



NATIONAL ENERGY AND CLIMATE ACTION PLAN OF THE REPUBLIC OF MOLDOVA 2025-2030

INTEGRATED NATIONAL ENERGY AND CLIMATE PLAN FOR THE PERIOD 2025-2030

INTRODUCTION

In November 2022, the Republic of Moldova officially launched the preparation of the analytical, institutional and regulatory preconditions for the development of the Integrated National Energy and Climate Plan (hereinafter NECP) for 2025-2030. But the modelling exercise for the energy sector actually started in 2019.

The NECP covers the five dimensions of the Energy Union: (i) decarbonisation, (ii) energy efficiency, (iii) energy security, (iv) the internal energy market and (v) research, innovation and competitiveness.

The NECP sets, in their respective dimensions, the national objectives and contributions of the Republic of Moldova until 2030 and contains the description of the policies and measures envisaged to be implemented in order to achieve the objectives. To these are added the analytical basis consisting of the description of the current situation in the Republic of Moldova with regard to the five dimensions, as well as scenarios up to 2050, which are based on consistent data, assumptions and modelling exercises.

The NECP serves as a strategic planning framework and public policy that will guide the Republic of Moldova's contribution to achieving the objectives and targets by 2050, as well as identify the measures needed to achieve them by 2030. PNIEC aims to support the economic, social and environmental development activities of the Republic of Moldova in a sustainable way, providing clear benefits for citizens.

SECTION A. THE NATIONAL PLAN

1. GENERAL PRESENTATION AND NECP DEVELOPMENT PROCESS

1.1. Executive summary

i. The political, economic, social and environmental context of the NECP

The NECP of the Republic of Moldova for the period 2025-2030 is based on existing national plans and strategies. It is developed, in particular, on the basis of relevant primary legislation in all sectors, the official intentions of decision-makers to promote and implement policies and measures to decarbonise economic sectors, and on the basis of concepts already adopted/discussed, such as the concept of the Energy Strategy 2050, the concept of the Long-term Renovation Strategy to support the renovation of the national building stock of residential and non-residential buildings, etc.

The NECP provides an overview of the current state of development of the energy system and the current energy and climate policy framework. It also provides an overview of the national targets for each of the five key dimensions of the Energy Union and the corresponding policies and measures to achieve them. The NECP shall pay particular attention to the targets to be achieved by 2030, including reducing greenhouse gas emissions, increasing the production of energy from renewable sources, promoting energy efficiency and strengthening the interconnections of the natural gas and electricity systems. The NECP is coherent and contributes to the achievement of the UN Sustainable Development Goals.

The NECP addresses the 5 dimensions of the Energy Union Governance Mechanism:

- Dimension 1: decarbonisation
- Dimension 2: energy efficiency

- Dimension 3: energy security
- Dimension 4: internal energy market
- Dimension 5: research, innovation and competitiveness.

The objective of the NECP is to highlight existing, planned and possible investments and policies to be implemented in the current decade. The adoption of public policy does not in itself lead to changes in fiscal policy, allocated budgets or the regulatory framework described in the text.

The NECP addresses how significant developments in 2019 in the legislative framework; socio-economic and geopolitical for energy and climate policies have influenced ambitions and scope. Social aspects are also particularly important in terms of combating energy poverty and ensuring that all consumers have access to sustainable energy. These issues are also appropriately addressed in this document.

Economic aspects are another particularity of the Republic of Moldova addressed by the NECP, given that the competitiveness of local production is currently low compared to that of the European Union (hereinafter – *EU*) and the access of local companies to the EU market is very difficult, one of the factors being the relatively high energy intensity in the Republic of Moldova. The aim of the planned policies and measures to be implemented under the NECP is to overcome these difficulties and to help local companies become more competitive in both the local and EU markets or in other markets.

The Republic of Moldova faces several structural economic problems, the state usually importing about 75% of its energy resources (according to the National Bureau of Statistics, in the last 3 years, this amount ranged between 67% and 80%); it faces an ageing and shrinking population, which is ethnically and linguistically diverse and still predominantly rural; has a highly open economy, whose citizens have visa-free access to both the EU and the post-Soviet space; has a ‘frozen conflict’ within the Transnistrian region (RT)¹ (the rest of the country’s territory, controlled by the constitutional authorities, is sometimes referred to in this document as the ‘right bank of the Dniester River’). The NECP includes measures and policies only for the administratively controlled territory of the Republic of Moldova, as the objectives adopted in the framework of the Energy Community concern only this part of its territory.²

The energy sector occupies an important place in the list of structural challenges of the Republic of Moldova. The state imports all the volume of primary fuels (natural gas and oil), and electricity production is concentrated in RT, which supplies the rest of the country with almost 80% of its needs (this indicator differs from year to year). The country's electricity system is interconnected and synchronized with that of Ukraine and with the entire system of the European Network of Transmission System Operators for Electricity (ENTSO-E) through the neighboring country, Romania. Until recently, the Republic of Moldova was heavily dependent on Russian natural gas and only recently a pipeline was built linking the natural gas system of the Republic of Moldova with that of Romania and ENTSO-G, respectively.

Sound reforms and investments in the energy sector are essential in providing a solid basis for sustainable economic growth, as well as for energy security, social welfare and the fulfilment of the international commitments undertaken by the Republic of Moldova.

Like Ukraine and Georgia, Moldova signed an Association Agreement (AA) with the EU in 2014, which fully entered into force on 1 July 2016. One of the objectives of the Association Agreement is to facilitate the economic integration of the Republic of Moldova into the EU internal market, in particular by establishing a Deep and Comprehensive Free Trade Area (DCFTA) and by supporting the Republic of Moldova's efforts to develop its economic potential through international cooperation, including closer alignment of its laws with those of the EU. The achievement by the Republic of Moldova of the status of candidate country for accession to the EU and the opening of accession negotiations is a trigger for the fulfilment of the international commitments undertaken by

¹ According to Art. 16 and Annex no. 5 of Law no. 764/2001 on the administrative-territorial organization of the Republic of Moldova, RT can be assigned special forms and conditions of autonomy, which include: 1 municipality, 9 towns, 2 towns, 69 communes and 135 communes.

²The NECP includes data on greenhouse gas (hereinafter – *GHG*) emissions for the whole country, presented separately for the administratively controlled territory and separately for the TR.

the Republic of Moldova regarding the liberalisation of energy markets, the development of renewable energy sources, as well as the increase of the interconnection with the EU electricity and natural gas networks.

The Energy Strategy of the Republic of Moldova up to 2030 sets out the strategic objective of integrating the national energy market with the EU internal energy market by fulfilling its commitments within the Energy Community (hereinafter – *EnC*). This strategy is currently under review. In the context of the implementation of the EnC Treaty and the adoption of numerous legislative acts, a transformation of the energy market is taking place between 2019 and 2022, which has a direct and indirect impact on the NECP.

In order to fulfil its commitments, the Republic of Moldova will continue the transposition of the EnC acquis into national legislation, its consistent and determined implementation, the further liberalisation of energy markets, the development of renewable energy sources, as well as the increase of interconnection with the EU electricity and natural gas networks, which are some key factors for the NECP. Interconnecting with EU networks will require both technical improvements and considerable investment in infrastructure.

ii. Strategy for the five dimensions of the Energy Union

The NECP meets the above requirements, takes a holistic approach and includes the five dimensions in an integrated way, in accordance with the provisions of the Detailed Content Manual and the guidelines for setting the national targets of the NECP³.

The **decarbonisation** dimension of the Republic of Moldova is based on the 2015 Paris Agreement, which aims to limit global warming to well below 2 degrees Celsius compared to pre-industrial levels.

The Republic of Moldova is a signatory to the Paris Agreement and submitted the updated National Determined Contribution (NDC) to the CONUSC Secretariat in March 2020. The updated NDC of the Republic of Moldova includes the following targets by 2030:

- the unconditional economy-wide⁴ target to reduce greenhouse gas emissions by 70% by 2030.
- the economy-wide conditional target⁵ that emissions could be reduced by up to 88% compared to 1990 levels.

In 2023, the Republic of Moldova presented the Fifth National Communication CONUSC, with a detailed assessment of decarbonisation measures for all sectors⁶.

With regard to renewable energy, Law No 10/2016⁷ on the promotion of the use of energy from renewable sources sets out the regulatory framework for electricity from renewable sources and the support schemes provided to achieve national targets in this sector. Government Decision No 401/2021⁸ sets a maximum capacity limit of 510 MW for the generation of electricity from renewable sources, to be reached by 2025 through the implementation of support schemes for the production of electricity from renewable sources. Thus, 165 MW for large eligible producers, 100 MW for ‘net invoicing’ and the remaining capacities for the ‘fixed tariff’ support scheme were allocated for the ‘fixed price’ support scheme. In addition to support schemes for the production of electricity, this law also provides for the development of energy use in the heating and cooling, transport, use of guarantees of origin, development of the concept of renewable electricity prosumers, renewable energy communities, facilitation of the grid connection process.

The implementation of the **energy efficiency** dimension in the Republic of Moldova is based on the ‘energy efficiency first’ principle. The EU "Clean Energy for All" legislative package is partially transposed into the new Law on Energy Efficiency of the Republic of Moldova.

³https://www.energy-community.org/dam/jcr:c9886332-a1f5-43ee-b46c-31c637aedfa6/PG_03_2018_ECS_NECP.pdf

⁴An unconditional goal is a commitment to reach the goal without additional support.

⁵A conditional target is a commitment that is conditional on the availability of additional know-how technologies and financial sources.

⁶https://unfccc.int/sites/default/files/resource/Moldova_NC5_EN_web.pdf?download

⁷https://www.legis.md/search/getResults?doc_id=98936&lang=en

⁸https://www.legis.md/search/getResults?doc_id=128987&lang=en

The approved amendments to the Law on Energy Efficiency⁹ create the favorable legal framework for the promotion of energy efficiency projects, which contribute to the reduction of energy consumption and, implicitly, greenhouse gas emissions. The Republic of Moldova undertakes to rehabilitate at least 3% of the total floor area of central public authority buildings and, as of 2024, to save annually at least 0.8% of the average value of energy consumption recorded in the period from 1 January 2019 to 1 January 2022¹⁰. It should be noted that the expected energy savings will also be based on the Programme for the implementation of the energy efficiency obligation scheme for 2024-2026.

The **energy security** dimension is determined by the 100% dependence of the Republic of Moldova on imports of natural gas and petroleum products. The Republic of Moldova covers 3/4 of the electricity demand from imports and supplies of SAÎ "Moldavskaia GRES" from the TR.

Actions under the **energy security** dimension aim to reduce dependence on energy imports and diversify energy resources and import routes. These include ensuring gas storage potential, further expanding the use of renewable energy to meet domestic energy needs (wind, solar, biomass) and encouraging energy efficiency in energy transformation, transmission and distribution. The Republic of Moldova also plans to significantly increase the interconnectivity of its electricity system by building new AC power lines with Romania and ENTSO-E, which will increase the security of electricity supply and create new market opportunities in the Republic of Moldova and the region. The **energy security** dimension was integrated into the 10-year Electricity Transmission Network Development Plan of the TSO of the Republic of Moldova, the 10-year Gas Transmission Network Development Plan of LTD Moldovatrangaz and LTD Vestmoldtrangaz and the Energy Strategy 2050 project.¹¹

The internal **energy market** dimension is determined by the provisions of the Energy Strategy of the Republic of Moldova until 2030,¹² which sets the strategic objective of integration into the EU internal energy market by fulfilling the obligations assumed under the Energy Community Treaty.

An important pillar for the development of the internal energy market is the AA/DCFTA, signed in July 2014. It offers more economic opportunities by opening Moldova's access to the EU market for goods and services.

The Republic of Moldova synchronously interconnected with the mainland network of ENTSO-E in 2022, which encourages it to further develop its internal energy market.

By approving Law No. 108/2016 on natural gas and Law No. 107/2016 on electricity, the Republic of Moldova has transposed into national law most of the provisions of the Third Energy Package of the Energy Community.

The Republic of Moldova has a framework law for the energy sector, no. 174/2017 on energy, which establishes the legal framework for the organization, regulation and ensuring the efficient and safe functioning of energy sectors.

Law No 107/2016 on electricity establishes the general legal framework for the organisation, regulation, operation and monitoring of the electricity market.

In addition to this law, there are a number of regulations and decisions that are issued by the regulatory authority the National Agency for Energy Regulation (ANRE). As regards primary legislation, the following legislative acts of the Energy Community are to be transposed:

- Directive (EU) 2019/944 of the European Parliament and of the Council of 5 July 2019 on common rules for the internal market for electricity;
- Regulation (EU) 2019/943 of the European Parliament and of the Council of 5 June 2019 on the internal market for electricity.

⁹https://www.legis.md/search/getResults?doc_id=137465&lang=en#

¹⁰https://www.legis.md/search/getResults?doc_id=137208&lang=en

¹¹Draft Energy Strategy to 2050. Available at <https://particip.gov.md/en/document/stages/minister-infrastructure-and-development-regional-announcement-about-initiation-drafting-document-of-policy-public-strategy-energy-a-republic-moldova-pana-in-year-2050/9942>

¹²Energy Strategy to 2030. Available at https://www.legis.md/search/getResults?doc_id=68103&lang=en

Law No 108/2016 on natural gas establishes the general legal framework for the organisation, regulation, operation and monitoring of the natural gas sector. It provides for the development of a competitive gas market while protecting consumer rights and respecting environmental protection rules.

Law no. 461/2001 on the market of petroleum products¹³ provides the organizational, legal and economic framework for ensuring the economic security of the country and regulating the import, transport, storage and marketing of petroleum products on the domestic market as strategic products.

The **research, innovation and competitiveness** dimension is one of the key areas of the NECP and is implemented through many ongoing activities in the Republic of Moldova.

The State Agency on Intellectual Property (AGEPI) is a central administrative authority subordinate to the Government, responsible for promoting and implementing activities in the field of legal protection of intellectual property objects, related to industrial property rights, copyright and related rights. AGEPI has the following main functions: strategically plan and implement the development objectives of the national intellectual property system; organizes and manages the functioning of the national intellectual property system, in accordance with the legislation of the Republic of Moldova and with the international treaties to which the Republic of Moldova is a party.

The government shows a strong commitment to reforming the national science and innovation system. The Ministry of Education and Research is the main authority in promoting research and innovation.

The Republic of Moldova has recognised the innovation potential and has taken several important steps to reform innovation governance in recent years. These include:

- the national research and innovation programme for the years 2024-2027, which unifies previously fragmented policy areas and has an Action Plan defining the next steps to achieve innovation policy objectives. The programme is aligned with other general policy objectives anchored in strategic documents on education, SMEs and industrial development;

- various mechanisms to promote knowledge transfer and innovation. The Organization for the Development of Entrepreneurship (ODA) is the public institution that has the mission to implement the state policy on supporting the development of entrepreneurship, including small and medium-sized enterprises, according to the strategies and programs approved by the Government. A wide range of business plan competitions and start-up competitions support the growing trend of start-ups and encourage innovative entrepreneurship. Financial incentives applied in the information technology sector create a favourable business environment and stimulate demand for new technologies as well as sectoral growth;

- legal frameworks for public-private dialogue and inter-ministerial consultations on draft policies. Through *advocacy* and *lobbying* strategies, business associations have a growing voice in policy-making.

The National Agency for Research and Development¹⁴ (ANCD) is a central public administrative authority subordinated to the Government. ANCD is the legal successor of the rights and duties of the Center for International Projects, the Agency for Innovation and Technology Transfer and the Agency for Research and Development, public institutions formerly subordinated to the Academy of Sciences of Moldova. ANCD is responsible for implementing the national research, innovation and development policy, the EU's Horizon Europe Framework Programme for Research and Innovation and other European programmes, as well as coordinating the Office of the Republic of Moldova for Science and Technology in the EU (MOST). ANCD's mission is to ensure excellence and performance in achieving national priorities in the fields of research, innovation and development. It provides competition-based funding for research, innovation, technology transfer and other projects. ANCD encourages public-public and public-private partnerships by linking and organizing brokerage events.

The key objectives and policy measures for each of the five dimensions of the NECP are presented in Table 1.

¹³https://www.legis.md/search/getResults?doc_id=130210&lang=en

¹⁴<https://ancd.gov.md/en/content/nard>

Table 1

**Key objectives and policy measures
for the five dimensions of the NECP**

Size	Policy measures
Decarbonisation	PM_DC1: Carbon Border Adjustment Mechanism (CBAM)
	PM_DC2: Implementation of an emissions trading system
	PM_DC3: Climate Change Coordination Mechanism
	PM_DC4: Development of Joint Credit Facility (JCM) projects promoted by Japan
	PM_DC5: Introduction of the carbon tax
	PM_DC6: Installation of battery energy storage systems to ensure automatic frequency control
	PM_DC7: Construction of new biogas TECs
	PM_DC8: Construction of waste-based TECs
	PM_DC9: Development of the secondary regulatory framework for the implementation of Law No 227/2022 on industrial emissions
	PM_DC10: Implementation of energy management system according to Moldovan standard SM EN ISO 50001: 2019
	PM_DC11: Co-incineration of alternative fuels (biomass and solid household waste) in clinker
	PM_DC12: Solid waste project in the Republic of Moldova
	PM_DC13: Implementation of the system of conservative agriculture
	PM_DC14: Manure storage in common platforms or individual warehouses
	PM_DC15: Promotion of cattle feeding technologies through the use of feed in the form of single mixtures (monoration), without or with small amounts of green fodder
	PM_DC16: Promotion of the use of grape marc in ruminant rations to reduce greenhouse gas emissions
	PM_DC17: Afforestation of land
	PM_DC18: Creation of protective forest curtains
	PM_DC19: Planting of energy crops
	PM_DC20: Installation of 165 MW photovoltaic plants
	PM_DC21: Installation of wind farms with a capacity of 230 MW
	PM_DC22: Promoting renewable energy communities
	PM_DC23: Integration of biomass heaters into district heating systems
	PM_DC24: Interaction of heat pumps in centralised heat supply systems
	PM_DC25: Assessing the energy potential of geothermal sources and defining the regulatory framework necessary to exploit it
	PM_DC26: Promoting sustainable green cities for the Republic of Moldova
	PM_DC27: Promotion of biofuels and bioliquids to increase the consumption of renewable energy in the transport sector
	PM_DC28: Promoting electrification of rail transport
	PM_DC29: Promoting green technologies in the private sector
	PM_DC30: Promoting energy efficiency of SMEs
	PM_DC31: Promoting innovative technologies in SMEs
	PM_DC32: Promoting rural competitiveness and resilience
	PM_DC33: Promote considerable reductions in fine particulate matter and black carbon emissions on roads
Energy efficiency	PM_EE1: Renovation of buildings in the residential sector
	PM_EE2: Renovation of buildings in the public sector of the State
	PM_EE3: National Energy Efficiency Information System 'SINEE'
	PM_EE4: Regulatory framework for the certification of the energy performance of buildings
	PM_EE5: Deployment of smart metering systems and other advanced metering technologies to better respond to demand, remote metering and billing according to electricity consumption hours
	PM_EE6: Promotion of energy services and energy performance contracting
	PM_EE7: Energy efficiency in public buildings through the implementation of the Super ESCO mechanism
	PM_EE8: Promotion of clean and energy efficient road transport vehicles
	PM_EE9: Increasing the share of alternatively fuelled motor vehicles, as well as developing the necessary national infrastructure for electric vehicles, charging points and their parking infrastructure
	PM_EE10: Increased use of rail for freight and passenger transport
	PM_EE11: Promoting sustainable mobility
	PM_EE12: Carrying out mandatory energy audits by large companies
	PM_EE13: Implementation of energy efficiency measures and exploitation of renewable energy sources within the industrial sector
	PM_EE14: Implementation of energy labelling and ecodesign requirements for energy-related products
	PM_EE15: Implementation of universal street lighting, with priority given to power supply from RES
	PM_EE16: Promotion/modernisation of high-efficiency TECs
	PM_EE17: Modernisation of centralised heat supply systems
	PM_EE18: Promoting energy efficiency improvement measures in electricity infrastructure
	PM_EE19: Promoting energy efficiency improvement measures in gas infrastructure
	PM_EE20: Developing sustainable and innovative procurement
PM_EE21: Making electricity consumption more efficient by replacing old inefficient appliances, through the Home Appliances Voucher Program	
PM_EE22: Strengthening the institutional capacity of the public support institution	
Energy security	PM_SE1: Construction of 400 kV Vulcanesti OHL - Chisinau
	PM_SE2: Construction of 400 kV OHL in Balti – Suceava
	PM_SE3: Construction of the 400 kV Straseni – Gutinas OHL
	PM_SE4: Approval of the Electricity Transmission Network Development Plan 2025-2034, 10 years (TYNDP)
	PM_SE5: Increasing the firm, bidirectional capacity of the natural gas transmission network at all interconnection points; diversification of routes and sources of supply of natural gas

	PM_SE6: Study on the elimination of technical limitations of natural gas transmission on the territory of the Republic of Moldova
	PM_SE7: Creation of natural gas security stocks
	PM_SE8: Creation of minimum stocks of petroleum products
	PM_SE9: Improving energy-related cybersecurity
Internal market energy	PM_IEM 1: Transposition and implementation of the Network Codes and EU Guidelines for the electricity sector, transposition of the Electricity Integration Package
	PM_IEM 2: Obtaining the membership of ENTSO-E by the SE "Moldelectrica"
	PM_IEM 3: Implementation of the 10-year Transmission Power Grid Development Plan (TYNDP)
	PM_IEM 4: Exploring the possibility of building gas storage facilities (underground or ground) in the Republic of Moldova
	PM_IEM 5: Increasing the transparency and integrity of wholesale energy markets
	PM_IEM 6: Establishing day-ahead and intraday energy markets
	PM_IEM 7: Nominated electricity market operator (NEMO)
	PM_IEM 8: Coupling of day-ahead and intraday markets with similar EU markets
	PM_IEM 9: Continuous market opening and gradual liberalisation of electricity and gas markets
	PM_IEM 10: Facilitating the switching process
	PM_IEM 11: Identifying adequate social aid tailored to the needs of vulnerable consumers
Research, innovation and competitiveness	PM_RIC1: Competition for innovation and technology transfer projects, including in the field of "Environment and Climate Change"
	PM_RIC2: Improving the management of research, innovation and development
	PM_RIC3: Promoting the creation and use of science and technology parks and innovation incubators
	PM_RIC4: Establishment, involvement and creation of networks of intermediary institutions associated with the flow of information, management, technology and funding for technology transfer
	PM_RIC5: Promoting smart specialisation
	PM_RIC6: Sandbox for energy innovation and technology
	PM_RIC7: Support cooperation between other Member States in the field of technology transfer and capitalise on research results

Assumed targets for 2030

National GHG emission targets, including the contribution of the Land Use, Land-Use Change and Forestry (LULUCF) sector for the Republic of Moldova are 70% by 2030 unconditionally and 88% conditionally below 1990 levels. Both apply to the entire territory of the Republic of Moldova within internationally recognised borders and were established as voluntary reduction commitments in the Republic of Moldova's updated CND to the Paris Agreement (2020). The unconditional 70% reduction target by 2030 compared to 1990 was approved as a legally binding target under the Paris Agreement in the Low Emission Development Programme of the Republic of Moldova by 2030, approved by Government Decision No 659/2023.

According to Decision 2022/02/MC-EnC of 15 December 2022 of the Ministerial Council of the Energy Community¹⁵, the Republic of Moldova has committed to the following legally binding targets:

- reduction of GHG emissions by 68.6%, or no more than 9.1 Mt CO₂ eq in 2030 compared to 1990 levels;
- share of renewable energy in final energy consumption of 27% in 2030;
- a gross inland energy consumption of no more than 3.0 Mtoe in 2030;
- a maximum final energy consumption of 2.8 Mtoe in 2030.

For the territory provisionally outside the control of the constitutional authorities of the Republic of Moldova, the Moldovan authorities are in the process of identifying ways to implement decarbonisation policies and measures and already have some successes, but these will be addressed in the updated version (2nd iteration) of the NECP. It should be noted that the implementation of decarbonization policies and measures in the RT is of high priority in order to achieve the updated NDC targets assumed by the Republic of Moldova.

Estimation of the evolution in the period up to 2030 of the indicators mentioned below (Table 2 and Figure1), based on public NBS information, energy system modelling results and other relevant sources, shows that Moldova can achieve its Energy Community targets by implementing policies and measures adopted by 1 January 2023 (WEM), with the exception of the target of 27%

¹⁵The Decision 2022/02/MC-EnC, the Energy Community Ministerial Council: https://www.energy-community.org/dam/jcr:421f0dca-1b16-4bb5-af86-067bc35fe073/Decision_02-2022-MC_CEP_2030targets_15122022.pdf

share of energy from RES in final energy consumption, for which additional measures, defined in the respective scenario (WPM), are needed.

Table 2

Estimated evolution of the specified indicators until 2030
Decision 2022/02/MC-EnC of the Ministerial Council of the Energy Community
the Right Bank of the Dniester River

	2015	2020	2025	2030
Gross inland energy consumption, ktoe	2.686	2.807	2.741	2.949
Final energy consumption, ktoe	2.410	2.531	2.514	2.762
Share of RES in final energy consumption, %			25,3	26,1
<i>with additional measures</i>			26,3	30,0

The analysis of the evolution of these indicators is presented in more detail in Part 4 of the NECP: ‘State of play and projections with existing policies and measures’, sub-point 4.2 and 4.3.

In Law No. 74/2024 on climate action, the Republic of Moldova set itself the objective of achieving climate neutrality in 2050. To achieve this objective, additional measures will need to be identified in the NECP reviews, which will apply from 2035 onwards.

The climate neutrality scenario is also to be analysed in the framework of the long-term energy strategy.

Figure 1 shows GHG emission projections for the right bank of the Dniester River until 2050 (both WEM and WPM with and without LULUCF).

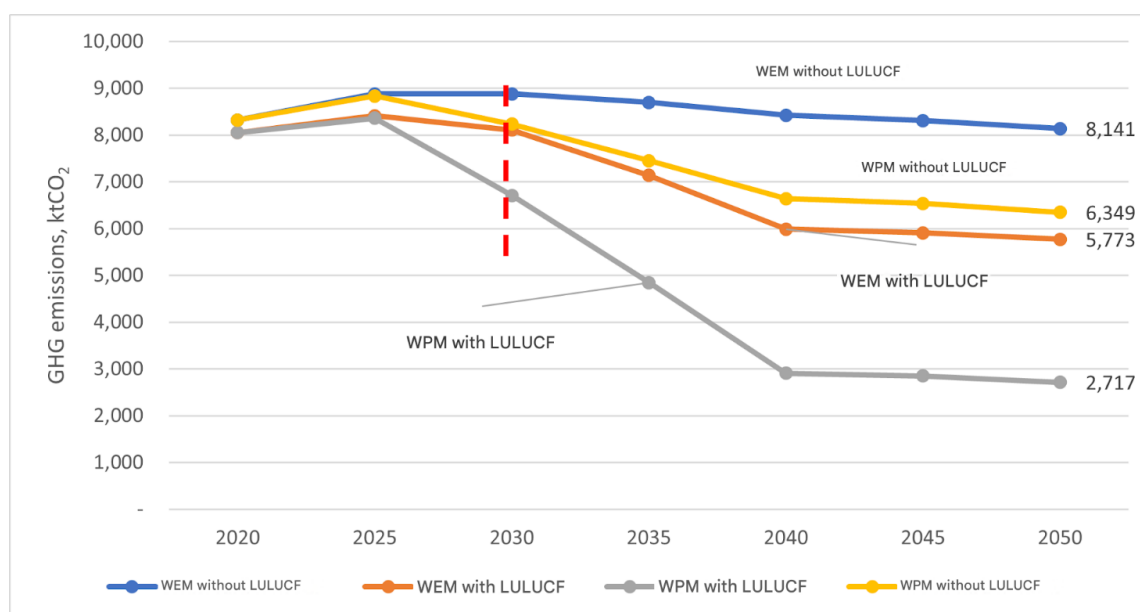


Figure 1. Projections of GHG emissions in the Republic of Moldova (right bank of the Dniester River) by 2050

From Figure 1 it can be concluded that the Republic of Moldova will achieve its GHG emissions reduction target of 68.8% in 2030 compared to 1990, as committed under the ECT (i.e. GHG emissions of no more than 9.1 MtCO₂ eq). At the same time, large GHG reductions are expected between 2030 and 2050 in both WEM and WPM scenarios. These GHG reductions are due to planned measures both to increase land afforestation and grassland expansion and to cultivate land using new technologies (no-till, *mini-till*, etc.). As removals are not very stable over time, it is not recommended to account for more than 10% of them and other decarbonisation measures need to be implemented.

Table 3 presents an overview of the objectives, policies and key measures of the NECP for the Republic of Moldova (Right bank of the Dniester River). Detailed descriptions of the NECP measures for each dimension are presented in Chapter 3.

Note. Throughout the following text, the term ‘Republic of Moldova’ refers only to the right bank of the Dniester River.

iii. Summary table of the main objectives, policies and measures of the plan

The main objectives of the NECP 2025-2030 are based on the national targets assumed for 2030, mentioned above and detailed in Table 3.

Table 3

Summary table of the main objectives, policies and measures of the NECP

	Size	Main objective	Main policies and measures
Decarbonisation	GHG emissions and removals	<p>Fulfilment of obligations under the Paris Agreement and the Energy Community</p> <p>Contribute to the EnC target of reducing GHG emissions by 60.9% by reducing national emissions by 2030</p> <p>Reaching the national target for the Republic of Moldova to reduce GHG emissions by 68.6% compared to 1990 levels by 2030</p>	<p>Detailed assessment of decarbonisation measures for all sectors</p> <p>Improving waste management to reduce GHG emissions by 14% in 2030 compared to 1990</p> <p>10% increase in CO₂ absorption by 2030 compared to 1990</p> <p>Afforestation and land rehabilitation on an area of up to 25% of the territory. On 17/02/2023</p> <p>Solid waste project in the Republic of Moldova</p> <p>Introduction of the carbon tax</p> <p>Development of Joint Credit Facility (JCM) projects promoted by Japan</p>
	Renewable energy	<p>Achieve the national target of 27% share of renewable energy in final energy consumption by 2030</p> <p>SER-Î&R: 42.5% in CFBE (gross final energy consumption) for heating and cooling, including 2.3% for heat pumps, by 2030</p> <p>SER-E: 31.2% renewable electricity in final consumption by 2030</p> <p>SER-T: 6.9% in fuel consumption in the transport sector by 2030;</p> <p>as a result of the electrification of transport, the increase in the use of biofuels to 7.6% and the number of electric vehicles, etc.</p>	<p>Installation of 230 MW of wind energy capacity and 165 MW of photovoltaic energy, correlated with the installation of corresponding balancing sources</p> <p>Government Decision No 401/2021 sets a maximum limit of 510 MW of renewable energy capacity promoted through support mechanisms by 2025. Of this, 165 MW (solar and wind) capacity was auctioned for large producers</p> <p>Fixed prices, set in a tender for large capacity units (above a capacity threshold that is set by a Government Decision)</p> <p>A feed-in tariff scheme for power plants with a capacity limit set by the Government, but not less than 10 kW</p> <p>Net billing for small renewable energy sources for own electricity consumption (less than 200 kW)</p>

Size	Main objective	Main policies and measures
		<p>Construction of new biogas TECs</p> <p>Construction of waste-based TECs</p> <p>Promoting renewable energy communities</p> <p>Integration of biomass heaters into district heating systems</p> <p>Interaction of heat pumps in centralised heat supply systems</p>
Energy efficiency	<p>The national target¹⁶ for energy consumption shall be no more than 2,800 ktoe in terms of final energy consumption in 2030</p> <p>In terms of maximum gross inland consumption, the target is 3,000 ktoe by 2030</p>	<p>Implementing energy efficiency in line with the energy efficiency first principle</p> <p>Renovation of buildings in the residential sector</p> <p>Renovation of buildings in the public sector of the State</p> <p>0.8% of new annual energy savings due to the implementation of the obligation scheme, renovation of buildings, support for new efficient technologies, etc.</p> <p>Promotion of clean and energy efficient road transport vehicles</p> <p>Regulatory framework for the certification of the energy performance of buildings</p> <p>Implementation of energy efficiency measures and exploitation of renewable energy sources within the industrial sector</p> <p>Annual renovation of 3% of the total floor area of central public authority buildings with a total useful floor area over 250 m²</p>
Energy security	Reducing dependence on energy imports and diversifying energy resources and import routes	<p>10-year electricity transmission network development plans of the TSO of the Republic of Moldova</p> <p>Development plan of the natural gas transmission network for 10 years of LTD "Vstmoldtransgaz"</p> <p>New Energy Strategy to 2050</p> <p>Obligations to hold emergency stocks</p> <p>Integration into the EU internal market for electricity and natural gas</p> <p>Encouraging the use of domestic biomass resources at an appropriate level in the context of decarbonisation objectives</p>

¹⁶Energy Community. <https://www.energy-community.org/implementation/package/CEP.html>

Size	Main objective	Main policies and measures
		<p>Ensuring natural gas storage in accordance with legal requirements</p> <p>Expanding the use of renewable energy to meet domestic energy needs (wind and solar)</p> <p>Increasing energy efficiency in energy consumption, transformation, transmission and distribution</p> <p>Significantly increase the interconnectivity of the energy system by building new connection lines with Romania and ENTSO-E, which will increase the security of electricity supply and create new market opportunities in the Republic of Moldova and the region</p>
Internal energy market	Implementing a better functioning energy market	<p>Supply of electricity to consumers under conditions of accessibility, availability, reliability, continuity, quality and transparency</p> <p>Ensuring regulated and non-discriminatory access to the electricity market</p> <p>Promotion of electricity generation</p> <p>Ensuring the right balance between supply and demand, the right level of interconnection capacity to facilitate cross-border exchanges in electricity</p> <p>Developing the electricity market to integrate into the competitive EU electricity market</p> <p>Establishment of measures to ensure security of electricity supply</p>
Research, innovation and competitiveness	Facilitating and promoting research, development and innovation	<p>Transforming the human capital economy into a knowledge-based economy</p> <p>Increasing funding for R&D</p> <p>Private sector involvement in R&D</p> <p>Adoption of the National Smart Specialisation Programme of the Republic of Moldova for the years 2024-2027 “Smart Moldova”, in order to establish a closer link between business and academia, with the promotion of innovative businesses in 4 core areas: Energy, ICT, Agriculture and Processing and Health</p>

1.2. Overview of the state of play on policies

i. National and Energy Community energy systems and the political context of the national plan

The current **energy strategy of the Republic of Moldova until 2030**¹⁷ provides for the strategic objective of integration on its internal energy market, by fulfilling the commitments undertaken within the Energy Community. The strategy also set national targets for 2020: 20% renewable energy; improving energy efficiency by 20%; Reduce CO₂ emissions by 25%. This strategy is under review.

The Republic of Moldova intends to create a competitive and environmentally sustainable energy sector, integrated into European infrastructure and European energy markets, which will ensure an adequate level of energy security so that consumers can access energy at affordable prices.

To achieve these objectives, the Republic of Moldova has committed to align its policies as much as possible with the overall EU energy and climate policy objectives as defined in the recent EU legislative packages (the ‘European Green Deal’, ‘Fit for 55’, ‘REPowerEU’), the Paris Agreement and the Energy Community commitments.¹⁸ Currently, the energy sector is responsible for more than two thirds of national GHG emissions and therefore needs to be treated as a priority sector for future action.

The Energy Strategy 2050 is being developed and will describe the specific objectives and measures to be implemented to meet these commitments, including reaching climate neutrality by 2050.

Achieving the strategic objectives of the Republic of Moldova requires changes to the legal framework, including the development of secondary legislation and its effective implementation.

The Energy Community is an international organisation that brings together the European Union and its neighbours with the objective of creating an integrated pan-European energy market. This objective will be implemented by extending the rules and principles of the EU internal energy market to neighbouring countries within a legally binding framework. The Republic of Moldova became a Contracting Party to the Energy Community Treaty in 2010 and committed to transpose EU energy legislation, to develop competitive and open electricity and natural gas markets and to integrate its national energy markets into the EU internal energy market.

By approving the Law on natural gas and the Law on electricity in May 2016, the Republic of Moldova transposed into national legislation most of the provisions of the third energy package of the Energy Community.

The Energy Community gave the Republic of Moldova a positive assessment regarding both the transposition of the Energy Community legislation and its effective implementation.

Moreover, in the latest “Moldova Energy Policy Review 2022”, the IEA appreciates the improvements achieved so far, but points out that the energy sector in the Republic of Moldova still faces major challenges in terms of energy security, ensuring a sustainable, clean and efficient energy system and developing a free and competitive energy market.

ii. Current energy and climate policies and measures relating to the five dimensions of the Energy Union

A. Size – Decarbonisation

The dimension of decarbonisation is described by two key elements:

1. greenhouse gas (GHG) emissions;
2. renewable energy sources (RES).

¹⁷Energy Strategy to 2030: https://www.legis.md/search/getResults?doc_id=68103&lang=en

¹⁸ The conclusions of the Energy Community Informal Ministerial Council of 8 July 2022 were formally adopted by the EnC Ministerial Council in December 2022.

A. 1. GHG emissions

According to the updated National Determined Contribution (2020), the Republic of Moldova has committed to achieve by 2030 the unconditional target of reducing GHG emissions by 70%, compared to the level recorded in the base year (1990). The reduction commitment could be conditionally increased to around 88%, in line with this global agreement, which addresses important issues such as the provision of low-cost financial resources, technology transfer and technical cooperation, access to all of them depending on the challenges caused by global climate change. The greenhouse gas emission reduction targets have been set in an emission budget covering the period from 1 January 2021 to 31 December 2030¹⁹.

The objectives related to climate change mitigation, set out in the intentional NDC of the Republic of Moldova (2015), were approved by Government Decision No. 1470/2016 on the approval of the Low Emission Development Strategy of the Republic of Moldova until 2030 and the Action Plan for its implementation. The latter was replaced by the Low Emission Development Programme until 2030, approved by Government Decision No 659/2023.

At the same time, the objectives related to the adaptation of the main sectors of the national economy and human health to the new climatic conditions caused by the phenomenon of climate change, set out in the intentional NDC of the Republic of Moldova (2015), were approved at national level by Government Decision no. 1009/2014 on the approval of the Strategy of the Republic of Moldova to adapt to climate change until 2020 and the Action Plan for its implementation. The latter was replaced by the National Climate Change Adaptation Programme until 2030 and the Action Plan for its implementation, approved by Government Decision No 624/2023.

A. 2. SER

The renewable energy policy is based on Law No 10/2016 on the promotion of the use of energy from renewable sources, which sets out the regulatory framework for electricity from renewable sources. It mainly sets out the following mechanisms:

- a fixed price, set in a tender for large capacity units (above a capacity threshold set by the Government);
- a feed-in tariff scheme for power plants with a capacity not exceeding the capacity limit set by the Government, but not less than 10 kW; and
- net billing for small renewable energy sources for own electricity consumption (less than 200 kW);
- the legal framework on guarantees of origin, which in addition to electricity will be extended to gas/biogas, including hydrogen, as well as renewable energy used for heating and cooling;
- promoting the concepts of ‘prosumer’, ‘renewable energy communities’ and ‘peer-to-peer transactions’, creating the necessary legal framework;
- long-term renewable electricity sales and purchase contracts;
- auctions to offer the status of large eligible producer for specific locations;
- promoting the use of energy from renewable sources in the heating, cooling and transport sectors with minimum targets to be met by 2030.

The Republic of Moldova has amended Law No 10/2016 on the promotion of the use of energy from renewable sources in order to transpose Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use and consumption of renewable energy sources. The amended law solves some of the critical problems that hinder the development of the entire renewable energy sector for the electricity component, both in what needs to be achieved by 2030.

With a view to speeding up the deployment of RES, Government Decision No 40/2021, as amended, established capacity limits, maximum shares and capacity categories in the field of

¹⁹Fifth National Communication of the Republic of Moldova prepared for reporting to the UNFCCC(2023).<https://unfccc.int/documents/627100>
https://unfccc.int/sites/default/files/resource/Moldova_NC5_EN_web.pdf.

renewable electricity, valid until 31 December 2025, with a total maximum capacity of 510 MW (Table 4).

Table 4

**Capacity limits by capacity category
in the field of renewable energy²⁰**

Technology	Maximum Capacity Quotas, MW			
	TOTAL	Fixed rate	Fixed price	Net invoicing
Wind turbines	120	15	105	-
Solar installations (VF)	300	140	60	100
biogas and biomass TEC; CHE	90	90	-	-
TOTAL	510	245	165	100

Although there are still a number of constraints slowing down progress in the deployment of RES, there has been a sharp upward trend in installed capacity and electricity generation from RES in recent years, as outlined in Part 4 of the NECP: ‘State of play and projections with existing policies and measures’, sub-point 4.2.2. In 2024, connection notices were issued which resulted in the maximum capacity of the electricity transmission network infrastructure being reached. On 1 January 2024, 78 notices were valid for connecting the RES to the electricity transmission network, with a total power of approximately 1705.0 MW.²¹

According to the CNED, in the third quarter of 2024, the existing RES electricity generation capacities were as follows:

- 36.65 MW installed under the feed-in tariff mechanism established by Renewable Energy Act No 160/2007 (repealed);
- 121.13 MW installed under the feed-in tariff mechanism established by Law No 10/2016 on the promotion of the use of energy from renewable sources;
- 115,31 MW installed under the net metering mechanism;
- 23 MW installed under the net invoicing mechanism; and
- 232.39 MW installed under free market rules.

In August 2024, the tender for the status of large eligible producer was launched, for a total capacity of 165 MW, including 60 MW solar photovoltaic installations and 105 MW wind installations, with the tendering period from 1 November 2024 to 31 March 2025.

Ensuring balancing sources to cover load gaps and energy storage sources in case of surplus, as well as achieving the coupling of the electricity market of the Republic of Moldova with that of the EU will boost the RES implementation process.

B. Dimension – Energy efficiency

Existing policies to improve the energy efficiency of buildings (including framework legislation,²² building energy codes, energy performance certification, utility demand management programmes, energy pricing measures, financial incentives, promotion of the ESS, awareness-raising programmes) in the Republic of Moldova are presented in the following documents:

- Moldova's Energy Strategy to 2030 – The Strategy provides the guidelines for the development of the national energy sector in order to provide the necessary basis for economic growth and social well-being. With this document, the government presented its vision and identified national strategic opportunities in the rapidly changing energy context. The strategy defined the

²⁰Source: Government Decision 401/2021

²¹Source : Moldelectrica - https://moldelectrica.md/en/network/renewable_energy_sources

²²Analysis of the gap between the performance targets in the Framework Guidelines on Energy Efficiency Standards in Buildings and the implementation of current energy efficiency standards in buildings in the Republic of Moldova. https://unece.org/sites/default/files/2021-06/National_Study-for_Moldova_ENG.pdf

general policy objectives for the period 2013-2030-as well as the specific policy objectives for the periods 2013-20 and 2021-2030,-specifying the measures for their implementation.

- Law No 139/2018 on energy efficiency, transposing Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC, published in the Official Journal of the European Union.

The purpose of this law is to create the premises for setting national energy efficiency targets for different time horizons, in line with the commitments of the Republic of Moldova, to create the necessary legal framework to promote the energy efficiency first principle, to improve energy efficiency by implementing the measures included in the Integrated National Energy and Climate Plan, to develop the energy services market, as well as to overcome the deficiencies of the energy market that impede the increase of efficiency in energy supply and use. The main elements of the law are as follows:

- the scheme of obligations in the field of energy efficiency;
- exemplary role in promoting the efficiency of public buildings of central public authorities;
- mandatory energy audit for large companies;
- capacity building of energy managers;
- creating and strengthening the local energy services market;
- sustainable public procurement;
- raising public awareness and promoting the efficient use of energy;
- strengthening the capacity of institutions responsible for implementing energy efficiency policies;

- Law No 282/2023 on the energy performance of buildings. This law partially transposes Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings (recast), published in the Official Journal of the European Union L 153 of 18 June 2010, as adapted and approved by the Decision of the Ministerial Council of the Energy Community No 2010/02/MC-EnC of 24 September 2010, as amended by Directive (EU) 2018/844 of the European Parliament and of the Council of 30 May 2018 amending Directive 2010/31/EU on the energy performance of buildings and Directive 2012/27/EU on energy efficiency, and Regulation (EU) 2018/1999 of the European Parliament and of the Council of 11 December 2018 on the Governance of the Energy Union and Climate Action, amending Regulations (EC) No 663/2009 and (EC) No 715/2009 of the European Parliament and of the Council, Directives 94/22/EC, 98/70/EC, 2009/31/EC, 2009/73/EC, 2010/31/EU, 2012/27/EU and 2013/30/EU of the European Parliament and of the Council, and Council Directives 2009/119/EC and (EU) 2015/652 and repealing Regulation (EU) No 525/2013 of the European Parliament and of the Council.

The purpose of the aforementioned law is to create the necessary legal framework to promote the improvement of the energy performance of buildings, taking into account climatic conditions, indoor climate requirements and cost-effectiveness, including by implementing public policy documents and measures to improve the energy performance of buildings, by setting minimum energy performance requirements and achieving energy performance certification of buildings, as well as by ensuring that building owners/managers/managers or potential buyers/tenants are informed about the level of energy performance of buildings;

- Law No 151/2014 on ecodesign requirements for energy-related products, which transposes Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products. The law sets requirements for energy-related products placed on the market and/or put into service, thereby contributing to sustainable development, increased energy efficiency and environmental protection, and increased security of energy supply;

- Law No 306/2023 on the labelling of energy-related products, transposing Regulation (EU) 2017/1369 of the European Parliament and of the Council of 4 July 2017 setting a framework for energy labelling and repealing Directive 2010/30/EU, published in Official Journal of the European Union L 198 of 28 July 2017, as adapted and approved by Decision No 2018/03/MC-EnC of the

Ministerial Council of the Energy Community of 29 November 2018 adapting and implementing Regulation (EU) 2017/1369 of the European Parliament and of the Council setting a framework for energy labelling and certain delegated regulations, on energy-related products.

The law establishes the regulatory legal framework applying to energy-related products placed on the market or put into service, which ensures the labelling of those products and the provision of standard information on their energy efficiency, consumption of energy and other resources when using them, as well as additional product information, so that end-users can choose more efficient products to reduce their energy consumption;

- Regulation on energy auditors and energy audit, approved by Government Decision No 676/2020, which establishes the legal framework necessary for the qualification of energy auditors, the conditions and mandatory requirements for carrying out energy audits necessary to identify solutions for improving energy efficiency and promoting the use of energy from renewable sources, as well as the mechanism for ensuring and verifying the quality of the energy audits carried out;

- Regulation on ecodesign requirements for energy-related products, approved by Government Decision No 750/2016, transposing Commission Regulation (EU) No 813/2013 of 2 August 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for space heaters and combination heaters, published in the Official Journal of the European Union L239 of 6 August 2013, as last amended by Commission Regulation (EU) 2016/2282 of 30 November 2016; and partially transposes Council Directive 92/42/EEC of 21 May 1992 on efficiency requirements for new hot-water boilers fired with liquid or gaseous fuels, published in Official Journal of the European Union L167 of 22 June 1992.

This Regulation establishes ecodesign requirements for the placing on the market and/or putting into service of space heaters and combination heaters with a rated heat output < 400 kW, including those integrated in packages of space heater, temperature control and solar device or packages of combination heater, temperature control and solar device, as defined in point 4 of Annex 11 to Government Decision No 1003/2014 approving regulations on energy labelling requirements for certain energy-related products;

- Government Decision No 1003/2014 approving regulations on energy labelling requirements for certain energy-related products, which aims to transpose new regulations into national law in order to supplement the national framework in the field of energy labelling, in line with developments in the European regulatory framework on energy labelling of certain energy-related products;

- Regulation on the periodic inspection of heating systems in buildings, approved by Government Decision No 1325/2016, which establishes the organisation and conduct of the inspection process, the periodicity of its performance depending on the category of building, the type and effective rated output of the heating system and other conditions, taking into account the inspection costs and the value of estimated energy savings that could result from the inspection;

- The low-emission development programme until 2030, approved by Government Decision No 659/2023, the general objective of which is to facilitate the implementation of the CND by identifying specific objectives that include activities in all sectors;

- The action plan on the harmonisation of the construction sector for the period 2014-2020, approved by Government Decision No 933/2014, which aims to harmonise technical regulations and national standards in the construction sector with European legislation and standards.

C. Dimension – Energy security

The Republic of Moldova lacks important energy resources, such as coal, oil and natural gas, and its RES potential is not fully exploited. In 2022, up to 80.5% of primary energy resources were imported. Until August 2022, all natural gas was supplied to the Republic of Moldova only by Russian energy giant SAP ‘Gazprom’. Since October 2021, the Republic of Moldova has diversified its natural gas supply sources. Currently, all natural gas needs of consumers on the right bank of the Dniester River in the Republic of Moldova are covered by suppliers other than SAP ‘Gazprom’. The Russian energy company continues to supply natural gas on the left bank of the Dniester. Natural gas

is the main energy resource used to produce electricity and heat, so it is important to ensure its secure and constant supply at affordable prices.

Currently, oil products are mainly imported from Romania, Russia and Belarus. The Republic of Moldova also relies heavily on electricity imports to cover its domestic demand. The State does not have oil storage infrastructure and natural gas storage capacities. The first natural gas stocks were built up in 2020 in Ukraine, and since 2022 natural gas storage for the winter period has become common practice, thus strengthening the security of the country's energy supply.

Improving the energy security of the Republic of Moldova is essential for both national sovereignty and regional stability, as the Republic of Moldova is an important transit route for natural gas and its electricity system is integrated with that of Ukraine and that of ENTSO-E Continental Europe.

Therefore, the development of a more resilient energy infrastructure remains one of the priorities of the energy policy of the Republic of Moldova. This includes the expansion of the cross-border interconnection with Romania in the direction of Vulcanesti – Chişinău, a power line already under construction, as well as two other planned cross-border transmission lines with Romania, which would allow the Republic of Moldova to expand electricity imports from Romania and possibly from other EU suppliers, without relying on the SAÎ "Moldavskaia GRES" power plant in RT.

In order to increase the security of gas supply, the Moldovan authorities have diversified the gas supply and created gas stocks for emergency situations or for specific cases (in particular, gas shortages or abnormally high prices on the gas market).

In the medium term, the Republic of Moldova will also focus on creating its own electricity generation capacities. These efforts should focus on renewable sources of electricity generation, such as wind and solar energy. To date, the share of renewable energy sources in electricity generation is only around 10%. Therefore, one of the main priorities of the Government should be the completion of tenders for large renewable energy projects and the realisation of investments that could significantly stimulate the development of this sector.

Key pieces of legislation relevant to the energy security dimension include:

Law no. 174/2017 on energy, which establishes the legal framework for organizing, regulating and ensuring the efficient and safe functioning of the energy sector;

- Law No 107/2016 on electricity, which establishes the general legal framework for the organisation, regulation, operation and monitoring of the electricity sector. In addition to this law, there are a number of normative acts of regulations approved by ANRE;

- Law No 108/2016 on natural gas, which establishes the general legal framework for the organisation, regulation, operation and monitoring of the natural gas sector. The law provides for the development of a competitive gas market, while protecting consumer rights and respecting environmental protection rules;

- Law no. 461/2001 on the market of petroleum products, which provides the organizational, legal and economic framework for ensuring the economic security of the country and regulating the import, transport, storage and marketing of petroleum products on the domestic market as strategic products.

D. Dimension – Internal Energy Market

Despite the laws and regulatory acts mentioned above, the Energy Community Annual Implementation Report²³ for 2023 highlights that the overall implementation score on the electricity market is 57%, which signals the incomplete implementation of the Energy Community acquis on the electricity market.

The Republic of Moldova launched a mechanism for accountability and payment of hourly imbalances as of 1 June 2022, which is administered by the SE 'Moldelectrica'.

²³https://www.energy-community.org/dam/jcr:f597bac9-bd91-45f0-b627-2f62a3998708/EnC_IR2023_Moldova.pdf

In December 2023, the Republic of Moldova amended Law 107/2016 on electricity, which aligns with the Regulation on integrity and transparency of wholesale energy markets (REMIT) in the electricity sector. The amended law also defines the procedure for designating the electricity market operator and subsequently designating it as nominated Electricity Market Operator (NEMO), specifying the regulatory criteria and responsibilities, in line with the Electricity Market Integration Package.

Law No 123/2009 on natural gas was also amended in December 2023, placing the Republic of Moldova in line with key aspects of the European Union's energy acquis. The law includes major improvements on security of supply (by incorporating the provisions of EU Regulations 2022/1032 and 2017/1938) and unbundling of the transmission system operator. The amendment also provides for the differentiation between strategic natural gas stocks and the obligation to achieve commercial stocks equivalent to at least 15% of the average annual natural gas consumption of final consumers in the Republic of Moldova connected to the natural gas networks of the licensed system operators, determined for the last 5 years. These reserves will be stored in storage facilities in other countries, parts of the Energy Community, member states of the Energy Community and will help the Republic of Moldova to ensure the constant supply of natural gas.

The main players on the energy market in the Republic of Moldova are:

JSC "Termoelectrica" – major electricity producer based in Chisinau. Simultaneously with the production of electricity, JSC "Termoelectrica" also produces thermal energy (for heating and domestic hot water) which it distributes and provides to consumers, housing management organizations, state agencies and other persons in Chisinau and the suburbs.

Simultaneous production of electricity and heat in Chisinau is organized at:

CET-1 (Electrical Heating Plant) – the combined heat and power plant, also called Termoelectrica 'Source 2', with an installed electrical capacity of 66 MW and a rated thermal capacity of 296 MW;²⁴

CET-2 (also called Termoelectrica 'Source 1'), with an installed electrical capacity of 258 MW and a rated thermal capacity of 1,397 MW; the heat is also produced by boilers intended exclusively for the production of heat.

Through these two plants, in 2022 JSC "Termoelectrica" provided about 13% of the electricity produced in the Republic of Moldova, with the exception of the left bank of the Nistru River. However, these plants do not work in the summer season, when there is no need for heating.

The power and heat generation units are largely approaching their operational lifetime limit (and some have already reached this limit) and the modernisation process is underway (CET-1 was built in 1952 and CET-2 was completed in 1980). There is an ongoing project of the World Bank / BIRD worth EUR 92 million, which provides for the replacement of CET-1 with modern and efficient energy generation capacities, but also other improvements in the operation of the centralized heating and domestic hot water system of JSC "Termoelectrica" and will contribute to the increase of electricity generation. CET 2 (Source 1) of JSC "Termoelectrica" has 3 units with a total capacity of 258 MW.

In 2023, JSC 'Termoelectrica' produced 524.6 GWh of electricity, compared to 695.5 GWh in 2021, and 1,349 Gcal of heat, compared to 1,684 Gcal in 2021, both decreasing, their share in total national production being respectively 52% of electricity and 87% of heat produced on the right bank of the Dniester River.

JSC CET-Nord – is located in the municipality of Balti and produces heat and electricity, the heat is delivered to consumers in the city and the electricity – in the national system of the Republic of Moldova. It has boilers and turbines with an installed electricity capacity of 24 MW and a rated thermal capacity of 142 Gcal/h. CET-Nord has internal combustion engines with a total installed electricity capacity of 13.4 MW and a rated thermal capacity of 10.75 Gcal/h. The thermal energy is also produced by boilers dedicated exclusively to heat production.

