decreased by 19.7 million m^3 or 3%, and amounted to 31% (31% in 2019, and 33% in 2018 (weighted average across all licensees)) against the lifted water. In 2020, the highest reduction in potable water loss was achieved by the following licensees: Kharkivvodokanal CE — by 18.4 million m^3 (from 38% in 2019 to 32% in 2020); and Lvivvodokanal LCCE — by 4.2 million m^3 (down to 40% from 43%). Potable water loss, as percentage of lifted water, by licensees in water supply networks in 2020 is given in Annex 5.2.1.

Data for setting of tariffs

For the purpose of information support of the NEURC's regulatory activities, the forms and rules were approved for managing of reporting by licensees in the centralized water supply and centralized sewerage sector, which serve as a source of data and basis for adoption of reasonable decisions on formation and setting of tariffs (the NEURC Resolution No. 717 dated 05/31/2017).

The reporting data is also used by the NEURC to ensure the transparency of regulated sectors under the Law of Ukraine on Specifics of Access to Information Concerning Electric Power, Natural Gas, Heating, District Hot Water Supply, District Potable Water Supply and Sewerage, according to which, the NEURC posts on its own official website data on prices/tariffs, components thereof for all customer categories, on changes in prices/tariffs; projected changes in prices/tariffs and substantiation of the need for such changes; the dynamics of changes in the historical value of component prices/tariffs over the past five years; qualitative characteristics of services, etc.

5.3. State regulation in the centralized water supply and centralized sewerage sector

In accordance with its tasks the NEURC, under the Laws of Ukraine on State Regulation in the Communal Services Sector, on the National Energy and Utilities Regulatory Commission, sets, in particular, tariffs for centralized water supply and district sewerage, approves investment programs for natural monopoly entities whose operations are licensed by the NEURC. Furthermore, when exercising its powers, the NEURC adheres to the principles of legality, publicity, accessibility, transparency, and openness.

Applications from economic entities and their calculations for setting tariffs for centralized water supply and centralized sewerage are considered by the NEURC in the manner and within the timeframe prescribed by the Procedure for setting tariffs for centralized water supply and sewerage, as approved by the NEURC Resolution No. 364 dated 03/24/2016.

Following the processing by the NEURC Department for Regulation of Relations in the Centralized water supply and Sewerage Sector of applications and calculations submitted by companies, the matter of approving a draft resolution on setting relevant tariffs or approving investment programs is put before a NEURC meeting that is held as a public hearing. Furthermore, under Article 14 of the Law of Ukraine on the National Energy and Utilities Regulatory Commission (hereinafter referred to as, the "NEURC Law"), the list of matters to be put before the NEURC shall be posted on the official website at least three business days before the NEURC meeting. Along with the list of matters to be considered by the Regulator, draft relevant decisions and

substantiation thereof, comments and proposals, as well as the NEURC's reasoned position on the received comments are posted. Under Article 14 of the NEURC Law, meetings of the NEURC are held as public hearings. Under Article 14 of the NEURC Law, public hearings may be attended by representatives of economic entities, government authorities and local self-government authorities, organizations that represent customer interests, civil society organizations, mass media, and other stakeholders. For example, local self-government authorities in particular are engaged by the NEURC as defenders of territorial communities' interests in the decision-making process at the NEURC meetings that are held as public hearings.

Under Article 14 of the NEURC Law, the Regulator's decisions that have indications of regulatory acts, as well as decisions on setting tariffs for goods (services) of natural monopoly entities, prices (tariffs) for the population (where the relevant powers to set prices (tariffs) are granted under special laws), on approval of investment programs shall enter into force on the day following the date of promulgation thereof on the NEURC's official website, unless a later date of their entry into force is set by the decision itself, but not earlier than the date of promulgation of the decision. The NEURC promulgates its decisions within five business days from their adoption.

Under Article 5 of the NEURC Law, the Regulator's decisions may be appealed in court. Appealing against decisions of the Regulator does not suspend their execution.

The NEURC resolutions on setting tariffs for centralized water supply and district sewerage, as well as tariff structures attached for each NEURC licensee that have such tariffs set for them, and on approval of investment programs are posted on the NEURC's official website.

Special mention should be made of the local self-government authorities' role in the process of regulating the operations of economic entities in the centralized water supply and centralized sewerage sector. Applicable laws and regulations stipulate that their powers, among other things, include:

- approval of consumption rates, quality standards of housing and communal services, monitoring of their observance;
- delivery of housing and communal services to the necessary extent and in proper quality;
- approval of general production standards for fuel, heat and electricity consumption per unit of output;
- approval of economic entities' investment programs in the centralized water supply and centralized sewerage sector;
- review and coordination of activity plans of enterprises, institutions and organizations not community-owned by the relevant territorial communities, but whose activities may cause negative social, demographic, environmental or other impacts, drafting of opinions and submission of proposals to the relevant authorities;
- establishment of local taxes and dues, approval of land tax rates under the Tax Code of Ukraine;
- adoption of decisions to grant, under applicable laws and regulations, benefits on local taxes and dues, as well as on the land tax;
- establishment, for the enterprises, institutions and organizations community-owned by the relevant territorial communities, of the share of profit to be transferred to local budgets;
- entering into employment agreements with senior executives of community-owned economic entities, determining the target criteria for their performance.

5.3.1. Price regulation in the centralized water supply and centralized sewerage sector

When setting tariffs, the NEURC is guided by the principle of balancing the interests of customers, economic entities, and the State: it limits the licensees' planned costs to an economically reasonable level, which should ensure the self-sufficiency of their operations under the condition of effective economic management and economical use of resources, while

simultaneously providing the necessary investment to ensure the safe and sustainable operation of water supply and sewerage systems.

During 2020, 266 tariffs were set according to the applications received by the NEURC from 46 licensees,[96] including: 135 centralized water supply tariffs, and 131 centralized sewerage tariffs.

The weighted average cost of services in the centralized water supply and district[97] sewerage sector increased by 14% and 12%, respectively, during 2020. These growth rates were lower compared to 2019: 20% and 11%, respectively. The increase in costs was predominantly caused by higher payroll expenses because of the increase in the minimum wage in Ukraine. A slight increase in other components was the reason behind changes to the cost structures of both centralized water supply and centralized sewerage services compared to the previous year.

Payroll expenses (together with social benefits) and purchases of electricity remained the main items in the cost structure (Annex 5.3.1) in 2020. Their percentage is as follows: 42% and 25% (38% and 28% in 2019) for water supply, 53% and 22% (51% and 25% in 2019) for sewerage, respectively. Less significant cost components include depreciation, cost of repairs, reagents, fuels and lubricants as well as the cost of taxes and fees, including fees for special use of water (rent), subsoil use fees for producing fresh groundwater.

In the process of calculating the cost of services in order to set tariffs for centralized water supply and district sewerage, cost planning is performed using the normative method based on national and industry standards for the use of tangible, fuel and energy resources, payroll expense standards, standards for production management and maintenance costs, with regard to actual indicators from previous periods and projected variations in industrial producer price indices during the planning period. Costs that cannot be standardized objectively are estimated with regard to the economically justified costs in previous periods and on the basis of budgets.

Tariffs for centralized water supply and centralized sewerage are formed on the basis of the calculated cost of services. In addition to the cost of services, tariffs also take into account the reimbursement of certain reasonable costs that were not compensated by tariffs during the previous period for objective reasons beyond the control of enterprises' management, but are associated, for example, with variations in tax and fee rates, growing costs of tangible or labor resources, etc.; the amount of profit allocated to repay borrowings, and other costs of loan obligations. In certain instances, tariffs are reduced on the basis of a NEURC decision that is adopted following the monitoring over the licensees' operations if violations of license terms, including failure to observe the structure of established tariffs, are identified.

Observance of tariff structures was a difficult task for licensees in 2020 in view of the following circumstances: a slowed down process of concluding agreements with customers of services under the new Law of Ukraine on Housing and Communal Services due to the fact that the contractual process deadline was pushed back in the situation of quarantine introduced to prevent the spread of COVID-19, thereby making enterprises sell certain services at 2019 tariffs; reduced solvency of customers of services, and growth of both receivables and payables; lack of working capital; additional expenses on sanitary and epidemiological measures to organize functioning of water supply and sewerage companies in the context of COVID-19 spread.

Fig. 5.3.1. Dynamics of the weighted average tariff for centralized water supply and centralized sewerage(excl. VAT) in 2018–2020, UAH/m³

The weighted average tariff (Fig. 5.3.11) for district water (supply plus sewerage) in 2020 increased by 2.76 UAH/m³ or by 18% against 2019 and reached 18.36 UAH/m³ (excluding VAT). Information about tariff components is presented below.

' and centralized sewerage sector was 55.

a is provided on 4 licensees located in the territory that is not

Information about tariff components is presented below.

In the instances when NEURC licensees, during the term of the established tariff, face a difference between the actual cost of taxes and fees, the cost of electricity purchased for process and in-house needs, and the planned costs for this period for reasons that go beyond managerial efficiency because of changes to applicable laws and regulations on tax rates, growing market value of resources, etc., a NEURC decision is adopted to provide for the funds in order to compensate for such differences when setting tariffs for centralized water supply and centralized sewerage in the coming planning period.

Tariffs for centralized water supply and centralized sewerage also include target profit that is defined as the funds added to the total target cost and allocated towards implementation of the investment program measures, repayment of the principal amount of loans (credit, borrowings). The percentage of profit grew in 2019 and amounted to 5% and 7% (2% and 3% in 2019), respectively, in the structure of the weighted average tariff for centralized water supply and district sewerage. Tariffs, their increase or decrease in 2020 compared to 2019, disaggregated by certain NEURC licensees in the centralized water supply and centralized sewerage sector, are presented in Annex 5.3.2.

Fig. 5.3.2. Centralized water supply and centralized sewerage volumes in 2018–2020, m³ million

Compared to the previous year, centralized water supply and centralized sewerage volumes[98] decreased slightly in 2020 (Fig. 5.3.2). The volume of water supply decreased by a total of 12.3 million m³ (-1%) in 31 enterprises; sewerage — by a total of 18.2 million m³ (-2%) in 34 enterprises. The trend towards reduction in water supply has continued for three consecutive years in 12 water utilities, sewerage — in 13 water utilities.

In 2020, the distribution of centralized water supply volumes by customer categories was as follows: population — 49%, budget-funded entities — 4%, economic entities in the centralized water supply sector — 24%, heat supply companies — 10%, other customers — 13%; while centralized sewerage volumes were distributed in the following proportion: population — 66%, budget-funded entities — 6%, economic entities in the centralized sewerage sector — 7%, heat supply companies — 2%, other customers — 19%.

The level of payments by customers for centralized water supply and centralized sewerage services deteriorated in 2020: water supply — 90%, sewerage — 94%, and 91% in general (93%, 95% and 94% in 2019; 88%, 94% and 90% in 2018, respectively).

During 2020, customers were provided with water consumption services totaling UAH 22.1 billion (including VAT), and paid only 91% of their price (94% in 2019). As a result, water supply and sewerage utilities lost UAH1.9 billion of target income (UAH1.2 billion in 2019), which affected their overall financial position. Over the years, the lack of working capital has impaired the enterprises' ability to pay for consumed energy and other resources, complicated timely upgrades to their infrastructure, etc. Besides, a portion of customer debt accumulated over the years was recognized as bad and written off. In 2020, it amounted to UAH 0.14 billion (UAH 0.27 billion in 2019). These funds will thus be never regained as the enterprises' financial assets and, in the environment where a long-term trend towards accumulation of customer debts exists; this has a negative impact on the licensees' financial performance and break-even points.

For example, customer debts for water consumption to all licensees totaled UAH6.5 billion in early 2020, including UAH4.0 billion or 62% owed by the population. Debt growth was

[98] Source: The NEURC licensees' reports compiled according to the (monthly) Reporting Form No. 5-NEURC-water supply/sewerage. The 2016–2017 metrics only include data for those economic entities that are the NEURC licensees as at 12/31/2018.

particularly rapid (27%) in 2019 compared to previous years (16% in 2019). The events of 2020 related to the COVID crisis had significantly affected the functioning of the industry's enterprises despite the fact that they continued their operations throughout the year. Besides, significant amounts of debt were already present at the beginning of 2015 and 2016 (UAH 2.6 and 3.1 billion, respectively) and continued to grow, which resulted in the accumulation of large amounts of receivables.

As at 12/31/2020, customer debts for water consumption services increased to UAH8.3 billion (including UAH5.0 billion or 60% owed by the population). The following three licensees have the largest amounts of debts accumulated by customers: Kharkivvodokanal CE — UAH 2.0 billion, Kyivvodokanal JSC — UAH1.0 billion, Voda Donbasu Company CE — UAH1.2 billion. Amounts overdue to another eight companies range from UAH 100.0 to UAH 500.0 million.

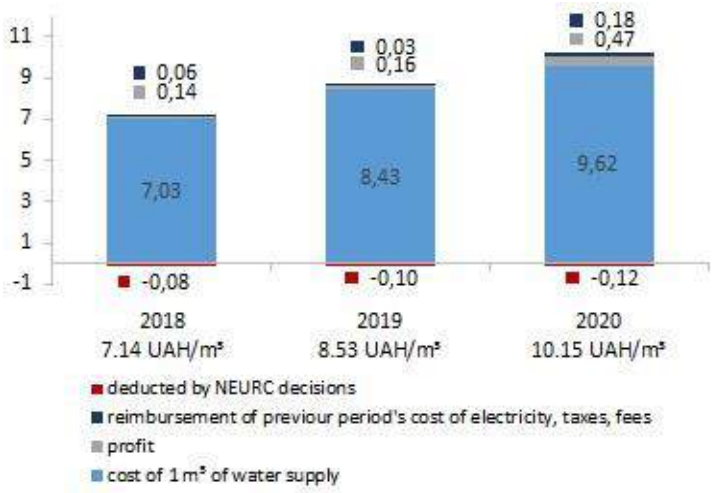
Centralized water supply tariffs

In 2020, the weighted average tariff for centralized water supply was 10.15 UAH/m^3 (excluding VAT), which is 1.62 UAH/m^3 or 19% higher than in 2019 (Fig. 5.3.3).

As part of the weighted average tariff in 2020, the profit was 0.47 UAH/m^3 or 4.6%.

Compensation for the cost of electricity consumption and payment of taxes and fees, which was not reimbursed by the previous period (2019) tariffs, was 0.18 UAH/m^3.

The detailed structure of the weighted average cost of 1 m^3 of centralized water supply is given in Annex 5.3.3.



3.3. Dynamics of the weighted average tariff for centralized water supply (excl. VAT) in 2018–2020, UAH/m^3

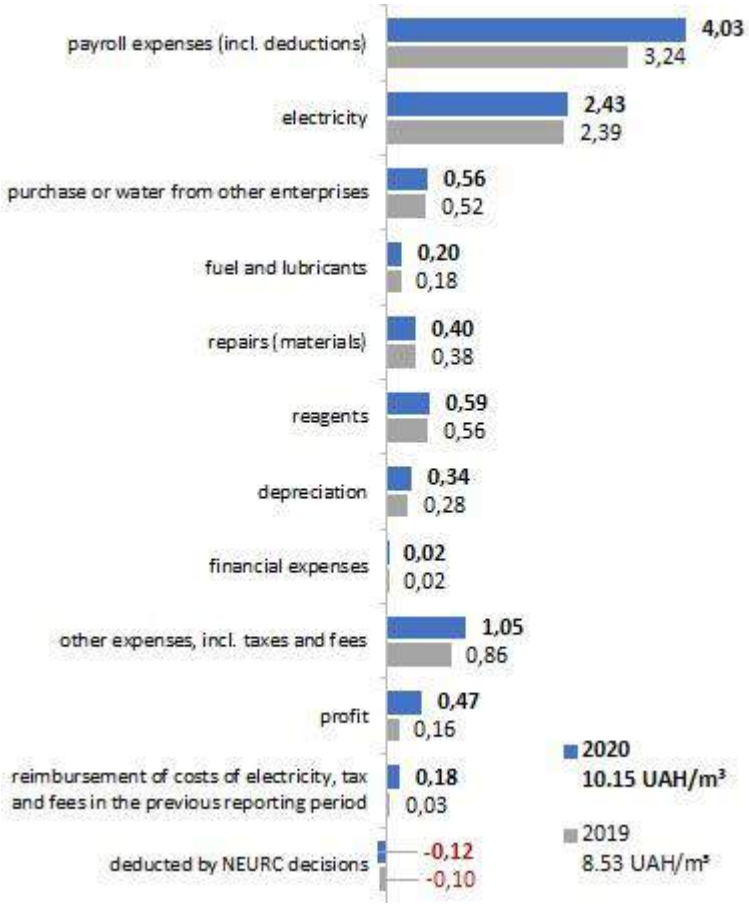


Fig. 5.3.4. Comparison of components of the weighted average tariff for centralized water supply (excl. VAT) in 2019–2020, UAH/m^3

In 2020, only labor costs increased significantly, with minor growth in other expenses; by contrast, the amounts of profit and compensation grew perceptibly. Profit increased as part of tariffs of those enterprises that face imminent repayment of loan funds and discharge of other obligations under loan agreements with international financial institutions.

In 2020, the growth in basic components of the weighted average tariff for centralized water supply was as follows:

ayroll (incl. deductions) — by 0.79 UAH/m^3 or by 24%;

lectricity — by 0.04 UAH/m^3 or by 2%;

- reagents — by 0.03 UAH/m³ or by 5%;
- repairs — by 0.02 UAH/m³ or by 5%.

Variations in other tariff components are shown in Fig. 5.3.4.

Centralized sewerage tariffs

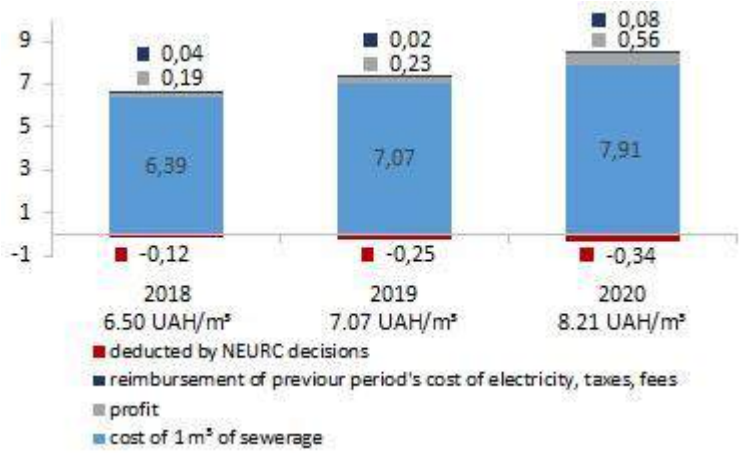


Fig. 5.3.5. Dynamics of the weighted average tariff for centralized sewerage(excl. VAT) in 2018–2020, UAH/m³

In 2020, the weighted average tariff for centralized sewerage was 8.21 UAH/m³ (excluding VAT), which is 1.14 UAH/m³ or 16% higher than in 2019 (Fig. 5.3.5).

As part of the tariff, the profit was 0.56 UAH/m³ or 6.8%.

Compensation for certain costs that were not reimbursed by the tariffs applicable during 2019 was 0.08 UAH/m³.

The detailed structure of the weighted average cost of 1 m³ of centralized sewerage is given in Annex 5.3.4.

Compared to 2019, the following cost items grew the most in 2020 due to higher costs of labor and certain tangible resources in the structure of the weighted average tariff for centralized sewerage:

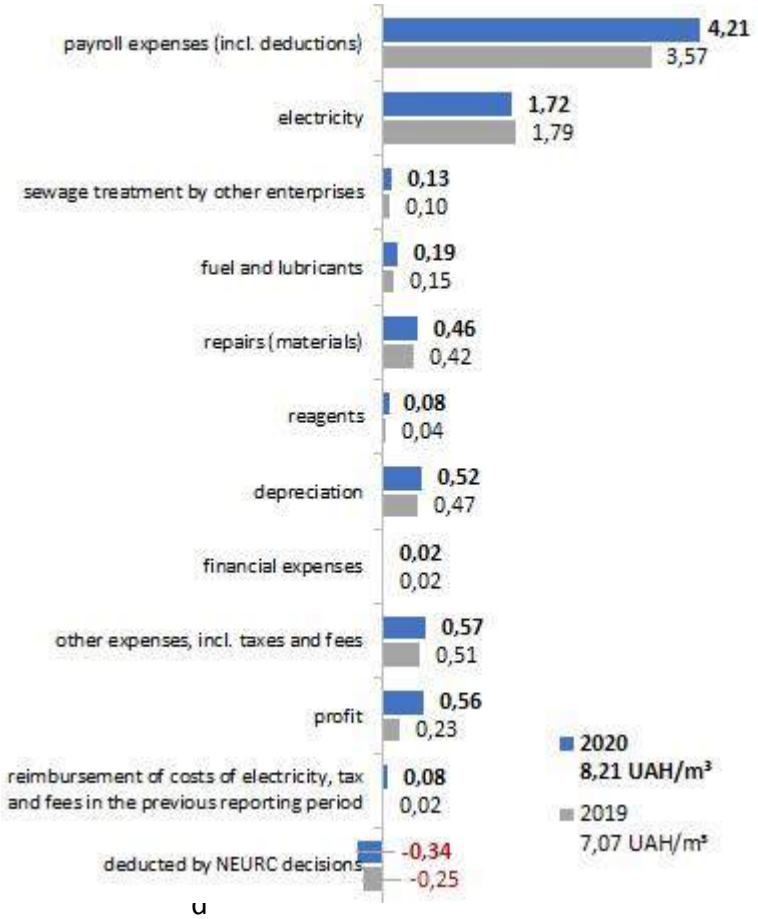


Fig. 5.3.6. Comparison of components of the weighted average tariff for centralized sewerage(excl. VAT) in 2019–2020, UAH/m³

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ions) — by 0.64 UAH/m³ or by 18%;

- reagents — by 0.05 UAH/m^3 or by 117%;
- repairs — by 0.04 UAH/m^3 or by 9%.

At the same time, electricity costs decreased by 0.07 UAH/m^3 or by 4%.

Variations in other tariff components are shown in Fig. 5.3.6.

5.3.2. Investment activities

The procedure for development, granting consent to, and approval of investment programs of economic entities in the centralized water supply and centralized sewerage sector plays a key role in ensuring the transparency of the NEURC's decisions on tariff formation and setting, in particular as regards depreciation and target profit.

