

# Security of Supply Statement



**Ministry of Infrastructure and Regional Development  
of the Republic of Moldova for the period 2020-2021**

## ACRONYMS

ANRE	National Agency for Energy Regulation
CPA	Central public authorities
LPA	Local public authorities
EIB	European Investment Bank
EBRD	European Bank for Reconstruction and Development
CAIDI	Customer Average Interruption Duration Index
EC	Energy Community
CHP	Combined heat and power plant
CIS	Commonwealth of Independent States
HP	Heating Plant
ENTSO-E	European Network of Transmission System Operators for Electricity
RES-E	Electricity from renewable energy sources
FEE-Nord	"Furnizarea Energiei Electrice Nord" JSC
IPS/UPS	Integrated Power System (Ukraine, Kazakhstan, Kyrgyzstan, Belarus, Azerbaijan, Tajikistan, Georgia, Moldova and Mongolia) / Unified Power System (Russia)
SE	State enterprise
OPL	Overhead power line
MGRES	Moldavscaya GRES (Kuchurgan Thermal Power Station)
MDL	Moldovan Leu
MIRD	Ministry of Infrastructure and Regional Development
DSO	Distribution system operator
TSO	Transmission system operator
NEEAP	National Energy Efficiency Action Plan
RED	Electricity Distribution Networks
RM	Republic of Moldova
RO	Romania
JSC	Joint-Stock Company
PJSC	Public Joint-Stock Company
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
ESM	Electricity system in Moldova
RES	Renewable energy sources
GMS	Gas Metering Station
LLC	Limited Liability Company
HV	High voltage
LV	Low voltage
MV	Medium voltage
UA	Ukraine
UCTE	Union for the Co-ordination of Transmission of Electricity
EU	European Union

## INTRODUCTION

According to the provisions of the Law no. 107/2016 on electricity and the Law no. 108/2016 on natural gas, the Government of the Republic of Moldova has the obligation, through the central specialized body of the public administration in the field of energy, to monitor the security of supply of electricity and natural gas to final consumers and to prepare a Monitoring Report every 2 years for submission to the Energy Community Secretariat.

The latest Security of supply Statement for 2017-2018 was approved by *Order no. 363/2019 of the Ministry of Infrastructure and Regional Development (MIRD) for the implementation of some provisions of Law no. 107/2016 on electricity and Law no. 108/2016 on natural gas.*

This Security of supply Statement largely contains the results of the monitoring of the electricity and natural gas market situation for the period 2020-2021, describing the measures undertaken in the energy sector, the capacity of the energy system to meet the existing demand, investment projects on the construction and commissioning of new interconnections, the regulatory and normative framework, electricity and natural gas consumption by categories of consumers, etc.

Security of energy supply is a challenge not only for the Republic of Moldova, but also for other European countries. The main concerns are the risks associated with the dependence on external sources, the unstable political situation in the countries of external suppliers and transit countries and potential disruptions in the energy supply. It is also recognized that the transformations taking place in the energy system as a result of the change in the structure of demand and the expansion of the use of renewable energy sources are creating new challenges for the continuous supply of energy to final customers at an affordable price.

The prolonged war in Ukraine and the uncertainty of future events are perpetuating the crisis in Moldova, including the crisis in the energy sector. Thus, given that the Russian Federation holds an important (dominant) position on the energy markets, practically any action taken by the Russian Federation in relation to the imposition of restrictions on the supply of energy resources, as well as energy-related sanctions applied by other states, has a direct impact on the stability of the energy markets and the value and predictability of prices for these resources. The most vulnerable in this respect are the developing countries which are dependent on the imports of energy resources.

The Republic of Moldova is dependent on natural gas imports, practically 100% are delivered by the Russian company PJSC "Gazprom". At the same time, the Republic of Moldova has no natural gas storage capacity, as natural gas can be stored in the neighbouring countries or in other countries with storage capacities. Natural gas supply and infrastructure in the Transnistrian region is not under the control of the Moldovan government. Natural gas is the main resource used to produce electricity and heat in Republic of Moldova - which amplifies the seasonal fluctuation of demand at country level.

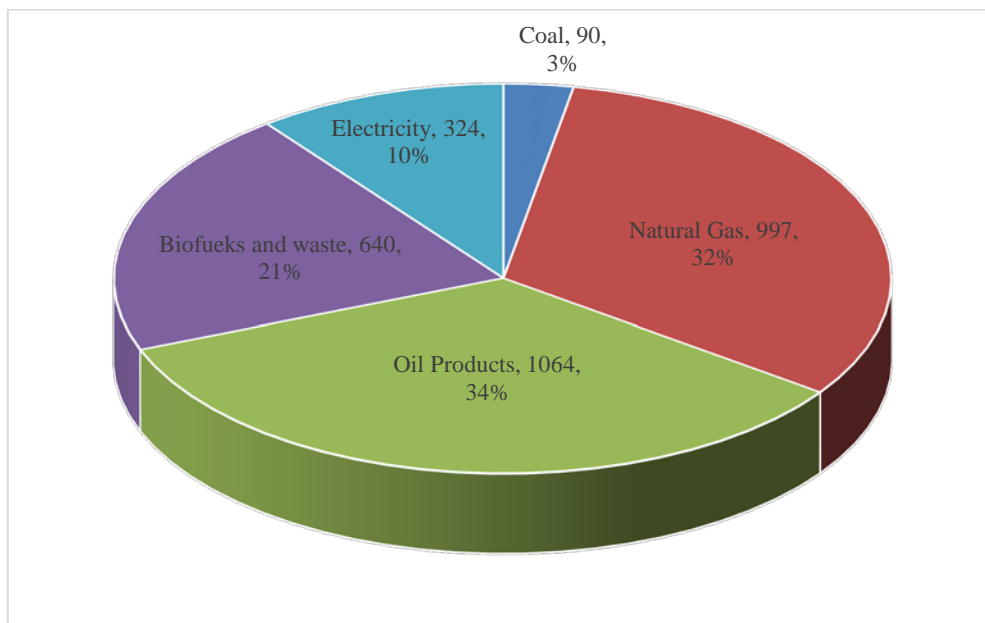
Although, there is currently a five-year natural gas supply contract between "Moldovagaz" JSC and PJSC "Gazprom" (Additional Agreement to the Natural Gas Supply Contract signed in October 2021), there is still a risk of unilateral termination of the Contract due to non-performance of the financial debt audit, thus there is a risk that at any time natural gas supplies may be limited or stopped. At the same time, there is a risk of lack of reliable and competitive (alternative) sources of natural gas imports, in terms of its purchase at reasonable prices and its transmission to the Republic of Moldova (including through the Trans-Balkan pipeline in reverse flow).

In order to have the possibility of prompt intervention to ensure the security of supply of energy resources, the emergency situation on the natural gas market - alert situation declared by the Decision

of the Commission for Exceptional Situations of the Republic of Moldova of 13.10.2021 (Minutes no. 12-53-242-7749) in accordance with the provisions of the Regulation and Action Plan on emergency situations on the natural gas market approved by Government Decision no. 207/2019, is maintained until now, and by Parliament Decision no. 278/2022, the state of emergency declared throughout the territory of the Republic of Moldova was extended by 60 days, starting from 07.10.2022.

The daily reporting mechanism of the authorities/undertakings in the energy sector, established by the MIRD on February 24 (the day when the war in Ukraine started), is still working (October, 2022), thus monitoring the situation in real time and, if necessary, providing intervention with the necessary solutions.

The energy balance of the Republic of Moldova (excluding the Transnistrian region)<sup>1</sup> for the latest available year, 2021, is shown in Figures 1-4.

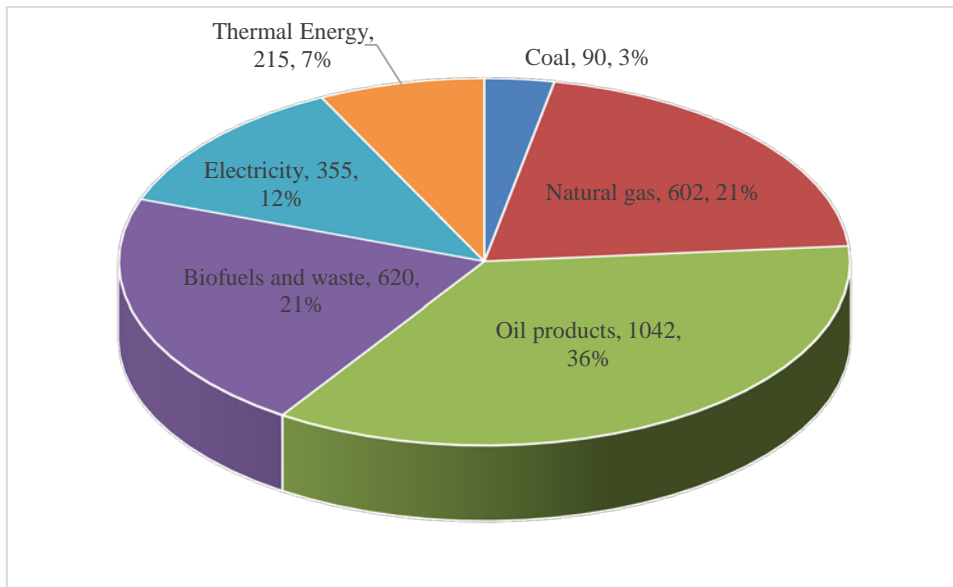


**Figure 1.** Primary energy supply, total in 2021, by energy type (thousand toe; %)

In the country's total primary energy supply<sup>2</sup>, oil products and natural gas are the predominant energy resources (34% and 32% respectively). Natural gas is 100% imported from the Russian Federation, while oil products are imported from Romania, Belarus, the Russian Federation and other countries. Biofuel and waste account for 21%, and coal and electricity for 3% and 10% respectively. Based on the import of primary energy resources, Moldova's energy dependence on external sources is very high, about 75.6%.

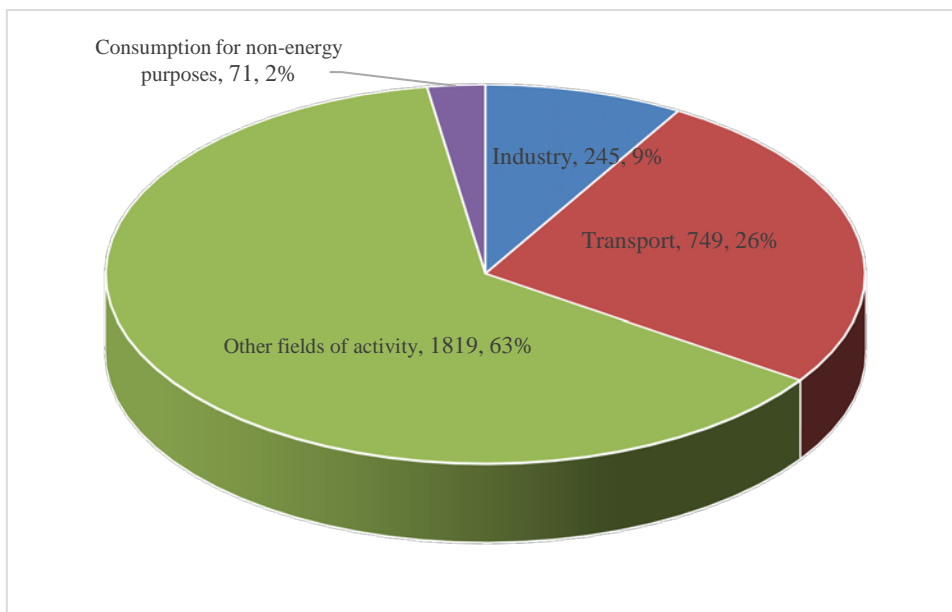
<sup>1</sup> Source: National Bureau of Statistics. The energy balance does not include data from economic agents/final consumers located on the territory of the left bank of the Dniester and Bender municipality (Transnistrian region).

<sup>2</sup> Represents the gross inland consumption of energy, which includes the energy used in transformations (e.g. from power stations, CHPs), losses from electricity and gas networks and final energy consumption.



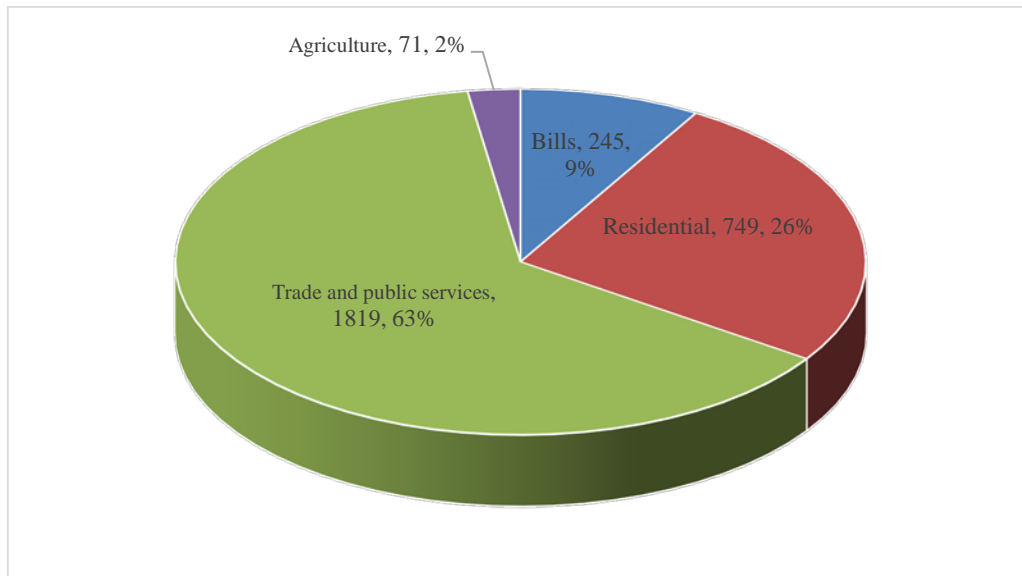
**Figure 2.** Total final energy consumption by energy type (thousand toe; %)

In terms of final energy consumption, oil products account for the largest share (36%), followed by biofuels and waste (21%) and natural gas (21%). Electricity accounts for 12%, thermal energy supplied through district heating systems - 7%, and coal - 3%.



**Figure 3.** Total final energy consumption by sector (thousand toe; %)

Final energy consumption by sector shows that only 9% of energy is consumed in industry, 26.0% in transport and 63% in other fields of activity, the specific areas of which are shown in Figure 4.



**Figure 4.** Final energy consumption in other fields of activity (thousand toe; %)

The "Other fields of activity" compartment is dominated by the residential sector, which accounts for 75% of total consumption, followed by "Bills" sector – 13%, "Agriculture" - 9% and "Trade and public services" - 3%.

Several vulnerabilities persist in Moldova's energy sector. High dependence on imported natural gas and electricity, historical debts (largely due to tariffs set in the past that did not fully reflect the costs incurred by energy undertakings), low consumer purchasing power (energy poverty), outdated electricity and heat generation systems, inefficient district heating systems, have led to the poor performance of today's energy sector.

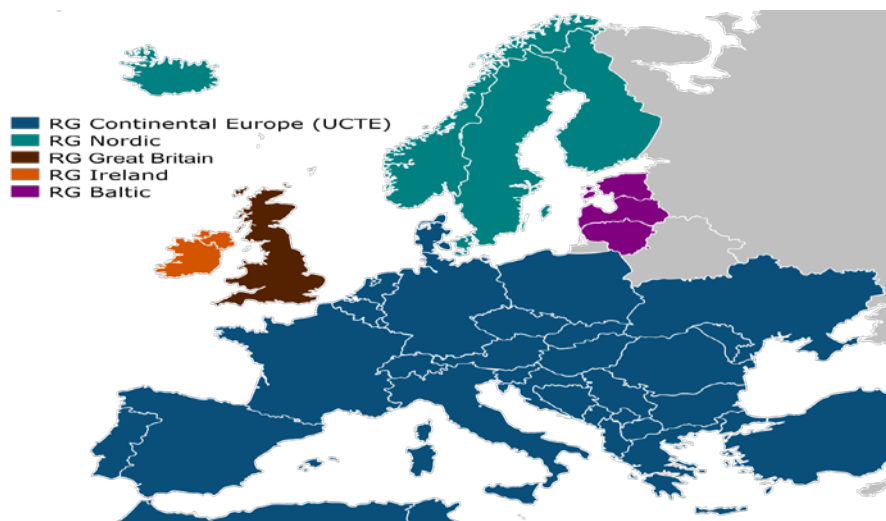
The Republic of Moldova is a transit country and an energy importer with only 24,4% of primary energy demand met from the energy resources on the right bank of the Dniester. Such a major dependence on energy resources makes the country's economy vulnerable to any external disruption in the country's energy supply, to fluctuations in energy prices, with an increased degree of unpredictability in the future. The existing situation also poses a threat to social security and a high risk to ensure the sustainable development of the national economy.

The Republic of Moldova lacks traditional energy resources such as coal and oil, and the potential of renewable energy sources is not fully exploited. Biomass is considered one of the most important renewable energy sources that can be exploited for energy purposes. At present, biomass, which accounts for about 24% of the final energy consumption, is mainly used for thermal energy production.

According to the Energy Strategy of the Republic of Moldova until 2030 (*hereinafter the Energy Strategy*) the main sectors of the energy sector to be developed in the future remain the same, such as energy efficiency, energy from renewable sources, electricity, natural gas and heat.

The electricity system in the Republic of Moldova operated until 2022 as part of the IPS/UPS (Figure 5), an electricity system that was not synchronised with the ENTSO-E (UCTE) system in Continental Europe. As of 16.03.2022, the power system of the Republic of Moldova and Ukraine operates synchronously with the ENTSO-E. Thus, the power system of the Republic of Moldova has the technical capacity to import/export electricity from both countries Ukraine and Romania, as well as other European countries. The operation of the power system of the Republic of Moldova and Ukraine synchronously with the ENTSO-E will ensure a higher degree of energy security and safe operation,

while also representing an opportunity for investment in power generation in the Republic of Moldova and in strengthening the electricity transmission network to the Energy Community and the EU.



**Figure 5.** Main synchronous transmission networks in Europe and the CIS

Diversification of the country's primary energy supply is quite low, for example, natural gas accounts for about 32% of the total primary energy, being supplied from the Russian Federation via Ukraine and the left bank of the Dniester (Transnistrian region). It is predominantly consumed by the residential sector - 40% and energy companies (CHPs, heating plants) - 37%, followed by the trade and public services sector - 10%, and industry - 8%.

The territory of the Republic of Moldova is an important transit route through which regional natural gas supplies are ensured (the transit of Russian gas through Ukraine and the Republic of Moldova to Romania, Bulgaria, Turkey, Greece and North Macedonia). It should be noted that until 2018 through the Trans-Balkan pipelines up to 18-20 billion m<sup>3</sup>/year were transited on the territory of the Republic of Moldova, but since 2019 this has decreased significantly, about 10 billion m<sup>3</sup>/year in 2019, 1 billion m<sup>3</sup>/year in 2020 and only 0.68 billion m<sup>3</sup>/year in 2021. The main reason for the reduction in volumes of natural gas transported through the networks of "Moldovatrangaz" LLC is the diversification of natural gas transport routes from the Russian Federation to the Balkans, including the commissioning in 2020 of the Turkstream pipeline with a combined capacity of 31.5 billion m<sup>3</sup>/year.

In 2014 it was completed the construction of the interconnection with Romania (Iasi-Ungheni gas pipeline), then in order to ensure the operation of the interconnection at full capacity, in 2020 it was completed the construction of the Ungheni - Chisinau gas pipeline, carried out by the "Vestmoldtrangaz" LLC, the external private investor being SNTG "Trangaz" JSC of Romania through "Eurotrangaz" LLC.

As of 01.01.2022 in the Republic of Moldova (excluding the administrative-territorial units on the left bank of the Dniester River) out of 1533 localities, 951 localities have access to the natural gas distribution networks, which represents an average level of 62.0%. Access is confirmed by the existence of natural gas distribution networks in these localities to which the final consumers are connected. Compared to 2020, in 2021 the level of access of localities to the natural gas distribution networks increased by about 0.5%. Thus, the access to the natural gas networks is ensured in all 11 municipalities, in cities the level of access to the networks is about 97.7% and in villages and communes it is about 60.7%.

With insufficient domestic energy resources, energy efficiency is one of the key priorities set out in the Energy Strategy and increasing energy efficiency is one of the activities that can be controlled by the state. However, in order to ensure progress and support sustainable development, the country needs a strong institutional framework, to be achieved through a mechanism of well-reasoned administrative reform, capacity building and development, and ultimately the support of development partners to strengthen policies and plans as well as their implementation. In 2022, with the support of development partners, several projects are to be launched to stimulate the implementation of several energy efficiency measures.

*Energy efficiency policies*, the first National Energy Efficiency Action Plan (NEEAP) for the period 2013-2015 was approved in February 2013. The government approved the second NEEAP for the period 2016-2018 in December 2016. The NEEAP for the period 2019-2021 was approved at the Government meeting on December 27, 2019. The central energy body is in the process of drafting the Integrated National Energy and Climate Plan, which is planned to be approved in the first half of 2023.

The Energy Efficiency Agency, following the reorganisation by merger (absorption) with the Energy Efficiency Fund, has the mission to implement the state policy in the field of energy efficiency, energy performance of buildings, as well as the valorisation of renewable energy sources, including by attracting and managing financial resources to finance projects in these fields in an environmentally and climate change sustainable way.

*Renewable energy sources*, according to available data<sup>3</sup>, the overall technical potential of RES is estimated at 65 TWh, of which solar (6 TWh) and wind (50.2 TWh) together accounting for about 86.5% of the total RES potential, while the remaining is biomass (5.4 TWh) and hydro (3.3 TWh). By Government Decision no. 401/2021, were approved the capacity limits, maximum quotas and capacity categories in the field of electricity from renewable sources valid until December 31, 2025, which will be able to benefit from the support schemes provided for in Article 34 of Law no. 10/2016 on the promotion of the use of energy from renewable sources (fixed price or fixed tariff). In accordance with the provisions of Government Decision no. 401/2021, these support schemes will be offered for the following categories of capacity in the field of electricity from renewable sources: Solar PV (photovoltaic) installations - 200 MW; Wind power installations - 120 MW; Biogas-based cogeneration installations - 65 MW; Syngas-based cogeneration installations - 10 MW; Cogeneration installations using direct combustion (biomass) - 10 MW; Hydro installations - 5 MW.

By joining the Energy Community in 2010 and becoming an EU candidate country in 2022, the Republic of Moldova has clearly expressed its ambition to secure its energy market at the same level as other EU countries. Closer integration into the European electricity and gas markets will bring benefits, compensating for the relatively small scale of the Moldovan economy and making the national energy market attractive to foreign investors. The opportunity to be part of a larger market will also reduce the costs of the overall investments needed to ensure adequate levels of security. More infrastructure projects can be built jointly with other Member States or co-financed by the EU, and in the future Moldova could be part of the Joint Gas Purchasing Platform to be created by the EU under the REPowerEU initiative.