²⁴<https://termoelectrica.md/>

In 2023, CET-Nord produced 78.9 GWh of electricity, compared to 102.4 GWh in 2021, and 176 Gcal of heat, compared to 193 Gcal in 2021, both decreasing, their share in the total national production being 7.8% for electricity and 11.3% for heat produced in the Republic of Moldova.

Transmission system operator (TSO) SE "Moldelectrica" – is the only company in the Republic of Moldova that manages the electricity transmission system. This state enterprise was created by the Government in 2000. SE "Moldelectrica" holds the licenses issued by ANRE for (i) the operation of the electricity transmission network in the Republic of Moldova and (ii) the dispatching of the electricity system. S.E. "Moldelectrica" buys electricity only to cover technological consumption and losses of electricity from the transmission electricity network. The company is responsible for maintaining the infrastructure of the electricity transmission network and for maintaining the national electricity transmission system within the established operating limits.

There are two distribution system operators (DSOs) in the Republic of Moldova:

SC "Premier Energy Distribution" JSC – manages the electricity distribution network in the centre and south of the Republic of Moldova (except on the left bank of the Nistru River). The company serves more than 930,000 consumer seats, and in 2023 distributed 2,870.8 million kWh to end consumers. Premier Energy Group, which includes Premier Energy Distribution, is owned by the Czech group Emma Capital.

JSC 'RED-Nord' (SA 'North Electricity Distribution Networks') – provides electricity distribution services to all users in the northern part of the Republic of Moldova, namely: Balti municipality and Briceni, Drochia, Donduseni, Edinet, Falesti, Floresti, Glodeni, Ocnita, Rezina, Riscani, Singerei, Soroaca and Ungheni districts. The company supplies electricity to about 480,000 consumers in the north of the Republic of Moldova, with the exception of RT. In 2023, it distributed 1,006.2 GWh to final consumers.

Wholesale electricity supplier JSC 'Energoecom' – is a public limited company owned by the State, designated as a central electricity supplier by the Government in November 2017.

The main objective of the company is to ensure the efficient and transparent functioning of the internal market for electricity and natural gas, to promote electricity exports and to increase the investment attractiveness of objects in the electricity and natural gas sector.²⁶

Retail electricity suppliers purchase electricity on the wholesale market and supply it to final customers under signed supply contracts.

ICS "PremierEnergy" LTD, an enterprise of the Premier Energy group – the largest electricity supplier in the Republic of Moldova, operating in the center and south of the Republic of Moldova (except RT).

JSC "FEE Nord – Supply of Electricity Nord" – holds a licence for the supply of electricity in the territory of Balti municipality and in fifteen districts: Ungheni; Florești; Falesti; Rîscani; of blood; Glodeni; Soldanesti; Rezina; Dubasari, Coșnita; Donduseni; Soroaca; Edinet; Briceni; Ocnita; Drochia.

Prices paid by JSC 'Energoecom' to producers: ANRE sets the price at which regulated local producers (JSC "Termoelectrica", CET-Nord and eligible renewable energy producers) can sell to the wholesale trading company JSC "Energoecom". Thus, regulated prices apply to the purchase of approximately 20% of the amount of electricity that is subsequently supplied to consumers.

The remaining 80% of the electricity is largely covered by the electricity produced by SAÎ 'Moldavskaia GRES' from RT. There are annual auctions, organised by universal service providers and last resort, as well as by system operators, resulting in the determination of suppliers and producers, including external ones, from which electricity will be purchased and electricity prices to be purchased, respectively. Such auctions for the purchase of electricity are open internationally.

However, in practice, SAÎ 'Moldavskaia GRES' covers most of the market, as it can offer relatively low prices on the Moldovan market, due to the fact that the company does not pay in full for the natural gas supplied by JSC 'Moldovagaz'. This contributed to the accumulation of a

²⁵Managing energy flows across the network so that supply and demand are in balance, ensuring continuity and safety of the service provided.

²⁶<https://energoecom.md/purchases-gas-natural-made-egc-for-season-2023-2024/>

significant debt of JSC ‘Moldovagaz’ to SAP ‘Gazprom’. The amount of debt is subject to various estimates and is a highly controversial topic.

Prices paid by suppliers JSC ‘Energoecom’. Electricity suppliers – JSC ‘FEE Nord’ and ÎCS ‘Premier Energy’ LTD – pay JSC ‘Energoecom’ a price which is based on the prices paid by JSC ‘Energoecom’ to producers (as described above), plus a margin. The prices paid by final customers for the electricity supplied shall include: the price of ‘Energoecom’ JSC, the tariff for the provision of the electricity transmission service by the transmission system operator ‘Moldelectrica’ JSC, the tariff for the distribution of electricity and the costs of supply. ANRE approves regulated electricity prices and tariffs, but there are suppliers that sell electricity at unregulated prices.

Retail price(s) paid by final consumers. According to the relevant EU Directive, the regulatory authority ANRE must respect “[...] the right of household customers to be supplied with electricity of a well-defined quality at reasonable, transparent, easily comparable and non-discriminatory prices”. The prices for the supply of electricity to final consumers are approved by ANRE decisions, following requests submitted by universal service providers and of last resort (see Annex 2). There are different prices depending on:

- the voltage level to which the end-user's installation is connected to the power grid;
- the region of the country, with the exception of RT LTD ‘Premier Energy’, supplies electricity to final consumers in the Central and Southern parts, and JSC ‘FEE Nord’, in the North region).

The Republic of Moldova shall focus on the liberalisation of the gas market in accordance with Directive 2009/73/EC²⁷ concerning common rules for the internal market in natural gas. Thus, all large enterprises, which do not fall under the scope of Law no. 179/2016 on small and medium-sized enterprises in the Republic of Moldova, will purchase natural gas only on the free market, at negotiated prices, starting with 1 January 2025, and medium-sized enterprises will do the same starting with 1 January 2027. Residential consumers will be free to choose between the free market and the regulated market²⁸.

The natural gas trading platform operated by LTD “Bursa Română de Commodities (Romanian Commodities Exchange) Est” was approved by ANRE in 2022 (ANRE Board of Directors Decision No 172)²⁹ and is fully operational in the Republic of Moldova, with the addition of a spot market for natural gas operational since 2024.

Previously, ‘Moldovagaz’ dominated the natural gas market in the Republic of Moldova, playing a dual role as a natural gas supplier and owner of natural gas transmission and distribution companies (and other companies providing related services), operating in the Republic of Moldova, including in RT. JSC ‘Moldovagaz’ is owned by SAP ‘Gazprom’ from Russia (50%), the Government (35.33%), RT (13.44%), as well as a number of other small shareholders.

Currently, JSC Moldovagaz acts as a licensed supplier of natural gas, fulfilling public service obligations for the supply of natural gas to final consumers (households and non-households). In this capacity, JSC Moldovagaz maintains contractual relations with other participants on the natural gas market (transporters and distributors), in order to ensure a secure and reliable supply of natural gas to consumers. JSC ‘Moldovagaz’ has the following contractual relations:³⁰

- the contract on the conditions for the supply of natural gas in the Republic of Moldova for the period 2007 – 30 September 2026, with the external supplier SAP “Gazprom”;
- contracts for the sale and purchase of natural gas, for the subsequent supply of final consumers on the right bank of the Dniester River, with domestic suppliers;
- contract for the provision of natural gas transmission services with LTD ‘Vestmoldtransgaz’;

²⁷EUR-Lex - 02009L0073-20220623 - EN - EUR-Lex (europa.eu)

²⁸The first Natural Gas Forum, dedicated to market liberalization, will take place on Thursday in Chisinau Ministry of Energy (gov.md)

²⁹https://www.legis.md/search/getResults?doc_id=130890&lang=en

³⁰<https://www.moldovagaz.md/rom/about-company>

- contracts for the provision of the natural gas distribution service with the distribution system operators (DSOs), in the area of operation of which JSC "Moldovagaz" supplies natural gas to final consumers;

- gas supply contracts with consumers.

In order to diversify the supply of natural gas to the Republic of Moldova, the project 'Conduct for the interconnection of the natural gas transmission system in Romania with the natural gas transmission system in the Republic of Moldova' was implemented.³¹ The key elements of the project are:

- construction of a gas pipeline between Romania and the Republic of Moldova (Iasi – Ungheni), including a compressor and measurement station for natural gas on the territory of the Republic of Moldova;

- Establishment, in July 2014, of the State Enterprise of the Republic of Moldova LTD "Vestmoldtransgaz" for the operation of the Iasi-Ungheni gas pipeline, intended for the transport of natural gas from Romania. Since then, 'Vestmoldtransgaz' LTD has been privatised, maintaining the obligation to complete the interconnection project. The new owner is LTD 'Eurotransgaz', which belongs to the Romanian state-owned company SNTGN 'Transgaz'. In August 2021, the European Bank for Reconstruction and Development (EBRD) took over a 25% stake in LTD "Vestmoldtransgaz" by increasing the share capital by EUR 20 million to finance the development of the Ungheni-Chisinau gas pipeline. Also, in 2022, SNTGN 'Transgaz' and the EBRD signed a Memorandum of Understanding, under which the EBRD will consider co-financing the project through loans or equity participation, depending on the financing needs of SNTGN 'Transgaz'. Having invested in "Vestmoldtransgaz" LLC, the EBRD plays a key role in strengthening Moldova's³²energy security.

Since the start of operation of the Iasi-Ungheni-Chisinau gas pipeline, 63 million m³/year of natural gas have become available as additional capacity to import natural gas into the country and 24 million m³/year as export capacity. The capacity of this pipeline is large enough to supply the entire territory of the Republic of Moldova, except RT. The average natural gas consumption of the Republic of Moldova is about 1 billion m³ per year.

Through the JSC 'Energoacom', the Republic of Moldova used for commercial purposes the interconnector between Greece and Bulgaria (ICGB) and the reverse trans-Balkan gas pipeline (RF TB).

Ongoing energy infrastructure investment projects funded by International Financial Institutions (IFIs) can be seen in Table 5.

Table 5

Investment projects financed by loans from IFIs³³

Name	Period	Amount	IFI	Description
Electricity interconnection Moldova Romania - Moldova Power System Development Project (PDSE) ³⁴	2020-2026	61 million euros	International Development Association (IDA)/World Bank	Increasing the capacity and improving the reliability of the electricity transmission system in the Republic of Moldova, through the construction of the 400 kV overhead power line on the Vulcanesti-Chisinau direction, the modernization of the Chisinau power station and the expansion of the Vulcanesti power station
Electricity interconnection	2025-2027	37 million euros	EIB, EBRD, World Bank	Construction of the electricity interconnection between the Republic of Moldova and Romania: Balti – Suceava

³¹Funded by the EU under the Joint Operational Programme Romania-Ukraine-Republic of Moldova 2007-2013.

³²https://www.ipn.md/en/ebrd-buys-25-stake-in-vestmoldtransgaz-7966_1084013.html?msclid=3698a21bcf9b11ecb44ea5269f535da7

³³<https://midr.gov.md/en/external-assistance-projects/energy-sector-in-projects>

³⁴https://www.energy-community.org/dam/jcr:e80662b0-be30-41a4-96d8-b8ec16deb556/PECIEL122017_MOLDELECTRICA.pdf

Name	Period	Amount	IFI	Description
Republic of Moldova – Romania ³⁵				
Rehabilitation of electricity transmission networks – SE "Moldelectrica"	2014-2021	45 million euros	EIB, EBRD	Rehabilitation and modernization of the high-voltage transmission grid of the SE "Moldelectrica"
Balti Municipality Thermal Power System (JSC CET-Nord)	2022-2025	EUR 17.5 million	EBRD	Technological modernization of JSC CET-Nord and rehabilitation of the components of the district heating system with thermal energy in Balti
EU4Energy Programme, Phase II	2021-2024	EUR 8.5 million	EU	Embedding digitalisation in all relevant segments of the energy market, investing in sustainable energy, prioritising infrastructure projects, increasing regional market integration and intra-regional trade
Clean technology innovation programme for SMEs and <i>start-ups</i> in the Republic of Moldova	2019-2021	6 million euros	UNIDO, GEF	Promoting and supporting renewable energy technologies in the Republic of Moldova by piloting an entrepreneurial accelerator
Second Project to Improve the Efficiency of the Central Heat Supply System (PIESACET-2) ³⁶	2022-2025	EUR 76.9 million	IBRD/World Bank	Increasing the efficiency of the centralized heating supply system in Chisinau
The second project to improve the efficiency of district heating in Chisinau (DHEIP2)	2020-2025	EUR 92.0 million	World Bank Group	Increasing the efficiency of the district heating system in Chisinau

In order to efficiently use the infrastructure objectives proposed to be built in the electricity sector, it is emphasized the need to carry out complementary actions, with a view to coupling and integrating the electricity market of the Republic of Moldova into the EU electricity market (Table 6).

Table 6

Additional overhead power lines (OHL) required

For the national electricity system	For interconnection Republic of Moldova – Romania
OHL 400 kV Vulcănești – Chișinău	OHL 400 kV Balti (MD) – Suceava (RO)
OHL 330 kV Straseneni – Ribnita	OHL 400 kV 2nd circuit Vulcanesti (MD) – Isaccea (RO)
OHL 330 kV Balti – Ribnita	OHL 400 kV Vulcanesti (MD) – Smardan (RO)
OHL 35-110 kV Șoldănești – Ignăței	OHL 400 kV Straseneni (MD) – Gutinas (RO)
OHL 330 kV 2nd Chisinau – Straseneni – Balti	

In order to increase the degree of interconnection with Romania, it is necessary to strengthen the infrastructure of the electricity transmission network. This also includes the construction of a new 400 kV 158 km high-voltage line in the direction of Vulcanesti – Chisinau and the modernisation of the power stations in Vulcanesti and Chisinau.

Additional interconnectors between the Republic of Moldova and Ukraine include:

³⁵<https://energie.gov.md/en/content/investments-electroenergetic-system>

³⁶<https://mepiu.md/eng/current-projects/moldova-energy-efficiency-project>

- OHL 400 kV Pivdennoukrainsk (Yuzhnoukrainsk) – Prymorsk – Vulcanesti – Isaccea (AU – MD – RO);
- Balti 2nd OHL circuit 330 kV – Dnestrovsk Hydroelectric Power Plant.

In addition to the direct connection with Romania, the interconnection with Ukraine is an alternative way of interconnection with the European energy system, with the Ukrainian energy system having more connections with EU Member States, which will contribute to better congestion management.

Preparations for the synchronisation and interconnection of the electricity systems of the Republic of Moldova and Ukraine with the ENTSO-E continental European energy system started in 2017. Full synchronisation was initially scheduled for 2023. Preparations included significant works by SE ‘Moldelectrica’ in 2019-2020, including tests at power plants in the Republic of Moldova.

One of the planned preparatory steps included isolating the electricity systems of Ukraine and the Republic of Moldova from those of the Russian Federation and Belarus, with a view to conducting tests to interconnect electricity systems with the ENTSO-E system. These tests were planned for a few days during 2022. Therefore, as of 24 February 2022, the energy systems of the Republic of Moldova and Ukraine started to operate in isolation, after the disconnection of Ukraine’s electricity system from the electricity system of the Russian Federation and Belarus. The purpose of the test was to demonstrate the ability of the energy systems of the Republic of Moldova and Ukraine to maintain the required frequency of 50 Hz in different modes of operation.

On 16 March 2022, the electricity systems of Ukraine and the Republic of Moldova were successfully synchronised with the continental European energy system. This change means that the Russian Federation can no longer control technical aspects of the electricity systems of Ukraine and the Republic of Moldova, such as the frequency of the grid.

SAI ‘Moldavskaia GRES’ in RT continues to play a significant role in the operation and balancing of electricity systems, as it is an important energy node, ensuring the direct link between the electricity systems of Romania and the Republic of Moldova. Figure 2 shows the interconnections of the electricity systems of the Republic of Moldova, Ukraine and Romania.



Figure No 2 . Electricity flow Republic of Moldova – Ukraine – Romania³⁷

³⁷Source: SE ‘Moldelectrica’, https://moldelectrica.md/en/activity/system_state

The Energy Community Secretariat noted in its 2023 Progress Report that the overall score of the Republic of Moldova for the implementation of RES is 17%, which means that the country should step up its efforts aimed at aligning all indicators with the Energy Community acquis. While the net billing and feed-in tariff systems for smaller eligible producers are fully functional, the auction system for large eligible renewable energy producers became operational in 2024 and the first auction is ongoing. As a result, the renewable energy sector currently consists of many small electricity producers.

The Energy Community Annual Implementation Report 2022 states that the Republic of Moldova is one of the three Contracting Parties that has reached its 2020 renewable energy target. No substantial progress has been made on the construction of large-capacity renewable energy plants, but with the amendments made in 2024 to Law No. 10/2016 on the promotion of the use of energy from renewable sources and the launch of the first tender, major results are expected in this segment.

The current challenges in the production of renewable energy are the following:

- auctions that were planned in previous years but did not materialise, thus some of those willing to participate in the auctions reserved grid connection capacities;
- there are currently requests for connection to the electricity grid which, in total, represents a capacity of more than 1705 MW;
- as a result of the issuing of so many connection permits, but also of the low rate of implementation of renewable energy projects (only 5% of the connection permits granted are put into operation), it becomes difficult, including for smaller producers, to access the grid, including for those wishing to benefit from the "net bill" support scheme.

In addition, in order to be able to develop investments in renewable energy across the country, large renewable energy parks need to be connected to the electricity grid. However, at present, the power grid can only integrate large manufacturers in a few places. This connection requires the S.E. 'Moldelectrica' to urgently renovate and properly develop the transmission grid.

Increasing the volume of electricity from renewable energy sources requires greater balancing capacity from classical power plants (mainly natural gas units operating in the Republic of Moldova). But a modern solution currently used at international level are fast-start natural gas thermal engines, which can make up for the lack of renewable sources.

The development of the legislative and regulatory framework in the Republic of Moldova is still ongoing. The Energy Community acquis on the electricity sector is either only partially transposed or only partially implemented. A truly competitive market can only be created by the entry of new market participants, including from abroad. Investors, especially foreign ones, will require some energy trading products and cross-border capacities on the market, similar to those they benefit from in the EU internal energy market. This includes the concentration on the wholesale market, which is currently dominated by JSC 'Energoacom', as the central electricity supplier and the sole intermediary on the wholesale electricity market.

Law 107/2016 on electricity stipulates that regulated prices must be phased out, in accordance with a timetable to be established by ANRE, following an assessment of competition on the market, for which a timetable has not yet been established.

Considering the increasingly urgent need of the Republic of Moldova to ensure its energy security, the considerable challenges in the energy field, as well as the domestic and international commitments undertaken in the energy field, determine our country to amplify investments in infrastructure. This will require determining the necessary investment volumes in relation to the policy set for the energy sector and preparing an investment plan in the energy sector that clearly distinguishes between what the Government can finance in the form of public investment and areas where private investment would be needed.

Previously, investments in the energy sector were largely financed by the central government or through state-owned entities. Some current projects are funded by international financial institutions, which mostly lend to the public sector. In the future, public investment requirements in the energy sector will need to be integrated into an improved public investment management process.

Much more attention also needs to be paid to how to attract private investment in the sector, given the increased investment needs and the low efficiency of existing energy production facilities managed by state-owned entities.

In early 2022, the Government announced the political intention to increase the share of renewable energy to 30% of total electricity consumption by 2030, a target made mandatory by its inclusion in the NECP. Taking into account the evolution of installed capacities between 2021 and 2024 and the share of electricity in final electricity consumption, both through the application of support schemes, sized in accordance with Government Decision No 401/2021, and due to the possibility for holders of renewable power plants to export electricity to the markets of the region, as a result of the synchronisation of the national electricity system with that of ENTSO-E, the 30% share is achievable.

However, once this share is exceeded, a gap of around 50% of total consumption remains uncovered. There are two ways to address this challenge.

Firstly, **the construction of a new conventional power plant(s)**. This option will increase domestic electricity production but will require substantial public investment and/or a concession to a private investor/operator. It should be noted that if the policy option is for the State to have 100% ownership, the cost of electricity produced by this installation is likely not to be competitive on the market. The cost of electricity produced by the current state-owned TECs in the Republic of Moldova is very high.

Second, **investing in new interconnections between Moldova – Ukraine –ENTSO-E**. This requires careful planning and significant public investment.

The energy sector needs a clear and realistic policy framework, an achievable action plan and efficient mobilisation of funds from both the government and the private sector. There are also several international private investors waiting for opportunities, provided that there is a tangible improvement in the business climate in the country.

E. Dimension – Research, innovation and competitiveness

The functioning of the current institutional framework of the Republic of Moldova in the fields of research, innovation and development is based on a number of public policy documents, which ensure a clear distribution of roles and responsibilities and provide tools for the implementation of the objectives set out in the strategic documents. The National Research and Innovation Programme (NIP) for the years 2024-2027³⁸ aims to stabilise the national research and innovation system and achieve its gradual transformation, in order to increase the efficiency and impact of research investments, to develop and modernise research infrastructures and to support collaboration between science and business, also on a European and international scale, with a view to increasing the competitiveness of the national economy, through integration into the European Research Area. The aim of the NIP is to contribute to the achievement of the development objectives set out in the National Development Strategy (NDS) and the Sustainable Development Goals, to respond to global trends and challenges, which also affect the Republic of Moldova, through research and innovation activities.

The national research and innovation system in the Republic of Moldova is regulated by several normative acts:

Code on Science and Innovation of the Republic of Moldova No. 259/2004, as amended;

The Education Code of the Republic of Moldova no. 152/2014, updated in 2024;

The national programme in the fields of research and innovation for the years 2024-2027, approved by Government Decision No 1049/2023;

Methodology for financing projects in the field of research and innovation, approved by Government Decision No 382/2019;

the National Smart Specialisation Programme of the Republic of Moldova for the years 2024-2027 ‘Smart Moldova’, approved by Government Decision No 588/2024;

³⁸https://www.legis.md/search/getResults?doc_id=141296&lang=en

Methodology for institutional financing of public law organisations in the fields of research and innovation, approved by Government Decision No 864/2023.

State grants for research are allocated to research and innovation organisations on a competitive basis, thus ensuring that the best project proposals are selected. Competitions for project proposals are organized and conducted by ANCD.

Since 2024, the research funding system in the Republic of Moldova has been transformed. Approximately 80% of the financial resources from the state budget are provided directly by the ERC to organizations in the fields of research and innovation (institutional funding) aligned with the priorities and strategic directions set out in the NIP 2024-2027, while ensuring the financing of the research infrastructure at the technical-material and logistical level. Another 20% of the funding volume is allocated by ANCD to launch calls for project competitions (competitive funding) in several categories: research, innovation projects, innovation vouchers, technology transfer, bi-/multilateral, post-doctoral programmes, for young researchers, on issues of urgent interest, on areas of smart specialisation and other types. In order to stimulate research and innovation, Moldova participates in the Horizon Europe Framework Programme for Research and Innovation of the European Union together with countries such as Romania, Turkey, Germany, Poland, etc.

In the list of priority areas funded by the Technology Transfer Projects Competition 2025, launched by ANCD in March 2024, the field 'Innovative Technologies, Sustainable Energy, Digitalisation' is among the priorities. The call for proposals for innovation projects for 2024-2025 was announced by the ANCD in March 2024. In 2022, ANCD launched a call for project proposals to strengthen the resilience of the Republic of Moldova in crisis situations, listing energy among the main priorities of the competition. ANCD is continuously in the process of identifying research and innovation topics for the energy field and promoting calls for project proposals in order to boost innovation and competitiveness.

Research institutes play a key role in maintaining and developing national research and development capacities in the fields of energy and environmental protection. Their transition to the subordination of higher education institutions had, among other things, the objective of direct connection of these institutions with the academic environment and of capitalizing and developing the capacities of the country's scientific staff.

The reform of the national research and innovation system in 2017 brought the institutional and organisational architecture of research, innovation and development areas closer to that of the Member States of the European Union, ensuring link compatibility for more efficient collaboration. The current system ensures the separation of the tasks of development and coordination of state policies in this field, of institutional and competitive funding, of the processes of evaluation, selection, supervision, monitoring and reporting of research results. From a theoretical point of view, the risks of conflict of interest, present in the previous way of carrying out this process, are avoided.

The main current energy research priorities in the Republic of Moldova are energy efficiency and renewable energy, smart grid control devices, and energy storage. There is therefore significant potential for scaling up low-carbon and energy-efficient solutions, from the demonstration phase, which is a fundamental one, to bringing renewable energy technologies to the market and achieving significant energy savings.

According to the National Bureau of Statistics, in 2023, the research and innovation activity was carried out in 47 units, including 20 research institutes and centers, 16 higher education institutions and 11 other units. The reduction in the number of establishments (20 fewer than in 2022) was largely driven by the reorganisation of public higher education institutions through the merger (absorption) of 18 public research institutes. Out of the total number of units that carried out the research and innovation activity, 30 institutions (or 63.8%) had the form of public ownership.

At 31 December 2023, a total of 3,526 employees were employed in research and development, down 9.3% from the number recorded at the end of the previous year. Of the total number of employees involved in research and development, 1,823 were women, representing 51.7%. According to the work schedule, 55.2% of the employees who carried out research and

development work worked full-time. Of the total number of R&D employees, 3.166 were active in public institutions (89.8% at the end of 2023, compared to 89.3% at the end of 2022).

Research and innovation are the main drivers of the deployment of clean energy technologies. To this end, specific instruments to support and promote research in the energy sector have been launched for implementation. One of these is the National Smart Specialisation Programme of the Republic of Moldova for the years 2024-2027 'Smart Moldova', approved by Government Decision No 588/2024.

The objectives of the National Smart Specialisation Programme related to the energy sector are the following:

- facilitating the increase of energy self-sufficiency at local level through the use of renewable energy resources;
- strengthening the centralized heating supply systems in the cities, in order to increase the overall efficiency of generating and supplying heat and domestic hot water;
- promoting projects to increase the efficiency of the consumption of energy resources and to harness renewable energy sources in the public and residential sectors, with the development of financing instruments accessible to the subjects of those sectors, where appropriate, with a focus on vulnerable consumers;
- the development of "green" energy. Stimulate interest in 'green' energy production and consumption by harnessing renewable energy sources, including by using efficient and clean biomass combustion technologies, and by facilitating the connection of production facilities to existing distribution capacities. According to the Action Plan implementing the National Smart Specialisation Programme, ANCD will organise dedicated calls for project proposals to help companies become innovative and more competitive.

The expenses incurred for research and development activity in 2023 amount to 671.1 million lei, representing 0.22% of the gross domestic product, being considered insufficient to attract human resources in the fields of research and development and to help local companies become innovative and competitive on the market.

Collaboration and participation in many EU-funded international programmes are very well developed in the Republic of Moldova and there are agreements signed between Guver and the European Commission in this regard.

The Republic of Moldova ranked 56th out of 132 economies presented in the Global Innovation Index (GII) 2022 ranking, which means that the country's research potential is still high and it can be involved in the development of clean technologies.

Table 7

Rankings of the Republic of Moldova in 2020-2022

GII - Year	IGI	Innovation inputs	Outputs of innovations
2020	59	75	48
2021	64	80	54
2022	56	78	46

iii. Key issues with cross-border relevance

Key issues with cross-border relevance for the Republic of Moldova include:

- developing electricity and natural gas infrastructure to increase the connection of electricity transmission systems with ENTSO-E and ENTSO-G through neighbouring countries in order to increase security of supply;
- developing electricity production capacity on the right bank of the Dniester River (including renewable energy sources), in order to reduce import dependency and increase exports to European markets.
- interconnection of natural gas networks with new suppliers for the Republic of Moldova (e.g. Romania).

Further cross-border cooperation with the Energy Community Contracting Parties and various EU Member States is underway.

iv. Administrative structure for the implementation of national energy and climate policies

The role of the different authorities (in addition to those described in paragraph ii. Current energy and climate policies) dealing with issues relevant to the NECP are the following:

Ministry of Energy: the main state body responsible for the development, development and implementation of national energy policies, with a focus on energy efficiency and renewable energy in the Republic of Moldova;

Ministry of Infrastructure and Regional Development: responsible for the development and implementation of infrastructure policies;

Ministry of Environment: has competence to develop and implement national climate change policy and is responsible for international climate change negotiations under the United Nations Framework Convention on Change. Climate change (UNFCCC), as well as state environmental policy-making, state management of the use of natural resources, monitoring of environmental pollution and environmental impact assessment;

National Bureau of Statistics (NBS): the collection and processing of statistical data for all sectors;

‘Moldsilva’ Agency: forest management, supervision of forest management and timber harvesting to provide firewood to people and organisations in rural areas;

local public administration authorities: the deployment of energy efficiency and renewable energy at local level in buildings, the development of RES-based heating and cooling systems in public buildings, the roll-out of the solar thermal system, the development of electric public transport and the roll-out of solar photovoltaic energy;

National Centre for Sustainable Energy: implementation of state policy in the field of energy efficiency and renewable energy.

1.3. Consultation and involvement of national entities and Energy Community entities and their results

i. Involvement of Parliament

The main laws are described in section 1.2 and represent the national decisions included in the NECP. In addition, the NECP itself is drafted on the basis of Law no. 174/2017 on energy and Law no. 100/2017 on normative acts, which establishes that, in order to get approved by the Government, each normative act is subject to extensive public examination and consultation, including public consultations and the requirement to carry out the regulatory impact assessment. However, given the type of legislative act, Parliament was not directly involved in the drafting of the NECP.

ii. Involvement of local and regional authorities

During the development of the NECP scenarios in the TIMES model, an inter-ministerial working group was created to discuss the inputs and assumptions, as well as the results of the energy and climate scenarios. Working meetings were also organised, with the involvement of modelling teams, to discuss various measures included in the NECP. In this respect, the following measures have been taken:

- a team of experts (local and international) organised weekly meetings with the specialists of the Energy Department (DE) of the Ministry of Energy and Infrastructure (now the Ministry of Energy) and the Energy Efficiency Agency (now the CNED), as an effective tool for information exchange and coordination of activities, on developing the content of the NECP;

- seminar organised for DE specialists of the Ministry of Energy and Infrastructure, the Energy Efficiency Agency and consultants on the drafting of the NECP (23 July 2020);
- the list of existing policies and measures in the fields of energy efficiency (EE), RES and the energy sector was drawn up (7 August 2020);
- criteria for evaluating existing policies and measures have been proposed and approved (11 August 2020);
- the list of policies and measures in the fields of EE, RES and the energy sector was agreed (14 August 2020);
- the list of additional policies and measures in the fields of EE, RES and the energy sector has been developed;
- a guidance note on the proposed approach for drafting the narrative part of the NECP was submitted (18 September 2020);
- the process of drafting the narrative part of the NECP has been initiated;
- the process of setting up the Interinstitutional Working Group (IWG) on NECPs is ongoing;
- regular meetings to coordinate the process with the stakeholders involved in the elaboration of the NECP;
- The Ministry of Environment sent comments to the experts of the United Nations Development Programme (UNDP) involved in the development of the NECP project (21 November 2023);
- UNDP experts sent comments to the Ministry of Energy and later to the Energy Community Secretariat (EnCS) (28 November 2023);
- on 13 December 2023, the NECP project was sent to the Energy Community Secretariat for assessment with a view to formulating strict recommendations;
- the draft NECP was subject to public consultations on 16 February 2024.

In addition, a Strategic Environmental Assessment (SEA) was prepared for the NECP, which was then subject to the legal period of public comment.³⁹

All comments on NECPs and SEAs are included in a table indicating how the comments have been incorporated into NECPs.

Consultations with local and regional authorities have been carried out during the development of the various strategies and action plans described in this NECP, as well as the NECP project itself and the measures contained therein. These included distributing draft measures and receiving feedback on changes.

iii. Consultations with stakeholders, including social partners and the involvement of civil society and the general public

The NECP consultations started at the early stage of project development. At this stage, the Ministry of Economy and Infrastructure created a working group for the elaboration of the NECP (Letter No 07-5753 of 18 September 2020), all stakeholders being included in the process (CNED, ANRE, Ministry of Finance, Institute of Energy subordinated to MEC, Technical University of Moldova, etc.). In the period 2020-2024, about 15 meetings were held on the platform of this working group. During these meetings, the preliminary results were discussed and the necessary adjustments made.

In July 2023, a number of discussions took place with the Ministry of Environment on several sensitive topics, such as the reduction of GHG emissions for the whole country, CBAM, ETS, LULUCF sector, etc. As a result, a common approach was established and an agreement was signed between the Ministry of Energy and the Ministry of Environment.

As regards non-energy dimensions, on 24 May 2023, the approach proposed for use in the NECP was discussed with experts from the Ministry of Environment and the EU High-Level Adviser on the green transition in the Republic of Moldova, as well as other national experts in the fields of

³⁹<https://mediu.gov.md/en/content/strategic-evaluation%C4%83-environment-to-level-na%C8%9Bional>

agriculture, waste management and LULUCF. A common approach has been identified and used in the development of the NECP.

In order to harmonise the content presented in the NECP and the SEA, a joint meeting was organised in April 2023 where the main issues and issues were discussed: The NECP concept; the report on the scope of the SEA, where the Ministry of Energy has to submit a notification from the Ministry of Energy to the Ministry of Environment on the NECP, etc. The team in charge of drafting the SEA report analysed the first draft of the NECP and provided 18 clarifications/comments. All clarifications were duly addressed and subsequently integrated into the NECP.

The first full draft of the NECP was distributed for consultations with key stakeholders: Ministry of Energy, Ministry of Environment, National Centre for Sustainable Energy, high-level EU advisors, ANRE, other donors supporting the development of the energy sector in the Republic of Moldova, including social partners and civil society (Congress of Local Authorities of the Republic of Moldova, Chamber of Commerce and Industry, ICS "Premier Energy Distribution" SA, etc.). On 29 September 2023, the first round of consultations was organised on the platform of the Ministry of Energy, during which a number of comments/proposals were received. The main comments concerned the inconsistency of data in the NECP, the lack of concrete indicators to monitor the progress of the different measures, some duplication of measures, unclear references to the institution responsible for implementing the measures/policies, the lack of costs for a number of proposed measures, etc. All proposals and recommendations were integrated into the final version of the NECP.

On 24 October 2023, the Ministry of Energy organised the first major public debates on the NECP project. During the consultations, stakeholders and civil society representatives submitted a considerable list of comments and proposals. Most of the recommendations were taken into account and integrated in the final version of the NECP.

On 14 November 2023, a special meeting was held on the platform of the Ministry of Energy. At this meeting, all comments received after the first round of public consultations on the NECP project were discussed and appropriate solutions were proposed and integrated into the document.

iv. Consultations with other Contracting Parties and Member States of the European Union

The best practices of the other Contracting Parties of the Energy Community have been taken into account with regard to the problems identified and the lessons learned in the process of developing the NECP. This included in particular analyses of neighbouring countries' policies on cross-border issues and plans identified in their NECPs that could be useful for NECP Moldova. The Republic of Moldova is a Contracting Party to the Energy Community and therefore participates in several working groups on climate, energy efficiency, renewable energy, etc. where policy development for different sections of the NECP is discussed. In addition, consultations are held with the Contracting Parties and EU Member States in a systematic manner.

The NECP project was also consulted with neighbouring countries, Ukraine and Romania. In April 2024, the NECP project was sent to partner institutions in Romania and Ukraine for analysis and discussion. A bilateral meeting with Ukraine took place on 3 May 2024.

Romania analysed the draft NECP and the SEA report and concluded that the NECP did not include measures and policies with potential negative cross-border impact, as well as recommended some adjustments in the NECP, which were taken into account.

v. Iterative process with the Secretariat

The Energy Community Secretariat was responsible for direct communication with national stakeholders in the field of energy policy and climate change. During the preparation of NECP Moldova, all relevant updates and directives adopted by the Ministerial Council of the Energy Community were taken into account and applied by all national stakeholders involved.

On 13 December 2023, the first draft of the NECP was submitted to the Energy Community Secretariat. After examining the draft NECP, in April 2024, the Energy Community submitted its recommendations, which consisted of 4 recommendations on procedural aspects and 43 content recommendations.

The Secretariat's assessment concluded that the project is aligned with the requirements of the Governance Regulation and presents a detailed compilation of existing and planned measures. The Secretariat acknowledges the planned efforts of the Republic of Moldova to accelerate the deployment of renewable energy and boost energy efficiency to ensure alignment with the 2030 targets as set by the Ministerial Council of the Energy Community in 2022. An integrated approach to implementing the first principle of energy efficiency with parallel acceleration of renewables to combat energy poverty is a good way forward.

On 10 April 2024, the Ministry of Energy held a working meeting with all stakeholders, where the ECS recommendations were discussed. As a result, a work plan has been developed for the proper implementation of all the recommendations of the EC Secretariat, which are integrated in this document.

1.4. Regional cooperation during the preparation of the plan

i. Items subject to joint or coordinated planning with other Energy Community Contracting Parties and Member States of the European Union

The current NECP contains some aspects which are subject to coordinated planning with other Contracting Parties of the Energy Community. Issues related to cross-border projects (such as trade in electricity and natural gas) have been discussed with regional trading partners and are being updated as part of a continuous communication process. In addition, Romania's NECP as well as some regional studies were analysed.

According to the study 'Study on the Central and South Eastern Europe energy connectivity (CESEC) cooperation⁴⁰ on electricity grid development and renewables', cross-border electricity trade and proactive cooperation in RES policy-making have great potential to contribute to a cost-effective, equal geographical distribution of RES electricity generation: at CESEC level, the 19% reduction in costs can be attributed to RES cooperation, facilitated by cross-border network infrastructure. In the long term and by 2050, the situation will partially change: countries such as Greece, Moldova, Romania or Ukraine could join this group.

The European Commission study "Supporting investments into renewable electricity after 2020" (ENER/C1/2015-394)⁴¹ addresses the following questions: What could be the trajectories for the development of the EU electricity market by 2050? and How could RES-E shares evolve in these scenarios?. Assuming that the only source of revenue is an energy-only market (EOM), what are the likely market revenues for each type of RES-E (if there is no financial support from public funds)?

The study 'A carbon pricing design for the Energy Community' analysed the carbon⁴² pricing schemes and MRV mechanisms currently applied for EnC Contracting Parties (CPs), carried out an assessment of the level of preparedness for the implementation of carbon pricing schemes in certain EU and non-EU countries, which are relevant for a potential implementation in the EnC CPs, including in the Republic of Moldova.

The study 'Impact assessment for the establishment of a regional emissions trading system in the Energy Community Contracting Parties' was initiated in February 2024 by a consortium of E3M, Rekk, Ricardo and Trinomics, with funding from the European Commission. In line with the conclusions of the 21st Energy Community Ministerial Council, the scope of the study is to assess and compare different design options for a regional ETS for the Western Balkans, the Republic of

⁴⁰Study on the Central and South-Eastern Europe energy connectivity (CESEC) cooperation on electricity grid development and renewables. <https://op.europa.eu/en/publication-detail/-/publication/434fb711-a5a4-11ec-83e1-01aa75ed71a1/language-en> (link of 27 August 2023)

⁴¹https://energy.ec.europa.eu/system/files/2017-01/cepa_final_report_ener_c1_2015-394_0.pdf (activated on 27 August 2023)

⁴²https://www.energy-community.org/dam/jcr:82a4fc8b-c0b7-44e8-b699-0fd06ca9c74d/Kantor_carbon_012021.pdf (activated on 27 August 2023)

Moldova, Georgia and Ukraine, including economic, environmental and social impacts. It will cover three main scenarios:

- CBAM exemption scenario: an electricity-only ETS with a single CO₂ price equivalent to the EU ETS in 2030;
- scenario of CBAM sectors: an ETS for all CBAM sectors with a single CO₂ price in 2030, with a sub-scenario involving a harmonised carbon tax for non-electric CBAM sectors (as a transitional measure between 2026 and 2030).
- EU ETS scenario: this would involve joining the EU ETS by 2030 at the latest.

These three scenarios will be compared to a ‘baseline scenario’ based on the payment of CBAM duties from 1 January 2026 in all sectors, taking into account already existing policies and measures at national level as defined in the NECP project, including existing domestic carbon pricing measures. It is also necessary to assess the legal and technical feasibility of the three options. Taking into account all the findings of the evaluation, recommendations should be made on the optimal design of a carbon pricing system for the Energy Community Contracting Parties, taking into account that any possible future carbon pricing for the Energy Community Contracting Parties should ensure cost-effective emission reductions in line with the objectives of the Paris Agreement and the energy and climate commitments to be taken by the Contracting Parties. Preliminary/interim results of the study are to be presented to Ministers at the Informal Ministerial Council on 3 July 2024.

ii. Explanation of how the plan takes regional cooperation into account

Regional cooperation is addressed in the NECP in the form of specific measures to be implemented, which are described in section 3. There are some investments (in particular in the transmission grid) that are subject to coordinated planning with neighbouring countries. In addition, work is ongoing on integrating energy markets into ENTSO-E and ENTSO-G to promote energy security and reduce overall system costs.

The Republic of Moldova has participated in⁴³ the EU's Horizon 2020 Framework Programme for Research and Innovation and participates in the next Horizon Europe Programme,⁴⁴ each for 7-year periods 2014-2020 and 2021-2027, which is the main instrument used by the EU to fund research in the EU Member States and associated countries, while developing the connection of scientific and innovation cooperation with countries around the world.

Other EU-funded research and innovation activities supporting the participation of the Republic of Moldova in achieving the objectives of the Energy Union are: EURAXESS, EURECA, COST, etc. The active involvement of the Republic of Moldova in combating common challenges at regional level contributes to optimizing the resources used to achieve national and regional objectives.

2. NATIONAL OBJECTIVES AND TARGETS

2.1. Decarbonisation dimension

2.1.1. GHG emissions and removals

On 15 December 2022, the Ministerial Council of the Energy Community adopted, by Decision 2022/02/MC-EnC, the 2030 energy and climate targets. They are essential to put the Contracting Parties of the Energy Community on a path to achieving climate neutrality of their economies by 2050 and decreasing dependence on fossil fuels in the short term. The overall objective of the Energy⁴⁵ Community Clean Energy Package by 2030 is minus 60.9% or 427.64 Mt CO₂eq by 2030 for all Contracting Parties. **The legally binding GHG target of the Republic of Moldova set in accordance with the above-mentioned Decision is to reduce GHG emissions (including LULUCF) by 68.6% in 2030 compared to 1990, i.e. the total emissions of the Republic of Moldova in 2030 should not exceed 9.1 Mt CO₂eq.**

⁴³<https://anecd.gov.md/en/content/description-0> (activated on 27 August 2023)

⁴⁴<https://www.anecd.gov.md/en/content/programul-ue-orizont-europa-support>

⁴⁵<https://www.energy-community.org/implementation/package/CEP.html>

The Republic of Moldova has developed and approved the Low Emission Development Programme until 2030 by Government Decision No 659/2023⁴⁶. A number of mitigation actions at national level (i.e. NAMA) have been included in this document, the implementation of which is intended to help Moldova meet its legally binding GHG reduction targets.

The Republic of Moldova has developed and approved the National Climate Change Adaptation Programme until 2030 by Government Decision no. 624/2023. The 2030 NSAP identifies measures and actions that support the development of Moldova's economy and infrastructure in a way that puts the country on track to meet its international commitments and national climate change mitigation ambitions.

According to the Law no. 74/2024⁴⁷ on climate action, the Republic of Moldova sets the objective of achieving climate neutrality in 2050.

i. Emission reduction elements in other sectors

Regulation (EU) 2018/842 of the European Parliament and of⁴⁸ the Council of 30 May 2018 established that the emission reduction in the non-ETS sectors should be 30% by 2030 compared to 2005. The non-ETS sectors cover emissions from housing, transport (excluding aviation), agriculture and waste. To ensure consistency with EU objectives, the GHG target setting methodology for FPs should be as close as possible to the structure and approach used in the EU.

The target covering all net domestic GHG emissions of the Contracting Parties, including LULUCF emissions and removals (except Montenegro) is 60.9%, i.e. -427.64 Mt CO₂eq by 2030. There is no separate target for non-ETS sectors.

By 2030, the Republic of Moldova, as a contracting party of EnC, should reduce net GHG emissions on the right bank of the Dniester River by 68.6% compared to 1990, therefore GHG emissions should not exceed 9.1 Mt CO₂eq. There is no separate target for non-ETS sectors for the Republic of Moldova. Also, the Republic of Moldova has no specific objective for the LULUCF sector under the EnC.

The evolution of the net GHG emissions of the Republic of Moldova in the non-ETS sectors is presented in Figure 3.

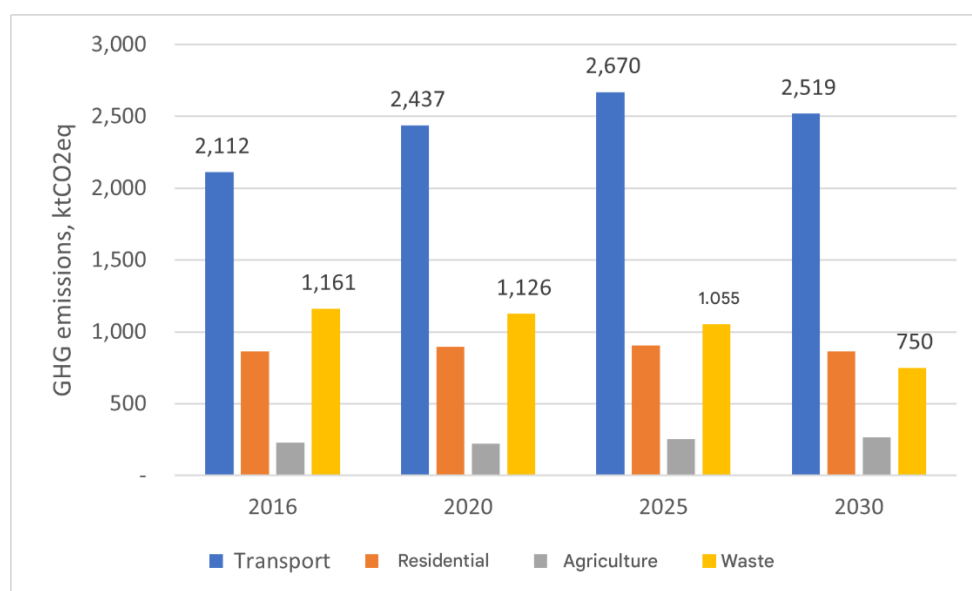


Figure 3. Net GHG emissions (WPM scenario) from non-ETS sectors (right bank of the Dniester river only)

Moldova's total net GHG emissions from non-ETS sectors are projected to decrease by 6.0% by 2030 compared to 2020.

⁴⁶https://www.legis.md/search/getResults?doc_id=139980&lang=en

⁴⁷https://www.parlament.md/Legislative_process/normative_drafts/tabid/61/LegislativeId/6899/language/en-RO/Default.aspx

⁴⁸<https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32018R0842>

In 2030, the LULUCF sector in the Republic of Moldova will ensure the sequestration of - 1,521 kt CO_{2e}, which is 12 times more than in 2020.

ii. Where appropriate, other national objectives and targets that are consistent with the Paris Agreement and existing long-term emission reduction strategies. Where applicable, for the contribution to the overall commitment of the Contracting Parties to reduce GHG emissions, other objectives and targets, including sectoral targets and adaptation objectives

According to its updated CND (2020), the Republic of Moldova (a country within internationally recognised borders) has committed to an unconditional objective of limiting total domestic greenhouse gas emissions by 70% below 1990 levels in 2030. The Republic of Moldova undertakes to conditionally reduce total greenhouse gas emissions by 88% by 2030, compared to 1990 levels, if international support is available.

The legally binding target of reducing emissions by 70% compared to 1990 levels by 2030 was transposed into national legislation through the adoption of the 2030 Low Emission Development Programme (PDER 2030), approved by Government Decision No 659 /2023.

The 2030 ERDF contains seven specific targets deriving from the legally binding national economy-wide emission reduction targets under the Paris Agreement:

Specific objective 1: Reduce GHG emissions from the energy sector by 81% below base year levels by 2030 under the unconditional scenario and by 87% under the conditional scenario;

Specific objective 2: Reduce GHG emissions from the transport sector by 52% below base year levels by 2030 under the unconditional scenario and by 55% under the conditional scenario;

Specific objective 3: Reduce GHG emissions from the construction sector by 74% below base year levels by 2030 under the unconditional scenario and by 77% under the conditional scenario;

Specific objective 4: Reduce industrial GHG emissions by 27% below base year levels by 2030 under the unconditional scenario and by 31% under the conditional scenario;

Specific objective 5: Reduce GHG emissions from the agricultural sector by 44% below base year levels under the unconditional scenario and by 47% under the conditional scenario by 2030 and support low-carbon development approaches in the agricultural sector;

Specific objective 6: Increase carbon sequestration in the LULUCF sector, by 2030, by 10% compared to the base year level under the unconditional scenario and by 391% under the conditional scenario;

Specific objective 7: Reduce by 2030 the GHG emissions of the waste sector (including waste water) by 14% compared to the base year level under the conditional scenario and by 18% under the unconditional scenario, and support the low-carbon development of the waste sector by encouraging innovative climate-friendly technologies and services.

In connection with the Paris Agreement and adaptation to climate change, the updated CND of the Republic of Moldova identifies a number of adaptation measures. Those measures shall include:

- assessing the impact of climate change on the availability of surface and groundwater resources for sustainable agricultural use (irrigation), energy production and housing, in a long-term perspective;

- encouraging the conservation of endemic species by predicting the impact of climate change on appropriate ecosystems;

- study of the most vulnerable forest land areas in pre-selected territories;

- assessing the level of vulnerability of agricultural production that makes major contributions to national GDP (e.g. grapes and hazelnuts) and/or domestically unique products, such as honey, in relation to changes in climatic parameters and the spread of infections, in order to ensure food security;

- assessing the effects of climate change on human health through the interdisciplinary study of the relationships between social, economic, biological, ecological and physical systems;

- facilitating measures to support the reduction of losses and damage caused by extreme weather events.

2.1.2. Renewable energy (target for 2030)

i. The elements referred to in Article 4(2)(a)

The Republic of Moldova had the commitment to reach, by 2020, a binding target of 17% of energy from renewable sources in gross final consumption of energy, set by the EnC-MC decision of 2012, and a voluntary target of 20% by 2020, set in the National Energy Strategy by 2030.

The Republic of Moldova exceeded the mandatory target of 17% for 2020, reaching a rate of 23.57% of renewable energy in 2020. However, only the sectoral target for heating and cooling has been exceeded, while renewable energy contributions to electricity, in particular in transport, are still low, starting to increase after 2022.

According to the Energy Community Ministerial Council Decision no. 2022/02/MC-EnC, the Republic of Moldova has a target to reach a 27% share of energy from renewable sources in gross final consumption of energy by 2030.

The Republic of Moldova will be able to reach the target assumed towards the Energy Community, by 2030, regarding the share of energy from renewable sources in gross final consumption of energy up to 27% (WPM).⁴⁹

As mentioned in Table 2, the Republic of Moldova will be able to increase, by 2030, the share of energy from renewable sources in gross final consumption of energy up to 26.1%, with measures already approved and in the process of implementation, and up to 30.0% with the application of additional planned measures.

ii. Estimated trajectories for the sectoral share of renewable energy in final energy consumption from 2025 to 2030 in the electricity, heating and cooling and transport sectors

Estimates of the results of the TIMES model for the sectoral share of energy from renewable sources in gross final consumption of energy between 2025 and 2030 are presented in Table 8.

Table 8

Sectoral share of renewable energy in gross final energy consumption in 2025 and 2030, %

	2015	2016	2017	2018	2019	2020	2021	2022	2023	With measures approved, in implementation		With additional measures planned	
										2025	2030	2025	2030
SER- I&R	44.5	45.5	46.1	44.5	40.4	39.2	36.9	38.4	40.7	39.8	40.1	40.4	42.5
SER-E	1.98	1.94	2.1	2.6	3.0	3.1	3.6	5.5	9.2	18.2	23.8	18.2	31.2
SER-T	0.011	0.015	0.021	0.018	0.012	0.015	0.016	0.017	0.022	0.2	0.4	3.2	6.9
Total RES	26.2	26.9	27.8	27.0	23.8	23.6	22.2	21.5	23.0	25.3	26.1	26.3	30.0

Sources: compiled on the basis of EUROSTAT-BNS data and modelling results

Compared to the EUROSTAT values for the share of RES in energy consumption in the heating and cooling sector (RES – Q&A;R), in the scenario with approved measures, this is in a slight overall decrease, but increasing compared to 2021, which is also influenced by the decreasing trend in the consumption of biofuels and waste recorded in recent years. In the scenario with planned measures, a higher share is expected in 2030. The share of solid biomass is expected to continue to

⁴⁹According to WPM modelling scenario

Final energy consumption	630.9	678.8	744.8	746.3	627.6	588.5	619.2	520.2	518.5	604.5	605.2	603.41	602.4
Derived heat	6.9	7.4	6.7	9.3	8.6	8.2	7.5	12.3	11.8	8.5	10.0	7.36	12.28
Heat pumps for heating	-	-	-	-	-	-	-	-	-	21.7	31.5	23.27	41
Renewable cooling	-	-	-	-	-	-	-	-	-	-	-	-	-
SER-I&R (%)	44.5	45.5	46.1	44.5	40.4	39.2	36.9	38.4	40.7	39.8	40.1	40.4	42.5
<i>Note: the total includes all elements of 'gross final consumption of energy' other than electricity and for purposes other than transport;</i>													
Article 7: Gross final consumption of energy from renewable sources													
(a) electricity	7.2	7.0	7.8	9.9	11.5	11.7	14.5	22.0	35.7	74.5	99.6	74.3	132.3
(b) heating and cooling	637.8	686.2	751.5	755.6	636.2	596.7	626.7	532.5	530.3	634.7	646.7	634.0	655.7
(c) transport	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	1.3	2.5	20.8	41.8
(a)+(b)+(c) adjusted with 7% limit and high ILUC risk*	645.0	693.2	759.4	765.7	647.8	608.5	641.3	554.6	566.2	710.5	748.7	729.2	829.8
<i>Note: electricity used in transport is included in transport and therefore not included in electricity</i>													
Article 2(4): Gross final energy consumption	2,465	2,579	2,729	2,834	2,720	2,582	2,888	2,575	2,462	2,742	2,776	2,709	2,625
RES (%)	26.2	26.9	27.8	27.0	23.8	23.6	22.2	21.5	23.0	25.3	26.1	26.3	30.0
* ILUC - indirect land-use change													

Sources: compiled on the basis of EUROSTAT data and modelling results

Table 10

Trajectories by renewable energy technology (WPM) 2016-2030

	2018	2019	2020	2021	2022	2023	2024	With measures approved, in implementation		With additional measures planned		
								2025	2030	2025	2030	
Installed electricity generation capacity from RES, MW												
Hydropower plants	16.3	16.3	16.3	16.3	16.3	16.8	16.8	16.8	16.8	16.8	16.8	16.8
Wind power plants	29.3	33.7	44.1	87.6	105.9	121.3	160.8	160.8	265.8	160.8	390.0	390.0
Photovoltaic systems, without prosumers	2.1	2.1	4.3	9.9	30.3	84.1	249.3	249.3	309.3	249.3	345.0	345.0
Photovoltaic systems, including prosumers	2.1	3.6	9.2	19.9	68.1	199.9	395.4	430.3	525.1	430.3	560.0	560.0
Biogas plants	5.7	5.7	6.1	6.1	7.4	6.6	7.0	7.0	9.0	7.0	9.0	9.0
Waste-fired power stations	-	-	-	-	-	-	-	-	-	-	-	-
Other RES technologies	-	-	-	-	-	-	-	-	-	-	-	-
Total, no prosumers	53	58	71	120	160	229	434	434	601	434	761	761
Total, with prosumers	53	59	76	130	198	345	580	615	817	615	976	976

Sources: compiled based on ANRE, Ministry of Energy data and modelling results

iv. Estimated trajectories for bioenergy demand, broken down into heat, electricity and transport, and biomass supply, feedstock and provenance (distinguishing between domestic production and imports). For forest biomass, an assessment of the source and its impact on the LULUCF sink

Table 11 shows the estimated trajectories for bioenergy demand and biomass supply.