Under applicable laws and regulations, including tariff formation procedures, the tariff structure may include profit, the use of which is strictly regulated — it should be invested in fixed assets. The required amount of profit is planned according to the licensee's investment program approved under its constituent documents and with the authorized body's consent duly granted.

The tariff rate thus depends not only on operating costs, but also on the profit, the amount and intended use of which is substantiated by the investment program. That is why it is essential to have statutory instruments in place, under which the licensee's investment program is to be developed (as a basis for inclusion of profit in tariffs) and which ensure transparency at all stages of its drafting, such as development, approval, informing the stakeholders, and during progress monitoring.

The Procedure for development, granting consent to, and approval of investment programs of economic entities in the centralized water supply and sewerage sector (hereinafter referred to as, the "Investment Programming Procedure") was adopted by the NEURC Resolution No. 1131 dated 09/14/2017 in accordance with the Laws of Ukraine on the National Energy and Utilities Regulatory Commission, on State Regulation in the Communal Services Sector, and on Potable Water, Potable Water Supply and Sewerage. This document sets up a mechanism for development, approval, granting consent to, adoption, and implementation of investment programs by economic entities in the centralized water supply and sewerage sector, in order to determine the validity of their intended investment and/or costs in the structure of the investment component of tariffs for centralized water supply and centralized sewerage under regulated tariff on the principles of economic feasibility as well as the intended use of funds by such entities.

The Investment Programming Procedure applies to all economic entities in the centralized water supply and centralized sewerage sector irrespective of the licensing authority, i.e. the requirements are the same for both the NEURC licensees and the OSA and KCSA licensees. The investment program approved by the economic entity's senior executive is submitted by the licensee to the authorized body (the NEURC or a local self-government authority (hereinafter referred to as, the "LSGA")) for its consideration and consent.

Following their approval by licensees, consent is to be given by the LSGA, whose powers cover the territory of the licensee's operations, to the investment programs involving community-owned centralized water supply and centralized sewerage facilities. Where the LSGA is not the authorized regulation body, the investment program, which involves community-owned centralized water supply and centralized sewerage facilities and to which the LSGA gave its consent, is submitted by the licensee to the authorized state regulation body — the NEURC — that approves the investment program. An application for consent to (approval of) the investment program as well as the documents stipulated by the Investment Programming Procedure are submitted by the licensee to the authorized body on an annual basis, at least three months before the starting date of the planning period.

The amount of investment is determined based on the technical condition of fixed assets, the principles of economic efficiency and feasibility of implementing the relevant measures, as well as with regard to its impact on tariffs.

Licensees thus are required to develop and submit an investment program to the authorized body on an annual basis. In the event that the licensee does not intend to include profit in the tariff, it must submit for approval an investment program developed in accordance with available funding sources, including depreciation, which is a mandatory item in the tariff structure.

Pursuit of investment activities and introduction of innovations are critical in addressing the problems of stable functioning and higher economic efficiency, which face enterprises in the water sector. It should be noted that certain licensees are showing real progress in this area; however, many untapped opportunities are still available to reduce water losses and the resulting consumption of energy and other resources.

During 2020, 49 investment programs, i.e. by 96% of 51 licensees, were submitted for consideration and approval to the NEURC by licensees in the centralized water supply and centralized sewerage sector. Under the NEURC decisions, 48 investment programs totaling UAH 3,627.45 million were approved and published for 2020, which is 20% more than the previous year's intended investment. These investment programs are found to be sufficiently justified and designed to improve production efficiency and environmental protection.

The structure of target funding amounts for the 2020 investment programs, disaggregated by funding sources, is given in Table 5.3.1.

Table 5.3.1. Target amounts and sources of investment by the NEURC licensees in the centralized water supply and centralized sewerage sector in 2020

Sources of investment	Investment, UAH million	Investment structure by sources, %
Depreciation	959.46	26.5
Production investment from profit	573.18	15.8
Funds available from previous periods	139.02	3.8
Central budget funds	54.97	1.5
Other funds raised	6.66	0.2
Repayable loan funds	1,894.16	52.2
Total under 48 investment programs	3,627.45	100.0

In 2020, more than half (52.2%) of all funding sources for investment programs comprised borrowings made under the agreements executed with international financial institutions.

Depreciation, included in the structure of tariffs for centralized water supply and district sewerage, also represented a major source of investment in 2020, similar to previous years.

Depreciation accounts for 63% of the investment envisaged by the 2020 tariffs. The percentage of depreciation is 26.5% across all sources of investment.

Funds were also used from the profit envisaged in the structure of licensees' tariffs in order to finance production investment, the amount of which is determined to the extent necessary for gradual restoration of networks (better functioning of water supply and sewerage enterprises), and with regard to the need for discharge of licensees' financial obligations to international financial institutions. For its part, the NEURC is involved in attraction of foreign investment under the IBRD project within the Second Urban Infrastructure Project. As at the end of 2020, for example, eight NEURC licensees had absorbed USD 75.3 million of investment under this project, while the total amount of subloan agreements with the NEURC licensees under the project is USD 271.9 million. USA

The key goals of investment in 2020: reducing the specific consumption and losses of energy and other resources; increasing the environmental safety; improving the quality of services (Fig. 5.3.7).

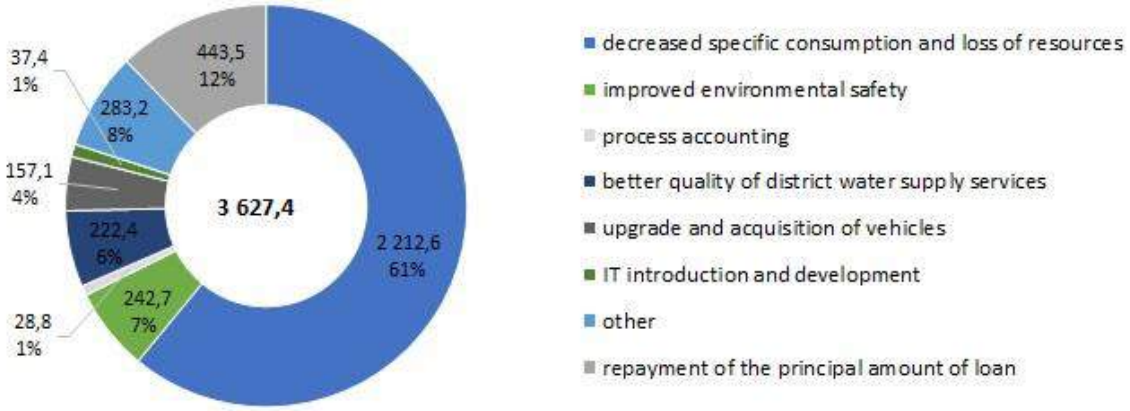

Fig. 5.3.7. Target funding of investment programs in 2020 by priority measures, UAH million, %

Among the production facilities of water supply and sewerage enterprises, restoration is mostly required for water supply and sewerage networks whose condition has significant impact on the quality of services and the state of the environment. However, the cost of network restoration is so high that it would be impossible to complete it by using funds from depreciation — the duration of restoration would exceed hundreds of years. For example, the total length of the NEURC licensees' water supply networks is 55.3 thousand km, of which 47% are dilapidated and in an advanced state of disrepair. The enterprises' funds that can be used for the purposes of restoration (annual amount of depreciation) are about UAH 473 million, while the cost of restoration is 475 times higher (Table 5.3.2).

Table 5.3.2. Condition of water supply and sewerage networks

Index Name	Unit	WATER SUPPLIES	Sewerage
Network length, total NEURC licensees	km	55,284	24,079
incl. dilapidated and in an advanced state of disrepair	km	25,981	11,180
Percentage of dilapidated networks and of those in an advanced state of disrepair	%	47	46
Estimated cost of restoration	UAH thousand	225,051,544	94,562,743
Annual depreciation (according to tariff structure)	UAH thousand	473,481	485,982

Estimated duration of complete restoration of networks by using funds from depreciation	years	475	195

In a situation like this, new mechanisms must be found to provide additional incentives for licensees to improve efficiency of production activities, introduce new technologies and ensure restoration of fixed assets. Furthermore, a conflict of interest exists between current and future customers: the former are interested in using low-cost services in the present, prefer not to worry about any future use of such services by the next generations who are unable to assert their rights today, and are interested in inheriting the infrastructure at an acceptable functional level. The NEURC should take care of the interests of both these customer categories.

The NEURC regards the introduction of a tariff development system on the incentive-based regulation principles in the centralized water supply and centralized sewerage sector as a way to remedy the existing situation.

6. LICENSING

Licensing means the activities by state-authorized agencies associated with granting, in the prescribed manner, of permits to economic entities for the pursuit of economic activities, under certain (licensing) terms stipulated by law, and to ensure observance by licensees of license terms, focused on protecting the rights and legitimate interests of citizens and organizations, natural environment, and on ensuring the security of the State.

In 2020, the NEURC, in accordance with the tasks assigned to it, continued to license economic activities in the electric power, heat supply, centralized water supply, and centralized sewerage sectors, and in the oil and gas industry.

Information about the number of issued and revoked licenses in the energy and utilities sectors in 2020 is summarized in Table 6.1.1.

Table 6.1.1. Information about the number of issued and revoked licenses in the energy and utilities sectors in 2020

Licensed activity	Issued, pcs	Revoked or invalid
Electricity industry	**404**	**22**
electricity supply to customers	224	10
electricity distribution	1	0
electricity transmission over main and interstate electricity grids	0	0
resale of electricity (trading activity)	28	3
performance of market operator functions	0	0
performance of guaranteed buyer functions	0	0
electricity generation	151	9
Heat supply sector	**0**	**2**
heat generation at combined heat and power plants, thermal power plants, nuclear power plants, and cogeneration units	0	2*
heat generation	0	0
heat transmission by main and local (distribution) heat networks	0	0
heat supply	0	0
Centralized water supply and sewerage sector	**1**	**1**
centralized water supply and sewerage	1	1
Oil and gas industry	**172**	**13**
natural gas supply	172	13
natural gas distribution	0	0
natural gas transmission	0	0
natural gas storage (injection, withdrawal)	0	0
transportation of oil, oil products by the main pipeline	0	0
Total	**577**	**38**

* One resolution on revocation was repealed under the NEURC Resolution No. 1429 dated 07/15/2020 № 1429

Licensing in the electric power sector

Under Article 8 of the Law of Ukraine on the Electricity Market (hereinafter referred to as the "Law"), the economic activity of electricity generation, transmission, distribution, electricity supply to customers, trading activities, the performance of market operator, and guaranteed buyer functions are allowed on the electricity market subject to obtaining the relevant license.

Information about the number of valid licenses by activity types in the electric power sector in 2019–2020 and their dynamics are summarized in Table 6.1.2.

Table 6.1.2. Information about the number of valid licenses in the electric power sector in 2019–2020 and their dynamics

Activity type covered by the license	Valid licenses as of 01/01/2020	Number of valid licenses as of January 1, 2021	Deviation, +/-	
	pcs	pcs	pcs	%
Electric power sector, incl.:	**1,561**	**1,943**	**382**	**24%**
electricity supply to customers	641	855*	214	33%
electricity distribution (electricity transmission over local electricity grids)	33	34	1	3%
electricity transmission over main and interstate electricity grids	1	1	0	0%
performance of market operator functions	1	1	0	0%
performance of guaranteed buyer functions	1	1	0	0%
resale of electricity (trading activity)	17	42	25	147%
electricity generation	867	1,009*	142	16%

* Incl. licenses suspended for a 6-month term: electricity generation — 1, electricity supply to customers — 2

It should be noted that a 24% growth, compared to the previous year, in the number of the electric power sector licensees was due to a growing number of electricity suppliers (33% growth), producers (16% growth), and traders (147% growth).

In 2020, the NEURC also took efforts to improve the License Terms in the electric power

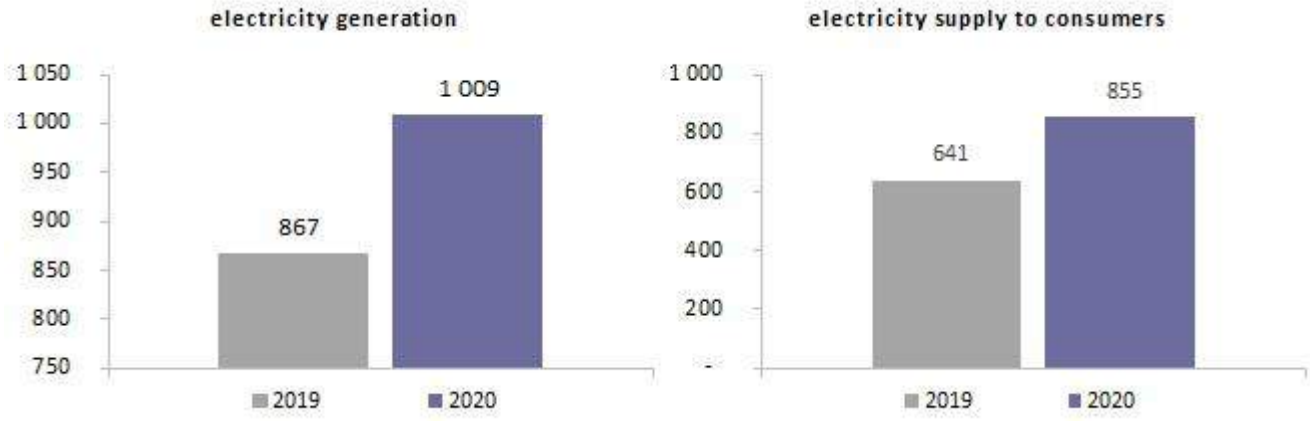

Fig. 6.1.1. Dynamics of the number of valid licenses for electricity generation and supply to customers in 2019–2020

sector, in particular, by making amendments to:

The License Terms for the pursuit of economic activity of electricity generation[99], which, among other things:

in the list of documents attached to the license application:

- stipulate that a copy must be provided of a document issued in accordance with the laws and regulations in the field of urban planning regulation and evidencing the operating readiness of the eligible (newly built) electricity facility, or of a document evidencing the ownership right to the eligible electricity facility, and that information must be provided to corroborate that no control is exercised over the economic entity's operation, as defined by Article 1 of the Law of Ukraine on Protection of Economic Competition, by residents of the states that carry out armed aggression against Ukraine, as defined by Article 1 of the Law of Ukraine on Defense of Ukraine;
- correct the license application form, information about locations and means of pursuing the economic activity of electricity generation, and establish application forms for suspending one's own license in whole or in part and for renewing the license;

[99] NEURC Resolution No. 1571 dated August 19, 2020.

The License Terms for the pursuit of economic activity of electricity generation[100], which, among other things:

- stipulate that the list of documents attached to the license application must be supplemented with information corroborating that no control is exercised over the economic entity's operation, as defined by Article 1 of the Law of Ukraine on Protection of Economic Competition, by residents of the states that carry out armed aggression against Ukraine, as defined by Article 1 of the Law of Ukraine on Defense of Ukraine;
- impose on electricity distribution licensees the requirement for the need to conclude with key customers an agreement for joint use of process electricity grids according to the Distribution Network Code and the retail electricity market rules (under the standard NEURC-approved form).

Licensing in the markets of natural gas, oil, and oil products

Continued positive growth dynamics in the number of natural gas supply licensees was observed in 2020 compared to the previous year (25% growth) in connection with the ongoing reform of the natural gas market under the Law of Ukraine on Natural Gas Market (hereinafter referred to as, the "Natural Gas Market Law"), which, in particular, implies the principle of free competition.

Information about the number of valid licenses in the oil and gas industry in 2019–2020 and their dynamics are summarized in Table 6.1.3.

Table 6.1.3. Information about the number of valid licenses in the oil and gas industry in 2019–2020 and their dynamics

Activity type covered by the license	Valid licenses as of 01/01/2020	Number of valid licenses as of January 1, 2021	Deviation, +/-	
	pcs	pcs	pcs	%
Oil and gas industry, incl.:	**678**	**837**	**159**	**23%**
natural gas supply	626	785	159	25%
natural gas distribution	46	46*	0	0%
natural gas transmission	2	2	0	0%
transportation of oil, oil products by the main pipeline	2	2	0	0%
natural gas storage (injection, withdrawal)	2	2	0	0%

* 1 natural gas distribution license suspended for 6 months

Besides, the adoption of the Law on Natural Gas Market and the Law of Ukraine on National Energy and Utilities Regulatory Commission (hereinafter referred to as, the "NEURC Law ") ensures that Ukraine has met its commitments in respect of primary legislation under the EU Third Energy Package.

According to the provisions of the NEURC Law and the Natural Gas Market Law, the Regulator has been vested with powers to license natural gas transmission activity and to certify the gas transmission system operator in the manner prescribed by it.

The Natural Gas Market Law defines two unbundling models out of the three possible ones envisaged by Directive 2009/73/EC: Article 23 of the Law sets out general requirements for unbundling and independence of the gas transmission system operator (the OU (Ownership Unbundling) model), while Articles 27–29 of the Law respectively define special requirements for unbundling and independence of the gas transmission system operator (the ISO (Independent System Operator) unbundling model).

Thus, under the OU unbundling model, the owner of the gas transmission system is prohibited from owning assets in companies that produce or supply natural gas. This model is the most acceptable for the EU, as it implies the demonopolization of vertically integrated companies. Under the ISO unbundling model, a vertically integrated company may still own the gas

[100] NEURC Resolution No. 2155 dated November 25, 2020.

transmission system, although an independent system operator performs the function of managing it.

The Resolution of the Cabinet of Ministers of Ukraine "On unbundling the activity of natural gas transmission and supporting the activity of the gas transmission system operator" No. 840 dated September 18, 2019, selected the ISO model of unbundling the activity of natural gas transmission and determined that Gas Transmission System Operator of Ukraine LLC would be the economic entity that is eligible to request certification.

Under Article 24 of the Natural Gas Market Law, and on the basis of the Energy Community Secretariat's positive Opinion No. 4/19 dated December 17, 2019, of the NEURC's tentative decision to certify Gas Transmission System Operator of Ukraine LLC, as approved by the NEURC Resolution No. 2482 dated November 22, 2019, the NEURC, by its Resolution No. 3010 dated December 24, 2019, adopted the final decision, effective as of January 01, 2020, to certify the gas transmission system operator, i.e. Gas Transmission System Operator of Ukraine LLC, under the ISO model.

Under the NEURC Resolution No. 3011 dated December 24, 2019, a decision was simultaneously adopted to issue Gas Transmission System Operator of Ukraine LLC a license to pursue the activity of the natural gas transmission system from January 01, 2020.

Licensing in the heat supply, centralized water supply, and centralized sewerage sectors

In 2020, continuous efforts were made to further decentralize licensing in the heat supply sector by transferring the NEURC licensees under the local authorities' regulation according to the stages determined by the NEURC Resolutions "On approving the License Terms for the pursuit of economic activity of centralized water supply and sewerage" No. 307 and "On approving the License Terms for the pursuit of economic activity in the heat supply sector" No. 308 dated March 22, 2017, and effective as of May 19, 2017, which stipulate a three-stage transfer to the local level of NEURC licensee regulation powers:

1) licensees in the heat supply sector with annual generation of up to 170 thousand Gcal, in the heat transmission and supply — up to 145 thousand Gcal;

centralized water supply and centralized sewerage licensees whose centralized water supply and/or centralized sewerage systems are located in one or more inhabited localities within one or more oblasts whose total population is less than one hundred thousand people, with an annual water supply of up to 300,000 cubic meters and sewerage of up to 200,000 cubic meters per year;

2) licensees in the heat supply sector, whose customers are equipped with heat metering devices at a level below 70% as of August 01, 2017;

3) licensees in the heat supply sector, whose customers are equipped with heat metering devices at a level below 90% as of January 01, 2018.

Results of decentralization of the NEURC's powers in the heat supply, centralized water supply, and centralized sewerage sectors are shown in Fig. 6.1.2.

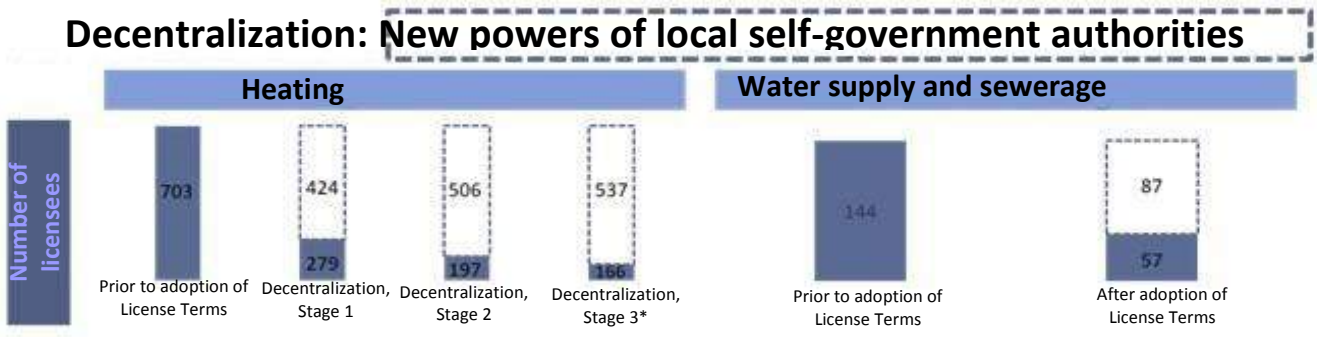

Fig. 6.1.2. Results of decentralization of the NEURC's powers in the heat supply, centralized water supply, and centralized sewerage sectors

Following the three stages, almost 83% of the NEURC licensees in the heat supply sector and 61% of centralized water supply and sewerage licensees transferred under the control of local

government authorities and local self-government authorities, compared to the number of licensees subjected to the NEURC regulation prior to decentralization.

Information about the number of valid licenses in the heat supply, centralized water supply, and centralized sewerage sectors in 2019–2020 and their dynamics are summarized in Table 6.1.4.