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<sup>3</sup> <https://www.irena.org/publications/2017/Jan/Cost-competitive-renewable-power-generation-Potential-across-South-East-Europe>.



This report is based on available data and information for the year 2020-2021, which includes only the territory on the right bank of the Dniester River, taken from the annual reports of the National Bureau of Statistics and ANRE, as well as from energy companies.

## I. ELECTRICITY SECTOR

The description in this section is made only for the electricity sector of the Republic of Moldova, excluding the Transnistrian region, as the electricity sector of this region is not monitored by the state institutions of the Republic of Moldova. It should be noted that only one participant in the electricity market in the Transnistrian region has obtained a license from ANRE, namely, the undertaking MGRES - license for electricity production.

### 1.1. Main electricity market participants and their role

1. The central specialised body of the public administration in the field of energy is MIRD, which according to the Law no. 174/2017 on energy is responsible for the development of public policies in the energy sector and the development of the legal framework. The MIRD responsibilities include:

- a) developing and promoting state energy policy;
- b) preparing the prospective state energy balance and publishing it on its official website;
- c) elaborating state development programmes in the field of energy;
- d) elaborating and promoting legislative and regulatory acts in the field of energy, including in the context of harmonisation of national legislation with that of the European Union;
- e) monitoring the implementation of the energy strategy, the state energy development and investment programmes, as well as the legislative and normative acts in the field of energy;
- f) ensuring the energy security of the state by monitoring and coordinating the process of development and proper functioning of energy objects;
- g) promoting, within the limits of its competence, regional and international cooperation in the field of energy, including on strategic energy procurement, attracting investments, expanding interconnections and integrating markets in the energy sectors of the Republic of Moldova into regional and international markets;
- h) managing state property in the energy sector; promoting competition and limiting monopoly activity in the energy sectors.

2. *The National Agency for Energy Regulation (ANRE)* is the public regulatory authority with the status of a legal entity, which is independent from other public authorities and bodies or from other public or private entities. ANRE, as the public authority vested with powers to regulate and monitor the activities of the energy sectors, has the following core competences:

- a) monitor and control, in the manner and within the limits provided for by the sectoral laws, the compliance by licensees, authorisation holders with the conditions established for the performance of licensed, authorised activities, including those aimed at ensuring the protection of consumers' rights and the quality of the services provided;
- b) promote the development of energy markets in conditions of competitiveness, security and environmental sustainability;
- c) promote and facilitate, in accordance with sectoral laws, the access of new participants, including producers of energy from renewable sources, to the electricity and natural gas networks, to the electricity and natural gas markets, in particular by removing barriers that may prevent their access;
- d) promote the development of competition in energy markets, in compliance with the requirements laid down in sectoral laws;

- e) remove restrictions that prevent trade in electricity and natural gas on the regional market, including by promoting the development of interconnection capacities to meet demand and to contribute to the integration of the Republic of Moldova's market into the regional market, which could facilitate flows within the Energy Community;
- f) monitor the activity of participants in the energy markets, including through their compliance with energy legislation and regulations;
- g) monitor and ensure compliance with transparency by energy undertakings in their activities, including price transparency on wholesale markets;
- h) promote a fair and economically justified tariff policy by developing and approving methodologies for the calculation, approval and application of regulated tariffs and prices, based on transparent, objective and non-discriminatory criteria, in accordance with sectoral laws;
- i) approve regulated tariffs and prices in accordance with the approved methodologies and monitor the correct application by energy undertakings of the respective methodologies and of the regulated tariffs and prices approved on the basis thereof;
- j) implement the principle of maximum efficiency at minimum expenses and supervise its compliance by energy undertakings whose prices and tariffs are regulated by ANRE, ensuring no cross-subsidies;
- k) promote and ensure consumer protection, collaborate with non-commercial organisations that defend consumers' interests;
- l) exercise control over the way in which the rights of consumers are respected by energy undertakings, examine consumers' complaints and adopt decisions, issue decisions in the cases established in the sectoral laws;

**3.** *The Competition Council* is the authority that ensures the proper implementation of the provisions of Competition Law no. 183/2012.

**4.** The main players in the electricity market are the undertakings of the electricity system - legal entities as follows:

**4.1.** Production is carried out by:

- a) "Termoelectrica" JSC;
- b) "CET-Nord" JSC;
- c) "Nodul Hidroenergetic Costesti" SE;
- d) MGRES;
- e) CHPs from the sugar industry;
- f) about 115 power plants generating energy from RES (RES-E).

Termoelectrica JSC and "CET-Nord" JSC are regulated producers of electricity and heat.

**4.2. Transmission** (including central dispatching): The "Moldelectrica" SE is the sole transmission system operator for electricity (TSO) in the Republic of Moldova, providing electricity transmission services and centralized management of the electricity system of the Republic of Moldova.

The "Moldelectrica" SE operates the domestic transmission network on the right bank of the Dniester River. In terms of security of supply, the TSO is responsible for:

- a. providing ancillary services (back-up, load-frequency control and balancing of electricity flows) necessary for the operation of the power system;
- b. dispatching the electricity system;
- c. congestion management;

- d. power purchase to cover electricity losses in the transmission networks;
- e. developing and maintaining the electricity transmission system;
- f. connecting/disconnecting users to/from the transmission networks.

The transmission activity as well as the tariffs applied are regulated by ANRE.

The transmission system operator "Moldelectrica" SE is not separated. Following the amendments to the Law no. 107/2016 on electricity in 2022, the unbundling according to the independent system operator model is planned to be completed by the end of 2022. "Dniesterenergo" JSC (energy undertaking of the Transnistrian region), which does not comply with the regulatory acts of the Republic of Moldova in the electricity sector, acts as a system operator and supplier for consumers in the Transnistrian region.

**4.3. Distribution** is carried out by 2 distribution system operators (DSOs): "RED-Nord" JSC (state-owned) and ICS "Premier Energy Distribution" JSC (private), the latter covering about 70% of the territory of the Republic of Moldova (excluding the Transnistrian region). Among the tasks of the DSO the following can be listed:

- a) to ensure the long-term capacity of the electricity distribution networks to meet reasonable demands for electricity distribution, by drawing up and implementing plans for the development of the electricity distribution networks, taking into account, in particular, the forecast of electricity consumption;
- b) to operate, maintain, upgrade and develop electricity distribution systems in a secure, reliable and efficient manner and with due regard to the provisions designed to protect the environment. When operating, maintaining, upgrading and developing electricity distribution systems, the distribution system operator must mandatorily apply modern energy efficiency and/or demand-side management methods;
- c) to manage electricity flows in the electricity distribution system;
- d) when dispatching, give priority to electricity from eligible power plants generating from renewable energy sources and electricity from urban heating power plants;
- e) not to discriminate between system users or categories of system users, in particular avoiding discrimination in favour of related undertakings;
- f) to connect, disconnect and reconnect to the electricity distribution system within the time limits and under the conditions laid down in the normative acts in force;
- g) to procure the electricity necessary to cover technological consumption and losses of electricity in the electricity distribution networks and to maintain reserve capacity in its networks in accordance with transparent and non-discriminatory procedures laid down in the Electricity Market Rules, other tasks.

**4.4** According to the situation as of 08.08.2022 there are 57 licensees for the supply of electricity on the electricity market. A part of them are not active on the electricity market.

The main suppliers on the electricity market in the Republic of Moldova that were active during the reporting period are:

- a) ICS "Premier Energy" LLC;
- b) "Furnizarea Energiei Electrice Nord" JSC;
- c) "Furnizare Energie" LLC, "Ecoelectroenergo" LLC, "Sierra Solar Systems" LLC, "LC Energie" LLC, which operated on the market at unregulated prices.

ICS "Premier Energy" LLC and "Furnizarea Energiei Electrice Nord" JSC act as universal service providers and suppliers of last resort in the area of activity of ICS "Premier Energy Distribution" JSC and "RED-Nord" JSC respectively.

In order to ensure the implementation of the provisions of the Law no. 107/2016 on electricity, the Law no. 10/2016 on the promotion of the use of energy from renewable sources and the Law no. 92/2014 on thermal energy and promotion of cogeneration, in 2017 the undertaking "Energocom" JSC was designated by Government Decision no. 885/2017 as the central electricity supplier until 01.01.2021. Subsequently, by Government Decision No. 986/2020 the term of designation of the "Energocom" JSC as a central electricity supplier was extended for the period of validity of the license for electricity supply (16.01.2028).

**4.5. Mixed functions (network/generation):** are performed by "Dnestrenergo" JSC, the company in the Transnistrian region that manages the eastern part (left bank of the Dniester) of the electricity networks and the Dubasari hydroelectric power plant, which is not regulated by Moldovan institutions;

**4.6. Final customers** are eligible to be supplied with electricity by any supplier of their choice and have the right to be supplied with electricity based on a contract, under conditions of affordability, continuity and reliability. By ANRE Decision no. 126/2020 it was approved a new Regulation on the procedure for changing the electricity supplier pursuant to art. 71 par. (1) of the Law no. 107/2016 on electricity.

Thus, as of 08.08.2022 there are 5 licensed producers and about 115 small producers of electricity produced from RES that do not hold licenses, 1 transmission system operator, 2 distribution system operators and 57 licensed suppliers operating on the electricity market of the Republic of Moldova.

## **1.2. Basic legislative and regulatory framework in the sector**

**5.** In order to promote the development of the electricity sector, the regulatory framework has been steadily developed in recent years with the aim of aligning it with the EU energy acquis. The national legislation transposes practically the entire Third Energy Package, but some measures still need to be taken to ensure the independence of system operators (e.g. the certification of the transmission system operator).

**6.** Law no. 107/2016 on electricity, transposing the Directive 2009/72/EC concerning the common rules for the internal market in electricity and repealing the Directive 2003/54/EC (Third Energy Package), created the basic regulatory framework, in particular by:

- a) defining the powers of government authorities, the powers and rights of ANRE;
- b) defining the tasks, rights and responsibilities of producers, transmission system operators, distribution system operators and electricity suppliers;
- c) defining the concept of public service obligation and the basic rules for the imposition of such obligations, which may relate to security, including the security and reliability of electricity supply to final customers, energy efficiency, energy from renewable sources and environmental protection;
- d) unbundling, designation, certification and independence of the transmission system operator;
- e) defining the electricity market, the access to the electricity market and the operation of the electricity market;
- f) defining the concept of consumer protection, and primarily that of vulnerable consumers in terms of energy poverty;
- g) defining the organisation, operation and monitoring of the electricity system, third party access to transmission and distribution systems.

**7.** Law no. 10/2016 on the promotion of the use of energy from renewable sources, transposing the Directive 2009/28/EC of the European Parliament and of the Council of April 23, 2009 on the promotion of the use of energy from renewable sources and amending and repealing Directives

2001/77/EC and 2003/30/EC, is important for addressing RES-E issues, which may also have an impact on the security of electricity supply.

**8.** The Law on thermal energy and promotion of cogeneration no. 92/2014 partially transposed the Directive 2012/27/EU of the European Parliament and of the Council of October 25, 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC. This law also provides for the transfer of some regulatory powers in the heat and power sector (such as the approval of tariffs for heat and power activities) from local authorities to ANRE.

**9.** The Law on energy efficiency no. 139/2018, which transposes the Directive 2012/27/EU of the European Parliament and of the Council of October 25, 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC, regulates the activities aimed at making both the production and use of energy more efficient, increasing the country's energy security and reducing the negative impact of the energy sectors on the environment by reducing greenhouse gas emissions.

**10.** In addition to the primary legislation, there are a number of secondary regulations approved by ANRE, in particular on licensing issues, electricity market rules, investments, tariffs, consumer protection, access and connection to electricity networks, energy contracting, supply and billing, guarantees of origin for energy produced from renewable sources.

**11.** Following the adoption of Law no. 107/2016 on electricity and Law no. 10/2016 on the promotion of the use of energy from renewable sources, some regulatory acts of ANRE have been amended in line with primary legislation, and at the same time other new regulatory acts have been promoted and implemented to ensure a proper implementation of these laws.

**12.** By Government Decision no. 149/2019, were approved the Regulation on emergency situations on the electricity market and the Action Plan for emergency situations on the electricity market. In the Regulation, measures were established to ensure the continuous functioning of the internal electricity market and to implement non-discriminatory, transparent and specific procedures to guarantee the security of electricity supply in the event of emergency situations on the electricity market. The Action Plan shall describe in detail the procedure to be followed in relation to the determination of the occurrence of the emergency situation, the role and actions to be taken by each participant in the electricity market as well as by other authorities in relation to the prevention and management of emergency situations occurring in the electricity market.

### 1.3. Electricity balance

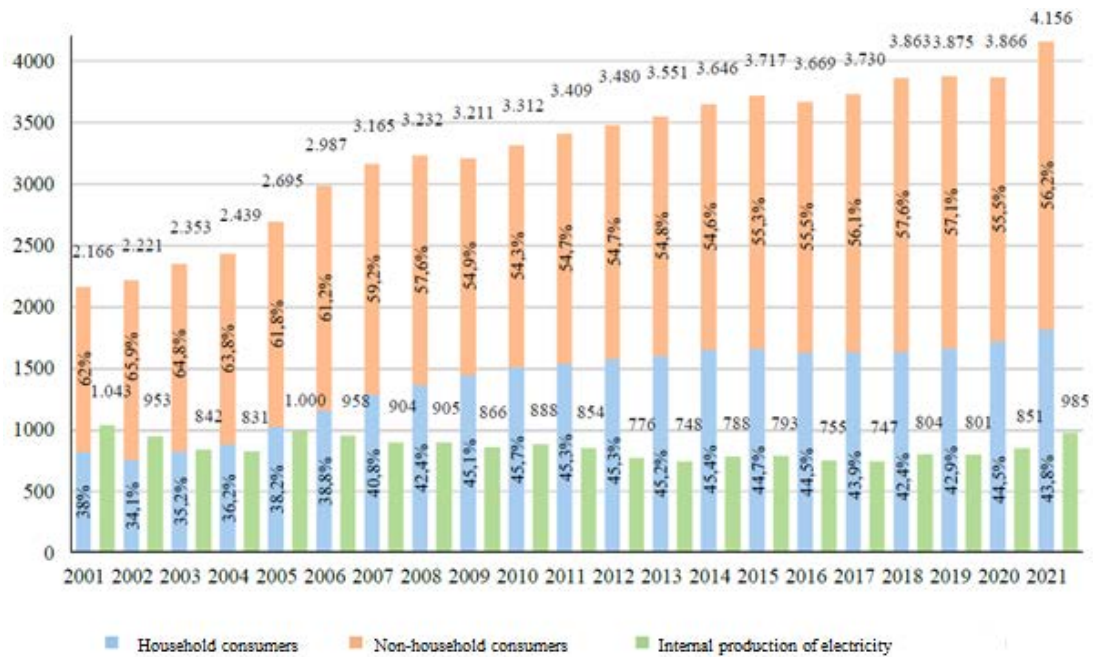
13. Selected elements of the electricity balance for 2019-2021 are shown in Table 1.

**Table 1.** Electricity balance for 2019-2021

NS	Category	2019		2020		2021	
		GWh	% of total	GWh	% of total	GWh	% of total
<b>1</b>	<b>Local production - total</b>	<b>801,1</b>	<b>100,0</b>	<b>851,4</b>	<b>100,0</b>	<b>984,7</b>	<b>100,0</b>
	<i>"Termoelectrica" JSC</i>	601,3	75,07	621	72,94	695,5	70,63
	<i>"CET-Nord" JSC</i>	58,3	7,28	100,5	11,80	102,4	10,40
	<i>"Nodul Hidroenergetic Costesti"</i>	64	7,99	46,7	5,49	67,5	6,85
	<i>Other RES producers</i>	74,9	9,35	81,3	9,55	116,6	11,84
	<i>Other domestic producers</i>	2,5	0,31	1,9	0,22	2,7	0,27
<b>2</b>	<b>Total electricity purchased, including</b>	<b>4301,9</b>	<b>100,0</b>	<b>4269,8</b>	<b>100,0</b>	<b>4591,7</b>	<b>100,0</b>
	<i>"RED Nord" JSC</i>	76,4	1,78	74,3	1,74	78,1	1,70
	<i>ICS "Premier Energy Distribution" JSC</i>	243,9	5,67	226	5,29	241,4	5,26
	<i>ICS "Premier Energy" LLC</i>	2621,5	60,94	2543,9	59,58	2728,4	59,42
	<i>"FEE Nord" JSC</i>	972,7	22,61	949	22,23	1046,1	22,78
	<i>"Moldelectrica" SE</i>	106,5	2,48	103,4	2,42	116,4	2,54
	<i>Final consumers who used the right of eligible consumer</i>	280,9	6,53	373,3	8,74	381,2	8,30
<b>3</b>	<b>Electricity consumption - total</b>	<b>3875,1</b>	<b>100,0</b>	<b>3866,2</b>	<b>100,0</b>	<b>4155,8</b>	<b>100,0</b>
	Household consumers	1663,2	42,92	1721,3	44,52	1818,7	43,76
	Non-household consumers	2211,8	57,08	2144,9	55,48	2337,1	56,24
	<i>or total useful delivered to consumers, inclusive:</i>						
	<i>ICS "Premier Energy" LLC</i>	2621,5	67,65	2543,9	65,80	2728,4	65,65
	<i>"FEE Nord" JSC</i>	970	25,03	949	24,55	1046,1	25,17
	<i>Final consumers who have used the right of eligible consumer</i>	125,1	3,23	373,3	9,66	381,2	9,17

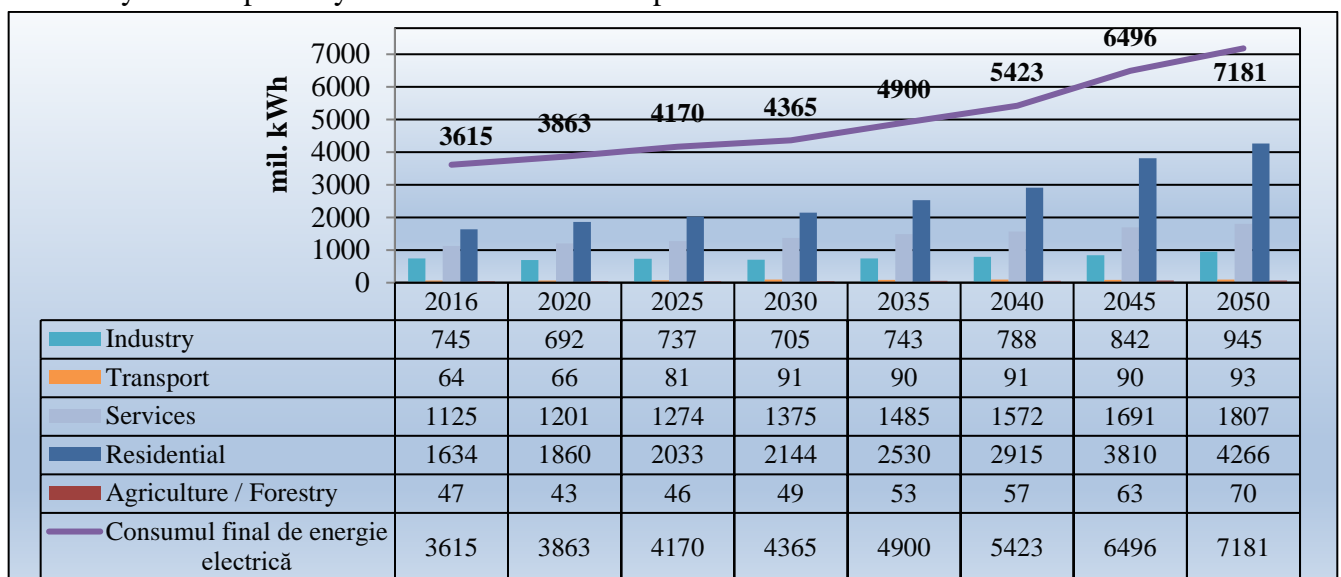
14. During 2019-2021, the electricity consumption in the Republic of Moldova has been increasing. The useful delivery of electricity to final consumers in 2021 amounted to 4 155.8 mil. kWh, which is 289.7 mil. kWh or 7.5% more than in 2020. The positive dynamics of electricity consumption is characteristic to all suppliers, with the largest increase being recorded by ICS "Premier Energy" LLC, with about 184.6 mil. kWh, followed by "FEE-Nord" JSC with an increase of 97.1 million kWh and electricity suppliers at unregulated tariffs with an increase in the amount of 7.9 million kWh.

15. The increase in electricity consumption is noted both for household consumers, with a 5.7% increase compared to 2020, and for non-household consumers, with a 9% increase compared to 2020. At the same time, the share of household consumers in final electricity consumption decreased by 0.7% (43,8%), while the share of non-household consumers increased by 0.7% (56,2%). At the same time, urban households increased their electricity consumption by about 6.2%, while rural households increased their consumption by 5.1%.



**Figure 6.** Electricity production and consumption for the period 2001-2021, million kWh

16. According to the estimates made by the experts participating in the elaboration of the draft Integrated National Energy and Climate Plan, in the case of the "business as usual" scenario, final electricity consumption is projected to increase from 3.61 billion kWh in 2021 to about 7.18 billion kWh in 2050, or an increase of about 100%. See Figure 7 for the forecast of the evolution of final electricity consumption by different sectors in the period 2016-2050.



**Figure 7.** Forecast for electricity consumption in the period 2016-2050, million kWh

17. All electricity demand during this period was covered by domestic production and electricity imports. Annual local production during this period was around 801-984 GWh. In this context, it is necessary to consider that local (right bank of the Dniester River) electricity production remains far below the level of consumption, which in 2021 covered only 21.4% of demand. Such a situation denotes a state of high dependence on imports and purchases of electricity from the Transnistrian region and vulnerability in terms of security of supply, despite the fact that during this period domestic production has increased. Referring to the electricity producers, we note that in 2021 the increase in the amount of electricity produced by domestic producers was due to the increase in electricity production



at CHPs and power plants producing electricity from renewable sources. Like previous periods, the main share of local production belongs to CHP producers (more than 70%).

Another risk to security of supply is the rather limited technical reliability and consequently the availability of existing power plants and CHPs due to the high level of wear and tear of the installations. All CHPs are at least 30-50 years old. The very high rate of wear and tear of electricity generation and delivery (transmission and distribution) installations has severe negative effects on both the technical (such as capacity availability, fuel conversion efficiency, heat load dependency) and economic performance of energy installations, thus representing a risk to security of supply.