Table 11

Bioenergy demand trajectories, biomass supply disaggregated by raw material and provenance (WEM) from 2016 to 2030

All	With measures approved, under implementation													
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Residential sector	720	716	610	559	596	489	481	495	512	521	530	539	548	557
Trade and public services	12	12	10	10	10	10	11	10	10	10	10	10	11	11
Agriculture	1	1	1	1	1	1	3	1	1	1	1	1	1	1
Transport	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Industry and construction	-	1	-	1	2	2	4	3	3	2	2	2	2	2
Final energy consumption	733	730	621	571	609	502	499	509	526	534	543	552	561	571
Electricity and/or heat production	20	23	22	21	20	28	22	25	25	24	22	23	23	23
biogas	7	8	7	7	7	7	4	6	7	7	7	8	8	8
solid biomass	13	15	15	14	13	21	18	19	18	17	15	15	15	15
Final energy consumption and in the transformation sector	753	753	643	592	629	530	521	534	551	558	565	575	584	594

Sources: compiled based on ANRE, Ministry of Energy data and modelling results

Biomass supply is based on 80% of firewood (76%) and wood waste (4%), 4.5% of wood and other vegetable waste briquettes and pellets, and 14.4% of agricultural and animal combustible waste, as well as other waste.

vi. Where applicable, other national trajectories and targets, including long-term or sectoral ones (e.g. share of advanced biofuels, share of renewable energy in district heating, use of renewable energy in buildings, renewable energy produced by cities, energy communities and self-consumers)

2. 2. Energy efficiency dimension

i. The elements referred to in Article 4(b)

The measures under the NECP aim to improve energy efficiency so that final energy consumption is no more than 2,800 ktoe in 2030, in order to meet the commitments under the EnC. Also, primary energy consumption should not be higher than 3,000 ktoe in 2030.

Renovating existing buildings is key to achieving these goals, as it will not only save energy and money, but also increase the comfort, safety and health of tenants.

The total real estate fund in the Republic of Moldova has an area of approximately 100 million m². 87% of these buildings are in the residential sector (65% of the total real estate stock in the Republic of Moldova are single-family houses) and 13% are non-residential buildings (office buildings, educational buildings, hospitals, hotels, restaurants, sports buildings, wholesale and retail buildings, mixed-use buildings).

One of the initiatives that the Republic of Moldova has taken to improve its energy efficiency and reduce greenhouse gas emissions in the residential sector is the creation of the Fund for Energy Efficiency in the Residential Sector of the Republic of Moldova (FEERM). It is managed by the National Centre for Sustainable Energy (as of 21 December 2023 CNED replaces the Energy Efficiency Agency), the institution that coordinates and implements various energy efficiency policies and measures in the country. The fund will provide grants and technical assistance to condominium owners' associations and individual houses to finance renovation to implement energy efficiency in buildings, such as improving insulation, installing more efficient lighting, heating, cooling and ventilation systems, and integrating renewable energy sources. It will also support the

development of the energy efficiency market, including energy audits, documentation on technical projects and awareness-raising campaigns. The EMFAF budget shall consist of financial means raised under the Programme for the implementation of the energy efficiency obligation scheme for the period 2024-2026, grants and donations from development partners and/or international organisations, financial means provided under the Energy Vulnerability Reduction Fund for the implementation of the measures provided for in Law No 241/2022, as well as other means not prohibited by law. For the period 2024-2027, the FEERM will mobilise around MDL 1.4 billion.⁵⁰ The FEERM will provide non-reimbursable financing of up to 70% of the total expenditure necessary for the implementation of energy efficiency measures and the recovery of renewable energy sources in the residential sector, the rest to be provided by the contribution of tenants. The objective of the FEERM is to renovate annually a heated area of at least 155 thousand m² in residential blocks and 56 thousand m² in individual houses, thus reducing the consumption of energy resources by at least 30% of the value of consumption, under normal conditions, in the buildings of the residential sector benefiting from the financing programs.

Similarly, in order to promote energy efficiency, IP CNED launched the Voucher Program⁵¹ for Household Appliances, approved by Government Decision 533/2024,⁵² a national program dedicated to replacing old and used appliances with new and energy-efficient equipment. This programme is designed to support vulnerable consumers by enabling them to purchase modern appliances that consume less energy, thereby helping to reduce utility bills and protect the environment. Through the Home Appliances Voucher Program, beneficiaries receive vouchers that can cover up to 70% of the cost of new home appliances. This initiative not only helps to replace old and inefficient appliances, but also encourages the adoption of advanced technological solutions that are more environmentally friendly.

Another initiative that the Republic of Moldova is undertaking to increase its energy efficiency is the implementation of the Programme on the implementation of the energy efficiency obligation scheme for the period 2024-2026, approved by Government Decision No 1064/2023. The energy efficiency obligation scheme will generate revenues for the state budget because obligated parties will have to pay a fee for each unit of energy they sell, which will be used to finance the energy efficiency fund and other energy efficiency programmes. The programme for the implementation of the energy efficiency obligation scheme for the period 2024-2026 is in accordance with Article 8(7) of Law No 139/2018 on energy efficiency. Following the implementation of this programme, the following results are expected:

- achieving, between 2024 and 2026, cumulative energy savings for final consumers in the residential sector of at least 14.4 ktoe, which will allow reducing population expenditure on energy resources consumed in the amount of at least MDL 120 million during this period;
- achieving energy savings for final consumers during the average lifetime of the measures carried out over at least 10 years, at the level of 64.8 ktoe, which will enable final consumers to save at least MDL 270 million during this period;
- in addition to achieving direct energy savings, the implementation of this programme will make it possible to obtain indirect benefits, by reducing the costs of imports of energy resources, by increasing the level of comfort in rehabilitated buildings, by improving the aesthetic appearance of buildings, as well as by increasing the value of buildings and increasing the disposable income of the population – these resources being directed towards other expenditure, goods and services, increasing economic activity in the construction, transport and services sector, creating the new jobs needed to achieve energy efficiency measures, reducing CO₂ emissions, improving the living conditions and health of the population.

Starting with 2024, the Republic of Moldova implements mechanisms/projects to save annually at least 0.8% of the average value of final energy consumption recorded in the period 1

⁵⁰<https://cned.gov.md/en/feerm>

⁵¹<https://cned.gov.md/en/ecovoucher>

⁵²https://www.legis.md/search/getResults?doc_id=144531&lang=en

January 2019 - 1 January 2022, including to renovate 3% of the buildings of central public administration authorities per year.

The building renovation strategy concept proposes measures to improve energy efficiency, reduce greenhouse gas emissions and increase the share of renewable energy in total energy consumption through the renovation of the national building stock.

The concept of the strategy proposes three scenarios (optimistic, moderate, conservative) for building renovation.

The main assumptions for the three scenarios, e.g. the percentages of buildings to be renovated, are based on the fact that public buildings generally receive more state support and that owners of private non-residential buildings have more means and interests and fewer barriers to ensure medium or deep renovation.

Reimbursement periods for the renovation of single-family houses using wood are extremely long. This type of fuel is mainly used in single-family homes, which usually have low incomes and prefer the use of wood that can be found at fairly low prices or collected by users. Multi-family buildings and other buildings use very small amounts of wood. Although, at first analysis, single-family houses heated with wood should not be excluded from the beneficiaries of state support policies, from a practical point of view we can expect very little renovation investment in this category of buildings.

Scenario 1 – optimistic (Table 12) – assumes that by 2030, basic renovation measures are implemented to 5% of the surface area of ‘targeted’ dwellings and 5% of the surface area of other buildings, average renovation will be subject to 1.5% of ‘targeted’ dwellings and 2% of the surface area of other buildings, deep renovation will be subject to 1% of ‘targeted’ dwellings and 2% of the surface area of other buildings.

Under this scenario, primary energy savings of around 2.5% can be made and CO₂ emissions can be reduced by 3.4% by 2030 compared to 2022. An estimated investment of around €2,054 million would be needed to implement this scenario. The average payback period is about 29 years.

Table 12

Building renovation – Scenario 1 – optimistic

Description	Type of unit	Residential buildings	Other buildings	Total
Standardised total annual final energy savings	Thermal [ktoe]	42.0	7.5	49.6
	Electric [ktoe]	6.9	0.9	7.8
Standardised total annual primary energy savings	Thermal [ktoe]	59.4	11.5	70.9
	Electric [ktoe]	11.2	1.6	12.8

Scenario 2 – moderate (Table 13) – assumes that by 2030 basic renovation measures are implemented at 2.5% of the surface area of ‘targeted’ dwellings and 2.5% of the surface area of other buildings, average renovation will be subject to 1% of ‘targeted’ dwellings and 1.5% of the surface area of other buildings, deep renovation will be subject to 0.5% of ‘targeted’ dwellings and 1% of the surface area of other buildings.

Under this scenario, primary energy savings of around 1.3% can be made and CO₂ emissions can be reduced by 1.8% by 2030 compared to 2022. An estimated investment of around EUR 1 097 million would be needed to implement this scenario. The average simple payback period is around 29 years, as in the previous scenario. This is an expected outcome because the rate of areas subject to renovation has been reduced evenly compared to the previous scenario, which is why the rate between investments and expected savings remains the same.

Table 13

Renovation of buildings - Scenario 2 - Moderate

Description	Type of unit	Residential buildings	Other buildings	Total
Standardised total annual final energy savings	Thermal [ktoe]	22.5	4.2	26.7
	Electric [ktoe]	3.8	0.5	4.3
Standardised total annual primary energy savings	Thermal [ktoe]	31.8	6.4	38.2
	Electric [ktoe]	6.1	0.9	7.0

Scenario 3 – conservative (Table 14) – assumes that by 2030 basic renovation measures are implemented to 1% of the surface area of ‘targeted’ dwellings and 1.5% of the surface area of other buildings, average renovation will be subject to 0.5% of ‘targeted’ dwellings and 1% of the surface area of other buildings, deep renovation will be subject to 0.25% of ‘targeted’ dwellings and 0.5% of the surface area of other buildings.

Under this scenario, primary energy savings of around 0.6% can be made and CO2 emissions can be reduced by 0.9% by 2030 compared to 2022. An estimated investment of about 516 million euros would be needed to implement this scenario. The average simple payback period is around 29 years, due to the reasons explained in the previous scenario.

The funds raised for the implementation of energy efficiency measures in the residential sector will mainly be used for the thermal rehabilitation of the building envelope and the replacement of doors and windows. They will be partly available for the introduction of individual heat consumption regulation systems, advanced metering technologies, heat recovery ventilation systems, efficient lighting systems, energy efficient engineering systems, as well as for the installation of efficient air conditioning, RES and cogeneration systems.

Table 14

Renovation of buildings - Scenario 3 - Conservative

Description	Type of unit	Residential buildings	Other buildings	Total
Standardised total annual final energy savings	Thermal [ktoe]	9.9	2.5	12.4
	Electric [ktoe]	1.7	0.3	2.0
Standardised total annual primary energy savings	Thermal [ktoe]	14.0	3.9	17.8
	Electric [ktoe]	2.8	0.5	3.3

The implementation of planned policies and measures to improve energy end-use efficiency depends on the availability of efficient financing mechanisms that can leverage current levels of own funds. Active participation of the financial sector and the promotion of innovative financing instruments such as energy performance contracting and energy services are essential in this respect. The National Center for Sustainable Energy will have a special role in the creation and implementation of these financing mechanisms.

ii. Indicative milestones for 2030, 2040 and 2050, measurable nationally determined progress indicators, evidence-based estimation of expected energy savings and wider benefits, and their contributions, as included in the roadmaps set out in the long-term renovation strategies for the national stock of residential and non-residential buildings, both public and private, in accordance with Article 2a of Directive 2010/31/EU, as adapted and adopted by Ministerial Council Decisions 2010/02/MC-EnC and 2021/14/MC-EnC

The objectives of the state energy policy in the medium and long term, as well as the priority directions for its development, are currently set out in the Energy Strategy of the Republic of Moldova until 2030, approved by Government Decision no. 102/2013 (Energy Strategy 2030).

Most of the specific targets in the 2030 Energy Strategy are set for the reference year 2020.

According to Law No 139/2018 on energy efficiency,⁵³ for the period 2024-2030, the Republic of Moldova must achieve an indicative national energy savings target of at least 0.8% of the average value of final energy consumption recorded in the period from 1 January 2019 to 1 January 2022. In order to achieve this objective, the Republic of Moldova has chosen to achieve this objective by combining the energy efficiency obligation scheme and energy efficiency policy measures.

In accordance with Government Decision No 1064/2023 approving the Programme for the implementation of the energy efficiency obligation scheme for the period 2024-2026, obligated parties, as defined in Law No 139/2018 on energy efficiency, must contribute to achieving equivalent annual energy savings by paying financial contributions in accordance with the abovementioned Government Decision, which will be used to implement energy efficiency projects and the recovery of renewable energy sources in buildings in the residential sector, through the Energy Efficiency Fund in the residential sector.

Through the energy efficiency obligation scheme for the period 2024-2026 is foreseen to achieve a minimum of 2.4 ktoe of new energy savings per year for final consumers in the residential sector, which consists of a share of approx. 11% of the target of 0.8% new energy savings from final energy consumption for the period 2019-2021. The energy savings to be achieved through the energy efficiency obligation scheme for the period 2027-2030 are to be determined based on the experience gained as a result of the implementation of the Programme on the implementation of the energy efficiency obligation scheme for the period 2024-2026.

Alternative measures are to complement SOEE and aim to achieve the new annual energy savings needed to achieve the 0.8% target, including through the implementation of different policy measures and programmes promoting energy efficiency in different sectors. Among the alternative measures planned or in the process of implementation in the Republic of Moldova are the following:

- the energy efficiency fund in the residential sector, which will provide grants and technical assistance to homeowners' associations and private households to finance renovation, with a view to implementing energy efficiency in buildings, such as improving insulation, installing more efficient lighting, heating, cooling and ventilation systems, and integrating renewable energy sources;
- energy efficiency standards and labelling programme, which will set minimum energy performance requirements and requirements for energy efficiency labels for appliances and equipment, such as refrigerators, washing machines, air conditioners and televisions, in order to inform consumers and encourage them to buy more efficient products;
- the public sector energy efficiency programme, which will support the deployment of energy management systems, energy audits and energy efficiency projects in public and private buildings and institutions, such as schools, hospitals and public administration offices, in order to reduce energy consumption and costs;
- programul de eficiență energetică industrială, care va ajuta întreprinderile industriale să adopte sisteme de gestionare a energiei, să efectueze audituri energetice și să implementeze măsuri de eficiență energetică, cum ar fi înlocuirea echipamentelor vechi, optimizarea proceselor și recuperarea căldurii reziduale, pentru a-și îmbunătăți competitivitatea și performanța de mediu;
- the awareness and education programme, which will increase public awareness and knowledge of the benefits and opportunities of energy efficiency, through campaigns, trainings, workshops and publications, as well as promote the development of skills and professions in the field of energy efficiency, such as energy managers, energy auditors and energy service providers.

Since the adoption of the 2030 Energy Strategy at international and regional level, there have been significant changes in the policies and development directions of the electricity and gas sectors, influenced by the awareness of the consequences of climate change, the geopolitical situation and technological developments.

The signing of the Paris Agreement (2015) marked the beginning of a new paradigm in EU development strategies and policies and given the European aspirations of the Republic of Moldova,

⁵³https://www.legis.md/search/getResults?doc_id=137208&lang=en

this change will also have an impact on the evolution of the country's energy sector. In the context of the Paris Agreement, in 2019 the EU revised its energy policy framework to promote a shift from fossil fuels to less polluting energy by adopting the Clean Energy Package for all Europeans (Clean Energy Package).

On 23 June 2022, the European Council granted the Republic of Moldova EU candidate status, together with a list of conditions to be fulfilled. Thus, in order to achieve its aspiration to become part of the EU family, the Republic of Moldova needs to accelerate the process of implementation of reforms and alignment with EU norms and practices, including in the energy field, adapting its long-term objectives to time horizons similar to those of EU Member States.

In the context of the above, there is a significant change in the main assumptions and scenarios used in the drafting phase of the 2030 Energy Strategy both at national and regional level, which calls for the revision of the targets and measures set in the energy field in order to ensure the sustainable development of the energy sectors resulting from the new realities.

The Energy Strategy 2050 concept was adopted in 2023, and in 2024 the development of the Energy Strategy 2050 was completed.

In 2023, Parliament approved the new Law No 282/2023 on the energy performance of buildings⁵⁴ to transpose the requirements of Directive (EU) 2018/844. Law 282/2023 introduces the mandatory certification of residential and public buildings in line with EU law. It also requires developers to comply with the minimum energy performance standards (MEPS) that are in force in the EU.

The aforementioned law stipulates that nearly zero-energy buildings must be all new buildings – after 5 April 2024.

Energy intensity or gross energy consumption per unit of gross domestic product is the main indicator of energy efficiency of the national economy of the Republic of Moldova.

Energy intensity in the Republic of Moldova is 3.4 times higher than the EU average, which indicates that there is significant potential to improve energy efficiency. According to the Report on the implementation of the National Energy Efficiency Action Plan 2019-2021, there are positive results, energy savings and actions that can be multiplied and harnessed on a larger scale.

To measure progress in energy saving, the Republic of Moldova has chosen as its national indicator 'energy intensity' (gross energy consumption per unit of gross domestic product).

With the help of the MARKAL/TIMES modelling system, two scenarios have been developed regarding the energy consumption of the Republic of Moldova for the period up to 2050.

These scenarios take into account different levels of implementation of energy saving measures:

- with existing measures – take into account existing measures and policies;
- with planned measures – take into account planned measures and policies that can be implemented in line with national targets.

Based on these scenarios, a 45% reduction in energy intensity should be achieved in 2030 (Table 15):

- primary energy intensity: 0.26 toe/EUR 1 000;
- final energy intensity: 0.24 toe/1,000 euros.

The energy efficiency targets for buildings up to 2030 are set out in Table 16:

- energy intensity in the tertiary sector: 0.22 ktoe/1,000 m² (1% compared to 2020);
- average efficiency in heating residential rooms: 69% (3 percentage points compared to 2020);
- average space heating efficiency in the tertiary sector: 86% (4 percentage points compared to 2020).

Table 15

⁵⁴https://www.legis.md/search/getResults?doc_id=139619&lang=en

**Indicative national contributions to the energy efficiency target
of the Energy Community for the years 2030, 2040 and 2050**

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2040	2050
Primary energy intensity, toe/1000EUR*	0.36	0.35	0.32	0.29	0.28	0.28	0.28	0.27	0.27	0.26	0.26	0.18	0.13
Final energy intensity, toe/1000EUR	0.33	0.32	0.29	0.26	0.26	0.26	0.25	0.25	0.25	0.24	0.24	0.17	0.12
Gross inland consumption, ktoe	2,807	3,115	2,770	2,632	2,676	2,741	2,790	2,835	2,887	2,905	2,949	2,968	2,957
Final energy consumption, ktoe	2,531	2,853	2,521	2,397	2,451	2,514	2,563	2,611	2,663	2,715	2,762	2,689	2,633

* GDP in constant prices EUR 2015

Table 16

**Indicative national energy efficiency targets for 2020
and indicative national contributions to the energy efficiency target
of the Energy Community for the years 2030, 2040 and 2050 for the building stock
National Housing and Non-Residential Buildings**

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2040	2050
Energy intensity in the tertiary sector, ktoe/1000m ²	0.21	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.21	0.21
Average efficiency in heating residential rooms, %	66	66	66	67	67	70	70	70	69	69	69	74	98
Average space heating efficiency in the tertiary sector, %	82	82	82	83	84	85	86	86	86	86	86	87	98

iii. Where appropriate, other national objectives, including long-term objectives or strategies and sectoral and national objectives in areas such as energy efficiency in the transport sector and heating and cooling

So far, there have been only a few small energy efficiency projects in the transport sector (several donor-supported projects to improve energy efficiency in the rail and public transport sectors have not yet achieved results).

The new draft regulation on periodic roadworthiness tests for road vehicles (which will replace the obsolete 1999 regulation) was prepared and examined at the meeting of the Secretaries-General on 19 August 2024 and submitted for opinion to the responsible institutions. As regards e-mobility, the Republic of Moldova has introduced some financial incentives for the purchase of electric vehicles of tariff heading 8703: importers of EVs are exempt from customs duties, excise duties and VAT.

The introduction and promotion of low-carbon and economic transport will also have a positive impact on the country's energy security. In addition, in the period 2030-2050, the Republic of Moldova should develop and implement more comprehensive measures (active consumers, energy communities, independent aggregators, etc.) to promote the management of consumer demand, as well as to increase the active role of prosumers in energy markets.

The target indicator for energy savings by the transport sector by 2030, calculated using the MARKAL/TIMES modelling system, consists of (Table 17):

- energy intensity of passenger transport (excluding air transport) – 0.016 ktoe/million passenger-kilometres (18% reduction compared to 2020)
- energy intensity of freight transport (excluding air transport) – 0.047 ktoe/million tonne-kilometres (21% reduction compared to 2020).

The third NEEAP highlights the limited nature of the industrial sector in the Republic of Moldova: According to the National Bureau of Statistics, in 2017 there were 740 large industrial enterprises. Therefore, even if the necessary funds were available (in the form of grants and preferential loans), the untapped energy saving potential in industry is considered limited: according to the third NEEAP, it is likely that the Republic of Moldova will not achieve the initially calculated sectoral target.

The target indicator for energy savings in the industrial sector in 2030 will be (Tables 18 and 19) consisting of energy intensity in industry – 0.083 ktoe/million euro (50 % reduction compared to 2020).

As regards the energy sector, there is significant potential to reduce energy losses during its transport.

The target indicator for energy savings in energy transmission and distribution networks in 2030, calculated using the MARKAL/TIMES modelling system, will consist of:

- electricity losses in the transmission grid, in % of total production, plus non-reduced imports by 0.79% compared to 2020;
- electricity losses in the distribution grid, in % of total production, plus net imports reduced by 0.85% compared to 2020;
- natural gas losses in the transmission network, in % of the total volume of natural gas entering the transmission network of transported natural gas reduction by 3.73% compared to 2020;
- losses in the thermal network, in % of the total volume of heat delivered to the thermal network reduction of 1,7 % compared to 2020.

Table 17

**Indicative national contributions to the energy efficiency target
of the Energy Community for the years 2030, 2040 and 2050 for the transport sector**

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2040	2050
Energy intensity of passenger transport*, ktoe/million passenger-kilometres	0.018	0.017	0.017	0.017	0.017	0.016	0.016	0.016	0.016	0.016	0.016	0.012	0.009
Energy intensity of freight transport*, ktoe/million tonne-kilometres	0.059	0.055	0.054	0.054	0.053	0.052	0.052	0.051	0.050	0.048	0.047	0.036	0.023

* Except air transport

Table 18

**Indicative national contributions to the energy efficiency target
of the Energy Community for the years 2030, 2040 and 2050
for the industry, construction and agriculture sectors**

toe/1000EUR*	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2040	2050
Energy intensity in industry and construction	0.14	0.15	0.14	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.12	0.11
Energy intensity in agriculture	0.17	0.15	0.16	0.17	0.17	0.16	0.16	0.16	0.16	0.16	0.16	0.15	0.14

* GVA per sector in constant prices EUR 2015

Table 19

Estimates of indicative national contributions to the Energy Community energy efficiency target for the years 2030, 2040 and 2050 for the industrial sector

	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2040	2050
Electricity losses in the transmission network*	3.01	2.93	2.85	2.77	2.69	2.61	2.53	2.46	2.38	2.3	2.22	2.24	2.26
Electricity losses in the distribution network*	6.33	6.12	5.99	5.79	5.64	5.56	5.38	5.29	5.12	4.95	4.76	4.86	4.75
Natural gas losses in the transmission network**	6.55	6.18	5.81	5.44	5.06	4.69	4.32	3.94	3.57	3.2	2.83	2.83	2.83
Losses in district heating network***	19.2	19.1	18.9	18.7	18.6	18.4	18.3	18.0	17.8	17.6	17.5	17.9	17.6

* in % of total production plus net imports

** in % of total volume of gas transferred

*** in % of total volume of heat transferred

In the Republic of Moldova, through the UNDP, as the implementer of the EU project "Addressing the Energy Impact in the Republic of Moldova", the Pilot Programme for the Award of Home Appliances Vouchers was implemented. The programme is geared towards increasing the accessibility of vulnerable consumers to new appliances, electrical or electronic equipment with low energy consumption in exchange for old ones owned, thus achieving a reduction in energy consumption. For 2023, applications were submitted by 445 982 households for the need to benefit from vouchers for household appliances. The beneficiaries of the Programme are selected using a managed electronic platform and based on criteria established by the CNED, by setting up the Risk Finance Committee (RFC). The sources of funding for the Home Appliances Voucher Program are: a) the state budget, through the fund for reducing energy vulnerability; b) grants, donations or other sources of external assistance and c) other sources that do not contravene the legislation. The eligibility criteria for the selection of beneficiaries are: the degree of energy vulnerability; b) electricity consumption; (c) the family situation and (d) the place of residence.

In order to regulate this process, Government Decision no. 533/2024 was approved, which establishes the Regulation on the operation and functioning of the Program for granting financial aid for the efficiency of the consumption of energy resources. This policy document focuses on reducing energy poverty by reducing people's spending on energy bills. Thus, the Voucher Program offers homeowners, in the number of 148 thousand energy vulnerable families, a reduction in energy bills

over three years, gradually, respectively, 14 million lei, 68 million lei and 66 million lei annually. The distribution of financial means by year is as follows: in the first year – MDL 54.4 thousand; in the 2nd year – MDL 222.6 thousand and in the 3rd year – MDL 151.8 thousand. The program provides for a 7-year recovery period of the allocated costs, thus obtaining a financial saving of about 497.23 million lei. Expressed in tonne of oil equivalent, the average annual savings are 2.04, with a cumulative final value of 14.27.

Government Decision No 533/2024 pursues the purpose of enforcing Article 5(1)(b) of Law No 241/2022 on the Energy Vulnerability Reduction Fund, which sets out, in the list of measures for vulnerable consumers, the single financial support for partial coverage of the cost of used household, electrical and electronic equipment for substitution by better performing ones, within a dwelling in an energy-vulnerable household.

2.3. Energy security dimension

Currently, the obligations and responsibilities for ensuring the security of energy supply in the Republic of Moldova are set out in Law No. 108/2024 on natural gas and Law No. 107/2016 on electricity. In accordance with Article 4 of both mentioned laws, ensuring the energy security of the state is the competence of the Government.

i. The elements referred to in Article 4(c)

ii. National targets for increasing the diversity of energy sources and supply from third countries to improve the resilience of regional and national energy systems

The Republic of Moldova is developing a new strategy for the energy sector until 2050, adapted to the current regional realities and context. The new strategy aims to reduce the risks associated with the supply of natural gas by taking systematic measures to diversify the sources and routes of natural gas supply and to ensure the necessary level of investment in the technical development of energy networks. Over the past ten years, the Republic of Moldova has taken concrete measures to diversify the supply of natural gas and electricity, including by creating interconnections with Romania, which has contributed to improving energy security.

In February 2024, a joint roadmap was developed between the Republic of Moldova, the Energy Community and the European Commission for further reforms in the energy sector of the Republic of Moldova. Several of its actions and measures also improve energy security; these will be detailed in the chapter on the internal energy market.

The completion of the Iasi-Chisinau gas pipeline, together with the possibility to use the reverse trans-Balkan route, provides the technical capacities and the necessary conditions for diversifying the sources of natural gas supply. In addition to the development of the natural gas network, storage in natural gas storage facilities in other countries parts of the Energy Community, in the EU Member States, is implemented in accordance with Law No 108/2016 on natural gas.

The supply of natural gas from the territory of Romania will ensure not only the reliability of natural gas supply, but also the reliability of electricity supply. This measure is particularly important in the event of the expiration of the contract for the transit of natural gas through the territory of Ukraine.

Another way to improve energy security is to increase competition by facilitating access to electricity markets. The synchronisation with the ENTSO-E system has opened up opportunities for new import routes, while improving the overall stability and security of the electricity grid in the Republic of Moldova. In order to continue reaping the benefits, it is planned to further synchronise the national energy system with the mainland network. The new Energy Strategy 2050 will ensure deeper integration with the EU at technical, infrastructure and market level.

In the long term, the possibility of combining sectors and including hydrogen and small nuclear energy in the energy package will be considered.

iii. Where, national targets in terms of reducing dependence on energy imports from third countries, to improve the resilience of regional and national energy systems

Increasing energy efficiency is also an integral part of energy security. The Republic of Moldova supports the energy efficiency first principle set out in EU policy documents. It will be applied throughout the supply chain and to consumption. Reducing losses in electricity, natural gas and district heating transmission and distribution networks is a priority. The introduction and promotion of low-fuel and low-carbon transport will also have a positive impact on the country's energy security.

The strategic development of the energy sector will be ensured by increasing investment and implementing projects to reduce the energy intensity of the industrial sector and introducing measures to increase the energy performance of public and residential buildings and to protect critical infrastructure (including cybersecurity).

The new energy strategy will take into account and focus on promoting the development and use of renewable energy, as well as the development of appropriate support mechanisms (priority dispatch, contracts for differences, etc.) and favourable technical conditions (simplified connection, regulated third party access, etc.), which will also facilitate the replacement of natural gas consumption in power plants and reduce dependence on natural gas imports.

iv. National objectives with regard to increasing the flexibility of the national energy system, in particular through the use of domestic energy sources, demand response and energy storage

To support sustainable security of gas supply and mitigate the effects of emergencies or to cover consumption peaks, natural gas storage facilities in Ukraine and Romania will be used. For this purpose, contracts for storage services shall be concluded. It is also necessary to carry out work to increase the capacity of internal networks between the north and the center of the country. A similar approach will be applied to the oil sector. The draft law on stocks of petroleum products is being drafted, which will transpose Directive 2-9/119/EC on the obligation of Member States to maintain minimum stocks of crude oil and/or petroleum products.

An important aspect in ensuring flexibility is the energy balance and progress in the development of the use of renewable energy, as well as the design of appropriate support mechanisms (priority dispatch, contracts for difference, etc.) and favourable technical conditions (simplified connection, regulated third party access, etc.).

At the same time, the Moldovan institutions will continue to carry out systematic market reforms to increase competition in the energy market, as a well-functioning market will give the right signals for additional investment in production and increased flexibility.

Existing thermal power plants, which are unable to provide balancing and ancillary services, will be upgraded. The possibility of integrating energy storage systems into the grid will also be assessed.

In the period 2030-2050, the Republic of Moldova intends to develop and implement more complex measures to promote the management of consumer demand, as well as to increase the active role of prosumers in energy markets.

2.4. Dimension "Internal Energy Market"

2.4.1. Interconnectivity of electricity grids

i. The level of electricity interconnectivity that the Contracting Party aims to achieve for 2030 – 15% in accordance with Article 4(d)(1), with a level strategy from 2025 onwards, defined in close cooperation with the affected Contracting Parties and/or EU Member States, taking into account the interconnection target for 2020 and the following indicators of urgency of action: (1) The price difference on the wholesale market exceeding an indicative threshold of EUR 2/MWh between the Contracting Parties and/or EU Member States, regions or bidding

zones; (2) Nominal transmission capacity of interconnectors below 30 % of peak load; (3) Nominal transmission capacity of interconnectors below 30 % of installed renewable generation. Each new interconnector shall be subject to a socio-economic and environmental cost-benefit analysis and shall only be implemented where the potential benefits outweigh the costs

The electricity interconnection target of EU Member States is at least 15% for 2030.⁵⁵

The Republic of Moldova, as an associated country to the EU, has set itself the objective of integrating its energy system into the European energy system.⁵⁶

On 16 March 2022,⁵⁷ the synchronisation of the energy systems of the Republic of Moldova and Ukraine with the Continental European ENSTO-E energy system was carried out.

The requirements for the development of new interconnections (as projects of mutual interest) are set for the Moldovan energy system similarly to the European objectives:

the capacity of existing interconnectors must be less than 30 % of the peak load;

2) the interconnection capacity is less than 30% of the installed RES generation capacity;

3) the electricity price difference between countries is more than 2 euro/MWh.

The interconnections of the energy system of the Republic of Moldova with the energy system of Ukraine include 7 overhead power lines (OHL) of 330 kV and 12 OHL-110 kV, and with the energy system of Romania 4 OHL-110 kV and one OHL 400 kV⁵⁸ (list of interconnectors in section 4.5.2).

The share of interconnectivity of electricity systems shall have the following values: MD/AU:26.6%, MD/RO: 6.6% and RO/MD: 14,1 %, Table 20.

Table 20

Share of energy system interconnectivity the Republic of Moldova with neighbouring energy systems

	Transmission capacity, ⁵⁹ MW	Installed capacity, MW	Share of interconnectivity, %
Republic of Moldova-Ukraine	800	3.012	26,6
Ukraine - Republic of Moldova	800	3.012	26,6
Republic of Moldova-Romania	200	3.012	6,6
Romania - Republic of Moldova	425	3.012	14,1

As no annual allocations are currently made at the MD/RO border and given the current limitation of imports/exports from the AU/MD control block to/from CE ENSTO-E, the figures in the table represent the data from the date of preparation of the document and will undergo changes in the future. The forward-looking scenarios for the current NECP are constructed using the nominal interconnection capacity of 700 MW (2016-2020) and are described in Section 5.

2.4.2. Energy transmission infrastructure

⁵⁵https://ec.europa.eu/energy/sites/ener/files/documents/communication_on_infrastructure_17.pdf;

<https://eur-lex.europa.eu/legal-content/RO/TXT/PDF/?uri=CELEX:32018R1999&from=EN>

⁵⁶https://www.legis.md/search/getResults?doc_id=68103&lang=ru; https://www.legis.md/search/getResults?doc_id=3445&lang=en

⁵⁷<https://www.entsoe.eu/news/2022/03/16/continental-europe-successful-synchronisation-with-ukraine-and-moldova-power-systems/>

⁵⁸https://moldelectrica.md/ru/activity/interstate_power_lines (of 10.11.2022); <https://news.mail.ru/politics/53991309/?frommail=1>

⁵⁹https://www.moldelectrica.md/ru/network/annual_report

i) Key electricity and gas transmission infrastructure projects and, where appropriate, modernisation projects necessary to achieve the objectives under the five dimensions of the Energy Union Strategy

Projects for the construction of two new 400 kV Isaccea-Vulcanesti-Chisinau and Balti-Suceava power lines are a priority for the Republic of Moldova in accordance with the Energy Strategy up to 2030⁶⁰ and the Development Plan for Electricity Transmission Networks 2018-2027.⁶¹

The construction of new overhead lines requires the modernization of the electrical substations necessary for the integration of the electrical systems of the Republic of Moldova and Romania. To this end, projects to interconnect the Vulcanesti-Chisinau⁶² and Balti-Suceava energy systems are being implemented⁶³ (Figure 4).

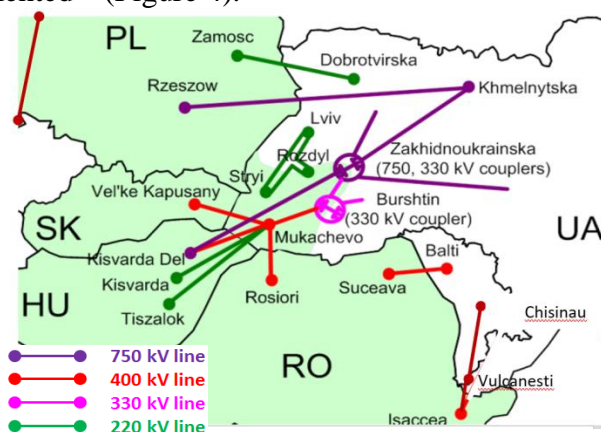


Figure 4 Schematic overview of energy system interconnections AU-MD with surrounding ENTSO-E TSOs⁶⁴

Source: <https://tyndp.entsoe.eu/> (Regional Investment Plan Continental Central East. Version for ACER opinion January 2023. ENTSO-E)

The interconnection of the energy systems of the Republic of Moldova and Romania is currently based on the 400 kV power line between Isaccea (RO) and Vulcanesti (RM) and includes the construction of an extension to Chisinau, comprising:⁶⁵

- a) the 400kV overhead transmission line Vulcanesti – Chisinau (158 km);
- b) extension of the 400 kV Vulcanesti substation; and
- c) modernization of the 330/110/35 kV power station in Chisinau.

The project also envisaged the construction of a Back-to-Back (BtB) station, but the construction of this facility has now been excluded and no longer needed in the context of synchronous interconnection (2022).

This line will improve Moldova's access to the European electricity market⁶⁶.

On 11 December 2023, the Memorandum of Understanding between the Government of the Republic of Moldova and the Government of Romania on the implementation of the projects necessary for the interconnection of the natural gas and electricity networks was signed. The Memorandum includes the following projects in the field of electricity grids:

1) **the 400 kV Suceava – Balti OHL project**, which includes the construction of the 400 kV Suceava – Balti overhead power line, the extension of both the 400 kV Suceava station and the 400/330 kV Balti station. To implement this project, a Loan Agreement between the Government of the Republic of Moldova and the European Bank for Reconstruction and Development was signed on 13 March 2024 to co-finance the project in the amount of EUR 30.8 million (another EUR 30.8 million is provided in the form of a loan by the European Investment Bank and the grant component of EUR 15.4 million is provided by the EU). These amounts also cover the rehabilitation of several

⁶⁰https://www.legis.md/search/getResults?doc_id=68103&lang=ru

⁶¹https://www.moldelectrica.md/ru/network/perspective_plan

⁶²https://www.moldelectrica.md/ru/finances/piu_consultancy_services

⁶³https://www.moldelectrica.md/ru/finances/mold_rom_project

⁶⁴<https://eepublicdownloads.blob.core.windows.net/public-cdn-container/tyndp-documents/TYNDP2022/public/RegIP-2022-CCE.pdf>

⁶⁵https://moldelectrica.md/ru/finances/competitive_energy_market

⁶⁶https://moldelectrica.md/ru/finances/mold_rom_project

110 kV substations of the SE ‘Moldelectrica’, strengthening the internal electricity grid. The tender for the construction works will start in Q2 of 2025.

The Suceava – Balti investment project was included in the Action Plan approved at the meeting of the High Level Group on Energy Connectivity in Central and South-Eastern Europe (CESEC).

The project is also mentioned in the Roadmap for Energy Market Reforms agreed between the MoE, the European Commission and the Energy Community Secretariat at the Fifth EU-Republic of Moldova High-Level Energy Dialogue held in Chisinau on 2 February 2024;

2) **OHL 400 kV Straseni - Gutinas project**

The feasibility study is in the process of being carried out as of July 2024. The Ministry of Energy and USAID signed the Memorandum of Understanding on the financing of the 400kV Straseni – Gutinas OHL, the third interconnection line with Romania of 190 km. This project is to be financed shortly because the value of the investment has not yet been determined. The project shall be considered for strengthening the energy connectivity of Central and South-Eastern Europe, the security of electricity supply and the resilience of the energy system;

3) The development of regional interconnectors is planned through the construction of the second circuit of the 330 kV overhead line ‘CHE Balti – Dnestrovsk’, the overhead line ‘Yuzhnoukrainsk – Primorsk Nuclear Power Plant – Vulcanesti – Isaccea’ (AU – MD – RO).

The project of the second circuit of the 330 kV overhead line "CHE Balti - Dnestrovsk" was submitted to the call for selection of strategic priority projects PECEI, announced by the Energy Community;

4) The construction of a 400 kV overhead power transmission line “Vulcanesti – Artsiz” is also under consideration.

It should be noted that, in line with the EU Regulation on guidelines for energy infrastructure⁶⁷ (‘TEN-E+ Regulation’), the EU should facilitate infrastructure projects linking the Union networks to third country networks, which are mutually beneficial and necessary for the energy transition and the achievement of climate objectives, and which also meet the specific criteria of the relevant infrastructure categories under that Regulation, in particular with neighbouring countries and countries with which the EU has established specific energy cooperation. Therefore, cross-border projects between EU and non-EU countries (including contracting parties) could be eligible for selection and be granted the status of RIPs (projects of mutual interest).

The current list of Projects of Common Interest (‘PCIs’) in the EU was adopted in November 2023 and is available at <https://eur-lex.europa.eu/>.⁶⁸

ii) Where appropriate, the main infrastructure projects envisaged, other than projects of Community interest in the field of energy (PECEI) and projects of mutual interest (PMI)

Electricity sector

Other infrastructure projects concern the development of the internal electricity transmission network, but are important for the implementation of projects of mutual interest.

SE "Moldelectrica" pays great attention to the modernization and reconstruction, renovation and expansion of the infrastructure of the transmission network. Works done in recent years:

- modernization of equipment at 330 kV stations in Chisinau, Straseni and Balti;
- replacement of two autotransformers at the 330 kV station in Chisinau;
- Reconstruction of 110 kV stations and reconstruction of transmission lines 110-330 kV;
- the implementation of a modern SCADA automated dispatch control system and a commercial electricity measurement system;
- construction of the 110 kV interconnector Fălciu – Gotești (RO – MD);

⁶⁷ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJL.L.2022.152.01.0045.01.ENG&toc=OJ%3AL%3A2022%3A152%3ATOC>

⁶⁸ https://eur-lex.europa.eu/resource.html?uri=cellar:8343d7e8-8de6-11ee-8aa6-01aa75ed71a1.0007.02/DOC_1&format=PDF

- feasibility study and environmental impact study for the 400 kV Balti – Suceava transmission line.

Currently, the SE "Moldelectrica" is carrying out the following works:⁶⁹

- continuing to rebuild and modernise the infrastructure of the electricity transmission network;

- extension of interconnections with Romania (Suceava – Balti and Straseneni – Gutinas);

- extension of interconnections with Ukraine.

These objects are marked in the Electricity Transmission Network Development Plan for 2018-2027⁷⁰ (currently being updated), in the Annual Investment Plans¹⁰³ and in the Joint Roadmap between the Republic of Moldova, the Energy Community and the European Commission for further reforms in the electricity sector of the Republic of Moldova.

Natural gas sector

At the end of 2023, several local gas projects aimed at strengthening the internal gas market in the Republic of Moldova. These were included in the Development Plan 2023-2032 of LTD 'Vestmoldtransgaz'⁷¹ (Operators of the natural gas transmission system). Of these, the most important are:

- construction of an annular pipeline for the city of Chisinau (60 km);

- construction of the gas transmission network Prut – Ungheni SMG – Todirești SMG (11 km);

- construction of the gas transmission network in the direction of Ungheni – Balti – Drochia, with connection to the main transmission pipeline in the north of the republic, Ananiev – Chernivtsi – Bohorodchany (ACB) (95 km);

- reconstruction and upgrading of existing networks, CNG filling stations and equipment.

2.4.3. Market integration

i. National objectives relating to other aspects of the internal energy market, such as increasing system flexibility, in particular with regard to the promotion of competitively determined electricity prices in accordance with relevant sectoral legislation, market integration and coupling, aiming at increasing the tradable capacity of existing interconnections, smart grids, aggregation, demand response, storage, distributed generation, mechanisms for dispatching, redispatching and curtailment, and real-time price signals, including a timeframe for when the objectives are to be met

Electricity sector

The development of electricity transmission networks increases competition in the market in several directions:

- increase the total amount of electricity available to consumers;

- increasing the number of suppliers that can serve consumption in a wider regional market.

The addition of new interconnector and inlet capacities may increase the number of bilateral contracts for the supply of electricity, contributing to an increase in the number of electricity producers and suppliers.

In order to integrate the energy system of the Republic of Moldova with that of the EU, a number of documents have been adopted which refer to the rules of the electricity market, the balancing of the electricity market and the distribution of the capacity of the RO-MD cross-border flows. Similar documents are being prepared at the SE 'Moldelectrica' for the AU – MD, with a view

⁶⁹https://moldelectrica.md/ru/finances/investment_strategy

⁷⁰https://moldelectrica.md/ru/network/perspective_plan; https://moldelectrica.md/en/finances/investment_plan

⁷¹<https://vmtg.md/images/PLANS/H CA ANRE nr. 820 Plan de Development 2023-2032 Vestmoldtransgaz.pdf>

to introducing day-ahead and intra-day markets in the near future. In 2023, ANRE certified S.E. 'Moldelectrica' as Independent System Operator.⁷²

The general strategic objectives for the development of the energy sector are established on the basis of the priorities of the Energy Community (Article 52 of the Energy Strategy up to 2030):⁷³

- 1) the creation of an integrated (regional) competitive energy market;
- 2) attracting investments in the energy market;
- 3) ensuring a secure and sustainable supply of energy to consumers.

Ensuring security of energy supply, developing competitive markets and their regional and European integration; ensuring the sustainability of the energy sector and combating climate change are the *three main objectives* of the Energy Strategy to 2030 (Article 54).

Article 30 of Law No 107/2016 on electricity⁷⁴ provides that interconnections may be given the status of strategic objects.

The section on energy transmission in the Electricity Act 107/2016⁷⁵ outlines the functions and responsibilities of TSOs to provide information on investments, upgrades, development plans, cross-border energy exchange, congestion management, access to interconnectors, total transmission capacity and other aspects of the wholesale electricity market under bilateral agreements, day-ahead market, electricity balancing, retail market under agreements.

The concept of the Energy Strategy to 2050 ensures the continued implementation of the objectives set out in the Energy Strategy to 2030. They are divided into 5 areas and present targets for the electricity, heat and gas industries presented in Table 21.

Table 21

Main objectives of development of the electricity sector in the Republic of Moldova

Moldova Energy Strategy 2050 (24 November 2022 – Concept)
Targets for 2022-2030
<p>- <i>Enhancing energy security:</i> Increasing connectivity by building new 400 kV Isaccea – Vulcanesti – Chisinau and Balti – Suceava interconnectors Assessment of the potential of interconnection projects (RO – MD) Smardan – Vulcanesti and Balti – Dnestrovsk (second line, MD – AU) based on the results of feasibility studies Obtaining full membership of ENTSO-E for S.E. "Moldelectrica" Signature and implementation of the Synchronous Area Framework Agreement (SAFA). Ensuring TSOs' compliance with ENTSO-E requirements Upgrading existing networks: Introduce smart grids (where economically possible) and distributed generation; development of automated accounting systems; improving data management and use Improving the risk assessment process and risk preparedness, updating prevention plans and emergency measures for electricity;</p> <p>- <i>developing competitive energy markets and their regional integration:</i> Implementation of coordinated capacity calculation, cross-border capacity allocation and congestion management in accordance with the applicable ECT rules (CAF and CACM) Implementation of a balancing and imbalance settlement mechanism in line with current and EU TEC rules Launch day-ahead and intraday markets, assuming that market consolidation with neighbouring markets will increase competition and provide more opportunities for electricity transactions;</p>

⁷²<https://www.anre.md/activity-report-3-10>.

⁷³https://www.legis.md/search/getResults?doc_id=68103&lang=en

⁷⁴https://www.legis.md/search/getResults?doc_id=105710&lang=ro

⁷⁵https://www.legis.md/search/getResults?doc_id=135004&lang=en#

- *promoting energy efficiency:*

Reconstruction and modernisation of existing electricity generation capacities and their transformation into high-efficiency cogeneration plants to increase energy efficiency

Modernization of electricity distribution and transmission networks;

- *assistance for sustainable development, renewable energy and GHG emissions reduction:*

Transposition and implementation of provisions on renewable energy communities; introduction of net invoicing and simplification of the connection of large industrial power plants (self-producers)

Stimulate the construction of solar power plants on the roofs of private and public buildings.

Construction of small power plants distributed on biomass (additional cogeneration) with stimulation through auxiliary mechanisms;

- *consumer protection and reduction of energy poverty:*

Protecting vulnerable consumers through appropriate social benefits through compensation for the consumption of natural gas, heat and electricity

Development of thermal insulation programs for public buildings.

2030-2050 targets

- *Enhancing energy security:*

Continue efforts to improve generation adequacy by using all available energy resources and technologies, while ensuring compliance with applicable TEC/EU legislation

Continue work to modernise and strengthen networks;

- *developing competitive energy markets and their regional integration:*

Use of platforms developed by ENTSO-E for the exchange of balancing and system services.

To achieve *the specified* objectives, the country's energy policy is expected to be aligned with the recently adopted EU legislative documents (Fit for 55, REPowerEU), with a view to integrating the energy sector into the European energy market (under competitive and sustainable conditions), ensuring an adequate level of energy security for consumers' continued access to affordable energy.

*REPowerEU*⁷⁶ builds on the *Fit for 55* proposals, maintains the headline target of reducing greenhouse gas emissions by 55% in 2030 and achieving climate neutrality in 2050, and proposes to increase the energy efficiency and renewable energy targets to 13% and 45% for 2030, respectively.

The Joint Roadmap between the Republic of Moldova, the Energy Community and the European Commission for further reforms in the electricity sector of the Republic of Moldova contains 31 points with temporary obligations for the period 2024-2031:

⁷⁶https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/repowereu-affordable-secure-and-sustainable-energy-europe_en

<p>2024</p> <p>Transposition of the Electricity Market Integration Package: Designation of at least one NEMO (achieved so far) Capacity calculation for day-ahead and intraday markets Setting national terms and conditions for balancing Alignment of tax legislation (VAT) Developing a roadmap for joining EU market coupling Developing a roadmap for joining EU balancing platforms Compliance with the conditions for certification of TSOs SE "Moldelectrica" Submission by TSOs of S.E. 'Moldelectrica' of an application for observer status in EU balancing platforms Implementation of cross-border exchange of balancing capacity Increased availability of balancing services and phase-out regulation NEMO appointed in MD to apply for observer status in NEMO Committee TSO SE "Moldelectrica" to join ICT mechanism Implementation of joint capacity sharing in Ukraine Creating day-ahead and intraday markets Development of a roadmap for the phasing out and/or restructuring of public service obligations (PSOs) Develop a roadmap for retail competition and cost-reflective prices Implementation of a Transparency Regulation Strengthening ANRE's capacity to detect market abuse Ensuring market transparency and proper implementation of the REMIT Regulation Implementation of national, regional and pan-European terms, conditions and methodologies for market coupling Implement national, regional and pan-European terms, conditions and methodologies for EU balancing platforms.</p>
<p>2025</p> <p>Long-term capacity calculation Long-term capacity calculation and allocation Assessment of capacity mechanisms to support additional balancing capacity Adoption of a risk-preparedness plan Construction of the 400 kV overhead power line Vulcanesti – Chisinau.</p>
<p>2027</p> <p>Construction of the 400 kV Balti – Suceava overhead power line.</p>
<p>2031</p> <p>Construction of the third interconnection between the Republic of Moldova and the EU – 400 kV Strasenii – Gutinas overhead power line</p>

The Electricity Roadmap aims at implementing the following Directives of the Electricity Market Integration Package:

Directive 944/2019 on common rules for the internal market in electricity

In order to transpose the Directive, it is necessary to amend Law No 107/2016 on electricity. The draft of a new electricity law was prepared and submitted for public consultation (Q4, 2024).

Regulation (EU) 2019/943 on the internal market for electricity

This Regulation will be partially transposed into Law 107/2016 on electricity and the rules of the electricity market. The first draft law was drafted in February 2024.

EU Regulation 2019/942 establishing a European Union Agency for the Cooperation of Energy Regulators (ACER)

The provisions of this Regulation will be reflected in primary legislation in the form of amendments to Law No 107/2016 on electricity. As of July 2024, the Ministry of Energy is in the process of analysing the project in order to initiate public consultations.

EU Regulation 2019/941 on risk-preparedness in the electricity sector

The draft Regulation on risk preparedness in the electricity sector was drafted and submitted to the Ministry of Energy, which analysed the regulatory impact of the Regulation and the Action Plan. The analysis was consulted with all stakeholders and successfully passed the Working Group of the State Commission for the Regulation of Entrepreneurship. The Risk Preparedness Regulation will replace Regulation No 2019/941, the Regulation on exceptional situations on the electricity market, the Action Plan for exceptional situations on the electricity market, adopted by Government Decision No 149/2019.

EU Regulation 2015/1222 establishing a guideline on capacity allocation and congestion management (CACM)

Points 4, 5 and 6 of the CACM Regulation were transposed by amending Law 107/2016 on electricity in December 2023. The Government approved the decision on the designation of the electricity market operator, which was licensed by ANRE – ‘Operator Market de Energie M’ LTD (21 February 2024). The draft CACM network code is finalised and subject to public consultation at the end of Q2, 2025.

Regulation (EU) 2016/1719 – long-term market capacity allocation (LTF)

The provisions of this act are partially transposed into the Regulation on access to electricity transmission networks for cross-border exchanges and congestion management in the electricity system, approved by ANRE Administrative Board Decision no. 424/2019. ANRE together with TSOs started to work on the transposition of this regulation, while verifying the compatibility with other normative acts to be amended in parallel, in order to make possible not only the transposition, but also the proper application/implementation of the document.

Regulation (EU) 2017/2195 establishing a guideline on electricity balancing

In order to transpose this document, it is necessary to make amendments to the Electricity Market Rules (Decision No 283/2020 of the ANRE Board of Directors) and to the Electricity Network Code (Decision No 423/2019 of the ANRE Board of Directors). The document transposing the EBGL was prepared by UNDP experts within the framework of the Programme "Addressing the Energy Crisis in the Republic of Moldova".

EU Regulation 2017/1485 – establishing a guideline on electricity transmission system operation (SOGL), similar to EU Regulation 2017/2195

It requires consequential amendments to the Network Code in force, to the Regulation on dispatching of the electricity system (ANRE Administrative Board Decision No 316/2018) and to the Methodology for calculating, approving and applying regulated tariffs for the electricity transmission service (ANRE Administrative Board Decision No 486/2017). The initial version of the chapter transposing the provision on security of operations has been finalised and submitted to TSOs.

Regulation (EU) 2017/2196 establishing a network code on electricity emergency and restoration (ERNC)

Transposition is carried out with the support of UNDP and EU4Energy and involves amending the following normative acts: Network Code, ANRE Administrative Board Decision no. 423/2019 (developing responsibility belongs to TSOs).

Natural gas sector

The Republic of Moldova aims to develop the gas market in accordance with EU laws and practices. In 2023, the main objectives set for the natural gas sector in the national plan of the Republic of Moldova were stipulated in the following official documents:

Energy Strategy of the Republic of Moldova until 2030 (Government Decision no. 102/2013);⁷⁷

Energy Roadmaps 2015-2030 (Government Decision No 409/2015);⁷⁸

⁷⁷https://www.legis.md/search/getResults?doc_id=68103&lang=en

⁷⁸https://www.legis.md/search/getResults?doc_id=77316&lang=en

The Energy Strategy of the Republic of Moldova 2050⁷⁹ (Concept, 24 November 2022), developed with the support of USAID, within the project ‘Energy Security Activity in the Republic of Moldova’ (MESA);

the National Development Plan (NDP) for the years 2023 to 2025⁸⁰;

The plan for the development of the natural gas transmission networks of ‘Vestmoldtransgaz’ LTD for the years 2023 to 2032⁸¹.