Table 6.1.4. Information about the number of valid licenses in the heat supply, centralized water supply, and centralized sewerage sectors in 2019–2020 and their dynamics

Activity type covered by the license	Valid licenses as of 01/01/2020	Number of valid licenses as of January 1, 2021	Deviation, +/-	
	pcs	pcs	pcs	%
Heat supply sector, incl.:	**171**	**170**	**1**	**1%**
heat generation at combined heat and power plants, thermal power plants, nuclear power plants, and cogeneration units	78	76	-2*	2%
heat generation (other than heat generation at combined heat and power plants, thermal power plants, nuclear power plants, and cogeneration units)	25	24	-1**	-4%
heat transmission by main and local (distribution) heat networks	33	34	1	3%
heat supply	35	36	1	2%
Centralized water supply and centralized sewerage sector	**56**	**55**	**-1**	**-1%**
centralized water supply and district sewerage	56	55	-1***	-1%

* licenses revoked;

** in connection with the loss by the NEURC of its powers, 1 licensee was transferred under the regulation of the respective oblast state administration in accordance with the provisions of the License Terms;

*** 1 license revoked, 1 licensee transferred under the regulation of the respective oblast state administration

It should also be noted that, in 2020, the NEURC took efforts to improve the License Terms in the utilities sector, in particular, by making amendments to the License Terms for the pursuit of economic activity of centralized water supply and district sewerage, stipulating[101], in particular, that the list of documents attached to the license application must be supplemented with:

- information corroborating that no control is exercised over the economic entity's operation, as defined by Article 1 of the Law of Ukraine on Protection of Economic Competition, by residents of the states that carry out armed aggression against Ukraine, as defined by Article 1 of the Law of Ukraine on Defense of Ukraine;
- information about the accessibility of places of economic activity to low mobility groups.

Furthermore, the amendments provide for the establishment of application forms for suspending one's own license in whole or in part, for renewing the license, shrinking and expanding the economic activity type.

We also note that the NEURC offers the opportunity to file a license application and documents, as well as notices of changes to the data contained in the documents attached to the license application, electronically by logging in at the Unified State Portal of Administrative Services (https://my.gov.ua/) with the EDS (electronic digital signature).

Using the Unified State Portal of Administrative Services would save time and efforts of economic entities, maintain transparency and openness of relations with the NEURC.

[101] NEURC Resolution No. 1482 dated July 24, 2020.

7. MONITORING THE OBSERVANCE OF LICENSE TERMS AND RULES OF ECONOMIC ACTIVITY

7.1. Functions and powers of the NEURC

The NEURC performs state regulation, monitoring, and control over the activities of economic entities in the fields of electricity, heat supply, centralized water supply, and sewerage, in the natural gas, oil, and oil product markets.

Control is performed by conducting scheduled, unscheduled on-site, and unscheduled desk inspections.

In 2020, scheduled inspections were conducted in accordance with the 2020 Plan for implementing measures of state control of economic entities that pursue activities in the energy and utilities sectors, as approved by the NEURC Resolution No. 2503 dated November 26, 2019.

At the same time, no scheduled inspections were conducted in 2020 after March 17 in compliance with the Law of Ukraine On Amending Certain Legislative Acts of Ukraine Aimed at Preventing the Occurrence and Spread of Coronavirus (COVID-19) Disease.

It should be noted that, in connection with the Law of Ukraine "On Amending Certain Laws of Ukraine to Uphold Constitutional Principles in the Energy and Utilities Sectors" becoming effective, the Law of Ukraine "On Basic Principles of State Supervision (Control) in the Field of Economic Activity", as of December 29, 2019, and the Law of Ukraine "On Licensing of Economic Activities" as of February 29, 2020, does not apply to relations arising in the course of implementing the measures of state supervision (control) over compliance with laws and regulations in the energy and utilities sectors by economic entities that pursue activities in the energy and utilities sectors. These legislative amendments allowed the NEURC to implement measures of state control in the absence of conflict of laws, i.e. in accordance with the provisions of the Law of Ukraine "On National Energy and Utilities Regulatory Commission".

In 2020, unscheduled inspections were thus conducted, in particular, on the grounds set out in Article 19 of the Law of Ukraine "On National Energy and Utilities Regulatory Commission".

The controlling function over the licensees' licensed activities is performed by the NEURC's territorial bodies in each oblast with the involvement of the central office staff, except for the Autonomous Republic of Crimea, Donetsk, and Luhansk Oblasts.

Functional duties of the NEURC's territorial body in the Donetsk Oblast are vested in the Dnipropetrovsk Oblast NEURC Department, those in the Luhansk Oblast — in the Kharkiv Oblast NEURC Department. In view of the temporary occupation of the Autonomous Republic of Crimea and the city of Sevastopol, no control over the licensees' licensed activities in this territory is being performed.

In 2020, inspections were conducted under the Laws of Ukraine "On National Energy and Utilities Regulatory Commission", "On Electricity Market", "On Natural Gas Market", "On Heat Supply", "On Natural Monopolies", "On Potable Water, Potable Water Supply and Sewerage", other laws and statutory instruments that govern activities in the energy and utilities sectors.

Findings of the inspections are formalized by relevant reports that, under Article 19 of the Law of Ukraine "On National Energy and Utilities Regulatory Commission", are promulgated on the NEURC's official website and, in the event of any violations, are reviewed at the NEURC meetings held as public or in-camera hearings.

7.2. Key events

In the reporting year, the key events for the NEURC in terms of state control and implementation of enforcement measures include:

- entry into force of the Law of Ukraine "On Amending Certain Laws of Ukraine to Uphold Constitutional Principles in the Energy and Utilities Sectors". The Law of Ukraine "On Basic Principles of State Supervision (Control) in the Field of Economic Activity", as of 12/29/2019, and the Law of Ukraine "On Licensing of Economic Activities" as of 02/29/2020, thus does not apply to relations arising in the course of implementing the measures of state supervision (control) over compliance with laws and regulations in the energy and utilities sectors by economic entities that pursue activities in the energy and utilities sectors, thereby allowing the NEURC to implement measures of state monitoring in the absence of conflict of laws, i.e. in accordance with the provisions of the Law of Ukraine "On National Energy and Utilities Regulatory Commission";
- conduct of scheduled, unscheduled on-site, and unscheduled desk inspections. No scheduled inspections were conducted after March 17 in compliance with the Law of Ukraine "On Amending Certain Laws of Ukraine Aimed at Preventing the COVID-19 Spread". A total of 695 inspections were conducted;
- 74 unscheduled on-site inspections in the electric power sector were conducted to identify potential abuse in the electricity market;
- 199 unscheduled desk inspections were conducted in the instances of failure by licensees that pursue activity in the electric power sector to file their reports with the NEURC;
- amending the Procedure for monitoring compliance with laws and regulations in relevant sectors and with license terms by licensees that pursue activity in the energy and utilities sectors, as approved by the NEURC Resolution No. 428[102] dated 06/14/2018, in order, in particular, to bring it in line with the Law of Ukraine "On National Energy and Utilities Regulatory Commission";
- work on the draft Law of Ukraine "On Amending Certain Laws of Ukraine to Prevent Abuse in Wholesale Energy Markets" developed by the NEURC;
- monitoring the functioning of the retail and wholesale electricity markets and posting findings thereof on the NEURC's official website in the Electric Power/Electricity Market Monitoring section;
- approval of the Procedure for investigating violations of laws and regulations on the functioning of electricity and natural gas markets[103];
- amendments were developed and made to the Procedure for monitoring by the NEURC of markets in the energy and utilities sectors, as approved by the NEURC Resolution No. 1120 dated 09/14/2017[104];
- work on a draft decision to amend the NEURC Resolution "On Approving the Monitoring Reporting Forms for Electricity Market Participants and the Instruction for Completion thereof" No. 450 dated March 29, 2019[105];
- work on the draft decision that has the features of a regulatory act, i.e. on the NEURC Resolution "On Filing of Financial Statements by Economic Entities in the Energy and Utilities Sectors to the National Energy and Utilities Regulatory Commission" that was approved at the meeting held on November 11, 2020[106];
- approving the 2021 Plan for implementing measures of state control of economic entities that pursue activities in the energy and utilities sector[107].

[102] NEURC Resolution No. 601 dated 03/11/2020.
[103] NEURC Order No. 1760 of September 23, 2020.
[104] NEURC Resolution No. 2135 dated 11/18/2020.
[105] Respective amendments made under the NEURC Resolution No. 173 dated 02/03/2021.
[106] This resolution was adopted at a NEURC meeting on 02/17/2021 at No. 254.
[107] NEURC Resolution No. 2134 dated 11/18/2020.

7.3. **Report of execution of the annual plan for state control of economic entities that pursue activities in the energy and utilities sector markets**

Under the 2020 Plan for implementing measures of state control of economic entities that pursue activities in the energy and utilities sectors, as approved by the NEURC Resolution No. 2503 dated 11/26/2019 (as amended), and on the grounds set out by Article 19 of the Law of Ukraine on the National Energy and Utilities Regulatory Commission, the NEURC conducted 695 inspections into compliance by licensees with laws and regulations and license terms (36 scheduled, 420 unscheduled on-site, and 239 unscheduled desk inspections), namely:

- in the electric power industry — 22 scheduled, 255 unscheduled on-site, and 183 unscheduled desk inspections;
- in the markets of natural gas, oil, and oil products — 7 scheduled, 80 unscheduled on-site, and 43 unscheduled desk inspections;
- in the heat supply sector — 4 scheduled, 68 unscheduled on-site, and 6 unscheduled desk inspections;
- in the centralized water supply and sewerage sector — 3 scheduled, 17 unscheduled on-site, and 7 unscheduled desk inspections (Fig. 7.3.1).

This marked the largest annual number of inspections since the NEURC started its operations.

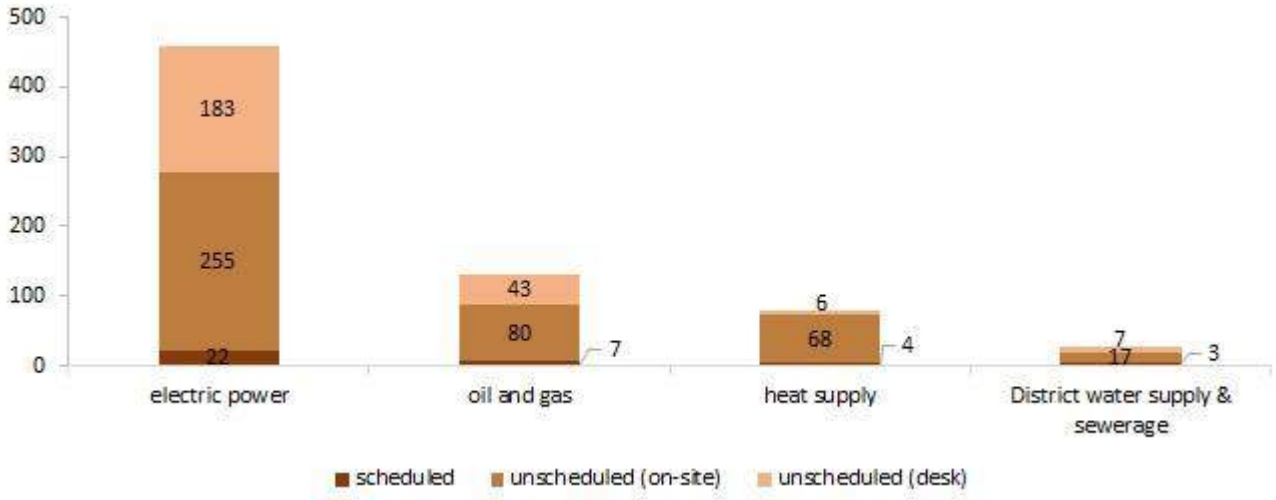

Fig. 7.3.1. Inspections in 2020 by sectors

Compared to previous periods, the distribution of inspections by sectors looks as follows (Fig. 7.3.2):

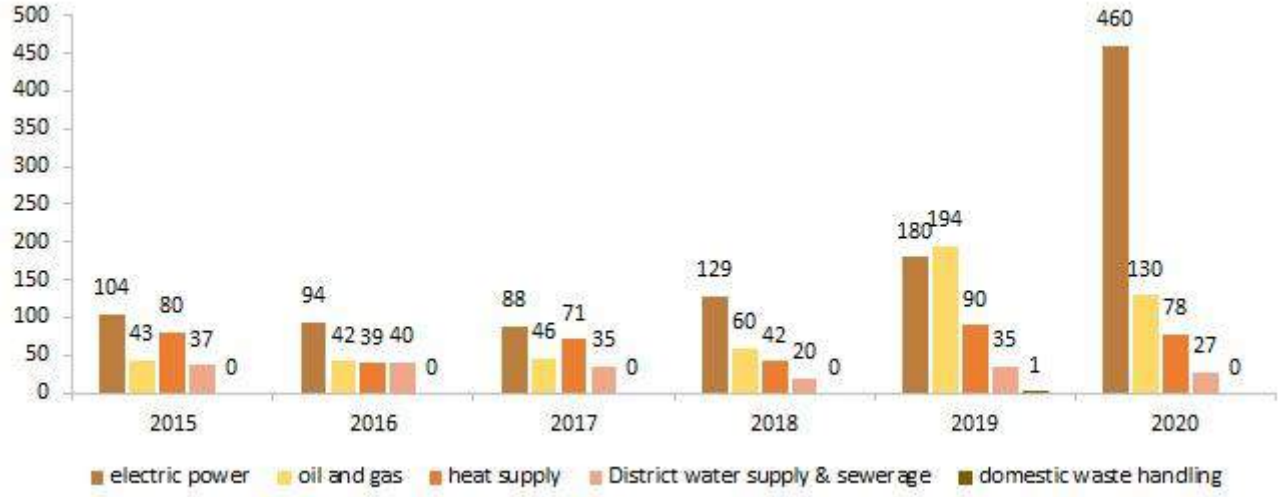

Fig. 7.3.2. NEURC inspections conducted between 2015 and 2020

Following the 695 measures of state control of 447 economic entities, 695 inspection reports were compiled. These reports were considered at the NEURC meetings, resulting in 567 decisions adopted by the Regulator (Table 7.3.1).

Table 7.3.1. Information about inspection findings

Sector	Reports of			Violation	NEURC decisions		
	inspection of compliance with license terms, laws, and regulations	denial of inspection	established instances of control of the licensee's activities by persons from the states that carry out armed aggression against Ukraine	violations identified	resolutions on license revocation or suspension	cautioning resolutions and/or warnings of the need to eliminate violations	resolutions on imposition of fines and/or on the application of measures of state regulation
Electric power industry	445	12	1	1,507	4	94	277
Oil and gas industry	128	3		237	3	57	64
Heating	75	4		132	1	10	30
Centralized water supply and sewerage	26	1		131		9	18
Total	**674**	**20**	**1**	**2,007**	**8**	**170**	**389**

Among those identified in 2020, typical violations include:

- failure to file, or to comply with the timeframe for filing of, reports; inaccurate reporting data, etc. (46%);
- failure to file with the NEURC documents, information, and reports, which may be necessary for the exercise of powers by the NEURC, to the extent and within the timeframe established by the NEURC (5%);
- those associated with grid/network connections (5%);
- non-compliance with guaranteed quality standards (4%);
- failure to purchase and sale electricity under bilateral agreements and in organized segments of the electricity market (3%);
- those associated with communicating to customers the information that must be reliable, accurate, and complete. In particular, via the website, at contact points, in printed media, and by other accessible and transparent means (3%);
- delays in balancing the balancing portfolio (3%);

- failure to perform under-investment programs, fixed asset development, and repair plans (3%);
- violations related to metering devices (verification, availability, checking of commercial metering devices, etc.) (3%);
- failure to notify of data changes (2%);
- failure to comply with NEURC decisions (2%);
- failure to comply with contractual terms and conditions (2%);
- those associated with payment of regulatory fees (2%);
- failure to maintain the established tariffs, prices (2%);
- those associated with the determination of the amount of consumed electricity/heat (1%);
- denial of inspection (1%);
- those associated with the licensee's obligation to follow the transmission system operator's commands and instructions (1%);
- other violations (10%).

The amount of penalties imposed on licensees by the NEURC in 2020 was set by Article 77 of the Law of Ukraine on the Electricity Market at up to one hundred thousand tax-free minimum individual incomes, Article 17 of the Law of Ukraine on Natural Monopolies — at up to five thousand tax-free minimum individual incomes, Article 31 of the Law of Ukraine on Heat Supply — at up to two thousand tax-free minimum individual incomes, Article 59 of the Law of Ukraine on the Natural Gas Market — at up to fifty thousand tax-free minimum individual incomes.

Following the consideration of violations of license terms, which were identified during inspections, sanctions in the form of fines totaling over UAH56 million were applied to the violating licensees (Table 7.3.2), namely:

- UAH 48,085,135.89 in the electricity industry;
- in the markets of natural gas, oil, and oil products — UAH7,157,000;
- UAH 421,591.51 in the area of heat supply services;
- UAH 765,000 in the area of centralized water supply and sanitation.

Table 7.3.2. General indicators of inspections performed in 2017–2020 by the National Energy and Utilities Regulatory Commission

Year	Sector	Scheduled inspections	Unscheduled inspections	Total inspections	Penalties imposed	Amount of financial sanctions, UAH
2017	Electric power industry	80	8	88	33	22,999,000
	Oil and gas industry	41	5	46	39	8,732,000
	Heating	60	11	71	24	1,106,000
	Centralized water supply and sewerage	21	14	35	29	1,772,000
	Total	**202**	**38**	**240**	**125**	**34,609,000**
2018	Electric power industry	64	65	129	43	8,735,000
	Oil and gas industry	47	13	60	23	3,950,000
	Heating	31	11	42	23	975,000
	Centralized water supply and sewerage	11	9	20	19	1,402,500
	Total	**153**	**98**	**251**	**108**	**15,062,500**
2019	Electric power industry	134	47	181	100	38,760,000

	Oil and gas industry	109	84	193	134	85,476,000
	Heating	73	17	90	39	2,405,500
	Centralized water supply and sewerage	25	10	35	33	2,618,000
	Domestic waste handling	1	0	1	1	85,000
	Total	**342**	**158**	**500**	**307**	**129,344,500**
2020	Electric power industry	22	438	460	280	48,085,135.89
	Oil and gas industry	7	123	130	64	7,157,000
	Heating	4	74	78	38	421,591.51
	Centralized water supply and sewerage	3	24	27	18	765,000
	Total	**36**	**659**	**695**	**400**	**56,428,727.4**

Following the scheduled and unscheduled measures of state control taken in 2020, a decision was made on the need for a downward adjustment of the licensees' tariff proceeds in the energy and utilities sectors by a total of over UAH561 million.

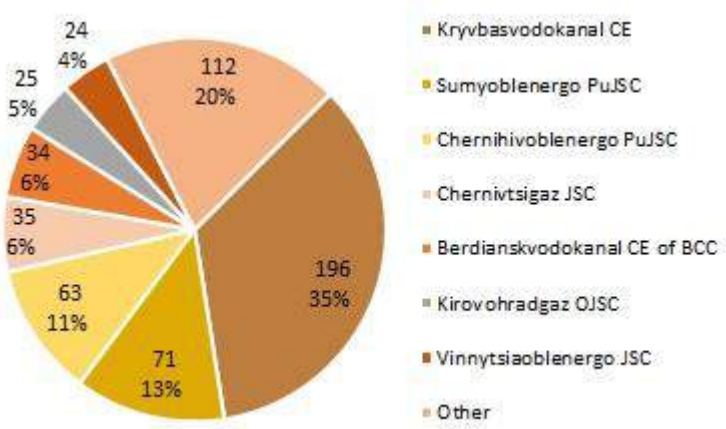

Fig. 7.3.3. Downward adjustment of tariff proceeds following the 2020 monitoring, UAH million, %

Compared to the total amount, the largest adjustments of tariff proceeds were those applied to seven economic entities (Fig. 7.3.3).

Following the scheduled and unscheduled measures of state control, analysis of the licensees' investment programs, their funding, and execution in 2020, a decision was made concerning the need to complete performance under-investment programs, validate the fulfillment thereof and of other commitments relating to performance under-investment programs by over UAH428 million.

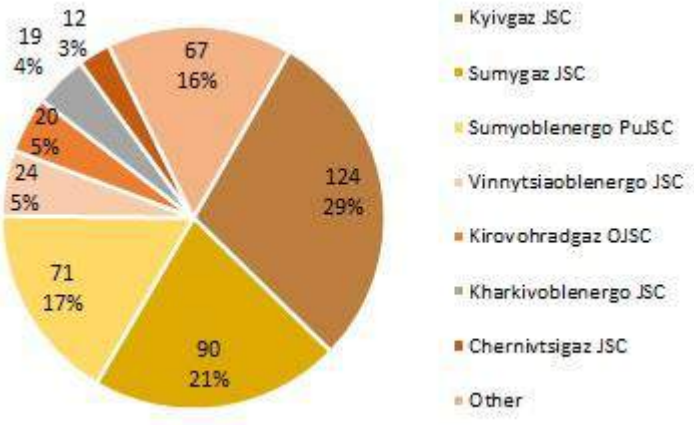

Fig. 7.3.4. Licensees' commitments under investment programs, UAH million, %

Compared to the total amount, the largest commitments relating to performance under-investment programs by the licensees in the energy and utilities sectors in 2020 were those of seven economic entities (Fig. 7.3.4).

In 2021, according to the 2021 Plan of measures for state control of licensees of the National Energy and Utilities Regulatory Commission, as approved by Resolution No. 2134 dated November 18, 2021, 240 economic entities are to be inspected.

8. CUSTOMER PROTECTION

8.1. General Information

An important area of activity among the main tasks of the NEURC as defined in the Laws of Ukraine “On the National Energy and Utilities Regulatory Commission”, “On Electricity Market”, “On Natural Gas Market”, “On National Commission for State Regulation in the Utilities”, and “On Natural Monopolies” is to protect the rights and legitimate interests of customers of goods (services) produced (provided) by economic entities engaged in energy and utilities by considering customer appeals and resolving disputes, establishing minimum standards and requirements for quality of customer service and supply of natural gas, electricity, and heat, monitoring of their compliance; providing customers with access to information on electricity, natural gas, heat supply, centralized water supply and sewerage prices/tariffs.

When considering customer appeals in 2020, the NEURC complied with requirements of the Laws of Ukraine “On Citizens' Appeals”, “On Customer Protection”, “On Information”, “On Access to Public Information”, the Rules for Consideration of Customer Appeals on Actions of Economic Entities Operating in Energy and Utilities and Settlement of Disputes,[108] etc.

Within the reporting year, the NEURC considered appeals and complaints and resolved disputes, provided clarifications on the NEURC statutory instruments within its competence, as well as helped to improve the consideration of customers' complaints and appeals by NEURC licensees. The Regulator's consideration of appeals and dispute resolution is based on the principles of legality, competence, fairness, non-discrimination, openness and transparency, impartiality and objectivity, responsibility for the decisions made.