## **1.4. Existing capacities of the power system**

### **1.4.1 Electricity generation**

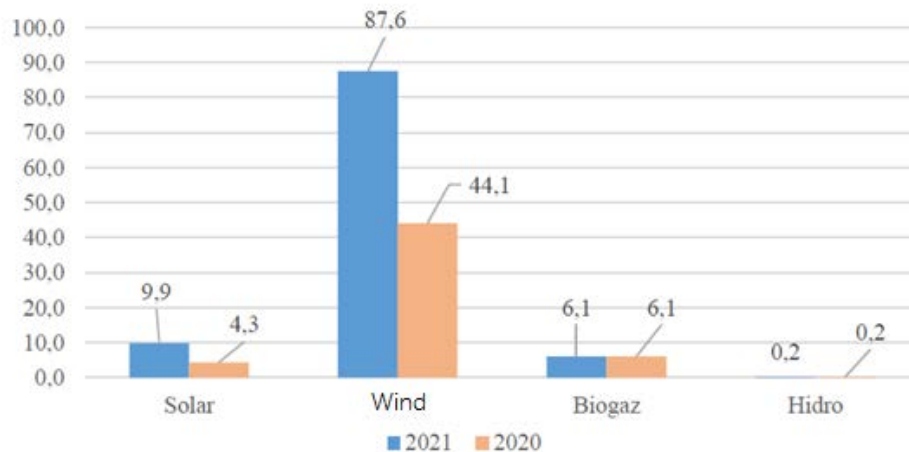
**18.** The main electricity producers in the Republic of Moldova are:

- a) MGRES (1964-1982) located in the Transnistrian region, 2520 MW, operates on coal, natural gas and fuel oil, with installed capacity of 2520 MW / available capacity of about 1700 MW, owned and operated by Inter RAO EES Corporation of the Russian Federation since 2005;
- b) "Termoelectrica" JSC, which includes:
  - Source 1 (CHP-2 in Chisinau) (1976-1980), natural gas-fired, installed capacity of 240 MWe and installed thermal capacity of 1200 Gcal/h, with maximum available thermal capacity of 740 Gcal/h;
  - Source 2 (CHP-1 in Chisinau) (1951-1961), natural gas-fired, installed electrical capacity of 66 MWe and installed thermal capacity of 239 Gcal/h.
- c) "CET-Nord" JSC in Balti (1956-1970), natural gas-fired, with installed capacity of 37.2 MWe (24+4\*3.3) / available capacity of 37.2 MWe and thermal capacity of 342 Gcal/h, of which 200 Gcal/h is the capacity of two heat-only boilers. Due to the fact that the existing plant equipment is not obsolete, it is considered that the available heat capacity is approximately the same as the installed one, however the heat load has decreased significantly compared to the designed capacity. "CET-Nord" JSC operates only during the cold period of the year, for a period of about 5-6 months, due to the lack of heat demand.
- d) 7 CHPs at sugar factories (1956-1981), natural gas and fuel oil fired, installed capacity of 98 MWe/available capacity for the electricity network of about 20 MWe (the rest is for domestic consumption);
- e) Dubasari hydroelectric power plant (1954-1966) in the Transnistrian region, installed capacity of 48 MW / available capacity of 48 MW;
- f) Costesti hydroelectric power plant (1978), installed capacity of 16 MW / available capacity also being 16 MW. However, due to the low water flow in the Prut River, the hydropower plant can operate at its full capacity only in the months of May-August, when the water flow in the river is higher due to the melting snow in the Carpathian Mountains;
- g) power plants producing electricity from RES, with a total installed capacity in 2021 of about 103.8 MW.

**19.** The total electricity generated by installations using renewable sources, the owners of which benefit from the support scheme, excluding the "Nodul Hidroenergetic Costesti" SE and the producers who sell electricity at negotiated prices, in 2021 amounted to 116.6 million kWh, which represents an increase of about 43.3% compared to 2020. Of this total, for 58.9 million kWh of electricity guarantees of origin were issued by the central electricity supplier.

**20.** Of the total amount of electricity generated from renewable sources, the largest share is accounted for by electricity generated using the wind potential (65.5%), followed by electricity produced from biogas (27.7%), electricity produced from solar energy (6.7%), and the smallest share is accounted for by electricity produced from hydropower plants, less than one percent.

**21.** The total installed capacity of RES generation capacities in 2021 was 103.8 MW, which is an increase of about 49.1 MW or 89.7% more than in 2020. Thus, the dynamics of installed capacities considering the applied technology indicate that in 2021 the installed capacity of technologies using solar and wind potential practically doubled. At the same time, the capacity of installations operating on the basis of biogas and hydropower potential remained unchanged (Figure 8).



**Figure 8.** Installed capacity dynamics of power plants operating on RES 2020-2021, MW

**22.** In order to implement the support schemes provided for in Article 34 of the Law no. 10/2016 on the promotion of the use of energy from renewable sources, the Government of the Republic of Moldova approved by Decision no. 401 of 08.12.2021 the capacity limits, maximum quotas and capacity categories in the field of electricity from renewable sources valid until December 31, 2025. Thus, out of the total 410 MW of generating capacity to be commissioned, 245 MW are destined for the "fixed tariff" support scheme, and those wishing to benefit from it will apply to ANRE for confirmation of their status as eligible producers.

**23.** In 2021, the number of final consumers who benefited from the net metering mechanism provided for by Article 39 of Law no. 10/2016 on the promotion of the use of energy from renewable sources increased 1.8 times, reaching 473 by the end of the year. At the same time, during 2021 the installed capacity increased by 2 times, with 9.9 MW of capacity registered at the end of the year, and the electricity fed into the electricity network from final consumers with renewable energy sources (photovoltaic) for domestic consumption was 4 100.9 thousand kWh, an amount which is 2.8 times higher than in 2020.

**24.** The nominal capacity of power generation installed on the whole territory of the Republic of Moldova is about 3129 MW, about 2568 MW of this capacity is installed on the left bank of the Dniester River and only about 561 MW on the right bank of the Dniester River.

Thus, it should be noted that the power generation capacities installed on the right bank of the Dniester River are limited, being able to cover only about 20-25% of electricity consumption. At the same time, it should be noted that the service life of the existing thermal power plants is limited due to the high level of wear and tear of the installations (at least 30-50 years old), or capital investments/repairs have to be carried out to extend their service life. The very high rate of wear and

tear of electricity generation and delivery (transmission and distribution) installations has severe negative effects on both the technical (such as capacity availability, fuel conversion efficiency, heat load dependency, problems associated with tariff approval) and economic performance of energy installations, thus representing a risk to security of supply.

The lack of sufficient installed power generation capacity poses a risk to the security of electricity supply on the right bank of the Dniester River.

Thus, in order to increase the country's security of electricity supply, taking into account the obsolete electricity and thermal power generation systems and the forecast of increasing electricity consumption in the medium and long term, it is necessary to examine the opportunity for the government to facilitate the construction of new electricity and thermal power generation capacities on the right bank of the Dniester River. Discussions on the construction of new fossil fuel power generation capacity on the right bank are at an early stage.

#### 1.4.2. Electricity transmission

25. The electricity transmission system operator, "Moldelectrica" SE, performs the function of centralised management of the electricity system in the Republic of Moldova. The electricity network in the Republic of Moldova includes 6228.6 km of 400 kV, 330 kV, 110 kV transmission lines (Table 2 and Figure 9).

**Table 2.** Key elements of the electricity transmission network

Voltage level (kV)	Lines	Transformers	
	Length (km)	Number	Installed capacity (MVA)
<b>In the transmission system</b>			
400	203,0		
330	532,54 (377,34*)	1(1*)	500 (500,0*)
110	5493,06 (3.336,89*)	5 (3*)	2515 (1525,0*)
		202 (131*)	4816 (2365,7*)
<b>Transmission - total</b>	<b>6228,6</b>		

Note: \* Owned by Moldelectrica SE

26. The 6-35 kV lines operate mainly in radial mode.

27. High voltage interconnections with neighbouring countries include:

- a) 1 line of 400 kV with Romania;
- b) 7 lines of 330 kV with Ukraine;
- c) 4 lines of 110 kV with Romania;
- d) 11 lines of 110 kV with Ukraine.

The high voltage interconnection between the Republic of Moldova and Romania consists of the 400 kV Vulcanesti-Isaccea overhead power line and four 110 kV lines. However, these interconnections were used only in exceptional cases, in operation on the island, as the power system in the Republic of Moldova did not operate synchronously with the Romanian power system. Thus, in order to increase the security of electricity supply in the Republic of Moldova by diversifying the sources of electricity, two major projects are currently being implemented for the Republic of Moldova: The project on synchronous interconnection of the energy systems of the Republic of Moldova and Ukraine with the ENTSO-E energy system and the project on interconnection of the electricity system of the Republic of Moldova with that of Romania through the construction of the 400 kV Vulcanesti-Chisinau OPL. Starting with 24.02.2022, the power systems of Ukraine and Republic of Moldova have been disconnected from the integrated IPS/UPS system. In this regard, the Continental European TSOs have carried out on 16.03.2022 the emergency synchronization of the ENTSO-E Continental European Power System with the power systems of Ukraine and Republic of Moldova.

28. Moldova's transmission network was previously optimized and built to serve the needs of the interconnected system of the former Soviet Union, when it was still synchronized with Romania, Bulgaria and most Eastern European countries (SUDEL).

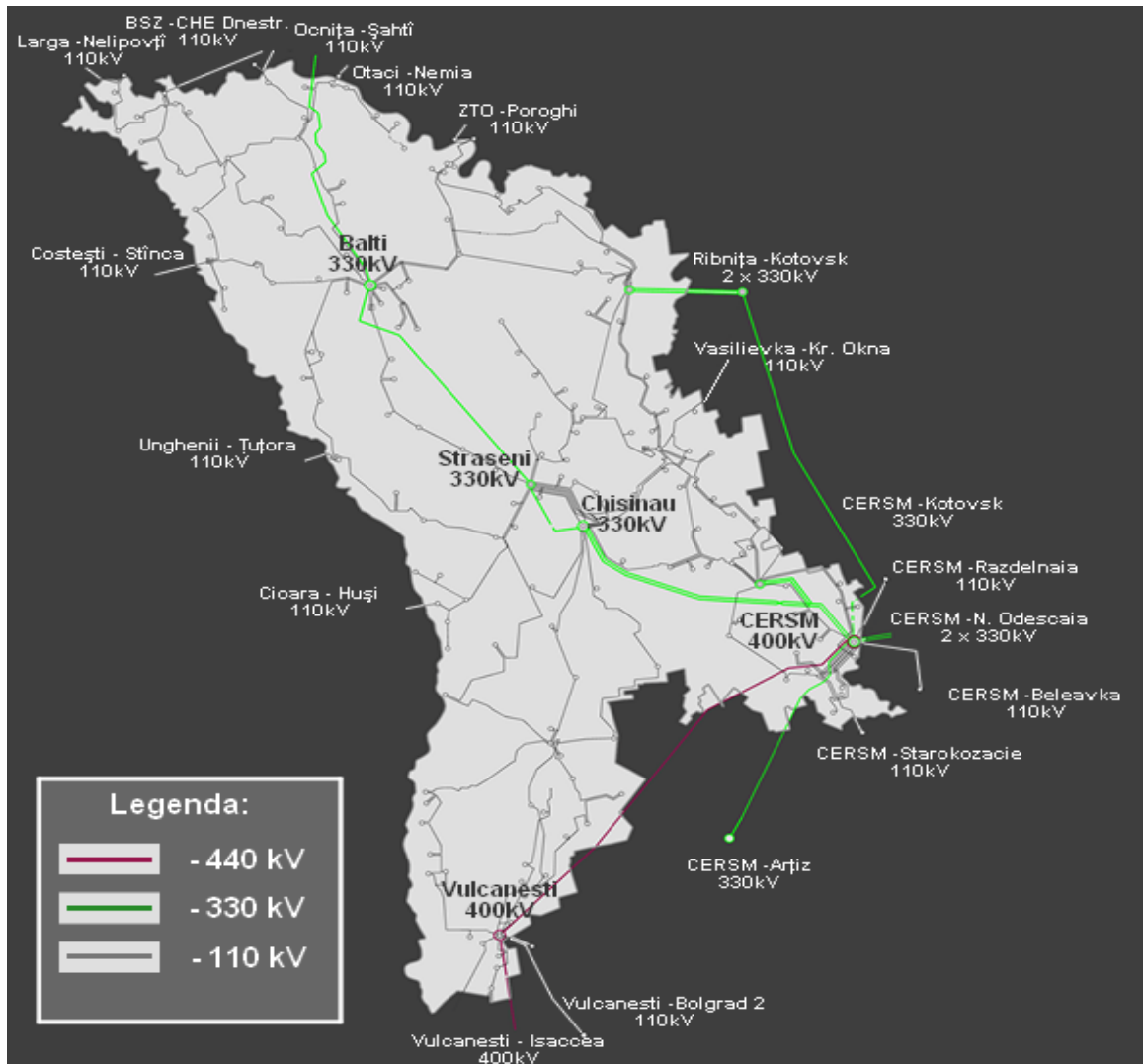


Figure 9. High voltage transmission network scheme in the Republic of Moldova

## 1.5. Technological and operational security of the energy system

### 1.5.1. Contractual arrangements

29. According to the Law no. 107/2016 on electricity, the Electricity Market Rules approved by ANRE Decision no. 283/2020 and the licenses issued, each supplier of electricity at regulated tariffs must sign bilateral contracts for the purchase of electricity at the lowest price that will allow it to cover the demand of all its final consumers and notify the regulator of all such contracts.

30. Electricity suppliers that produce electricity on the retail market are obliged to buy electricity produced by CHPs and RES on the right bank of the Dniester River, which de facto currently represents the electricity produced in the Republic of Moldova. In this regard, Law no. 107/2016 provides for the creation of a central energy supplier, which will purchase the electricity produced through cogeneration by CHPs and RES and resell it to all respective suppliers, according to the market share of each. By Government Decision no. 885/2017 (amended by Government Decision no.

986/2020) "Energoecom" JSC was appointed as a central electricity supplier for the period of validity of the license for electricity supply (16.01.2028).

**31.** In order to cover the required electricity demand, the suppliers and eligible consumers sign negotiated bilateral contracts, usually annually. In 2021, there were 7 active suppliers in the Republic of Moldova:

- a) "FEE-Nord" JSC;
- b) ICS "Premier Energy" LLC;
- c) "Energoecom" JSC;
- d) "Furnizare Energie" LLC
- e) "Ecoelectroenergo" LLC;
- f) "Sierra Solar Systems" LLC;
- g) "LC Energie" LLC.

"FEE-Nord" JSC is a state-owned company, which was created as a result of the unbundling of the distribution and supply activities of "RED Nord" JSC and "RED Nord-West" JSC. ICS "Premier Energy" LLC is a private company and the largest electricity supplier in the Republic of Moldova. "Energoecom" JSC is a state-owned company, which imports electricity from Ukraine and purchases electricity from MGRES. All electricity that is purchased by "Energoecom" JSC is sold to "FEE-Nord" JSC, ICS "Premier Energy" LLC, other suppliers and system operators, who buy electricity for technological consumption and to cover network losses, according to the signed contracts.

**32.** All contracts for the purchase of electricity from foreign suppliers must be submitted for coordination to the TSO ("Moldelectrica" SE) for examination in terms of the technical feasibility of implementing such contracts.

**33.** Each electricity supplier shall sign contracts with "Moldelectrica" SE for the provision of transmission services by the TSO and with the distribution system operators for distribution services.

### **1.5.2. Purchase of electricity**

**34.** In 2022, amendments were made to the Law no. 107/2016 on electricity in order to introduce a mechanism to ensure the purchase of electricity from at least two sources as a measure to increase the security of electricity supply. Thus, as a result of the source diversification policy adopted by the Parliament of the Republic of Moldova in early 2022, commercial imports from Ukraine based on direct contracts between the state producers of UA (Ukrhydroenergo and Energoatom) and "Energoecom" JSC (the state supplier RM) started in May 2022 and continued until now (October).

**35.** According to the decision of the Commission for Emergency Situations of the Republic of Moldova, "Energoecom" JSC is obliged to procure electricity for system operators, suppliers of last resort and universal service providers during the state of emergency, which procure electricity from "Energoecom" JSC on the basis of bilateral contracts.

**36.** From 01.06.2022, Moldova launched a time balancing mechanism administered by the TSO. The mechanism operates at regulated imbalance prices for a transitional period. The Moldovan electricity system is also integrated into the European system for the financial settlement of unintended deviations between TSOs applied in Europe (FSkar mechanism) via Ukrenergo. A bilateral agreement between Moldelectrica and Ukrenergo subjects the former to the conditions and prices of the FSkar mechanism.

**37.** As of 01.06.2022, the Electricity Market Rules, approved by ANRE Decision no. 283/2020, entered into force. Among the main regulations introduced, it can be mentioned that at the initial stage the balancing responsibility for electricity market participants is ensured and the prerequisites for the

launch of all organized electricity markets (day-ahead market, intra-day market, balancing electricity market and system services market) are created.

Pending the designation of the electricity market operator, the TSO shall be responsible for registering bilateral contracts. In this respect, the electricity market participants shall ensure that the bilateral contracts concluded for the sale/procurement of electricity comply with the requirements of the Electricity Market Rules and that the balancing parties or balancing group managers have concluded balancing contracts with the TSO and in accordance with the provisions of the regulatory acts in force shall pay for the imbalances created in the electricity system of the Republic of Moldova. At the same time, at the request of the TSO, the electricity market participant shall submit to the TSO the guarantee for assuming financial responsibility for imbalances caused by the party responsible for balancing in the amount determined in accordance with the procedure.

**38.** Following the policy of diversification of import sources applied in 2022, about 30% of the imported electricity volume is purchased from Ukrainian state producers (Ukrhydroenergo and Energoatom) and about 70% from MGRES.

### **1.5.3. System reserve**

**39.** Due to the deficient power generation capacity on the right bank of the Dniester River, the very specific power generation conditions (CHPs operating on the basis of heat demand with priority dispatching of electricity, intermittent renewable power plants and small capacity hydropower plants) and the technologies involved, the right bank of the Republic of Moldova has practically no reserve power generation capacity in winter and summer, when power generation in existing CHPs is limited by heat demand. All power plants are to be qualified for each of the specific types of reserves set out in the Electricity Network Code and Electricity Market Rules. Until the power plants are qualified, the transmission system operator may carry out balancing in the power system in accordance with the contracts signed with the power generators.

### **1.5.4. Reactive power compensation**

**40.** For normal operation, the internal transmission network is sufficient for current consumption levels. However, during maintenance works or network failures some local or power system problems may occur. The reactive power generated in the system (generators and power lines) is higher than the reactive load consumed and this requires the use of appropriate voltage control equipment, which is currently lacking.

One of the problems of the local system relates to the south side. If maintenance works are carried out on the 400 kV MGRES - Vulcanesti line, a situation may arise where it is difficult to maintain the voltage level within the established limits.

Also, due to the existing interconnection of the power system of the Republic of Moldova to the power system of Ukraine, a significant impact from the UA system is observed which can sometimes lead to too high or too low voltage levels in the Republic of Moldova, in such cases the dispatcher in the Republic of Moldova does not have the necessary means to control the local voltage level in the transmission system of the Republic of Moldova and is left with only one option - disconnection of high voltage lines in order to reduce their load.

### 1.5.5. Congestion management

41. ANRE has approved a new Regulation on access to the electricity transmission networks for cross-border exchanges and congestion management in the electricity system, Decision no. 424/2019 of 22.11.2019. The main elements of this document are as follows:

- a) promoting competition in electricity generation, trading and supply;
- b) ensuring optimal use of electricity transmission infrastructure;
- c) ensuring security of electricity supply;
- d) optimising the allocation of interconnection capacities;
- e) ensuring fair and non-discriminatory treatment of electricity market participants;
- f) ensuring and improving transparency and reliability of information;
- g) contributing to the efficient long-term operation and development of the electricity transmission system and the electricity sector;
- h) creating the conditions for a fair and well-ordered market and a fair and well-ordered price formation;
- i) non-discriminatory access to electricity transmission interconnection capacity.

Moldelectrica has signed an agreement with Transelectrica to carry out the joint allocation of capacity on the Moldova-Romania interconnection. A similar agreement is to be signed shortly with Ukrenergo for capacity allocation on the Moldova - Ukraine border.

### 1.5.6. Electricity losses in the network

42. Losses in electricity distribution networks during 2001-2010 decreased from a level of over 29% to a level of 13%, after distribution system operators were obliged to invest in the network and improve their performance, in line with the regulations approved by ANRE. A downward trend in the share of technological consumption and electricity losses was also observed in the following years.

In 2021, the electricity procurement to cover technological consumption and electricity losses in the electricity transmission networks amounted to 116.4 million kWh. Distribution system operators, in turn, procured 319.5 million kWh to cover technological consumption and losses in the electricity distribution networks. Thus, the total technological consumption of electricity and losses in the electricity networks constitutes 435.9 million kWh or 9.5% of the total amount of electricity entering the electricity network.

The average level of technological consumption and total electricity losses per electricity distribution system operator decreased from the previous year by 0.08% and amounted to 7.5%. With reference to the beneficial trend of decreasing the share of technological consumption and electricity losses, it should be noted that in the section on each distribution system operator this indicator decreased by 0.08% in ICS "Premier Energy Distribution" JSC and by 0.07% respectively in "RED Nord" JSC (Table 3).

**Table 3.** Technological consumption and electricity losses in the electricity distribution networks

Electricity distribution system operators	Technological consumption and actual losses (in % against electricity entering the distribution networks)					
	2001	2005	2010	2019	2020	2021
RED Nord	28,4	14,39	10,43	7,95	7,71	7,64
Premier Energy Distribution	39,9	20,07	12,98	8,1	7,57	7,49

43. The electricity leakage situation has greatly improved at distribution network operators, but from a technical point of view, further improvements are technically possible, which would involve substantial investment in the distribution system.

#### 1.5.7. Quality of electricity distribution service

44. The quality of the electricity distribution service in 2021 was assessed in accordance with the provisions of the Regulation on the quality of electricity transmission and distribution services, approved by ANRE Decision no. 537/2020.

ANRE's monitoring process of the quality of electricity distribution services provided by distribution system operators was carried out on similar principles to the other sectors regulated by ANRE, based on the following criteria:

- Continuity of service provision (interruptions in service provision);
- Quality and delivery regimes of the contracted product (electricity, natural gas, water);
- Commercial quality or quality of relations between licensed operators and users of the system concerned;

45.1. *Continuity of electricity delivery to final consumers.* According to the Regulation mentioned above, the general continuity indicators (SAIDI, SAIFI and CAIDI), which reflect the general situation per undertaking with regard to unscheduled (faulty) interruptions, and the guaranteed indicators, which are targeted at each individual final consumer, are used to analyse the continuity of electricity delivery.

The overall continuity indicators are calculated based on the duration of interruptions, the number of final consumers affected by an interruption and the total number of consumption sites served by a distribution system operator. Thus, during 2021, the distribution system operators: ICS "Premier Energy Distribution JSC" and "RED-Nord" JSC served a total of 1,411,626 consumption places.

The ratio of the number of consumption places served by the two operators of the distribution systems remains the same: 65% of the total consumption places are served by ICS "Premier Energy Distribution" JSC, and another 35% - by "RED Nord" JSC.