It should be noted that during the preparation of this document, the license of ‘Moldovatransgaz’ LTD was revoked for non-compliance with the regulated conditions and deadlines for separation and certification.⁸² Accordingly, as of 19 September 2023, only ‘Vestmoldtransgaz’ LTD manages the entire natural gas transmission infrastructure on the right bank of the Dniester River. ‘Vestmoldtransgaz’ LTD was definitively certified as an Independent System Operator in 2024. In early 2024, at the meeting of the High-Level Group on Energy Connectivity in Central and South-Eastern Europe (CESEC), the Republic of Moldova joined the Vertical Gas Corridor “Greece – Bulgaria – Romania – Republic of Moldova – Ukraine” by signing the Memorandum of Understanding by the gas transmission operators of the Republic of Moldova (Vestmoldtransgaz), Ukraine (GTSO) and Slovakia (Eustream). The vertical corridor will allow the transmission of natural gas from Greece to the Republic of Moldova and will provide access to underground storage facilities in Ukraine through the Trans-Balkan gas pipeline⁸³.

On 2 February 2024, the Ministry of Energy, the European Commission and the Energy Community Secretariat, in the framework of the Fifth EU-Republic of Moldova High Level Energy Dialogue, agreed on the Roadmap for Energy Market Reforms⁸⁴. As regards the gas sector, this document provides for the transposition of Regulation EU 2017/1938 (Regulation concerning measures to safeguard the security of gas supply).

Table 22 provides an overview of the objectives for the natural gas sector set out in each document.

Table 22

The main objectives of development of the natural gas sector in the Republic of Moldova

Energy Strategy of the Republic of Moldova until 2030 (2 February 2013)
<p>The Energy Strategy to 2030 contains three general objectives described above</p> <p>The 2013-2030 roadmap for the natural gas sector in the Republic of Moldova includes 4 work packages, with a series of sets of actions for each package:</p> <p>Work Package 1: Development of the regulatory framework for the natural gas sector</p> <p>Work Package 2: Strengthening the institutional and organisational framework in the gas sector.</p> <p>Development of the natural gas market</p> <p>Work Package 3: Promoting investment projects in natural gas infrastructure</p> <p>Work Package 4: Other measures proposed for the natural gas sector.</p> <p>It should be noted that most of the targets were only set for 2020</p>
Concept of the Energy Strategy of the Republic of Moldova 2050 (24 November 2022)
<p>Targets for 2022-2030:</p> <p>Modernisation of gas distribution and transmission networks and reduction of losses</p> <p>Transposition and implementation of network codes</p>

⁷⁹<https://midr.gov.md/news/strategy-energy-moldova-2050-targets-assurance-independence-energy-country-and-supply-citizens-with-energy-accessible>

⁸⁰<https://particip.gov.md/en/document/stages/project-plan-national-development-for-years-2023-2025-and-project-plan-action-of-government-for-year-2023/9979>

⁸¹[H_CA ANRE nr. 820 Plan de Development 2023-2032 Vestmoldtransgaz.pdf \(vmtg.md\)](https://anre.md/ro/plan-de-developament-2023-2032-vestmoldtransgaz.pdf)

⁸²Decision of the Board of Directors of ANRE no. 572 of 18.09.2023

⁸³[Cooperation for the vertical corridor is strengthened by signing a Memorandum of Understanding for the participation of Slovakia, Moldova and Ukraine - Transmission System Operator of Ukraine \(tsoua.com\)](https://tsoua.com/en/vertical-corridor)

⁸⁴[The European Commission has agreed on a Roadmap for Energy Market Reforms and reaffirmed its support to Moldova at the Second EU-Moldova High Level Energy Dialogue EEAS \(europa.eu\)](https://eeas.europa.eu/eu-foreign-policy/eu-external-action/eu-external-action-2024/20240202-roadmap-energy-market-reforms)

Completion of the certification process of LTD "Vestmoldtransgaz"
 Establishment of gas trading platforms and capacity allocation process at interconnection points
 Establishment and maintenance of minimum natural gas stocks
 Exploring the possibility of building gas storage facilities (underground or ground) in the Republic of Moldova
 Introducing responsibility for balancing of natural gas users
 Establishment of a compensation mechanism between TSOs
 Development of the natural gas transmission network and bi-directional interconnection capacities
 Diversification of gas supply routes and sources
 Further market opening and gradual liberalisation of the gas market

2030-2050 targets:

Continued compliance with applicable EU law
 Use of green hydrogen as an alternative to natural gas
 Sector coupling rules and hydrogen market integration

National Development Plan 2023-2025

General objective	Indicators (result)	Total cost, in thousands of lei	Deadline	Document reference
2.4.2. Ensuring the security of gas supply of the Republic of Moldova	Volume of natural gas purchased, annually	6.000.000	November-December 2025	Government Decision No 668/2022 ⁸⁵ on the establishment and maintenance of security stocks of natural gas

Natural gas transmission network development plan the "Vestmoldtransgaz" LTD for the years 2022-2031 (22 December 2023)

Ensuring the energy security of the Republic of Moldova
 Diversification of gas supply routes and sources
 Construction of new gas transmission networks
 Transportation of natural gas to the Republic of Moldova, as well as in transit

CESEC Gas Action Plan 2024

Establishment of firm capacity at all IPs along the CTB T1
 Signature of an updated Memorandum of Understanding between TSOs in Greece, Bulgaria, Romania, Ukraine and the Republic of Moldova on CTB T2 and T3 reverse flows
 Conclusion of an interconnection agreement between the Bulgarian, Greek and Turkish TSOs providing a transparent framework for non-discriminatory access to gas transmission infrastructure between Bulgaria and Turkey as well as between Greece and Turkey
 Promotion of reverse transit on the Trans-Balkan Pipeline (TBP)

Moldova – Energy Community – European Commission, Joint roadmap for further liberalisation of the gas market in the Republic of Moldova (2 February 2024)

2024

Certification of LTD "Vestmoldtransgaz"
 Introduction of capacity products with Ukraine and upstream TSOs in order to make the trans-Balkan pipeline route more attractive
 Recast of the appointment of the supplier of last resort (SoLR)
 Ensuring the functioning of gas exchange in the Republic of Moldova in cooperation with Ukrainian and/or Romanian counterparts
 Preparation of the risk assessment and submission of the assessment of the SCE

⁸⁵https://www.legis.md/search/getResults?doc_id=133538&lang=en

Adoption of preventive and emergency plans
 Increased physical capacity of the reverse trans-Balkan route
 Operationalization of PTV in the Republic of Moldova

2025

Implementation of the Balancing Code
 Renunciation of the centralised and state-controlled purchase of natural gas
 Introduce transparent, clear and appropriate criteria for PSO taxation and establish a PSO phasing-out period

It should be noted that the EU external energy strategy⁸⁶, which is part of the REPowerEU plan, included two actions with regard to the Republic of Moldova:

- facilitating the reverse gas regime to Ukraine through the Slovak Republic, Hungary and Poland and to the Republic of Moldova and Ukraine through Romania (TransBalkan pipeline);
- Invite Ukraine, the Republic of Moldova, Georgia and the Western Balkan countries to participate in the EU's voluntary gas purchase programme.

For more detailed information on the current situation on the retail and wholesale electricity and natural gas markets of the Republic of Moldova, see sub-chapter 4.5.3.

ii. Where applicable, national targets related to non-discriminatory participation of renewable energy, demand response and storage, including through aggregation, in all energy markets, including a timeframe for when the targets are to be met

Non-discriminatory participation of renewable energy

Under the Energy Development Concept 2050, within the block 'Promoting sustainability, renewable energy and emission reduction', the transfer and implementation of regulations on renewable energy sources, stimulation of the construction of photovoltaic installations on private and public buildings, construction of small biomass power plants and others are planned.

Law no. 10/2016 on the promotion of the use of energy from renewable sources defines the main principles of state policy in the field of renewable energy, which include:

- a) adjusting the national legislative framework to the norms and standards of the European Union;
- b) promotion of energy from renewable sources through the application of support schemes;
- c) exercising state administration in the field of renewable energy and ensuring transparency in the performance of activities;
- ensuring non-discriminatory access to networks;
- f) ensuring the access of individuals and legal entities to information on the production and use of energy from renewable sources.

Article 27(8) and (9) of Law No 139/2018 on energy efficiency defines the specific requirements for TSOs to promote demand-side resource use and demand-response services, including aggregators, in a non-discriminatory manner, for reducing peak-hour consumption and saving energy.

Chapter 2(1) of the National Energy Efficiency Action Plan⁸⁷ sets the objective of increasing energy efficiency and reducing greenhouse gas emissions and includes measures for the electricity sector:

- developing own energy efficiency programmes at company level to reduce losses in distribution networks;
- reducing electricity losses in transmission and distribution networks;
- investment planning;
- development of a programme for the development of transport networks.

⁸⁶https://energy.ec.europa.eu/system/files/2022-05/JOIN_2022_23_1_EN_ACT_part1_v6.pdf

⁸⁷https://www.legis.md/search/getResults?doc_id=119890&lang=en

iii. National objectives to ensure consumer participation in the energy system and benefits from self-generation and new technologies, including smart meters, where appropriate

Article 11 of the 2030 Energy Strategy⁸⁸ mentions the need to develop the concept of smart grids.

Law 139/2018 on energy efficiency defines the concepts of ‘smart metering equipment’, ‘smart grid’ and ‘energy poverty’.

Article 16(6) of this Law describes the conditions for installing smart metering equipment (in addition to the requirements of Law No 139/2018 on electricity), which are intended to inform the supplier about the duration of electricity consumption and the safety of the equipment.

In accordance with Article 69 of Law No 108/2016 on natural gas, system operators shall carry out the installation, operation and maintenance of measurement equipment of consumers connected to their natural gas networks. Currently, individual natural gas meters are installed for almost all consumers. Some final consumers of natural gas (especially in new buildings) are already equipped with smart natural gas meters.

On the electricity side, a demonstration project to install 35,000 smart meters was initiated by the Ministry of Energy with UNDP support in 2023. The results of this project will form the basis of cost-benefit analyses on the large-scale deployment of smart metering. This project aims to respect the rights of consumers to have access to the data reported and to the information communicated to the provider during the remote recording of data, based on Article 2(a) of Law No 133/2011 on the protection of personal data.

iv. National targets for ensuring energy system adequacy as well as for energy system flexibility for renewable energy production, including a deadline by which the targets are to be met

The adequacy of the electricity supply system and its flexibility are determined by the indicators of the development of electricity production, the sources of balancing the electricity production/consumption balance and the efficiency of its transmission, responding to the needs of the electricity sector.⁸⁹

TYNDP Plan for 2018-2027, sub-item. 2.5 "Energy system adequacy" shows the balance between production and demand (production + import - export - consumption) for winter and summer days for 2016, and SE "Moldelectrica" constantly monitors the balance between production and demand online on its website.⁹⁰

Law 107/2016⁹¹ on electricity defines the tasks of ensuring an appropriate balance between production and demand by TSOs, which develop the energy system in its area of responsibility. In order to ensure the supply of electricity in the necessary volume, this law provides for the development of generation sources of various types, the development of interconnectors with neighbouring electricity systems to increase cross-border capacity and the conclusion of contracts for the supply of electricity from generation sources on the European market, taking into account the maintenance of existing contracts with local producers. The law also provides:

- the organisation of a balancing market, whereby SE ‘Moldelectrica’ may directly order balancing services from energy producers and other economic operators capable of providing such services;
- the organisation of a market for ancillary services, whereby I.S. ‘Moldelectrica’ ensures that balancing capacities are available at all times.

The increase in the number of prosumers in the production of electricity from renewable sources and their possibility to sell in the grid electricity produced in excess of that consumed

⁸⁸https://www.legis.md/search/getResults?doc_id=68103&lang=en

⁸⁹https://www.moldelectrica.md/ru/network/perspective_plan

⁹⁰https://www.moldelectrica.md/ru/network/perspective_plan

contributes to the increase in the amount of electricity produced at national level. In 2023, 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 2.4 times, reaching 5 055 at the end of the year. At the same time, the total installed capacity based on the application of the net metering mechanism increased 3.1 times and reached 115.8 MW at the end of the year.⁹²

The scenarios developed under this NECP involve the development of generation sources, including cogeneration, RES, storage batteries, waste-based facilities.

Electricity transmission projects, including interconnections, can improve system reliability and are important for disaster resilience. They offer additional options for disconnecting damaged objects and for their emergency recovery. They increase the potential for using the reserve capacity of power plants in the region, can ensure sustainable energy purchases and increase the load on existing power plants. This reduces the need to build new generation facilities in the region to meet demand and reserve adequacy requirements.

RES help meet local electricity demand and motivate independent consumers to participate in the supply of electricity in its common market.

The European requirements for increased 'adequacy and flexibility' of the electricity system are ensured by Law No 107/2016 on electricity,⁹³ which sets out the following objectives:

- creating a common legal framework for organising, regulating, ensuring the efficient operation and monitoring of the electricity sector in order to provide electricity to consumers under conditions of availability, reliability, continuity, quality and transparency;
- ensuring free access to the electricity market;
- encouraging the production of electricity;
- ensuring an appropriate balance between supply and demand based on an appropriate level of interconnection capacity in order to facilitate the cross-border exchange of electricity;
- development of the electricity market and integration into the competitive electricity market;
- the establishment of measures to ensure security of electricity supply, the proper fulfilment of public service obligations;
- enforcement of consumer rights as well as environmental protection standards.

In accordance with the aforementioned law, TSOs shall develop the electricity system in the area under their responsibility to provide a network service on the basis of their licence and shall take into account security of supply, efficiency and market integration when developing the network.

Implementation of RES

Article 6(1)(a) to (h) of Law No 10/2016 on the promotion of the use of energy from renewable sources⁹⁴ defines the tasks of the State policy to increase the production of energy from renewable sources, including the diversification of primary energy resources and the promotion of RES. In line with the commitment with the Energy Community, the new target for RES is 27% of gross energy consumption in 2030.

Article 5(3)(a) to (i) of Law No 139/2018 on energy efficiency contains the national objectives for improving energy efficiency, namely: promoting high energy efficiency technologies and modern control and measurement systems, applying efficient management and raising awareness, encouraging the use of renewable energy, attracting investment, implementing financial mechanisms for energy saving, cooperation between final consumers, producers, suppliers and distribution system operators, and developing the energy services market.

⁹²Report on the activity of ANRE in 2023 <https://www.anre.md/raport-de-activitate-3-10>

⁹³https://www.legis.md/search/getResults?doc_id=135004&lang=en

⁹⁴https://www.legis.md/search/getResults?doc_id=132691&lang=ru#

v. Where appropriate, national objectives for the protection of energy consumers and the improvement of the competitiveness of the retail energy sector

There are 2 consumer protection objectives set out in the Energy Strategy 2050 Concept:⁹⁵

- 1) reducing the impact of energy crises and the energy burden;
- 2) identifying adequate social assistance tailored to the needs of vulnerable consumers.

Reducing energy vulnerability by compensating the costs for vulnerable energy consumers is also provided for in the Government's Activity Programme 'Prosperous, Safe and European Moldova', approved by Parliament Decision No 28/2023⁹⁶.

Article 23(5) of Law No 174/2017 on energy provides that, in order to increase reliability, the consumer is entitled to install the third backup source of electricity on his own account.

Article 65 of Law No 107/2016 on electricity establishes that consumers have the right to select a supplier, to conclude electricity supply contracts, to satisfy the requirements for the repair of equipment, to have access to information on electricity consumption, on payments and fines, to compensate damages in case of violation of the supply of electricity and its quality and other provisions of the concluded agreements.

Article 9(o) of Law No 92/2014 on thermal energy and the promotion of cogeneration states that ANRE has the responsibility to ensure the protection of consumers' rights and legal interests, to examine and resolve, within the limits of its competence, consumer petitions, to examine and resolve, in an extrajudicial procedure, misunderstandings arising between consumers and thermal energy units related to contracting and connection to the thermal network. In addition, the Government adopted the methodology on the distribution of direct/indirect consumption of heat between consumers of a residential block connected to the district heating system, which aims to exclude payment inequalities between connected and disconnected consumers.

The supply of natural gas to final customers is carried out only on the basis of a natural gas supply contract concluded between the supplier and the final consumer, in accordance with Law No 108/2016 on natural gas and the Regulation on the supply of natural gas approved by ANRE Decision No 113/2019.

Every consumer has the right to address a petition to the supplier on issues related to contracting, disconnection, reconnection, billing of natural gas and quality parameters of delivered natural gas.

It should be noted that since the adoption of Law No. 108/2016 on natural gas (Article 114), the retail natural gas market has been declared open and every consumer in the Republic of Moldova has the right to choose the supplier, as well as to change supplier.

2.4.4. Energy poverty

i. Where applicable, national energy poverty targets, including a deadline by which the targets are to be met in accordance with Regulation (EU) No 347/2013, as adapted and adopted by Ministerial Council Decision 2015/09/MC-EnC

The definition of 'energy poverty' is referred to in Law 139/2018 on energy efficiency⁹⁷ and is defined as a situation characterised by the final consumer's lack of access to modern energy sources and technologies and/or the consumers' reduced purchasing power in relation to energy resources, in particular fuels for food preparation, electricity and/or heat, and/or lack of thermal comfort in the home or building.

The list of objectives set out in the 'European Moldova 2030' National Development Strategy⁹⁸ (17 November 2022) includes reducing absolute poverty by at least 50% by 2030.

⁹⁵<https://midr.gov.md/news/strategy-energy-moldova-2050-targets-assurance-independence-energy-country-and-supply-citizens-with-energy-accessible>

⁹⁶https://gov.md/sites/default/files/document/attachments/program_de_guv-final_en.pdf

⁹⁷[LP139/2018 \(legis.md\)](https://legis.md/LP139/2018)

⁹⁸<https://monitor.gov.md/en/monitor/view/pdf/2579/part/1#page=1>

In the Republic of Moldova, the information on the standard of living of the population (income and expenses) is provided by the NBS, based on the Household Budget Survey⁹⁹ (statistical research of households).

According to statistical data¹⁰⁰, in 2022, the average monthly disposable income per person was 4,252.7 lei or 225 US dollars. It should be noted that 100% of households have access to electricity and less than 10% have access to centralised hot water (Figure 5).

The monthly consumption expenditures of the population, on average per person, were 3,711.9 lei or \$196, and the share of consumption expenditures for energy services (housing, water, electricity and natural gas) was about 16.2% of the total expenditures (Figure no. 6). At the same time, around 10% of the population has monthly household expenses that exceed 30% of the household's monthly disposable income.

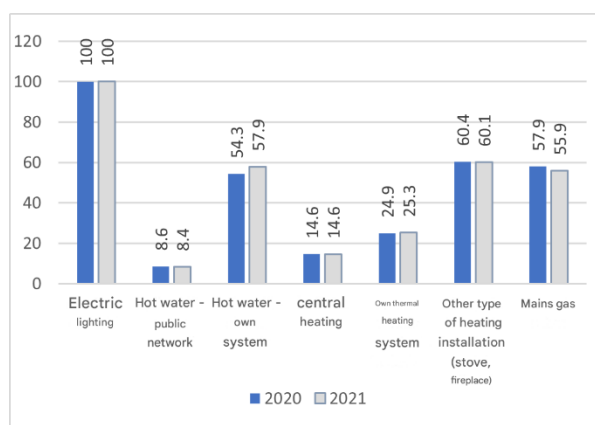


Figure 5. Equipping households in office by household equipment¹⁰¹, in %

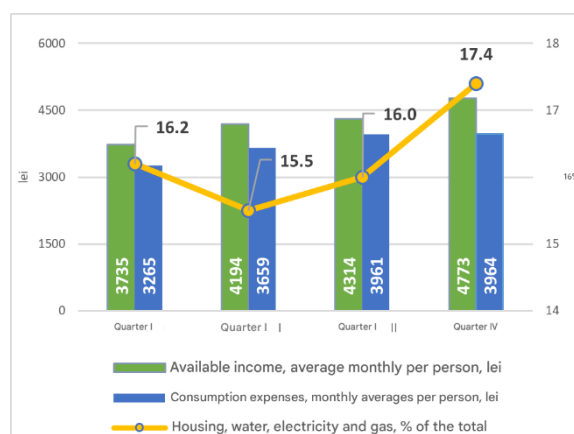


Figure 6. Disposable income and expenses consumption in 2022, in lei

Several published studies address the issue of energy poverty in the Republic of Moldova: Republic of Moldova: Assessment of energy poverty;¹⁰²

Report on the assessment of energy poverty and support mechanisms in the Republic of Moldova;¹⁰³

Energy poverty in the Republic of Moldova: social work compared to technical empowerment¹⁰⁴.

Only electricity and natural gas prices for households (data for other indicators not included) are presented in the EPAH report on national energy poverty indicators¹⁰⁵ published by the Energy Poverty Advisory Centre in 2022 for the Republic of Moldova (Table 23).

Table 23

Comparison of the last 2 years updated for each indicator for the Republic of Moldova, EPAH

On the invoices for utilities			Inability to keep the house adequately heated			Electricity prices for households*			Natural gas prices for households*			The population lives in the presence of leaks, of the wetness, of rot			At risk of poverty Or social exclusion		
2020	2021	↑ or ↓	2020	2021	↑ or ↓	2020	2021	↑ or ↓	2020	2021	↑ or ↓	2020	2021	↑ or ↓	2020	2021	↑ or ↓
N/A	N/A	N/A	N/A	N/A	N/A	0.103	0.087	↓	0.028	0.036	↑	N/A	N/A	N/A	N/A	N/A	N/A

* Electricity and natural gas prices for households are presented in euro/kWh

⁹⁹https://statistica.gov.md/public/files/Metadate/en/CBGC_en.pdf

¹⁰⁰https://statistica.gov.md/en/income-and-expenditure-population-in-year-2022-9442_60379.html

¹⁰¹Equipping households according to housing equipment, years and area. PxWeb (statistica.md)

¹⁰²<https://press.utm.md/index.php/jes/article/view/2023-30-1-07/07-pdf>

¹⁰³<https://www.undp.org/sites/g/files/zskgke326/files/2022-09/Report%20Energy%20Poverty%20EN.pdf>

¹⁰⁴https://www.expert-grup.org/media/k2/attachments/Energy_Poverty_in_Moldova_en.pdf

¹⁰⁵https://energy-poverty.ec.europa.eu/system/files/2023-01/EPAH_Energy%20Poverty%20National%20Indicators%20Report_0.pdf

Statistical data on electricity and natural gas prices for household consumers compared to other countries can be analysed in the figures presented below (according to the same EPAH report).

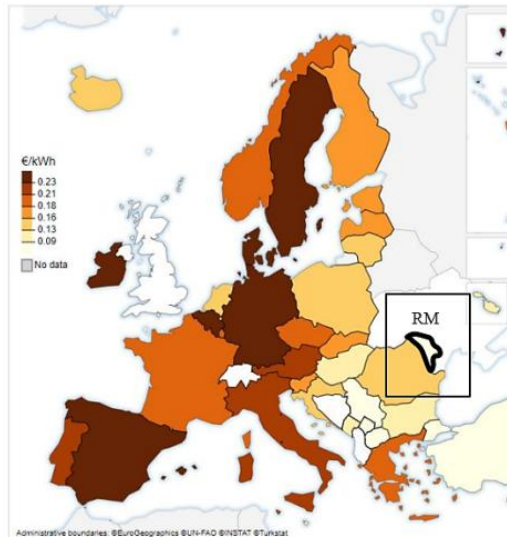


Figure 7. Electricity price map for households in 2021

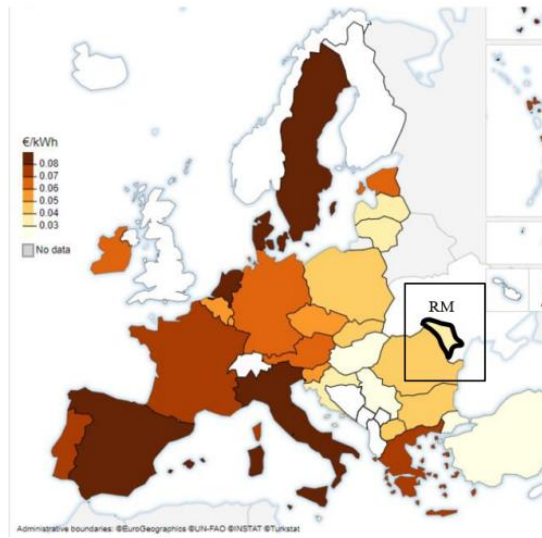


Figure 8. Natural gas price map for households in 2021

2.5. Research, innovation and competitiveness dimension

i. National and funding targets for public and private innovation and research related to the Energy Union; where appropriate, including a deadline by which the objectives should be met;

Through its policies, the Government gives priority to research and innovation areas and considers them as the basis for socio-economic development and creating the premises for increasing the country's competitiveness. The Government also promotes research and innovation that enhances the competitiveness of products, technologies, processes, resulting in obtaining, promoting and acquiring new knowledge through the development and implementation of the National Programme, sectoral strategies, action plans and other projects in the fields of research and innovation, as well as through the application of instruments to stimulate those activities.

National targets are usually set out in the National Research and Innovation Programme (NIP), which is updated every 4 years, including its Action Plan. The national programme in the fields¹⁰⁶ of research and innovation for the years 2024-2027 was approved by Government Decision No 1049/2023 and aims to achieve the development objectives set out in the National Development Strategy, through a joint effort of central authorities and organisations in the fields of research and innovation, with the involvement of the business environment. The priorities and strategic directions of the NIP were established after a wide-ranging consultation exercise of the scientific community and public authorities, as well as after the analysis of the public policy documents in force, tangent with the area addressed: Education 2030 Development Strategy 2023-2025 and the National Programme for Promoting Entrepreneurship and Increasing Competitiveness 2023-2027.

The NIP aims to stabilise the national research and innovation system and its gradual transformation in order to increase the efficiency and impact of research investments, to develop and modernise research infrastructures and to support collaboration between science and business in order to increase the competitiveness of the national economy as well as integration into the European Research Area. In response to global trends, coherence takes place between policy programmes, including through investment in research and innovation, so that research and innovation results

¹⁰⁶https://www.legis.md/search/getResults?doc_id=141296&lang=en

contribute through synergies to solving societal challenges. The main objectives of the current National Research and Innovation Programme for the years 2024-2027 focus on 5 areas, shown in Figure 9.

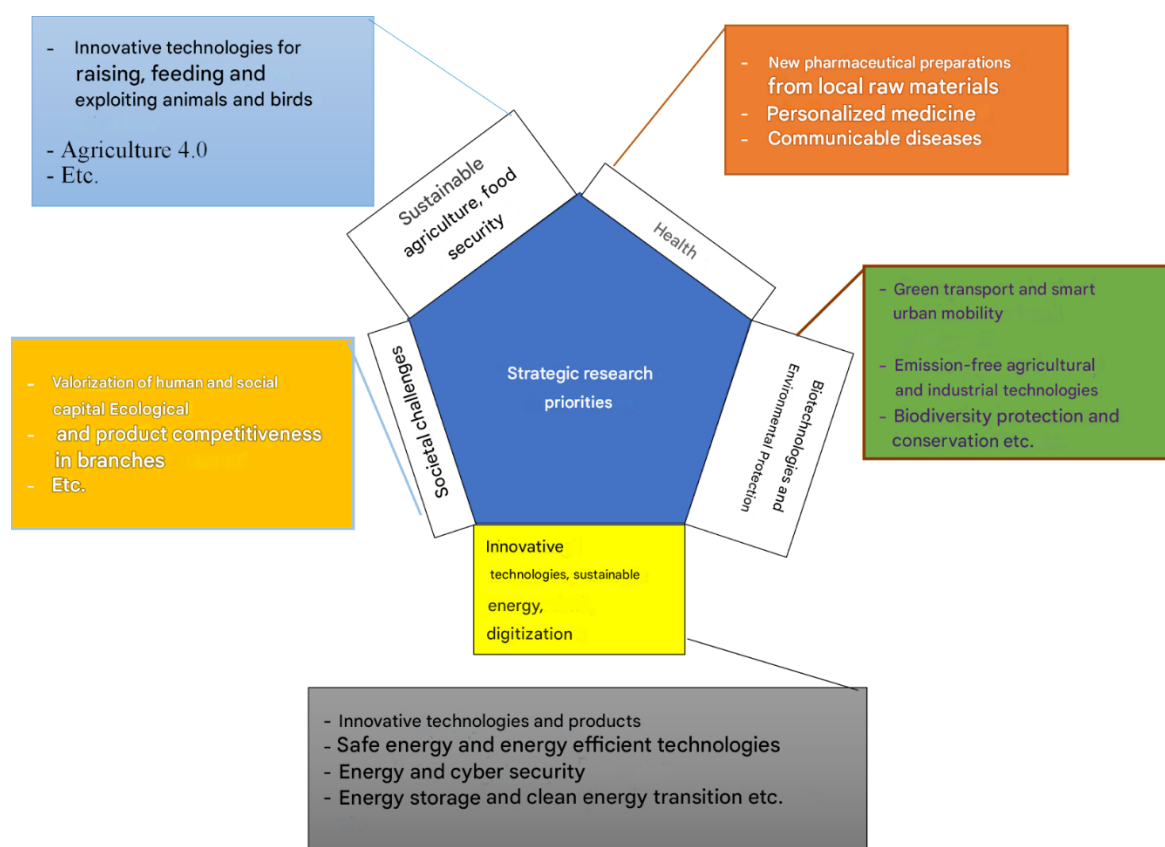


Figure 9 . Strategic research priorities and directions of the Republic of Moldova

The fifth research priority area of the NIP, 'Innovative technologies, sustainable energy and digitalisation', aims to promote highly efficient technologies and contribute to the decarbonisation of the energy sector. Detailed actions to be implemented to stimulate innovation, technology transfer and strengthen links between researchers and businesses are foreseen in the NIP Action Plan. For the period 2024-2027, the budget allocated to the NIP will gradually increase from EUR 43.2 million in 2024 to EUR 57.8 million in 2027, including EUR 20.8 million from the state budget.

The Republic of Moldova is a partner country under the Eastern Partnership (EaP) initiative, as well as the Eastern dimension of the European Neighbourhood Policy (ENP). Since January 2012, the Republic of Moldova has become an associate member of the Seventh Framework Programme (FP7). In July 2014, the Republic of Moldova was the first Eastern Partnership country to join the Horizon 2020 Framework Programme (H2020).

On 27 October 2021, the Republic of Moldova signed the Association Agreement to Horizon Europe, the EU's ninth Framework Programme for Research and Innovation, running from 2021 to 2027. Thus, the Republic of Moldova benefits from the status of associated country under the Horizon Europe Programme, which gives research entities the opportunity to participate in Horizon Europe in full, like any other research entities in the EU Member States.

Research in the Republic of Moldova is mainly financed from the state budget and accounts for about 0.23% of GDP (in 2023 – 0.22% of GDP) or about EUR 25 million. In the Republic of Moldova, both state-owned and private companies are eligible to carry out research, if such an activity is provided for in their statutes. Moldovan scientists are actively participating in EU-funded research programmes. For the H2020 Framework Programme alone, 69 projects were won and

contributions of €7.42 million from the European Commission were accessed¹⁰⁷ (Figure 10). In the current Horizon Europe Framework Programme, for the period from the start of the Programme in 2021 until July 2024, research and innovation organisations from the Republic of Moldova signed 49 project grants worth €5.38¹⁰⁸million.

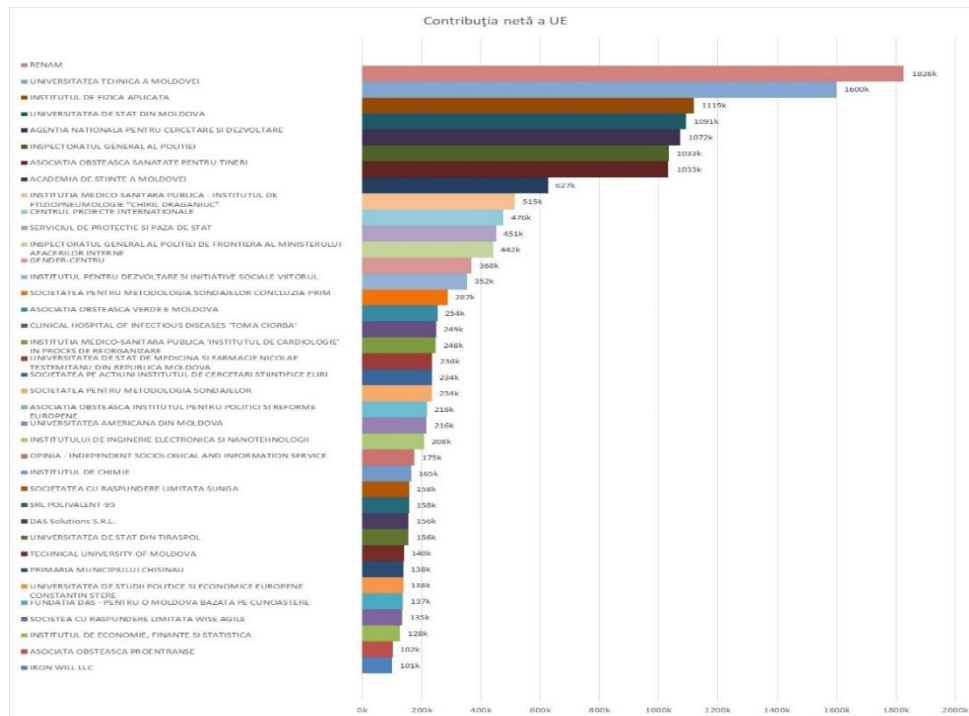


Figure .10. EU contribution to H2020 research projects

The Republic of Moldova also promotes research within bi-/multilateral programs (with Romania, Ukraine, Italy, Turkey, etc.), in order to increase scientific excellence and to effectively solve pressing problems and increase the competitiveness of companies.

According to Law No 315/2022 approving the National Development Strategy 'European Moldova 2030',¹⁰⁹ the research budget is to increase by 0.1% of GDP each year.

ii. Where available, national objectives for 2050 on the promotion of clean energy technologies and, where applicable, national objectives, including long-term objectives (2050) for the deployment of low-carbon technologies, including for the decarbonisation of energy- and carbon-intensive industrial sectors and, where applicable, the related carbon transport and storage infrastructure

The Republic of Moldova has committed to ambitious targets for achieving climate neutrality by 2050. The energy sector is responsible for around 70% of all national GHG emissions. For these reasons, research and innovation in the energy sector is a priority.

To achieve climate neutrality in the energy sector, a share of 45.2% of RES in total energy consumption is planned by 2050, including 84.2% for electricity, 37.5% for heating and cooling and 33.3% for transport.

In order to meet this trend in the energy sector, the Government amended the current Law no. 10/2016 on the promotion of the use of energy from renewable sources in order to increase the attractiveness for investors and the local population.

¹⁰⁷https://dashboard.tech.ec.europa.eu/qs_digit_dashboard_mt/public/sense/app/1213b8cd-3ebe-4730-b0f5-fa4e326df2e2/sheet/0c8af38b-b73c-4da2-ba41-73ea34ab7ac4/state/analysis

¹⁰⁸https://dashboard.tech.ec.europa.eu/qs_digit_dashboard_mt/public/sense/app/1213b8cd-3ebe-4730-b0f5-fa4e326df2e2/sheet/0c8af38b-b73c-4da2-ba41-73ea34ab7ac4/state/analysis

¹⁰⁹https://www.legis.md/search/getResults?doc_id=134582&lang=en

Research and innovation are the main drivers of scientific support for the deployment of green energy technologies and specific instruments are needed to support and promote research in the energy sector. In this regard, the Republic of Moldova has adopted the Smart Specialization Programme until 2030, which will strengthen the links between the research environment and the business environment, as well as increase the relevance of scientific research to the needs of the business sector. The program is developed by the Ministry of Education and Research.

The main objectives of the Smart Specialisation Programme related to the energy sector are the following:

- facilitating the increase of energy self-sufficiency at local level through the use of renewable energy resources;
- strengthening the district heating supply systems in the cities in order to increase the overall efficiency of generating and supplying heat and domestic hot water;
- promoting projects to increase the efficiency of the consumption of energy resources and to harness renewable energy sources in the public and residential sectors, with the development of financing instruments accessible to the subjects of those sectors, where appropriate, with a focus on vulnerable consumers;
- the development of "green" energy. Stimulate interest in 'green' energy production and consumption by harnessing renewable energy sources, including the use of efficient and clean biomass combustion technologies, as well as facilitating the connection of production facilities to existing distribution capacities.

The national development strategy 'European Moldova 2030' contains commitments to install 510 MW of RES in 2030, to accelerate investment in RES-generated electricity storage capacities, to promote green businesses, etc. All these efforts need strong support from research and innovation. In addition, the Low Emission Development Programme by 2030¹¹⁰, adopted by Government Decision No 659/2023, includes commitments to install 400 MW of wind and 200 MW of solar energy by 2030.

iii. Where applicable, national competitiveness objectives

According to the provisions of the Law no. 182/2010 on industrial parks, since 2011, ten industrial parks (IP) have been established in the Republic of Moldova:

- PI "Tracom" and PI "FAIP" (Chisinau municipality);
- PI "Răut" (Municipality of Balti);
- PI 'Cimişlia' (Cimişlia town);
- PI "Edinet" (City of Edinet);
- PI "Comrat" (City of Comrat);
- PI 'CAAN' and PI 'Triveneta Cavi Development' (City of Straseni);
- PI 'Bioenergagro' (Drochia town)
- PI "Cahul" (Cahul city).

Industrial parks have technical and production infrastructures in which economic activities are carried out, mainly industrial production, provision of services, exploitation of scientific research and/or development of technologies in a regime of specific facilities, in order to capitalize on the human and material potential of a region. These entities comprise more than 60 enterprises that have created almost 4 300 jobs, and in nine years of activity the investments made in infrastructure development amount to almost MDL 2.4 billion, the value of taxes and fees paid by resident enterprises being over MDL 1.8 billion.

Industrial platforms that offer attractive conditions for investors, such as industrial parks or free economic zones, have recently ensured the industrial development of the regions in which they are located.

¹¹⁰ https://www.legis.md/search/getResults?doc_id=139980&lang=en

At the same time, it is noted that the uneven diversification of these industrial platforms contributes to increasing inequalities in relation to territorial-administrative units where such entities do not exist.

In this context, in order to increase competitiveness, productivity and employment in the industrial sector, in 2020 the Government decided to create Multifunctional Industrial Platforms (MIPs) in regions without IP platforms or Free Economic Zones (FEZs). The pilot programme for the creation of Multifunctional Industrial Platforms was adopted by Government Decision No 748/2020. It provides for the creation of 18 MIPs in different districts of the country. Fully equipped in terms of access to utilities, the locations designated for the establishment of the MIP will become true centers of excellence for industrial development at local level. Unlike the IP or FEZ, the operating model of the MIP is based on providing easier access for investors rather than providing tax incentives; This is intended to boost the efficiency of the implementation of industrial projects in a short timeframe.

The Organization for the Development of Entrepreneurship (ODA) was created to promote competitiveness and has a number of competences in this field, including:

- effective implementation of state programs and projects in the fields of activity;
- providing business support in ODA's fields of activity;
- administration of credit guarantee schemes established by public authorities;
- issuing, by proxy, State guarantees in the name and on behalf of the State in favour of creditors under State programmes;
- the administration of the financial means allocated for the implementation of state programmes and assistance projects and the financing of administrative expenditures in accordance with the normative acts, the approved budget and the financial and technical assistance agreements;
- evaluation/impact analysis, monitoring and verification of the quality of implementation of state programmes and assistance projects;
- providing support to the founder in developing proposals for draft normative acts in the fields of activity of ODA;
- preparation and presentation of progress reports on the implementation of state programmes and assistance projects, as well as the use of financial means intended for the implementation of state programmes and assistance projects.

The Republic of Moldova adopted the National Strategy for Economic Development 2030, approved by Government Decision no. 393/2024, which provides, as priority directions, the development of a sustainable economy in terms of climate resilience and energy security, as well as the development of the circular economy.

Technology transfer projects

The technological transfer of scientific results from the research environment to the business environment is the main method of stimulating economic growth applied worldwide. Also, the Republic of Moldova has implemented technology transfer mechanisms through dedicated competitions, launched by ANCD and implemented by the partnerships of research units with economic agents.

The duration of the project is 12 months, and the funding provided by the state budget for the public research unit is 50%, the other 50% being provided by the economic agent, but not more than 1.0 million lei. This tool is very attractive for increasing competitiveness. The scope of technology transfer projects is similar to that of the National Research and Development Programme.

3. POLICY AND MEASURES

3.1. Decarbonisation dimension

3.1.1. GHG emissions and removals (for the plan covering 2021-2030, 2030 framework target)

i. Policies and measures to achieve the national economy-wide target covering all major emitting sectors and sectors for enhancing removals, with a view to the long-term vision and objective of becoming a low-emission economy and achieving a balance between emissions and removals in line with the Paris Agreement

The NECP includes policy measures related to decarbonisation in energy and non-energy GHG emissions. Existing and planned energy policy measures, which account for around 70% of GHG emissions in the Republic of Moldova, will make a major contribution to the decarbonisation process. Some existing decarbonisation measures will be extended until 2030 and new ones will be launched to support the development of the RES sector and other dimensions of the Energy Union, including energy efficiency, the internal energy market and energy security.

In order to align with the EU's climate change agenda and in line with the directives set by the European Commission, the Republic of Moldova is setting up carbon pricing structures similar to the EU ETS. The EU has also recently adopted new regulations for the Carbon Border Adjustment Mechanism (CBAM), which aim to address the problem of 'carbon leakage', i.e. the risk of EU industrial processes moving to countries with less stringent environmental and carbon reduction policies, by establishing a duty structure for imports into the EU.

The Republic of Moldova intends to implement the above-mentioned decisions through the Law on Climate Action No. 74/2024, which will enter into force within a period of 18 months from the moment of its publication in the Official Gazette of the Republic of Moldova. The Republic of Moldova needs to strengthen its administrative and technical capacity at all levels and further increase investment for the green energy transition.

On 6 September 2023, the Republic of Moldova adopted the 'Republic of Moldova Low Emission Development Programme to 2030'¹¹¹, which aims to implement GHG reduction actions in the 7 sectors of interest: energy, transport, buildings, industry, agriculture, land use, land use change and forestry (LULUCF) and waste management. These actions consist of implementing the principles of the green economy, which contribute to the efficient use of resources and energy, the application of less polluting technologies in the economic sector, with low carbon emissions and pollution, and the minimisation of environmental risks.

The programme has sector-specific objectives as follows:

- energy sector, reducing GHG emissions by 81%/87% in 2030 compared to 1990;
- transport sector, reducing GHG emissions by 52%/55% in 2030 compared to 1990;
- the building sector, reducing GHG emissions by 74%/77% in 2030 compared to 1990;
- industrial sector, reducing GHG emissions by 27%/31% in 2030 compared to 1990;
- the agricultural sector, reducing GHG emissions by 44%/47% in 2030 compared to 1990;
- LULUCF, increase in GHG absorption by 10%/391% in 2030 compared to 1990;
- waste management sector, reduction of GHG emissions by 14%/18% in 2030 compared to 1990.

Regulatory measures

In addition to the proposed policy measures in relation to energy-related and non-energy-related GHG emission reduction targets, policy measures are also proposed to improve the existing regulatory framework and raise public awareness of the environmental impact of energy consumption, with the aim of motivating, incentivising and informing the public to change their behaviour and continue to engage.

Measure code policy	PM_DC1	Name	Carbon Border Adjustment Mechanism (CBAM)
General objective		Preventing carbon leakage and boosting the global transition to a low-carbon economy	
Quantified target		Reduce GHG emissions by 70% (with LULUCF) in 2030 compared to 1990 levels	
Description		The CBAM is the transitional mechanism, given that the Republic of Moldova will be subject to it in the near future and because the country is currently working on an ETS	

¹¹¹https://www.legis.md/search/getResults?doc_id=139980&lang=en

	<p>system through ongoing discussions with the EnC. Under the CBAM, the Republic of Moldova may start receiving requests for information on emissions from EU importers as of October 2023, with the first emissions reports in 2023 to be submitted by 31 January 2024. CBAM certificates and the impact on trade prices will enter into force in 2026. The Republic of Moldova could offset the impact of the CBAM by establishing a carbon price, which can be deducted from its CBAM obligations. In order to enable all aspects of carbon pricing and reporting under the CBAM or a future carbon pricing mechanism, the Republic of Moldova should establish accurate, timely and verifiable emissions reporting and accounting systems from installations and operators covered by the CBAM or future carbon pricing mechanisms, and these systems should be fully aligned with the EU ETS CBAM, initially covering the carbon intensive sectors considered most at risk of carbon leakage, including cement/limestone, electricity, iron and steel, aluminium, fertilisers and hydrogen. Similar to the existing intentions to extend the list of sectors under the EU ETS, the scope of the CBAM may be extended to cover more sectors, with the option to include organic polymers and chemicals in the future. Implications are expected for companies exporting goods covered by the CBAM to the EU, as they will have to track and report the carbon intensity of their products, while import partners will likely have to offset part of their CBAM obligations against the price paid for goods from non-EU trading partners, due to the cost of allowances. The European Commission has proposed a transition period from October 2023 to December 2025. This is intended to facilitate a smooth implementation and allow for an open dialogue between reporting companies and EU officials. At the end of the transition period, the European Commission will reassess whether the scope will be extended. After January 2026, importers will have to comply and start paying the carbon price in order to be able to import into the EU. The EU's hope is that European trading partners will use the transition period to help their firms comply or set up their own climate policies, thus avoiding border adjustment and speeding up the fight against climate change.</p>
Deadline for implementation	2026-2030, including preparation period
Type of measure	Reform
Covered/affected sectors	Energy and Industry
Implementing entity	Ministry of Environment Environment Agency Ministry of Energy Donors
Monitoring entity	Ministry of Environment
Progress indicators	Ensure electricity market coupling to get the CBAM exemption for electricity. Framework for the measurement, reporting and verification (MRV) of greenhouse gas emissions from industrial processes, in line with the established EU requirements. Training companies and national authorities to use standardised methodologies
Other relevant dimensions of the Energy Union affected	
Energy Union policies that have resulted in implementation of policies and measures	Fit for 55 package
Relevant national planning document (Legislative acts, normative acts, etc.)	Act No 74/2024 on Climate Action ¹¹²
Implementation cost	EUR 10.1 million ¹¹³
Source(s) of funding	Sources of the private sector

Measure code policy	PM_DC2	Name	Implementation of a trading system emission allowances
General objective			Developing an emissions trading system compatible with EU standards
Quantified target			Reduce GHG emissions by 70% (with LULUCF) in 2030 compared to 1990 levels

¹¹²https://www.parlament.md/Legislative_process/normative_drafts/tabid/61/LegislativeId/6899/language/en-RO/Default.aspx

¹¹³The carbon price for the period 2026-2030 was considered 110,0 euro/tonne CO₂

Description	<p>By 2030, the Carbon Border Adjustment Mechanism (CBAM) will enter into force, making energy costs equivalent across the European market. The Republic of Moldova must strive to integrate into the EU market by that date and work closely with the EnC to establish an ETS at least for the energy sector to limit the impact of CBAM. The Republic of Moldova is in the process of drafting the Climate Action Law, which will serve as the legal basis for all climate-related activities in the country, including to achieve climate neutrality by 2050¹¹⁴.</p> <p>The Republic of Moldova is preparing for the ETS, in line with its obligations under the EU-Republic of Moldova Association Agreement and the EnC Treaty. The sectors covered by the ETS include energy production (electricity and heat generation), energy-intensive industries (including oil refineries, steelworks and the production of iron, aluminium, metals, cement, lime, glass, ceramics, pulp, paper, cardboard, acids and bulk organic chemicals) and aviation. Smaller emitters may opt out if they produce less than 2,500 tonnes of CO₂e. per year, although they are required to report emissions annually through a simplified process. In the case of the Republic of Moldova, a national ETS is currently under consideration through ongoing consultations within the EnC. The country will need to actively participate in the preparation of ETS decisions, including the process of setting caps, allocating allowances and allocating free allowances.</p> <p>Only eight sectors in the Republic of Moldova would be covered by an ETS comparable to that of the EU. In total, there is a potential of 21 installations and 5 aircraft operators to be covered by emission reporting requirements and a potential ETS.</p> <p>The assessments provided in 2023¹¹⁵ estimated that approximately 4.3-5.9 Mt CO₂e. would fall within the scope of an ETS comparable to the EU system, covering the energy, metallurgical and cement industries and, to a lesser extent, the glass and bricks industries. Using data for 2022, in a scenario where the price of EU allowances increases over the next three years and there are no free allowances, and they start to reduce their emissions by 2.2% each year starting in 2023, the cost of allowances for Moldovan companies participating in the EU ETS would be around EUR 400-480 million per year.</p> <p>The ETS trading procedure will be applied when the country joins the EU.</p> <p>At the same time, the Republic of Moldova will develop internal mechanisms for emissions reductions trading based on Article 6 of the Paris Agreement and the proposals of the Energy Community.</p>
Deadline for implementation	2024-2030 (preparation of legislation only)
Type of measure	Reform
Covered/affected sectors	All areas of NECP
Implementing entity	Ministry of Environment Environment Agency Ministry of Energy Donors
Monitoring entity	Ministry of Environment Environment Agency
Progress indicators	Implementation of a carbon trading system
Other relevant dimensions of the Energy Union affected	
Energy Union policies that have resulted in implementation of policies and measures	<p>ETS Directive – Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community.</p> <p>RRF – Commission Implementing Regulation (EU) 2018/2066 on the monitoring and reporting of greenhouse gas emissions, amended by Commission Implementing Regulation (EU) 2020/2085.</p> <p>Accreditation and Verification Regulation (AVR) – Regulation (EU) 2018/2067 on the verification of data and the accreditation of verifiers, as amended by Commission Implementing Regulation (EU) 2020/2084.</p> <p>Accreditation Regulation – Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products.</p>

¹¹⁴UNDP, 'A Climate Framework Law will help Moldova reduce greenhouse gas emissions more efficiently', 18 August 2022. <https://www.undp.org/moldova/news/climate-framework-law-will-help-moldova-reduce-more-effectively-greenhouse-gas-emissions>

¹¹⁵Rodrigo Chaparro, John Heermans, Marius Taranu, Case study "Carbon Pricing and the Carbon Border Adjustment Mechanism: Implications and Impacts in Moldova". 25 September 2023, Energy Security Activity in Moldova (MESA), a USAID-funded project implemented by Tetra Tech ES, Inc. Contract number: 7200AA19D00029. <https://mediu.gov.md/en/node/4780>

	Governance Regulation - Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action
Relevant national planning document (Legislative acts, normative acts, etc.)	Act No 74/2024 on Climate Action ¹¹⁶ Law 227/2022 on industrial emissions Law No. 235/2011 on accreditation and conformity assessment activities Government Decision no. 1277/2018 on the establishment and functioning of the National System for Monitoring and Reporting (NSMR) of greenhouse gas emissions and other information relevant to climate change Government Decision No 444/2020 on the establishment of the mechanism for coordinating activities in the field of climate change (establishing the National Commission for Climate Change). Government Decision No 373/2018 on the National Pollutant Release and Transfer Register Government Decision No 259/2024 on the establishment and functioning of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSA). ¹¹⁷ Draft Government Decision on the monitoring, reporting and verification of GHG emissions from stationary installations and aviation operators Project of the Energy Strategy of the Republic of Moldova until 2050
Implementation cost	€0.5 million (only preparation and adoption of necessary documents)
Source(s) of funding	State budget, sources of external donors

Measure code policy	PM_DC3	Name	Coordination mechanism climate change
General objective	Ensure the institutional framework for coordination in the area of monitoring, reporting and verification and facilitate the integration of climate change considerations into national and sectoral programmes and plans		
Quantified target	Number of documents implemented under the coordination of the Commission		
Description	<p>The Climate Change Coordination Mechanism is an implementing entity (National Commission) created in accordance with Government Decision No 444/2020 on the establishment of the Climate Change Coordination Mechanism as of 1 July 2020. The National Commission shall have the following tasks:</p> <ol style="list-style-type: none"> 1) promotes and coordinates the instruments of implementation of the climate change policy in the Republic of Moldova; 2) coordinate the integration of climate change mitigation and adaptation aspects into national and sectoral policy documents; 3) examine and approve reports on the implementation of climate change strategies; 4) examines and endorses methodologies, operational manuals, guidelines and project eligibility criteria on climate change adaptation and mitigation; 5) monitors the implementation of projects and programmes in the field of climate change at national and sectoral level in the context of the sustainable development of the country; 6) monitor the implementation of national and sectoral climate change adaptation plans; 7) examine projects and programmes in the field of climate change and recommend their financing by development partners and international funds in the field, in accordance with national and sectoral priorities for sustainable development; 8) facilitates the process of international collaboration in the field of climate change; 9) coordinates the reports related to the implementation of the provisions of the international treaties in the field of reference to which the Republic of Moldova is a party; 10) create Technical Committees of experts in the field, which assist the Commission in the exercise of its tasks, within the limits of its competence; 11) develop, in order to prevent and overcome adverse effects related to climate change, proposals and recommendations to be included in strategies and programmes in the area concerned; 12) assess the results of the implementation of the recommendations of the National Commission and make proposals to improve government policies in the field of climate change in accordance with the commitments undertaken under the Association Agreement between the Republic of Moldova and the EU; 13) inform the public about the work of the National Commission. <p>All the above-mentioned activities of the National Commission will indirectly contribute to the reduction of GHG emissions</p>		

¹¹⁶https://www.parlament.md/Legislative_process/normative_drafts/tabid/61/LegislativeId/6899/language/en-RO/Default.aspx

¹¹⁷https://gov.md/sites/default/files/document/attachments/nu-922-midr-2023_1.pdf

Deadline for implementation	2024-2030
Type of measure	Coordination mechanism
Covered/affected sectors	All areas of NECP
Implementing entity	Government Climate Coordination Commission
Monitoring entity	Ministry of Environment
Progress indicators	Adoption of primary and secondary legislation
Other relevant dimensions of the Energy Union affected	
Energy Union policies that have resulted in implementation of policies and measures	Governance Regulation - Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action
Relevant national planning document (Legislative acts, normative acts, etc.)	Government Decision No 444/2020 on the establishment of the mechanism for coordinating activities in the field of climate change (establishing the National Commission for Climate Change).
Implementation cost	0,5 million euro (staff expenditure only)
Source(s) of funding	State budget, sources of external donors

Measure code policy	PM_DC4	Name	Development of Joint Credit Facility (JCM) projects promoted by Japan
General objective			Reducing carbon emissions
Quantified target			Reduce GHG emissions by 70% (with LULUCF) in 2030 compared to 1990 levels
Description			Following the signature of the JCM Memorandum with Japan on 6 September 2022, JCM projects will be developed and promoted that will generate emission reductions, which will be monitored, reported and verified and will become 'registration credits' and will be shared between the two states to fulfil the commitments of the CND. Measure PM_DC4 aims at facilitating the diffusion of, inter alia, state-of-the-art decarbonisation technologies, products, systems, services and infrastructure, as well as the implementation of mitigation actions, thereby contributing to the reduction or elimination of greenhouse gas emissions and sustainable development in the Republic of Moldova. Japanese companies have already begun, in 2024, to identify possible areas for the deployment of highly efficient technologies to reduce emissions. The first project selected was construction.
Deadline for implementation			2025-2030
Type of measure			Investment
Covered/affected sectors			All areas of NECP
Implementing entity			Ministry of Environment Ministry of Energy Donors
Monitoring entity			Ministry of Environment
Progress indicators			Annual emission reduction (kt CO ₂ e)
Other relevant dimensions of the Energy Union affected			
Energy Union policies that have resulted in implementation of policies and measures			Governance Regulation - Regulation (EU) 2018/1999 on the Governance of the Energy Union and Climate Action
Relevant national planning document (Legislative acts, normative acts, etc.)			Act No 74/2024 on Climate Action ¹¹⁸ Government Decision No 659/2023 approving the Low Emission Development Programme up to 2030
Implementation cost			10 million euros
Source(s) of funding			Sources of external donors, sources of the private sector

¹¹⁸[https://www.parlament.md/Legislative process/normative drafts/tabid/61/LegislativeId/6899/language/en-RO/Default.aspx](https://www.parlament.md/Legislative%20process/normative%20drafts/tabid/61/LegislativeId/6899/language/en-RO/Default.aspx)

Measure code policy	PM_DC5	Name	Introduction of the carbon tax
General objective	Reducing carbon emissions		
Quantified target	Reduce GHG emissions by 70% (with LULUCF) in 2030 compared to 1990 levels Achieving climate neutrality by 2050		
Description	<p>PM_DC6 will facilitate the introduction of a CO2 tax to accelerate the phase-out of conventional fuels and at the same time incentivise investments in renewables and increase the penetration of energy efficiency measures.</p> <p>The Energy Security Activity in the Republic of Moldova (MESA) developed in 2023 the case study “Impact and Implications of the Carbon Taxation and Carbon Border Adjustment Mechanism in the Republic of Moldova”.¹¹⁹</p> <p>The case study assessed the implications for electricity and heat production, manufacturing, metallurgy and aviation in the Republic of Moldova upon accession to the EU ETS, as well as identified the impact of CBAM on the affected sectors in the Republic of Moldova.</p> <p>The potential impact of CBAM certificates on the total costs of affected products has been estimated for the Republic of Moldova by applying the emission factor of each product produced and using the price of EU allowances in December of each year, as well as data on exports from the Republic of Moldova for each year. The results showed that the cement industry will be the most affected in terms of price, as the value of allowances could reach around 95% of the value of exports, while in the case of the iron and steel industry, the impact of the carbon price will not exceed 2.0%. In the period 2030-2034, the annual CBAM cement tax will vary for Moldovan companies between 1.3 and 3.1 million lei, while in the case of iron and steel, correspondingly, between 2.4 and 5.6 million lei.</p> <p>The document also assesses the introduction of a carbon tax. In the case of the Republic of Moldova, carbon pricing is an important issue to internalise carbon revenues first, as well as to reduce the obligations and impact of the CBAM mechanism. While an ETS is considered and an alignment and interconnection with the EU ETS is expected in the longer term, intermediate carbon pricing through taxes is an important option that the Republic of Moldova needs to consider as a way to reduce the short-term impact of the CBAM, which will start applying for the purchase of allowances in 2026.</p>		
Deadline for implementation	2024-2030, including preparation period		
Type of measure	Reform		
Covered/affected sectors	All sectors		
Implementing entity	Ministry of Finance Ministry of Environment; Ministry of Energy Private investors.		
Monitoring entity	Ministry of Environment Ministry of Energy		
Progress indicators	Carbon tax introduced		
Other relevant dimensions of the Energy Union affected	Renewable energy		
Energy Union policies that have resulted in implementation of policies and measures	Directive (EU) 2018/844		
Relevant national planning document (Legislative acts, normative acts, etc.)	Act No 74/2024 on Climate Action (regulates carbon pricing) Law 227/2022 on industrial emissions Law No 282/2023 on the energy performance of buildings Law no. 139/2018 on energy efficiency		
Implementation cost	EUR 0.5 million (adoption of the necessary documents) The implementation cost can be cumulated with PM_DC2.		
Source(s) of funding	State budget, sources of external donors		

Energy sector

¹¹⁹ Rodrigo Chaparro, John Heermans, Marius Taranu, Case study “Carbon Pricing and the Carbon Border Adjustment Mechanism: Implications and Impacts in Moldova”. 25 September 2023, Energy Security Activity in Moldova (MESA), a USAID-funded project implemented by Tetra Tech ES, Inc. Contract number: 7200AA19D00029. <https://mediu.gov.md/en/node/4780>.