An appeal (complaint) can be filed by an individual applicant (individual) or a group of applicants (collective), sent by mail or delivered by applicant to the NEURC personally or through a person authorized by them, whose powers are formalized in accordance with the legislation of Ukraine. Written applications can also be sent using the Internet, electronic means of communication (electronic application).

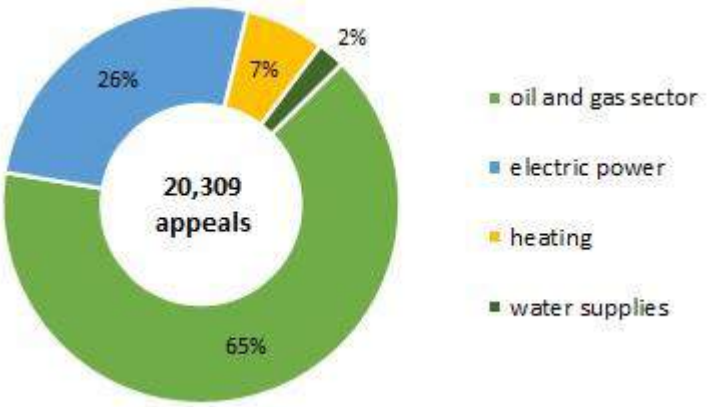

Fig. 8.1.1. Appeals and complaints of customers considered by the NEURC

In 2020, the NEURC considered a total of 20,309 customer complaints and appeals; 13,218, or 65.1%, of them were related to oil and gas sector, 5,317, or 26.2%, to electricity sector, 1,322, or 6.5%, to heat supply sector, 452, or 2.2%, to water supply sector (Fig. 8.1.1).

The NEURC has a reference phone number (044) 204-70-72 that helps improve information support and facilitate the receipt of relevant information by customers. The distribution of number of calls by sectors in 2020 is shown in Fig. 8.1.2.

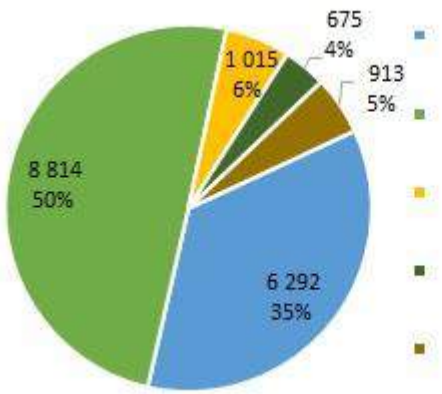

Fig. 8.1.2. The distribution of number of calls by sectors in 2020

The service is structured by:

- areas of regulation (electricity, natural gas, heat, centralized water supply and sewerage);
- categories of customers (individual, legal entity);

electricity

- categories of issues (from concluding a contract and connection to the structure of tariffs and energy efficiency measures etc.)

This service allows customers to automatically get answers to more than 50 topical questions, the regulation of which falls within the competence of the NEURC, and, if necessary, to consult a specialist of the relevant NEURC structural unit.

A special section "INFORMATION FOR CUSTOMERS" was created on the NEURC website, it provides free access to information for all categories of electricity, natural gas and utilities customers[109] about:

- prices/tariffs, their components for all categories of customers, changes in prices/tariffs;
- comparison of prices/tariffs for goods and services in different regions of Ukraine, as well as in Ukraine and other countries;
- dynamics of historical value of price/tariff components over five years;
- qualitative characteristics of goods and services;
- procedure for providing and accruing subsidies to reimburse the costs of housing and communal services, as well as benefits to certain categories of citizens;
- energy saving measures etc.

In addition, the contacts of the Customer Service Centers of electricity distribution companies and electricity suppliers, gas distribution companies and natural gas suppliers are posted on the NEURC website in a convenient Google Map format. This online service is in increasing demand among customers as evidenced by a significant increase in the number of views by users — 36.7 thousand times compared to 5.3 thousand times in the previous year.

To raise awareness and ensure quick access of customers to information, the Regulator has obliged its licensees[110] to inform customers on actual consumption, comparison of consumption with other customers, tariff structure and additional information concerning customers of electricity, natural gas, and utilities by May 1 of each year. Companies must send the relevant information to customers by mail or by distributing it through the company's employees, as well as publish it in the customer's personal account (if any).

Electricity industry

In 2020, 5,317 electricity customers or persons, who expressed their intention to become customers, applied to the NEURC, which is 140 applications (or 3%) less than in 2019.

The most frequent requests were related to connection to electrical network (1,627 or 30.6%), quality of electricity supply (614 or 11.5%), and violation reports (499 or 9.4%).

Information on the number of customer complaints and appeals received by the NEURC in 2019 and 2020 by issues is shown in Fig. 8.1.3.

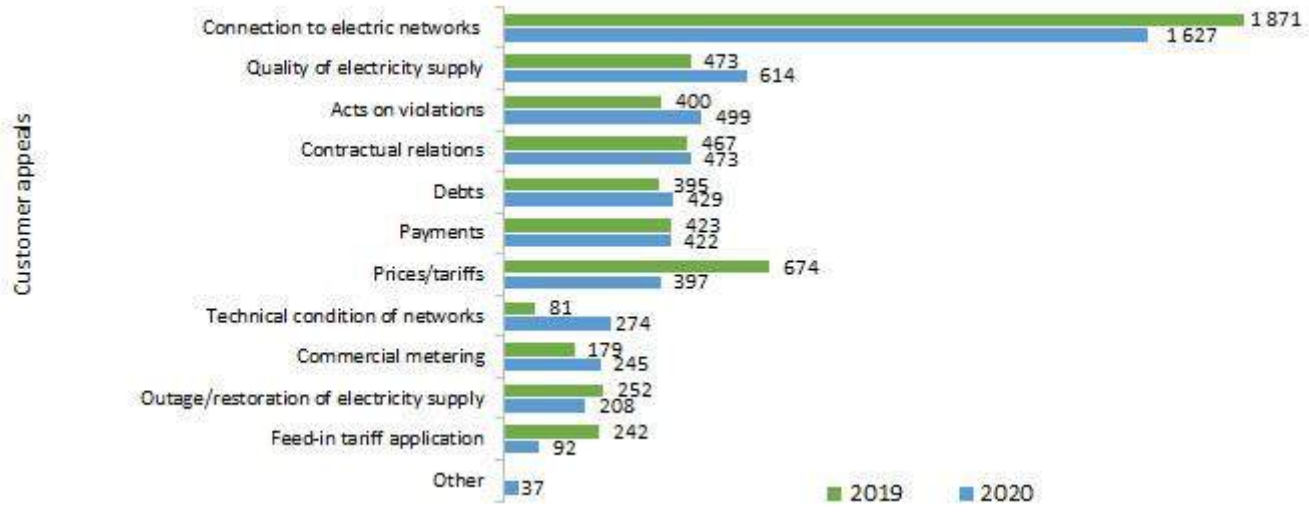

Fig. 8.1.3. Number of customer appeals on electricity issues that applied to the NEURC in 2019–2020

Among all complaints received in 2020, 3,629 were regarding the actions of distribution system operators and 758 — electricity suppliers; 701 of them, or 92.5%, were related to the USS actions and 32, or 4.7%, to the LRS actions (SOFTE Ukrinterenergo).

Among the complaints/appeals received by the NEURC regarding the actions of distribution system operators, most complaints/appeals were received against the actions of JSC DTEK Kyiv Regional Electric Networks (868, or 23.9%), JSC DTEK Dnipro Electric Networks (379, or 9.4%), JSC DTEK Donetsk Electric Networks (266, or 7.3%), PJSC DTEK Kyiv Regional Electric Networks (257, or 7.1%), and PuJSC Zaporizhiaoblenergo (204, or 5.6%) (Fig. 8.1.4).

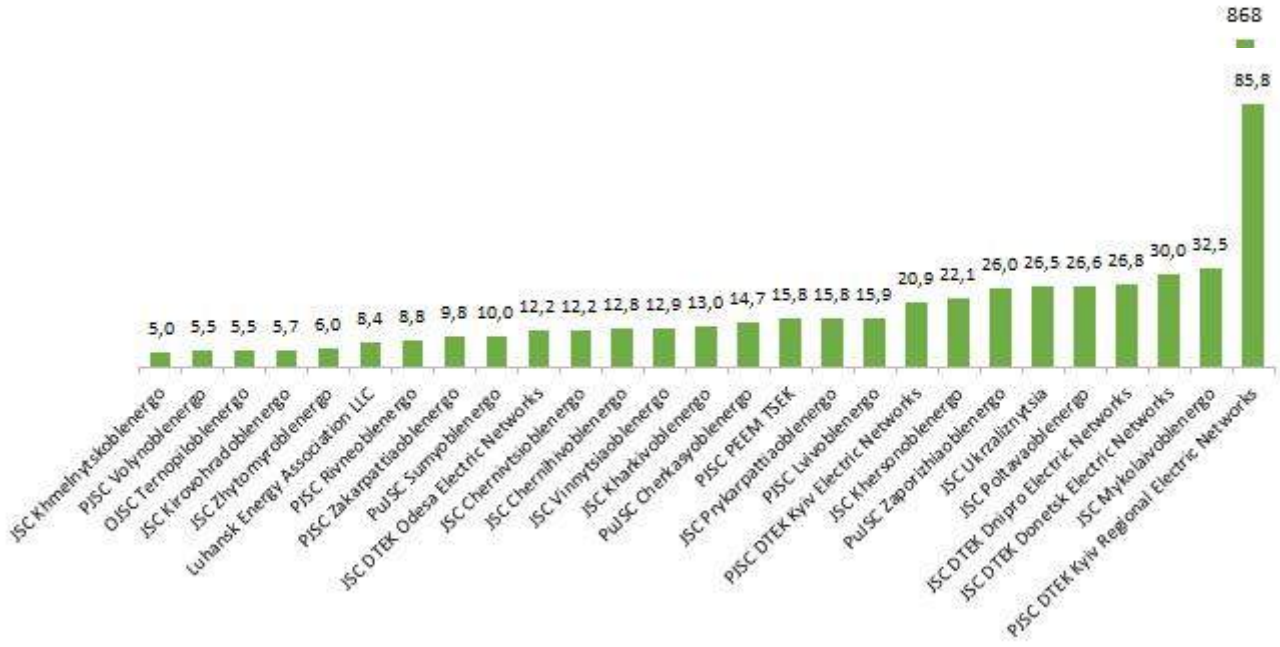

Fig. 8.1.5. Number of customer appeals on electricity issues that applied to the NEURC regarding the actions of distribution system operators in 2020 (per 100,000 customers)

At the same time, the largest number of complaints/appeals per 100 thousand customers was received against the actions of the following distribution system operators (with more than 100 thousand customers): JSC DTEK Kyiv Regional Electric Networks (85.8 complaints/appeals per 100,000 customers), JSC Mykolaivoblenergo (32.5), JSC DTEK Donetsk Electric Networks (30.0), JSC DTEK Dnipro Electric Networks (26.8), JSC Poltavaoblenergo (26.6) (Fig. 8.1.5).

Among the complaints/appeals received by the NEURC regarding the actions of universal service providers, most complaints/appeals were received against the actions of Kyiv Regional Energy Supply Company LLC (136, or 19.4%), Kyiv Energy Services LLC (75, or 10.7%), Dnipro Energy Services LLC (71, or 10.1%), Enera Vinnytsia LLC (49, or 7.0%), Poltavaenergozbut LLC (43, or 6.1%).

Oil and gas sector

In 2020, 13,218 natural gas customers applied to the NEURC on issues related to functioning of the natural gas market, 11,373, or 86%, of them were household customers.

The total number of appeals received by the NEURC in 2020 from non-household customers of natural gas amounted to 1,845, with the most frequent appeals being on the amount and methodology for determining tariffs for natural gas distribution services (446, or 24.2%), the procedure for determining the annual ordered capacity of gas distribution systems, and the mechanism of its adjustment (270 or 14.6%).

Information on the number of appeals from non-household customers received by the NEURC in 2020 by issues is shown in Fig. 8.1.6.

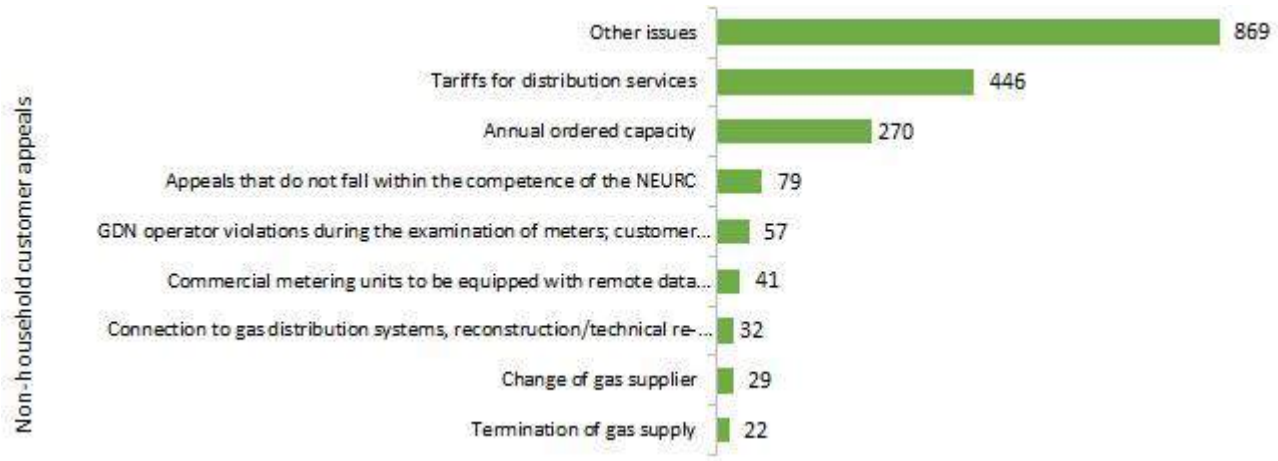

Fig. 8.1.6. Number of appeals from non-household customers on the oil and gas sector issues, which appealed to the NEURC in 2020

In 2020, 11,373 household natural gas customers applied to the NEURC, which is 1,311 applications, or 10.3%, less than in 2019. The most frequent appeals were related to provision of services for natural gas supply and distribution (4,164, or 36.6%), bringing natural gas volumes to standard conditions for commercial payments for natural gas used by household customers (2,678, or 23.5%), amount and methodology for determining tariffs for natural gas distribution services (1,234, or 10.9%).

Information on the number of complaints and appeals from household customers received by the NEURC in 2020 by issues is shown in Fig. 8.1.7.

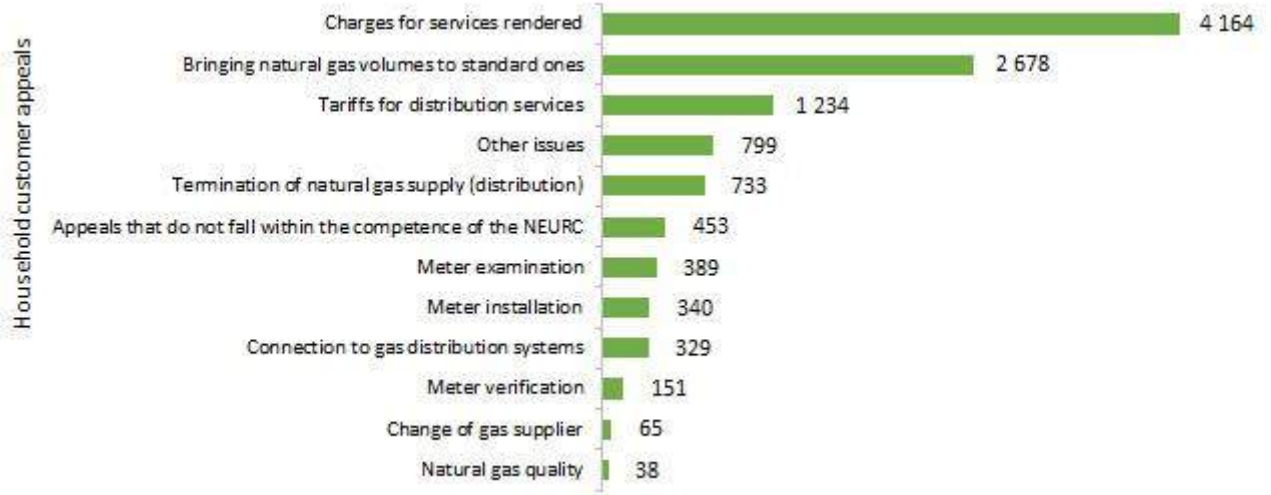

Fig. 8.1.7. Number of appeals from non-household customers on the oil and gas sector issues, which appealed to the NEURC in 2020

Among the complaints/appeals received in 2020, 11,797 complaints of household and non-household customers were about the actions of gas distribution network operators and 785 were against natural gas suppliers.

Among the complaints/appeals received by the NEURC regarding the actions of gas distribution network operators, most complaints/appeals concerned the actions of JSC Kyivoblgaz (1,343, or 11.4%), JSC Dnipropetrovskgaz (1,019, or 8.6%), JSC Kharkivgas (839, or 7.1%), JSC Zaporizhgaz (615, or 5.2%), JSC Lvivgaz (600, or 5.1%) (Fig. 8.1.8).

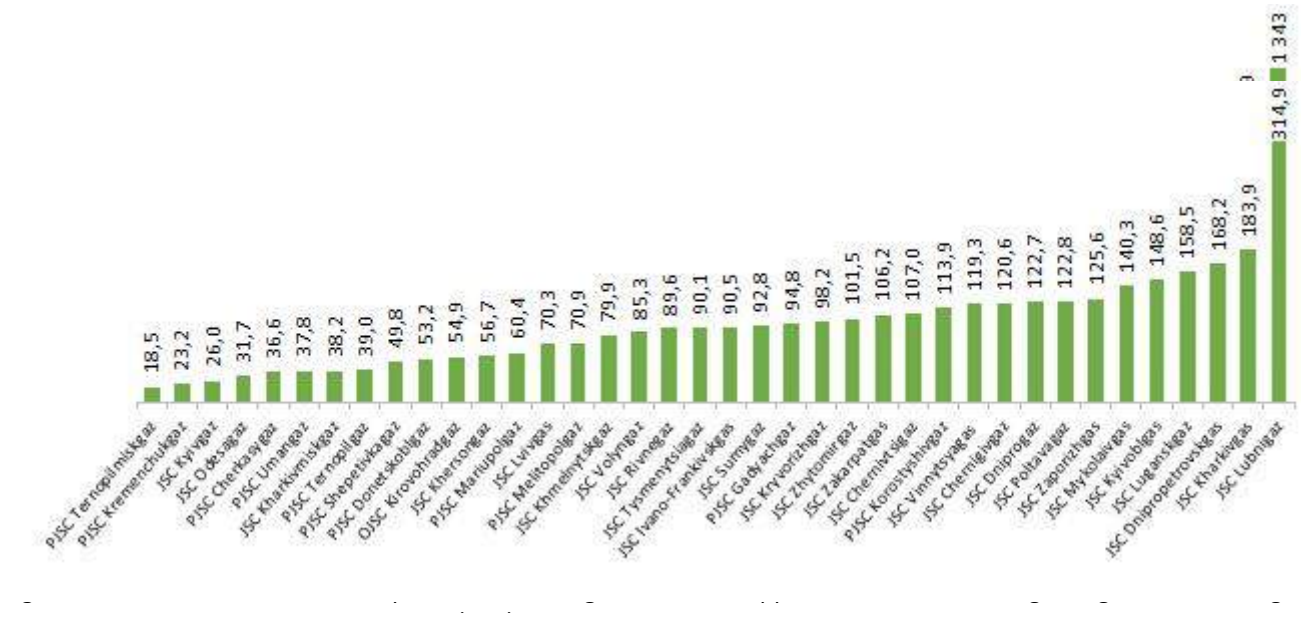

Fig. 8.1.9. Number of customer complaints on oil and gas issues that appealed to the NEURC regarding the actions of gas distribution system operators in 2020 (per 100,000 customers)

At the same time, the largest number of complaints/appeals per 100 thousand customers received by the NEURC was regarding the actions of the following gas distribution network operators: JSC Lubnygaz (314.9 complaints/appeals per 100 000 customers), JSC Kharkivgas (183.9), JSC Dnipropetrovskgaz (168.2), JSC Luganskgaz (158.5), JSC Kyivoblgaz (148.6) (Fig. 8.1.9).

Also, a significant number of appeals came from natural gas market participants (natural gas suppliers, gas transmission and distribution system operators) and were related to the relationship between these entities, including payment for daily imbalances and functioning of the GTS operator information platform.

The NEURC conducted meetings with participation of customers, natural gas suppliers, GDN operators, GTS operator to consider appeals from natural gas market entities and settle disputes on the natural gas market functioning.

Heat supply sector

In 2020, 1,322 customers (1,269, or 96%, of them were household ones) applied to the NEURC, which is 152 applications, or 13%, more than in 2019.

The most frequent requests were related to payments (charging) for consumed heat energy and utilities (534, or 40.4%), setting tariffs for heat energy and related utilities, justification of the amount and components of tariffs (297, or 22.5%), uninterrupted heat supply and quality of heat supply services (198, or 15%).

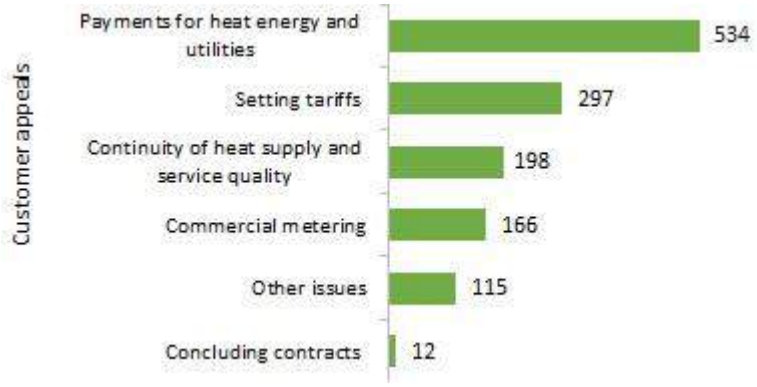

Fig. 8.1.10. Number of appeals of non-household customers on the heat supply issues, which appealed to the NEURC in 2020

Information on the number of customer complaints and appeals received by the NEURC in 2020 by issues is shown in Fig. 8.1.7.