*The SAIDI indicator* (System Average Interruption Duration Index) reflects the average duration of interruptions in the electricity network of the distribution system operator during the management period and is calculated for interruptions generated for various reasons.

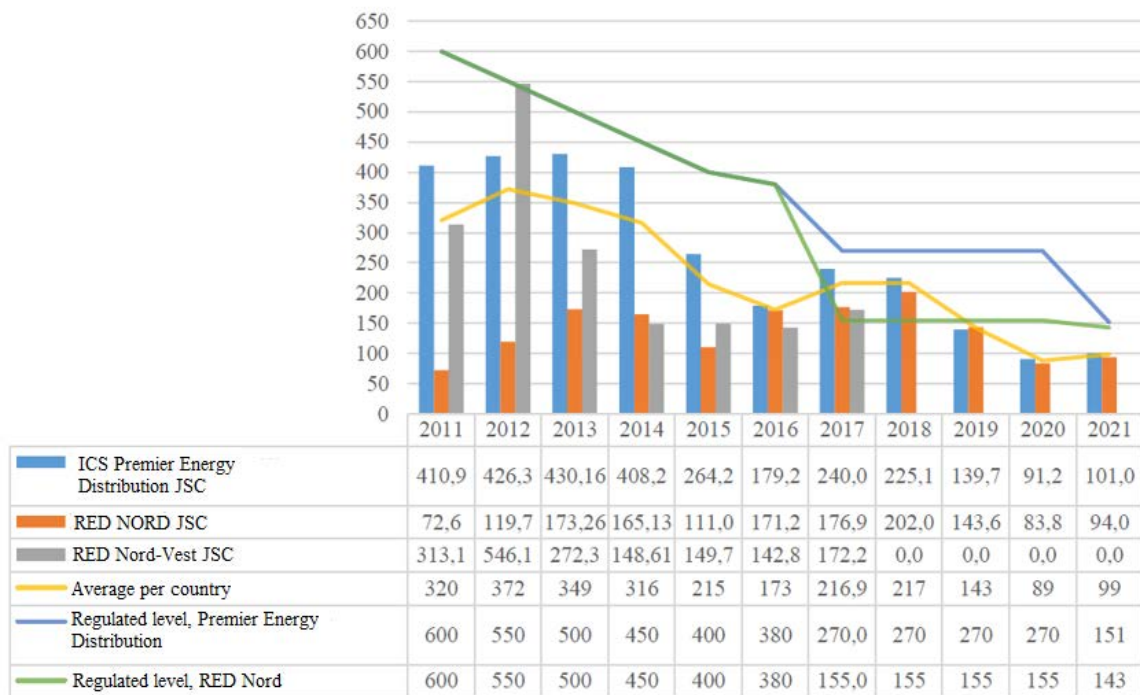
For the year 2021, according to point 33 of the Regulation, the distribution system operators were obliged to maintain the annual value of the SAIDI indicator at a level not exceeding the annual average value of the SAIDI indicator, calculated based on information on interruptions recorded during the last three years up to the reporting year. Taking these provisions into account, the baseline values (SAIDI<sub>3years</sub>) of the indicators recorded by operators were calculated for the period 2018-2020 and are:

143 minutes - for "RED Nord" JSC

151 minutes - for ICS "Premier Energy Distribution" JSC

Analysing the situation in dynamics, for a 10-year period (2011-2021), we note that in 2021 the value of the average SAIDI indicator per country (which includes both DSOs), gradually decreased over the period 2018-2020, but increased by 10 minutes in 2021. In addition to the SAIDI indicator, distribution system operators also report annually the values of SAIFI indicators - average frequency of network interruptions. The evolution of this indicator in the period 2011-2018 is shown in Figure 10.



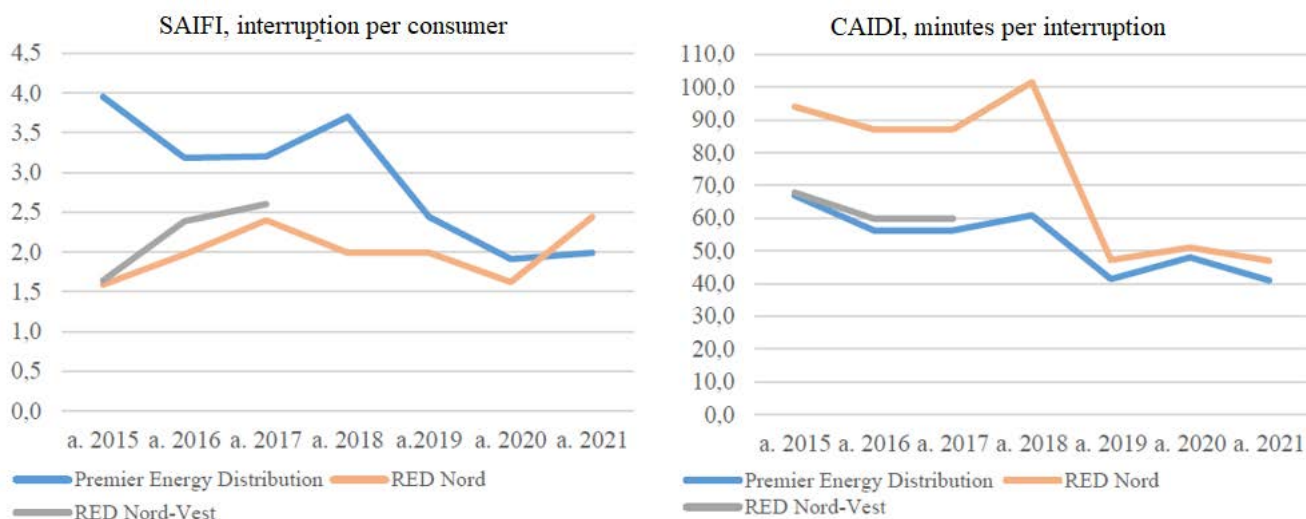


**Figure 10.** Evolution of the SAIDI indicator, min. (2011-2021)

The average level of the SAIDI indicator by country in 2021 was 99 minutes, an increase of 10 minutes compared to the previous year.

Two other continuity indicators are the SAIFI (System Average Interruption Frequency Index) and CAIDI (Customer Average Interruption Duration Index) indicators. According to point 29 of the Regulation, distribution system operators are obliged to monitor and report annually the values of the SAIFI (System Average Interruption Frequency Index) and CAIDI (Customer Average Interruption Duration Index) indicators.

The evolution of the SAIFI and CAIDI indicators over the period 2015-2021 is shown in Figure 11.



**Figure 11.** Evolution of SAIFI and CAIDI indicators in the period 2015-2021

Compared to the previous year, the value of interruptions frequency increased at both system operators: from 1.91 to 1.99 at ICS "Premier Energy Distribution" JSC and from 1.62 to 2.44 at "RED Nord" JSC.

**45.2. Guaranteed continuity indicators.** Guaranteed continuity indicators, established by the Regulation, are a set of minimum requirements characterising the quality of electricity distribution services for each separate user of the distribution system. In case of violation (exceeding the set values

of these indicators, DSOs are obliged to pay system users monetary compensation, which is calculated depending on the degree of exceeding the guaranteed indicators and the electricity tariff paid by the consumer (the respective system user).

According to the provisions of point 34 of the Regulation, the guaranteed indicators of continuity of electricity distribution service are:

- Duration of a long interruption (lasting more than 3 minutes);
- Annual number of long interruptions for a system user.

The limit values of these indicators are set by ANRE every 5 years, and for the period 2021-2025 they have been set as follows:

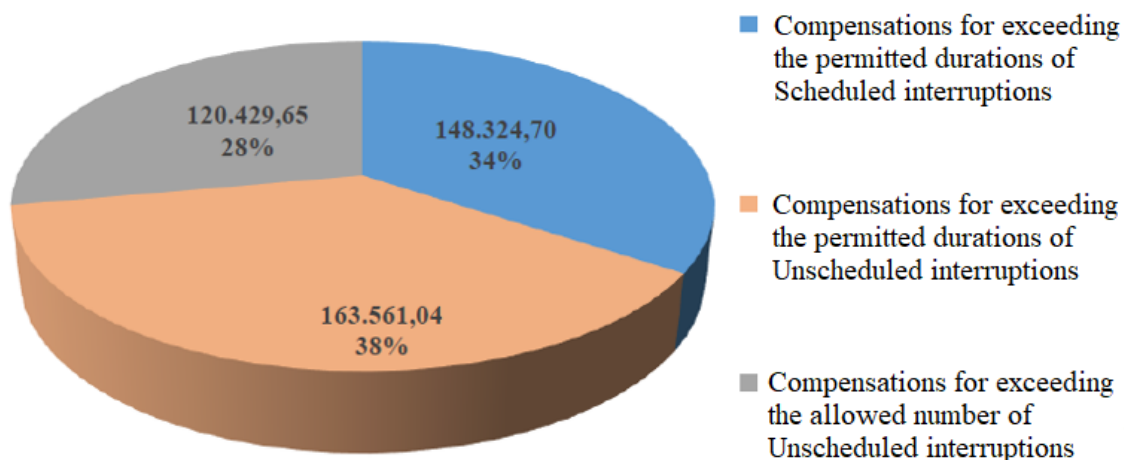
- Permissible duration of a scheduled interruption
  - 8 hours for repairs, maintenance, connections and reconnections;
  - 12 hours in the case of the removal of busbar systems of transformer substations for repair;
- Permissible duration of an unscheduled interruption (breakdown):
  - 12 hours for users of rural distribution systems;
  - 6 hours for users of urban distribution systems;
- Permitted annual number of unscheduled interruptions for system users: in urban areas:
  - 6 interruptions, if the user's installation is connected to medium voltage networks;
  - 9 interruptions, if the user's installation is connected to low voltage networks;

in rural areas:

- 9 interruptions, if the user's installation is connected to medium voltage networks;
- 12 interruptions, if the user's installation is connected to low voltage networks.

It should be noted that when the number/duration of unscheduled interruptions originating in medium voltage networks is exceeded, as well as in the case of all scheduled interruptions, operators are obliged to establish the deviation on their own and automatically pay (via the bill) the compensation calculated for each final consumer (system user) affected.

According to the data presented, for exceeding the guaranteed continuity indicators, DSOs paid (automatically) during 2021 compensation in the amount of about MDL 432 thousand. The distribution of compensations paid for exceeding each group of guaranteed indicators is shown in the following figure.



**Figure 12.** Compensation paid (MDL) and distribution of compensation by guaranteed continuity indicators

## 1.6. Electricity supply

### 1.6.1. Diversity of electricity supply

46. Electricity is supplied to consumers mainly by 2 electricity suppliers: ICS "Premier Energy" LLC (Premier Energy Distribution) and "FEE-Nord" JSC (RED Nord). In addition, other electricity suppliers are active at unregulated tariffs. All suppliers are licensed by ANRE.

47. Purchased volumes and sales of electricity to final consumers, including respective average prices for the last 3 years (2019-2021) are shown in Table 4.

**Table 4.** Quantities of electricity purchased and delivered to final consumers\* (2019-2021)

Indexes	Unit of measurement	2001	2005	2010	2018	2019	2020	2021
1. Quantity of electricity purchased - total	mil. kWh	3 194,8	3 359,5	3 835,7	4 178,8	4 301,9	4 269,8	4 591,7
	mil. MDL	1 161,6	1 180,1	2 905,5	4 152,1	4 542,9	4 154,6	4 779,2
2. Average electricity purchase price	bani/kWh	36,4	35,1	75,8	99,4	105,6	97,3	104,1
3. Quantity of electricity delivered to final consumers - total	mil. kWh	2 166,0	2 585,0	3 229,2	3 737,6	3 875,1	3 866,1	4 155,8
	mil. MDL	1 376,4	1 943,1	4 320,4	6 926,8	6 806,5	6 798,6	6 400,5
4. Average electricity supply price (excluding VAT)	bani/kWh	63,6	75,2	133,8	185,3	175,7	175,9	154,0

\* the data in the table for the years 2019, 2020 and 2021 include final consumers who have made use of the eligible consumer status

48. Electricity consumption during 2021 is up by about 7.5% compared to 2020, driven by overcoming the pandemic shock created by the SARS-CoV-2 virus and the recovery of economic activity at national level. The transmission system operator, distribution system operators and suppliers procured electricity in the amount of 4 591.7 million kWh, which is 321.9 million kWh more than the previous year. Similarly, the amount of electricity delivered to final consumers in 2021 is expected to increase, amounting to 4 155.8 million kWh, about 289.7 million kWh more than in 2020.

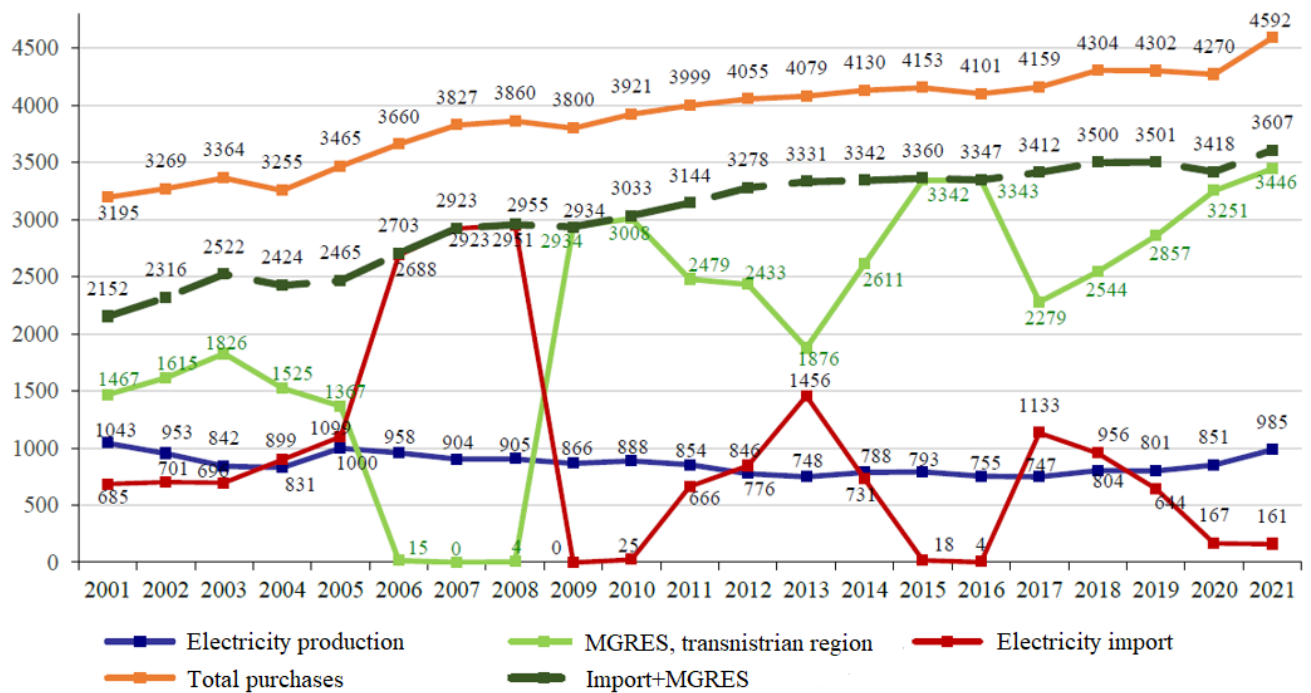
Expenditure on electricity procurement increased compared to the previous year by 6.8 bani/kWh, the increase being conditioned by the increase in the price of electricity supply by the central supplier, due to the increase in the price of natural gas used by urban CHP for the production of electricity and heat in cogeneration regime.

49. The amount of locally produced electricity increased by about 16% reaching the level of 984.7 million kWh (Figure 12), which is 133.3 million kWh more than in 2020. This increase is due on the one hand to the increase of installed capacities for electricity production from renewable sources (by about 30 MW), which led to an increase in the amount of electricity generated by them by 43.3%, and on the other hand to the increase of more than 75 million kWh in the amount of electricity produced by "Termoelectrica" JSC.

The "Nodul Hidroenergetic" Costesti SE in 2021 generated 67.5 million kWh, which is 44% more than in 2020. This performance is due to the use of the hydraulic potential during the whole year 2021, compared to 2020, when the undertaking operated for only 8 months, being in the process of repairing the dam protecting the water basin, as well as due to the higher water flow in the Prut River.

50. Electricity imports decreased by about 5.7 million kWh (3%), favouring an increase in the amount of electricity purchased from MGRES. The share of electricity procured from MGRES

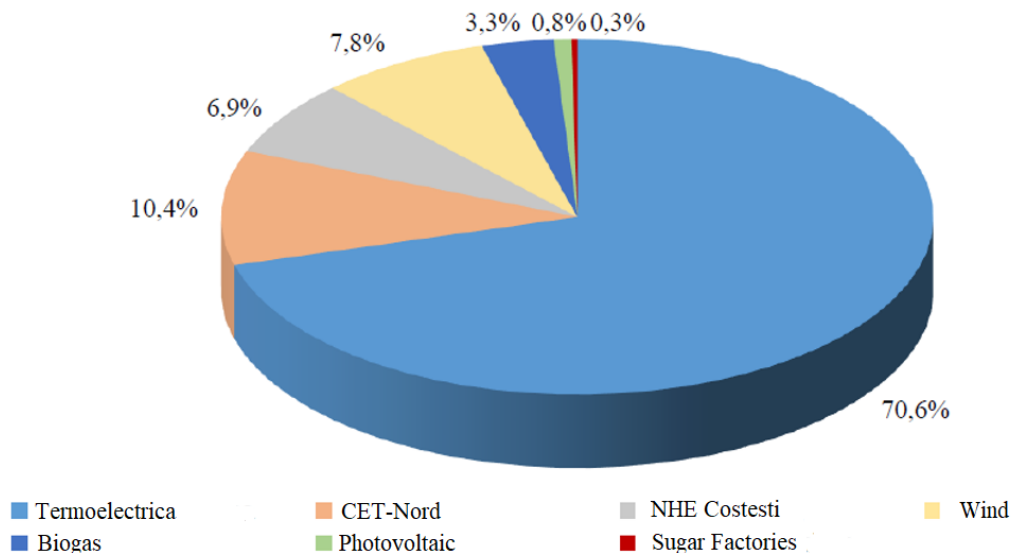
continues its upward trend of the last four years and reached a record level of about 75% of total procurement, with a quantity of 3 445.6 million kWh, while constituting about 95.5% of electricity procured from external sources. Figure 13 shows the evolution of electricity procurement in the period 2001 - 2021 by the Republic of Moldova, divided by type of source.



**Figure 13.** Evolution of electricity generation, imports and purchases in the period 2001-2021, million kWh

In 2022, amendments were made to the Law no. 107/2016 on electricity in order to introduce a mechanism to ensure the purchase of electricity from at least two sources, as a measure to increase electricity security of supply.

**51.** Domestic sources of electricity generation are represented by CHPs of "Termoelectrica" JSC and "CET Nord" JSC, which provide 81% (797.9 million kWh) of the total amount of domestically produced electricity, wind power plants, which provide 7.8% (76.3 million kWh) photovoltaic power plants, which provide 0.8% (7.8 million kWh), biogas power plants, which provide 3.3% (32.2 million kWh), and the sugar factories' CHPs, which provided 0.3% of the electricity produced locally. The Costesti hydroelectric power station, with a share of 6.9% of domestic production, together with the other renewable energy sources, provides about 4% of the electricity consumption.



**Figure 14.** Structure of electricity generation in 2021, %

Referring to electricity producers, in 2021 the increase in the amount of electricity produced by domestic producers was due to the increase in electricity production at CHPs and power stations producing electricity from renewable sources. Like previous periods, the main share of local production belongs to CHPs producers (more than 70%).

The power generation capacities located on the right bank of the Dniester River (about 561 MW) can only cover about 20-25% of the electricity consumption. At the same time, it should be noted that the service life of the existing thermal power plants is limited due to the high level of wear and tear of the installations (at least 30-50 years old), or capital investments/repairs have to be carried out to extend their service life. The very high rate of wear and tear of electricity generation and delivery (transmission and distribution) installations has huge negative effects on both the technical (such as capacity availability, fuel conversion efficiency, heat load dependency, problems associated with tariff approval) and economic performance of energy installations, thus representing a risk to security of supply.

Thus, in order to increase the country's security of electricity supply, taking into account the outdated electricity and thermal generation systems and the forecast of increasing electricity consumption in the medium and long term, it is necessary to examine the opportunity for the Government to facilitate the construction of new electricity and thermal generation capacities on the right bank of the Dniester River. Discussions on the construction of new fossil fuel power generation capacity on the right bank are at an early stage.

### 1.7. Maximum (peak) electricity demand

**52.** Apart from the 2 existing hydropower plants, power generation at the power plants on both banks of the Dniester is almost entirely based on natural gas imported from the Russian Federation via Ukraine. As a result, there are practically no alternative fuel (except fuel oil) or other energy resource options in the Republic of Moldova, which poses a considerable risk to the security of electricity supply.

**53.** In 2021, for the right bank, the typical load variation in the winter season is between the minimum base load of 360-440 MW and the maximum load of 670-770 MW, and in the summer season is in the range of minimum 270 and maximum 650 MW. The absolute value of the maximum load of the power system recorded 834 MW in the winter season. The factor between the maximum

load and the minimum load is therefore twice as high (or > 100%) in both the winter and summer season.

**54.** In electricity generation, the cogeneration units (Termoelectrica and CET-Nord), as well as the Costesti hydropower plant, operate only at nominal load or at the load imposed by the heat demand. The variable part of the maximum load curve is covered from purchases from MGRES and imports from Ukraine, which provide both the load curve and the balancing of the ESM.

## **1.8. Planned investments in the new energy system infrastructure**

### **1.8.1. Investment environment: General**

**55.** The development of new power plants can be carried out by private investors on the basis of tenders organised by the Government of the Republic of Moldova.

**56.** Based on the provisions of the normative acts in force, the responsibilities of the central public administration institutions (CPA) are as follows:

- a) authorise the installation of power plants with an installed capacity of more than 20 MW and the increase of capacities of existing thermal power plants if the additional capacity is more than 20 MW (Government of the Republic of Moldova);
- b) approve the National Renewable Energy Action Plan (Government of the Republic of Moldova);
- c) establish mechanisms, support schemes and incentives for achieving the objectives of the state policy in the field of renewable energy (Government of the Republic of Moldova);
- d) approve the Regulation on the conduct of tenders for offering the status of eligible producer of electricity from renewable sources (Government of the Republic of Moldova);
- e) approve the plans for the development of transmission and distribution networks and the annual investment plans of system operators (ANRE);
- f) issue expert opinions and certificates of expertise in the field of industrial safety (industrial safety bodies);
- g) issue licenses for carrying out electricity generation, transmission, distribution and supply activities (ANRE);
- h) issue expert opinions on state environmental regulated tariffs and environmental agreements (Environment Agency and Ministry of Environment);
- i) issue urban planning certificates and building permits for works/constructions of public utility of national interest (MIRD);
- j) issue network connection permits (TSO and DSO).