GHG emissions in the energy sector (electricity and heat generation, oil processing) are determined by the amount of energy used in processes and the unit emission factor of energy sources. GHG emissions can be reduced by reducing the amount of energy consumed, increasing the use of renewable energy sources and replacing fossil fuels.

Most policy measures with an impact on decarbonisation for the energy sector are included, inter alia, in the dimension of renewable energy sources, energy efficiency, the internal energy market and energy security, as changes in these dimensions lead to an overall reduction of GHG emissions. Some specific policy measures are outlined below.

Measure code policy	PM_DC6	Name	Installation of battery energy storage systems to ensure automatic frequency control
General objective	Reducing carbon emissions by 280 kt CO ₂ e in 2030 ¹²⁰		
Quantified target	77 MW installed		
Description	Large Capacity Battery Energy Storage (BESS) facilities and additional equipment will improve the reliability of the country's electricity grids and contribute to the efficient management of energy reserves and demand fluctuations, the integration of renewable energy and capacity expansion as final consumers' energy needs evolve		
Deadline for implementation	2024-2030		
Type of measure	Investment		
Covered/affected sectors	Energy sector		
Implementing entity	Ministry of Energy CET North		
Monitoring entity	Ministry of Energy ANRE		
Progress indicators	77 MW installed by 2030		
Other relevant dimensions of the Energy Union affected			
Energy Union policies that have resulted in implementation of policies and measures			
Relevant national planning document (Legislative acts, normative acts, etc.)	Energy Strategy to 2050 (draft)		
Implementation cost	80 million euros ¹²¹		
Source(s) of funding	Sources of external donors,		

Measure code policy	PM_DC7	Name	Construction of new biogas TECs
General objective:	Reducing carbon emissions by 5.5 kt CO ₂ e in 2030		
Quantified objective:	10 MW installed in 2030		
Description:	The potential of energy from biogas is not yet fully exploited According to the study conducted by the International Renewable Energy Agency, the Republic of Moldova has a biogas potential above the global average. Thus, for each hectare of plantations, it has a carbon sink of 5.5 tons/ha/year. The government allocated, by the end of 2025, through the 'fixed tariff' support scheme, a total capacity of 65 MW for investors in sources of electricity generation from biogas. However, the trend of their installation is almost zero. Considering the benefits that this sector can generate, other solutions to support this sector will be identified that will encourage the development of biogas power plants		
Deadline for implementation	2024-2030		
Type of measure	Investment		
Covered/affected sectors	Energy sector		

¹²⁰<https://powerstar.com/reduce-your-carbon-emissions-using-battery-energy-storage/>

¹²¹<https://energy.gov.md/en/content/sua-offer-85-million-dollar-for-strengthening-energy-sector-of-republic>

	Agricultural sector Public sector
Implementing entity	Ministry of Energy National Center for Sustainable Energy
Monitoring entity	Ministry of Energy
Progress indicators	Annual emission reduction (kt CO ₂ e)
Other relevant dimensions of the Energy Union affected	
Energy Union policies that have resulted in implementation of policies and measures	Directive on the promotion of the use of energy from renewable sources 2018/2001/EU
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no.10/2016 on the promotion of the use of energy from renewable sources Government Decision No 401/2021 approving capacity limits, maximum shares and capacity categories in the field of renewable electricity valid until 31 December 2025
Implementation cost	EUR 7.0 million
Source(s) of funding	Sources of the private sector

Measure code policy	PM_DC8	Name	Construction of functioning TECs waste-based
General objective	Reducing carbon emissions		
Quantified target	20 MW installed in 2030		
Description	The https://energie.gov.md/sites/default/files/usaidd_mesa_pmcg_deliverable_11_waste_characterization_study_final_report_en.pdf , conducted with the support of USAID, analyzes two integrated municipal waste management systems for Chisinau and Balti municipalities, including neighboring areas, identifying several technologies for electricity or heat generation, taking into account technical, economic and environmental impact factors. According to the results of this study, the waste management regions of Chisinau and Balti have a potential to generate energy from waste using incineration or biogas production of at least 23 MW-electric		
Deadline for implementation	2030		
Type of measure	Investment		
Covered/affected sectors	Energy sector		
Implementing entity	Ministry of Energy Ministry of Environment APL Private investors		
Monitoring entity	Ministry of Energy Ministry of Environment APL		
Progress indicators	20 MW installed in 2030		
Other relevant dimensions of the Energy Union affected			
Energy Union policies that have resulted in implementation of policies and measures	Directive 2008/98/EC on waste Annex VI to Directive 2010/75/EU		
Relevant national planning document (Legislative acts, normative acts, etc.)	Law 209/2016 on waste Law no. 1515/1993 on the protection of the environment Government Decision No 205/2023 approving the Regulation on the incineration and co-incineration of waste Government Decision No 401/2021 approving capacity limits, maximum shares and capacity categories in the field of renewable electricity valid until 31 December 2025		
Implementation cost	182 million euros		
Source(s) of funding	Sources of external donors, sources of the private sector		

Industrial sector

As regards industrial pollution and risk management, alignment with most of the Energy Community *acquis* regulated in the Republic of Moldova by Law No 227/20222 on industrial emissions, which transposes¹²² the provisions of Directive 2010/75/EU and aims to establish the regulatory framework on the prevention of pollution caused by industrial and economic activities, with a view to reducing emissions to air, water and soil, including waste generation, as well as environmental control, promotion and application of best available techniques to achieve a high level of environmental protection. Large combustion plants (heating plants with a capacity of more than 50 MW) are subject to this law and must ensure the controlled discharge of waste gases in order to comply with the emission limit values. Only 2 power plants belong to this category: CET-1 and CET-2, both owned by JSC "Termoelectrica" and usually their emission limit values are in line with the provisions of the Large Combustion Plants Directive. According to the Emission Data Report, the CET-2 CHP plant showed a major increase in the use of liquid fuel in 2022, which is linked to the replacement of gas by heavy fuel oil. As a result, the installation's average emissions were not in line with the emission limit values set out in the LCP Directive. This was an effect of the 2022 energy crisis, therefore additional measures need to be implemented. The average emissions of the CET-1 CHP plant remained compliant. The law on industrial emissions adopted in July 2022, by which the Republic of Moldova transposed the requirements of the two directives regulating emissions of large combustion plants in the Energy Community, will enter into force in 2024. In order to fully comply with this Directive, the Republic of Moldova intends to build new high-efficiency TECs as a measure included in this NECP on energy efficiency.

The Republic of Moldova shall develop a green industry, create regional centers of resource efficiency and competitive industrial production, develop a competitive industry, stimulate the development of industrial enterprises with a high potential for innovation and growth, implicitly in the electronic, pharmaceutical and creative industries.¹²³

In addition, for buildings in the industrial and service sectors, demand for cooling during the summer must be reduced (thermal renovation and efficiency standards for new buildings). Support will be possible under the existing funding policy to phase out the use of F-gases with high global warming potential (GWP) (e.g. refrigeration and air conditioning units) at an earlier stage. It will also be ensured (e.g. through contact with trade associations in the refrigeration and air conditioning industry, as well as by providing information on new refrigerants) that Moldovan enterprises or persons working in such enterprises have the necessary knowledge about alternative refrigerants and the necessary skills to work with them.

Measure code policy	PM_DC9	Name	Development of the secondary regulatory framework for the implementation of Law No 227/2022 on industrial emissions ¹²⁴
General objective	Reducing pollution and GHG emissions		
Quantified target	Number of companies that have reduced their pollution levels		
Description	The elaboration of normative acts to establish emission limit values for polluting substances in air, water and soil, as well as their measurement methods, taking into account the admissible limit values established in national legislation and international treaties and monitoring the impact of companies in the industrial sector is crucial for the prevention and reduction of pollution and GHG emissions. Companies are also required to redesign production processes to reduce the amount of waste produced by using raw materials as efficiently as possible; reduce the use of toxic, flammable substances and replace them with alternative inert materials to ensure that finished production is as sustainable as possible; to produce, use and put into circulation recoverable, reusable, recyclable and easily degradable packaging. PM_DC9 will accelerate the development of the green industry		
Deadline for implementation	2024-2030		

¹²²https://www.legis.md/search/getResults?doc_id=133705&lang=en

¹²³https://www.legis.md/search/getResults?doc_id=134582&lang=en

¹²⁴https://www.legis.md/search/getResults?doc_id=133705&lang=en

Type of measure	Reform
Covered/affected sectors	All sectors
Implementing entity	Ministry of Environment Ministry of Energy
Monitoring entity	Ministry of Environment
Progress indicators	Number of documents adopted
Other relevant dimensions of the Energy Union affected	
Energy Union policies that have resulted in implementation of policies and measures	Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010
Relevant national planning document (Legislative acts, normative acts, etc.)	Law 227/2022 on industrial emissions
Implementation cost	EUR 0.5 million (cost of drafting documents)
Source(s) of funding	State budget, sources of external donors

Measure code policy	PM_DC10	Name	Implementation of the management system of energy according to Moldovan standard SM EN ISO 50001: 2019
General objective	To manage use, identify energy-saving opportunities, conserve consumption and reduce carbon emissions		
Quantified target	The contribution of energy efficiency to reducing final energy consumption		
Description	The energy management system, introduced by the standard SM EN ISO 50001:2019, approved as a national standard in 2012, includes the collection, processing and analysis of data on the consumption of all forms of energy and of different energy carriers per points of consumption (electricity, heat, cooling, compressed air, natural gas, other fuels, etc.) and informing top management about the data collected and proposing measures to eliminate energy waste, implementing the measures adopted, including monitoring the results obtained. PM_DC10 will accelerate the reduction of energy consumption in the industrial sector and the implementation of the circular economy		
Deadline for implementation	2024-2030		
Type of measure	Investment		
Covered/affected sectors	All sectors		
Implementing entity	Ministry of Economic Development and Digitalisation Ministry of Environment Ministry of Energy Private investors		
Monitoring entity	Ministry of Environment; Ministry of Energy		
Progress indicators	Annual emission reduction (kt CO ₂ e)		
Other relevant dimensions of the Energy Union affected			
Energy Union policies that have resulted in implementation of policies and measures			
Relevant national planning document (Legislative acts, normative acts, etc.)	Government Decision No 659/2023 approving the Low Emission Development Programme		
Implementation cost	EUR 1.1 million		
Source(s) of funding	Sources of the private sector		

Measure code policy	PM_DC11	Name	Co-incineration of alternative fuels (biomass and solid household waste) in clinker
General objective:	Reducing carbon emissions by 220 kt CO ₂ e in 2030		
Quantified target:	CO ₂ emissions per tonne of cement reduced by 40%		
Description	On 21 September 2020, in New York, the Holcim Group signed the 'Net Zero Carbon Commitment' with 'Science-Based Targets', being the first global building materials company to sign the 'Business Target Ambition for 1.5°C', commitment with milestones validated by the Science-Based Targets Initiative (SBTi) in line with the net-zero CO ₂ pathway. This commitment builds on Holcim's global leadership in the construction sector, with state-of-the-art "green" solutions such as ECOPact ecological concrete and Susteno circular cement. The CO ₂ reduction target will be achieved through the following activities: reduction of clinker content up to 68%; greater use of waste-derived fuels to achieve a replacement rate of 37%; use of alternative raw materials; carbon capture and storage; waste heat recovery; use of renewable energy; optimisation of transport networks; optimising routes and loads through better logistics and distribution; optimising the vehicle fleet to reduce traditional fuel consumption.		
Deadline for implementation	2025-2030		
Type of measure	Investment		
Covered/affected sectors	All sectors		
Implementing entity	Ministry of Environment Ministry of Energy Private investors		
Monitoring entity	Ministry of Environment Ministry of Energy		
Progress indicators	Annual emission reduction (kt CO ₂ e)		
Other relevant dimensions of the Energy Union affected			
Energy Union policies that have resulted in implementation of policies and measures			
Relevant national planning document (Legislative acts, normative acts, etc.)	Government Decision No 659/2023 approving the Low Emission Development Programme up to 2030		
Implementation cost	EUR 120.0 million		
Source(s) of funding	Sources of the private sector		

Waste management sector

The waste management sector in the Republic of Moldova is governed by Law No 209/2016 on waste.¹²⁵ Currently, about 989 landfills are operated in the Republic of Moldova, occupying a total area of 1052.6 ha. They are organised by local public authorities and generally do not comply with environmental protection standards. According to statistical data, the amount of solid household waste is constantly increasing, from 2,172.8 thousand m³ in 2008 to 3,311.4 thousand m³ in 2021. About 90% of the municipal waste collected by the sanitation services was disposed of by landfill, the selective collection being partially organized in Chisinau and in some residence cities. Recycling and waste collection rates are still very low.

Incorrect waste management is more acute in the Republic of Moldova, accounting for around 11.4% of GHG emissions in 2022, compared to the global average of around 3% of global emissions. At the same time, the effects of climate change in the waste management sector can negatively affect other sectors, in particular agriculture, water resources and health and, less directly, energy, transport and forestry.

According to the updated National Determined Contribution (2020) of the Republic of Moldova to the Paris Agreement and the Low Emission Development Programme by 2030, the

¹²⁵https://www.legis.md/search/getResults?doc_id=135894&lang=en#

Republic of Moldova aims to reduce by 2030 the GHG emissions from the waste sector by 14%, according to the unconditional scenario, and by 18% under the conditional scenario, compared to the 1990 level.

Annually, through sanitation services, about 1.1-2.2 Mt of waste is transported from urban localities to solid household landfills. A total of about 2.8 Mt of waste is generated from the activity of enterprises. In rural areas of the Republic of Moldova, between 0.3-0.4 kg of waste per capita is generated daily and 0.9 kg/capita/day or more in urban areas.

According to the Waste Management Strategy in the Republic of Moldova¹²⁶ for the years 2013-2027, the generation of municipal waste per capita varied in rural areas between 0.3 and 0.4 kg/person/day, and for urban areas it was 0.9 kg/person/day (in the period 2010-2012). During the period 2016-2020, at the stage of completing feasibility studies for the development of waste management systems at regional level, the waste generation indicators were revised and the following values were proposed for rural localities: 0.5-0.7 kg/person/day, respectively 0.9 kg/person/day for small urban localities and residence cities, and between 1.3 and 1.5 kg/person/day for Balti and Chisinau municipalities.

Currently, only between 60 and 90% of urban household waste is covered by specialised waste collection services, while in most rural municipalities it is landfilled without authorisation.

The Ministry of the Environment has started to develop the Environmental Strategy for the years 2024-2030¹²⁷ in order to solve the problems mentioned.

Measure code policy	PM_DC12	Name	Solid waste project the Republic of Moldova ¹²⁸
General objective	Reduction of CO ₂ emissions by 13.4 kt CO ₂ e in 2030		
Quantified target	The project aims to improve and develop solid waste management services in the participating Waste Management Areas and to address environmental challenges.		
Description	PM_DC12 will finance priority investments to improve solid waste management services throughout the country, the establishment of integrated solid waste management systems in three participating waste management areas, in line with the National Waste Management Strategy of the Republic of Moldova ("NWMS") and the country's commitments under the Association Agreement with the EU. The project represents an important step towards sustainable solid waste management services in the Republic of Moldova		
Deadline for implementation	2025-2030		
Type of measure	Investment		
Covered/affected sectors	All sectors		
Implementing entity	Ministry of Environment Private investors		
Monitoring entity	Ministry of Environment		
Progress indicators	Annual emission reduction (kt CO ₂ e)		
Other relevant dimensions of the Energy Union affected			
Energy Union policies that have resulted in implementation of policies and measures	Directive 2008/98/EC on waste		
Relevant national planning document (Legislative acts, normative acts, etc.)	Government Decision No 659/2023 approving the Low Emission Development Programme up to 2030		
Implementation cost	68.1 million euros		
Source(s) of funding	State budget, sources of external donors		

¹²⁶https://www.legis.md/search/getResults?doc_id=114412&lang=ru#

¹²⁷https://www.legis.md/search/getResults?doc_id=144295&lang=en

¹²⁸<https://www.ebrd.com/work-with-us/projects/psd/52512.html>

Agricultural sector

i. Agriculture

N₂O is the main GHG emitted by the sector, coming mainly from agricultural soils and manure management. Methane is the second greenhouse gas emitted by the sector, coming mainly from enteric fermentation and manure management. Various policies and measures are implemented as agricultural practices, reducing the GHG emissions profile of the local agricultural sector. N₂O emissions from fertiliser use are expected to decrease over time as improved cultivation practices are adopted.

In the Republic of Moldova, the policies approved and expressly oriented towards reducing GERS emissions from the agricultural sector (includes both the field of phytotechnics and soil resources, as well as that of animal husbandry) are included in the Low Emission Development Program of the Republic of Moldova until 2030, approved by Government Decision no. 659/2023.

Measure code policy	PM_DC13	Name	Implementation of the system of conservative agriculture
General objective	Reduction of NO ₂ emissions by 76 kt CO ₂ e.		
Quantified target	Unconditional reduction of agricultural greenhouse gas emissions by 44% by 2030 and conditional reduction of greenhouse gas emissions by up to 47% compared to 1990		
Description	<p>The planning of the implementation of the system of conservative agriculture provides for a gradual expansion of the cultivated areas according to the average growth trends at European level. In the period 2021-2025, it is proposed to implement on an area of 70-120 kha/year, with an increase to 120-150 kha/year in the period 2026-2030.</p> <p>Planned areas will be regularly adjusted to reflect progress and ensure alignment with sustainable farming practices adopted in European countries.</p> <p>Adding sustainable soil management practices such as crop rotation, use of cover plants, plant residue management and precise application of fertilisers entails additional costs but also significant economic and environmental benefits.</p> <p>Initial investments: Equipment: No-till seed drills are required for the entire surface. A seed drill can work efficiently between 200 and 300 ha/season. Approximately 2,400-3,600 units would be needed for 720,000 ha. Total equipment cost: 48-180 million euros (average price of 20,000-50,000 euros / unit). Training and adaptation: Costs for staff training and adaptation of technologies to local soils: 1-5 million euros. Annual operational costs: Herbicides: Additional cost: 50-100 euro/ha/year. Total for 720,000 ha: €36-72 million/year Fuel reduction: Savings of around 50 euro/ha. Total savings: 36 million euro/year</p>		
Deadline for implementation	2025-2030		
Type of measure	Investment		
Covered/affected sectors	All sectors		
Implementing entity	Ministry of Agriculture and Food Industry Private investors		
Monitoring entity	Ministry of Agriculture and Food Industry; Ministry of Environment;		
Progress indicators	Annual emission reduction (kt CO ₂ e)		
Other relevant dimensions of the Energy Union affected			
Energy Union policies that have resulted in	Regulation (EU) 2019/1009 – Fertilising products		

implementation of policies and measures	
Relevant national planning document (Legislative acts, normative acts, etc.)	Government Decision No 659/2023 approving the Low Emission Development Programme up to 2030
Implementation cost	324 million euros
Source(s) of funding	Sources of external donors, sources of the private sector

Measure code policy	PM_DC14	Name	Manure storage in common platforms or individual warehouses
General objective	Reduction of CH ₄ emissions by 69 kt CO ₂ e in 2030		
Quantified target	Unconditional reduction of agricultural greenhouse gas emissions by 44% by 2030 and conditional reduction of greenhouse gas emissions by up to 47% compared to 1990		
Description	PM_DC15 will contribute to the storage of approximately 38-50% of the total amount of manure produced annually in communal platforms.		
Deadline for implementation	2025-2030		
Type of measure	Investment		
Covered/affected sectors	All sectors		
Implementing entity	Ministry of Agriculture and Food Industry Private investors		
Monitoring entity	Ministry of Agriculture and Food Industry Ministry of Environment		
Progress indicators	Annual emission reduction (kt CH ₄)		
Other relevant dimensions of the Energy Union affected			
Energy Union policies that have resulted in implementation of policies and measures	Regulation (EU) 2019/1009 – Fertilising products		
Relevant national planning document (Legislative acts, normative acts, etc.)	Government Decision No 659 of 6 September 2023 approving the low-emission development programme for 2030		
Implementation cost	EUR 105.5 million		
Source(s) of funding	Sources of external donors, sources of the private sector		

Measure code policy	PM_DC15	Name	Promotion of cattle feeding technologies through the use of feed in the form of single mixtures (monorotation) without or with small quantities of green fodder
General objective:	Reduction of CH ₄ emissions by 15 kt CO ₂ e in 2030		
Quantified target:	Unconditional reduction of agricultural greenhouse gas emissions by 44% by 2030 and conditional reduction of greenhouse gas emissions by up to 47% compared to 1990		
Description	PM_DC16 will be applied by 2030 to 77 thousand dairy cattle and another 58 thousand dairy cattle, in the case of the unconditional scenario, respectively to another 43 thousand dairy cattle and another 32 thousand dairy cattle		
Deadline for implementation	2025-2030		
Type of measure	Investment		
Covered/affected sectors	All sectors		
Implementing entity	Ministry of Agriculture and Food Industry Private investors		
Monitoring entity	Ministry of Agriculture and Food Industry Ministry of Environment		
Progress indicators	Annual emission reduction (kt CO ₂ e)		

Other relevant dimensions of the Energy Union affected	
Energy Union policies that have resulted in implementation of policies and measures	Commission Regulation (EU) 2019/1871
Relevant national planning document (Legislative acts, normative acts, etc.)	Government Decision No 659/2023 approving the Low Emission Development Programme up to 2030
Implementation cost	18.6 million euros
Source(s) of funding	State budget, sources of external donors, sources of private sector

Measure code policy	PM_DC16	Name	Promotion of the use of grape marc in ruminant rations to reduce greenhouse gas emissions
General objective	Reduction of CH ₄ emissions by 11 kt CO ₂ e in 2030		
Quantified target	Unconditional reduction of agricultural greenhouse gas emissions by 44% by 2030 and conditional reduction of greenhouse gas emissions by up to 47% compared to 1990		
Description	PM_DC17 will apply until 2030 to a population of 52 thousand cattle for milk and another 41 thousand cattle for milk, in the case of the unconditional scenario, respectively to 37 thousand cattle for milk and another 29 thousand cattle for milk, in the case of the conditional scenario.		
Deadline for implementation	2025-2030		
Type of measure	Investment		
Covered/affected sectors	All sectors		
Implementing entity	Ministry of Agriculture and Food Industry Private investors		
Monitoring entity	Ministry of Agriculture and Food Industry Ministry of Environment		
Progress indicators	Annual emission reduction (kt CO ₂ e)		
Other relevant dimensions of the Energy Union affected			
Energy Union policies that have resulted in implementation of policies and measures	Commission Regulation (EU) 2019/1871		
Relevant national planning document (Legislative acts, normative acts, etc.)	Government Decision No 659/2023 approving the Low Emission Development Programme up to 2030		
Implementation cost	EUR 4.85 million		
Source(s) of funding	State budget, sources of external donors, sources of private sector		

ii. Land use, land use change and forestry

Between 1990 and 2022, the LULUCF sector was a source of net carbon removals in the Republic of Moldova. In 2022, this sector became a net source of emissions at national level (+0.0494 Mt CO₂e). Between 1990 and 2021, CO₂ absorption dynamics followed a downward trend, declining by 98.7% from -1.6760 Mt CO₂e in 1990 to -0.2340 Mt CO₂e in 2022.

In 2022, the main CO₂ sink in the LULUCF sector was category 4A 'Forest land' (forest vegetation – forests, protective forest belts, etc.) – 1,457 Mt CO₂e, followed by category 4C 'Grazes' – 0,112 Mt CO₂e and category 4D 'Wetlands' – 0,077 Mt CO₂e, and category 4G 'Wood products' with +0,0035 Mt CO₂e. Category 4B 'Cultivated land' is a net source of emissions in the LULUCF

sector with +1,583 Mt CO₂e., followed by category 4F ‘Other land’ with +0,278 Mt CO₂e., category ‘Settlements’ with +0,025 Mt CO₂e.¹²⁹.

Over the next 10 years, forested land areas are expected to expand by approximately 145 thousand ha, both on new land and on heavily degraded forest land under public or, for the first time, private ownership. These provisions are contained in the National Forest Extension and Rehabilitation Programme 2023-2032, which was approved by the Government on 17 February 2023. This Programme is a response to the objectives set out in the National Development Strategy ‘European Moldova 2030’, which states:

- taking urgent action to combat climate change and its impact – emission reductions in volume of around 1,272 kt CO₂e/year or an increase of around 56% in current capacities; reconstruction/rehabilitation of 35 thousand ha of forests that are inadequate and vulnerable to climate change; planting new forestry crops (100 000 ha, including 15 000 ha in riparian strips) adapted to the climate; adapting the field of production of seed and planting material to the evolution of climate change, etc.;
- protecting, restoring and promoting the sustainable use of terrestrial ecosystems, sustainable forest management, combating desertification, halting and repairing soil degradation and halting biodiversity loss – improving forest management by improving the related regulatory framework; strengthening institutional and staff capacities through training and technical facilities; planting/replanting more than 85 species; protection of about 350 thousand ha of agricultural land by planting 10 thousand ha of forest curtains, etc.

The total area covered with forests is estimated at 371,0 thousand ha.

Measure code policy	PM_DC17	Name	Afforestation of land
General objective	Increased Carbon Absorption		
Quantified target	Increase the emissions removal target for the LULUCF sector as specified in the 2030 RDP and the Action Plan for its implementation: +10% by 2030 compared to 1990 level under the unconditional scenario and +391% by 2030 under the conditional scenario		
Description	PM_DC26 will ensure: <ul style="list-style-type: none"> - extension (through afforestation) - activities for the creation of new forestry crops, having as primary objective social (energy, economic) and ecological security (forest habitats, biodiversity shelter) through the creation of forests with productive functions (energy, industrial), estimated at about 110 thousand ha; - rehabilitation (predominantly through reforestation) - restoration or reconstruction of land with forest vegetation heavily affected by various forms of degradation, where forest vegetation is practically absent or in an unfavourable state, with the primary objective of restoring natural forests and ensuring the predominant ecological functions (carbon capture, hydrological casing, biodiversity conservation, etc.); will also be considered young stands and/or forestry crops until the state of massif, which have not achieved the optimal parameters set in the establishment projects and/or according to the stationary conditions (composition; consistency; successful, etc.), estimated at about 35 thousand ha 		
Deadline for implementation	2024-2032		
Type of measure	Investment		
Covered/affected sectors	All sectors		
Implementing entity	the Moldsilva Agency Private investors		
Monitoring entity	Ministry of Environment		
Progress indicators	Annual absorption of CO ₂ (kt CO ₂)		
Other relevant dimensions of the Energy Union affected			

¹²⁹<https://am.gov.md/en/node/421>

Energy Union policies that have resulted in implementation of policies and measures	Regulation (EU) 2023/1115 of the European Parliament and of the Council of 31 May 2023 on the making available on the Union market as well as export from the Union of certain commodities and products associated with deforestation and forest degradation
Relevant national planning document (Legislative acts, normative acts, etc.)	Government Decision No 55/2023 approving the National Forest Extension and Rehabilitation Programme 2023-2032 and the Action Plan for its implementation 2023-2027
Implementation cost	233.75 million euros
Source(s) of funding	State budget, sources of external donors, sources of private sector

Measure code policy	PM_DC18	Name	Creation of protective forest curtains
General objective	Increased Carbon Absorption		
Quantified target	Increase the absorption target for the LULUCF sector, similar to the one specified in the 2030 RDP and the Action Plan for its implementation: +10% by 2030 compared to 1990 level under the unconditional scenario and +391% by 2030 under the conditional scenario		
Description	PM_DC27 will create protective forest belts to protect agricultural land – 1,500 ha, which is based on the 2030 RDP and the Action Plan for its implementation, Specific Objective 6, Action 6.2 “Afforestation of degraded land, riparian areas and creation of protective forest curtains”, instead of 12,000 ha as foreseen in the Low Emission Development Programme to 2030 and the Action Plan for its implementation, Specific Objective 6, Action 6.4 “Creation of protective forest curtains”		
Deadline for implementation	2024-2032		
Type of measure	Investment		
Covered/affected sectors	All sectors		
Implementing entity	the Moldsilva Agency Private investors		
Monitoring entity	Ministry of Environment		
Progress indicators	Annual increase in carbon sink (kt CO ₂)		
Other relevant dimensions of the Energy Union affected			
Energy Union policies that have resulted in implementation of policies and measures	Regulation (EU) 2023/1115 of the European Parliament and of the Council of 31 May 2023 on the making available on the Union market as well as export from the Union of certain commodities and products associated with deforestation and forest degradation		
Relevant national planning document (Legislative acts, normative acts, etc.)	Government Decision No 659/2023 approving the Low Emission Development Programme up to 2030 Government Decision No 55/2023 approving the National Forest Extension and Rehabilitation Programme 2023-2032 and the Action Plan for its implementation 2023-2027		
Implementation cost	EUR 5.0 million		
Source(s) of funding	State budget, sources of external donors, sources of private sector		

Measure code policy	PM_DC19	Name	Planting of energy crops
General objective	Increased Carbon Absorption		
Quantified target	Increase the absorption target for the LULUCF sector, similar to the one specified in the 2030 RDP and the Action Plan for its implementation: +10% by 2030 compared to 1990 level under the unconditional scenario and +391% by 2030 under the conditional scenario		
Description	The proposed action under PM_DC20 is based on PDER 2030, objective 6, action 6.5 – Planting of fast growing forest species managed in short production cycles (10-15 years) per 5,000 ha by 2030		
Deadline for implementation	2024-2030		
Type of measure	Investment		
Covered/affected sectors	All sectors		

Implementing entity	the Moldsilva Agency Ministry of Environment Ministry of Energy Local public authorities Private investors
Monitoring entity	the Moldsilva Agency Ministry of Environment Ministry of Energy
Progress indicators	Annual increase in carbon sink (kt CO ₂)
Other relevant dimensions of the Energy Union affected	
Energy Union policies that have resulted in implementation of policies and measures	Regulation (EU) 2023/1115 of the European Parliament and of the Council of 31 May 2023 on the making available on the Union market as well as export from the Union of certain commodities and products associated with deforestation and forest degradation
Relevant national planning document (Legislative acts, normative acts, etc.)	Government Decision No 659/2023 approving the Low Emission Development Programme up to 2030
Implementation cost	8.5 million euros
Source(s) of funding	State budget, sources of external donors, sources of private sector

iii. Regional cooperation in the field Land use, land use change and forestry

A number of the measures described above can be strengthened through regional cooperation. In particular, the exchange of lessons learned and the harmonisation of policy approaches could be highly relevant and will be carried out with the Energy Community Contracting Parties. Currently, the Republic of Moldova is involved in various regional working groups, including those convened within the Energy Community, concerned with climate change, energy efficiency, renewable energy and other topics.

iv. Where appropriate, without prejudice to the applicability of State aid rules, financing measures, including EU support and the use of EU funds, in this area at national level

A significant part of the funding for the implementation of the policy measures proposed above, in particular in the areas of waste, rural development and forestry, is expected to come from EU funds.

3.1.2. Renewable energy

i. Policies and measures to achieve the national contribution to the 2030 Energy Community target for renewable energy and the trajectories referred to in Article 4(2)(a) and, where applicable or available, including sector- and technology-specific measures;

The renewable energy sector is mainly governed by Law No 10/2016 on the promotion of the use of energy from renewable sources (RES Law), which partially transposes Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (recast), published in Official Journal of the European Union L 328 of 21 December 2018, as adapted and approved by Decision No 2021/14/MC-EnC of the Ministerial Council of the Energy Community.

Secondary legislation for the implementation of primary legislation consists of:

Government Decision No 401/2021 approving capacity limits, maximum shares and capacity categories in the field of renewable electricity until 2025;

Government Decision no. 690/2018 for the approval of the Regulation on the conduct of tenders for offering the status of large eligible producer;

Government Decision No 885/2017 on the designation of the central electricity supplier, reassigned in 2020;

Government Decision No 74/2025 approving the Regulation on the calculation of the consumption of energy from renewable sources;

Government Decision No 778/2024 approving the Regulation on solid biofuel;

Government Decision No 53/2025 approving the Regulation on sustainability and greenhouse gas emissions saving criteria for biofuels, bioliquids and biomass fuels and the Methodology for calculating the impact of biofuels, bioliquids and biomass fuels on greenhouse gas emissions;

Government Decision No 58/2025 approving the Regulation on the statistical transfer of quantities of energy from renewable sources with another Contracting Party to the Energy Community Treaty;

Decision No 201/2017 of the ANRE Board of Directors approving the Regulation on the guarantee of origin for electricity produced under high-efficiency cogeneration;

ANRE Administrative Board Decision no. 375/2017 regarding the approval of the Methodology for determining feed-in tariffs and prices for electricity produced by eligible producers from renewable energy sources;

Regulation on guarantees of origin for electricity produced from renewable energy sources, ANRE Administrative Board Decision no. 376/2017;

Regulation on confirmation of the status of small eligible producer, approved by ANRE Administrative Board Decision no. 321 of 28/05/2024;

Regulation on renewable energy communities, approved by ANRE Administrative Board Decision no. 743 of 19/12/2024

Judgments on feed-in tariffs and cap prices for electricity produced from renewable energy sources by producers who will obtain the status of eligible producer in 2020, 2022, 2023 and 2024;

Some provisions of the Law on electricity No 107/2017 and other relevant legislative acts that also apply to renewable energy, in particular as regards the integration of RES into the energy system;

Competition Council Decision No 03/2020 approving the Regulation on the assessment of State aid for environmental protection.

At the same time, it is in the process of promoting the implementation of the new provisions of the RES Law, which partially transposes Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018:

Government Decision approving the Regulation on the implementation of joint projects in the field of electricity from renewable sources with one or more Contracting Parties to the Treaty establishing the Energy Community, Member States of the European Union or third countries;

Electricity

According to the Law no. 10/2016 on the promotion of the use of energy from renewable sources, in 2030, the Republic of Moldova aims to achieve a 27% share of energy from renewable sources in final energy consumption (an objective agreed with the Energy Community).

At the same time, the NECP aims specifically to increase the share of electricity from renewable sources to 31.2% in 2030.

During 2025, the Government is to review the performance of the ‘fixed tariff’, ‘fixed price’ and ‘net invoicing’ support schemes in order to establish new maximum capacity shares, capacity limits and capacity categories.

Similarly, in the context of the EU Commission Decision of 13 September 2024 on the proposal for a Recommendation of the Ministerial Council of the Energy Community on accelerating the deployment of renewable energy projects and implementing the priority principle of energy efficiency, the Republic of Moldova, as a Contracting Party to the Energy Community, is to establish the necessary legal and institutional preconditions for implementing the provisions of Article 1 of

Directive (EU) 2023/2413. This includes the mapping of areas suitable for the deployment of renewable energy and the necessary grid and storage infrastructure within their jurisdictions, as well as the designation of renewable energy acceleration areas in accordance with Articles 15b, 15c, 15d and 15e of the Directive.

The State should also prepare the necessary legal and institutional framework for the implementation of the provisions of Article 1 concerning the procedure for granting the permissive acts required for the construction of renewable power plants. This includes Articles 16, 16a, 16b, 16c, 16d, 16e and 16f.

Measure code policy	PM_DC20	Name	Installation of photovoltaic plants with a capacity of 165 MW
General objective	Reduction of carbon emissions by 105 kt CO ₂ e in 2030		
Quantified target	Increasing the share of electricity from renewable sources to 31.2% in 2030		
Description	PM_DC20 will incentivise electricity production using VF plants through existing support schemes, fixed price, feed-in tariff and net billing. The government plans to create conditions for the installation of 165 MW of VF systems by 2030 and thus reach 560 MW, compared to 395 MW (including prosumers) at the end of 2024, VF systems installed for electricity generation		
Deadline for implementation	2024-2030		
Type of measure	Investment		
Covered/affected sectors	Electricity		
Implementing entity	Ministry of Energy National Center for Sustainable Energy		
Monitoring entity	Ministry of Energy		
Progress indicators	165 MW of installed VF systems		
Other relevant dimensions of the Energy Union affected			
Energy Union policies that have resulted in implementation of policies and measures	Directive on the promotion of the use of energy from renewable sources (2018/2001/EU)		
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 10/2016 on the promotion of the use of energy from renewable sources Government Decision No 401/2021 approving capacity limits, maximum shares and capacity categories in the field of renewable electricity valid until 31 December 2025		
Implementation cost	160 million euros		
Source(s) of funding	Sources of the private sector		

Measure code policy	PM_DC21	Name	Installation of wind farms with a capacity of 230 MW
General objective	Reducing carbon emissions by 178 kt CO ₂ in 2030		
Quantified target	Increase the share of renewable electricity to 31.2% in 2030.		
Description:	PM_DC21 will boost electricity production through wind farms. The Government intends to create conditions, through the application of the support scheme fixed price, fixed tariff, as well as market conditions for the installation of 230 MW of wind farms by 2030 and thus reach 390 MW, compared to 160 MW at the end of 2024.		
Deadline for implementation	2025-2030		
Type of measure	Investment		
Covered/affected sectors	Electricity		
Implementing entity	Ministry of Energy National Center for Sustainable Energy		
Monitoring entity	Ministry of Energy		
Progress indicators	230 MW of installed wind farms		

Other relevant dimensions of the Energy Union affected	
Energy Union policies that have resulted in implementation of policies and measures	Directive on the promotion of the use of energy from renewable sources (2018/2001/EU)
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 10/2016 on the promotion of the use of energy from renewable sources Government Decision No 401/2021 approving capacity limits, maximum shares and capacity categories in the field of renewable electricity valid until 31 December 2025
Implementation cost	238 million euros
Source(s) of funding	Sources of the private sector

Measure code policy	PM_DC22	Name	Promoting energy communities from renewable sources
General objective	Reducing carbon emissions		
Quantified target	Increasing the share of electricity from renewable sources to 31.2% in 2030		
Description	PM_DC 22 will strengthen the role of citizens and local public authorities in ensuring distributed renewable energy generation by associating them in renewable energy communities. Specifically, at least 2 pilot projects will be implemented to test the formation and functioning of energy communities with the support of development partners, the creation of support mechanisms through the mandatory purchase by universal service providers of surplus electricity, obtaining discounts on the distribution tariff and others, so as to encourage the exploitation of renewable energy sources at regional level.		
Deadline for implementation	2025-2030		
Type of measure	Investment		
Covered/affected sectors	Energy, heating and cooling		
Implementing entity	Ministry of Energy National Center for Sustainable Energy		
Monitoring entity	Ministry of Energy		
Progress indicators	At least 3 energy communities established		
Other relevant dimensions of the Energy Union affected	Internal energy market		
Energy Union policies that have resulted in implementation of policies and measures	Directive 2018/2001/EU		
Relevant national planning document (Legislative acts, normative acts, etc.)	Project of the Energy Strategy of the Republic of Moldova until 2050 Government Decision No 659/2023 approving the Low Emission Development Programme up to 2030 Regulation on renewable energy communities, approved by ANRE Administrative Board Decision no. 743 of 19/12/2024		
Implementation cost	1.5 million euros		
Source(s) of funding	Sources of development partners, sources of the private sector		

Heating and cooling

The NECP sets a target for the heating and cooling sector to reach a 42.5% share of energy from renewable sources in gross final consumption of energy in heating and cooling by 2030. Of this proportion, 2.3% should be provided by heat pumps.

To achieve this goal, sustained progress is needed in two main directions, as follows:

- heating and cooling: annual increase in the share of renewable energy used in this sector by 1.1%;
- district heating/cooling systems: annual increase in the use of renewable sources and/or waste heat in these systems by 1.0%.

These will be achieved by:

- integration of renewable energy sources into district heating supply systems (SACET);

- electrification of the heating and cooling sector;
 - implementing measures to harness renewable energy sources in the residential and public sectors, as well as enterprises that do not have access to SACET (implemented through the Energy Efficiency Fund in the Residential Sector, the European Village National Programme and programs to support entrepreneurs).

Achieving these objectives is a challenging task, especially from an investment perspective. According to PNIEC, investments of over EUR 590 million are planned in the residential, public and tertiary sectors. However, the amounts are not sufficient to fully cover the financial needs. Financial constraints are a major obstacle and additional funds are needed to support the transition to renewables in the heating and cooling sector.

This highlights the need for innovative financing mechanisms and attracting external investment to overcome these challenges and achieve the 2030 targets.

Measure code policy	PM_DC23	Name	Integration of biomass heaters in centralised power systems with thermal energy
General objective	Reduction of carbon emissions by 101,0 kt CO ₂ e in 2030		
Quantified target	Achieve a 42.5% share of energy from renewable sources in gross final consumption of energy in heating and cooling by 2030		
Description	<p>The installation of biomass heaters in district heating systems will contribute to the achievement of renewable energy targets in heating and cooling, as well as to ensuring the decarbonisation of the energy sector.</p> <p>The measure is foreseen in the moderate scenario of the roadmap for the heating sector. It is estimated that biomass heaters with a capacity of 5 MW will be installed in JSC “Termoelectrica” and in JSC “CET-Nord” 2 MW by 2030.</p> <p>Estimated cost: Small plants (1-10 MW): EUR 1-3 million/MW; large power plants (10–100 MW): 1-2 million EUR/MW due to economy of scale</p>		
Deadline for implementation	2025-2030		
Type of measure	Investment		
Covered/affected sectors	Q&R		
Implementing entity	Ministry of Energy National Center for Sustainable Energy		
Monitoring entity	Ministry of Energy		
Progress indicators	13 MW Thermal capacity installed		
Other relevant dimensions of the Energy Union affected			
Energy Union policies that have resulted in implementation of policies and measures	Directive on the promotion of the use of energy from renewable sources (2018/2001/EU)		
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 10/2016 on the promotion of the use of energy from renewable sources Law no. 139/2018 on energy efficiency Government Decision No 659/2023 approving the Low Emission Development Programme up to 2030		
Implementation cost	EUR 14.5 million		
Source(s) of funding	Sources of external donors, sources of SACET operators		

Measure code policy	PM_DC24	Name	Interaction of heat pumps in centralised heat supply systems
General objective	Reducing carbon emissions by 230 kt CO ₂ e in 2030		
Quantified target	Achieve a 42.5% share of energy from renewable sources in gross final consumption of energy in heating and cooling by 2030		
Description	<p>The action aims to integrate heat pump systems into SACET.</p> <p>The technology of geothermal pumps, water-to-water pumps and waste energy recovery pumps from industrial or commercial sources will be analyzed.</p> <p>The measure is foreseen in the moderate scenario of the roadmap for the heating sector.</p>		

	It is estimated that by 2030 at least 2 MW of heat pumps will be installed in SA CET Nord and 5 MW in SA 'Termoelectrica'. Estimated cost: 5 million euros
Deadline for implementation	2025-2030
Type of measure	Investment
Covered/affected sectors	Q&R
Implementing entity	Ministry of Energy National Center for Sustainable Energy
Monitoring entity	Ministry of Energy
Progress indicators	7 MW thermal installed capacity
Other relevant dimensions of the Energy Union affected	
Energy Union policies that have resulted in implementation of policies and measures	Directive on the promotion of the use of energy from renewable sources (2018/2001/EU)
Relevant national planning document (Legislative acts, normative acts, etc.)	Law No 10/2016 on the promotion of the use of energy from renewable sources Law no. 139/2018 on energy efficiency Government Decision No 659/2023 approving the Low Emission Development Programme up to 2030
Implementation cost	5 million euros
Source(s) of funding	Sources of external donors, sources of SACET operators

Measure code policy	PM_DC25	Name	Assessment of the energy potential of geothermal sources and definition of the regulatory framework necessary to capitalize on it.
General objective			Reducing carbon emissions
Quantified target			Achieve a 42.5% share of energy from renewable sources in gross final consumption of energy in heating and cooling by 2030
Description			Moldova has relatively small geothermal resources, but exploitable in certain areas, especially for heating buildings. Although the country does not have ideal conditions for deep-sea geothermal exploitation (e.g. long-term for electricity generation), there are medium and low temperature geothermal resources that can be efficiently used for district heating and industrial heating processes. The main areas of interest for geothermal energy in the Republic of Moldova are: Southern area, near the cities of Chisinau and Cahul; Regions near the Prut and Dniester rivers, which could offer geothermal potential, although resources are less explored compared to other regions. The measure aims to carry out a study to assess the energy potential of geothermal sources and to define the regulatory framework necessary for its exploitation.
Deadline for implementation			2025-2030
Type of measure			Politics
Covered/affected sectors			Q&R
Implementing entity			Ministry of Energy National Center for Sustainable Energy
Monitoring entity			Ministry of Energy
Progress indicators			Study elaborated and published, adjusted regulatory framework
Other relevant dimensions of the Energy Union affected			
Energy Union policies that have resulted in implementation of policies and measures			Directive on the promotion of the use of energy from renewable sources (2018/2001/EU)
Relevant national planning document			Law no. 10/2016 on the promotion of the use of energy from renewable sources Law no. 139/2018 on energy efficiency

(Legislative acts, normative acts, etc.)	Government Decision No 659/2023 approving the Low Emission Development Programme up to 2030
Implementation cost	EUR 0.2 million
Source(s) of funding	Sources of external donors.

Transport sector

According to data from the Public Services Agency, in 2023 there were approximately 3 105 electric cars and 39 070 hybrid cars in the Republic of Moldova, with the number of electric cars registered in the Republic of Moldova constantly increasing.

However, the share of vehicles with internal combustion engines is in the majority. Therefore, in order to reach the target of having a RES share in transport up to 7.6% in 2030 and taking into account the provisions of Article 26⁷ of Law No 10/2016 on the promotion of the use of energy from renewable sources, the following regulatory and policy measures will be undertaken.