Out of the total number of

appeals received: 648 (49%) concerned issues related to the activities of the NEURC licensees in the field of heat supply, 674 (51%) to the activities of licensees of regional state administrations in the field of heat supply, and did not specify the heat supply company (service provider).

Out of the complaints/appeals received by the NEURC regarding the actions of the NEURC licensees in the field of heat supply, the most complaints/appeals were received against the actions of Euro-Reconstruction LLC (Kyiv) (115, or 17,7%), Concern Urban Heating Networks (Zaporizhia) (86, or 13.3%), Kharkiv Heating Networks ME (60, or 9.3%), PUHN (Public Utility) Cherkasyteplokomunenerho of Cherkasy City Council (28, or 4.3%), Rivneteploenerho LLC (27, or 4.2%), PU Teploenergo of the Dnipro City Council (27, or 4.2%).

Water supply and sewerage sector

In 2020, 452 customers (407, or 90%, of them were household customers) applied to the NEURC on water supply and sewerage issues, which is 45 applications, or 9%, less than in 2019.

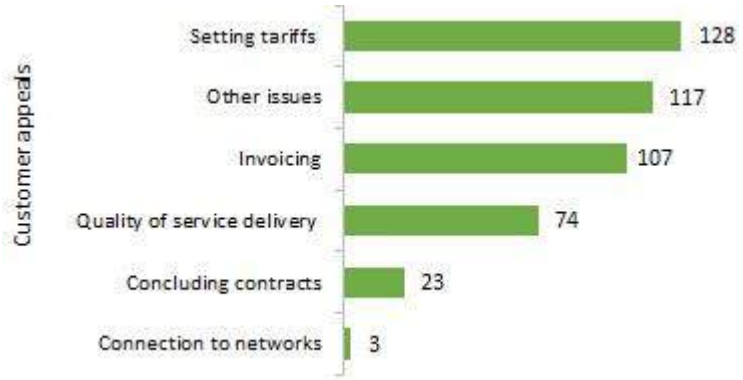

Fig. 8.1.11. Number of customer appeals to the NEURC for water supply and sewerage issues in 2020

The most frequent appeals related to tariff setting (128, or 28.3%), invoicing (107, or 25.9%), and quality of service provision (74, or 16.4%).

Information on the number of customers' complaints and appeals received by the NEURC in 2020 by issues is shown in Fig. 8.1.7.

Out of the complaints/appeals received in 2020, 243 customer complaints related to the activities of the NEURC licensees in the field of water supply, with most complaints/appeals received on the actions of Infox LLC (Infoxvodokanal branch) (36, or 14.8%), PU Berdyanskvodokanal of Berdyansk City Council (29, or 11.9%), PJSC JSC Kyivvodokanal (24, or 9.9%), PU Kryvbasvodokanal (18, or 7.4%), Ukrainian Railways JSC (17, or 7.0%), PU Kharkivvodokanal (17, or 7.0%).

8.2. **Regulator's Consideration of Customers' Appeals and Complaints**

Following the Rules for Consideration of Customer Appeals on Actions of Economic Entities Operating in Energy and Utilities and Settlement of Disputes,[111] the settlement of the issue specified in appeal can be one of the following:

1) a written response to an applicant on the results of the application consideration;
2) explanation to an applicant about application of the NEURC regulatory instruments;
3) dispute settlement;
4) NEURC decision adopted at the meeting, which is held in the form of an open hearing.

During consideration of appeal, the NEURC has the right to hold preliminary hearings with involvement of the parties to the dispute and, if necessary, to carry out measures of state control.

As a result of processing the appeals, the NEURC provides customers with comprehensive answers to the issues raised in such appeals, in particular, explains the current legislation. In order to provide a detailed and reasoned answer to the customer, clarify the circumstances of the issues raised in appeal, the NEURC letters to economic entities and requires to provide explanations and materials confirming or refuting the facts of violation of the law and/or licensing conditions if the economic entity independently detects such a violation during the consideration of the request; to accept an appeal for consideration; to inform the customer about the ways to resolve the issues raised by them and to inform about the results of the NEURC consideration.

[111] NEURC Resolution No. 1333 of July 02, 2019.

If the resolution of the issue addressed by the customer does not fall within the competence of the NEURC, the customer is provided with clarifications on the provisions of the current legislation and powers of the relevant state authorities and/or local governments, which are responsible for addressing issues raised in appeal.

In the event that the economic entities did not eliminate the violations in accordance with requirements of the legislation, such facts of violations were included in the list of issues related to the NEURC verification of licensees' compliance with the License Terms. Thus, in order to achieve a balance of interests of customers, economic entities, and the state, as well as effective implementation of the tasks, the Regulator in 2020 conducted 243 unscheduled inspections on the basis of reasonable appeals of individuals and/or legal entities, appeals of economic entities and customers against economic entities operating in the fields of energy and utilities regarding the violation of their legal rights and interests, during which more than 280 appeals of individuals and more than 120 appeals of legal entities were checked.

The appeals, which became the basis for inspections in the field of electricity, concerned the issues listed in Fig. 8.2.1.

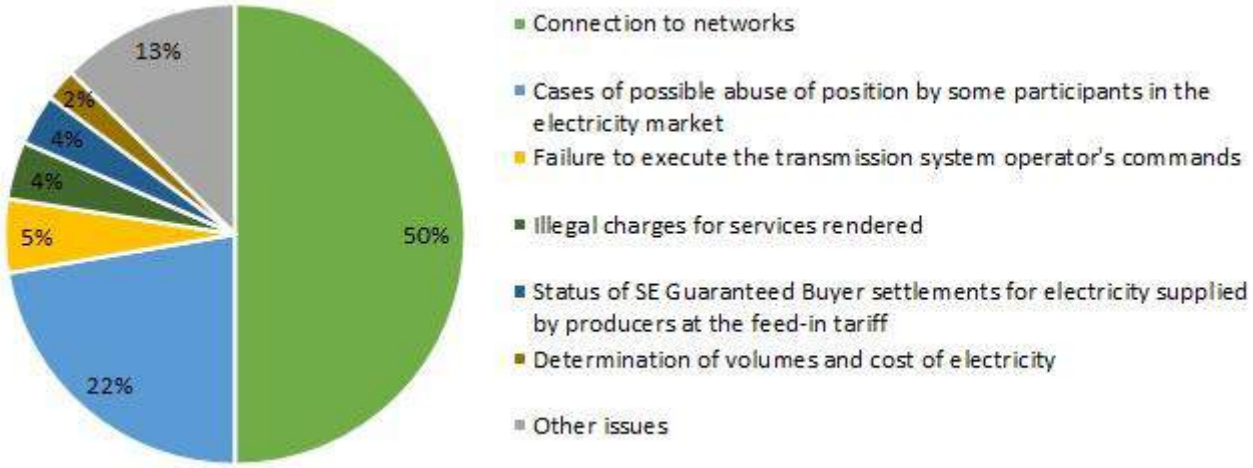

Fig. 8.2.1. Topics of appeals that were considered during inspections in the field of electricity

The appeals, which were considered during inspections in the oil and gas sector, concerned the issues listed in Fig. 8.2.2.

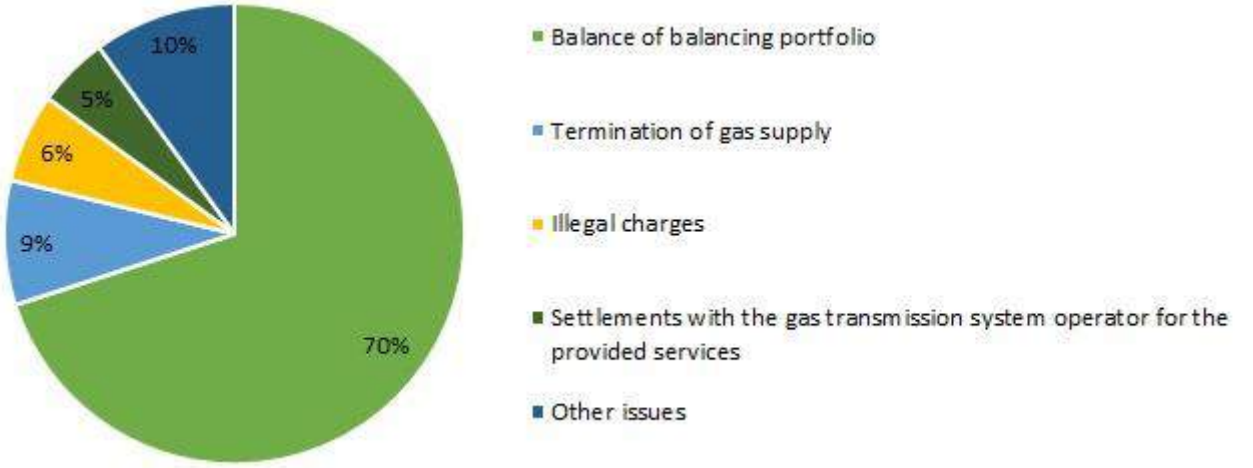

Fig. 8.2.2. Topics of appeals that were considered during inspections in the oil and gas sector

As a result of these 243 inspections, 420 violations of the law and the relevant licensing conditions were identified, and 113 obligations were issued regarding the need to eliminate violations and make licensees to bring their actions in line with the current legislation.

In addition, as a result of these inspections, 28 sanctions in the form of reservations, one sanction in the form of revocation of the license, and fines in the amount of more than UAH 20 million were applied (Table 8.2.1.)

Table 8.2.1. Information on the number of inspections carried out, violations identified, and penalties applied

Sector	Number of inspections	Total violations identified	Penalties, UAH
Electricity	165	303	14,110,000
Oil and gas industry	73	106	5,950,000
Heating	2	5	34,000
Centralized water supply & sewerage	3	6	34,000
In total	**243**	**420**	**20,128,000**

At the same time, the largest number of appeals was considered during the inspection of the following NEURC licensees: PJSC DTEK Kyiv Regional Electric Networks (24%), PJSC Zaporizhzhyaoblenergo (9%), JSC DTEK Donetsk Electric Networks (4%), JSC Kharkivoblenergo 4%), JSC Cherkasioblenergo (3%).

Information on typical violations in the field of electricity identified according to the results of inspections conducted on the basis of appeals is shown in Fig. 8.2.3.

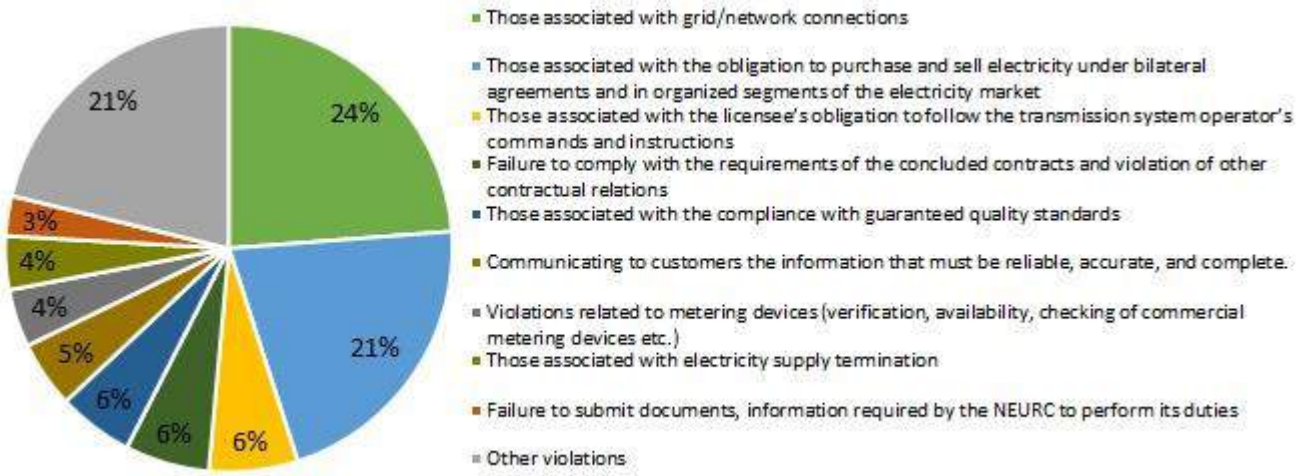

Fig. 8.2.3. Typical violations in the field of electricity as the result of inspections based on appeals

Information on typical violations in the field of oil and gas sector identified according to the results of inspections conducted on the basis of appeals is shown in Fig. 8.2.3.

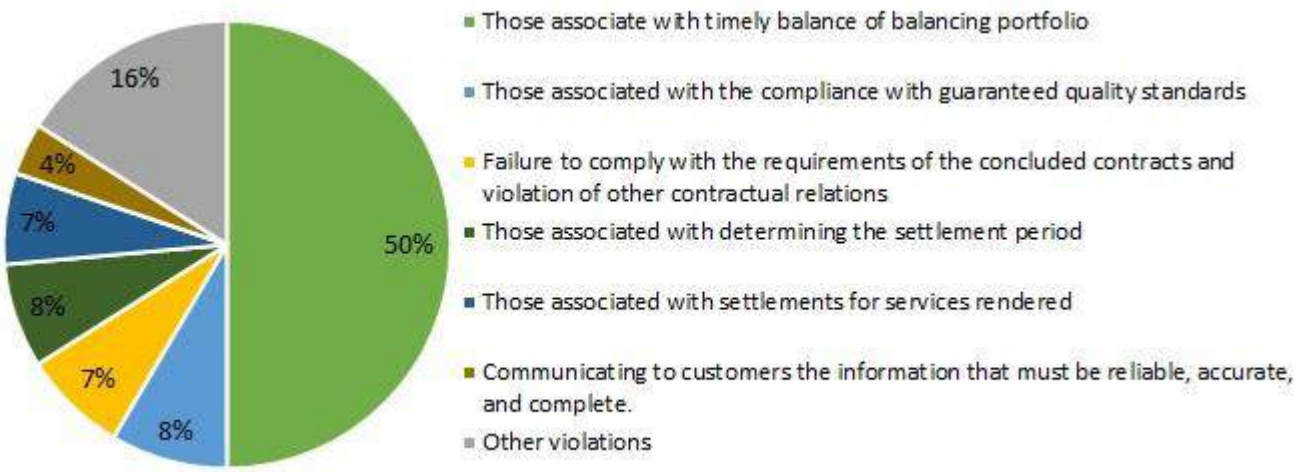

Fig. 8.2.4. Typical violations in the field of oil and gas sector as the result of inspections based on appeals

8.3. **Quality of Service Provision and Quality of Customer Service**

8.3.1. Electricity industry

Consideration of customer complaints and appeals by retail market participants

The main requirements to consideration of customer complaints and appeals by retail market participants are defined in Chapter 8, Part 3, Section VIII of the REMR. In particular, retail

market participants should develop and post on their websites the procedure for reviewing customer complaints/claims, as well as consider them in accordance with requirements of the REMR, the Distribution System Code, and other regulatory instruments of the NEURC.

According to the information provided by distribution system operators, they considered 502,453 complaints and appeals from customers in 2020, 133,466, or 27%, of them were about metering, 125,528, or 25%, about contractual relations, 81,444, or 16%, about the quality of electricity supply.

According to the information provided by electricity suppliers, they considered 1,028,848 customer complaints and appeals in 2020, 609,047, or 71%, of them were about invoicing, 212,689, or 21%, about contractual relations.

Data on the number of customer complaints and appeals to DSO and electricity suppliers are given in Table 8.3.1.

Table 8.3.1. Data on the number of customer complaints and appeals to DSO and electricity suppliers

Topics of complaints and appeals	Total	DSO			Electricity suppliers	
		Household	Non-household	Customers	Household	Non-household
Connection to network	**41,599**	16,385	5,891	19,323		
Metering	**147,123**	111,204	22,254	8	12,393	1,264
Quality of electricity supply	**81,444**	78,542	2,899	3		
Contractual relations	**33,8217**	87,025	35,394	3,109	123,358	89,331
Activation of services (voltage supply at the customer request)	**3,366**	2,745	610	11		
Shutdown for non-payment	**30,330**	8,966	526	2	15,834	5,002
Invoicing	**641,763**	24,950	7,757	9	466,964	142,083
Prices/tariffs	**20,651**	471	108		18,477	1,595
Change of supplier	**6,946**	412	2,335		248	3,951
Reimbursement/compensation	**785**	597	28		124	36
Benefits, subsidies	**12,264**				11,996	268
Acts of breach of contract by the customer	**1,123**	854	269			
Non-competitive behavior	**182**	6	2		151	23
Electricity theft reports from customers	**787**	599	51	5	126	6
Complaints against company employees	**1,016**	703	53		213	47
Additional services to the customer	**91,673**	21,747	17,936	536	40,125	11,329
Providing other background information	**80,658**	16,788	2,129	20	49,868	11,853
Issues not related to the company's licensed activities	**31,374**	7,329	1,774	88	19,105	3,078
Total	**1,531,301**	**379,323**	**100,016**	**23,114**	**758,982**	**269,866**

Following the NEURC Resolution No. 373 of June 12, 2018,[112] distribution system operators (hereinafter referred to as the DSO) and electricity suppliers with more than 100,000 customers are obliged to ensure the operation of call centers to provide mandatory information services to customers free of charge in compliance with the minimum requirements to quality of service provided to electricity customers.

In 2020, call centers operated for 27 DSOs and 25 electricity suppliers.

Organizational and technical standards for operation of the DSO call centers are set by the Minimum Requirements for the Quality of Service Provided for Electricity Customers by Call Centers, which, in particular, stipulate obligations on round-the-clock operation of the DSO call

[112] NEURC Resolution No.373 of June 12, 2018 "On Approval of the Minimum Requirements for the Quality of Service to Electricity Customers by Call Centers".

centers and provision of services to customers free of charge. The main condition for fulfilling this requirement is, inter alia, free charging of the customer's call to the number(s) of the DSO call centers without the connection fee.

One way to ensure compliance with this requirement is to use a global telecommunications service provided under 0 800 service code , according to which the customer call is made at the expense of the called party, i.e., at the expense of the call center.

In 2020, 5 licensees did not comply with requirements for providing services to customers free of charge, namely: JSC DTEK Dnipro Electric Networks, JSC DTEK Odesa Electric Networks, JSC DTEK Donetsk Electric Networks, PJSC Cherkasyoblenergo, JSC Chernivtsioblenergo. The NEURC was also informed that PJSC Rivneoblenergo had a 0800 telephone number, but it was not indicated on the company's website.

The NEURC monitors quality and quantity of services provided by the DSO call centers and electricity suppliers.

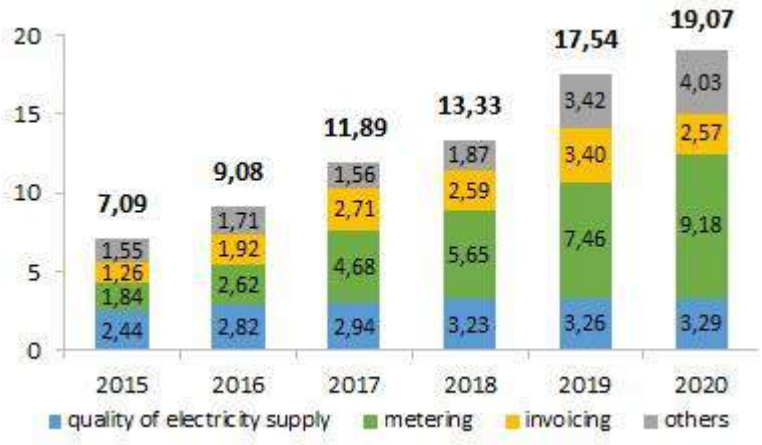

Fig. 8.3.1. Number of appeals received by call center operators in 2015–2020, mln

A total of 19,070,681 calls were processed by the DSO and electricity supplier call center operators in 2020, which is 30% more than in the previous year and 43% more than in 2018 (17,542,899 calls in 2019, 13,331,148 calls in 2018).

Dynamics of the number of appeals[113] received by the call center operators in 2015–2020 is shown in Fig. 8.3.1.

The DSO call center operators processed 14,719,022 calls in 2020.

Data on the quality of service provision by call centers and on the number of appeals received by the DSO call center operators by topics in Ukraine in 2020 are given in Annexes 8.3.1 and 8.3.2.

The call center operators of electricity suppliers processed 4,351,659 calls in 2020, 50% of them were about billing.

Data on the quality of service provision by call centers and on the number of appeals received by the call center operators of electricity suppliers by topics in Ukraine in 2020 are given in Annexes 8.3.1 and 8.3.2.

It should be noted that the annual quality indicators of call center services of Chernivtsi Regional Energy Supply LLC were not taken into account due to the lack of IP telephony and IVR during the call center operation in 2020 and the inability to confirm[114] their authenticity, which was identified within the state control measures.

General quality standards for the provision of services by DSOs and electricity suppliers, approved by the Regulator[115] provide for:

- calls answered within first 30 seconds (percentage of calls connected by the call center operator within 30 seconds) within the reporting year — not less than 75%;
- percentage of calls lost in the queue within the reporting year — not more than 10%.

Figures 8.3.2 through 8.3.5 provide data on compliance with general quality standards by licensees.

[113] One call can be registered as several appeals on different topics.

[114] Act of an unscheduled on-site inspection #460 of November 23, 2020 conducted in accordance with NEURC Resolution #1977 of October 30, 2020 “On Conducting an Unscheduled On-site Inspection of Chernivtsi Regional Energy Supply Company LLC.

[115] NEURC Resolution No.375 of June 12, 2018 “On Approval of the Procedure for Ensuring Quality Standards of Electricity Supply and Compensation to Customers for Non-Compliance”.

According to the information obtained as a result of monitoring[116] of operation of the DSO and electricity supplier call centers, the following companies adhered to general standards of service quality in 2020:

- DSOs: JSC Vinnytsiaoblenergo, PJSC Volynoblenergo, JSC Poltavaoblenergo, Lugansk Energy Association LLC, JSC Sumyoblenergo, PJSC Ternopiloblenergo, PJSC Zaporizhzhiaoblenergo, PJSC PEEM TSEK, JSC Kharkivoblenergo, JSC Mykolaivoblenergo.