Local public authorities (LPAs) are responsible for issuing urban planning certificates and building permits.

**57.** The implementation of investment projects in the electricity infrastructure continues to be a priority for the Government of the Republic of Moldova, as well as for state-owned and/or privately owned companies that own and manage the electricity transmission and distribution networks. The investment projects implemented in the existing infrastructure aim to ensure the reliability and continuity of electricity supply to final consumers, as well as to provide a diversification of import sources, a higher degree of energy security, and competitive prices, by connecting to the Pan-European power system "ENTSO-E".

**58.** According to the Law no. 107/2016 on electricity, the development of transmission and distribution networks is the obligation of system operators (TSOs and DSOs), based on long, medium and short term development plans and investment plans approved by ANRE, according to the Regulation on planning, approval and execution of investments (Decision no. 283/2016).

In order to carry out a sustainable strategic management of the transmission and distribution electricity networks, the operators implement annual investments based on medium-term development plans - 3 years for distribution system operators, and long-term in the case of the transmission system operator - 10 years. These are prepared by the licensees taking into account the Energy Strategy of the Republic of Moldova in cooperation with the local public administration authorities, which are responsible for the preparation of urban and land use plans, as well as with investors and other stakeholders..

The regulatory framework in force applicable to the process of planning, approval and implementation of investments is represented by a series of acts, the most important being:

- Law no. 107/2016 on electricity;
- Regulation on the planning, approval and implementation of investments, approved by the Decision of the Board of Directors of ANRE no. 283/2016;
- Regulation on the development of electricity distribution networks approved by the Decision of the ANRE Board of Directors no. 94/2019.

### **1.8.2. Planned new power generation projects and capacities**

**59. *Integration of RES-E generation.*** The integration of RES-E power generation into the ESM involves several issues, which may cause technical problems for ESM operations and pose a risk to security of supply, unless properly addressed in advance.

Existing conditions require the presence of control tools for TSOs, the possibility to dispatch (active and reactive power control generated, connection/disconnection, real-time voltage control, manual or automatic) and monitor (real-time electrical and digital data collection mechanism) new sources of energy, both from renewable and conventional sources to ensure the security of operation of the national electricity system and compliance with contractual agreements.

The stability of ESM depends to a large extent on the stability of the energy system in Ukraine. Large-scale integration of intermittent renewable energy generation, such as wind and solar plants, combined with a high electricity import scenario, could lead to operational problems.

By Government Decision no. 401/2021 were approved the capacity limits, maximum quotas and capacity categories in the field of electricity from renewable sources valid until December 31, 2025, which will be able to benefit from the support schemes provided for in Article 34 of Law no. 10/2016 on the promotion of the use of energy from renewable sources (fixed price or fixed tariff). In accordance with the provisions of Government Decision no. 401/2021, the respective support schemes will be offered for the following capacity categories in the field of electricity from renewable sources: Solar PV (photovoltaic) installations - 200 MW; Wind power installations - 120 MW; Cogeneration installations based on biogas - 65 MW; Cogeneration installations based on syngas - 10 MW; Cogeneration installations using direct combustion (biomass) - 10 MW; Hydro installations - 5 MW.

The potential large-scale integration of intermittent renewable energy generation in Moldova will require significant changes in the operational practices of utilities. Improving the flexibility of conventional generation by adding faster and more flexible generation units and reducing the minimum load level on steam turbines is a potential solution. Additional methods may include integrating wind

and solar generation forecasts into the day-ahead utility planning process. Other means of absorbing the variability of renewables, such as demand control and energy storage, can also be used.

**60. *Planned new energy transmission projects and capacities.*** Given its geographical position between two strong energy systems of Romania and Ukraine, the configuration of the regional transmission network and the potential for electricity generation, Moldova has always had a strategic advantage, but this has not been fully exploited in the last decade. In the Energy Strategy of the Republic of Moldova until 2030, the Government has set out its strategic priorities of strengthening the bi-directional transmission connections between the IPS/UPS and ENTSO-E systems to strengthen Moldova's position as an electricity transit country, as well as the full commercial consolidation and exploitation of national capacities for power generation (MGRES and new plants in the future).

Diversification of electricity sources in Moldova can only be achieved in coordination with the development of the electricity transmission network. Projects to interconnect Moldova with the EU's internal electricity market via new power lines, as well as the strengthening of internal networks, are essential for both security of supply and social welfare in Moldova.

The ultimate benefit of developing and increasing competition can only be secured by joining a larger energy market, an objective that has been achieved. As of 16.03.2022, the power system of the Republic of Moldova and Ukraine operates in synchronous mode with the ENTSO-E. Thus, the power system of the Republic of Moldova has the technical capacity to import/export electricity from both Ukraine and Romania, as well as from other European countries. The operation of the power system of the Republic of Moldova and Ukraine in synchronous mode with the ENTSO-E will ensure a higher degree of energy security and safe operation, while also representing an opportunity for investment in power generation in the Republic of Moldova and in strengthening the electricity transmission network to the Energy Community and the EU.

"Moldelectrica" SE is continuously developing the electrical interfaces between the Republic of Moldova - Romania and the Republic of Moldova - Ukraine. In the last years, several feasibility studies have been initiated and partially completed in order to determine the necessary measures to enhance the electricity security of the Republic of Moldova.

Furthermore, in addition to the feasibility study for the synchronous interconnection, an analysis study on the asynchronous interconnection of the power transmission systems of the Republic of Moldova and Romania was carried out by analysing three interconnection options: 400 kV Isaccea-Vulcanesti-Chisinau OPL; 400 kV Straseni - Ungheni - RO OPL, 400 kV Balti - Suceava OPL and related Back-to-Back stations.

In December 2015, "Moldelectrica" SE signed a service contract with the consultant - Institute for Studies and Power Engineering JSC (ISPE, Romania), for the purpose of developing 3 feasibility studies for the asynchronous interconnection of the power system of the Republic of Moldova with the power system of Romania, namely: Feasibility study for Back-to-Back Station Vulcanesti and Vulcanesti-Chisinau OPL (priority project); Feasibility study for Back-to-Back Station + 400 kV Balti-Suceava OPL; Feasibility study for Back-to-Back Station + 400 kV Romania-Ungheni-Straseni OPL.

Thus, ISPE has developed feasibility studies on the interconnection of the energy systems of the Republic of Moldova and Romania, but with concrete activities has moved forward on the project related to the construction of the Vulcanesti-Chisinau OPL and the related Back to Back Station, following the completion in March 2018 of the feasibility study and the environmental and social impact component. The construction works of the 400 kV Vulcanesti-Chisinau OPL and the Vulcanesti Back-to-Back Station have been declared works of public utility of national interest in 2022. The



construction works will be carried out within the framework of the Project "Interconnection of electricity networks between the Republic of Moldova and Romania, Phase I" planned for a period of four years.

The law provides for the declaration of public utility of national interest and the construction of the following components:

- construction of the 400 kV electricity transmission OPL between the Vulcanesti and Chisinau power stations, with a total length of 158 km;
- upgrading the existing 330/110/35 kV Chisinau substation with a new 400 kV section to make the station compatible with the 400 kV OPL;
- extension of the existing 400/110/35 kV Vulcanesti substation for connection to the new Back-to-Back station, to be carried out, on the basis of the project preparation documentation, on land owned by the state, local public administration or privately owned by natural and legal persons.

The contract for the design and construction of the 400 kV Vulcanesti-Chisinau OPL was signed on November 12, 2021 with the Indian company KEC International Limited (KEC). The contract value is 26,997,967 Euro, with a duration of 42 months. The entry into force of the contract was subject to the fulfilment of a number of conditions, including the payment made in advance. All actions required for the approval and processing of the advance payment were completed by December 22, 2021, within the terms of the contract. Thus, as of this date, the contract became effective and implementation activities were initiated, as required by the contractual provisions and specifications.

On May 19, 2022, the topographical investigation works necessary for the design of the 400 kV overhead power line with a safe power transmission circuit on the Vulcanesti-Chisinau direction were carried out. Mapping measurements were carried out using an airplane equipped with an active LiDAR sensor, which ensures the determination of the distance to objects on the ground and the mapping of the land surface with high accuracy. The data provided by this sensor ensures the production of highly accurate electronic maps, constituting the information support for the design work of the 400 kV OPL. On the basis of the accumulated data, the Contractor will propose certain types of piles required, depending on the topographical characteristics, to ensure the necessary durability and resilience of the 400 kV OPL.

At the same time, the works of archaeological load shedding for 8 sites, identified by the National Archaeological Agency on the planned route of the 400 kV OPL in the direction Vulcanesti-Chisinau, have been started. The activities were carried out in order to meet all the conditions set out in the Specifications and contract, as well as to comply with national legislation, requirements and standards of the Financier. The planned deadline for completion of the technical project is November 2022.

Regarding the investment project of the 400 kV Balti-Suceava OPL, a decision was taken by ISPE to update the feasibility study. ISPE continued its work on the project, visiting several municipalities along the route of the Balti-Suceava OPL as well as environmental agencies in the region to collect data to determine the environmental and social impacts.

During the fourth quarter, 2021, ISPE submitted for approval - Full Feasibility Study (basic design) Phase 2, Task 9. In December 2021, the Full Feasibility Study for Balti-Suceava 400 kV OPL and Balti Back-to-Back Station was completed.

As regards the investment project for the construction of the Romania-Ungheni-Straseni OPL, the development of the feasibility study is currently premature.

## II. NATURAL GAS SECTOR

The description of the gas system<sup>4</sup> in Moldova presented in this document mainly concerns the territory on the right bank of the Dniester River.

### 2.1. Market participants on the gas market and description of their role

**61.** The main gas market participants are:

1) "Moldovagaz" JSC is a vertically integrated undertaking, which carries out the activity of natural gas supply (under the terms of the public service obligation), as well as holds 100% share in affiliated natural gas transmission and distribution undertakings. Its shareholders are PJSC "Gazprom" (50%), the Public Property Agency of the Republic of Moldova (35.33%), the authorities on the left side of the Dniester (13.44%) and other shareholders (1.23%);

2) 2 transmission system operators on the right bank of the Dniester: "Moldovatransgaz" LLC (affiliated company of "Moldovagaz" JSC) and "Vestmoldtransgaz" LLC which manages the Iasi-Ungheni-Chisinau pipeline (interconnection with the Romanian natural gas transmission system);

3) 12 DSOs (affiliated companies of "Moldovagaz" JSC);

4) 10 DSOs (other than those referred to in paragraph (3));

5) 26 suppliers, including "Moldovagaz" JSC;

6) 1 transmission system operator in the left side of the Republic of Moldova (Transnistrian region) - "Tiraspoltransgaz" LLC;

**62.** According to the situation as of August 8, 2022, there are 26 licensed suppliers on the natural gas market, 2 licensed transmission system operators (TSOs) - "Moldovatransgaz" LLC and "Vestmoldtransgaz" LLC, and 22 natural gas distribution license holders (Transnistrian natural gas undertakings are not regulated by the Moldovan authorities).

**63.** Thus, the natural gas system of the Republic of Moldova is currently managed by three transmission system operators: "Moldovatransgaz" LLC wholly owned by "Moldovagaz" JSC, which is neither separated nor certified. "Moldovatransgaz" LLC manages the main pipelines of the Trans-Balkan Corridor on the territory of the Republic of Moldova, as well as most of the national transmission network.

On the left bank of the Dniester River (Transnistrian region), the Trans-Balkan pipeline and transmission network is managed by "Tiraspoltransgaz" LLC. The company is not licensed by the regulator.

"Vestmoldtransgaz" LLC manages the Moldovan section of the new Iasi-Ungheni-Chisinau natural gas interconnection pipeline. It is owned by the Romanian transmission system operator SNTG Transgaz JSC as majority shareholder. "Vestmoldtransgaz" LLC was certified as a transmission system operator through the ownership unbundling model in 2021.

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<sup>4</sup> The term "gas" in this section refers entirely to natural gas. Other gases that may be used in the natural gas supply chain (e.g. liquefied natural gas, biogas, synthesis gas, various types of derived gases, etc.) are not yet developed in the Republic of Moldova and are therefore not included in the report.

**64.** "Moldovagaz" JSC manages as of 01.01.2022 - 93.9% of the country's natural gas distribution networks through 12 regional distribution system operators (affiliated companies, "Chisinau-Gaz" LLC being the largest of them) and acts as a major retail supplier of natural gas.

**65.** According to ANRE Decision no. 408 of 06.04.2011, the natural gas market in the Republic of Moldova is determined as non-competitive due to the existence of a single source of imports, imports being carried out by "Moldovagaz" SA.

**66.** By ANRE Decision no. 487/2019, for a period of 7 years, the public service obligation to supply natural gas to final consumers at the established quality parameters, at regulated, transparent, non-discriminatory and easily comparable prices, was imposed for 11 licensees for the supply of natural gas, within the limits of the territories authorized by the licenses of distribution system operators.

**67.** By ANRE Decision no. 444/2021, the public service obligation to ensure the last resort supply of natural gas was imposed on the supplier "Moldovagaz" JSC throughout the Republic of Moldova for a period of 3 years.

Thus, according to the provisions of the Law no. 108/2016 on natural gas, "Moldovagaz" JSC as a supplier of last resort, if necessary, will supply natural gas to final consumers who have lost their supplier in certain circumstances, under conditions of regulated tariffs approved by ANRE.

**68.** By ANRE Decision no. 214/2021 the natural gas transmission system operator "Moldovatransgaz" LLC was designated as Balancing Entity of the Republic of Moldova. As the Network Code on Balancing is not implemented, the balancing entity is not functional. This is mostly due to the unclarity regarding the status of Tiraspoltransgaz. No balancing agreement between Moldovatransgaz and Tiraspoltransgaz is in place. Moldovatransgaz has signed a technical operational agreement with Vestmoldtransgaz. To make it operational is important to assure that gas delivered on the Ukrainian and on the Romanian interconnectors can be used to balance the system in Moldova.

## **2.2. Regulatory framework**

**69.** The primary and secondary regulatory framework developed was aimed at transposing the EU energy acquis and implementing measures taken in the framework of energy policies to ensure the country's security of energy supply.

**70.** Law no. 108/2016 on natural gas, which transposes Directive 2009/73/EC, is the main law in the natural gas sector.

By Government Decision no. 207/2019 on the approval of the Regulation and Action Plan on emergency situations on the natural gas market, the Republic of Moldova transposed Regulation (EU) no. 994/2010 of the European Parliament and of the Council of 20 October 2010 concerning measures to safeguard security of gas supply.

ANRE has transposed into its secondary legislation the provisions of the Law no. 108/2016 on natural gas, the relevant normative acts being the following:

- 1) Natural gas market rules (ANRE Decision no. 534/2019);
- 2) Regulations on the supply of natural gas (ANRE Decision no. 113/2019);
- 3) Regulation on the connection to natural gas networks and the provision of natural gas transmission and distribution services (ANRE Decision no. 112/2019);

- 4) Regulation on how to measure natural gas for commercial purposes (ANRE Decision no. 297/2022);
- 5) Regulation on the development of natural gas distribution networks (ANRE Decision no. 138/2019);
- 6) Regulation on access to natural gas transmission networks and congestion management (ANRE Decision no. 421/2019);
- 7) Regulation on the procedure for changing the natural gas supplier (ANRE Decision no. 363/2020);
- 8) Natural Gas Networks Code (ANRE Decision no. 420/2019);
- 9) Regulation on the quality of natural gas transmission and distribution services (ANRE Decision no. 422/2019);
- 10) Methodology for the calculation and application of regulated prices for the supply of natural gas (ANRE Decision no. 355/2021);
- 11) Regulation on the planning, approval and execution of investments, approved by ANRE by Decision no. 283/2016, etc.

### **2.3. Diversification of gas supply sources and networks**

**71.** There is insufficient diversification of primary energy supplies in Moldova. Natural gas accounts for about 32% of the total amount of primary energy resources of the right bank, being supplied predominantly from the Russian Federation, from PJSC "Gazprom". In 2021, the total volume of imported/procured natural gas amounted to 1205.7 million m<sup>3</sup>, which is 78.7 million m<sup>3</sup> (7%) more than in the previous year. Thus, the volume of natural gas purchased from PJSC "Gazprom" is 1188.6 million m<sup>3</sup>, and from "Energoecom" JSC 17.1 million m<sup>3</sup> (the first purchase of natural gas on the EU spot market registered in the Republic of Moldova). It should be noted that in some localities of the Cantemir district, domestic natural gas is also used, but the volumes extracted and supplied are very small, up to 0.1 million m<sup>3</sup>/year.

**72.** The Republic of Moldova has significant transit potential for natural gas through the Trans-Balkan pipelines on the route to Romania, Bulgaria and Turkey, including Greece and North Macedonia. The total length of the three transmission networks in the South of the Republic of Moldova is 343 km, of which 247 km are managed by "Moldovatransgaz" LLC and respectively 96 km by "Tiraspoltransgaz" LLC, with a total capacity of 34.6 billion m<sup>3</sup>/year.

Another interconnection of the gas system with Ukraine in the north of the country passes through the Republic of Moldova to connect two parts of the Ukrainian network. This pipeline, with a capacity of 9.1 billion m<sup>3</sup>/year, plays an important role in Moldova's gas supply security as it connects to the natural gas storage facilities in Bogorodchany, Ukraine.

**73.** In 2014 the construction of the interconnection with Romania (Iasi-Ungheni gas pipeline) was completed, subsequently, in order to ensure the operation of the interconnection at full capacity, in 2020 the construction works of the Ungheni - Chisinau gas pipeline were completed by the external investor SNTG Transgaz JSC, through Eurotransgaz LLC. In order to use the Iasi-Ungheni-Chisinau interconnection at full capacity (2.2 billion m<sup>3</sup>/year), the Onesti - Gheraesti - Letcani pipeline and 2 compression stations, Onesti and Gheraesti, were built on the Romanian territory. The interconnection of the natural gas transmission system of the Republic of Moldova to the natural gas transmission system of Romania has as a short-term objective to provide alternative natural gas supply in emergency

situations and as a long-term strategic objective to benefit from existing Romanian interconnections with other European countries.



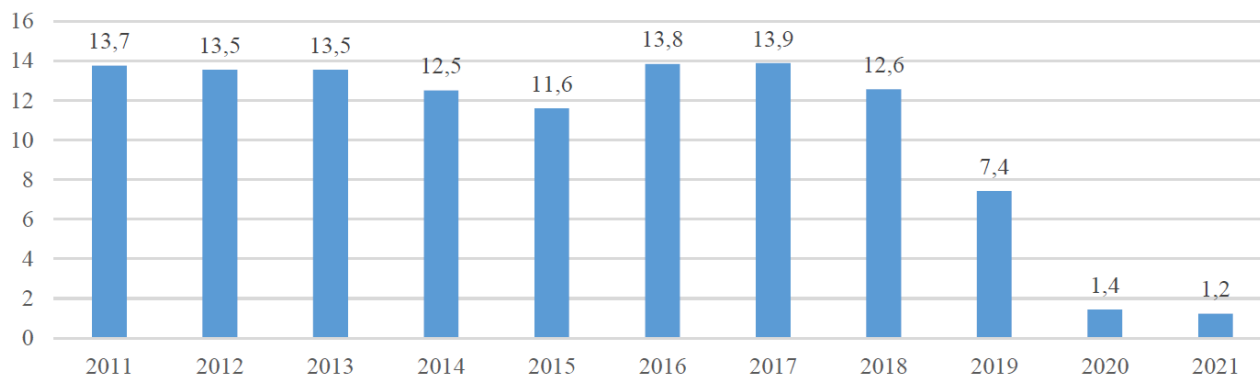
**Figure 15.** Infrastructure of the natural gas transmission system on the territory of the Republic of Moldova

74. In practice, the capacity utilization rate of all cross-border pipelines, according to data from 2021, is only about 9%, with only about 4 billion m<sup>3</sup> (of which 0.678 billion m<sup>3</sup> are transited) being transported through the national natural gas transmission system of the Republic of Moldova (including through the networks of "Tiraspoltransgaz" LLC).

Thus, the national natural gas transmission system is only partially used. Currently, the natural gas transmission is carried out by two licensees - transmission system operators of "Moldovatrangaz" LLC (1559.8 km) and "Vestmoldtransgaz" LLC (122.6 km), which operate 1682.3 km of natural gas transmission networks.

There are no gas storage facilities in the Republic of Moldova or gas storage Agreements in neighbouring countries and there is no access to liquefied natural gas.

**75.** On average, a volume of 1.2 million m<sup>3</sup> returned to 1 km of the transmission network in 2021. This is the lowest level of transmission network use at "Moldovatrangaz" LLC since the establishment of the company. The dynamics of the volumes of transported natural gas returning to 1 km of transmission network (indicator of transmission network use) in operation at "Moldovatrangaz" LLC in 2011-2021 is shown in Figure 16.



**Figure 16.** Dynamics of volumes of natural gas transported per 1 km of transmission network of "Moldovatrangaz" LLC in 2011-2021, million m<sup>3</sup>/1 km

The main reason for the reduction of natural gas volumes transported through "Moldovatrangaz" LLC networks is the diversification of natural gas transportation routes from the Russian Federation to the Balkans.

**76.** The geographical location, between Ukraine (to the north-east) and Romania (to the south-west), opens up opportunities for wider interconnection with neighbouring (and even more distant) markets via the (bi-directional) Trans-Balkan pipeline and the Iasi-Chisinau gas pipeline. Transparent and well-structured transport tariffs will contribute to Moldova's integration into regional markets and possibly allow it to regain an important transit role. However, current gas shortages in Europe make these opportunities more difficult.

**77.** New gas supply patterns in South-East Europe will require network users in the Republic of Moldova to review and diversify supply based on possible gas transportation routes to and through the Republic of Moldova and to use the available capacity potential.

**78.** The Republic of Moldova is a small natural gas market (about 3 billion m<sup>3</sup> in 2021) with a limited number of suppliers with access to cross-border capacities and connection points in general, heavily dependent on imports and without storage capacities in the country. The wholesale gas market in Moldova is characterised by a very low level of liquidity. The retail market is highly concentrated with a public service obligation and supplier of last resort serving all customers without adequate eligibility criteria. "Moldovagaz" JSC acts as an importer of natural gas, wholesale supplier, as well as public service obligation supplier and supplier of last resort.

**79.** In the context of the tense situation in the region, the option of ensuring the reverse flow of natural gas through the Trans-Balkan transmission networks would be more than opportune for both the Republic of Moldova and Ukraine and other countries concerned in the South-East European region, which would result in increased security on the natural gas market. In this regard, as a result of investments in the national natural gas system, starting from 2020, a capacity of about 12 million m<sup>3</sup>/day in reverse flow on the Trans-Balkan main pipeline system is ensured at the Causeni interconnection point and about 4 million m<sup>3</sup>/day in reverse flow at the Grebeniki interconnection point. In case of insignificant investments in gas metering equipment by natural gas transmission

system operators in Ukraine and the Republic of Moldova at the interconnection points, these reverse technical capacities could be increased.