Measure code policy	PM_DC26	Name	Promoting sustainable green cities for the Republic of Moldova
General objective	Reducing carbon emissions		
Quantified target	Increase the share of RES in transport to 6.9% in 2030 ¹³⁰		
Description	PM_DC26 will catalyse investments in sustainable green cities in the Republic of Moldova. Moldova has about 120 AC charging stations ¹³¹ . With the contribution of the National Center for Sustainable Energy (formerly the Agency for Energy Efficiency), under the financing agreement with the United Nations Development Programme (UNDP), 20 alternating current charging stations for electric cars were installed. The lack of chargers is currently a problem for the promotion of electric vehicles. A minimum of 50 AC chargers per year will be installed. The 2030 Low Emission Development Programme, under Objective 2, Action 2.6 contains similar objectives - promoting hybrid means of transport, e-mobility and other green mobility options - 10% of the total hybrid fleet by 2030		
Deadline for implementation	2025-2030		
Type of measure	Investment		
Covered/affected sectors	Transportation		
Implementing entity	Ministry of Infrastructure and Regional Development Ministry of Energy National Center for Sustainable Energy		
Monitoring entity	Ministry of Energy		
Progress indicators	Annual emission reduction (kt CO ₂ e)		
Other relevant dimensions of the Energy Union affected			
Energy Union policies that have resulted in implementation of policies and measures	Directive on the promotion of the use of energy from renewable sources (2018/2001/EU) Regulation (EU) 2019/631 of the European Parliament and of the Council of 17 April 2019		
Relevant national planning document (Legislative acts, normative acts, etc.)	Project of the Energy Strategy of the Republic of Moldova until 2050 Government Decision No 659/2023 approving the Low Emission Development Programme up to 2030		
Implementation cost	1.8 million euros		
Source(s) of funding	State budget		

Measure code policy	PM_DC27	Name	Promotion of biofuels and bioliquids to increase the consumption of energy from renewable sources in the transport sector
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¹³⁰According to modelling results from TIMES

¹³¹<https://piataauto.md/News/2022/08/Cate-public-prizes-for-electric-machines-exista-in-Moldova-in-2022-cate-of-the-are-fast-charge-and-cat-of-uniform-are-spread/>

General objective	Reducing carbon emissions
Quantified target	Increase the share of RES in transport to 6.9% in 2030 (41.9 ktoe)
Description	The measure increases the share of biofuels and bioliquids consumed in transport produced from food and feed crops to 2%; biofuels and biogas produced from used cooking oil and animal fats up to 1.7%; advanced biofuels and biogas produced from specific feedstocks - up to at least 1% in 2025 and up to 3.5% in 2030. To achieve these targets: Until 2030, importers of main petroleum products have the obligation to sell/place on the market petrol blended with at least 11.58% bioethanol and diesel with 8.17% biodiesel, produced locally, as a priority, and/or import (already included in the composition of the main petroleum products when they are imported); importers of major petroleum products will ensure compliance with the above-mentioned minimum share requirement for biofuels in the blend of fuels marketed for final consumption
Deadline for implementation	2025-2030
Type of measure	Reform
Covered/affected sectors	Transportation
Implementing entity	Ministry of Energy National Center for Sustainable Energy
Monitoring entity	Ministry of Energy
Progress indicators	At least 9.87% of the composition of fuels placed on the market shall be biofuels as follows: Biodiesel 8.17% by volume Biotehanol 11.58% by volume
Other relevant dimensions of the Energy Union affected	
Energy Union policies that have resulted in implementation of policies and measures	Directive on the promotion of the use of energy from renewable sources (2018/2001/EU) Regulation (EU) 2019/631 of the European Parliament and of the Council of 17 April 2019
Relevant national planning document (Legislative acts, normative acts, etc.)	The concept of the Energy Strategy of the Republic of Moldova until 2050 Government Decision No 659/2023 approving the Low Emission Development Programme up to 2030 Government Decision no. 778/2024 approving the Regulation on solid biofuel Government Decision No 53/2025 approving the Regulation on sustainability and greenhouse gas emissions saving criteria for biofuels, bioliquids and biomass fuels and the Methodology for calculating the impact of biofuels, bioliquids and biomass fuels on greenhouse gas emissions
Implementation cost	EUR 24.3 million ¹³²
Source(s) of funding	Sources of the private sector

Measure code policy	PM_DC28	Name	Promoting electrification of rail transport
General objective	Reducing carbon emissions		
Quantified target			
Description	PM_DC28 will provide for measures to develop rail transport infrastructure for the use of electric or hybrid locomotives		
Deadline for implementation	2025-2030		
Type of measure	Reform		
Covered/affected sectors	Transportation		
Implementing entity	Ministry of Infrastructure and Regional Development Ministry of Energy Ministry of Environment National Center for Sustainable Energy		
Monitoring entity	Ministry of Energy		

¹³²Government Decision No 659/2023 approving the Low Emission Development Programme up to 2030

Progress indicators	Railway transport infrastructure development plan for the use of electric locomotives developed
Other relevant dimensions of the Energy Union affected	
Energy Union policies that have resulted in implementation of policies and measures	Directive on the promotion of the use of energy from renewable sources (2018/2001/EU) Regulation (EU) 2019/631 of the European Parliament and of the Council of 17 April 2019
Relevant national planning document (Legislative acts, normative acts, etc.)	Project of the Energy Strategy of the Republic of Moldova until 2050 Government Decision No 659/2023 approving the Low Emission Development Programme up to 2030
Implementation cost	EUR 0.5 million
Source(s) of funding	Sources of external donors

ii. Where relevant, specific regional cooperation measures, as well as, as an option, estimated excess production of energy from renewable sources that could be transferred to other Contracting Parties and/or EU Member States, in order to achieve the national contribution and trajectories outlined in point 2.1.2 of the NECP

ANRE lifted the electricity export ban approved on 13 October 2022, after Ukraine cut off electricity supplies to the EU and the Republic of Moldova, following Russian attacks on its infrastructure. This removal of restrictions encourages renewable electricity producers to increase their capacities and export electricity to the regional/EU market.

iii. Specific measures concerning financial assistance, where applicable for the promotion of the production and use of energy from renewable sources in the electricity, heating and cooling and transport sectors

All three above-mentioned support schemes for electricity production from RES are considered as State financial support. A set of projects aimed at promoting renewable energy and energy efficiency are implemented with the support of international donors, as follows:

Measure code policy	PM_DC29	Name	Promoting green technologies in the private sector
General objective	Reducing carbon emissions		
Quantified objective	Reduce GHG emissions by 70% in 2030 compared to base year 1990		
Description	PM_DC29 promotes the implementation of best technologies with minimal environmental impact. The program uses the Green Technology Selector (GTS) to promote the best technologies in the expansion of renewable energy in the Republic of Moldova		
Deadline for implementation	2024-2030		
Type of measure	Investment		
Covered/affected sectors	All sectors		
Implementing entity	Organization for the Development of Entrepreneurship National Center for Sustainable Energy		
Monitoring entity	Ministry of Energy Ministry of Infrastructure and Regional Development		
Progress indicators	Annual emission reduction (kt CO ₂ e)		
Other relevant dimensions of the Energy Union affected			
Energy Union policies that have resulted in implementation of policies and measures	Directive on the promotion of the use of energy from renewable sources (2018/2001/EU)		
Relevant national planning document	Law No 10/2016 on the promotion of the use of energy from renewable sources Law no. 139/2018 on energy efficiency		

(Legislative acts, normative acts, etc.)	Government Decision No 659/2023 approving the Low Emission Development Programme up to 2030
Implementation cost	EUR 45.0 million
Source(s) of funding	Sources of external donors

Measure code policy	PM_DC30	Name	Promoting energy efficiency of SMEs
General objective	Reducing carbon emissions		
Quantified target	Reduction of GHG emissions by 70% in 2030 compared to base year 1990		
Description	<p>PM_DC30 assists small and medium-sized enterprises (SMEs) to increase their energy efficiency and equip themselves with renewable energy installations. This measure was initiated in 2018 and thanks to it, SMEs received 25 million euros in financing until 2023. In 2023, the EBRD extended financial support by a further EUR 10 million.¹³³ The program will be extended for the next four years (2024-2027) and another 40.0 million euros will be invested.</p> <p>The result of the projects will contribute to the implementation of Specific Objective 4, Action 4.2 – promoting energy efficiency in the industrial sector under the Low Emission Development Programme by 2030 – it is stipulated to reduce energy and fuel consumption by 76,260 kt coal equivalent by 2030 in the unconditional scenario and by a further 37,127 kt coal equivalent by 2030 in the conditional scenario</p>		
Deadline for implementation	2024-2027		
Type of measure	Investment		
Covered/affected sectors	All sectors		
Implementing entity	Ministry of Energy National Center for Sustainable Energy Organization for the Development of Entrepreneurship		
Monitoring entity	Ministry of Energy Ministry of Infrastructure and Regional Development		
Progress indicators	Annual emission reduction (kt CO ₂ e)		
Other relevant dimensions of the Energy Union affected			
Energy Union policies that have resulted in implementation of policies and measures	Directive on the promotion of the use of energy from renewable sources (2018/2001/EU)		
Relevant national planning document (Legislative acts, normative acts, etc.)	Law No 10/2016 on the promotion of the use of energy from renewable sources Law no. 139/2018 on energy efficiency Government Decision No 659/2023 approving the Low Emission Development Programme up to 2030		
Implementation cost	75.0 million euros		
Source(s) of funding	Sources of external donors		

Measure code policy	PM_DC31	Name	Promotion of technologies innovative in SMEs
General objective	Reducing carbon emissions		
Quantified target	Reduce GHG emissions by 70% in 2030 compared to base year 1990		
Description	<p>PM_DC31 helps small and medium-sized enterprises (SMEs) to increase the efficiency of machinery, equipment and installations for the production of renewable energy, which will ensure that electricity consumption is reduced by at least 15% compared to current consumption. The non-reimbursable financial resources will be used to: solar panels with heating systems; photovoltaic panels for the production of electricity; mini-wind installations for the production of electricity; machinery and technological equipment for the production of biogas; heaters and heaters¹³⁴</p>		
Deadline for implementation	2025-2030		
Type of measure	Investment		

¹³³<https://www.ebrd.com/news/2023/ebd-and-eu-back-procredit-bank-moldova-in-boosting-finance-for-moldovan-businesses.html>

¹³⁴<https://odimm.md/en/press/communications-by-press/5563-grants-for-retrofitting-and-energy-efficiency>

Covered/affected sectors	All sectors
Implementing entity	Organization for the Development of Entrepreneurship National Center for Sustainable Energy
Monitoring entity	Ministry of Energy Ministry of Infrastructure and Regional Development
Progress indicators	Annual emission reduction (kt CO ₂ e)
Other relevant dimensions of the Energy Union affected	
Energy Union policies that have resulted in implementation of policies and measures	Directive on the promotion of the use of energy from renewable sources (2018/2001/EU)
Relevant national planning document (Legislative acts, normative acts, etc.)	Law No 10/2016 on the promotion of the use of energy from renewable sources Law no. 139/2018 on energy efficiency Government Decision No 659/2023 approving the Low Emission Development Programme up to 2030 Law no. 225/2024 on innovative energy regulatory sandboxes
Implementation cost	EUR 4.4 million
Source(s) of funding	State budget, sources of external donors

Measure code policy	PM_DC32	Name:	Promoting rural competitiveness and resilience
General objective	Reducing carbon emissions		
Quantified target	Reduce GHG emissions by 70% in 2030 compared to base year 1990		
Description	PM_DC32 allows, through grant schemes, associations of irrigation water users (AIWUs) to invest in the production and use of renewable energy in the process of pumping and distributing water for irrigation of agricultural plantations		
Deadline for implementation	2024-2030		
Type of measure	Investment		
Covered/affected sectors	All sectors		
Implementing entity	Ministry of Energy National Center for Sustainable Energy Ministry of Environment Ministry of Agriculture and Food Industry		
Monitoring entity	Ministry of Energy		
Progress indicators	Annual emission reduction (kt CO ₂ e)		
Other relevant dimensions of the Energy Union affected			
Energy Union policies that have resulted in implementation of policies and measures	Directive on the promotion of the use of energy from renewable sources (2018/2001/EU)		
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 10/2016 on the promotion of the use of energy from renewable sources Law no. 139/2018 on energy efficiency		
Implementation cost	EUR 4.4 million		
Source(s) of funding	Sources of external donors		

iv. Where applicable, assessment of the support for electricity from renewable sources to be carried out by Contracting Parties in accordance with Article 6(4) of Directive (EU) 2018/2001, as adapted and adopted by Ministerial Council Decisions 2021/14/MC-EnC and 2022/02/MC-EnC

According to Law no. 10/2016 on the promotion of the use of energy from renewable sources, the Government will support electricity from renewable sources mainly through 3 schemes: fixed

price, fixed tariff and net invoicing. By 2030, 400 MW of installed capacity is expected in wind farms and 200 MW in VF systems.

v. Specific measures to introduce one or more contact points, simplify administrative procedures, provide information, train and facilitate the conclusion of energy purchase agreements and to promote and facilitate the development of self-consumption and renewable energy communities

The Public Institution National Centre for Sustainable Energy (IP CNED) is responsible for the implementation of the state policy in the field of renewable energy. To this end, IP CEND collects, informs and provides training for consumers in order to facilitate the deployment of renewable energy sources.

The Republic of Moldova will encourage initiatives that ensure the local consumption of electricity. In this regard, support for the development of renewable energy communities is a priority, and currently, according to Law no. 10/2016 on the promotion of the use of energy from renewable sources, these are:

ANRE, which, in coordination with the central specialized body of the public administration in the field of energy, develops and approves the Regulation on the organization and functioning of renewable energy communities;

Government, develop and make available to final consumers financial instruments and programmes that facilitate access to finance and information for the development of renewable energy communities;

The Government, with the support of the central specialized body of the public administration in the field of energy, ANRE, provides support to local public administration authorities in matters related to regulating the activity of renewable energy communities, strengthening their capacities, support to facilitate the establishment of communities and the direct participation of territorial administrative units within them.

vi. Assessment of the need to build new district heating and cooling infrastructure produced from renewable energy sources

The continued penetration of renewable energy technologies in existing and planned district heating networks will be supported by targeted financial aid to cover the necessary investment costs. In addition, the potential imposition of a mandatory quota for the use of renewable energy sources as fuel in district heating networks will be 1.1 percentage points per year. See specific measures in PM_DC32 and PM_DC33.

you're coming. Specific measures to promote the use of energy from biomass, in particular for the mobilisation of new biomass sources, taking into account the availability of biomass, both domestic potential and imports from third countries, other uses of biomass by other sectors (based on agriculture and forestry), and measures to ensure sustainable production and use of biomass

The Government will promote the domestic production of biofuels from waste, residues and biomass, as well as green hydrogen (in line with the Concept of the Energy Strategy of the Republic of Moldova until 2050). Through the support schemes established for the production of electricity from RES and based on Government Decision No 401/2021 approving capacity limits, maximum shares and capacity categories in the field of renewable electricity valid until 31 December 2025, the Government will promote the use of biogas cogeneration plants (65 MW), synthesis gas cogeneration plants (based on solid biofuel, agricultural waste including crops/energy plants, energy crops/plants with the exception of forestry products) (10 MW), direct combustion cogeneration plants (based on solid biofuel, agricultural waste including crops/energy plants, solid household waste with the exception of forestry products) (10 MW). The measure is included in PM_DC11.

3.1.3. Other elements of the size

i. Where applicable, national policies and measures affecting the EU ETS sector and assessment of complementarity and impacts on the EU ETS

The EU4Climate project helped Moldova align with the EU climate *acquis*, including the EU ETS. The project contributed to the preparation of the Action Plan for the implementation of the Roadmap for the alignment of the Republic of Moldova with the climate *acquis*, which anticipates the full transposition of the ETS Directive.

The case study ‘Impact and Implications of the Carbon Taxation and Carbon Border Adjustment Mechanism in the Republic of Moldova’, developed by the Energy Security Activity in the Republic of Moldova (MESA)¹³⁵ within USAID, assessed the implications for electricity and heat production, manufacturing, metallurgy and aviation in the Republic of Moldova upon accession to the EU ETS, as well as identified the impact of CBAM on the targeted sectors in the Republic of Moldova. The study provides an overview of the Moldovan context for carbon pricing mechanisms and identifies the impact they will have on the industrial sector, the national economy and the achievement of GHG emission reduction targets under the Paris Agreement. As a result of the activities undertaken by the MESA, the following has been achieved:

- identification of the entities that will be affected by the ETS and CBAM, including public, private and non-state actors;
- determining the potential effects of the carbon pricing system, including effects on trade competitiveness and GHG emissions;
- presentation of core actions and time window to meet integration requirements with an ETS;
- assessing the potential effects of CBAM on exports and competitiveness of affected products; and
- formulating an indicative roadmap for carbon pricing in the Republic of Moldova and providing recommendations to address the impact of joining an emissions trading system and measures to limit the responsibility of the CBAM.

The introduction of the Carbon Border Adjustment Mechanism (CBAM), with reporting obligations from 2023, will make alignment with the EU ETS even more timely and justified¹³⁶.

For the Republic of Moldova, the following provisions of the Association Agreement, Chapter 17, Articles 92-97, Annex XII on the EU ETS Directive should apply:

- creation of a system for identifying relevant installations and greenhouse gases (Annexes I and II);
- setting up monitoring, reporting, verification and enforcement systems and public consultation procedures (Articles 9, 14 to 17, 19 and 21).

The Republic of Moldova intends to transpose the ETS Directive by the end of 2025, as presented in PM_DC2.

ii. Policies and measures to achieve other national targets, where appropriate

Not applicable.

iii. Policies and measures to achieve low-emission mobility (including electrification of transport)

The Republic of Moldova has been a partner of the Climate and Clean Air Coalition (CCAC) since 2016¹³⁷ and has leveraged the partnership to increase the ambitions of its international climate goals in the field of road transport. This strategy paves the way for the Republic of Moldova to

¹³⁵ Rodrigo Chaparro, John Heermans, Marius Taranu, Case study “Carbon Pricing and the Carbon Border Adjustment Mechanism: Implications and Impacts in Moldova”. 25 September 2023, Energy Security Activity in Moldova (MESA), a USAID-funded project implemented by Tetra Tech ES, Inc. Contract number: 7200AA19D00029. <https://mediu.gov.md/en/node/4780>

¹³⁶<https://eu4climate.eu/2022/09/06/eu4climate-assists-armenia-moldova-ets/>

¹³⁷<https://www.ccacoalition.org/partners/moldova>

contribute to achieving the considerable reductions in fine particulate matter and black carbon emissions on roads set out globally in the Strategy.

In 2019, Law No 461/2001 on the market¹³⁸ for petroleum products¹³⁹ was amended in order to remove toxic exhaust gases. This law partially transposes Directive 98/70/EC of the European Union (EU) on fuel quality.

In 2022, the Republic of Moldova adopted Law No 98/2022¹⁴⁰ on atmospheric air quality, which partially transposes Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe and Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air, as last amended by Commission Directive (EU) 2015/1480 of 28 August 2015.

In addition, the Republic of Moldova promotes low-emission mobility by applying a number of benefits, in particular of a fiscal nature, that are offered to owners of electric vehicles, as follows:

- excise duties shall not be paid on the importation of electric cars;

- owners of electric cars do not pay the toll for the use of roads. Based on the Annex No 1 to Title IX of the Tax Code No 1163/1997, the road use tax is currently calculated on the basis of the volume of the car's engine. At the same time, in the case of trucks, regardless of the mode of propulsion (electric or internal combustion engine), the road use charge is calculated on the basis of their weight.

Measure code policy	PM_DC33	Name	Promotion of considerable reductions of fine particulate matter and black carbon emissions from roads
General objective	Reduction of pollutant emissions		
Quantified target	Reduction of pollutant emissions, including indirect GHG emissions		
Description	<p>PM_DC33 will accelerate the removal of toxic exhaust gases. In addition, along with eight other countries, the Republic of Moldova joined the 'Breathe Life Campaign' in 2019 by approving fuel quality standards for petrol and diesel to match those of the European Union and adopting vehicle standards. The Republic of Moldova also carries out the regular inventory of air pollutants and reports to the Convention on Long-Range Transboundary Air Pollution (CLRTAP).</p> <p>By adopting the Regulation on the reduction of the sulphur content of certain liquid fuels by Government Decision No 414/2016,¹⁴¹ the Republic of Moldova transposed Council Directive 1999/32/EC of 26 April 1999 relating to a reduction in the sulphur content of certain liquid fuels and amending Directive 93/12/EEC published in Official Journal of the European Communities L121 of 11 May 1999.</p>		
Deadline for implementation	2024-2030		
Type of measure	Regulation		
Covered/affected sectors	Environment and Energy		
Implementing entity	Ministry of Environment		
Monitoring entity	Ministry of Environment Environment Agency		
Progress indicators	Annual emission reduction (kt)		
Other relevant dimensions of the Energy Union affected			
Energy Union policies resulting in the implementation of policies and measures	<p>Directive 98/70/EC of the European Parliament and of the Council of 13 October 1998 relating to the quality of petrol and diesel fuels and amending Council Directive 93/12/EEC</p> <p>Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe</p>		

¹³⁸https://www.legis.md/search/getResults?doc_id=112876&lang=en

¹³⁹https://www.legis.md/search/getResults?doc_id=141078&lang=en

¹⁴⁰https://www.legis.md/search/getResults?doc_id=137491&lang=en

¹⁴¹https://www.legis.md/search/getResults?doc_id=134771&lang=en

	Directive 2004/107/EC of the European Parliament and of the Council of 15 December 2004 relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air
Relevant national planning document (Legislative acts, normative acts, etc.)	Fuel Quality Law Act No 98/2022 on Atmospheric Air Quality Act No 227 on Industrial Emissions Government Decision No 414/2016 on reducing the sulphur content of certain liquid fuels
Implementation cost	EUR 0.5 million
Source(s) of funding	State budget, sources of external donors

3.2. Energy efficiency dimension

Law No 113/2023 amending Law No 139/2018 on energy efficiency introduced a number of amendments stemming from the Energy Efficiency Directive and completed the necessary legal basis for long-term planning, including the development of this NECP as a policy document setting out national targets for energy efficiency, renewable energy and the reduction of greenhouse gas emissions by 2030.

Following the amendments introduced in Law 139/2018 on energy efficiency, the Ministry of Energy has been equipped with new instruments, including financial instruments, to carry out and promote investments in energy efficiency measures.

In particular, the Energy Efficiency Fund in the residential sector in the Republic of Moldova was created to enable the renovation of buildings in the residential sector, the consumption of which constitutes about 50% of energy consumption, which represents a great potential for energy savings.

The National Centre for Sustainable Energy, as a public institution, has the mission to coordinate and organize the activities aimed at ensuring the implementation of the state policy in the assigned fields of activity, including by attracting and managing financial resources for financing and promoting projects and programs in the fields of activity, including:

- Home Appliances Voucher Program;
- The financing programme "Energy Efficiency Fund in the Residential Sector of the Republic of Moldova", through which financing products will be launched for individual homeowners and owners' associations in the condominium;
- support measures for the development of the biofuels sector.

Through the support measures for the promotion of electric transport and e-mobility, through the amendments made to Law No 139/2018 on energy efficiency, the Government committed to implement, between 1 January 2024 and 31 December 2030, energy efficiency measures that will result in new annual energy savings of 0.8% of the average value of final energy consumption recorded between 1 January 2019 and 1 January 2022. Energy efficiency measures will be taken in sectors of the national economy such as industry, transport, agriculture, services and households, enabling annual savings of around 244 GWh of energy. The monitoring of energy savings is to be carried out by the Public Institution National Centre for Sustainable Energy, through the National Energy Efficiency Information System.

A characteristic feature of the energy sector of the Republic of Moldova until 2022 was the procurement of significant volumes of imported energy from a single source, without resorting to or having the possibility to use tools to diversify supply routes, thus ensuring about 75% of the primary consumption of energy resources. It should be noted that, lately, the Republic of Moldova has taken several actions to liberalize the electricity and natural gas markets, being possible to purchase them on the EU market.

However, due to the relatively low energy consumption of the country and the availability of fossil fuels, the energy conversion sector has not been sufficiently developed so far and therefore requires additional effort and financial means to be modernised.

The Energy Strategy to 2030 defines as a priority the construction of new generation capacities and the repowering of existing ones in order to strengthen and fully commercialize the internal potential of electricity generation.

2025	21,6	21,6	-	-	-	-	-	43,2
2026	21,6	21,6	21,6	-	-	-	-	64,8
2027	21,6	21,6	21,6	21,6	-	-	-	86,5
2028	21,6	21,6	21,6	21,6	21,6	-	-	108,1
2029	21,6	21,6	21,6	21,6	21,6	21,6	-	129,7
2030	21,6	21,6	21,6	21,6	21,6	21,6	21,6	151,3
Cumulative amount 2024-2030								605,2

Consumer protection and prevention of energy poverty

In the context of energy vulnerability, the protection of final consumers is particularly important due to the high share of vulnerable population. In the long term, effective policies need to be developed and implemented to ensure the protection of final customers, their energy supply and to prevent energy poverty. The surge in energy prices since 2021, coupled with the low energy efficiency of homes, is compromising living standards and popular support for current and future energy sector reforms. It is therefore essential that the risks faced by vulnerable consumers are addressed through a range of policies, ranging from compensation and financial aid for more efficient consumption of energy resources and price caps to social benefits and measures promoting energy efficiency.

With the approval of Law 241/2022 on the Energy Vulnerability Reduction Fund, the concept of ‘vulnerable consumer’ and the initial proposals on how the Government committed to support this category of consumers were introduced.

Supporting vulnerable consumers and fighting energy poverty requires:

- identification of the places of consumption and persons most at risk;
- creating databases, linking databases from different institutions (social security, distribution companies, EE databases, etc.) to extract relevant data;
- the assessment of qualitative and quantitative aspects of vulnerability, which are indispensable for the development of specific measures on energy poverty.

In this context, it is important to use smart meters that allow prepayment, as well as clear rules for disconnection from the grid.

ii. Long-term renovation strategy to support the renovation of the national building stock of residential and non-residential buildings, both public and private, including policies, measures and actions to stimulate cost-effective deep renovation and policies and actions targeting the worst performing segments of the national building stock, in accordance with Article 2a of Directive 2010/31/EU, as adapted and approved by Decisions of the Ministerial Council of the Energy Community 2010/02/MC-EnC and 2021/14/MC-EnC

The long-term building stock renovation strategy will include a combination of policy, financing, fiscal and regulatory measures to support the energy renovation of the national building stock and achieve the desired renovation rate. The strategy targets residential and non-residential buildings, both public and private.

Garnt components will be offered to improve energy performance and upgrade buildings. The incentives will aim to boost investment in major energy renovation measures for residential buildings, which will also help to increase their value for money. The most efficient heating and cooling technologies will also be promoted. Additional financial measures, such as credit lines and low-interest loans, will be considered if compensation and financial aid to make energy consumption more efficient are not sufficient. For non-residential buildings, the programmes will target specific sectors with high energy-saving potential. Special measures will be taken to increase the use of solar thermal systems in new and renovated buildings.

Law No 282/2023 on the energy performance of buildings partially transposes Directive 2010/31/EU of the European Parliament and of the Council of 19 May 2010 on the energy performance of buildings.

The purpose of this law is to create the necessary legal framework to promote the improvement of the energy performance of buildings, taking into account climate conditions, indoor climate requirements and cost-effectiveness, including by implementing public policy documents and measures to improve the energy performance of buildings, setting minimum energy efficiency and certification requirements for the energy performance of buildings, and providing information to building owners/managers or potential buyers/tenants on the level of energy performance of buildings.

Law No 282/2023 on the energy performance of buildings lays down requirements on:

1) Methodology for calculating the integrated energy performance of buildings and building units;

2) The sectoral strategy for the renovation of the national building stock in the long term;

3) National plan to increase the number of nearly zero-energy buildings;

4) Application of minimum energy efficiency requirements for:

future buildings and new units of existing buildings;

existing buildings and building units undergoing major renovation;

elements that form part of the building envelope and have a significant impact on the energy performance of the building envelope, when upgraded or replaced;

technical building systems whenever they are installed, upgraded or replaced;

5) Certification of the energy performance of buildings and building units;

6) Periodic inspection of heating, ventilation and conditioning systems;

7) The control mechanism of the issued energy performance certificates;

8) Mechanism of control of inspection reports of heating systems and inspection reports of ventilation and conditioning systems.

Thus, the existing legal framework in the area of energy efficiency of buildings is aligned with Directive (EU) 2018/844 on amending Directive 2010/31/EU on the energy performance of buildings.

Measure code policy	PM_EE1	Name	Renovation of buildings in the residential sector
General objective	Promoting energy efficiency in residential buildings		
Quantified target	Cumulative effect of 17 ktoe		
Description	<p>The measure aims to implement energy renovations for residential buildings in Moldova, including thermal insulation, window replacement, modernization of heating systems, including by promoting the installation of heat pumps, and integration of renewable energy sources. Charging stations for electric cars will be promoted as part of the infrastructure upgrade.</p> <p>Through grants and partial reimbursements, the measure will support individual homeowners and condominium homeowners' associations in implementing energy efficiency solutions. At the same time, emphasis will be placed on supporting energy-vulnerable households.</p> <p>Economic benefits for households, improved housing comfort and reduced environmental impact are expected.</p> <p>The Residential Energy Efficiency Fund will become the main financing instrument and development partnerships will complement these efforts. At the same time, the institutional capacities of the National Center for Sustainable Energy must be strengthened to ensure the effective implementation of these programs and projects.</p>		
Deadline for implementation	2024-2030		
Type of measure	Investment		
Covered/affected sectors	Residential sector		
Implementing entity	National Center for Sustainable Energy Donors		
Monitoring entity	Ministry of Energy		

	National Center for Sustainable Energy
Progress indicators	Number of residential buildings renovated Renovated area (m2) Energy savings achieved (ktoe) Reduction of GHG emissions (tonnes of CO2 equivalent)
Other relevant dimensions of the Energy Union affected	Decarbonisation
Energy Union policies that have resulted in implementation of policies and measures	Energy Efficiency Directive 2012/27/EU as amended by Directive (EU) 2018/2002
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 139/2018 on energy efficiency Government Decision no. 102/2013 on the Energy Strategy of the Republic of Moldova until 2030 Government Decision No 251/2024 approving the financing programme 'Energy Efficiency Fund in the Residential Sector of the Republic of Moldova'
Implementation cost	248 million euros
Source(s) of funding	Funds raised under the energy efficiency obligation scheme Energy Vulnerability Reduction Fund Grants from international organisations and development partners

Measure code policy	PM_EE2	Name	Renovation of buildings the Public Sector of the State
General objective			Renovation of buildings in the public sector of the State so that at least the minimum energy performance requirements laid down in Article 9 of Law No 282/2023 on the energy performance of buildings are met
Quantified target			Cumulative effect of 4.28 ktoe
Description			This measure will provide ways of energy renovation of at least 24 medical buildings and 46 educational buildings in the public sector, ensuring the rehabilitation of the building envelope, achieving cost-effectiveness and increasing the share of own funds to be used. Moreover, the energy renovation of public buildings will be in line with the energy performance requirements, promotion and integration of RES. At the same time, emphasis will be placed on the exemplary role of public buildings in promoting energy efficiency at national level, which will include the renovation of a rate of 3% of the total area of buildings in the public domain of the state, with a total area of over 250 m ²
Deadline for implementation			2024-2030
Type of measure			Investment
Covered/affected sectors			Public sector
Implementing entity			Ministry of Energy KILLED Public Institution National Centre for Sustainable Energy Donors
Monitoring entity			Ministry of Energy
Progress indicators			Number of energy-renovated public buildings
Other relevant dimensions of the Energy Union affected			Decarbonisation
Energy Union policies that have resulted in implementation of policies and measures			Directive (EU) 2018/844
Relevant national planning document (Legislative acts, normative acts, etc.)			Law no. 139/2018 on energy efficiency Law No 282/2023 on the energy performance of buildings Government Decision No 251/2024 approving the financing programme 'Energy Efficiency Fund in the Residential Sector of the Republic of Moldova' Government Decision No 163/2024 approving the Programme on the implementation of the obligation to renovate the buildings of the specialised central public administration authorities
Implementation cost			EUR 193.8 million

Source(s) of funding	Sources of external donors		
Measure code policy	PM_EE3	Name	National Information System in the field of energy efficiency "SINEE"
General objective	Implementation of Law no. 139/2018 on energy efficiency		
Quantified target	Integrated information monitoring system in the field of energy performance in various sectors of the economy		
Description	<p>This measure will ensure the implementation of a national information system for data collection, management and analysis, which will allow the monitoring and evaluation of the impacts and benefits of energy efficiency policies and programmes, opportunities for energy efficiency improvements in different areas and the centralisation of reliable and transparent information for all stakeholders: policy makers, regulators, consumers, investors and researchers for decision-making and market development.</p> <p>At the same time, the system will contain data on qualified specialists in the field of energy efficiency, such as energy auditors, energy assessors, inspectors of heating systems and inspectors of ventilation and conditioning systems. Moreover, the system will contain the list of companies that will provide energy performance certification services, companies that provide inspection services for heating systems and those that provide inspection services for ventilation and conditioning systems.</p> <p>Thus, the National Energy Efficiency Information System will be an integrated information system comprising the following subsystems:</p> <p>a) the national information subsystem in the field of energy efficiency of buildings, created and managed in accordance with the provisions of Law no. 282/2023 on the energy performance of buildings;</p> <p>the Energy Savings Monitoring and Verification Information Subsystem (SIMVE);</p> <p>c) energy management information subsystem (SIME);</p> <p>the information subsystem 'Electronic register of energy auditors';</p> <p>e) Information Subsystem "Electronic Energy Audit Register"</p>		
Deadline for implementation	2024-2030		
Type of measure	Reform		
Covered/affected sectors	Residential sector, public		
Implementing entity	Ministry of Energy National Center for Sustainable Energy		
Monitoring entity	Ministry of Energy		
Progress indicators	Functionally integrated information system Number of functional integrated subsystems		
Other relevant dimensions of the Energy Union affected	Decarbonisation		
Energy Union policies that have resulted in implementation of policies and measures	Directive (EU) 2018/844		
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 139/2018 on energy efficiency		
Implementation cost	1.5 million euros		
Source(s) of funding	State budget, sources of external donors		

Measure code policy	PM_EE4	Name	Regulatory framework for the certification of the energy performance of buildings
General objective	Development, approval and implementation of the secondary legal framework necessary for the implementation of energy performance certification of buildings		
Quantified target	The secondary regulatory framework necessary for the implementation of the energy performance certification of buildings developed. Initiation of energy performance certification of buildings		
Description	This measure will include the development, approval and implementation of the secondary regulatory and policy framework for the implementation of energy performance certification of buildings.		

	<p>Where appropriate, documents such as:</p> <p>Regulation on the procedure for the certification of the energy performance of buildings and building units;</p> <p>Regulation on qualification and registration of energy assessors, inspectors of heating systems and inspectors of ventilation and conditioning systems.</p> <p>It will also ensure that the following documents are kept up to date:</p> <p>Methodology for calculating the energy performance of buildings;</p> <p>Regulation on periodic inspection of heating and air-conditioning systems; air and regular reporting;</p> <p>Minimum energy performance requirements for buildings and technical building systems.</p> <p>The following studies and policy documents will be developed and approved:</p> <p>Study on setting cost-optimal levels of minimum energy performance requirements;</p> <p>Sectoral strategy for the renovation of the national building stock in the long term;</p> <p>National plan for increasing the number of nearly zero-energy buildings.</p> <p>This measure will ensure the implementation of the qualification system for evaluators and inspectors of heating and ventilation systems, provides for the development and implementation of training programs for specialists, as well as will ensure the implementation of the certification system for the energy performance of buildings.</p>
Deadline for implementation	2024-2030
Type of measure	Reform
Covered/affected sectors	Residential sector, public sector
Implementing entity	Ministry of Energy Ministry of Infrastructure and Regional Development Public Institution National Centre for Sustainable Energy the National Inspectorate for Technical Supervision
Monitoring entity	Ministry of Energy Ministry of Infrastructure and Regional Development Public Institution National Centre for Sustainable Energy
Progress indicators	Number of certified buildings
Other relevant dimensions of the Energy Union affected	Decarbonisation
Energy Union policies that have resulted in implementation of policies and measures	Directive (EU) 2018/844 Implementation of Directive (EU) 2012/27, as amended by Directive (EU) 2018/2002 Directive (EU) 2010/31
Relevant national planning document (Legislative acts, normative acts, etc.)	Law No 282/2023 on the energy performance of buildings Law no. 139/2018 on energy efficiency Government Decision No 622/2024 approving the Regulation on qualification and registration of energy assessors, inspectors of heating systems and inspectors of ventilation and conditioning systems
Implementation cost	1.5 million euros
Source(s) of funding	State budget, sources of external donors, sources of private sector

Measure code policy	PM_EE5	Name	Deployment of smart metering systems and other advanced technologies metering to better respond on request, remote metering and billing according to the hours of electricity consumption
General objective	Consumer protection and improved competition make it possible to promote energy efficiency on the supply side (i.e. by reducing losses)		
Quantified target	Cumulative effect of 13.4 ktoe Average annual effect of 2.6 ktoe		
Description	Smart metering systems will help consumers save money and energy by providing them with more information and suggestions on energy consumption patterns and allowing them to choose the best tariff or contract for their needs. Furthermore, they will facilitate the integration of renewables into the grid, allowing consumers to sell their excess energy back to the grid or other consumers, to join renewable energy communities, and providing them with incentives for demand response and load shifting. Replacing existing household meters with smart meters		

Deadline for implementation	2024-2030
Type of measure	Reform, electricity
Covered/affected sectors	Residential sector
Implementing entity	Distribution system operators; ANRE
Monitoring entity	Ministry of Energy
Progress indicators	Household consumers equipped with smart meters
Other relevant dimensions of the Energy Union affected	Energy security
Energy Union policies that have resulted in implementation of policies and measures	Directive 944/2019
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 139/2018 on energy efficiency Law No 107/2016 on electricity
Implementation cost	EUR 70.0 million
Source(s) of funding	Sources of external donors, sources of the private sector

iii. Description of policy and measures to promote energy services in the public sector and measures to remove regulatory and non-regulatory barriers preventing the uptake of energy performance contracting and other energy performance service models¹⁴²

An energy services company (ESC) is the company that offers a wide range of energy solutions, including the design and implementation of energy saving projects, modernisation, energy conservation, energy infrastructure outsourcing, energy generation, energy supply and risk management.

There are no active ESCs in the Republic of Moldova. However, ESCs can play an important role as intermediaries between banks, equipment manufacturers and customers. The potential of an ESC market should be considerable in the Republic of Moldova.

The promotion of energy services will be underpinned by a global framework that removes potential barriers. Existing standard contracts and guidance will be used to facilitate the design and implementation of energy performance projects through energy performance contracts.

Specific pilot projects will be launched to renovate public buildings and upgrade street lighting through energy performance contracts. This will also create the conditions for the promotion of energy services in the public sector. The public procurement procedures will be carried out in accordance with the provisions of the normative framework in force, taking into account also the provisions of Law no. 139/2018 on energy efficiency.

Moreover, targeted funding programmes will be initiated in specific sectors, such as industry and trade, based on the results of the pilot projects. Additional financing instruments, such as loans or low-interest guarantees, will be offered to energy service providers to facilitate their access to finance and the implementation of energy performance projects in the third and industrial sectors.

Finally, the Ministry of Energy, the Ministry of Infrastructure and Regional Development and the Ministry of Finance will monitor compliance with the legislation on energy performance contracts and ensure the removal of market barriers. They will also act as an independent mechanism to handle complaints and disputes arising from energy service contracts and as an independent market intermediary to stimulate market development on both the demand and supply sides.

Measure code policy	PM_EE6	Name	Promotion of energy services and energy performance contracting
General objective	Develop and implement the primary and secondary regulatory framework supporting the widespread use of energy services and energy performance contracting		

¹⁴²In accordance with Article 18 of Directive 2012/27/EU

Quantified target	Regulatory framework for the implementation of energy services and energy performance contracting developed, market for energy services created
Description	<p>The proposed measure aims to promote energy services and stimulate investment in energy efficiency and renewable energy through a number of legislative and regulatory actions, which include:</p> <p>drafting and amending existing legislation, by regulating the ways in which institutions will carry out ESCO-type projects. This requires the creation of a specific legislative framework to facilitate the implementation of energy efficiency projects in all sectors. The amendments will include regulations on procedures for the selection, execution and monitoring of ESCO projects, so as to ensure transparency and efficiency in the use of public funds;</p> <p>supporting the market for ESCO services by improving legislation on energy services, standardising contractual frameworks used by energy service companies and streamlining their accreditation procedures. These changes will ensure better regulation of the energy services market and stimulate the development of companies in this sector;</p> <p>supporting private investment in energy efficiency by encouraging private investment to facilitate the financing of energy performance and renewable energy projects. This will include the development of specific financial instruments, such as credit lines and guarantee instruments, which will make it easier for companies and local authorities to access funding for their projects.</p> <p>Work with financial institutions to create financial instruments and credit lines dedicated to energy efficiency projects, thus providing an additional source of funding for these projects. These instruments will be tailored to market needs and include favourable conditions to encourage private investment in renewable energy and energy efficiency</p>
Deadline for implementation	2025-2030
Type of measure	Reform
Covered/affected sectors	Residential sector, public
Implementing entity	National Center for Sustainable Energy Ministry of Energy
Monitoring entity	Ministry of Energy
Progress indicators	Number of laws and government decisions adopted Energy performance contracts signed
Other relevant dimensions of the Energy Union affected	Decarbonisation
Energy Union policies that have resulted in implementation of policies and measures	Implementation of Directive (EU) 2012/27, as amended by Directive (EU) 2018/2002
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 139/2018 on energy efficiency Law No 282/2023 on the energy performance of buildings
Implementation cost	1.0 million euros
Source(s) of funding	State budget Grants and funding from international organisations and development partners

Measure code policy	PM_EE7	Name	Energy efficiency in public buildings through the implementation of the Super ESCO mechanism
General objective	Improving the energy efficiency of public buildings in the Republic of Moldova through the application of the Super ESCO mechanism and energy performance contracting, with a view to reducing greenhouse gas emissions and optimising energy consumption, thus contributing to achieving the national decarbonisation targets by 2030		
Quantified target	Cumulative effect of 1.5 ktoe		
Description	The proposed policy measure focuses on the implementation of the concept of Super ESCO, an innovative mechanism that relies on energy performance contracts to improve the energy efficiency of public buildings in the Republic of Moldova. The main purpose of this program is to support public authorities in identifying and implementing efficient financial and technical solutions for the renovation and modernization of public		

	<p>infrastructure, thus contributing significantly to energy saving and reducing the consumption of energy resources.</p> <p>The Super ESCO mechanism will provide financing for the implementation of energy efficiency measures and the recovery of renewable energy sources, and the development of a performance-based payment model, whereby energy efficiency improvements will be measured and validated on the basis of specific indicators, thus ensuring that the investments made bring real and sustainable savings. This approach will stimulate investments in energy efficiency, encouraging the deployment of innovative and efficient solutions for public buildings. Another major objective is to promote efficient project implementation and the adoption of appropriate contracting methods that reduce administrative and financial barriers for public authorities.</p> <p>The CNED will be designated as the entity responsible for the implementation of the Super ESCO mechanism. It will work closely with various government organisations, public authorities and private partners to promote energy efficiency services. It will also monitor and evaluate the progress of projects implemented through this mechanism and ensure the long-term sustainability of the programme, while facilitating knowledge transfer and capacity development in the field of energy services.</p>
Deadline for implementation	2025-2030
Type of measure	Investment
Covered/affected sectors	Public sector
Implementing entity	National Center for Sustainable Energy
Monitoring entity	National Center for Sustainable Energy Ministry of Energy
Progress indicators	Number of energy performance contracts signed Energy savings achieved (ktoe) Reduction of CO ₂ emissions (tonnes)
Other relevant dimensions of the Energy Union affected	Decarbonisation
Energy Union policies that have resulted in implementation of policies and measures	Directive 2012/27/EU on energy efficiency, as amended by Directive (EU) 2018/2002.
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 139/2018 on energy efficiency
Implementation cost	30.0 million euros
Source(s) of funding	State budget Grants and funding from international organisations and development partners

iv. Other policies, measures and programmes planned to achieve the indicative national energy performance contributions by 2030, as well as other objectives referred to in Section 2.2 (e.g. measures to promote the exemplary role of public buildings and energy-efficient public procurement, measures to promote energy audits and energy management systems, consumer information and training measures, and other measures to promote energy performance)

Transport

The transport sector in the Republic of Moldova has a high potential for energy savings. The priority direction is, in particular, the promotion of energy performance in the field of transport. The main instrument for promoting energy efficient vehicles will be the specific financial advantages to encourage the purchase of such vehicles.

Moreover, stricter minimum requirements will apply to the emission standards of imported used cars to ensure acceptable levels of energy efficiency compared to new ones.

Priority will be given to promoting energy efficiency in freight transport, through initiatives such as replacing vehicle fleets and facilitating modal shift to other types of transport. An overarching framework will be developed to promote this transition for both passenger and freight transport,

paving the way for Mobility as a Service (MaaS) through the use of data, information and communication technologies, as well as artificial intelligence, for smarter mobility.

In addition, the promotion of alternative fuels will be supported by developing the necessary infrastructure for all types of alternative fuels, maximising synergies with policy measures on the RES dimension. Emphasis will be placed on the targeted deployment of electromobility to achieve the electric vehicle target.

Continuous improvement and expansion of public transport infrastructure will be ensured, while strengthening the exemplary role of the public sector with measures such as the establishment of a mandatory share of more energy efficient vehicles in public agencies and organisations.

The development of sustainable regional or municipal mobility plans will facilitate the implementation of these measures at local and regional level, while existing measures to promote energy-efficient tyres for all types of vehicles will be continued, such as the promotion of energy-efficient tyres and lubricants, the conduct of periodic technical vehicle inspections, the promotion of fuel additives, the establishment of a framework for fuel labelling and the monitoring of fuel quality.

Finally, specific measures will be implemented to promote energy efficiency in the rail transport sector for both freight (for the most part) and passenger transport, through financial or regulatory measures.

Although the costs of rail transport worldwide are lower than other modes of transport, official statistics show that there is a downward trend in the use of rail transport at national level. The development of this mode of transport (one of the most efficient) can also improve competition between companies.

Measure code policy	PM_EE8	Name	Promotion of clean and efficient road transport vehicles from an energy point of view
General objective	Partial implementation of Directive 2009/33/EC on the promotion of clean and energy-efficient road transport vehicles		
Quantified targetk	New means of transport purchased by operators with public service contracts meet minimum efficiency and environmental requirements		
Description	The measure contains the development of the necessary regulatory framework for the transposition and implementation of Directive 2009/33/EC on the promotion of clean and energy-efficient road transport vehicles, including a roadmap setting out the level of ambition for the renovation of the transport fleet.		
Deadline for implementation	2026-2030		
Type of measure	Reform		
Covered/affected sectors	Transportation		
Implementing entity	Ministry of Infrastructure and Regional Development Ministry of Environment		
Monitoring entity	Ministry of Infrastructure and Regional Development Ministry of Environment		
Progress indicators	Number of vehicles renewed		
Other relevant dimensions of the Energy Union affected	Decarbonisation		
Energy Union policies that have resulted in implementation of policies and measures			
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 139/2018 on energy efficiency		
Implementation cost	20.0 million euros		
Source(s) of funding	State budget, budget of local public authorities, private sector sources		

Measure code policy	PM_EE9	Name	Increasing the share of alternatively fuelled cars, as well as developing the necessary national infrastructure for electric vehicles, charging points and their parking infrastructure
General objective	Implementation of Law no. 139/2018 on energy efficiency and Directive (EU) 2018/2002		
Quantified target	Cumulative effect of 2 ktoe Average annual effect of 0.4 ktoe 2030 – 11 thousand EVs		
Description	<p>Promoting and using alternative fuel cars to reduce GHG emissions, achieve more sustainable transport and achieve the goals set out in the European Green Deal, the 2030 Agenda for Sustainable Development and the Paris Agreement.</p> <p>Under this measure, economic incentives for the purchase of electric vehicles will be continued, charging infrastructure will be developed and non-material incentives (creation of parking spaces, etc.) will be developed.</p> <p>The cost of implementing the action is the cost of revenue not received from the state budget from the payment of import excise duties by replacing 11 000 diesel vehicles with a capacity of 1900 cm³ with electric vehicles, the value of which is 0</p>		
Deadline for implementation	2024-2030		
Type of measure	Investment		
Covered/affected sectors	Transportation		
Implementing entity	Ministry of Infrastructure and Regional Development Ministry of Finance Ministry of Energy		
Monitoring entity	Ministry of Infrastructure and Regional Development		
Progress indicators	Number of passenger vehicles		
Other relevant dimensions of the Energy Union affected	Decarbonisation		
Energy Union policies that have resulted in implementation of policies and measures	Directive (EU) 2018/2002		
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 139/2018 on energy efficiency		
Implementation cost	34 million euros, plus 16 million euros for 1,000 charging stations		
Source(s) of funding	State budget, sources of external donors, sources of private sector		

Measure code policy	PM_EE10	Name	Increased use of rail for freight and passengers
General objective	Implementation of Law 139/2018 and Directive (EU) 2018/2002		
Quantified target	Cumulative effect of 17.5 ktoe Average annual effect of 2.92 ktoe Shifting 30% of road freight to rail freight		
Description	The measure will aim at modernising and expanding the existing railway infrastructure by ensuring financial or regulatory measures. New energy-efficient trains will be purchased to replace conventional ones. Intelligent digital systems for rail traffic management will be installed		
Deadline for implementation	2025-2030		
Type of measure	Investment		
Covered/affected sectors	Transportation		
Implementing entity	Ministry of Infrastructure and Regional Development		
Monitoring entity	Ministry of Infrastructure and Regional Development		
Progress indicators	Freight traffic		

Other relevant dimensions of the Energy Union affected	Decarbonisation
Energy Union policies that have resulted in implementation of policies and measures	Directive (EU) 2018/2002
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 139/2018 on energy efficiency
Implementation cost	EUR 186.0 million
Source(s) of funding	State budget, sources of external donors, sources of private sector

Policy Measures Code	PM_EE11	Name	Promoting sustainable mobility
General objective	Implementation of Law no. 139/2018 on energy efficiency and of Directive (EU) 2012/27, as amended by Directive (EU) 2018/2002		
Quantified target	Cumulative effect of 2.0 ktoe Average annual effect of 0.33 ktoe		
Description	This policy will be implemented through the following measures: regulating the entry of polluting vehicles into certain areas of urban centres; campaigns, the provision of grants and the implementation of schemes to encourage the purchase or rental of electric bicycles and scooters, as well as the use of car-sharing, ride-sharing and mobility as a service (MaaS); promoting walking and introducing a parking policy that reduces car traffic in urban areas; especially in cities, where many residents often use cars for short trips, these strategies are expected to lead to a broad transition towards the use of bicycles, electric scooters and walking. This change can help alleviate traffic congestion, reduce GHG emissions and improve the sustainability of the community as well as people's quality of life		
Deadline for implementation	2024-2030		
Type of measure	Reform		
Covered/affected sectors	Transportation		
Implementing entity	Ministry of Infrastructure and Regional Development Local Public Administration Ministry of Internal Affairs		
Monitoring entity	Ministry of Infrastructure and Regional Development Ministry of Internal Affairs		
Progress indicators	Local level		
Other relevant dimensions of the Energy Union affected	Decarbonisation		
Union policies that have resulted in implementation of policies and measures	Implementation of Directive (EU) 2012/27, as amended by Directive (EU) 2018/2002		
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 139/2018 on energy efficiency		
Implementation cost	EUR 5.0 million		
Source(s) of funding	State budget, local public administration budgets, sources of external donors, sources of private sector		

Industry

The implementation of energy efficiency projects in the industrial sector will be supported by various financial instruments, such as direct financial support, low-interest loans and credit and guarantee lines.

Best available technologies and practices that reduce energy consumption and emissions, such as efficient engines, pumps, boilers, ovens, lighting and insulation will continue to be

implemented in accordance with the relevant legislation, and a monitoring and surveillance mechanism will be developed to ensure this objective.

Ecodesign requirements will also ensure the penetration of energy-efficient technologies and equipment such as variable speed drives, heat recovery systems and smart sensors.

In line with the above, circular economy elements will be promoted, such as the exploitation of waste heat and materials, the use of waste heat for district heating or industrial processes, as well as the use of residual biomass for the generation of electricity or biofuels and the expansion of the digitalisation of industrial processes optimising energy management and performance. The use of smart meters, data analytics, artificial intelligence and automation, the exploitation of renewable energy sources for electricity production, heating and cooling and the use of alternative fuels such as solar, wind, biogas, hydrogen or biofuels will also be improved.

Measure code policy	PM_EE12	Name	Carrying out mandatory energy audits by large enterprises
General objective	Promote, among large companies, the obligation to carry out mandatory energy audits every 4 years. Promote among large companies the alternative option of mandatory energy audits, i.e. the possibility of implementing an energy or environmental management system		
Quantified target	Contribution to all end-use measures Number of companies that prepared the energy audit		
Description	This measure will include: approval of the secondary regulatory framework related to the obligation of large enterprises to carry out energy audits (Regulation on the performance of energy audits by large enterprises); the establishment of the list of large undertakings subject to the obligation to carry out energy audits; notifying large companies of the obligation to carry out large energy audits; ensuring continuous training of energy auditors and energy managers for industry; promoting available financing instruments in the field of energy efficiency and energy management principles among large, small and medium-sized enterprises; carrying out information and awareness-raising programmes for small and medium-sized enterprises, including through employers' associations, on best practices used to improve energy efficiency and reduce energy consumption; preparation of energy audits by large companies		
Deadline for implementation	2024-2030		
Type of measure	Reform		
Covered/affected sectors	Industry		
Implementing entity	Ministry of Energy National Center for Sustainable Energy Organization for Entrepreneurial Development		
Monitoring entity	Ministry of Energy National Center for Sustainable Energy		
Progress indicators	Number of companies that carried out the energy audit		
Other relevant dimensions of the Energy Union affected	Decarbonisation		
Energy Union policies that have resulted in implementation of policies and measures	Directive (EU) 2018/2002		
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 139/2018 on energy efficiency		
Implementation cost	EUR 3.0 million		
Source(s) of funding	State budget, sources of private sector, sources of external donors		

Measure code policy	PM_EE13	Name	Implementation of energy efficiency measures and exploitation of renewable energy sources within the industrial sector
General objective	Implementation, among large and medium-sized companies, of energy efficiency measures and the exploitation of renewable energy sources in the industrial sector		
Quantified target	Cumulative effect of 2.0 ktoe		
Description	The implementation of the envisaged measures includes: Pprogramme for Retrofitting and Energy Efficiency of Small and Medium-Sized Enterprises; the establishment of the list of large undertakings subject to the obligation to carry out energy audits; Greening programme for small and medium-sized enterprises; other measures established by the Government through funding programmes		
Deadline for implementation	2024-2030		
Type of measure	Reform		
Covered/affected sectors	Industry		
Implementing entity	Ministry of Energy National Center for Sustainable Energy Organization for the Development of Entrepreneurship		
Monitoring entity	Ministry of Energy National Center for Sustainable Energy		
Progress indicators	Number of projects implemented by companies		
Other relevant dimensions of the Energy Union affected	Decarbonisation		
Energy Union policies that have resulted in implementation of policies and measures	Directive (EU) 2018/2002		
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 139/2018 on energy efficiency		
Implementation cost	EUR 8.0 million		
Source(s) of funding	State budget, sources of private sector, sources of external donors		

Measure code policy	PM_EE14	Name	Implementation of energy labelling and ecodesign requirements for products energy-related
General objective	Implementation of Law No 306/2023 on the labelling of energy-related products, a Law No. 139/2018 on energy efficiency and Law No. 151/2014 on ecodesign requirements for energy-related products		
Quantified target	Cumulative effect of 50.0 ktoe		
Description	The following measures are planned: improving state control and the ability of authorities to verify compliance of product parameters with the declared requirements; creating attractive financing instruments for the purchase of electrical equipment with maximum efficiency; organising information and awareness-raising campaigns for citizens on the benefits and practicalities of implementing energy efficiency measures; amending Law No 151/2014 on ecodesign requirements for energy-related products		
Deadline for implementation	2024-2030		
Type of measure	Reform		
Covered/affected sectors	Industry Residential sector		
Implementing entity	National Center for Sustainable Energy State Inspectorate for Supervision of Non-Food Products and Consumer Protection		
Monitoring entity	Ministry of Energy State Inspectorate for Supervision of Non-Food Products and Consumer Protection		

Progress indicators	Final energy savings
Other relevant dimensions of the Energy Union affected	Decarbonisation
Energy Union policies that have resulted in implementation of policies and measures	Directive (EU) 2018/2002
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 139/2018 on energy efficiency Law No 306/2023 on the labelling of energy-related products Law No. 151/2014 on ecodesign requirements for energy-related products
Implementation cost	1.5 million euros
Source(s) of funding	State budget, private sector sources

v. Description of measures to use the energy efficiency potential of natural gas and electricity infrastructure

The installed RES capacity needed to achieve the climate objectives and the impact on the energy consumption model and energy security will be determined taking into account the results of the modelling of the evolution of GHG emissions, in line with the envisaged mitigation actions and measures. At the same time, the need to strengthen the electricity grid for the integration of new renewable energy capacities will be determined. By Government Decision No 401/2021 on the approval of capacity limits, maximum shares and capacity categories in the field of renewable electricity valid until 31 December 2025, the Republic of Moldova has already committed to support the construction of 510 MW of new RES capacity, with a focus on wind, solar and non-intermittent RES (biomass, biogas and small hydropower plants). The promotion of energy efficiency in gas and electricity infrastructure may offer certain capacities to be used for RES.

As the Republic of Moldova does not have other primary energy sources, the further development of RES will be examined during the forecast period.

In order to support self-generation, decentralised electricity generation from RES should be given preferential treatment, be it an industrial site, individual households or consumer communities.

The government will promote the creation of regional green energy centres to increase local energy independence through the use of renewable energy.

Policies will ensure that consumers play a more active role in the energy market. Under the provisions of the Energy Performance of Buildings Act and the Renewable Energy Directive (RED II), the creation of energy communities and possibly *peer-to-peer transactions will be facilitated*.

The phasing-in of RES is likely to be less dependent on government support mechanisms. The government will work to incentivise investment in renewable energy through tendering, and the revenues of renewable energy producers can be increased through revenues from guarantees of origin. The planning and permitting phases of the RES installation are expected to be accelerated in order to remove some bottlenecks that are already visible. All this should be done in parallel with the implementation of the requirements of EU legislation.

The extended and balanced use of RES in the Republic of Moldova should give equal importance to RES in the heating/cooling and transport sectors. There is a large untapped potential for RES in the heating and cooling sector.

Strengthening the use of renewable energy in construction will be one of the priority areas.

The Republic of Moldova will take measures to support the transition of households from stoves to efficient boilers or heat pumps combined with own production. The legal framework will be aligned with the objectives of RED II for the transport sector; to this end, measures will be considered to increase the electrification of road and rail transport infrastructure, as well as to increase the use of biofuels (according to Law No 356/2022 amending certain legislative acts, as of 1 January 2026, the Republic of Moldova will amend the principle of taxation of cars from excise duties to VAT). Domestic production of biofuels from waste, residues and biomass as well as from green hydrogen will be encouraged.

Measure code policy	PM_EE15	Name	Implementation of universal street lighting, with priority given to power supply from RES
General objective	Implementation of Law no. 139/2018 on energy efficiency and Directive (EU) 2018/2002		
Quantified target	Contribution to the objective of energy efficiency and recovery of renewable energy sources		
Description	This measure will facilitate the improvement of the energy efficiency of street lighting, through public funds and specialised financial support schemes, such as low-interest loans and financial guarantees, which will aim to promote energy performance contracting.		
Deadline for implementation	2024-2030		
Type of measure	Investment		
Covered/affected sectors	Public sector		
Implementing entity	Ministry of Infrastructure and Regional Development Ministry of Energy National Office for Regional and Local Development Local Public Authorities Energy service companies		
Monitoring entity	Ministry of Energy		
Progress indicators	Number of street lighting systems renovated		
Other relevant dimensions of the Energy Union affected	Decarbonisation		
Energy Union policies that have resulted in implementation of policies and measures	Implementation of Directive (EU) 2012/27, as amended by Directive (EU) 2018/2002		
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 139/2018 on energy efficiency National Development Strategy 'European Moldova 2030' Government Decision No 659/2023 approving the Low Emission Development Programme up to 2030		
Implementation cost	4 million euros		
Source(s) of funding	State budget, sources of external donors		

Most of the existing electricity and heat generation capacities in the Republic of Moldova are inefficient, pollute the environment and are characterized by a high degree of wear and tear. Considerable efforts should therefore be focused on the renewal, upgrading or replacement of these capacities, as well as on the introduction and use of new and advanced technologies characterised by high efficiency and low environmental pollution.