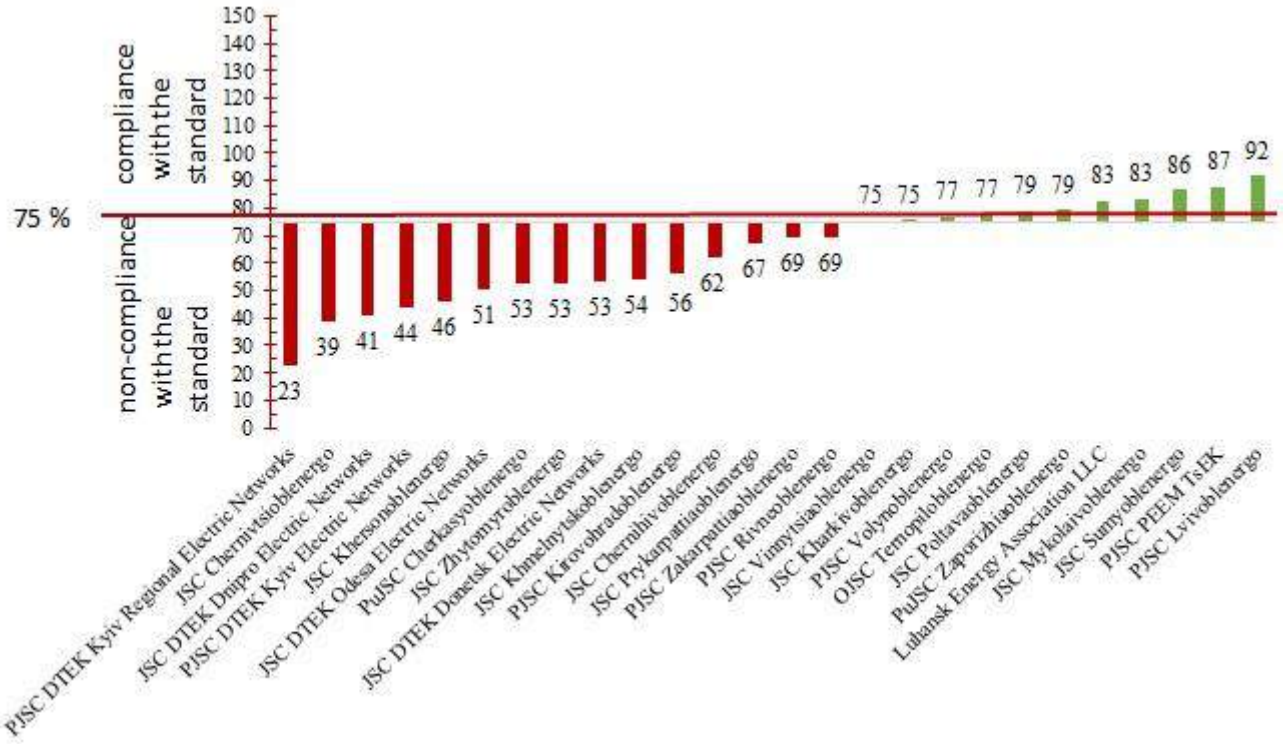

Fig. 8.3.2. Calls answered within first 30 seconds in DSO call centers in 2020, %

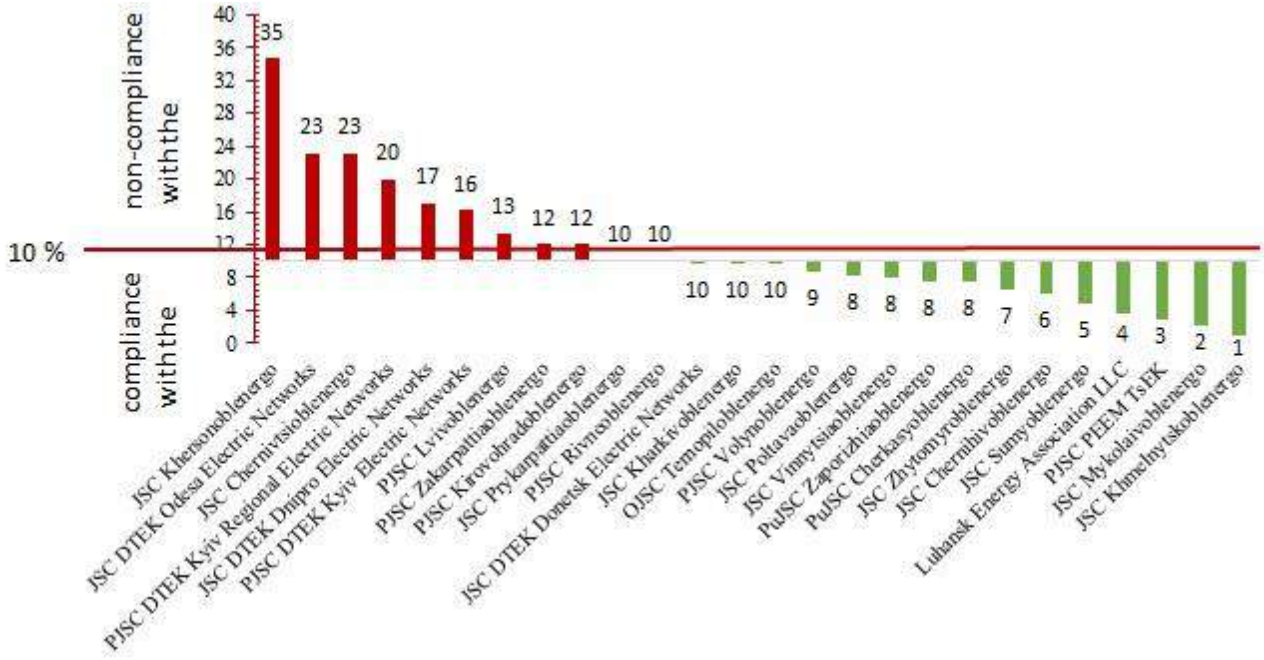

Fig. 8.3.3. Percentage of calls lost in the queue in DSO call centers (excluding calls lost with IVR) in 2020, %

[116] NEURC Resolution No. 373 of June 12, 2018 "On Approval of the Minimum Requirements for the Quality of Service to Electricity Customers by Call Centers".

- electricity suppliers: Enera Vinnytsia LLC, Volynelektrozbut LLC, Zaporizhzhia Electricity Supply LLC, Kirovohrad Regional Energy Supply Company LLC, Enera East LLC, Lvivenergozbut LLC, Mykolaiv Electric Supply Company LLC, Poltavaenergozbut LLC, Rivne Regional Energy Supply Company LLC, Enera Sumy LLC, Ternopilelektropostach LLC, Cherkasyenergozbut LLC, Enera Chernihiv LLC, Khmelnytskenergozbut LLC.

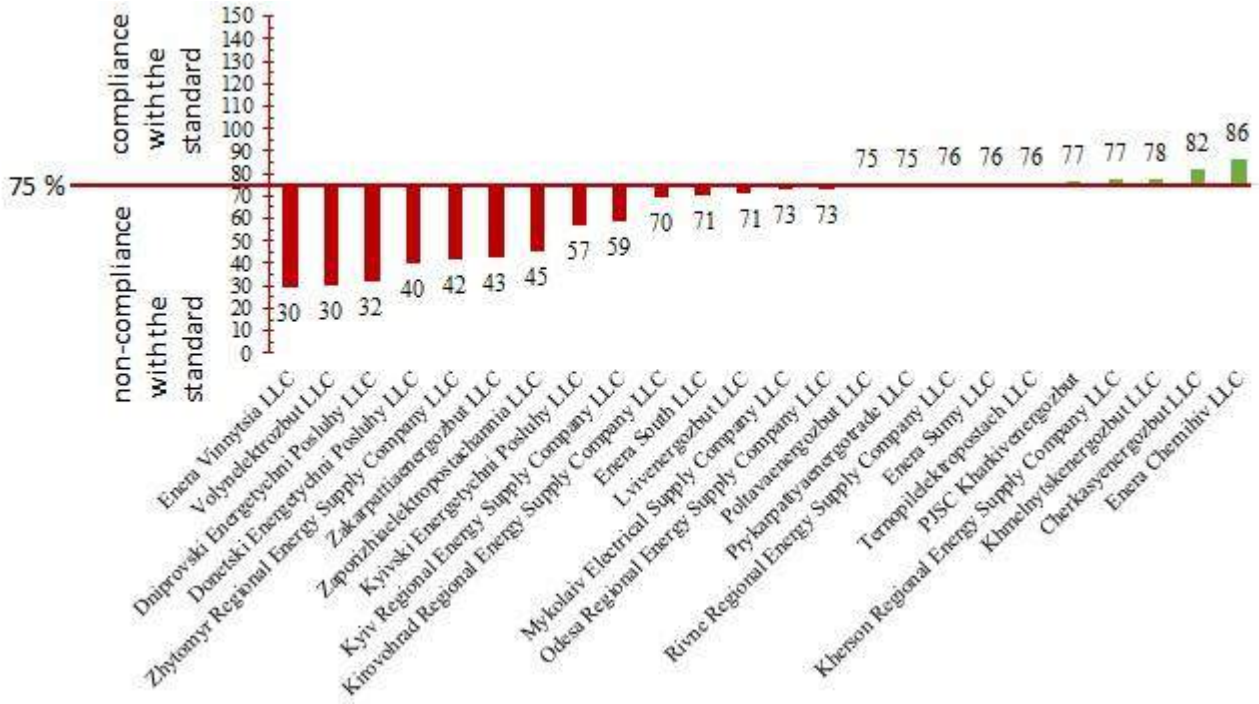

Fig. 8.3.4. Calls answered within first 30 seconds in call centers of electricity suppliers in 2020, %

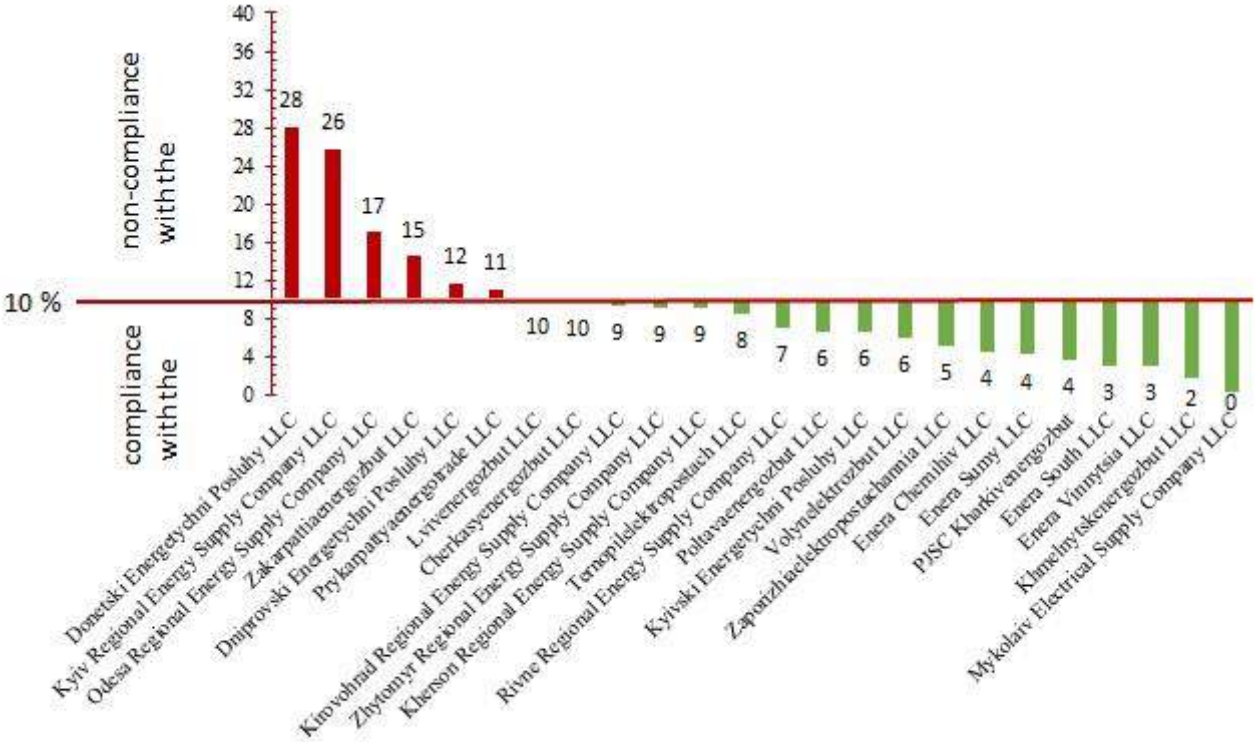

Fig. 8.3.5. Percentage of calls lost in the queue in call centers of electricity suppliers (excluding calls lost with IVR) in 2020, %

In 2020, to improve quality of service to electricity customers by the licensee call centers, the NEURC introduced requirements to processing of incoming calls received by the call center operator, including the processes of registration of oral appeals and application formation.

Thus, if customer has expressed a desire to register an appeal/complaint/claim (submission of an oral appeal/complaint/claim), such appeal/complaint/claim is registered and considered in accordance with the REMR requirements[117] (provided that customer was identified).

Also, if it is necessary to perform certain activities by the company's staff and/or provide services to customer, applications are formed, which are submitted for consideration and execution to the relevant structural units of the DSO/electricity supplier and the customer receives an answer based on the results (through callback, SMS notification, e-mail, customer's personal account on the DSO/electricity supplier's website, and other communication means).

Commercial quality of services

Commercial quality of services characterizes the quality of relationship between the DSO and the electricity supplier with the customer, including compliance with statutory deadlines for services and works, including providing access to networks, restoration of electricity supply, metering, contracts, etc. and responses to written requests.

In 2020, the Commission monitored the indicators of commercial quality of services.[118]

According to the results of processing of these reporting forms, it was established that the DSO received 443,732 appeals for services, works, and consideration of customer complaints in 2020. The largest number of such appeals was received by JSC Kharkivoblenergo (51,781 appeals), PJSC DTEK Kyiv Electric Networks (45,368 appeals), JSC Odesaoblenergo (33,584 appeals), PJSC Zaporizhzhiaoblenergo (31,573 appeals), JSC DTE Dnipro Electric Networks (28,311 appeals), PJSC Lvivoblenergo (25,090 appeals).

Data on commercial quality indicators for each DSO in 2020, as well as by types of services provided, are given in Annexes 8.3.5 and 8.3.6.

According to the reporting form #12-NEURC-supply (quarterly) “Report on Iindicators of Commercial Quality of Electricity Supply Services”,[119] it was established that electricity suppliers received 42,298 appeals in 2020. The largest number of such appeals was received by PJSC Kharkivenergozbut (9,242 appeals), Zaporizhzhiaelektropostachannia LLC (6,381 appeals), Kyiv Regional Energy Supply Company LLC (4,767 appeals), Odesa Regional Energy Supply Company LLC (4,756 appeals), Kyiv Regional Energy Supply Company LLC (4,357 appeals).

Data on commercial quality indicators for each electricity supplier in 2020, as well as by types of services provided, are given in Annexes 8.3.5 and 8.3.6.

Compensation to customers

The Procedure for Ensuring Quality Standards of Electricity Supply and Compensation to Customers for Non-Compliance[120] determines a list of general and guaranteed standards of quality of electricity supply, regulates relations related to electricity supply in accordance with general and guaranteed quality standards, provides protection of customers' rights through compensation for non-compliance with the guaranteed quality standards of electricity supply, in particular:

- restoration of electricity supply within 24 hours after the beginning of outage;
- compliance with voltage deviation indicators set by the Distribution System Code.[121]

According to the reporting data of electricity distribution companies in 2020, a total of 34,161 customers were compensated for a total of UAH 3,194,608; 3,735 of them for a total of UAH 971,920 for

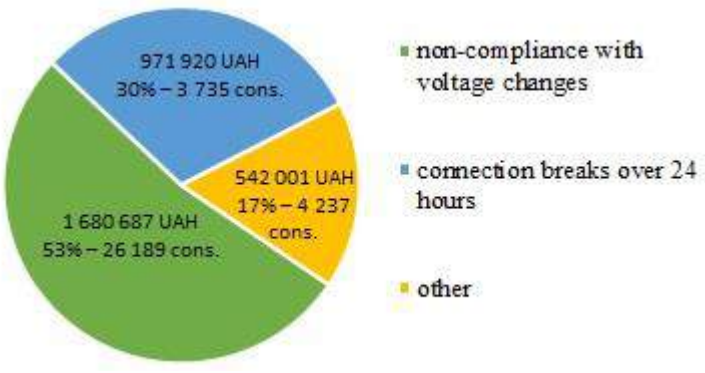

Fig. 8.3.6. Providing compensation to customers by types of quality standards in 2020

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Indicators of Electricity Supply and Instructions for their

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o. 310 of March 14, 2018.

non-compliance with the guaranteed standard “restoration of electricity supply within 24 hours after outage” and 26,189 customers were compensated for UAH 1,680,687 monthly for non-compliance with voltage deviation indicators (Fig. 8.3.6).

It should be noted that the amount of compensation paid to customers for non-compliance with the guaranteed standards in 2020 increased by 33% compared to 2019 and by 35% compared to 2018 due to constant monitoring of compliance with the electricity quality legislation, the obligation of licensees to provide compensation in case of non-compliance with the guaranteed standards, and verification of data within state control measures.

Fig. 8.3.7. Amounts of compensation paid by DSO for non-compliance with the guaranteed standards in 2018–2020, UAH thousand

Dynamics of the amounts of compensation paid by the DSO for non-compliance with the guaranteed standards in 2018–2020 are shown in Fig. 8.3.7.

Annex 8.3.9 provides information on compliance with the guaranteed quality standards of electricity supply and the amount of compensation paid by companies.

To protect customer rights and improve quality of service provision, the Regulator expanded the list of the guaranteed service quality standards for DSOs and electricity suppliers in 2020 and introduced the guaranteed standards for TSOs for the first time.

Thus, new guaranteed quality standards for the provision of services have been introduced for DSOs, in particular, for provision of commercial metering services (control inspection, technical inspection of the electricity-metering unit, and examination of commercial metering devices, replacement or changing the meter location). Also, a guaranteed standard for the frequency of electricity outages was introduced on July 01, 2021, according to which the number of outages during 12 calendar months at the distribution point (lasting more than one hour) should be less than 7/9/12 outages for urban/rural areas/planned outages. In case the established limits are exceeded, the DSO provides the customer with compensation in the amount of UAH 200 and additional UAH 50 for each outage above the established standard.

The list of guaranteed standards for electricity suppliers has also been expanded, in particular in terms of invoicing with correct data and within the deadlines set by the contract and/or REMR. Seventeen guaranteed standards have been introduced for TSOs, in particular regarding the issuance of technical conditions, the contract for the provision of electricity transmission services, commercial metering services, consideration of customer complaints, restoration of electricity supply to the customer's electrical installation. In case of non-compliance with the guaranteed quality standards of service provision, the DSO provides the customer with compensation in the amount of UAH 10,000.

Consideration of customer complaints/appeals/claims regarding the electricity quality

DSOs considered customer complaints in accordance with the procedure for verifying the quality of electricity based on customer appeals/complaints/claims.[122] According to this procedure, the customer applies to the DSO with a written complaint/appeal/claim regarding the electricity quality.

The DSO, in turn, considers the relevant customer complaint/appeal/claim within:

- 15 days if the quality parameters are not measured;

[122] Section 13, Part 2 of the Distribution System Code approved by NEURC Resolution No. 310 of March 14, 2018.

- 30 days if the quality parameters are measured, which must last, in accordance with the requirements of DSTU IEC 61000-4-30:2010 and the Distribution System Code,[123] for at least 7 days;
- 45 days for a collective complaint/appeal/claim.

If the DSO finds the complaint substantiated, it pays the customer (group of customers) a compensation in the amount of 25% of the fee for provision of electricity distribution services on a monthly basis until the causes of low electricity quality are eliminated.

The DSO must eliminate the causes of low electricity quality:

- within 30 days if the DSO personnel is able to quickly eliminate them;
- within 180 days if their elimination requires construction works or replacement of network elements.

According to reporting form #14-NEURC (annual) "Report on Elimination of Causes of Low Quality of Electricity Based on Customer Complaints",[124] the DSOs received 15,595 complaints/appeals/claims from customers about the electricity quality in 2020 (11,122 complaints/appeals/claims in 2019), during the consideration of which the electricity quality parameters were measured for 7 days in 2,334 cases. Most of such complaints/appeals/claims were received by Odesaoblenergo JSC (6,806 complaints), DTEK Donetsk Electric Networks JSC (1,680 complaints), DTEK Dnipro Electric Networks JSC (1,537 complaints), Chernihivoblenergo JSC (1,276 complaints), PJSC DTEK Kyiv Regional Electric Networks (610 complaints), JSC Poltavaoblenergo (471 complaints).

Since December 2020, to strengthen customer protection, the NEURC required licensees to register all customer calls (if they were identified) to the DSO call center on low electricity quality in accordance with the REMR requirements and to consider them in the manner prescribed by the Distribution System Code.

Customer access to information (on customer rights, change of supplier, energy sources, etc.) that should be provided in customer accounts and/or posted on the websites of electricity suppliers/media etc.

Following provisions of Section IX of the REMR, electricity suppliers are obliged to provide customers with access to information concerning them personally, including information directly related to the performance of contracts concluded by them and implementation of commercial settlements with retail market participants, or any other open information related to the electricity supply.

To provide customers with key information on their electricity consumption and services provided, electricity suppliers are required to post the following information on their invoices or annexes to them and on their official websites by May 1 of each year:[125]

- actual amount of electricity consumption;
- comparison of electricity consumption with other customers;
- electricity tariff structures;
- additional information regarding electricity consumption.

In 2020, universal service providers provided customers with the necessary information: at the customer's (authorized person) request; on their own official websites; in customer service centers; in the invoices; in the customer's personal account; in places of payment for electricity; via the media etc.

The official websites of universal service providers and system operators contain, in particular, the following information: customer rights, benefits of the efficient energy end-use by customers, advices on improving energy efficiency in electricity consumption,

[123] Section 13, Part 2 of the Distribution System Code approved by NEURC Resolution No. 310 of March 14, 2018.
[124] NEURC Order No. 374 of June 12, 2018 "On Approval of Reporting Forms for Quality Indicators of Electricity Supply and Instructions for their Completion".
[125] According to the form given in Annex 1 to NEURC Resolution #464 of March 30, 2017 "On Annual Provision of Customers with Key Information on Services in the Energy and Utilities Sectors".

examples/explanations of electricity bills, choice of electricity suppliers, and procedure for changing the electricity supplier.

The completeness of providing household customers with key information by the USS is shown in Fig. 8.3.8 (completeness was assessed by types of information to be disclosed and its quality: information is not disclosed, disclosed but does not meet the requirements of legislation, partially or fully complies with such requirements).