In this regard, the natural gas transmission system operators in Ukraine and the Republic of Moldova are in the process of examining the possibility of increasing the reverse gas flow capacity on the Trans-Balkan main pipeline system. At the same time, in order to ensure the increase of reverse gas flow capacity on the Trans-Balkan pipeline system, some investments/regulations need to be carried out by the natural gas transmission system operators of Bulgaria and Romania.

## **2.4. Technological security, quality and level of network maintenance**

**80.** The Regulation on the quality of natural gas transmission and distribution service, approved by ANRE Decision no. 422/2019, establishes the general and guaranteed quality indicators of natural gas transmission and distribution services, as well as the consequences of non-compliance by TSOs, DSOs with the minimum values of these indicators. This Regulation stipulates the obligation of the system operator to ensure:

- 1) delivery of natural gas to system users at the natural gas quality parameters set in the quality standards approved by the national standardisation body;
- 2) technical conditions as follows:
  - a) for household consumers, up to the safety valve, under the technical pressure conditions stipulated in the technical passport/technical card of the final consumer's use appliance;
  - b) for non-household customers, up to the demarcation point, under the technical pressure conditions laid down in the gas supply contract.

For the overall assessment of the continuity of service provided by an operator, the Regulation also sets general quality indicators: SAIDI - System Average Interruption Duration Index and SAIFI - System Average Interruption Frequency Index. The general quality indicators are recorded and calculated annually only by the distribution system operators, based on the information on interruptions recorded. The general continuity indicators (SAIDI and SAIFI) are calculated on the basis of the duration of the interruption, the number of consumers affected and the number of final consumers served by the undertaking during the reference period.

According to the reports of the licensees on quality indicators for 2021, which were submitted to ANRE, the distribution system operators affiliated to "Moldovagaz" JSC recorded 1982 (97.7%) planned interruptions, and 46 cases (2.3%) were recorded by other system operators, while 3 licensees (Candelux Com LLC, PielartService LLC and Dobos Company LLC) did not operate any planned interruptions. The system operators reported that in all the cases mentioned they were within the permissible limits of the duration of the planned interruptions specified for each type of work, with their subsequent liquidation within the regulatory time limit and in full proportion, except for "Darnic-Gaz" JSC.

In 2021, 8590 planned interruptions were operated (5520 more cases compared to 2020), related to the execution of maintenance works on the natural gas network, current repairs, connection and modernisation - works necessary for the reliable operation of the network.

Out of the total number of interruptions, 8532 cases (99.3%) were recorded by the system operators of "Moldovagaz" JSC and 58 cases (0.7%) by other system operators, while 3 licensees ("Proalfa-Service" LLC, FPC "Lacatus" LLC and "Darnic-Gaz" JSC) did not operate any planned interruptions. Most

planned interruptions were recorded by "Cahul-Gaz" LLC - 2945 interruptions, which is 34.3% of the total number of cases in the country, followed by "Chisinau-Gaz" LLC - with 2488 cases, which is 29% of the total number of cases in the country.

81. The duration of planned interruptions in the natural gas sector is shown in Table 5.

**Table 5.** Duration of planned interruptions in the natural gas sector, 2021

Total by country	Total planned interruptions	Permissible duration					
		8 h	36 h	48 h	72 h	120 h	<120 hours High pressure
		Low/medium pressure					
Total by sector	8590	2550	5654	230	94	60	2
	100,0%	91,7%		3,7%	2,4%	2,2%	
Distribution system operators affiliated to "Moldovagaz" JSC	8532	2550	5611	221	88	60	2
	99,3%						
Other distribution system operators	58	0	43	9	6	0	0
	0,7%						

82. According to the information submitted by the licensees to ANRE, it is noted that during the reporting year there were 386 unscheduled interruptions, of which 368 or 95.3% - at distribution system operators affiliated to "Moldovagaz" JSC and 18 cases or 4.7% - other operators.

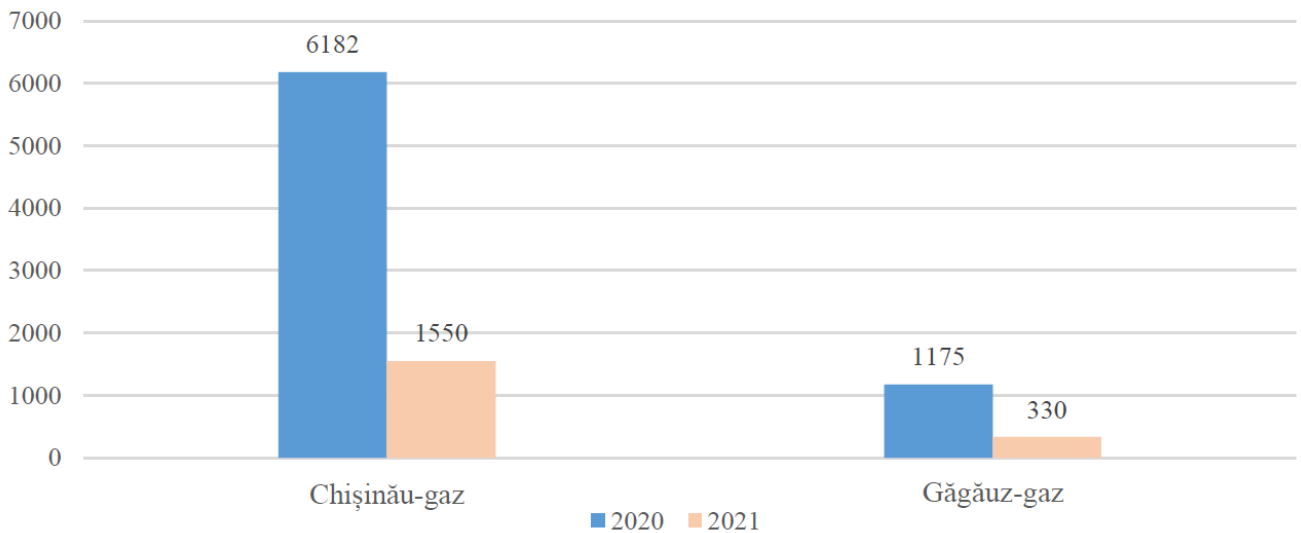
83. In 2021, applicants for connection permits submitted to the DSO 26634 applications for the issuance of connection permits, of which 25361 or 95.2% were submitted to the distribution system operators affiliated to "Moldovagaz" JSC and 1273 applications or 4.8% to other DSOs. In compliance with the regulatory deadline of 15 calendar days, a total of 26544 requests for the issuance of the connection permit were answered out of the total number of requests registered at the country level, which constitutes in percentage terms - 99.7%. Out of the total number of refusals, 99 cases, compared to 678 refusals issued in the year of activity 2020, were issued by the "Chisinau-gaz" LLC which invoked as a reason the lack of technical capacity of the existing natural gas distribution network. Detailed information on connection requests is presented in Table 6.

**Table 6.** Connection to the natural gas distribution networks in 2021

Indicators	Total connection applications	Connections made:	
		Within the regulatory deadline (4 working days)	Exceeding 4 days
Total by country	14784	14784	0
	100,0%	100	-
Distribution system operators affiliated to "Moldovagaz" JSC	12991	12991	-
		87,9%	-
Other distribution system operators	1793	1793	-
		12,1%	-

From the data reported by the natural gas distribution licensees, it can be seen that 14784 applications for connection to the network were submitted, a decrease of 16% compared to 2020. After examining the data reported for the 2021 activity year, ANRE concludes that this significant decrease in the number of connection applications at the country level is due to the registration of a significantly lower number of applications for connection to the natural gas network by the "Chisinau-gaz" LLC and "Gagauz-gaz" LLC.





**Figure 17.** Number of applications for connection to the natural gas network, 2021 compared to 2020.

**84. Development and investment plans of the transmission system operator and distribution system operators affiliated to "Moldovagaz" JSC.**

According to the provisions of the Law no. 108/2016 on natural gas, the transmission system operator and the distribution system operator will carry out the development of natural gas transmission (distribution) networks in order to increase the demand for natural gas, so as to ensure reliability and continuity of supply to consumers. The costs for the development of natural gas networks shall be borne by the transmission system operator/distribution system operator and shall be taken into account when setting tariffs for the natural gas transmission/distribution service, if they have been carried out in accordance with the conditions of the licence, the Law no. 108/2016 on natural gas, the Regulation on the development of natural gas distribution networks, the Methodology for the calculation of tariffs and the Regulation on the planning, approval and execution of investments in the natural gas sector, approved by ANRE.

In the context of this obligation, the transmission system operator and the distribution system operator are obliged to develop and, after prior consultation with market participants, submit to ANRE for approval a transmission network development plan for the next ten years (for the distribution network - for three years). When drawing up network development plans, system operators must take into account the energy strategy approved by the Government and statistical data on the energy balance, current and planned supply and demand. These development plans must include effective measures to ensure the reliability of the natural gas system and security of gas supply. The development plans should inform natural gas market participants about the main gas transmission/distribution networks to be rebuilt or rehabilitated in the next decade, contain information on investments that have already been made and identify new investments to be made within three years, and provide a timeframe for the implementation of all investment projects.

In the period 2014-2021 in the natural gas sector 82.1% of the total investments were planned in the transmission activity, 17.0% in the distribution activity and 0.9% in the natural gas supply activity. At the same time, in this period the average level of investment implementation was 68.2% of the approved investments. In particular, 74.6% of the total investments were made in the gas transmission activity and accepted by ANRE for tariff purposes, 24.2% in the distribution activity and 1.2% in the natural gas supply activity.

Taking into account the financial situation of the transmission system operator, the distribution system operator and the general financial situation of "Moldovagaz" JSC, it is very difficult to plan major investments in the system, which are strictly necessary to ensure the continuity of gas supply to consumers.

The implementation of investments depends on several key factors, including the efficient development of Moldova's macro-economic indices, as well as the adequacy and economic justification of ANRE's tariff policy, the situation of the gas market, the solvency of the transmission system operator, the distribution system operator and "Moldovagaz" JSC and its ability to collect payments from its consumers.

Pursuant to art. 9 par. (5) letter g) of the Law no. 174/2017 on energy, art. 7 par. (1) letter r) and Article 42 of Law no. 108/2016 on natural gas, the Board of Directors of ANRE approved the Development Plan of "Moldovatrangaz" LLC for the years 2020-2029 by Decision no. 494/2019 of 20.12.2019<sup>5</sup> and the Development Plan of "Vestmoldtrangaz" LLC for the years 2020-2029 by Decision no. 225/2020 of 07.07.2020<sup>6</sup>.

Both in the Development Plan of "Moldovatrangaz" LLC and in the Development Plan of "Vestmoldtrangaz" LLC for the years 2020-2029 are foreseen/planned by both transmission system operators practically 2 similar projects in the natural gas infrastructure in the next 10 years, namely:

1. Construction of the Ungheni-Drochia transmission network with a length of about 95 km;
2. Construction of the Ungheni - Balti natural gas transmission network, with connection to the transmission network in the North of the country - Ananiev-Cernauti-Bogorodicieni, with a length of about 117 km.

In July-August 2022, both natural gas transmission system operators initiated the public consultation procedure for the update/modification of the existing 10-year transmission network development Plans. Most likely, after public consultations conducted by the transmission system operators on the respective transmission network development plans and arguments on the economic effects, ANRE will decide on accepting the investment only in one of the two infrastructure projects (Ungheni-Drochia or Ungheni - Balti) that will aim to strengthen the national natural gas system, as well as following the connection to the Ananiev-Cernauti-Bogorodicieni (ACB) network will allow the reversibility of the gas flow between Romania-Republic of Moldova-Ukraine for access to additional gas storage capacities (access to the most important gas storage depot located on the territory of Ukraine), which would open the natural gas market in the Republic of Moldova to suppliers/traders from Ukraine and Romania.

## **2.5. Security of supply and functioning of the sector in emergency situations**

**85.** Law no. 108/2016 on natural gas provides the basic principles and rules governing the obligations and conduct of natural gas market participants in emergency situations, the coordination of activities in the natural gas sector, as well as the actions to be taken in case of major interruptions in the natural gas supply.

**86.** Ensuring the security of natural gas supply is also within the competence of the Government, which for this purpose by Government Decision no. 207/2019 approved the Regulation on emergency

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<sup>5</sup> <https://www.moldovatrangaz.md/storage/app/media/uploaded-files/plan-de-dezvoltare-2020-2029-10-let-rom-181219anexa1.pdf>

<sup>6</sup> [https://www.vmtg.md/images/Planul\\_de\\_dezvoltare\\_pentru\\_anii\\_2020-2029.pdf](https://www.vmtg.md/images/Planul_de_dezvoltare_pentru_anii_2020-2029.pdf)

situations on the natural gas market and the Action Plan for emergency situations on the natural gas market, which consists of two parts: the Preventive Action Plan and the Emergency Plan.

**87.** The Regulation on emergency situations in the natural gas market defines the roles and functions of the participants in the natural gas market, sets minimum standards for security of gas supply and contains, in particular, the following:

1) criteria for identifying protected customers;

2) the measures to be taken by the natural gas undertaking to ensure the supply of natural gas to protected customers in the following cases:

a) extreme temperatures for a peak period of 7 calendar days, statistically observed once every 20 years;

b) any period of at least 30 calendar days during which the demand for natural gas is exceptionally high, statistically recorded once every 20 years;

c) a period of at least 30 calendar days in the event of damage to the main infrastructure of the natural gas system under normal winter conditions.

3) the criteria for the identification of natural gas undertakings that will supply natural gas to protected customers and the criteria for the identification of the different categories of major risks to the security of natural gas supply;

4) the necessary measures to be taken to prevent or reduce the risks of interruption of natural gas supply;

**88.** The Action Plan for emergency situations in the natural gas market contains the following:

1) definition of crisis levels;

2) determination of the role and functions of natural gas undertakings, the Commission for Emergency Situations of the Republic of Moldova, other responsible authorities, taking into account the differences in the extent to which they are affected in case of interruption of natural gas supply, and determination of the ways and means of interaction of the latter with the central body of public administration, specialized in the field of energy, with the Commission for Emergency Situations of the Republic of Moldova for each defined crisis level;

3) identification, where appropriate, of measures and actions to reduce the potential impact of the interruption of natural gas supply on the heating system and the supply of electricity produced using natural gas;

4) the establishment of detailed measures and procedures to be followed for each level of crisis, including systems to ensure the flow of information, to enable natural gas undertakings and industrial natural gas consumers to respond to each level of crisis;

5) identification of measures that are not based on market mechanisms to be implemented in emergency situations and assessment of the extent to which they can be used to deal with situations arising from a crisis, identification of their effects and definition of the necessary procedures for their implementation;

6) description of the details of the reporting obligations imposed on natural gas undertakings in the event of an alert for each of the crisis levels;

7) establishment of a list of pre-defined actions to be taken to ensure the natural gas supply in emergency situations, including commercial agreements between the parties involved in such actions

and compensation mechanisms for natural gas undertakings, the list of interruptible final customers and the order in which the supply of natural gas to final customers will be limited and/or stopped, others.

**89.** Pursuant to the country's commitments to the Energy Community Treaty, the Republic of Moldova has to transpose by 30.12.2022 Regulation (EU) 2017/1938 of the European Parliament and of the Council of 25 October 2017 concerning measures to safeguard the security of gas supply and repealing Regulation (EU) no. 994/2010. In addition, Republic of Moldova has to transpose the Regulation (EU) 2022/1032 on natural gas storage (incorporated through Regulations (EU) 2017/1938 and (EC) no. 715/2009).

**90.** Following the amendments made to Government Decision no. 207/2019 in August 2022, protected consumers have been defined in accordance with the provisions of Regulation (EU) 2017/1938, as follows: *"The following categories of final consumers shall be regarded as protected consumers:*

*1) all household consumers whose natural gas installations are connected to the natural gas distribution networks;*

*2) providers of essential social services related to health care, essential social assistance, emergency, security, education or public administration, and small and medium-sized enterprises with an average daily consumption of less than 600 m<sup>3</sup>/day, connected to the natural gas distribution networks;*

*3) CHPs and/or heating plants connected to a natural gas transmission or distribution network, delivering heat to the district heating system or delivering heat to consumers referred to in subpoints 1) and 2), provided that they cannot use other types of fuel."*

**91.** Final consumers in the Republic of Moldova according to the provisions of Government Decision no. 207/2019 are divided into protected and interruptible consumers. In the event of a limitation/shortage in supply, and the declaration of an emergency situation on the natural gas market in the Republic of Moldova, when all measures based on market mechanisms have been used, but the demand for natural gas remains fully unsatisfied, in relation to interruptible consumers the measure of limitation or stopping of natural gas supply could be applied, while for protected consumers the continuity of supply is ensured as far as possible.

Protected consumers represent over 99.9% of the total number of consumers registered in 2021 (805,542 natural gas consumers), but their annual consumption represents 714.9 million m<sup>3</sup> or 60% of the annual consumption of the right bank, and respectively 476, 5 million m<sup>3</sup> or 40% representing the annual consumption of interruptible consumers. The consumption of household consumers (Group I), the last in relation to which the measure of limiting or stopping the supply of natural gas could be applied, represents 67.2% of the annual gas demand of protected consumers. The consumption of large industrial consumers and CETs/CTs that can be disconnected (Group I), the first in relation to which the measure of limiting or stopping the supply of natural gas could be applied, represents 62.9% of the annual gas demand of interruptible consumers.

The consumption of natural gas is concentrated in the capital of the Republic of Moldova - Chisinau, which in 2021 recorded a consumption of approximately 57% of the total amount of natural gas. Of the total consumption of protected consumers in 2021, about 284 million m<sup>3</sup> or 39.7% was distributed by DSO LLC "Chişinu-Gaz". Of the total consumption of interruptible consumers in 2021, about 377.9 million m<sup>3</sup> or 79.3% was distributed by DSO LLC "Chişinu-Gaz".

**Table 7.** Natural gas consumption in 2021 by category of consumers: Protected and Interruptible.

No.	Consumer category	Monthly consumption, mil. m <sup>3</sup>												Total	
		01	02	03	04	05	06	07	08	09	10	11	12		
<b>1.</b>	<b>Protected consumers, total</b>	<b>119.3</b>	<b>120.1</b>	<b>102.9</b>	<b>61.5</b>	<b>19.8</b>	<b>14.0</b>	<b>11.5</b>	<b>12.5</b>	<b>20.1</b>	<b>47.0</b>	<b>74.4</b>	<b>111.8</b>	<b>714.9</b>	<b>60</b>
1.1	<b>Group I</b> - household consumers	79.3	76.1	66.7	43.7	16.7	11.4	9.2	9.2	14.9	36.7	45.8	70.5	<b>480.3</b>	67.2
1.2	<b>Group II</b> - Providers of essential social services and small and medium-sized enterprises with an average daily consumption of less than 600 m <sup>3</sup> /day	19.0	24.4	20.3	10.4	2.4	1.9	1.6	2.6	4.4	8.2	15.5	21.9	<b>132.7</b>	18.6
1.3	<b>Group III</b> - CHPs/TP	21.0	19.7	15.8	7.3	0.8	0.7	0.7	0.7	0.7	2.1	13.2	19.4	<b>101.9</b>	14.2
<b>2.</b>	<b>Interruptible consumers, total</b>	<b>70.4</b>	<b>64.1</b>	<b>60.1</b>	<b>36.0</b>	<b>22.3</b>	<b>18.5</b>	<b>16.4</b>	<b>16.8</b>	<b>22.6</b>	<b>20.0</b>	<b>66.1</b>	<b>63.2</b>	<b>476.5</b>	<b>40</b>
2.1	<b>Group I</b> - large industrial consumers and CHPs/Thermal Boilers/Plants that can be disconnected	53.2	52.2	47.9	25.5	12.8	7.0	4.1	4.0	5.3	5.0	37.4	45.2	<b>299.8</b>	62.9
2.2	<b>Group II</b> - interruptible consumers with a planned average daily consumption for the next month higher than 1200 m <sup>3</sup> /day	8.3	4.8	4.9	4.9	4.5	5.2	5.8	11.8	15.7	13.3	26.2	15.1	<b>120.4</b>	25.3
2.3	<b>Group III</b> - interruptible consumers with an average daily consumption planned for the next month between 600-1200 m <sup>3</sup> /day	8.6	6.7	6.9	5.3	4.8	6.1	6.3	0.7	1.1	1.4	2.2	2.5	<b>52.8</b>	11.1
2.4	<b>Group IV</b> - interruptible consumers with a planned average daily consumption for the next month of less than 600 m <sup>3</sup> /day	0.3	0.3	0.3	0.2	0.1	0.2	0.2	0.2	0.5	0.3	0.4	0.4	<b>3.5</b>	0.7
<b>3.</b>	<b>Total</b>	<b>189.7</b>	<b>184.2</b>	<b>163</b>	<b>97.5</b>	<b>42.1</b>	<b>32.5</b>	<b>27.9</b>	<b>29.3</b>	<b>42.7</b>	<b>67</b>	<b>140.5</b>	<b>175</b>	<b>1191.4</b>	<b>100</b>

**Source:** Licensed natural gas system operators in the Republic of Moldova.

**92.** As of October 2021, the Republic of Moldova faced a significant crisis in the natural gas sector, which highlighted the need to take more actions to improve Moldova's energy security in both sectors: gas and electricity. The Moldovan authorities are looking for different ways to diversify gas and electricity supplies to strengthen their energy security and enable a transparent, fully open and functioning energy market.

At the same time, as of October 2021, Moldova has also faced a significant increase in natural gas prices, due to their increase on the EU gas spot markets, as well as the amended contract with the gas supplier PJSC "Gazprom".

Prices are highly dependent on fluctuations in the international gas market, which puts the Moldovan government in a position to react quickly in case of unforeseen excessive price increases. This has put significant pressure on Moldova's public finances and on the ability of the most vulnerable citizens to afford to pay for their gas consumption, especially during the cold season. The situation is becoming increasingly complex as PJSC "Gazprom" applies a rigid approach to the contractual terms of advance payments, which has never been the case.

**93.** The previous long-term contract between "Moldovagaz" JSC and PJSC "Gazprom" (signed in 2006) expired in 2011. Since then the parties have failed to renegotiate and sign a new long-term contract, so every year the previous agreement is extended annually.

**94.** In 2021 (October 29), by an additional agreement, the contract on natural gas supply concluded between "Moldovagaz" JSC and PJSC "Gazprom" was extended for a period of 5 years, until September 30, 2026. The planned monthly volumes of gas supply for both banks being agreed only for the period November 2021 - October 2022.