Increasing energy efficiency by promoting high-efficiency cogeneration (rehabilitation of thermal power plants), taking measures to reduce energy losses and improve the energy efficiency of buildings, promoting efficient technologies and those benefiting from RES will help reduce dependence on natural gas imports and increase national energy security.

With a view to promoting a district heating and cogeneration system, the entire district heating and electricity system will be re-assessed from a technical and economic point of view in order to identify and implement opportunities for reducing energy losses and fuel consumption through the use of modern and efficient technologies, as well as significantly increasing the variety of services offered to consumers.

Upgrading of energy distribution and transmission networks is planned by 2030. The transport networks used were built mainly during the Soviet period and have a high degree of physical wear and tear, their technical characteristics being calculated according to the tasks of that period.

Measure code policy	PM_EE16	Name	Promotion/modernisation of TECs high efficiency
General objective	Implementation of Law No 139/2018 on energy efficiency, Law No 92/2014 on thermal energy and the promotion of cogeneration, Directive (EU) 2018/2002, the Large Combustion Plants Directive (LCPD, 2001/80/EC) and Directive 2010/75/EC		

Quantified target	Construction of new TECs with minimum high-efficiency cogeneration technologies 55 MW electrical power. 33.12 ktoe cumulative over 6 years
Description	<p>The measure will launch financial programmes for the installation of new performing TECs and the modernisation of existing ones.</p> <p>In the case of new performing TECs, the planned incentives will be carried out in accordance with Law 139/2018 on energy efficiency and Law 92/2014 on thermal energy and the promotion of cogeneration. Furthermore, power plants that are built or renovated must meet the minimum energy efficiency requirements set out in Law 139/2018 on energy efficiency.</p> <p>In particular, the measure provides for the implementation of the second Project to improve the efficiency of the centralized heat supply system in Chisinau (PIESACET-2), which provides for the construction of 2 new TECs with a total capacity of approx. 55 MW electrical power and elaboration of a feasibility study for the construction of new high-efficiency heat and power generation capacities for "Termoelectrica" JSC, which will replace the existing core capacities</p>
Deadline for implementation	2025-2030
Type of measure	Reform and implementation of investments
Covered/affected sectors	All sectors of final energy consumption
Implementing entity	Ministry of Energy the Public Property Agency Consolidated Energy Project Implementation Unit Local Public Authorities Thermal power units
Monitoring entity	Ministry of Energy
Progress indicators	Increase the installed capacity of high-efficiency CETs 55 MW electrical power. Establishing the optimal solution to replace the old basic cogeneration capacities in SACET Chisinau
Other relevant dimensions of the Energy Union affected	Decarbonisation
Energy Union policies that have resulted in implementation of policies and measures	Directive (EU) 2018/2002
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 139/2018 on energy efficiency Law no. 92/2014 on thermal energy and the promotion of cogeneration Government Decision No 659/2023 approving the Low Emission Development Programme up to 2030
Implementation cost	82.5 million euros
Source(s) of funding	Sources of external donors, sources of the private sector

Measure code policy	PM_EE17	Name	Modernisation of centralised heat supply systems
General objective	Implementation of Law no. 139/2018 on energy efficiency and of Directive (EU) 2018/2002/EU and Law no. 92/2014 on thermal energy and the promotion of cogeneration		
Quantified target	<p>Cumulative effect of 5.5 ktoe</p> <p>Average annual effect of 0.91 ktoe</p> <p>Losses in the district heating network in % of the total volume of heat transferred: 18.1% (1.1% reduction compared to 2020)</p> <p>Full installation of Individual Thermal Points (ITPs) within SACET Chisinau</p> <p>Full deployment of ITP in SACET Balti</p> <p>Reconstruction of internal heating systems of residential blocks in Chisinau and Balti by moving to horizontal distribution of heat</p>		
Description	<p>The measure will launch financial programmes to modernise district heating systems</p> <p>Among the main projects of the program are the project Sustainable transition to energy efficiency in the Republic of Moldova (STEEM), the project to improve the efficiency of the centralized thermal energy supply system in Chisinau, Chisinau, Chisinau, Chisinau, Republic of Moldova, Chisinau, Republic of Moldova, Republic of Moldova, Republic of</p>		

Other relevant dimensions of the Energy Union affected	Decarbonisation
Energy Union policies that have resulted in implementation of policies and measures	Implementation of Directive (EU) 2012/27, as amended by Directive (EU) 2018/2002
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 139/2018 on energy efficiency
Implementation cost	165 million euros
Source(s) of funding	Sources of the private sector

Measure code policy	PM_EE19	Name	Promotion of improvement measures energy efficiency in infrastructure natural gas
General objective	Implementation of Law no. 139/2018 on energy efficiency and Directive (EU) 2018/2002		
Quantified target	Cumulative effect of 13.7 ktoe Average annual effect of 2.28 ktoe Losses of natural gas in the transmission network in % of the total volume of natural gas transferred: 3.72% reduction compared to 2020		
Description	The measure will promote the improvement of the energy efficiency of the natural gas infrastructures, which will be carried out by the respective operators in the framework of the development programmes of these infrastructures. Specific technical measures will be initiated to reduce losses in transmission and distribution networks and improve load management. Gas transmission operators will be required to draw up annual reports analytically describing the actions carried out, while specifying the measures and investments needed to achieve the most cost-effective energy efficiency interventions in network infrastructure, including a timetable for their implementation. Moreover, incentives will be given to natural gas transmission and distribution system operators to have a higher return on invested capital if they achieve specific energy efficiency targets. The proposed measures will also facilitate the reduction of emissions of other greenhouse gases (e.g. methane), while new technologies to identify emissions will be promoted during their implementation		
Deadline for implementation	2024-2030		
Type of measure	Reform and implementation of investments		
Covered/affected sectors	All sectors of final energy consumption		
Implementing entity	Natural gas transmission and distribution system operators		
Monitoring entity	Ministry of Energy		
Progress indicators	Upgraded natural gas network		
Other relevant dimensions of the Energy Union affected	Decarbonisation		
Energy Union policies that have resulted in implementation of policies and measures	Directive (EU) 2018/2002		
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 139/2018 on energy efficiency		
Implementation cost	EUR 72.9 million		
Source(s) of funding	Sources of external donors, sources of the private sector		

vi. Regional cooperation in this area, where appropriate

Integration into the EU market and increased cooperation with regional partners will increase competition in the national sectors of the Republic of Moldova in the field of electricity and natural gas and will lead to increased energy efficiency.

The Republic of Moldova has been involved in regional cooperation in the field of energy efficiency through its participation in several initiatives and partnerships with neighbouring countries and international organizations.

One such initiative is the Eastern Partnership, a platform for cooperation between the EU and 6 Eastern European countries, including the Republic of Moldova. Through this partnership, the Republic of Moldova has been able to access technical assistance and funding for a number of energy efficiency projects.

The Republic of Moldova is also a member of the Energy Community, a regional organisation established to extend the EU's energy policy to the countries of South-Eastern Europe, including the organisation itself. As a member of the Energy Community, the Republic of Moldova is obliged to implement EU energy laws and regulations, including those related to energy efficiency.

The Republic of Moldova has also participated in several energy efficiency projects within the Central European Initiative (CEI), a regional organization that promotes cooperation between Central, Eastern and South-Eastern European countries. These projects focused on a number of areas, including energy performance in buildings, industrial processes and transport.

In addition to these initiatives, the Republic of Moldova has worked closely with UNDP on energy efficiency projects. For example, UNDP has provided technical assistance to the Government of the Republic of Moldova to develop and implement energy efficiency policies and programmes.

Overall, regional cooperation has been an important aspect of Moldova's efforts to improve energy efficiency. Through its participation in various initiatives and partnerships, the Republic of Moldova has been able to access technical assistance, funding and best practices to support the development and implementation of energy efficiency policies and programmes.

you're coming. Funding measures in this area at national level

The basic challenges arising from the design and implementation of the envisaged financial measures, such as maximising the expected benefits, making the most cost-effective use of available funds, leveraging additional financing instruments and actively mobilising the domestic financial sector, will be addressed.

In the coming years, the Republic of Moldova must provide support in the implementation of the innovative energy efficiency pilot projects to promote sustainable green financing mechanisms for residential and public buildings.

The financial activity of energy efficiency projects will be increased by using specialised tools and methodologies to minimise existing risk levels. Mobilisation of the banking sector will be encouraged, while specialised training will increase the current level of knowledge and skills of employees in the banking sector.

Measure code policy	PM_EE20	Name	Developing sustainable and innovative procurement
General objective	Implementation of Law no. 139/2018 on energy efficiency and Directive (EU) 2018/2002		
Quantified target	Contribution to all end-use measures		
Description	<p>Improve state control and the ability of authorities to verify compliance of product parameters with declared requirements.</p> <p>Creating attractive financing instruments for the purchase of electrical equipment with maximum efficiency.</p> <p>Organising information campaigns for end-users of products, including manufacturers and importers, on requirements for energy-related products.</p> <p>Incentivise the use of energy-related products for the two most commonly used energy efficiency classes or for other higher classes set out in the applicable technical regulations.</p> <p>Organizing information campaigns on the labelling of energy-related products.</p> <p>Adjustment of the regulatory framework for the implementation by central public administration authorities and public institutions of public procurement procedures for goods, services or works with high energy efficiency performance, to the extent that they comply with the requirements on cost-effectiveness, economic feasibility, increased viability, technical compliance, as well as ensuring a sufficient level of competition</p>		

Deadline for implementation	2024-2030
Type of measure	Reform and investment
Covered/affected sectors	All sectors of final energy consumption
Implementing entity	Ministry of Energy Ministry of Finance the Public Procurement Agency National Center for Sustainable Energy
Monitoring entity	Ministry of Energy
Progress indicators	Number of campaigns developed Number of information materials produced/printed
Other relevant dimensions of the Energy Union affected	Decarbonisation
Union policies that have resulted in implementation of policies and measures	Directive (EU) 2018/2002
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 139/2018 on energy efficiency
Implementation cost	Budget included in all end-use measures
Source(s) of funding	Sources of the state budget, sources of the private sector

Measure code policy	PM_EE21	Name	Making electricity consumption more efficient by replacing old inefficient appliances with the Home Appliances Voucher Program
General objective	Improve energy efficiency at household level by supporting the replacement of old, energy-intensive household appliances with energy-efficient equipment.		
Quantified target	Cumulative effect of 7 ktoe		
Description	The measure aims to implement the Voucher Program for Home Appliances facilitating the transition of households in the Republic of Moldova to more efficient energy consumption by providing financial aid in the form of a voucher. Eligible households may replace their old electrical or electronic household appliances with new ones of the higher energy class, thereby contributing to a reduction in the consumption of energy resources and a reduction in greenhouse gas emissions. The programme is intended for energy vulnerable households, which can receive vouchers differentiated according to the degree or level of vulnerability.		
Deadline for implementation	2024 – 2030		
Type of measure	Financial support		
Covered/affected sectors	Residential sector		
Implementing entity	National Center for Sustainable Energy		
Monitoring entity	Ministry of Energy National Center for Sustainable Energy		
Progress indicators	Number of energy-efficient household appliances purchased Energy savings achieved (ktoe) Reduction of CO2 emissions (tonnes)		
Other relevant dimensions of the Energy Union affected	Decarbonisation		
Union policies that have resulted in implementation of policies and measures	Directive 2012/27/EU on energy efficiency, as amended by Directive (EU) 2018/2002.		
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 139/2018 on energy efficiency Law No 241/2022 on the Energy Vulnerability Reduction Fund Government Decision No 533/2024 approving the Regulation on the operation and functioning of the Programme for granting financial aid for the efficient consumption of energy resources (Voucher Programme for Home Appliances)		

Implementation cost	EUR 22.0 million
Source(s) of funding	Energy Vulnerability Reduction Fund Grants from international organisations and development partners

Measure code policy	PM_EE22	Name	Strengthening the institutional capacity of the Public Support Institution
General objective	Strengthening the role of the NED in coordinating and implementing energy efficiency and renewable energy projects, contributing to energy security, sustainability and alignment of the Republic of Moldova with European Union standards		
Quantified target	Positioning the NED as a national focal point for addressing Moldova's energy efficiency requirements		
Description	Expanding the role of the CNED in coordinating and implementing energy efficiency and renewable energy projects at national level. Positioning the NED as a national focal point for addressing Moldova's energy efficiency requirements, especially in the residential sector. Establishing the NED as a reliable partner for donors and international organisations, facilitating investment and collaboration in the field of energy. Supporting the NED in playing a key role in the implementation of Moldova's long-term energy objectives, contributing to strengthening energy security, sustainability and compliance with EU standards. Increasing the capacity of the NED to implement projects in energy efficiency and renewable energy sources		
Deadline for implementation	2024-2030		
Type of measure	Reform and investment		
Covered/affected sectors	Residential, industrial and public sector		
Implementing entity	Public Institution National Centre for Sustainable Energy		
Monitoring entity	Ministry of Energy Public Institution National Centre for Sustainable Energy		
Progress indicators	Energy efficiency projects implemented Number of audits carried out		
Other relevant dimensions of the Energy Union affected	Energy efficiency Decarbonisation		
Union policies that have resulted in implementation of policies and measures	Directive (EU) 2018/2002		
Relevant national planning document (Legislative acts, normative acts, etc.)	Law no. 139/2018 on energy efficiency Government Decision no. 533/2024 approving the Regulation on the operation and functioning of the Program for granting financial aid to improve the consumption of energy resources (Voucher Program for Home Appliances) Government Decision no. 251/2024 regarding the approval of the Financing Program Energy Efficiency Fund in the residential sector Government Decision No 1064/2023 approving the Programme for the implementation of the energy efficiency obligation scheme for the period 2024-2026		
Implementation cost	1.5 million euros		
Source(s) of funding	State budget, sources of external donors, sources of private sector		

Data on the total amount of investments needed to achieve the objectives in the area of thermal renovation of buildings are presented in Table 25.

Table 25

**Costs of investments designed for building renovation
from 2025 to 2050, in millions of euros**

Indicator	2025	2030	2035	2040	2045	2050
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	labelling and ecodesign requirements for energy-related products							
PM_EE14	Implementation of energy labelling and ecodesign requirements for energy-related products	8,39	0,37	0,37	0,37	0,37	0,37	0,37
PM_EE15	Implementation of universal street lighting, with priority given to supply from renewable energy sources (RES)	Contribution to PM_DC						
PM_EE16	Promoting/upgrading to high-efficiency TECs	33,12	5,5	5,5	5,5	5,5	5,5	5,5
PM_EE17	Modernisation of centralised heat supply systems	5,5	0,90	0,90	0,9	0,90	0,90	0,90
PM_EE18	Promoting energy efficiency improvement measures in electricity infrastructure	8,8	1,46	1,46	1,46	1,46	1,46	1,46
PM_EE19	Promoting energy efficiency improvement measures in gas infrastructure	13,7	2,28	2,28	2,28	2,28	2,28	2,28
PM_EE20	Developing sustainable and innovative procurement	Contribution to PM_EE2						
PM_EE21	Making electricity consumption more efficient by replacing old inefficient appliances with the Home Appliances Voucher Program	7,0	1,2	1,2	1,2	1,2	1,2	1,2
PM_EE22	Strengthening the institutional capacity of the Public Support Institution	-1,5	-	-	--	-	-	-

3.3. Energy security dimension

i. Policies and measures to achieve the objectives set out in Section 2.3

In order to improve the level of energy security and achieve the objectives outlined in section 2.3, it is proposed to implement the following policies and measures:

Measure code policy	PM_SE1	Name:	Construction of 400 kV OHL Vulcanesti – Chisinau
General objective	Increasing the capacity and improving the reliability of the electricity transmission network in the Republic of Moldova. Diversification of routes and sources of electricity supply. Creating potential opportunities for the development of competitive markets and regional integration		
Quantified target	Increase in cross-border electricity transmission capacity along the Vulcanesti-Chisinau corridor		
Description	The project consists of the construction of the high voltage (400 kV) overhead power line with a single circuit on the direction Vulcanesti-Chisinau, the modernization/extension of the Chisinau and Vulcanesti power stations, the fortification of the electricity dispatching and metering system, managed by the transmission system operator SE "Moldelectrica"		
Deadline for implementation	2020 – 2026		
Type of measure	Investment		
Covered/affected sectors	Electricity		
Implementing entity	Ministry of Energy through the Consolidated Unit for the Implementation and Monitoring of Energy Projects (UCIPE) with the technical support of SE "Moldelectrica"		
Monitoring entity	Ministry of Energy		

	National Agency for Energy Regulation
Progress indicators	158 km OHL built, 2 upgraded/extended substations
Other relevant dimensions of the Energy Union affected	Internal energy market
Energy Union policies that have resulted in implementation of policies and measures	
Relevant national planning document (Legislative acts, normative acts, etc.)	Energy Strategy of the Republic of Moldova until 2050 (draft) Plan for the development of electricity transmission networks for 2018-2027 ¹⁴³
Implementation cost	61 million euros
Source(s) of funding	Sources of external donors

Measure code policy	PM_SE2	Name	Construction of 400 kV OHL in Balti – Suceava
General Objective			Diversification of routes, reduction of import dependency from a single route and source, increased flexibility of the national electricity system
Quantified target			Increase cross-border electricity transmission capacity
Description			The project involves the construction of a power line with a nominal voltage of 400 kV and a length of 138 km, of which 90 km – on the territory of Romania and 48 km – on the territory of the Republic of Moldova, along the Suceava (Romania) – Balti (Republic of Moldova) route, as well as the extension of the Suceava power station by building a new 400 kV power station in Balti.
Deadline for implementation			2025-2027
Type of measure			Investment
Covered/affected sectors			Electricity
Implementing entity			SE "Moldelectrica" Ministry of Energy
Monitoring entity			Ministry of Energy National Agency for Energy Regulation
Progress indicators			Interconnection capacities
Other relevant dimensions of the Energy Union affected			Internal electricity market
Energy Union policies that have resulted in implementation of policies and measures			
Relevant national planning document (Legislative acts, normative acts, etc.)			Energy Strategy of the Republic of Moldova until 2050 (draft) Plan for the development of electricity transmission networks for 2018-2027 ¹⁴⁴
Implementation cost			37 million euros
Source(s) of funding			Sources of external donors

Measure code policy	PM_SE3	Name	Construction of the 400 kV Straseni – Gutinas OHL
General objective			Diversification of routes, reduction of import dependency from a single route and source, increased flexibility of the national electricity system
Quantified target			Increase cross-border electricity transmission capacity
Description			The project involves the construction of a power line with a nominal voltage of 400 kV and a length of 190 km
Deadline for implementation			2025-2031

¹⁴³https://moldelectrica.md/files/docs/TYNDP_EN.pdf

¹⁴⁴https://moldelectrica.md/files/docs/TYNDP_EN.pdf

Type of measure	Investment
Covered/affected sectors	Electricity
Implementing entity	SE "Moldelectrica" Ministry of Energy
Monitoring entity	Ministry of Energy National Agency for Energy Regulation
Progress indicators	Interconnection capacities
Other relevant dimensions of the Energy Union affected	Internal electricity market
Energy Union policies that have resulted in implementation of policies and measures	
Relevant national planning document (Legislative acts, normative acts, etc.)	Energy Strategy of the Republic of Moldova until 2050 (draft) 10-year electricity transmission network development plan
Implementation cost	Cost to be identified after completion of feasibility study
Source(s) of funding	Sources of external donors

Measure code policy	PM_SE4	Name	Approval of the Electricity Transmission Network Development Plan 2025-2034, 10 years (TYNDP)
General objective			Secure operation of the electricity transmission network and ensuring a high level of security of supply. Contributing to a sustainable electricity supply, facilitating access to the grid for all market participants. Contributing to the integration of the internal market, facilitating competition and energy exchanges between countries
Quantified target			In order to ensure the long-term capacity of transmission networks, as well as their modernisation and development in a safe, reliable and efficient manner, SE "Moldelectrica" is obliged to draw up and propose for approval to the national regulatory authority a 10-year electricity transmission network development plan (TYNDP). The current plan is for 2018-2027 ¹⁴⁵ and has not been updated since 2017
Description			From a technical point of view, given the uncertainties regarding the evolution of the system and the economic framework, solutions for the development of the electricity transmission network based on the evaluation of specific technical and economic indicators are to be identified: Forecast of energy consumption and power level (active and reactive), taking into account the characteristics of the load curve (peak and empty load in winter and summer seasons) in territorial aspect and for each network node; - energy and electrical power import/export/transit forecasts; - estimation of the evolution of production capacities during the analyzed period; - consumption load forecast; - identification of new actions and projects necessary to ensure the adequacy of the network meeting the performance standards for the transmission service; - determining the optimal solutions for the modernisation and development of the network, taking into account the cost-benefit ratio and the financial impact on final consumers; - setting priorities and timetables for the modernisation and development of transport infrastructure; and - identifying possible sources of funding for TYNDP investments
Deadline for implementation			2025-2034
Type of measure			Reform
Covered/affected sectors			Electricity
Implementing entity			SE "Moldelectrica"
Monitoring entity			ANRE, Ministry of Energy
Progress indicators			Developed and approved development plan

¹⁴⁵Decision of the Board of Directors No 523/2017 of 27 December 2017 approving the Development Plan of the SE 'Moldelectrica' for the period 2018-2027

Other relevant dimensions of the Energy Union affected	
Energy Union policies that have resulted in implementation of policies and measures	Directive (EU) 2019/944 (Electricity Directive) Regulation (EU) 2019/943 (Electricity Market Regulation) Regulation (EU) 2019/942 (ACER Regulation) Regulation (EU) 2019/941 (Risk Preparedness Regulation) Regulation (EU) 2016/1719 (Long-Term Capacity Allocation Guidelines) Regulation (EU) 2015/1222 (capacity allocation and congestion management guidelines) Regulation (EU) 2017/2195 (guidelines on electricity balancing) Regulation (EU) 2017/1485 (Guidelines on electricity transmission system operation) Regulation (EU) 2017/2196 (network code on electricity emergency and restoration)
Relevant national planning document (Legislative acts, normative acts, etc.)	The concept of the Energy Strategy to 2050. Table 1, p. 9, Table 3, p. 4 Electricity transmission network development plan 2018-2027 (updated) Law no. 107/2016 on electricity and the amendments introduced by Law no. No 414/2023 Law no. 10/2016 on the promotion of the use of energy from renewable sources Law no. 139/2018 on energy efficiency Joint roadmap between the Republic of Moldova – Energy Community – European Commission for further reforms in the electricity sector of the Republic of Moldova (pp. 28, 29, 30, 31)
Implementation cost	EUR 0.2 million
Source(s) of funding	Sources of external donors

Measure code policy	PM_SE5	Name	Increasing the firm, bidirectional capacity of the natural gas transmission network at all interconnection points; diversification of routes and sources of supply of natural gas
General objective	Diversification of routes, reduction of technical limitations for the transmission of natural gas in the west-east direction, increased flexibility of the national energy system		
Quantified target	Increase cross-border electricity transmission capacity		
Description	Assessment of measures that would lead to a better use of the available capacity of the Trans-Balkan Corridor, together with options to cover gas consumption peaks, using various routes and sources, including liquefied natural gas. This measure would lead to a wider use of the available capacity of the trans-Balkan corridor, as well as options to cover peaks in natural gas consumption, using various routes and sources, including liquefied natural gas.		
Deadline for implementation	2024-2030		
Type of measure	Investment		
Covered/affected sectors	Natural gas		
Implementing entity	'Vestmoldtransgaz' S.R.L.		
Monitoring entity	Ministry of Energy ANRE		
Progress indicators	Interconnection capacities		
Other relevant dimensions of the Energy Union affected	Internal energy market		
Energy Union policies that have resulted in implementation of policies and measures			
Relevant national planning document (Legislative acts, normative acts, etc.)	Energy Strategy of the Republic of Moldova until 2050 (draft)		
Implementation cost	EUR 0.2 million		
Source(s) of funding	Sources of external donors		

On 19 January 2024, at the meeting of the High Level Group on Energy Connectivity in Central and South-Eastern Europe (CESEC), the Republic of Moldova, Ukraine and Slovakia

formally joined the vertical gas corridor (Greece – Bulgaria – Romania – Republic of Moldova – Ukraine), with the signing by the natural gas transmission system operators of a Memorandum of Understanding, setting out important steps towards the security of gas supply of the CESEC region. First announced in 2016, the vertical corridor will now include the Trans-Balkan pipeline and will allow the transport of natural gas from Greece to Moldova and beyond to underground storage facilities in Ukraine. The pipeline can transport both natural gas from Azerbaijan and liquefied natural gas from Revitus and Alexandroupolis terminals in Greece or elsewhere.

Measure code policy	PM_SE6	Name	Study on removing technical limitations transmission of natural gas on the territory of the Republic of Moldova
General objective	Increasing the flexibility of the national energy system; the transfer of natural gas from the south to the north and from the north to the south, without technical limitations.		
Quantified target	Interconnection capacities		
Description	Two options for expanding domestic capacity will be considered: construction of the Ungheni – Balti/Drochia gas pipeline or extension of the Iasi – Ungheni gas transmission network in the direction of Balti/Drochia. Depending on the results of the cost-benefit analysis, one of the proposed options will be selected. Removing internal congestion to diversify supply sources and import routes will allow access to additional storage facilities in both Ukraine and Romania		
Deadline for implementation	2025-2030		
Type of measure	Research		
Covered/affected sectors	Natural gas		
Implementing entity	'Vestmoldtransgaz' LTD		
Monitoring entity	Ministry of Energy		
Progress indicators	Study completed		
Other relevant dimensions of the Energy Union affected	Internal energy market		
Energy Union policies that have resulted in implementation of policies and measures			
Relevant national planning document (Legislative acts, normative acts, etc.)	Energy Strategy of the Republic of Moldova until 2050 (draft)		
Implementation cost	EUR 0.2 million		
Source(s) of funding	State budget		

Measure code policy	PM_SE7	Name	Maintenance of security stocks natural gas
General objective	Ability to cope with forced or interrupted supply of energy sources, increasing the flexibility of the national energy system		
Quantified target	Maintaining security stocks of natural gas		
Description	Implementing the provisions of Regulation (EU) 2022/1032 as regards the maintenance of security stocks of natural gas.		
Deadline for implementation	2024-2030		
Type of measure	Investment		
Covered/affected sectors	Natural gas		
Implementing entity	JSC 'Energoacom'		
Monitoring entity	ANRE the Energy Minister		
Progress indicators	Quantity of natural gas stored		
Other relevant dimensions of the Energy Union affected	Internal energy market		

Energy Union policies that have resulted in implementation of policies and measures	Regulation (EU) 2022/1032
Relevant national planning document (Legislative acts, normative acts, etc.)	Government Decision No 364/2024 amending Government Decision No 668/2022 on the establishment and maintenance of natural gas security stocks Energy Strategy of the Republic of Moldova until 2050 (draft)
Implementation cost	EUR 16.5 million
Source(s) of funding	Sources of the private sector

Measure code policy	PM_SE8	Name:	Creation of minimum stocks petroleum products
General objective	Mitigating a potential disruption in the supply of oil products to the market (argumentation from the study)		
Quantified target	Number of days of consumption		
Description	Take the necessary measures to adapt and implement Directive 2009/119/EC of 14 September 2009 imposing an obligation on Member States to maintain minimum stocks of crude oil and/or petroleum products		
Deadline for implementation	2025-2030		
Type of measure	Investment		
Covered/affected sectors	Petroleum products		
Implementing entity	Central Storage Entity (newly created)		
Monitoring entity	Ministry of Energy		
Progress indicators	Volume of petroleum products stored/number of days in stock		
Other relevant dimensions of the Energy Union affected	Internal energy market		
Energy Union policies that have resulted in implementation of policies and measures	Directive 2009/119/EC		
Relevant national planning document (Legislative acts, normative acts, etc.)	Energy Strategy of the Republic of Moldova until 2050 (draft)		
Implementation cost	30.0 million euro		
Source(s) of funding	Sources of the private sector		

Measure code policy	PM_SE9	Name	Improving cybersecurity energy related
General objective	Enhancing energy-related cybersecurity		
Quantified target	Improving cybersecurity in the energy sector by creating the first policy document dedicated to this measure		
Description:	<p>In accordance with Article 6(3) of Law No 48/2023 on cybersecurity, the National Cybersecurity Strategy is to be drawn up and approved by Parliament, on a proposal from the Government.</p> <p>The strategy will be the basic document in which strategic objectives, policy and regulatory measures will be defined, with the aim of achieving and maintaining an increased level of cybersecurity.</p> <p>At the same time, in accordance with Article 9 of Law No 48/2023 on cybersecurity, the National Cyber Incident and Crisis Response Plan will be drawn up, setting out the objectives and arrangements for managing such incidents and crises at national level, as well as: the objectives of the national preparedness measures and activities; the tasks and duties of the responsible public authorities and institutions; crisis management procedures and information exchange channels; interaction between service providers and responsible public authorities and institutions</p>		
Deadline for implementation	2025-2030		
Type of measure	Investment		

Covered/affected sectors	Natural gas, heat, electricity, petroleum products, renewables
Implementing entity	Service providers
Monitoring entity	Cybersecurity Agency
Progress indicators	
Other relevant dimensions of the Energy Union affected	RES, Internal Energy Market
Energy Union policies that have resulted in implementation of policies and measures	
Relevant national planning document (Legislative acts, normative acts, etc.)	Act No 48/2023 on Cybersecurity
Implementation cost	1.5 million euros
Source(s) of funding	State budget, sources of external donors

In the context of the continuous increase of cyber threats to critical infrastructures, including those related to the energy sector, strong cybersecurity measures need to be implemented. A project to strengthen the cyber sector of the energy sector is essential to protect critical operations and national infrastructure by:

- reducing the risk of cyberattacks on energy infrastructure: implementing an integrated system and advanced software solutions to help proactively identify and counter cyber threats, thereby reducing the risk of attacks and potential data loss or damage to energy infrastructure;
- increasing the resilience and stability of energy infrastructure: the ability to prevent and manage cyberattacks will help maintain critical operations and avoid major disruptions in energy supply;
- Protection of sensitive data and information: The implementation of a data loss prevention software system will ensure the protection of sensitive data and information, as well as compliance with security and privacy regulations:

Integrated system for the management and prevention of cyber-attacks. Objective: implementing a comprehensive system to protect energy infrastructure against cyber threats;

SIEM (event management and information security software): According to a study by IBM Security, organizations that implemented SIEM solutions saw a 47% reduction in the time it takes to identify and respond to cyber threats.

Data Loss Prevention (DLP) software: protecting sensitive data and important information is vital in the energy sector. DLP solutions have helped organizations reduce the risk of data breaches by an average of 80%.

3.4. Dimension "Internal Energy Market"

3.4.1. Electricity infrastructure

i. Policies and measures to achieve the level of interconnectivity as set out in point (d) of Article 4

Some of the measures for the development of interconnections are already described in the section "Energy security". They also apply to this chapter. Other measures are described in the tables below.

Measure code policy	PM_IEM1	Name	Transposition and implementation of the Codes network and EU guidelines for the electricity sector, transposition of the Electricity Integration Package
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General objective	Maintaining security of energy supply, increasing competitiveness and ensuring that all consumers can buy electricity at affordable prices
Quantified target	Infrastructure, policies and measures related to market-based price formation, market integration aimed at increasing trading capacity, consumer protection and improving competition, regional integration
Description	<p>As a Contracting Party of the Energy Community, the Republic of Moldova gradually transposes EU documents and regulations into national legislative documents. This process has not yet been completed and is being carried out gradually.</p> <p>This measure is planned to achieve the transposition and implementation of the network codes and EU guidelines for the electricity and gas sectors. This also includes:</p> <ul style="list-style-type: none"> - implementation of coordinated capacity calculation, cross-border capacity allocation and congestion management in accordance with the applicable rules (FCA and CACM); - implementation of the balancing and imbalance settlement mechanism in accordance with the applicable EU rules (SOGL and EBGL); - ensuring non-discriminatory third party access to electricity networks. TSOs to decide on the adoption of market and system management network codes; - drawing up plans for the defence and restoration of the electricity system in accordance with the rules applied in the EU (Regulation EU 2017/2196 establishing a network code on state of emergency and restoration of the electricity system). <p>These measures involve the development of <i>regional cooperation</i> in the field of electricity</p>
Deadline for implementation	2024-2030
Type of measure	Reform
Covered/affected sectors	Electroenergetic
Implementing entity	SE "Moldelectrica", National Agency for Energy Regulation, OPEM
Monitoring entity	Ministry of Energy ANRE
Progress indicators	Legislative acts, drafted agreements, signed agreements, updated legislative and normative acts
Other relevant dimensions of the Energy Union affected	Energy security
Energy Union policies that have resulted in implementation of policies and measures	<p>Directive (EU) 2019/944 (Electricity Directive)</p> <p>Regulation (EU) 2019/943 (Electricity Market Regulation)</p> <p>Regulation (EU) 2019/942 (ACER Regulation)</p> <p>Regulation (EU) 2019/941 (Risk Preparedness Regulation)</p> <p>Regulation (EU) 2016/1719 (Long-Term Capacity Allocation Guidelines)</p> <p>Regulation (EU) 2015/1222 (capacity allocation and congestion management guidelines)</p> <p>Regulation (EU) 2017/2195 (guidelines on electricity balancing)</p> <p>Regulation (EU) 2017/1485 (Guidelines on electricity transmission system operation)</p> <p>Regulation (EU) 2017/2196 (network code on electricity emergency and restoration)</p>
Relevant national planning document (Legislative acts, normative acts, etc.)	<p>The concept of the Energy Strategy to 2050. Table 2, p. 2</p> <p>The 2018-2027 electricity transmission network development plan and its updates</p> <p>Law no. 107/2016 on electricity and the amendments introduced by Law no. No 414/2023</p> <p>Joint Roadmap between the Republic of Moldova – Energy Community – European Commission for further reforms in the electricity sector of the Republic of Moldova</p> <p>Electricity market rules, approved by ANRE Administrative Board Decision no. 283/2020 146 (work is now underway to update it)</p> <p>Regulation on connection to electricity networks and provision of electricity transmission and distribution services, approved by ANRE Administrative Board Decision no. 168/2019147</p> <p>Regulation on access to electricity transmission networks for cross-border exchanges and congestion management in the electricity system, approved by ANRE Administrative Board Decision no. 424/2019148</p> <p>Allocation agreements with neighbouring TSOs</p>

¹⁴⁶https://www.legis.md/search/getResults?doc_id=131508&lang=en

¹⁴⁷https://www.legis.md/search/getResults?doc_id=130721&lang=en

¹⁴⁸https://www.legis.md/search/getResults?doc_id=130369&lang=en

	TSO procedures and instructions
Implementation cost	2.5 million euros
Source(s) of funding	State budget, sources of external donors

ii. Regional cooperation in this area

The Republic of Moldova cooperates very closely with both neighboring countries, Romania and Ukraine. All interconnectivity projects in both the electricity and gas sectors shall be consulted and agreed between all partners.

iii. Where appropriate, relevant funding measures at national level

All financial needs for these projects are provided by the development partners of the Republic of Moldova.

3.4.2. Electricity transmission infrastructure

i. Policies and measures related to the elements set out in point 2.4.2, including, where appropriate, specific measures to enable the delivery of Energy Community of Common Interest (PECI) projects, projects of mutual interest and other key infrastructure projects

Measure code policy	PM_IEM2	Name:	Obtaining the membership of ENTSO-E by the S.E. "Moldelectrica"
General objective	Implementation of the framework agreement for synchronous space. Ensure TSOs' compliance with ENTSO-E requirements. Developing opportunities for participation in the European electricity market in order to increase the flexibility of the national energy system, diversifying electricity supply		
Quantified target	Developing opportunities for participation in the European electricity market in order to increase the flexibility of the national electricity system, diversifying electricity supply		
Description	Implementation of the Energy Strategy Concept 2050 section, which refers to obtaining the membership of ENTSO-E by S.E. "Moldelectrica": S.E. "Moldelectrica" obtains the status of ENTSO-E observer and then the status of full member. Signature and implementation of the framework agreement for synchronous space. Ensure TSOs' compliance with ENTSO-E requirements. EM2 is a precondition for market coupling activity, which is further detailed in EM6. This corresponds to the legal/regulatory action implementing the Capacity Allocation and Congestion Management Regulation (CACM)		
Deadline for implementation	2025-2030		
Type of measure	Reform		
Covered/affected sectors	Electroenergetic		
Implementing entity	SE "Moldelectrica", Ministry of Energy		
Monitoring entity	Ministry of Energy SE "Moldelectrica" ANRE		
Progress indicators	Official acts and agreements signed		
Other relevant dimensions of the Energy Union affected	Energy security		
Energy Union policies that have resulted in implementation of policies and measures	ENTSO-E TSO requirements; Directive (EU) 2019/944 (Electricity Directive); Regulation (EU) 2019/943 (Electricity Regulation); Regulation (EU) 2019/942 (ACER Regulation); Regulation (EU) 2015/1222 (capacity allocation and congestion management guidelines).		
Relevant national planning document	The concept of the Energy Strategy to 2050. Table 1, p. 10		

(Legislative acts, normative acts, etc.)	The plan for the development of the electricity transmission network for the period 2018-2027 Law No. 107/2016 on electricity and its amendments to the Law No 414/2023 Joint roadmap between the Republic of Moldova – Energy Community – European Commission for further reforms in the electricity sector of the Republic of Moldova (pp. 2, 6, 7, 8, 9, 12) Electricity market rules, approved by ANRE Administrative Board Decision no. 283/2020 Procedures and instructions of TSO S.E. "Moldelectrica" (work is ongoing to update it)
Implementation cost	EUR 0.5 million
Source(s) of funding	State budget, sources of external donors

Measure code policy	PM_IEM3	Name	Implementation of the Development Plan of the 10-year transmission power grid (TYNDP)
General objective			Increasing the flexibility of the system and the quality of electricity supply aiming at increasing the capacity of the internal electricity transmission networks, ensuring sufficient capacity for connecting new generation capacities, as well as excluding possible congestion zones
Quantified target			Increasing reliability indicators, as well as ensuring an adequate response to the increase in consumer demand and electricity generation capacity
Description:			EM3 involves a set of infrastructure measures noted in the TYNDP for the years 2025 to 2034 (in the process of being updated), as well as in the investment projects of S.E. 'Moldelectrica' for the development of interconnections and the necessary internal infrastructure and networks according to the annual plans. This measure is directed towards the development of internal electricity transmission grids, increased flexibility of grids and access to electricity grids
Deadline for implementation			2025-2034
Type of measure			Investment
Covered/affected sectors			Energy security
Implementing entity			SE "Moldelectrica" Ministry of Energy System Operators
Monitoring entity			ANRE SE "Moldelectrica" Ministry of Energy System Operators
Progress indicators			Length of electricity grids, length of interconnectors, power capacity values, power flow values, peak and reserve capacity values; number of connections to the distribution network with a smart meter
Other relevant dimensions of the Energy Union affected			Energy security
Energy Union policies that have resulted in implementation of policies and measures			Directive (EU) 2019/944 (Electricity Directive) Regulation (EU) 2019/943 (Electricity Market Regulation) Regulation (EU) 2019/942 (ACER Regulation) Regulation (EU) 2019/941 (Risk Preparedness Regulation) Regulation (EU) 2016/1719 (Long-Term Capacity Allocation Guidelines) Regulation (EU) 2015/1222 (capacity allocation and congestion management guidelines) Regulation (EU) 2017/2195 (guidelines on electricity balancing) Regulation (EU) 2017/1485 (Guidelines on electricity transmission system operation) Regulation (EU) 2017/2196 (network code on electricity emergency and restoration)
Relevant national planning document (Legislative acts, normative acts, etc.)			The concept of the Energy Strategy to 2050. Table 1, p. 9, Table 3, p. 4 Electricity transmission network development plan 2018-2027 (updated) Law no. 107/2016 on electricity and the amendments introduced by Law no. No 414/2023 Law no. 10/2016 on the promotion of the use of energy from renewable sources Law no. 139/2018 on energy efficiency Joint roadmap between the Republic of Moldova – Energy Community – European Commission for further reforms in the electricity sector of the Republic of Moldova (pp. 28, 29, 30, 31)

Implementation cost	40.0 million euros ¹⁴⁹
Source(s) of funding	Tariff for the provision of electricity transmission service and/or sources of external financing

Measure code policy	PM_IEM4	Name	Exploring the possibility of building gas storage facilities (underground or ground) in the Republic of Moldova
General objective	Implementation of the European Commission proposal on the Decision of the Council of Ministers to integrate Regulation (EU) 2022/1032 with regard to gas storage under ECT law		
Quantified target	Review of previous feasibility studies, taking into account geological and technical conditions for the construction of underground installations		
Description	The study of possible locations for natural gas storage facilities may be a continuation of studies that have been carried out by the Institute of Energy and the Institute of Electronic Engineering and Nanotechnologies of the Technical University of Moldova and the Institute of Geology of the State University of Moldova		
Deadline for implementation	2024-2030		
Type of measure	Investment, research		
Covered/affected sectors	Energy security		
Implementing entity	'Energocom' JSC Hydrogeological Expedition of Moldova		
Monitoring entity	Ministry of Energy Ministry of Environment		
Progress indicators	Determination of the location of natural gas storage facilities in the country, determination of the volumes of natural gas available for storage		
Other relevant dimensions of the Energy Union affected	Energy security		
Energy Union policies that have resulted in implementation of policies and measures	Regulation (EU) 2022/1032 Regulation (EU) 2017/1938 (storage and security of gas supply)		
Relevant national planning document (Legislative acts, normative acts, etc.)	The concept of the Energy Strategy to 2050. Table 1, p. 5 and 11 Law no. 108/2016 on natural gas Government Decision No 668/2022 on the establishment and maintenance of security stocks of natural gas Joint Roadmap between the Republic of Moldova – Energy Community – European Commission for further reforms in the natural gas sector of the Republic of Moldova		
Implementation cost	EUR 0.2 million		
Source(s) of funding	Sources of external donors		

3.4.3. Market integration

Measure code policy	PM_IEM5	Name	Increasing transparency and integrity wholesale energy markets
General objective	Harmonisation of legislative documents and implementation of EU directives, implementation of cross-border exchange of balancing power. Increase transparency of energy markets, improve monitoring and data availability for market participants, increase system flexibility and quality of electricity and gas supply, develop market integration and coupling, increase tradable capacity of existing interconnections, demand response, distributed generation, dispatch mechanisms		
Quantified target	Increase the availability of operational data on electricity and natural gas volumes for transactions for market participants		
Description	This measure is aimed at increasing the transparency of energy markets and ensuring the functionality of data transparency reporting, in accordance with Government Decision No. 543/2013 on the approval of the Agreement between the Ministry of Economy of the Republic of Moldova and the Ministry of Industry of the Republic of Belarus on		

¹⁴⁹<https://www.eib.org/en/press/all/2023-145-eib-global-invests-usd30-million-to-modernise-moldova-s-electricity-distribution-grid>

	the implementation of the joint project for the renovation of electric passenger transport in the Republic of Moldova, signed in Chisinau on 30 January 2013, the extent of their monitoring by ANRE (Transparency Regulation) and Regulation No 1227/2011 on wholesale energy market integrity and transparency (REMIT), concurrently with the adoption of ANRE rules on data provision requirements by market participants. The measure will increase the availability of balancing services, ensuring market transparency and compliance with EC regulations, introducing national, regional and pan-European conditions and methodologies to unify markets
Deadline for implementation	2024-2030
Type of measure	Reform
Covered/affected sectors	Electricity and gas sector
Implementing entity	Ministry of Energy SE "Moldelectrica" OPEM 'Vestmoldtransgaz' LTD
Monitoring entity	Ministry of Energy ANRE SE "Moldelectrica" 'Vestmoldtransgaz' LTD
Progress indicators	Number of monitored transactions of energy market participants
Other relevant dimensions of the Energy Union affected	Energy security
Energy Union policies that have resulted in implementation of policies and measures	Directive (EU) 2019/944 (Electricity Directive) Regulation (EU) 2019/943 (Electricity Market Regulation) Regulation (EU) 2019/942 (ACER Regulation) Regulation (EU) 2019/941 (Risk Preparedness Regulation) Regulation (EU) 2016/1719 (Long-Term Capacity Allocation Guidelines) Regulation (EU) 2015/1222 (capacity allocation and congestion management guidelines) Regulation (EU) 2017/2195 (guidelines on electricity balancing) Regulation (EU) 2017/1485 (Guidelines on electricity transmission system operation) Regulation (EU) 2017/2196 (network code on electricity emergency and restoration) Regulation (EU) 2017/1938 (storage and security of gas supply)
Relevant national planning document (Legislative acts, normative acts, etc.)	The concept of the Energy Strategy to 2050. Table 2, p. 7 Decision No 283/2020 of the ANRE Board of Directors ¹⁵⁰ – Electricity Market Rules ANRE Administrative Board Decision No 168/2019 ¹⁵¹ – Regulation on connection to electricity networks and provision of electricity transmission and distribution services Decision No 424/2019 of the ANRE Board of Directors – Regulation on access to electricity transmission networks for cross-border exchanges and congestion management in the electricity system Decision No 534/2019 ¹⁵² of the Board of Directors of ANRE – Natural gas market rules Decision No 112/2019 ¹⁵³ of the ANRE Board of Directors (No673/2022); (No 8/2023) – Regulation on connection to the natural gas networks and the provision of natural gas transmission and distribution services; Decision No 26/2023 ¹⁵⁴ of the ANRE Board of Directors – Regulation on the Register of participants in the wholesale gas market. Law no. 107/2016 on electricity and the amendments introduced by Law no. No 414/2023. Law no. 108/2016 on natural gas
Implementation cost	1.5 million euros
Source(s) of funding	State budget/ANRE budget (Regulatory payments)

Measure code policy	PM_IEM6	Name:	Establishing day-ahead and intraday markets
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¹⁵⁰https://www.legis.md/search/getResults?doc_id=131508&lang=en

¹⁵¹https://www.legis.md/search/getResults?doc_id=130721&lang=en

¹⁵²https://www.legis.md/search/getResults?doc_id=120439&lang=en

¹⁵³https://www.legis.md/search/getResults?doc_id=135447&lang=en

¹⁵⁴https://www.legis.md/search/getResults?doc_id=135727&lang=en

General objective	The launch of day-ahead and day-ahead markets in the Republic of Moldova will create the possibility to carry out day-ahead and day-ahead transactions, which will lead to new opportunities for market participants to adjust their portfolios.
Quantified target	Increase in the number of transactions and electricity market participants.
Description	Launching day-ahead and intraday markets in the Republic of Moldova, taking into account the subsequent coupling of these markets with markets in neighbouring countries which will increase competition and provide many opportunities for electricity transactions and send positive signals and stimulate appropriate initiatives for market participants
Deadline for implementation	2024-2025
Type of measure	Reform
Covered/affected sectors	Electroenergetic
Implementing entity	ANRE the Ministry of Energy SE "Moldelectrica" OPEM
Monitoring entity	the Ministry of Energy ANRE SE "Moldelectrica"
Progress indicators	Day-ahead market coupling launch date
Other relevant dimensions of the Energy Union affected	Energy security
Energy Union policies that have resulted in implementation of policies and measures	Directive (EU) 2019/944 (Electricity Directive) Regulation (EU) 2019/943 (Electricity Market Regulation) Regulation (EU) 2019/942 (ACER Regulation) Regulation (EU) 2019/941 (Risk Preparedness Regulation) Regulation (EU) 2016/1719 (Long-Term Capacity Allocation Guidelines) Regulation (EU) 2015/1222 (capacity allocation and congestion management guidelines) Regulation (EU) 2017/2195 (guidelines on electricity balancing) Regulation (EU) 2017/1485 (Guidelines on electricity transmission system operation) Regulation (EU) 2017/2196 (network code on electricity emergency and restoration)
Relevant national planning document (Legislative acts, normative acts, etc.)	The concept of the Energy Strategy to 2050. Table 2, p. 9 Electricity Grid Code on Capacity Allocation and Congestion Management Capacity allocation agreements of neighbouring countries' interconnections with TSOs Law No 107/2016 on electricity Joint roadmap between the Republic of Moldova – Energy Community – European Commission for further reforms in the electricity sector of the Republic of Moldova (pp. 3, 4, 5, 6, 7, 14, 15, 23, 24, 25, 26)
Implementation cost	EUR 0.3 million
Source(s) of funding	State budget/ANRE budget (Regulatory payments)/tariff for electricity market operation service

Measure code policy	PM_IEM7	Name	Nominated electricity market operator (NEMO)
General objective			Obtaining the status of designated electricity market operator operating organised markets by OPEM
Quantified target			Fulfilment of the conditions provided by Law no. 107/2016 on electricity, for designation and approval by the ANRE Board of Directors of the decision
Description			Obtaining the status of nominated electricity market operator operating the start-up organised electricity markets by OPEM. Obtaining observer status in the NEMO Committee, developing a roadmap for day-ahead and intraday market coupling, including OPEM in the grid in line with the Electricity Market Integration Package. Prepare and approve procedures for registration, day-ahead and intraday markets. Implementation of the Electricity Roadmap and its points on the design of the functioning of the electricity market and the unification of balancing platforms, intraday and day-ahead markets
Deadline for implementation			2024-2025

Type of measure	Reform
Covered/affected sectors	Electroenergetic
Implementing entity	Ministry of Energy SE "Moldelectrica" ANRE 'Energy Market Operator M' LTD
Monitoring entity	Ministry of Energy SE "Moldelectrica" ANRE
Progress indicators	Issuance of a relevant decision by ANRE, agreements and memoranda of understanding with neighbouring stakeholders
Other relevant dimensions of the Energy Union affected	Energy security
Energy Union policies that have resulted in implementation of policies and measures	Directive (EU) 2019/944 (Electricity Directive) Regulation (EU) 2019/943 (Electricity Market Regulation) Regulation (EU) 2019/942 (ACER Regulation) Regulation (EU) 2019/941 (Risk Preparedness Regulation) Regulation (EU) 2016/1719 (Long-Term Capacity Allocation Guidelines) Regulation (EU) 2015/1222 (capacity allocation and congestion management guidelines) Regulation (EU) 2017/2195 (guidelines on electricity balancing) Regulation (EU) 2017/1485 (Guidelines on electricity transmission system operation) Regulation (EU) 2017/2196 (network code on electricity emergency and restoration)
Relevant national planning document (Legislative acts, normative acts, etc.)	The concept of the Energy Strategy to 2050. Table 2, p. 8 Law no. 107/2016 on electricity and the amendments introduced by Law no. No 414/2023 Regulation on connection to electricity networks and provision of electricity transmission and distribution services, approved by ANRE Administrative Board Decision no.168/2019 ¹⁵⁵ Regulation on access to electricity transmission networks for cross-border exchanges and congestion management in the electricity system, approved by ANRE Administrative Board Decision no. 424/2019 ¹⁵⁶
Implementation cost	EUR 0.01 million
Source(s) of funding	State budget/ANRE budget (Regulatory payments)/tariff for electricity market operation service

Measure code policy	PM_IEM8	Name	Day-ahead market coupling and intraday with similar markets in the EU
General objective			Increase cross-border electricity transactions in the single day-ahead and intraday market, increase competitiveness, attract new investments in generation capacities
Quantified target			Increase in the number of transactions and electricity market participants and the possibility for electricity market participants to trade on a larger market with a larger number of participants for the purpose of trading electricity or procuring electricity at lower prices
Description			The coupling of day-ahead and intraday markets will increase competition and provide many opportunities for electricity transactions and send positive signals to the market, stimulating appropriate initiatives for market participants. This measure aims at coupling to a single cross-zonal intraday electricity market for the markets of the Republic of Moldova, Romania and Ukraine. In accordance with the roadmap, it is planned to: - ensuring power calculations for day-ahead and intraday markets; - the establishment of national balancing conditions; - harmonisation of tax legislation; - developing a roadmap for joining the EU market; - developing a roadmap for joining EU balancing platforms; - the implementation of capacity allocation of interconnections at the MD-AU border, - establishing day-ahead and intraday markets, implementing national, regional and pan-European balancing methodologies

¹⁵⁵https://www.legis.md/search/getResults?doc_id=130721&lang=en

¹⁵⁶https://www.legis.md/search/getResults?doc_id=130369&lang=en

Deadline for implementation	2025-2030
Type of measure	Reform
Covered/affected sectors	Electroenergetic
Implementing entity	ANRE, Ministry of Energy, SE "Moldelectrica", OPEM
Monitoring entity	Ministry of Energy, ANRE, SE "Moldelectrica"
Progress indicators	Date of day-ahead and intraday market coupling
Other relevant dimensions of the Energy Union affected	Energy security
Energy Union policies that have resulted in implementation of policies and measures	Directive (EU) 2019/944 (Electricity Directive) Regulation (EU) 2019/943 (Electricity Market Regulation) Regulation (EU) 2019/942 (ACER Regulation) Regulation (EU) 2019/941 (Risk Preparedness Regulation) Regulation (EU) 2016/1719 (Long-Term Capacity Allocation Guidelines) Regulation (EU) 2015/1222 (capacity allocation and congestion management guidelines) Regulation (EU) 2017/2195 (guidelines on electricity balancing) Regulation (EU) 2017/1485 (Guidelines on electricity transmission system operation) Regulation (EU) 2017/2196 (network code on electricity emergency and restoration)
Relevant national planning document (Legislative acts, normative acts, etc.)	The concept of the Energy Strategy to 2050. Table 2, p. 9 Electricity Grid Code on Capacity Allocation and Congestion Management Capacity allocation agreements of neighbouring countries' interconnections with TSOs Law No 107/2016 on electricity Joint roadmap between the Republic of Moldova – Energy Community – European Commission for further reforms in the electricity sector of the Republic of Moldova (pp. 3, 4, 5, 6, 7, 14, 15, 23, 24, 25, 26)
Implementation cost	1.5 million euros
Source(s) of funding	State budget/ANRE budget (Regulatory payments)/tariff for electricity market operation service

Measure code policy	PM_IEM9	Name	Continuous market opening and gradual liberalisation of electricity markets and natural gas
General objective			Increase transparency of energy markets, improve monitoring and data availability for market participants, develop market integration and coupling, increase the tradable capacity of existing interconnections, active demand response, distributed generation, dispatch mechanisms, increase system flexibility and quality of electricity supply
Quantified target			Increasing the quality of supply indicators, smart grid deployment, aggregation, demand response services, and distributed storage and generation
Description			This measure aims at aligning the consumption patterns of electricity end-users to allow for greater flexibility and optimal use of the electricity system. It is associated with the use of smart meters and internet technologies to send real-time price signals to end-users for the active participation of demand. The phasing out of regulated prices within a reasonable period of time to be determined by ANRE, after a thorough assessment of market competition and social impact, shall include: - phasing out regulated prices within a reasonable period of time to be determined by ANRE, following an assessment of market competition and social impact; - assessment of the conditions every two years until 2030; - implementation of measures aimed at combating energy poverty
Deadline for implementation			2025-2030
Type of measure			Reform
Covered/affected sectors			Electricity and natural gas sectors
Implementing entity			Ministry of Energy, SE "Moldelectrica", OPEM, ANRE
Monitoring entity			Ministry of Energy, ANRE, SE "Moldelectrica", Vestmoldtransgaz LTD, ANRE
Progress indicators			Degree of market opening, price competitiveness that will reflect the wholesale market

Other relevant dimensions of the Energy Union affected	Energy security
Energy Union policies that have resulted in implementation of policies and measures	Directive (EU) 2019/944 (Electricity Directive) Regulation (EU) 2019/943 (Electricity Market Regulation) Regulation (EU) 2019/942 (ACER Regulation) Regulation (EU) 2019/941 (Risk Preparedness Regulation) Regulation (EU) 2016/1719 (Long-Term Capacity Allocation Guidelines) Regulation (EU) 2015/1222 (capacity allocation and congestion management guidelines) Regulation (EU) 2017/2195 (guidelines on electricity balancing) Regulation (EU) 2017/1485 (Guidelines on electricity transmission system operation) Regulation (EU) 2017/2196 (network code on electricity emergency and restoration) Regulation (EU) 2017/1938 (gas storage and security of supply)
Relevant national planning document (Legislative acts, normative acts, etc.)	The concept of the Energy Strategy to 2050. Table 2, p. 10 Law No 107/2016 on electricity Law no. 108/2016 on natural gas
Implementation cost	1.5 million euros
Source(s) of funding	Sources of external donors

Measure code policy	PM_IEM10	Name	Facilitating the switching process
General objective			Developing the motivation and opportunities of market participants for electricity transactions; increasing system flexibility and quality of electricity supply, market integration and coupling, increasing the tradable capacity of existing interconnections, demand response, distributed generation
Quantified target			Improved quality of electricity supply indicators, increased system flexibility, increased number of suppliers, increased number of contracts
Description			Facilitating the switching process and the creation of a single data centre for storing consumer and technical data will allow for a rapid switching of supplier and aggregator for efficient operation within a maximum of 24 hours. The measure should promote computerisation, digitalisation of the collection of consumer information and technical data, including the establishment of detection points and forecasting tools for demand and RES, smart grids, monitoring of the quality of supply parameters
Deadline for implementation			2023-2030
Type of measure			Investment
Covered/affected sectors			Electroenergetic
Implementing entity			Electricity and gas suppliers, system operators
Monitoring entity			ANRE
Progress indicators			Number of suppliers, number of contracts concluded on the basis of negotiations with suppliers of electricity, natural gas at negotiated prices
Other relevant dimensions of the Energy Union affected			Energy security
Energy Union policies that have resulted in implementation of policies and measures			Directive 2009/72/EU Directive (EU) 2019/944 (Electricity Directive) Regulation (EU) 2019/943 (Electricity Market Regulation)
Relevant national planning document (Legislative acts, normative acts, etc.)			The concept of the Energy Strategy to 2050. Table 2, p. 11 Law No 107/2016 on electricity Joint roadmap between the Republic of Moldova – Energy Community – European Commission for further reforms in the energy sector of the Republic of Moldova (pp. 16, 17, 18, 19, 20)
Implementation cost			EUR 0.5 million
Source(s) of funding			Sources of external donors

3.4.4. Energy poverty

Measure code policy	PM_IEM11	Name	Identifying adequate social aid tailored to the needs of vulnerable consumers
General objective	Reducing the impact of energy crises and energy poverty		
Quantified target	Protection of vulnerable consumers through social assistance measures to reduce energy vulnerability, in the form of allowances and/or compensation to mitigate the energy vulnerability of families and single persons		
Description	<p>The granting of energy compensations will be carried out on the basis of the provisions of the Law No 241/2022 on the Energy Vulnerability Reduction Fund that is set up to finance measures and programmes to reduce energy vulnerability, including energy compensation for vulnerable energy consumers, financial aid for more efficient consumption of energy resources, other social assistance measures.</p> <p>Thus, in order to mitigate the energy vulnerability of consumers, financing programs will be created in the field of energy efficiency, implemented by the National Centre for Sustainable Energy, which, based on dedicated financing products, will support the implementation of energy efficiency measures and/or the exploitation of renewable energy sources for energy consumers affected by energy poverty.</p>		
Deadline for implementation	2023-2030		
Type of measure	Investment		
Covered/affected sectors	Residential sector		
Implementing entity	Government		
Monitoring entity	ANRE		
Progress indicators	Population expenditure ratio for the payment of fuel and energy resources from average per capita income		
Other relevant dimensions of the Energy Union affected	Energy security, energy poverty		
Energy Union policies that have resulted in implementation of policies and measures			
Relevant national planning document (Legislative acts, normative acts, etc.)	<p>The concept of the Energy Strategy to 2050. Table 5, p. 1 and 2</p> <p>Law No 107/2016 on electricity, Article 25</p> <p>Law No 105/2013 on consumer protection, Art. 13(3)</p> <p>Law No 241/2022 on the Energy Vulnerability Reduction Fund</p> <p>Government Decision No 606/2022 approving measures to prevent and mitigate the impact of the energy crisis in the event of a limitation of the supply of natural gas and preparing for the 2022-2023 heating season</p> <p>Financing programme 'Energy Efficiency Fund in the Residential Sector of the Republic of Moldova', approved by Government Decision No 251/2024</p> <p>Government Decision No 533/2024 approving the Regulation on the operation and functioning of the Programme for granting financial aid for the efficient consumption of energy resources (Voucher Programme for Home Appliances)</p>		
Implementation cost	EUR 2.3 million		
Source(s) of funding	State budget, sources of external donors		

3. 5. Research, innovation and competitiveness dimension

i. Policies and measures, including those to achieve the objectives set out in Section 2.5

The functioning of the current institutional framework of the Republic of Moldova in the field of research, innovation and competitiveness is based on a number of public policy documents, which ensure a clearly defined distribution of roles and responsibilities and provide tools for the implementation of the objectives set out in the strategic documents.