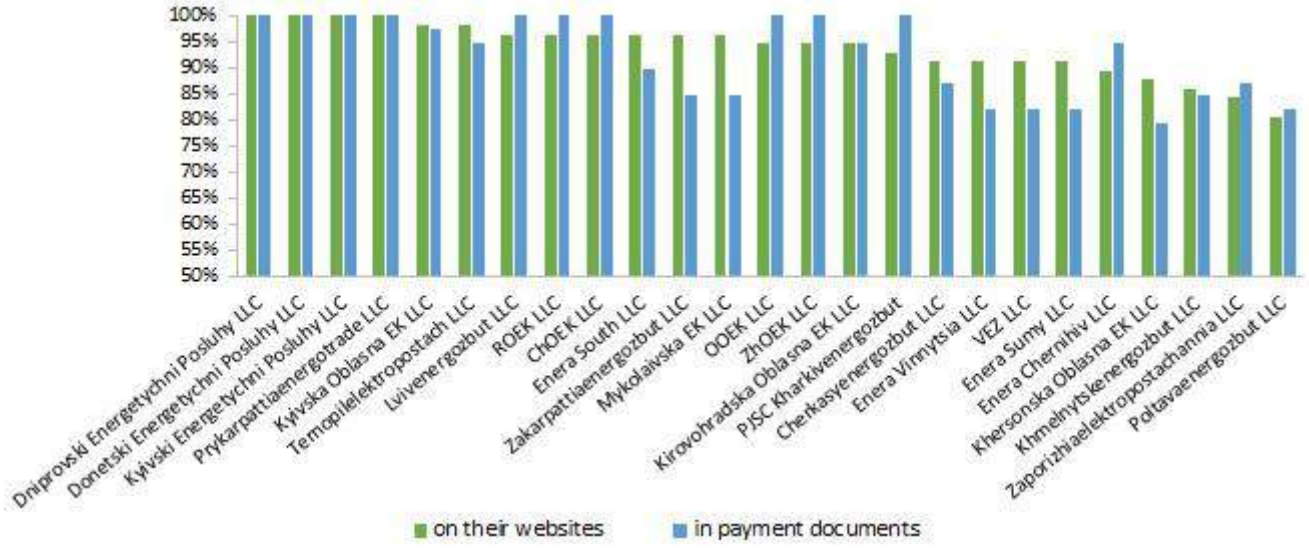


Fig. 8.3.8. Completeness of providing household customers with key information on electricity supply services in accordance with the requirements set by the SIs, in payment documents and on official websites

8.3.2. Oil and gas industry

Commercial quality of customer service in provision of natural gas distribution and supply services

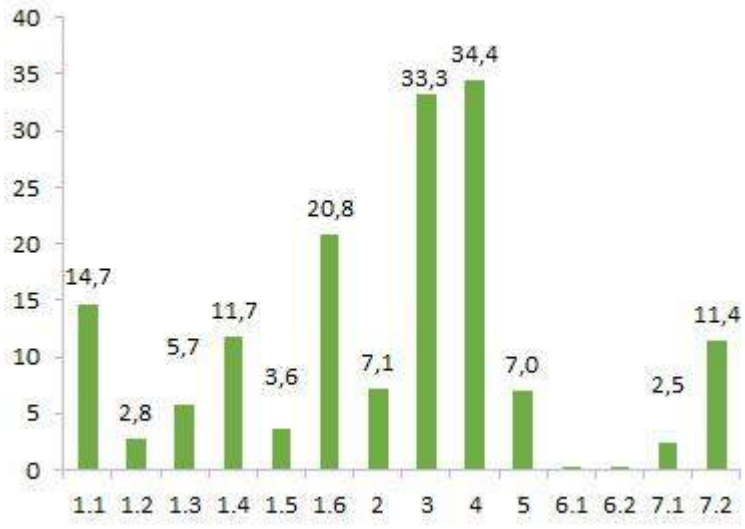
NEURC Resolution No. 1156 of September 21, 2017 approved the Minimum Standards and Requirements for Quality of Customer Service and Natural Gas Supply (hereinafter referred to as the NEURC Resolution No. 1156, Standards and Requirements), which introduced monitoring of commercial quality of natural gas supply and distribution services.

In 2020, the NEURC monitored the indicators of commercial quality of services in accordance with requirements of the NEURC Resolution No. 1156. Information on services/responses to customer appeals provided by GDN operators and natural gas suppliers is given in Table. 8.3.2.

Table 8.3.2. Information on services/responses to customer appeals

	Total	GDN operators	Natural gas suppliers	
			PSO	Others
Total services provided	342,433	155,153	177,460	9,820
Total responses to customer appeals	95,953	68,850	24,293	2,810
household customers	80,358	58,233	21,957	168
non-household customers	15,595	10,617	2,336	2,642

In 2020, the GDN operators provided a total of 155,153 services (Fig. 8.3.9), 68,850 responses to customer appeals, including 58,233 to household customers.



1.1 providing a draft connection contract, technical conditions of connection, and relevant invoices for their payment;
1.2 approval of the external gas supply project and its estimate;
1.3 providing an additional agreement to the connection contract;
1.4 connection to the GDN;
1.5 connection to the GDN (physical connection of gas networks of external and internal gas supply);
1.6 gas-in in the gas networks of internal gas supply;
2 provision of a gas distribution contract
3 notification of termination/restriction of gas supply (gas distribution) to the customer's facility;
4 restoration of gas supply (gas distribution) at the written request of the customer;
5 temporary termination of natural gas distribution;
6.1 checking the pressure and/or gas quality (197 units);
6.2 provision of supporting documents on physico-chemical gas parameters (13 units);
7.1 extraordinary or expert verification of measuring equipment;
7.2 examination of measuring equipment and/or seals.

Fig. 8.3.9. Information on services provided by GDN operators in 2020, thousand

Natural gas suppliers, on which public service obligations for natural gas supply to household customers and religious organizations were imposed (hereinafter referred to as PSO), provided in 2020 a total of 177,460 units of services, 24,293 responses to customer appeals, including 21,957 from household customers.

In 2020, other natural gas suppliers provided a total of 9,820 units of services, 2,810 responses to customer appeals, including 168 responses to household customers.

Annexes 8.3.10 and 8.3.11 provide information on the services provided in 2020 by natural gas distribution and supply licensees by types of services provided by GDN operators and natural gas suppliers.

Annexes 8.3.12 and 8.3.13 provide information on the responses provided to customers by GDN operators and natural gas suppliers in 2020.

To improve an overall level of quality of natural gas distribution and supply services and protect the rights of customers, who receive services of improper quality, compensation is provided in case of non-compliance by GDN operators/natural gas suppliers with the deadlines set by the Standards and Requirements for the provision of services/responses to customer appeals.

Customer access to information

Provisions of the Law of Ukraine “On Natural Gas Market”, the Rules for the natural gas supply, as well as the Standard contract for the natural gas supply to household customers provide for the obligation of supplier to:

- provide customer with all necessary information on general supply terms (including prices), the rights and obligations of supplier and customer, legislation governing the relationship between supplier customer, available ways of pre-trial settlement of disputes with such supplier by posting it on the supplier's official website;
- provide customer with information on the volume and other indicators of natural gas consumption by such a customer free of charge;
- provide customer with a choice of payment method in order to avoid discrimination;
- provide customer with transparent, simple, and accessible ways of pre-trial settlement of disputes with such a supplier;
- notify customer of an intention to amend the natural gas supply contract in terms of supply conditions before such changes and guarantee the customer's right to early termination of the supply contract if the new supply conditions are unacceptable to them.

8.3.3. Heat supply sector

Quality of heat supply services is monitored in three areas:

- continuity of heat supply, which is characterized by duration and number of heat supply interruptions, as well as an average duration of elimination of the accident consequences beyond the allowable period;
- quality of the heat medium, which is characterized by a number of cases of non-compliance with the parameters of pressure/temperature according to the results of measurements;
- commercial quality of service provision, which is characterized by quality of the relationship between company and customer, in particular, compliance by companies with the set deadlines for provision of services.

According to reporting form #15-NEURC-heat-supply, 26[126] licensees in the field of heat supply engaged in heat transportation and supply recorded 5,871 interruptions in 2020, 3,751 of them were during the heating period, 2,120 during the inter-heating period.

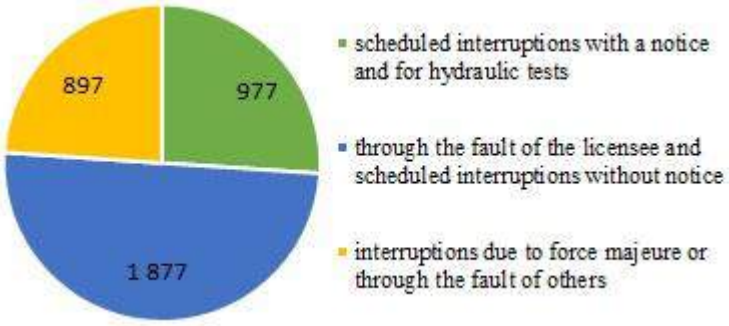


Fig. 8.3.10. The total number of heat supply interruptions in 2020 by the reasons of their occurrence during the heating period

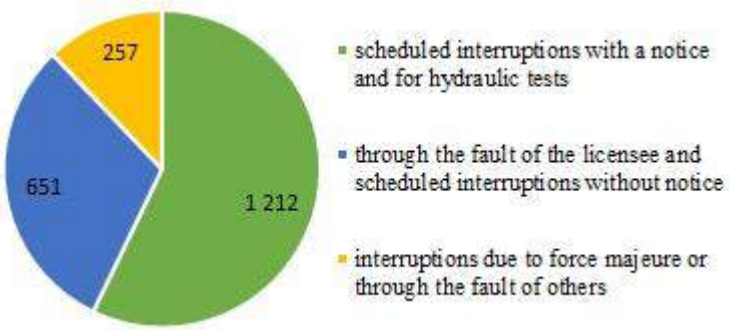


Fig. 8.3.11. The total number of heat supply interruptions in 2020 by the reasons for their occurrence during the interheating period

The largest number of heat supply interruptions during the heating period through the fault of the licensee was recorded in PU Odesa Heat Supply (156 interruptions), Concern Urban Heating Networks (422 interruptions), and PUHN Kryvorizhteplomerezha (558 interruptions). At the same time, the largest number of heat supply interruptions through the fault of the licensee's during the interheating period was recorded in PU Kharkiv Heating Networks (121 interruptions) and Concern City Heating Networks (392 interruptions).

Figures 8.3.10 and 8.3.11 show the total number of interruptions by the reasons for their occurrence during the heating and inter-heating periods, respectively.

According to 29[127] licensees in the field of heat supply engaged in heat energy transportation and supply in 2020, 137,514 units of services were provided; the average duration of application consideration was 7.34 days. The total number of services provided by licensees is shown in Fig. 8.3.12.

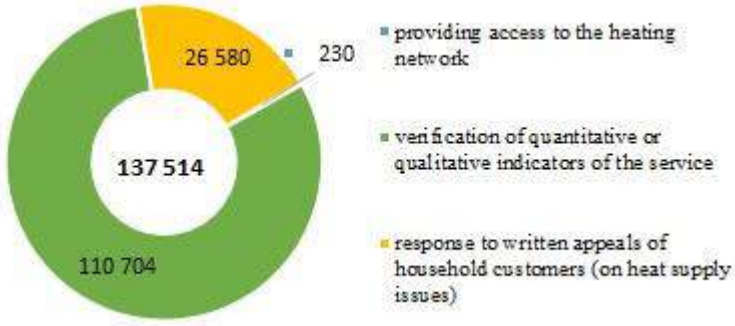


Fig. 8.3.12. The total number of services provided by licensees in the field of heat supply in 2020

The total number of written appeals from household customers in the field of heat supply processed by licensees in 2020 is 26,580. The largest number of such appeals in 2020 was recorded in Euro-Reconstruction LLC — 7,560, or 28.44%, of the total number of

g licensees: PU Teploenergo and Melitopol Heating

essa Heat Supply, PUHN Cherkasyteplokomunenerho for Q4

written appeals, PU Odesa Heat Supply — 4,860 (18.28%), PU Kharkiv Heating Networks — 2,738 (10.3%), Concern City Heating Networks — 2,584 (9.7%), PJSC Cherkasy Chemical Fiber — 2,278 (8.57%).

Annexes 8.3.14 through 8.3.16 provide indicators of commercial quality of heat supply services for Q1–Q4 2020 by companies and in Ukraine, as well as indicators of continuity of heat supply for Q1–Q4 2020.

8.3.4. Water supply and sewerage sector

The NEURC[128] monitors the quality of service provision in the field of centralized water supply and sewerage, namely the indicators of uninterrupted centralized water supply and drinking water quality, indicators of commercial quality of service provision. The procedure for collecting primary information, processing it, and reporting to the NEURC to monitor such indicators is also defined.

Monitoring of service provision quality indicators in the field of centralized water supply and sewerage, namely indicators of uninterrupted centralized water supply: average duration of interruptions in water supply network, average frequency of interruptions in water supply network, and number of interruptions per 100 km of networks; checking the pressure in the network and indicators of drinking water quality, indicators of commercial quality of services.

According to the results of the NEURC elaboration of reporting forms #13-NEURC-water-supply (quarterly) for Q1–Q4 2020 provided by licensees, the largest number of interruptions in water supply per 100 km of networks through the fault of licensee and planned interruptions without warning the customers thereof are recorded by PU Kharkivvodokanal (208.25), PU Zhytomyrvodokanal (127.37), PU Novomoskovsk Vodokanal (124.75), PU Poltavavodokanal (113, 66), and Infox LLC (100, 83).

Regarding the average duration of interruptions through the fault of licensee and scheduled interruptions without warning the customers thereof, the highest values of this indicator (over 1,000 minutes) were found in 12 licensees, namely: PU (Public Utility) Chernivtsivodokanal (12,057.35 minutes), PU Oblvodokanal of ZRC (6088.05 min), Infox LLC (5 334.02 min), PU Drohobychvodokanal (4073.36 min), PU Lysychanskvodokanal (3 744.43 min), PU Lvivvodokanal (3 169, 35 min), PU Water of Donbass Company (2,902.83 min), PU Umanvodokanal (2,216.24 min), PU Berdyanskvodokanal (2,006.63 min), PU Kharkivvodokanal (1,715 , 07 min), Regional PU Dnipro-Kirovohrad (1,390.36 min), PU Slovmiskvodokanal of the Slavyansk City Council (1,362.87 min).

Drinking water quality is determined by groups of drinking water quality indicators (microbiological, parasitological, organoleptic, physicochemical, sanitary, and toxicological indicators) and by the place of drinking water sample (before its entry into distribution network from underground sources, before its entry into distribution network from surface sources, drinking water samples in distribution network). The total number of samples of licensees in the field of centralized water supply in terms of indicators is presented in Table 8.3.3.

Table 8.3.3. Number of samples of licensees in the field of centralized water supply in terms of indicators

Place of sample	Number of samples	Number of samples with deviation from drinking water quality standards						% of samples with deviation of drinking water quality indicators
		Total	By groups of drinking water quality indicators					
			microbiological	parasitological	organoleptic	Physical and chemical	sanitary and toxicological	
Samples of drinking water before it enters the distribution network from underground sources	75,114	2,710	98	0	1,013	1,568	224	3.61%

[128] NEURC Resolution No. 226 of February 23, 2017 "On Approval of Reporting Forms of the NEURC No.13-NEURC-water supply (quarterly) 'Report on Indicators of Water Supply Reliability and Drinking Water Quality' and #14-NEURC-water supply/sewerage (quarterly) 'Report on Commercial Quality Indicators of Centralized Water Supply and (or) Sewerage Services' and Instructions for their Filling" (entered into force on August 22, 2017).

Samples of drinking water before it enters the distribution network from surface sources	571,052	10,615	4	0	2,459	1,524	6,171	1.86%
Samples of drinking water in distribution network	178,165	13,233	736	0	5,848	3,743	2,599	7.43%

Regarding the quality of drinking water by companies, the largest deviations were recorded in the following licensees: PU Mariupol Production Office of Water Drive and Sewer System and PU Starobilskvoda — 100% on physical and chemical indicators, PU Water of Donbass Company and PU Lysychanskvodokanal — 16.97% and 16.13%, respectively, on physical and chemical, organoleptic, and sanitary-toxicological indicators.

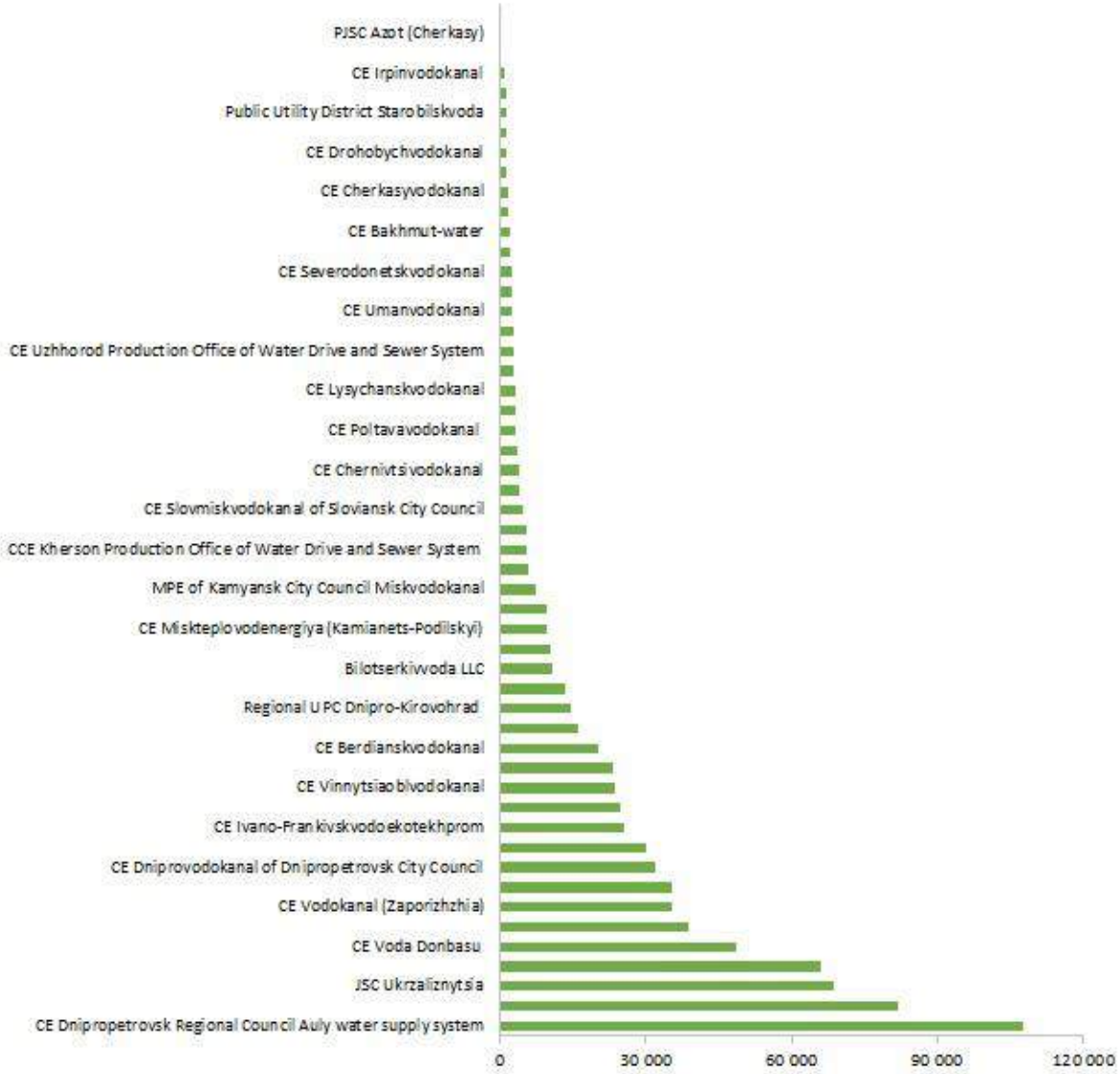


Fig. 8.3.13. The total number of drinking water samples of licensees in 2020

The total number of drinking water samples per each licensee is presented in Fig. 3.8.13.

Summary information for Q1–Q4 2020 per each NEURC licensee in the field of centralized water supply on average duration and frequency of water supply interruptions, number of interruptions per 100 km of networks, verification of network pressure, and drinking water quality is given in Annex 8.3.17.

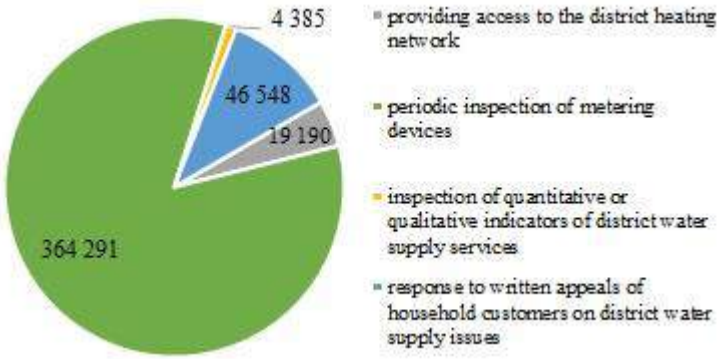


Fig. 8.3.14. Number of services provided by licensees in the field of centralized water supply in 2020

Monitoring of indicators of commercial quality of services on observance by licensees of service terms established by the legislation is carried out on indicators, such as granting access to networks of centralized water supply/ sewerage,

verification of metering, checking quantitative and qualitative indicators of services, providing responses to written requests from household customers.

In 2020, the total number of services provided by licensees in the field of centralized water supply was 434,414, centralized sewerage— 16,720. In addition, 80.75% of the total number of services provided in the field of centralized water supply was periodic verification of metering devices.

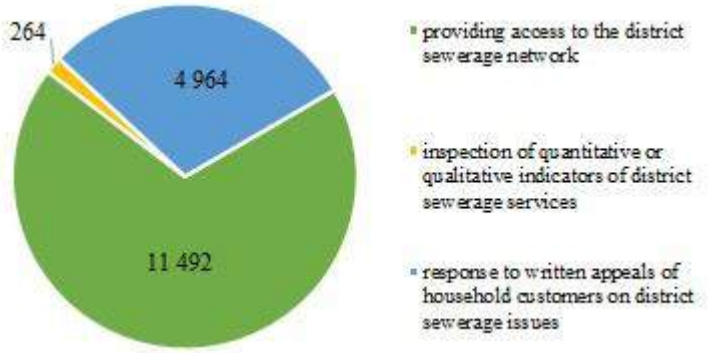


Fig. 8.3.15. Number of services provided by licensees in the field of centralized sewerage in 2020

The total number of services provided by licensees in the field of centralized water supply and sewerage in 2020 is presented in Figures 8.3.14 and 8.3.15.