It should be noted that the Government of the Republic of Moldova and PJSC "Gazprom" signed on the same date a (political) negotiation Protocol, according to which the Moldovan authorities committed to conduct an audit of the debt of "Moldovagaz" JSC (right bank) and to facilitate the signing of a debt settlement Agreement between "Moldovagaz" JSC and PJSC "Gazprom" by May 1, 2022. At the same time, a broader intergovernmental agreement on cooperation in the energy sphere should have been signed by the national governments by the end of 2022. Given that the Chisinau authorities have failed to carry out a debt audit of "Moldovagaz" JSC (right bank) by the agreed deadline (the contract with the international audit company being concluded only in August 2022 and providing for a financial audit completion deadline up to January 31, 2023), there is a risk that PJSC "Gazprom" will limit or stop the natural gas supply in the coming months.

**95.** Although there is currently a five-year gas supply contract signed between "Moldovagaz" JSC and PJSC "Gazprom", the risk of unilateral termination of the Contract due to the failure of the Moldovan authorities to carry out a financial audit of the debts still persists. At the same time, there is a risk of lack of reliable and competitive (alternative) sources of natural gas imports, in terms of their purchase at reasonable prices and their transportation to the Republic of Moldova (including through the Trans-Balkan gas pipeline in reverse flow).

Thus, in order to have the possibility of prompt intervention to ensure the security of supply of energy resources, the exceptional situation on the natural gas market - alert situation ascertained/declared by the Provision of the Commission for Emergency Situations of the Republic of Moldova of 13.10.2021 (Minutes no. 12-53-242-7749) in accordance with the provisions of the Regulation and Action Plan on emergency situations on the natural gas market approved by Government Decision no. 207/2019, is maintained until now, and by Parliament Decision no. 278/2022, the state of emergency declared throughout the territory of the Republic of Moldova was extended by 60 days, starting from 07.10.2022.

Starting with October 1<sup>st</sup>, 2022, natural gas deliveries from PJSC "Gazprom" to Moldova are reduced by around 30% for this month.

**96.** Considering the risks to Moldova's security of electricity and natural gas supply, the Government has taken additional measures to enhance its security of supply. Government Decision no. 606/2022, sets out measures to prevent and mitigate the impact on prices and security of supply of energy resources of the Republic of Moldova in case of limitation of natural gas supply and preparation for the heating season 2022-2023. Preventive measures include, among others: increasing and replenishing state reserves of fuel oil and coal to the maximum possible value; creation and maintenance of stocks of alternative fuels needed for electricity and heat production by CHPs; creation and maintenance of stocks of alternative fuels for heat production at heating plants in Chisinau, Balti and other localities.

**Table 8.** Estimated consumption of fuel oil and natural gas in the case of operation of "Termoelectrica" JSC (only the CHP Source no. 1) on fuel oil basis in the period October 2022 - April 2023.

"Termoelectrica" JSC CHP Source no. 1	2022	2022	2022	2022	2023	2023	2023	2023	Total
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	
Quantity of natural gas, mil. m <sup>3</sup>	4,52	0,77	0,74	0,77	0,77	0,71	0,77	0,73	<b>9,77</b>
Quantity of fuel oil, tonnes	-	13.907	35.805	37.390	39.247	40.311	35.346	14.987	<b>216.993</b>

According to the estimates made, in the case of operating "Termoelectrica" JSC (only the CHP Source no. 1) on fuel oil for the entire heating season (October 2022 - April 2023), a volume of about 260 million m<sup>3</sup> could be saved, which would represent a reduction of about 20-25% of annual natural gas consumption.

**97.** Additionally, on July 29, 2022, the Moldovan Parliament adopted amendments to the existing Law on natural gas (Law no. 249/2022) to address price volatility in the gas market and to increase its preparedness in case of a possible gas supply interruption. For the first time, Moldovan operators will be allowed to store natural gas in the Energy Community or in neighbouring EU countries and harmonised entry-exit tariffs will facilitate cross-border gas flows. This draft has been finalised and completed with provisions related to the security of natural gas supply and the basic objectives are:

- to create the necessary legislative framework to ensure the effective management and prompt intervention of the relevant authorities in preventing the outbreak and managing the emergency situation in the natural gas sector;

- to transpose into national legislation the EU Regulation no. 1227/2011 of the European Parliament and of the Council of 25 October 2011 on wholesale energy market integrity and transparency, as adapted by the Ministerial Council Decision of the Energy Community no. 2018/01/MC-EnC;

- to ensure proper transposition and implementation of EU Regulation no. 2017/460 of March 2017 establishing a network code on harmonised gas transmission tariffs (hereinafter - TAR NC);

- to address some issues identified during the implementation of the Law on natural gas, including the extension of ANRE's responsibilities in terms of drafting and approving the regulatory acts necessary to ensure the proper implementation of the binding acts at the level of the Energy Community Treaty, the introduction of the "trading" activity, the clarification of the status of CNGV.

**98.** The adopted amendments to the Law no. 108/2016 also include provisions for the creation and maintenance of security stocks. According to these provisions, by October 2024 there should be stored quantities of natural gas sufficient for at least 10 days of winter consumption (approximately 55-60 million m<sup>3</sup>). Several circumstances, including the impact on end-user prices, have been taken into account when determining minimum security stocks. On the one hand, the Republic of Moldova is entirely dependent on natural gas imports, which are mainly used for electricity and heat production. On the other hand, given the high energy poverty and low affordability of energy costs for final consumers (in particular - household consumers), any increase in the natural gas tariffs and prices is a very sensitive issue with high social impact.

**99.** The timeliness of the transposition and implementation of the EU Gas Storage Regulation 2022/1032 is aligned with the Government's priorities to enhance the security of supply and ensure the continuity of electricity and natural gas supply. However, the implementation of the EU Regulation no. 2022/1032 by the end of 2022 will be extremely difficult for the Republic of Moldova, given its impact on the final gas supply prices to be paid by final consumers.

Based on available data on natural gas consumption in the Republic of Moldova, 15% of the average natural gas consumption over the last 5 years would mean approx. 160 million m<sup>3</sup> (for the right bank),

which at current European spot market prices would be a significant financial effort compared to the size and structure of the Moldovan natural gas market.

**100.** In order to mitigate the impact of rising gas, electricity and heat prices on final consumers, by Law no. 241/2022 it was created the energy vulnerability reduction fund and measures aimed at preventing and combating energy vulnerability of the population, which will provide for compensation for final consumers (households) to pay energy bills depending on the category of energy vulnerability assigned.

**101.** Following the ratification (July 2022) by the Parliament of the Republic of Moldova of the Loan Agreement between the Republic of Moldova and the EBRD of 300 million EUR for the implementation of the project "Security of Natural Gas Supply", signed on June 23, 2022, the possibility of accumulating strategic natural gas reserves will be ensured and/or the process of diversification of natural gas suppliers and supply routes will be facilitated.

**102.** Pursuant to art. 11 par. (1) of the Law no. 108/2016 on natural gas, Articles 1 and 2 of the Law no. 206/2022 on the ratification of the Loan Agreement between the Republic of Moldova and the EBRD for the implementation of the project "Security of Natural Gas Supply", for the provision of a back-up solution for the supply of natural gas to the Republic of Moldova in emergency situations, by Government Decision no. 589/2022 was imposed for a period of 3 years on "Energocon" JSC, an undertaking licensed to supply natural gas, within the territory authorised by the system operators' licences, a public service obligation to ensure the security of natural gas supply in emergency situations, by making purchases and/or securing stocks of natural gas.

## 2.6. Import and supply of natural gas

**103.** The Republic of Moldova is a net importer of natural gas, which is a major source of fuel, with natural gas accounting for about 32% of the total supply of primary energy resources.

**104.** Table 9 shows the quantities of natural gas purchased and supplied to final consumers on the right bank of the Dniester through the distribution and transmission networks.

**Table 9.** Volume of natural gas procured and delivered to final consumers in 2001-2021

Indicators	Unit of measurement	2001	2005	2010	2017	2018	2019	2020	2021	Changes			
										2020/2019		2021/2020	
										Quantity	%	Quantity	%
1. Volume of natural gas purchased - total	mil. m <sup>3</sup>	1127,0	1418,6	1187,8	1033.9	1129.7	1057.7	1127.0*	1205.7	69.3	6.6	78.7	7.0
	mil. MDL	1131,8	1364,9	3674,0	3107.3	4146.0	4298.7	2934.9	6594.5	-1363.9	-31.7	3659.6	124.7
2. Average natural gas purchase price	\$/1000 m <sup>3</sup>	78,0	76,1	250,1	162.05	217.5	233.7	148.87	309.5	-84.8	-36.3	160.6	107.9
	MDL/1000 m <sup>3</sup>	1004	962	3093	3005.4	3670.0	4064.3	2604.5	5469.3	-1460.1	-35.9	2865.1	110.0
3. Volume of natural gas delivered (through distribution and transmission networks) - total	mil. m <sup>3</sup>	1108,5	1315,0	1089,8	965.1	1069.5	1015.6	1046.3	1224.7	30.7	3.0	178.4	17.0
	mil. MDL	1004,0	1551,0	4362,2	5762.4	5384.6	4834.6	4741.3	6720.4	-93.3	-1.9	1979.2	41.7



4. Average natural gas supply tariff (including VAT)	MDL/1000 m <sup>3</sup>	906	1180	4003	5970.7	5034.8	4760.1	4531.5	5487.6	-228.7	-4.8	956.1	21.1
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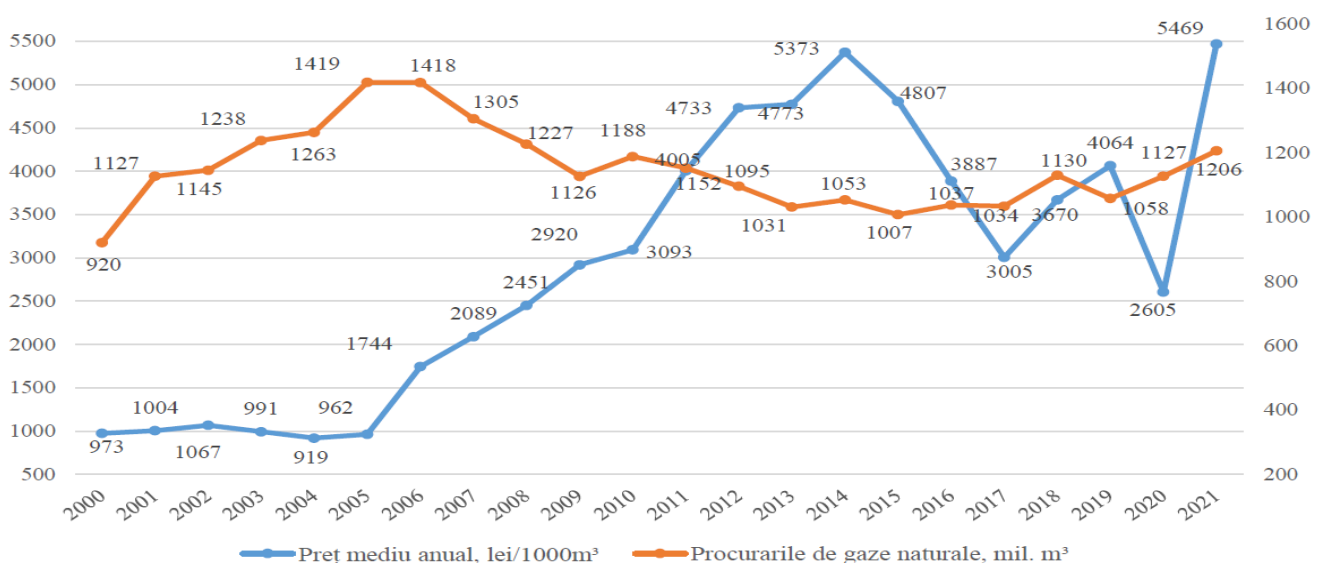
In 2021, the natural gas supplied to the Moldovan market was purchased from PJSC "Gazprom" of the Russian Federation, the total volume of natural gas purchased amounted to 1205.7 million m<sup>3</sup>.

**105.** The total volume of natural gas purchased in 2020 compared to 2019 increased by 69.3 million m<sup>3</sup> (+6.6%). The data presented in Table 9 show that the volume of natural gas purchased for natural gas consumption in the Republic of Moldova in 2021 increased compared to the previous year by 78.7 million m<sup>3</sup>. The increase in consumption in 2021 is primarily the result of higher needs for the production of thermal energy in the winter period due to the recording of lower temperatures.

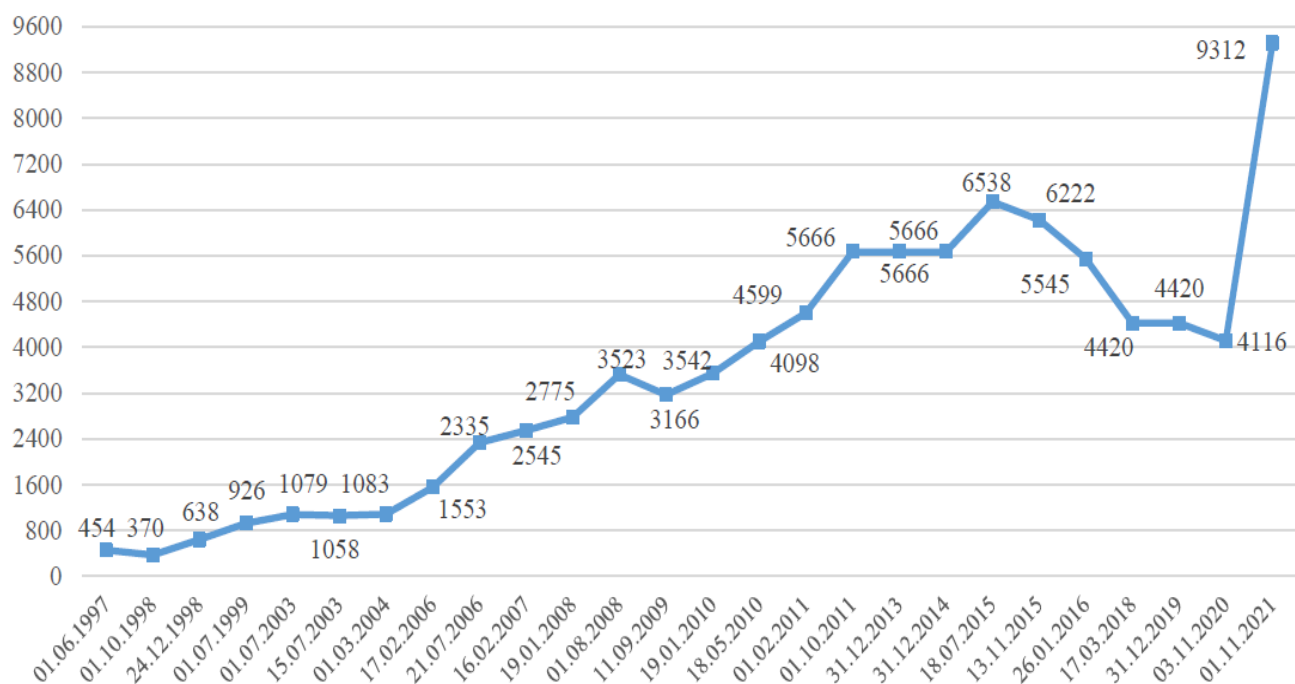
**106.** The level of consumption in the Republic of Moldova also depends on the level of supply tariffs, which in turn depends on two main factors: the price of imported natural gas and the MDL/USD dollar exchange rate, so that in the period 2005-2021 the annual import price increased by 4 times (from 76.1 USD/1000 m<sup>3</sup> to 309.5 USD/1000 m<sup>3</sup>), the average supply tariff increased by more than 4.6 times and, as a result, the consumption of natural gas by final consumers decreased by 7.4% (from 1315 million m<sup>3</sup> to 1224.7 million m<sup>3</sup>).

**107.** In the period 2019-2021, the import price, expressed in MDL, increased by about 34.6%, while the average annual exchange rate of the MDL was practically the same (from 17.57 MDL/USD in 2019 to 17.68 MDL/USD in 2021). Respectively, the main factor influencing this increase is the import price as a result of the change in the calculation formula applied in the natural gas supply contract concluded between "Moldovagaz" JSC and PJSC "Gazprom", as well as the record prices recorded on the spot market in Europe in the fourth quarter of 2021.

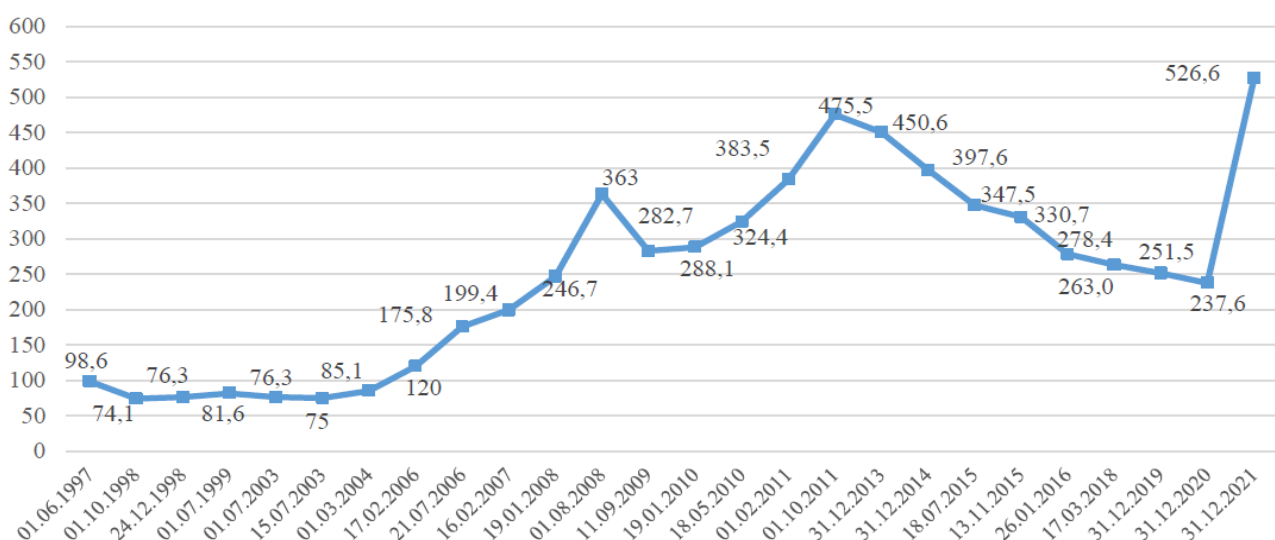
**108.** In 2021, the average purchase price of imported natural gas in dollars increased by 107.9% compared to 2020 and by 32.4% compared to 2019 (from USD 148.87/1000 m<sup>3</sup> in 2020 to USD 309.5/1000 m<sup>3</sup> in 2021). The average gas supply price, expressed in Moldovan lei, increased from 2604.5 MDL to 5469.3 MDL/1000 m<sup>3</sup>, 2 times higher than in 2020. At the same time, the average gas supply price to consumers increased from 4531.5 MDL to 5487.6 MDL/1000 m<sup>3</sup>, 1.2 times higher than in 2020. The evolution of average annual supply tariffs in the Republic of Moldova in the period 1997-2021 (in MDL and USD) is shown in the charts below.



**Figure 18.** Evolution of natural gas procurement and average import price in the period 2000-2021



**Figure 19.** Evolution of average natural gas prices in 1997-2021, MDL/1000 m³

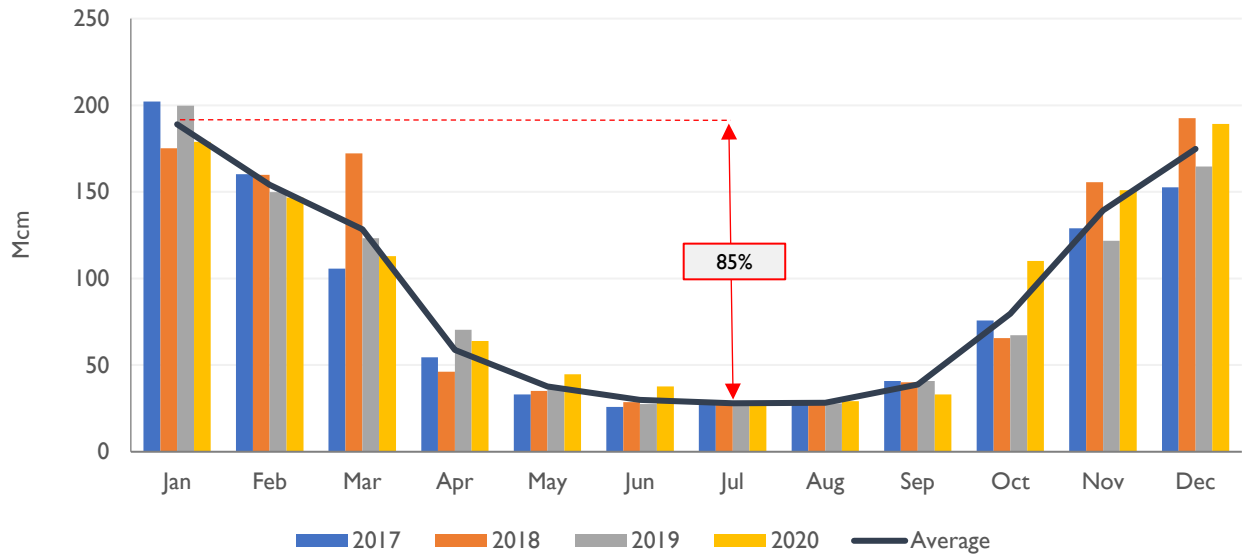


**Figure 20.** Evolution of average natural gas prices in 1997-2021, USD/1000 m³

According to the charts in Figures 19 and 20, between 1997 (first tariff approval by ANRE) and 2021, the average supply tariffs in MDL increased more than 20.5 times. In US dollars, the tariffs increased only 5.3 times. Such a big difference is explained by the depreciation of the MDL by more than 4 times.