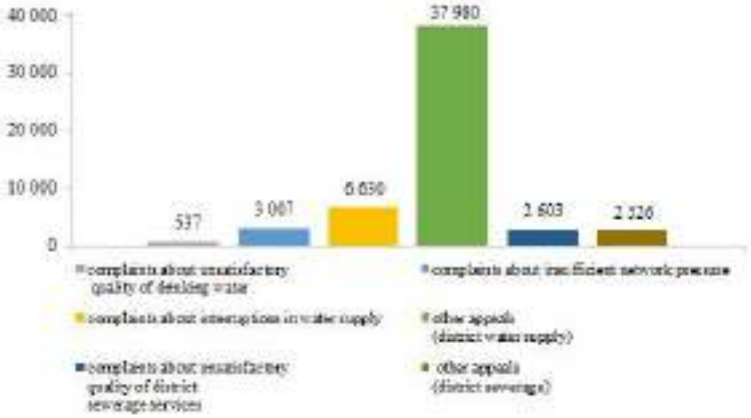


Fig. 8.3.16. Subjects of written appeals of household customers in the field of centralized water supply and centralized sewerage processed by licensees in 2020

The licensees processed a total of 53,293 written appeals from household customers in the field of centralized water supply and sewerage. The largest number of such appeals in 2020 was recorded in PJSC JSC Kyivvodokanal (15,969) — 29.96% of the total number of written appeals to licensees, PU Berdyanskvodokanal (8,543) — 16.03%, PU Water of Donbass Company (5,367) — 10.07%, PU Dniprovodokanal of Dnipropetrovsk City Council (3,178) — 5.96%, and PU Zhytomyrvodokanal (2,401) — 4.5%.

The total number of written appeals from household customers in the field of centralized water supply and sewerage in 2020 processed by licensees as distributed by the type of appeals is presented in Fig. 8.3.16.

Annexes 8.3.18 and 8.3.19 provide indicators of commercial quality of service provision for Q1–Q4 2020 for each NEURC licensee in the field of centralized water supply and sewerage.

9. INTERNATIONAL COOPERATION

European and Euro-Atlantic Integration of Ukraine

In 2020, the implementation of European integration activities was carried out by the NEURC in accordance with the Action Plan for the implementation of the **Association Agreement between the European Union and the European Atomic Energy Community and their member states, of the one part, and Ukraine,** of the other part (as amended) (hereinafter referred to as the Association Agreement), taking into account the Government's Action Plan, the Strategy for Sustainable Development "Ukraine 2020", the Treaty Establishing Energy Community approved by Resolution of the Cabinet of Ministers of Ukraine No. 1106 of October 25, 2017.

The full integration of Ukraine's and the EU's energy markets in the interests of customers and in order to strengthen mutual energy security and environmental sustainability remains a constant priority. The energy sector has always been and remains a key element of the Ukraine–EU partnership, and the fundamental principles of the energy cooperation strategy are enshrined in the **Ukraine–EU Memorandum of Understanding on Energy Cooperation** concluded on November 24, 2016 under the European Neighborhood Policy and still remain relevant for Ukraine.

Ukraine and the EU seek to deepen cooperation in the energy sector in order to achieve full market integration, as evidenced by the signing in 2019 of an updated **Annex XXVII to the Association Agreement**, which provides for new energy standards and rules to comply with in order to ensure Ukraine's integration into the EU internal market in the gas and electricity sectors, which is an important step towards gradual economic integration and deepening Ukraine's political cooperation with the EU and, of course, will bring Ukraine's prospects closer to full membership in the European Union. The NEURC is the responsible executor of certain measures for the implementation of EU acts to be implemented by Ukraine. In 2020, active work was carried out to implement these measures, with most of them being implemented by the NEURC in full in accordance with provisions of the Third Energy Package and recommendations of the Energy Community Secretariat. Among the main measures that will continue to be implemented by the NEURC in 2021 are the transposition and implementation of the adapted version of Regulation (EU) No. 1227/2011 of October 25, 2011 on the integrity and transparency of the wholesale energy market, the so-called REMIT light. In 2020, the NEURC in cooperation with the EU4Energy Governance project of the Energy Community Secretariat drafted the Law "On Amendments to Certain Laws of Ukraine on Preventing Abuse in the Wholesale Energy Markets" for transposition and implementation of REMIT. Adoption of the draft law will establish at the national level such requirements and rules that will ensure the transparency and integrity of the wholesale energy markets (electricity and natural gas markets) and prevent abuse by participants regarding, in particular, market manipulation, insider trading, which is one of the key tasks currently faced by the Ukrainian energy sector.

As part of Ukraine's implementation of the strategy for Euro-Atlantic integration, the NEURC effectively implemented the priorities and measures of the Annual National Program under the auspices of **2020 NATO–Ukraine Commission** aimed at achieving a sustainable, secure, and efficient energy supply system that meets the needs of population and business for sustainable development of economy and society.

In order to fulfill the obligations undertaken by Ukraine under the **Treaty Establishing Energy Community**, which it joined as a Contracting Party in 2011, and to take into account

the state interests in forming the regulatory framework of the regional energy market, the NEURC representatives constantly participate in the work of the Energy Community Regulatory Board (ECRB), meetings of the electricity working groups (EWG ECRB), gas working groups (GWG ECRB), customers and retail market working groups (CWG ECRB) on the REMIT issues (REMITWG ECRB), in electricity and gas forums, seminars, regulatory schools, and other events of the Energy Community. Due to the Covid-19 pandemic, meetings have been held via video conferences since mid-March 2020.

Within the year, the NEURC actively cooperated with the Energy Community Secretariat on the implementation of provisions of the EU Third Energy Package.

According to the Energy Community Secretariat,[129] **Ukraine was among the leaders** of the Energy Community concerning the **pace of implementation of energy reforms** in 2020 and ranks second in the overall ranking of member states according to the European legislation implementation ratio with an overall score of 61%.

In 2020, at the initiative of the Energy Community Secretariat, the South-Eastern and Eastern European Gas **(SEEGAS)** initiative was launched, bringing together the countries of the Energy Community, including Ukraine, as well as Romania, Bulgaria, Greece, Croatia, Hungary, Slovakia, and Hungary in an effort to create Europe's common energy markets, which are becoming increasingly liquid and interconnected. The first meeting of the platform **(SEEGAS-PM)** took place on December 15, 2020 and attracted more than 90 participants from different countries, which convincingly demonstrates the interest in the initiative and increasing interest in the integration of energy markets in Europe.

Implementation of international technical assistance projects

Since the opening of the electricity and gas retail markets, the NEURC has been actively working to improve the functioning of the reformed markets, in particular, to strengthen customer protection. In 2020, the NEURC agreed with the European Commission to launch a new technical assistance project **"Better Services for Customers in the Reformed Energy Markets"**, which will be implemented under the **ENI** (European Neighborhood Instrument) technical cooperation program to promote deepening of the political cooperation, democratic principles, enhancement of economic integration, and strengthening of partnerships between the EU and partner countries. The new project is aimed at strengthening the role of the Regulator in protecting customer rights, including in terms of preventing the use of unfair competition by market participants; enabling household customers and small customers to benefit from the market opening, including improving the information system on customer rights to choose and easily change suppliers, the right to connect and receive clear information under the contract, the right to pre-trial dispute resolution, accuracy of actual consumption data and billing etc. The project also plans to identify and assess the level of energy poverty and develop recommendations for overcoming it using the EU experience and best practices, define criteria for classifying customers as vulnerable and develop special measures to protect vulnerable customers.

The NEURC is also one of the main partners and beneficiaries of the **Organization for Economic Co-operation and Development (OECD)** project "Supporting Energy Sector Reform in Ukraine", which is implemented with the financial support of the Norwegian Government from January 2019 to December 2021 in the form of research with further development of recommendations and other analytical materials (reviews, reports, etc.) aimed at providing support to public authorities in Ukraine, including the Regulator, promoting and stimulating the efficiency of the energy sector, while increasing its investment attractiveness and competitiveness, during the implementation of energy reforms. The project focuses on competition, investment,

[129] Energy Community Secretariat, 2020 Annual Implementation Report.

responsible business conduct, the fight against corruption and corporate governance of state-owned enterprises in the energy sector. In 2020, the NEURC representatives participated in the preparation of the Report "State-Owned Enterprise Reform in the Electricity Sector of Ukraine" as part of the project, joined the work on evaluation of investment policy in the energy sector, evaluation of due diligence of environmental, social, and management factors, as well as risk management in the energy sector etc.

Within 2020, the work continued under the Technical Assistance Project **"Energy Security Project (ESP)"** funded by the United States Agency for International Development (USAID) (hereinafter referred to as the ESP). The ESP is the largest 5-year technical assistance project provided by the United States to strengthen the Ukraine's energy security and develop competitive environment in Ukraine's energy markets, and with a total budget of about USD 85 million.

The NEURC cooperation with the ESP is carried out within the framework of the Memorandum of Understanding concluded on April 11, 2019. During 2020, the joint work of the Project team with the NEURC specialists on regulation and further reform of the electricity and gas sectors, as well as the heat supply sector, continued within the framework of the ESP. In particular, qualified expert support from the ESP played an important role in the process of preparation for the implementation of the NEURC incentive regulation for electricity distribution companies, namely in the modeling and scenario analysis that preceded the establishment of the main parameters of the incentive regulation methodology. The Project also analyzed and reviewed the results of the first year of the wholesale electricity market in Ukraine with relevant recommendations on areas for further reform. The proposals prepared by the Project experts on improving the operation of the electricity market and preventing its abuse were taken into account by the NEURC in the development of changes to key regulations, such as market rules and DAM/IDM rules.

The support of the Project to increase the capacity of the Regulator to monitor the electricity and gas markets is important and extremely relevant. The project has developed a roadmap for REMIT implementation in Ukraine, provided expert assistance in finalizing the draft law developed by the Regulator, completed a number of activities to present European best practices for market monitoring and REMIT implementation, and purchased 22 Tableu licensed laptops to facilitate the Regulator's operation on monitoring.

At the same time, the most ambitious measure for the NEURC within the ESP implementation is the creation and implementation of the Regulator's information system, which will introduce an effective system for monitoring the energy market functioning, automate regulatory processes, provide administrative services to licensees and customers in electronic format, improve the system of publishing open data and NEURC decisions etc. The creation of a single information space will significantly increase the efficiency and effectiveness of work in the NEURC with documents and reporting information, ensure transparency in the development, processing of documents, and automation of processes.

Cooperation with international organizations of energy regulators

The NEURC attaches great importance to cooperation with energy regulators of other countries on a bilateral and multilateral basis. In particular, since June 18, 2015, the NEURC has the status of a full founding member of the **Energy Regulators Regional Association (hereinafter referred to as ERRA, the Association)**. It should be noted that in 2020, the ERRA celebrated its 20th anniversary, and the NERC[130] has been a founding member of the ERRA since 2000. The Association is a voluntary organization that brings together independent energy regulators from Central Europe,

[130] NERC — National Electricity Regulatory Commission of Ukraine established in 1994. The NEURC predecessor.

Eurasia, and affiliates from Africa, Asia, the Middle East, and the United States. Today, ERRA has about 34 full and 14 affiliate members and is a platform that provides a unique opportunity to contact regulators in many countries in Europe, Asia, and Africa to exchange information and developments in regulation, contributing to a more intensive dissemination of experience gained in different countries of the world. In 2020, the NEURC representatives actively participated in the online meetings of the ERRA General Meeting, as well as the new ERRA working committees: on natural gas markets and economic regulation, on electricity markets and economic regulation, on RES and the customer protection working group. In addition, ten NEURC employees took an ERRA online training course on "Introduction to Energy" for five weeks, in which they gained knowledge on topical issues: the role and functions of the energy regulator, regulatory problems, regulation of prices and tariffs, competition and regulation in electricity and gas sectors, energy transition, RES integration, market development.

The year 2020 was marked by the results of the long-term cooperation of the NEURC with the **National Association of Regulatory Utility Commissioners** (NARUC) with the financial support of the United States Agency for International Development (USAID):

- the next stage of activities under the **Partnership Program in the field of energy regulation and cooperation between the NEURC and NARUC/USAID** (hereinafter referred to as the Partnership Program), which is a tool for exchanging experience and information to improve the energy sector regulation in a market economy. Cooperation is carried out through seminars, meetings, initiatives, advisory assistance, and other activities. In 2017–2020, the NEURC received support in various areas under the Partnership Program, including recommendations to ensure transparency of regulatory processes, regulatory metering, monitoring of various market segments, customer complaints processing, gas infrastructure assessment, market modeling etc.;
- Stage II of the regional partnership between the regulatory authorities of Ukraine, Moldova, Georgia, Armenia, and the United States under the **Black Sea Regulatory Initiative (BSRI)** on cross-border allocation of reserves and balancing of energy markets has been completed. BSRI is a regional technical workshop to address issues of mutual interest related to regulation of electricity transmission and trade system across national borders, which will be key in further market and technical integration at the subregional level (primarily for Ukraine and Moldova), including ancillary services at the regional level. Recommendations and conclusions formed as a result of Stage II of the BSRI project, which are based on the experience and best practices of European countries and the United States, will serve as a good basis for developing an appropriate regulatory framework in Ukraine.

At the same time, USAID/NARUC launched in 2020 two new areas of targeted technical assistance to national regulators in Europe and Eurasia (E&E) under the **"Enhancing Stability and Technical Expertise in European and Eurasian Energy Markets" (ESTEEM)** program, including:

1) increasing market efficiency by understanding the proposed benefits of market integration (focuses on the allocation of reserves and the integration of energy markets and aims to assist regulators in assessing the validity of technical components used for work and interpreting the results of flow distribution research and production modeling);

2) improving investment planning by ensuring and implementing service quality standards (focuses on investment planning and service quality issues and aims at helping regulators better understand different methods of ensuring compliance with quality standards, as well as investment of utility companies to strengthen and increase the reliability of electricity networks).

The NEURC joined the USAID/NARUC initiative **"Advancing Women Leaders in Energy"** launched in 2020, which aims to change socio-cultural norms in energy regulatory commissions to increase gender sensitivity and promote women in leadership positions by enhancing their

leadership competencies and public speaking skills, as well as to search for legal instruments to strengthen the role of women in Ukraine's energy sector.

Despite the current situation in the world due to COVID-19 and the impossibility of holding international events in the usual format, the NEURC specialists took an active part in 70 online events during the year; the most significant of them were, in particular:

- participation of Valeriy Tarasiuk, the NEURC Chairman, as a guest speaker at the USAID Global Energy Training Cycle and his presentation of Ukrainian experience in implementing energy reforms during the regulatory reform session;
- expert dialogue with participation of Olga Babiy, NEURC Commissioner, specialists of the relevant NEURC departments, Ministry of Energy of Ukraine and NEC Ukrenergo with representatives of the Ministry of Economy and Sustainable Development of Georgia, Georgian National Energy and Water Supply Regulatory Commission, Georgian Transmission System Operator, Georgian Energy Exchange, and commercial metering operator, during which the parties discussed the current state of reforming the electricity market of Ukraine, the peculiarities of the wholesale and retail markets, challenges and problems faced by the Regulator during the reform period;
- participation of Dmytro Kovalenko, the NEURC Commissioner in the high-level international investment conference Energy Week Black Sea 2020, which brought together state institutions and energy companies from Ukraine, Turkey, Romania, Bulgaria, and Georgia, as well as international financial institutions, large transnational investment and consulting firms to conduct a dialogue aimed at promoting the use of renewable energy sources in the Black Sea Region and attracting foreign direct investment. During the conference, the participants outlined the main trends in the further development of RES and investment opportunities.

The NEURC is actively implementing measures to deepen international cooperation, prepare and implement joint programs and projects with international partners aimed at achieving Ukraine's ultimate goal of integration into the European Union; is adapting the Ukrainian legislation to the norms of the EU and the Council of Europe, which is a key integration element; is deepening Ukraine's relations with NATO as one of the main components of a comprehensive system of European stability and security.

10. MAIN PRIORITY TASKS OF NEURC FOR 2021

Association with EU energy markets:

certify the electricity transmission system operator;

develop/approve/improve secondary legislation to facilitate cross-border trade in electricity and natural gas;

transpose and implement the Network Codes and the ENTSO-E and ENTSO-G Guidelines approved by the EU Regulations;

create regulatory framework for the implementation of infrastructure projects of common interest with the Energy Community and EU countries;

create legal framework for introduction of joint auctions for the distribution of intersection capacity;

develop/approve secondary legislation on the transition to European standards for gas metering in energy units;

implement EU Regulation 838/2010 on the compensation mechanism for electricity transmission system operators and the general approach to electricity transmission charges.

Monitoring of energy markets:

support the draft Law "On Amending Certain Laws of Ukraine on Preventing Abuse in the Wholesale Energy Markets" for the purpose of transposition and implementation of Regulation (EU) No. 1227/2011 of October 25, 2011 on the integrity and transparency of the wholesale energy market;

develop/approve secondary legislation on the integrity and transparency of the wholesale energy market (investigation methodology, requirements for organized data transmission platforms, data collection and analysis system);

create Regulatory Information System (RIS) to ensure effective monitoring of the electricity and gas markets functioning.

Preparation for the implementation of EU's Fourth Energy Package provisions:

prepare amendments to the Law of Ukraine "On Electricity Market";

develop/approve/improve relevant secondary legislation, including on energy storage systems of all types in accordance with EU Directive No. 2019/944 on general rules of the internal electricity market.

Development of competitive markets:

promote competition in the areas of electricity generation and supply, natural gas supply;

monitor implementation of compliance programs of electricity distribution system operators/gas distribution system operators/gas transmission system operator;

prepare transition to a "financial" model for PSO implementation;

promote development of electricity generation from RES by developing/approving new support schemes based on the world's best practices;

develop/approve the secondary legislation on liquidity criteria for wholesale energy markets and measures aimed at improving it;

approve the long-term development plans for network operators, gas storage operators, water supply, and sewerage systems.

Customer protection:

expand the list of guaranteed quality standards of electricity supply and receipt of compensations by customers, simplification of the procedure for providing compensations;

improve the system of considering customer complaints and dispute resolution between market participants;

improve the regulatory framework for connection to electricity transmission and distribution systems.

Tariff regulation:

improve the regulatory framework for stimulating regulation of natural monopolies (for electricity and district heating);

develop methodologies for taking into account both variable and fixed part in the tariff structure of network companies;

improve the methodology for calculating tariffs for heat energy production at CHPs, TPPs, cogeneration plants and plants using RES;

develop/approve secondary legislation in accordance with the draft amendments to the Law of Ukraine "On Natural Gas Market" regarding the maintenance of indoor gas supply systems of apartment buildings;

develop/approve the procedure for connection to district heating networks and methods for determining the connection fee.

ACRONYMS

NPP — Nuclear Power Plant
ADCS — Automated Dispatch Control System;
BM — Balancing Market;
RES — Renewable Energy Sources;
IDM — Intraday Market;
WPP — Wind Power Plant;
VIEE — Vertically Integrated Economic Entity;
VRU — Verkhovna Rada of Ukraine;
PSPS — Pumped storage power stations;
HPP — Hydropower Plant;
TPP GC — Thermal Power Plant Generating Company;
GDN — Gas Distribution Network;
GCP — Gas Control Point;
GTS — Gas Transmission System;
BCM — Bilateral Contracts Market;
S — Subsidiary;
SE Energorynok — State Enterprise Energorynok;
SE NEC Ukrenergo — State Enterprise National Energy Company Ukrenergo;
SE NNEGC Energoatom — State Enterprise National Nuclear Energy Generating Company Energoatom;
DSTU — State Standard of Ukraine;
EnC — Energy Community;
ECP — External Casing Packer;
EDS — Electronic Digital Signature;
EU — European Union;
NEURC Law — Law of Ukraine “On National Energy and Utilities Regulatory Commission”;
M — Media;
IP — Investment Program;
IHS — Individual Heat Substation
CGU — Cogeneration Unit;
CMU — Cabinet of Ministers of Ukraine;
Naftogaz — Joint Stock Company National Joint Stock Company Naftogaz of Ukraine;
NBU — the National Bank of Ukraine;
NERC – the National Energy Regulatory Commission (until November 23, 2011 – the National Electricity Regulatory Commission of Ukraine);
NEURC — National Energy and Utilities Regulatory Commission;
IPS of Ukraine — Integrated Power System of Ukraine;
LG — Local Government;
TSO — Transmission System Operator;
DSO — Distribution System Operator;
LRS — Last Resort Supplier;
BSP — Balancing Service Provider;
CMSP — Commercial Metering Service Provider;
NEC Ukrenergo — Private Joint Stock Company National Energy Company Ukrenergo;
USS — Universal Service Supplier;
FRR — Frequency Restoration Reserve;
DAM — Day-Ahead Market;
ASM — Ancillary Services Market;
RR — Replacement Reserve;
ATC — Allocated Transmission Capacity;

FCR — Frequency Containment Reserve;
Regulator — National Energy and Utilities Regulatory Commission;
BRP — Balance Responsible Party;
SPP — Solar Power Plant;
UEB CE — Ukrainska Enerhetychna Birzha Commodity Exchange;
TEL — Technical Electricity Losses in Electric Networks;
TPP — Thermal Power Plant;
CHP — Combined Heat and Power Plant;
DHC — District Heating Company;
CEB — Central Executive Bodies;
CGCP — Cabinet Gas Control Point;
ACER — *Agency for the Cooperation of Energy Regulators*;
BSRRI — *Black See Regional Regulatory Initiative*;
CEER — *Council of European Energy Regulators*;
ECRB — *Energy Community Regulatory Board*;
ENTSO-E — *European Network of Transmission System Operators for Electricity;*
ENTSO-G — European Network of Transmission System Operators for Gas;
ERRA — *Energy Regulators Regional Association*;
NARUC — *National Association of Regulatory Utility Commissioners*;
USAID — *U.S. Agency for International Development*;

LIST OF FIGURES

LIST OF TABLES

ANNEXES