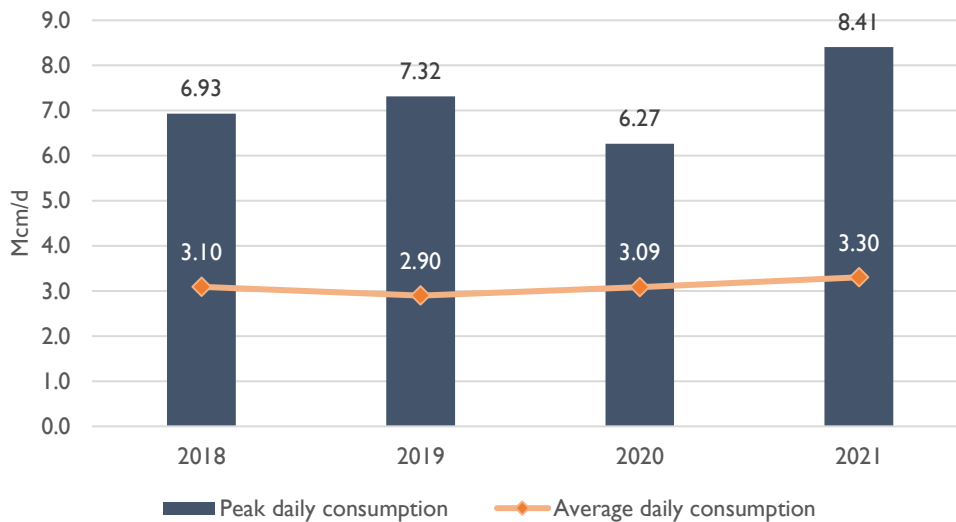
## 2.7. Natural gas consumption

**109.** Natural gas consumption in the Republic of Moldova is characterised by significant seasonality, with gas consumption in the winter period (October-March) being more than double that in the summer period (April-September), and the difference between the months of highest (January) and lowest (May) average demand is 85% in the right bank. Left bank consumption fluctuates only moderately throughout the year, as consumption is largely driven by electricity generation at the MGRES plant (estimated at around 60% of the left bank natural gas consumption).



**Figure 21.** Seasonality of gas consumption in the Republic of Moldova (right bank), mil. m<sup>3</sup>

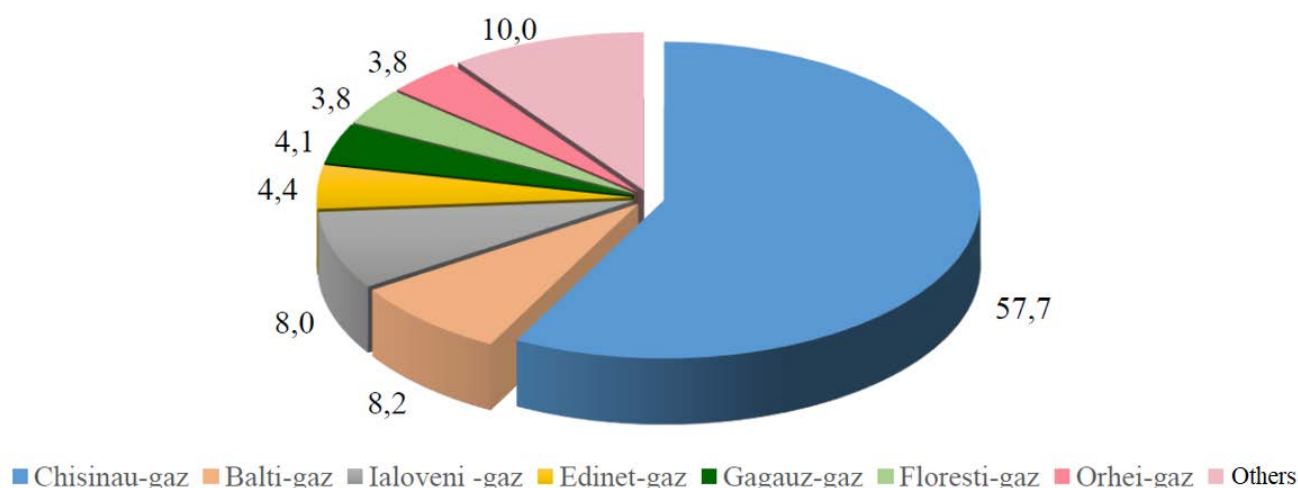
Maximum daily consumption in the right bank reached 8.4 million m<sup>3</sup>/day in 2021, which is 2.5 times higher than the average annual daily consumption, it increased by 25% compared to the maximum daily consumption in 2020 (6.2 million m<sup>3</sup>/day).



**Figure 22.** Peak and average daily gas demand in the right bank

**110.** On the right bank, more than 70% of natural gas deliveries, representing 850 million m<sup>3</sup> in 2021, are used for thermal energy production and as fuel for CHPs. On the left bank, most of the gas, over 60%, is used at the MGRES power plant, while the remaining volumes are delivered to the distribution networks.

**111.** The share of each company in the gas market in the Republic of Moldova is different because the number of consumers of each company is different. At the same time, the structure of consumers and the level of their consumption is different. The share of distribution system operators in the natural gas market in the Republic of Moldova in 2021 is shown in Figure 22.



**Figure 23.** Share of distribution system operators in the natural gas market in the Republic of Moldova in 2021, %

**112.** As shown in Figure 23, natural gas consumption is concentrated in the capital of the Republic of Moldova - Chisinau, which in 2021 recorded a consumption of 57.7% of the total amount of natural gas, and in Balti municipality - 8.2% of the total consumption of the Republic of Moldova. Natural gas consumed in Moldova is mainly used for the production of electricity and heat.

**113.** Moldova has a very high share of natural gas used in total primary energy consumption (32%) and is among the countries with the highest share of natural gas in electricity and heat production (more than 90%).

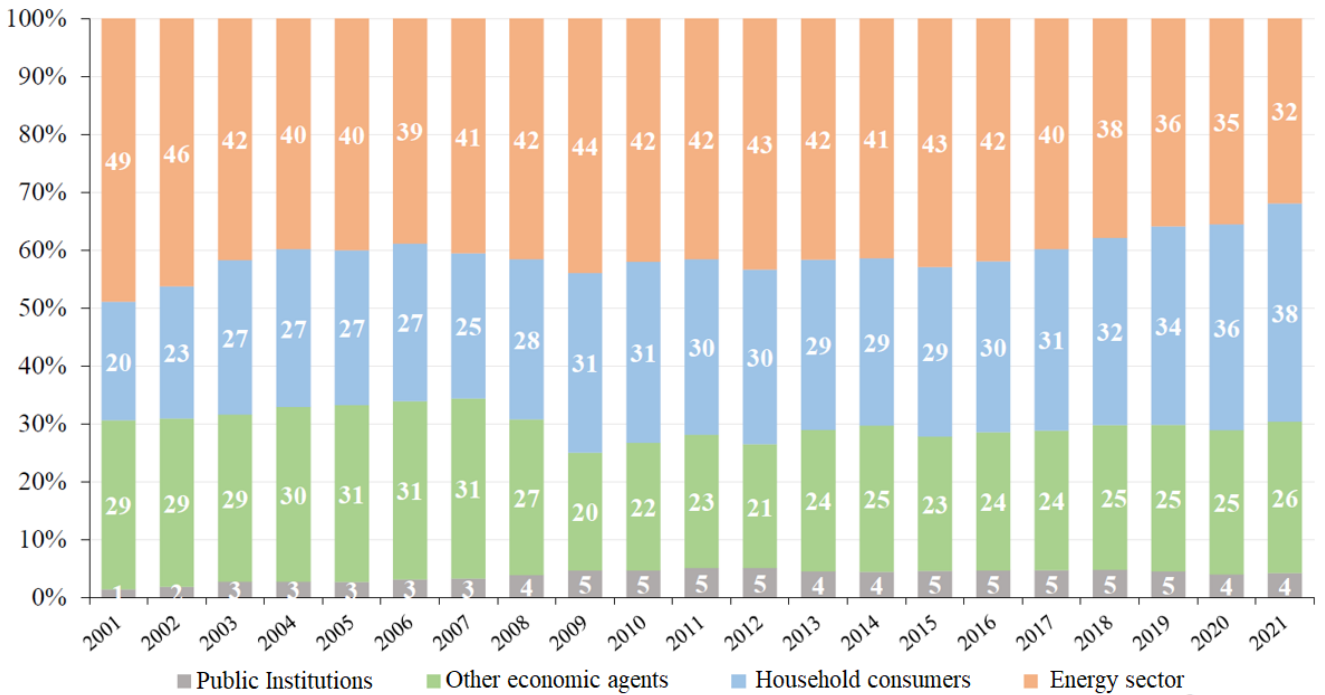
**114.** In the context of the increase of natural gas consumption in 2021 on average by 178.4 million m<sup>3</sup> compared to 2020, it is noted that there was an increase in the natural gas consumption by 23.8% (or 88.9 million m<sup>3</sup>) for household consumers, by 24.1% (or 10.0 million m<sup>3</sup>) for public institutions and by 23% (or 60.0 million m<sup>3</sup>) for economic agents. For the energy sector category, the natural gas consumption increased by 5.2% (or 19.4 million m<sup>3</sup>).

**Table 10.** Structure of the natural gas supply by categories of final consumers in the period 2019-2021

Categories of final consumers	2019		2020		2021		2020/2019		2021/2020	
	mil. m <sup>3</sup>	%	mil. m <sup>3</sup>	%	mil. m <sup>3</sup>	%	mil. m <sup>3</sup>	%	mil. m <sup>3</sup>	%
<b>Natural gas consumption</b> (delivered to final consumers), <b>total</b>	1015.6	100.0	1046.3	100.0	1224.7	100.0	+30.7	+3.0	+178.4	+17.0
<b>Household consumers</b>	347.9	34.3	372.7	35.6	461.6	37.7	+24.9	+7.2	+88.9	+23.8
<b>Public institutions</b>	45.8	4.5	41.5	4.0	51.5	4.2	-4.2	-9.3	+10.0	+24.1
<b>Energy sector</b>	364.7	35.9	371.4	35.5	390.9	31.9	+6.8	+1.9	+19.4	+5.2
<b>Other economic agents</b>	257.4	25.3	260.6	24.9	320.6	26.2	+3.3	+1.3	+60	+23.0

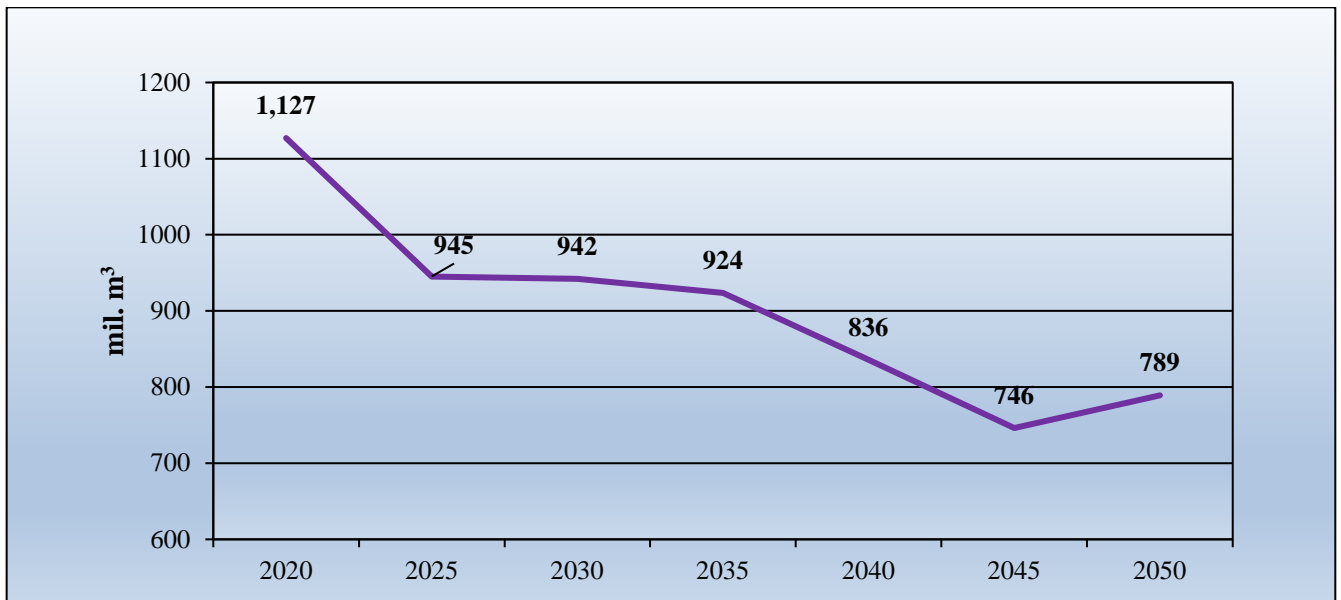
**115.** In the structure of natural gas supply in 2021, the largest share went to household consumers (37.7%) with an increase of 2.1% compared to 2020, followed by energy sector companies with a share of 31.9%, a decrease of 3.6% compared to the previous year.

The share of natural gas consumption attributed to other economic agents is 26.2%. The share of natural gas consumption attributed to public institutions is the lowest in the reference period and amounted to 4.2%. It should be noted that the share of natural gas consumption of public institutions in the last 10 years has remained in the range of 4-5%.



**Figure 24.** Structure of the natural gas consumption by final consumers categories in the period 2001-2021, %

**116.** According to the estimates made by the experts participating in the elaboration of the draft Integrated National Energy and Climate Plan, in the case of the "business as usual" scenario, a decrease in natural gas consumption from 1127 million m<sup>3</sup> in 2020 to 789 million m<sup>3</sup> in 2050, or a 30% decrease, is forecast. See Figure 25 for the forecast of natural gas consumption in the period 2020-2050.



**Figure 25.** Forecast of the natural gas consumption in the Republic of Moldova (right bank), mil. m<sup>3</sup>

## 2.8. Implementation of the Third Energy Package in the natural gas sector

**117.** The Republic of Moldova is a member of the Energy Community and is committed to implementing the Third Energy Package.

**118.** Law no. 123/2009 on natural gas established the basic legislative framework for the natural gas market in line with the Second Energy Package and in particular Directive 2003/55/EC.

**119.** Law no. 108/2016 on natural gas transposes Directive 2009/73/EC concerning common rules for the internal market in natural gas, EU Directive 2004/67/EC concerning measures to safeguard the security of gas supply and EU Regulation 715/2009 on conditions for access to the natural gas transmission networks. This law provides for the full, gradual implementation of the Third Energy Package.

**120.** In 2013, "Moldovagaz" JSC started to reorganize the distribution companies and, first of all, the "Chisinau-Gaz" LLC, which is one of the largest of the 12 regional distribution operators. "Moldovagaz" JSC took over the supply activity, while "Chisinau-Gaz" LLC remained only a distribution company (distribution system operator). Subsequently, since January 2016, the supply activity was separated from the distribution activity at all the other 12 affiliated companies of "Moldovagaz" JSC, and the gas supply activity was taken over by "Moldovagaz" JSC. The 12 affiliated companies of "Moldovagaz" JSC operate only as distribution system operators.

**121.** The implementation process of the Third Energy Package in the natural gas sector of the Republic of Moldova needs to be considered in the context of current as well as medium and short-term developments, based on the existing contractual and ownership realities in the country.

**122.** By ANRE Decision no. 214/2021 the operator of the natural gas transmission system "Moldovatransgaz" LLC was designated as Balancing Entity of the Republic of Moldova. As the Network Code on Balancing is not implemented, the balancing entity is not functional. This is mostly due to the unclarity regarding the status of Tiraspoltransgaz. No balancing agreement between Moldovatransgaz and Tiraspoltransgaz is in place. Moldovatransgaz has signed a technical operational agreement with Vestmoldtransgaz.

**123.** *Improving balancing rules and mechanisms.* Establishing a system where network users are responsible for the use of the transmission network is one of the most important steps towards the development of a liquid market. TSO neutrality in this respect is also crucial. ANRE is already preparing secondary legislation, which should be finalised and approved as a matter of priority (Methodology for the calculation of daily imbalance payments; Methodology for the calculation of balancing neutrality payments; Methodology for the estimation of daily consumption for each category of final consumers where the gas consumption is not accounted for on a daily basis; Balancing Contract).

**124.** The allocation of bundled capacity on interconnection points is an important step towards the creation of a liquid gas market in the Republic of Moldova. Capacity at interconnection points should be secured and auctioned off by a neutral allocation platform (annual, quarterly, monthly, daily). To this end, both TSO ("Moldovatransgaz" LLC) and ANRE should coordinate with counterparts from neighbouring systems in dedicated operational groups (including representatives of system operators and regulators) and prepare an action plan covering a methodology for determining bundled capacity.

For the allocation of bundled transmission capacity at interconnection points with Ukraine and Romania, the capacity reservation platforms used by these countries should be used. Both TSOs have signed agreements with the RBP capacity reservation platform. However, capacities have not been auctioned so far by the TSO "Moldovatransgaz" LLC, which plans to auction available transmission capacities on the RBP capacity reservation platform since October-November 2022. At the same time, it should be noted that from 20.10.2021, "Vestmoldtransgaz" LLC offers available capacity at the Ungheni interconnection point, located at the border of the Republic of Moldova with Romania, and at the Tohatin interconnection point with the adjacent TSO "Moldovatransgaz" LLC, through tenders on

the RBP platform, with daily, monthly and quarterly capacity products available, expressed in kWh/day (25°C/0°C) on both transmission directions.

**125.** As regards the unbundling of the transmission system operator, Law 108/2016 on natural gas offers three models as options, as set out in Directive 2009/73/EC: 1) ownership unbundling; 2) independent system operator; and 3) independent transmission operator.

However, the Moldovan authorities have concluded that the implementation of any of the 3 models set out in EU Directive 2009/73 is linked to specific difficulties, which could jeopardise the implementation process. Possible failures in the implementation of the unbundling of the "Moldovatrangaz" LLC could have irreparable negative implications, therefore the issue represents a risk both for the security of natural gas supply of the country and for the security of supply of neighbouring countries, taking into account that the territory of the Republic of Moldova is crossed by transit pipelines, through which natural gas is delivered to other South-East European countries.

**126.** Taking into account the prospect of the implementation of the Third Energy Package and in order to have guarantees regarding the assets in the gas sector of the Republic of Moldova, PJSC "Gazprom" asked for clarification of the situation of its assets within "Moldovagaz" JSC.

**127.** Based on the specific situation of the Republic of Moldova, on the basis of Decision D/2012/04/MC-EnC, Moldova was granted derogations consisting in postponing the implementation of Article 9 of Directive 2009/73/EC concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC until January 1, 2020. This being a positive decision for the development of the gas sector in Moldova.

**128.** The transmission system operator "Vestmoldtrangaz" LLC was certified as a transmission system operator by the ownership unbundling model in 2021.

**129.** In January 2019, "Moldovatrangaz" LLC submitted to ANRE the plan for the implementation of one of the unbundling models in accordance with the provisions of the Law no. 108/2016 on natural gas. After 4 months of examination, ANRE expressed its negative position on the provisions included in the draft plan and recommended the transmission system operator to submit another plan providing one unbundling model in accordance with the Law no. 108/2016, as well as detailing a list of actions to be implemented in order to ensure an adequate unbundling.

**130.** Finally, on April 30, 2021, "Moldovatrangaz" LLC submitted the application for certification in accordance with the provisions of art. 23 par. (2) letter (c) of the Law no. 108/2016 on natural gas (according to the model of the independent transmission operator). Following the examination of this application for certification, ANRE found that the transmission system operator "Moldovatrangaz" LLC did not fully comply with all the requirements regarding its unbundling and independence set out in Articles 23, 29-35 of Law no. 108/2016, and informed the applicant about the refusal on the certification of the transmission system operator "Moldovatrangaz" LLC.

**131.** It is expected that the latest amendment of Law no. 108/2016, as adopted by the Parliament of the Republic of Moldova in July 2022, and the subsequent alignment of the secondary legislation and relevant regulatory acts, will trigger and lead to a real reform of the gas market in the Republic of Moldova.

Thus, after more than a year of blocking the certification process of "Moldovatrangaz" LLC, according to the provisions of Law no. 108/2016 (amended in July 2022 by Law no. 249/2022), the transmission system operator must submit to ANRE, a new application for certification by July XX, 2023. In case of inaction by the licensee or rejection by ANRE, the regulatory authority is mandated to withdraw the

license, appoint a new transmission system operator for the entire national transmission system and request its certification according to the Independent System Operator (ISO) model, ensuring third party access to the networks.

**132.** Law no. 108/2016 on natural gas transposes the principle of third-party access to transmission, distribution and storage networks from Directive 2009/73/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in natural gas and repealing Directive 2003/55/EC. With the approval of the Natural Gas Network Code by ANRE Decision no. 420/2019, the EU Natural Gas Network Codes were transposed, including the Network Code on the Capacity Allocation Mechanism in the natural gas transmission systems (CAM).

Point 32(2) of the CAM Network Code has been transposed by point 297 of the Natural Gas Network Code approved by ANRE Decision no. 420/2019. This requires the transmission system operator to offer a daily capacity product for interruptible capacity in both directions at interconnection points, if the respective standard capacity product for firm capacity has been sold for the next day or has not been offered. Furthermore, at unidirectional interconnection points where firm capacity is only offered in one direction, the transmission system operator shall offer at least one daily product for interruptible capacity in the opposite direction.

With the amendments made to Law no. 108/2016 by Law no. 257/2020 on the amendment of some normative acts, the notion of backhaul natural gas transmission services was introduced (art. 2) and the obligation of transmission system operators to provide firm and interruptible services when allocating capacity, interruptible services including also the backhaul natural gas transmission service (art. 72, par. (3)).

However, due to the fact that the customs regulations have not been amended/adjusted, backhaul gas transmission services was not possible to be provided on the territory of the Republic of Moldova till October 2022.

Following the address of several natural gas traders to the Secretariat of the Energy Community concerning the impossibility of transporting natural gas in the "backhaul" regime through the Republic of Moldova, through the approach MD-MC/O/alo/08/12-05-2022 of May 12, 2022, the Secretariat informed about the initiation of infringement proceedings against the Government/Republic of Moldova for non-compliance and non-implementation of Community legislation in accordance with the provisions of the Treaty establishing the Energy Community, which takes the form of an Open Letter - Opening Letter in relation to case ECS-3/20.

Thus, the Government of the Republic of Moldova has initiated the process of amending the Regulation on the application of customs destinations provided for by the Customs Code of the Republic of Moldova, approved by Government Decision no. 1140/2005, which aims to ensure the provision of backhaul natural gas transmission services on the territory of the Republic of Moldova by the natural gas transmission system operators.

**133.** By Government Decision no. 207/2019 on the approval of the Regulation and Action Plan for emergency situations on the gas market, the Republic of Moldova transposed Regulation (EU) no. 994/2010 of the European Parliament and of the Council of 20 October 2010 concerning measures to safeguard the security of natural gas supply.

At the same time, based on the country's commitments to the Energy Community Treaty, the Republic of Moldova is to transpose by 30.12.2022 Regulation (EU) 2017/1938 of the European Parliament and of the Council of 25 October 2017 concerning measures to safeguard the security of



natural gas supply and repealing Regulation (EU) no. 994/2010. In addition, Republic of Moldova has to transpose the Regulation (EU) 2022/1032 on natural gas storage (incorporated through Regulations (EU) 2017/1938 and (EC) no. 715/2009).

**134.** Thus, the Republic of Moldova needs to update its existing secondary legislation and bring it in line with other national crisis acts, clearly defining the roles and actions of gas market actors and public authorities. The Government of the Republic of Moldova is to update the Risk Analysis/Assessment on the gas market, update and establish the criteria for preventive and emergency plans; organise the testing of emergency plans through emergency exercises, impose measures on the domestic natural gas market participants to enable the creation of gas stocks in line with the future gas storage package established for the Energy Community member countries.