The national research and innovation system in the Republic of Moldova is regulated by several normative acts (some have been recently repealed and replacement ones are being developed):

- Code on Science and Innovation of the Republic of Moldova No. 259/2004 (republished in the Official Gazette of the Republic of Moldova, 2018, No. 58-66, Art. 131), as amended;
- Educational Code of the Republic of Moldova no. 152/2014, updated in 2020;
- Innovation Strategy 2013-2020 "Innovations for Competitiveness", approved in 2013, updated in 2016 and repealed in 2019;
- The national programme in the fields of research and innovation for the years 2024-2027, approved by Government Decision No 1049/2023;
- Methodology for financing projects in the field of research and innovation, approved by Government Decision No 382/2019;
- The National Smart Specialisation Programme of the Republic of Moldova for the years 2024-2027 'Smart Moldova', approved by Government Decision No 588/2024;
- Methodology for institutional financing of public law organisations in the fields of research and innovation, approved by Government Decision No 864/2023.

In 2017, the Government initiated a wide-ranging reform of the sector, based on a change in funding and a restructuring of the entire R&D and innovation architecture. Thus, on February 20, 2018, a series of amendments to the Code on Science and Innovation of the Republic of Moldova No. 259/2004 entered into force.

According to the new version of the Code mentioned *above*, all scientific research institutes of the Academy of Sciences of Moldova (ASM) were transferred to the Ministry of Education, Culture and Research (MECC), later the Ministry of Education and Research (MEC).

The Academy of Sciences of Moldova has been deprived of the right to be the founder of scientific institutions since 2018, and the role of the ASM has been defined for the scientific consultancy activity in the development part of the normative framework for research and innovation fields and in the elaboration of an annual report on the state of the research, development and innovation field in the country and in consultative activity within the project evaluation or in the formulation of management proposals.

The Supreme Council for Science and Technological Development was dissolved, and the responsibility for the development of state policies in the field of research and development, including the formulation of priority research and development themes or the management of state programs, was transferred to the Ministry of Economy. At the same time, the Ministry of Economy was also invested with the responsibility of developing state policies in the field of innovation and technology transfer.

Theoretically, the aim of this institutional transfer was to ensure more efficient ways of managing and funding research and innovation – activities which are the responsibility of the CEF. As a result, a substantial increase in allocations to finance research projects was foreseen at the time of the implementation of the reform. Other major developments stemming from the recent reform included:

- transmission of policy-making functions from the ASM to the central specialized body of the state, which ensures the development of national policies in the field of research and innovation (MEC);
- the establishment of the National Agency for Research and Development (ANCD) in accordance with Government Decision No 196/2018, as an entity subordinated to the Government, responsible for the implementation of policies;
- the establishment of the National Agency for Quality Assurance in Education and Research (ANACEC), in accordance with Government Decision No 201/2018;
- transferring the founding status of all public law organizations in the fields of research and innovation to the central specialized body of the state.

Subsequently, with a view to strengthening the network of universities at national and international level by absorbing smaller institutions, merging research institutes with universities,

keeping research funding separate, and directing public spending on higher education and research towards increasing the salaries of academics and researchers, the Government implemented a new reform (in 2022) in the fields of education and research¹⁵⁷. According to this reform, all research institutes of the Ministry of Education and Research were merged with different universities: State University of Moldova, Technical University of Moldova, other central public authorities, etc.

Contests for financing research, innovation and development projects are organized and conducted by ANCD.

Despite the difficulties and bottlenecks specific to the initial implementation period, the 2017 reform and then the 2022 reform brought the institutional and organisational architecture of research, innovation and development closer to that of the Member States of the European Union. The current system ensures the separation of the tasks of development and coordination of state policies in this field, of institutional financing and, on a project basis, of the processes of evaluation, selection, supervision, monitoring and reporting of research. At the theoretical level, the generalized conflict of interest, characteristic of the previous way of operating this field, is avoided.

In 2023, the research and development activity was carried out in 47 entities, including 20 research institutes and centres, 16 higher education institutions and 11 other establishments. The reduction in the number of establishments (20 fewer than in 2022) was largely driven by the reorganisation of public higher education institutions through the merger (absorption) of 18 public research institutes. Of the total number of units that carried out research and innovation, 30 institutions (or 63.8%) were in the form of public ownership.

In the same year, expenditure on research and development activities amounted to MDL 671.1 million, representing 0.22% of gross domestic product, compared to 2.23% at EU level – 27 in 2022 (of which 1.48% is business investment). In 2023, compared to 2022, spending on research and development increased by MDL 40.9 million (or 6.5%), including in public institutions – by MDL 21.6 million (or 4.1%). Out of the total expenditure incurred for research and development, current expenditure accounted for the majority – 96.5%. Of the total current expenditure, the largest part of the expenditure was for personnel (501.8 million lei, or 77.4%), for materials 77.5 million lei (12.0%), and the other current expenditure was 68.6 million lei (10.6%).

Measure code policy	PM_RIC1	Name	Innovation and Transfer Project Competition technology, including in the field of "Environment and climate change"
General objective	Promoting research and innovation		
Quantified target	Increasing the level of technological readiness in the field of energy (Qualitative objectives)		
Description	The measure will promote innovative products, development and uptake of new or upgraded technologies and services in the 5 Strategic Directions, including the Strategic Directorate "Secure, Clean and Efficient Energy"		
Deadline for implementation	2025-2030		
Type of measure	Investment		
Covered/affected sectors	All sectors		
Implementing entity	ANCD		
Monitoring entity	Academy of Sciences of Moldova		
Progress indicators	Number of projects		
Other relevant dimensions of the Energy Union affected	Decarbonisation, internal energy market		
Energy Union policies that have resulted in implementation of policies and measures	European Strategic Energy Technology Plan (SET-Plan)		

¹⁵⁷Government Decision No 485/2022. Available at https://www.legis.md/search/getResults?doc_id=132127&lang=en

Relevant national planning document (Legislative acts, normative acts, etc.)	Code on Science and Innovation of the Republic of Moldova No. 259/2004 (republished in the Official Gazette of the Republic of Moldova, 2018, No. 58-66, Art. 131), as amended National programme in the fields of research and innovation for the years 2024-2027, approved by Government Decision No 1049/2023 Methodology for financing projects in the field of research and innovation, approved by Government Decision No 382/2019 National Smart Specialization Program of the Republic of Moldova for the Years 2024-2027 'Smart Moldova', approved by Government Decision No 588/2024 Methodology for institutional financing of public law organisations in the fields of research and innovation, approved by Government Decision No 864/2023
Implementation cost	EUR 7.4 million
Source(s) of funding	State budget, sources of external donors

Policy measure code:	PM_RIC2	Name:	Improving the management of research, innovation and development
General objective	Promoting research and innovation		
Quantified target	Increasing the level of technological readiness in the field of energy (qualitative objectives)		
Description	The measure will promote the development of institutional and human capacities, driven by the endemic lack of financial resources		
Deadline for implementation	2025-2030		
Type of measure	Investment		
Covered/affected sectors	All areas of NECP		
Implementing entity	Government of the Republic of Moldova Academy of Sciences of Moldova (ASM) Ministry of Education and Research (MEC) National Agency for Research and Development (ANCD)		
Monitoring entity	Ministry of Education and Research		
Progress indicators	Number of doctors, project managers, mobility, training, capacity building, etc.		
Other relevant dimensions of the Energy Union affected	Decarbonisation		
Energy Union policies that have resulted in implementation of policies and measures	-		
Relevant national planning document (Legislative acts, normative acts, etc.)	Code on Science and Innovation of the Republic of Moldova No. 259/2004 (republished in the Official Gazette of the Republic of Moldova, 2018, No. 58-66, Art. 131), as amended National Smart Specialization Program of the Republic of Moldova for the Years 2024-2027 'Smart Moldova', approved by Government Decision No 588/2024		
Implementation cost	EUR 4.6 million		
Source(s) of funding	State budget, sources of external donors, sources of private sector		

Measure code policy	PM_RIC3	Name:	Promoting the creation and use of science and technology parks and innovation incubators
General objective	Implementation of Law No. 226/2018 on Scientific and Technological Parks and Innovation Incubators		
Quantified target	Increasing the level of technological readiness in the field of energy (qualitative objectives)		
Description	The measure will promote innovative products, the development and uptake in practice of new or modernised technologies and services, better than those used in the previous country by innovation organisations set up under an association contract between legal persons and natural persons, aimed at developing the potential for development and implementation of innovations by small and medium-sized enterprises, as well as by private researchers and inventors, operating under state-provided facilities.		
Deadline for implementation	2023-2030		
Type of measure	Investment		
Covered/affected sectors	All areas of NECP		
Implementing entity	Government of the Republic of Moldova		

	ANCD
Monitoring entity	-
Progress indicators	Number of science and technology parks and innovation incubators
Other relevant dimensions of the Energy Union affected	Decarbonisation, internal energy market
Energy Union policies that have resulted in implementation of policies and measures	European Strategic Energy Technology Plan (SET-Plan)
Relevant national planning document (Legislative acts, normative acts, etc.)	Code on Science and Innovation of the Republic of Moldova No. 259/2004 Law No. 226/2018 on Scientific and Technological Parks and Innovation Incubators
Implementation cost	210.0 million euros ¹⁵⁸
Source(s) of funding	State budget, sources of external donors, sources of private sector

Measure code policy	PM_RIC4	Name	Establishment, involvement and creation of networks Intermediate institutions associated with the flow Information, Management, Technology and Financing for Technology Transfer
General objective	Promoting research and innovation		
Quantified target	Increasing the level of technological readiness in the field of energy (qualitative objectives)		
Description	The measure will (further) encourage the establishment of intermediary institutions associated with the flow of information, management, technology and funding, which will provide infrastructural and professional services to the subjects of innovation activity, in terms of networking, as well as the rapid development, design and exploitation of new technologies.		
Deadline for implementation	2023-2030		
Type of measure	Investment		
Covered/affected sectors	All areas of NECP		
Implementing entity	Government of the Republic of Moldova ANCD		
Monitoring entity	-		
Progress indicators	Number of joint new projects		
Other relevant dimensions of the Energy Union affected	Decarbonisation, internal energy market		
Union policies that have resulted in implementation of policies and measures	European Strategic Energy Technology Plan (SET-Plan)		
Relevant national planning document (Legislative acts, normative acts, etc.)	Code on Science and Innovation of the Republic of Moldova No. 259/2004 Law No. 226/2018 on Scientific and Technological Parks and Innovation Incubators		
Implementation cost	1.8 million euros		
Source(s) of funding	State budget, sources of external donors		

Measure code policy	PM_RI C5	Name	Promoting smart specialisation
General objective	Promoting research and innovation		

¹⁵⁸<https://www.mold-street.com/?go=news&n=14978>

Quantified target	Development of innovative products
Description	This measure will encourage private companies to develop their activities in line with innovative bases and become more competitive in the market. The link between business, scientists, government and civil society is expected to become closer. In the Republic of Moldova, 4 sectors with high application potential for smart specialisation have been identified: IT, energy, health and agriculture sectors. National Smart Specialisation Programme of the Republic of Moldova for the years 2024-2027 'Smart Moldova', approved by Government Decision No 588/2024
Deadline for implementation	2024-2027
Type of measure	Investment
Covered/affected sectors	All areas of NECP
Implementing entity	Government of the Republic of Moldova ANCD Ministry of Education and Research
Monitoring entity	Ministry of Education and Research
Progress indicators	Number of joint new projects
Other relevant dimensions of the Energy Union affected	Decarbonisation, internal energy market
Union policies that have resulted in implementation of policies and measures	European Strategic Energy Technology Plan (SET-Plan)
Relevant national planning document (Legislative acts, normative acts, etc.)	Code on Science and Innovation of the Republic of Moldova No. 259/2004
Implementation cost	18.4 million euros
Source(s) of funding	State budget, sources of external donors

Measure code policy	PM_RIC6	Name	Sandbox for Innovation and Technology in the field of energy
General objective		Promoting research and innovation	
Quantified target		Development of innovative products	
Description		<p>Within the Ministry of Energy, a sandbox for energy innovation and technology will be created, which will become the testing and experimentation environment for new energy technologies and innovations, suitable to meet the requirements of energy security and just energy transition under the Law on Innovative Energy Regulatory sandboxes No 225/2024, in order to enable the growth and scalability of innovative technologies within a flexible legal framework. This framework encourages real-world experimentation in various fields: flexibility and balancing services, energy storage, integration of low-carbon gases into renewable gas networks, electromobility, collective self-consumption/renewable energy communities, smart grids, integration of renewable energy sources and pricing. Within this activated regulatory environment, two pilot projects were initiated by UNDP in support of the Ministry of Energy:</p> <ul style="list-style-type: none"> - "Smart electricity metering": pilot project involves the implementation of advanced metering infrastructure for consumers, enabling real-time measurement of electricity consumption. The aim is to increase energy efficiency and provide consumers with detailed information on energy consumption for better management. As a result of the progress made, the pilot project received additional funding from the Italian government, which allowed the roll-out of smart metering to be expanded; - "Differentiated prices": the pilot project focuses on testing differentiated prices in the functions of consumption hours for electricity consumers in order to incentivise more efficient energy use patterns and integrate renewable energy more efficiently into the grid 	
Deadline for implementation		2025-2030	
Type of measure		Investment	
Covered/affected sectors		All areas of NECP	

Implementing entity	Government of the Republic of Moldova Ministry of Energy
Monitoring entity	Ministry of Energy
Progress indicators	Number of new technologies developed and projects tested
Other relevant dimensions of the Energy Union affected	
Energy Union policies that have resulted in implementation of policies and measures	
Relevant national planning document (Legislative acts, normative acts, etc.)	Code on Science and Innovation of the Republic of Moldova No. 259/2004 Law no. 10/2016 on the promotion of the use of energy from renewable sources Law No 107/2016 on electricity Law no. 139/2018 on energy efficiency Law No 282/2023 on the energy performance of buildings
Implementation cost	25.0 million euros
Source(s) of funding	Sources of the private sector

ii. Cooperation with other Member States in this area, including information on how the objectives and policies of the SET Plan are translated into a national context

The following cooperation mechanisms with other Member States will be implemented to support research and development in the energy sector of the Republic of Moldova.

Measure code policy	PM_RIC7	Name	Support cooperation between other Member States in the field of technology transfer and capitalising on research results
General objective			Promoting research and innovation
Quantified target			Increasing the level of technological readiness in the field of energy (qualitative objectives)
Description			The following cooperation mechanisms will be implemented to support research and development in the energy sector of the Republic of Moldova. <ul style="list-style-type: none"> - creation of the research and development program of advanced electricity storage technologies; - creation of the advanced research and development programme in the field of renewable energy; - developing initiatives, accelerators and support programmes for better buildings; - the establishment of bioenergy research centres; - implementation of Deep Retrofit pilot programs; - implementation of R&D programmes for electric vehicles; - developing grant mechanisms for energy efficiency; - co-financing for research partnerships with business for new technologies; - funding for research, development, demonstration and deployment of low GHG emission vehicle technologies; - supporting research and development in the field of green aviation; - developing support programmes for heat pumps; - participation in Horizon Europe and bi-/multilateral competitions; - developing the national hydrogen strategy; - development of joint research programmes with tertiary institutions; - adoption of the national energy research strategy/programme; - promoting education, research and innovation for energy technologies; - public funding for innovative R&D projects for the conversion and use of energy from renewable sources; - creation of public-private partnership mechanisms on energy research and development
Deadline for implementation			2025-2030
Type of measure			Investment
Covered/affected sectors			All areas of NECP
Implementing entity			Government of the Republic of Moldova

	Ministry of Energy Academy of Sciences of Moldova Ministry of Education and Research ANCD
Monitoring entity	-
Progress indicators	Number of joint new projects
Other relevant dimensions of the Energy Union affected	Decarbonisation, internal energy market
Energy Union policies that have resulted in implementation of policies and measures	European Strategic Energy Technology Plan (SET-Plan)
Relevant national planning document (Legislative acts, normative acts, etc.)	Code on Science and Innovation of the Republic of Moldova No. 259/2004 Law no. 10/2016 on the promotion of the use of energy from renewable sources Law No 107/2016 on electricity Law no. 139/2018 on energy efficiency Law No 282/2023 on the energy performance of buildings
Implementation cost	5.5 million euros
Source(s) of funding	Sources of external donors

iii. Where appropriate, relevant funding measures at national level

The Republic of Moldova fully supports the participation in joint research programmes and has legally undertaken¹⁵⁹ to allocate the financial contribution in accordance with Article 7 of Regulation 1291/2013/EU.

Horizon 2020 (2014-2020)

The Republic of Moldova is the first Eastern Partnership country to sign the agreement to participate in the EU Framework Programme for Research and Innovation "Horizon 2020" on 1 July 2014. This programme opened up new opportunities for science and innovation in the Republic of Moldova and helped align with EU standards on the path to socio-economic development through innovation.

In order to capitalise on the status of Horizon 2020 associated country, institutional capacities have been developed through the establishment of the network of national contact points, the team of observers in the programme committees, the functioning of the Science and Technology Office to the EU (MOST), the promotion of the EURAXESS programme and the organisation of the information campaign on the opportunities for participation in the Horizon 2020 and Horizon Europe framework programmes.

EU programme Horizon Europe (2021-2027)

The Republic of Moldova recognises the significant importance of the country's participation in the EU's Horizon Europe Framework Programme for Research and Innovation. In this respect, the Republic of Moldova has signed an Agreement with the European Commission on its participation in this Framework Programme for Research and Innovation and has expressed its readiness to pay a contribution calculated according to the rules of this Programme.

"Erasmus+"

Erasmus+ brings together seven EU programmes in the fields of education, training and youth. As an integrated programme, Erasmus+ offers more opportunities for cross-sectoral cooperation in these areas. At the first call for applications for the new Erasmus+ Programme (launched in March 2014), the Republic of Moldova as well as the Eastern Partnership countries were eligible to participate in certain actions of the new Programme, namely: Jean Monnet Programme and Joint Master Programme.

¹⁵⁹Law No 142/2014, https://www.legis.md/search/getResults?doc_id=21502&lang=en

In 2015, the educational institutions of the Republic of Moldova had access to 2 other new actions of the "Erasmus+" Programme, namely "Credit Mobility (KA1)" and "Capacity Building (KA2)".

In 2015, the implementation of 4 Jean Monnet projects and 17 TEMPUS projects from previous calls continued for a total amount of €17.5 million.

The implementation of the e-Twinning programme has expanded both quantitatively and qualitatively: 89 registered schools (including 13 registered in 2015), 170 registered teachers (38 registered in 2015) and 242 active projects.

In order to facilitate the establishment of the free economic zone and to develop and increase the competitiveness of the entrepreneurial sector, an Agreement on the participation of the Republic of Moldova in the Programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises 2014-2020 (COSME) was signed on 29 September 2014 in Brussels, the Republic of Moldova becoming the first Eastern Partnership country to join this EU programme. Thus, Moldovan entrepreneurs benefit to facilitate access to European markets, as well as to promote business.

Joint Operational Programme Romania – Republic of Moldova FTE 2014-2020

The joint operational programme Romania-Republic of Moldova ENI 2014-2020 aims to increase economic development and improve the quality of life of people in the programme area through joint investments in education, economic development, culture, cross-border infrastructure and health, while ensuring the safety and security of the citizens of the two countries. Most funding priorities support research and innovation. Organisations applying for this programme must co-finance 10% of the project costs.

The programme focuses on the following priorities:

- supporting education, research, technological development and innovation;
- institutional cooperation in the field of education to increase access to and quality of education;
- promoting and supporting research and innovation;
- promotion of local culture and preservation of historical heritage;
- improving accessibility to regions, developing sustainable and climate-resilient transport and communication networks and systems;
- development of cross-border transport infrastructure and ICT infrastructure;
- common challenges in the area of safety and security;
- supporting the development of health services and access to health;
- supporting joint activities to prevent natural and man-made disasters as well as joint actions in emergency situations;
- preventing and combating organised crime and police cooperation.

Most of the above funding priorities support research and innovation. Organisations applying for this programme must co-finance 10% of the project costs.

Section B. Analytical Basis

4. CURRENTSITUATION AND PROJECTIONS TOGETHER EXISTING POLICIES AND MEASURES

The situation in 2020-2024 was characterised by a number of extraordinary developments that had a significant impact on general economic developments and energy consumption in the national economy. Contradictory developments in energy consumption in recent years, which have reached peaks (2021) and lows (2023) in almost two decades, make it considerably difficult to achieve estimates for 2030 and beyond. The projected developments up to 2030, in particular under the scenario of approved and ongoing measures, are characterised by greater certainty than the estimates up to 2040 and 2050, to be adjusted thereafter, including when the overall situation, in particular the regional one, stabilises.

4.1. Projected evolution of the main exogenous factors influencing the evolution of the energy system and GHG emissions

i. Macroeconomic forecasts (GDP and population growth)

Evolution of the number of populations

Estimates on the evolution of the population in the Republic of Moldova until 2050 are based on the UN "World Population Outlook", which includes the Republic of Moldova, adjusted for the territory to the right of the Dniester River, presented in Table 27.¹⁶⁰ According to these estimates, the total number of population will be declining, with an average annual rate for 2025-2050 of 0.68% (high variant)¹⁶¹.

Table 27

Estimated evolution of population in the Republic of Moldova until 2050

	National statistics (NSB)					Estimates (based on UN data)						
	2015	2020	2021	2022	2023	2024	2025	2030	2035	2040	2045	2050
Population, millions	2.85	2.64	2.63	2.57	2.49	2.42	2.40	2.30	2.21	2.13	2.08	2.03

Evolution of gross domestic product and gross value added by economic activity

According to IMF data, in the period 2005-2023, the average annual GDP growth of the Republic of Moldova, in current prices expressed in US dollars, was 10.9%, and the current upward trend could result in the value of GDP in 2029 of about 28.9 billion US dollars, compared to 18.06 billion US dollars estimated for 2024.¹⁶² At the same time, according to the IMF and^{the} World Bank (WB), real¹⁶³GDP grew at an average annual rate of 3% over the same period and amounted to USD 9.17 billion (constant 2015 prices) in 2023. At the same time, in the period from 2010 to 2020, real GDP grew at an average annual rate of 3.9%. Starting from the above, for the estimation of the evolution of real GDP from 2024 to 2050 (Table 28), an average annual growth rate of 3.5% was applied, and for the calculation of GDP in constant 2015 euro prices, the deflation indices published by the NBS,

¹⁶⁰ World Population Prospects 2024 (High variant), United Nations - Population Division, Department of Economic and Social Affairs, <https://population.un.org/wpp/Download/Standard/Population/>

¹⁶¹In the negative scenario (low variant) this rate is 1.29%, medium variant - 0.98%, and zero-migration - 0.37% annually

¹⁶²<https://www.imf.org/external/datamapper/NGDPD@WEO/MDA?zoom=MDA&highlight=MDA>

¹⁶³World Bank national accounts data, and OECD National Accounts data files: <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD?locations=MD>

specified in Annex no. 10, and the average annual official foreign exchange rates established by the National Bank of Moldova, specified in Annex no. 11, were applied.

Table 28

Estimated evolution of real GDP in the period up to 2050

		GDP, millions													
		2005	2010	2015	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
NBS	Current prices, lei			146,740	206,256	199,734	242,079	274,488	300,466						
IMF	Current prices, \$US	2,988	6,977	7,726	11,737	11,530	13,694	14,550	16,576	18,062	19,649	21,531	23,726	26,150	28,911
BM	Constant Prices 2015 \$US	5,545	6,496	7,798	9,161	8,403	9,574	9,094	9,165						
<i>Estimate:</i>		2015	2019	2020	2021	2022	2023	2024	2025	2030	2035	2040	2045	2050	
	Constant prices 2015 EURO	7,022	8,329	7,701	8,876	8,792	9,096	9,410	9,736	11,540	13,678	16,213	19,217	22,778	

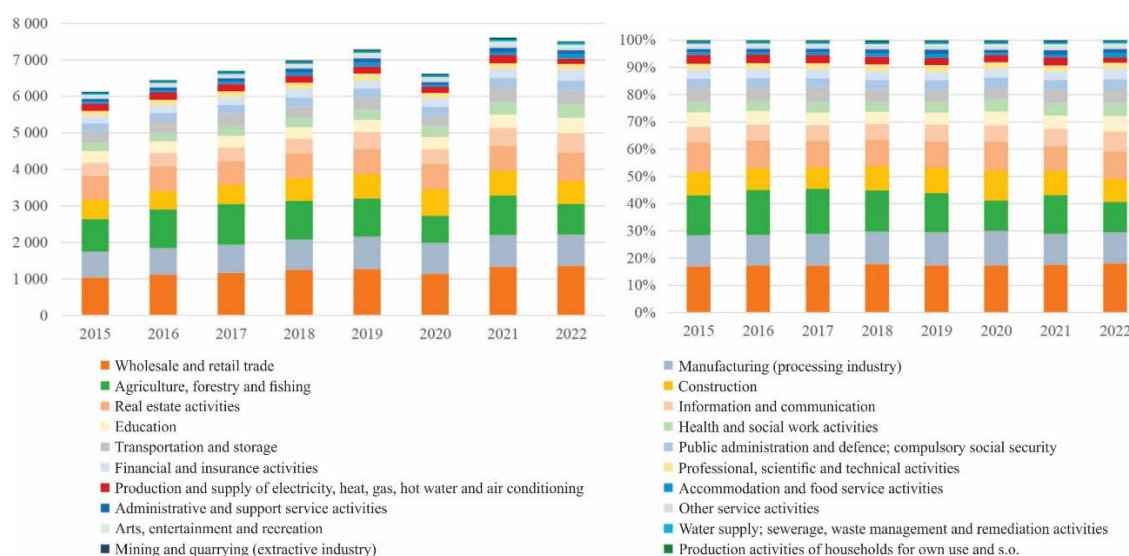
Sources: compiled based on public information of NBS, NBM, IMF and WB

The analysis of the 2014-2023 NBS data on GDP and gross value added (GVA) at current prices (Annex 8) shows that in 2023 the total GVA had a share of 86% of GDP and the share of net taxes on products was 14%. In 2021-2023, the share of total GVA in GDP was lower than in previous years.

Four sectors of the national economy accounted for about 50% of total GVA in the period under review, and on average for 2020-2023, the shares of these sectors were as follows: wholesale and retail trade – 18.5%, manufacturing – 10.8%, agriculture – 10.4% and construction – 9.2% (Figure 10). Of these four sectors, the 2020-2023 average share of wholesale and retail trade in total GVA increased compared to the 2014-2019 average, while the share of manufacturing and agriculture decreased and the share of the construction sector remained unchanged on average over both periods. The shares of the transport and storage (4.9%) and extractive industries (0.4%) remained unchanged on average over the respective periods, while the share of electricity, heat, gas and hot water generation and supply decreased from 3% to 2.3%. Among the economic activities with a growing share in the total GVA are information and communications (7.8%, 2023), health and social assistance (7%), education (6.7%) and accommodation and food activities (1.9%).

In 2020, the year marked by the COVID-19 pandemic and 2022, the year with the highest inflation in the last decade,¹⁶⁴ GDP and GVA, in constant prices (Figure 11 and Annex 9), in total and in most sectors, showed negative dynamics compared to the previous years, including manufacturing, transport and storage, agriculture and forestry, electricity and heat production and supply, gas, hot water and other sectors.

¹⁶⁴ <https://bnm.md/en/content/rate-inflation-0>



Source: compiled on the basis of the public information of the NBS

Figure 11. Evolution of Gross Value Added by Economic Activities 2015-2022
constant prices 2015 euro, million (estimate)

ii. Sectoral changes expected to affect the energy system and emissions the GHG

Among the main factors that have influenced the general economic development and the energy sector in Moldova in the last decade are: (i) the increase in prices of natural gas, electricity, heat and other energy products in the period starting with the fourth quarter of 2021, but also in 2010-2015 (Figure 11); (ii) the COVID-19 pandemic in 2020; (iii) inflation developments, in particular between 09/2021 and 09/2023, where the annual inflation rate reached 34.6% in October 2022 and 28.7%¹⁶⁵ on average in 2022 (9.7% in 2015);¹⁶⁶ (iv) major regional transformations resulting from the military conflict in Ukraine, which started in February 2022 and is still ongoing, with devastating effects on Ukraine, but also on the Republic of Moldova and the whole of Europe, with Ukraine being not only one of the two countries with which Moldova shares a common border, but also the country with which Moldova forms a common block in the electricity sector and through which natural gas supplies to Moldova have traditionally been ensured. Another factor that has a significant impact on the national economy and the energy sector is the climate developments in recent years, manifested, in particular, by milder winters, but also longer droughts in the summer.

Estimates of the evolution of the key factors used to model the evolution of the energy system up to 2030, 2040 and 2050 are presented in Table 29.

¹⁶⁵ Source: National Bank of Moldova: <https://www.bnm.md/en/content/rata-inflation-0>

¹⁶⁶ Source: World Bank - World Development Indicators, Moldova, updated 16.12.2024

Table 29

Estimated trajectories for key factors used in scenarios up to 2050

Factors	2015	2020	2025	2030	2035	2040	2045	2050
Population (millions)	2.85	2.64	2.4	2.3	2.21	2.13	2.08	2.03
Urbanisation (% of population in urban areas)	39.7	41.3	43.8	45.4	47	48.7	50.4	52.3
Number of persons per household	2.60	2.44	2.17	2.06	1.97	1.89	1.83	1.77
Number of dwellings (thousands)	1,095	1,084	1,105	1,112	112	1,128	1,136	1,144
Real GDP (millions, constant prices 2015 EURO)	7,022	7,701	9,736	1,154	13,678	16,213	19,217	22,778
Real GDP (EURO) per capita	2,467	2,913	4,063	5,028	6,195	7,599	9,257	11,236
GVA in agriculture, forestry and fisheries (millions, constant prices 2015 EURO)	900	736	921	1,068	1,238	1,435	1,664	1,929
GVA in manufacturing (millions, constant prices 2015 EURO)	703	850	937	1,084	1,255	1,452	1,681	1,945
GVA in mining and quarrying (millions, constant prices 2015 EURO)	23	37	31	39	49	61	76	96
GVA in construction (millions, constant prices 2015 EURO)	524	727	691	803	935	1,087	1,265	1,472
GVA in transport and storage (millions, constant prices 2015 EURO)	308	276	414	500	604	729	881	1,064
Volume index of industrial production: food, beverages and tobacco	100	105	110	116	122	128	135	142
Volume index of industrial production: non-metallic minerals	100	103	106	109	113	116	120	123
Cement production (thousand tonnes)	709	742	529	552	576	601	627	655
Surface area of non-residential buildings (thousand m ²)	13,435	13,607	13,664	13,693	13,722	13,751	13,779	13,808

Sources: compiled on the basis of publicly available information from the NBS, the UN and other sources

iii. Global energy trends, international fossil fuel prices, carbon price in the European market EU ETS

The estimated trajectories of the evolution of fuel prices on the European market are presented in Table 30.

Estimated trajectories of fuel prices up to 2050 (EUR2020)

EUR2020	Oil			Gas (VCN)		Coal	
	€/GJ	€/toe	€/bep	€/GJ	€/toe	€/GJ	€/toe
2018*	10.9	454	62	7.8	325	3.0	126
2019*	10.2	425	58	4.5	189	2.1	87
2020*	6.4	268	37	3.1	130	1.6	67
2021*	10.5	438	60	15.1	634	3.8	157
2022	15.4	643	88	33.2	1391	5.3	220
2023	15.4	643	88	24	1005	4.2	176
2024	15.4	643	88	14.6	611	3.2	132
2025	15.4	643	88	13.2	554	3.1	128
2030	15.4	643	88	11.3	473	3.1	130
2035	15.4	643	88	11.3	473	3.1	131
2040	16.3	680	93	11.3	473	3.3	139
2045	17.6	738	101	11.3	473	3.5	146
2050	19.7	824	112	11.8	494	3.7	153

* - historical data

Source: recommended parameters for reporting GHG projections in 2023 (EC)

Based on the above, the import prices of electricity are estimated in Figure No 12 (euro/kWh)

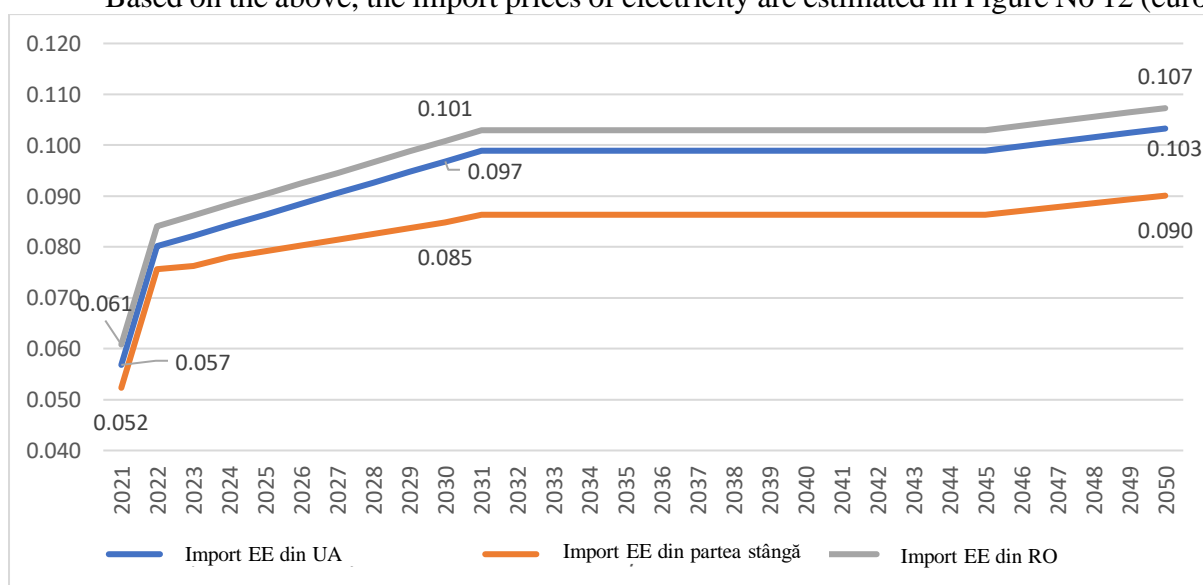


Figure 12. Estimated trajectories of import electricity prices by source until 2050

iv. Evolution of technological costs

TIMES-Moldova contains a database of new technology options for each application representing a dataset based on IEA data. Advanced technology options are restricted in the baseline scenario, then CO2 reduction measures incentivise the use of new technologies.

4.2. Decarbonisation dimension

4.2.1. GHG emissions and removals

i. Trends in current GHG emissions and removals in sectors of the economy and different energy sectors

The Republic of Moldova is not yet part of the EU ETS. For the time being, there are no joint activities related to GHG emissions and removals.

The 5th National Communication¹⁶⁷ of the Republic of Moldova to the UNFCCC (submitted in 2023) provides an overview of GHG emission trends for the period 1990 – 2020 (the whole country, including the left bank of the Dniester River). The data provided shows that the level of emissions in 1990 was 45,591 Mt CO_{2e}. Following the collapse of the Soviet-era economic system, emissions began to fall sharply. In 2020, GHG emissions amounted to 13.662 Mt CO_{2e} (excluding the LULUCF sector). However, the annual trend in emissions is increasing, as shown in the following table on GHG emission trends disaggregated by sector for the period 1990 to 2020. Data are presented for the existing measures scenario (WEM) and the additional measures scenario (WPM).

It is worth noting that LULUCF emissions have been consistently negative (i.e. this sector is a GHG sink) and that energy-related emissions have increased sharply since 2005.

Table 31

Aggregate direct GHG emission projections by sector in the Republic of Moldova (the whole country), in kt CO_{2e}

	1990	1995	2000	2005	2010	2015	2020	2025	2030	2035
WEM										
Energy	36.992,90	12.391,30	6.940,90	8.836,50	9.496,40	9.119,60	9.549,90	8.502,60	8.490,30	9.083,20
PIUP	1.605,20	456,7	315,8	573,1	561,2	765,1	998,8	1.134,90	1.173,00	1.205,70
Agriculture	5.076,70	3.173,40	2.136,20	2.063,20	1.803,70	1.701,20	1.546,40	1.784,00	1.806,50	1.829,10
LULUCF	-1.657,50	-2.031,10	-2.123,30	-1.667,50	-1.228,20	-1.181,90	-3,5	-886,2	-1.779,70	-3.291,90
Waste	1.573,50	1.637,30	1.573,90	1.478,50	1.501,50	1.423,20	1.566,60	1.504,40	1.473,70	1.434,50
Total (including LULUCF)	43.590,90	15.627,60	8.843,40	11.283,70	12.134,70	11.827,30	13.658,20	12.039,70	11.163,80	10.260,70
Total (excluding LULUCF)	45.248,40	17.658,70	10.966,70	12.951,30	13.362,80	13.009,20	13.661,70	12.925,90	12.943,50	13.552,50
WPM										
Energy	36.992,90	12.391,30	6.940,90	8.836,50	9.496,40	9.119,60	9.549,90	8.109,10	7.724,50	8.476,30
PIUP	1.605,20	456,7	315,8	573,1	561,2	765,1	998,8	1.053,10	1.063,40	1.064,70
Agriculture	5.076,70	3.173,40	2.136,20	2.063,20	1.803,70	1.701,20	1.546,40	1.743,10	1.754,60	1.762,30
LULUCF	-1.657,50	-2.031,10	-2.123,30	-1.667,50	-1.228,20	-1.181,90	-3,5	-921,1	-2.793,50	-5.540,40
Waste	1.573,50	1.637,30	1.573,90	1.478,50	1.501,50	1.423,20	1.566,60	1.464,80	1.129,30	939,4
Total (including LULUCF)	43.590,90	15.627,60	8.843,40	11.283,70	12.134,70	11.827,30	13.658,20	11.449,10	8.878,40	6.702,40
Total (excluding LULUCF)	45.248,40	17.658,70	10.966,70	12.951,30	13.362,80	13.009,20	13.661,70	12.370,20	11.671,80	12.242,80

Source: Fifth National Communication of the Republic of Moldova to the UNFCCC, submitted on 1 March 2023

The emission projections for the right bank of the Dniester River in the Republic of Moldova are presented in Table 32.

Table 32

Aggregate direct projections of GHG emissions in the Republic of Moldova (right bank of the Dniester river), in kt CO_{2e}

GHG emissions, kt CO _{2e}	2020	2025	2030	2035	2040	2045	2050
Total WEM (with LULUCF)	8.052	8.412	8.112	7.137	5.987	5.910	5.773

¹⁶⁷5th National Communication of the Republic of Moldova to the UNFCCC, submitted on 1 March 2023, <https://unfccc.int/documents/627100>.

Total WEM (without LULUCF)	8.323	8.879	8.882	8.698	8.422	8.311	8.141
Total WPM (with LULUCF)	8.052	8.361	6.713	4.849	2.907	2.854	2.717
Total WPM (without LULUCF)	8.323	8.839	8.234	7.453	6.642	6.538	6.349

ii. Projections of sectoral developments with existing national, Energy Community and EU policies and measures at least until 2040 (including for 2030)

The Republic of Moldova has developed the TIMES model to forecast future GHG emissions in the energy sector. The estimated trajectories for the non-energy sectors for 2030 were set as part of the 5th National Communication of the Republic of Moldova to the UNFCCC. The trajectories for 2050 are the result of expanding trends for non-energy sectors. For the energy sector, the TIMES model was achieved by 2050, applying the forecasts described in section 4.1. The results of the projections are presented in Table 33.

Table 33

**Aggregate direct GHG emission projections by sector
in the Republic of Moldova (right bank of the Dniester river), in kt CO_{2e}**

	WEM						
	2020	2025	2030	2035	2040	2045	2050
Energy	5.187	5.531	5.578	5.403	5.240	5.154	5.009
Agriculture	1.323	1.537	1.559	1.590	1.603	1.600	1.597
Waste	1.126	1.055	970	928	811	799	788
PIUP	688	757	775	777	768	758	747
LULUCF	-272	-467	-770	-1561	-2435	-2401	-2368
Total, ktCO_{2e} (with LULUCF)	8.323	8.879	8.882	8.698	8.422	8.311	8.141
Total, ktCO_{2e} (without LULUCF)	8.052	8.412	8.112	7.137	5.987	5.910	5.773
	WPM						
	2020	2025	2030	2035	2040	2045	2050
Energy	5.187	5.536	5.248	4.624	3.852	3.768	3.600
Agriculture	1.323	1.524	1.530	1.539	1.541	1.538	1.535
Waste	1.126	1.055	750	601	576	567	560
PIUP	688	724	706	689	673	664	655
LULUCF	-272	-478	-1521	-2604	-3735	-3683	-3632
Total, ktCO_{2e} (with LULUCF)	8.323	8.839	8.234	7.453	6.642	6.538	6.349
Total, ktCO_{2e} (without LULUCF)	8.052	8.361	6.713	4.849	2.907	2.854	2.717

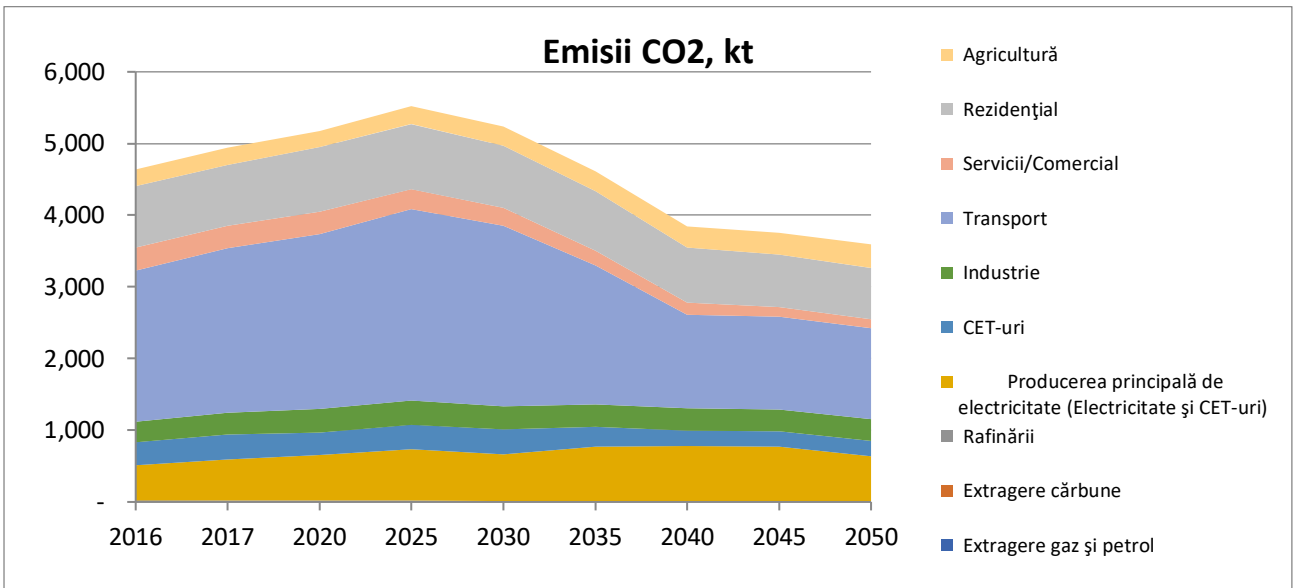
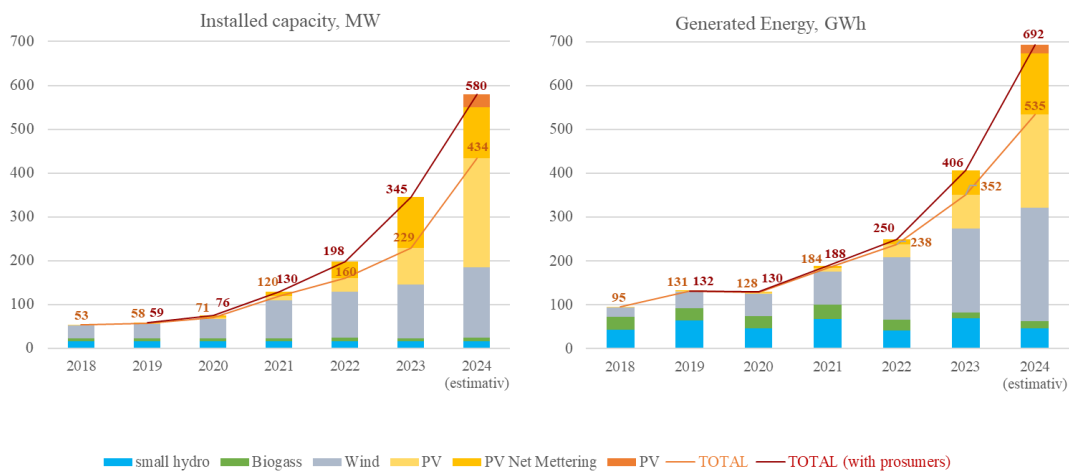


Figure 13. Estimated GHG emission trajectories in the WPM scenario up to 2050 in kt CO₂e for the energy sector

4.2.2. Renewable energy

i. Current share of renewable energy in gross final energy consumption in different sectors (heating and cooling, electricity and transport) and per technology in each of these sectors

In recent years there has been a significant increase in the deployment of renewable energy sources (RES), such as wind and photovoltaic plants. This was primarily driven by the unprecedented increase in energy prices from traditional sources, but also by the efforts of state authorities to support the deployment of RES. The installed capacity of RES, including wind, photovoltaic, biogas and small hydropower plants, increased from 5.2 MW in 2015 to 54.8 MW in 2020, 212.2 MW in 2023 and 417.4 MW at the end of 2024, representing an almost 8-fold increase over the last 4 years. Together with the Stanca-Costesti hydroelectric power plant, the total installed capacity is 434 MW, without RES installed on the basis of metering and net billing mechanisms. Electricity generation from RES increased from 17.8 GWh in 2016 to 81.4 GWh in 2020, 283 GWh in 2023 and 488 GWh in 2024, and with the Stanca-Costesti hydropower plant –351.6 GWh in 2023¹⁶⁸ and 535 GWh in 2024 (Figure 14).



Sources: ANRE, Ministry of Energy

¹⁶⁸ Primary electricity production in 2023 reported by the NBS is 37 ktoe, or 2.6 times higher than in 2021

Figure 1nr. 14. RES installed capacity and electricity produced from RES, 2018-2024

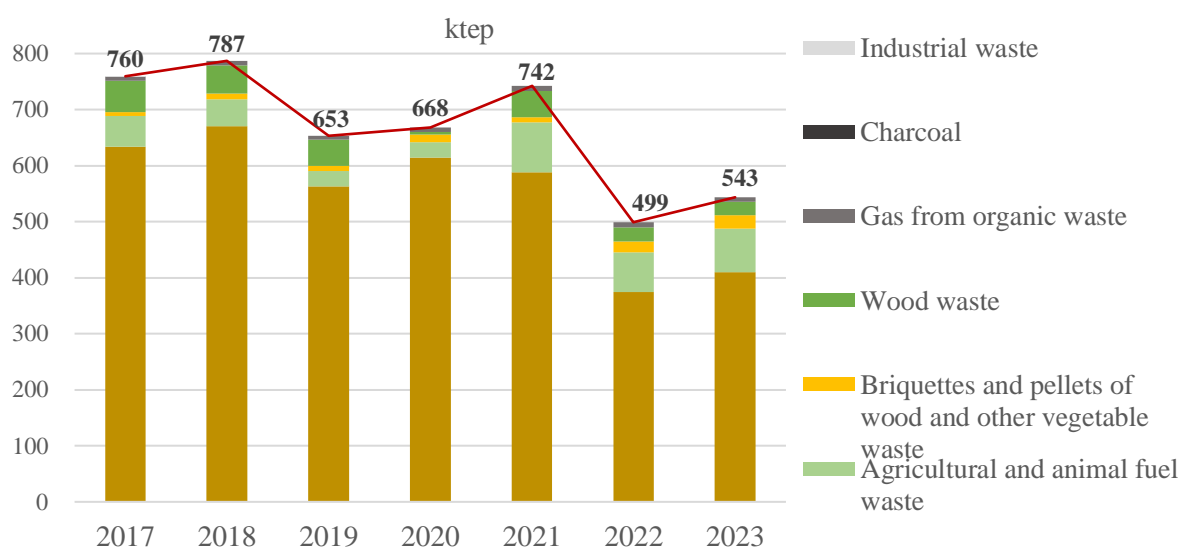
According to ANRE, in 2023, the share of electricity generated by type of RES used, without the Stanca-Costesti hydroelectric power plant and without prosumers, was as follows: 67.6% wind, 27.5% solar and 4.9% biogas. During 2023, no electricity produced by small-capacity hydropower installations was recorded.

In 2023, the number of final consumers who benefited from the net metering mechanism provided for by Law No 10/2016 on the promotion of the use of energy from renewable sources increased 2.4 times, exceeding 5 thousand final consumers at the end of the year, with a registered installed capacity of 115.8 MW¹⁶⁹ (triple compared to the previous year) and 54.5 GWh of electricity delivered to the electricity grid from final consumers who owned RES for their own consumption, which is 4.7 times more than in 2022 and 13.3 times more than in 2021. By amending Law No 10/2016 in 2023, the transition from the net metering mechanism to the net invoicing mechanism was ensured and provisions related to prosumers of renewable electricity were introduced.

In 2024, according to the information available to date, 30.3 MW were registered under the net invoicing mechanism and the total capacity of RES-based power plants, including installations under net metering and net invoicing mechanisms, reached 580 MW, of which 395 MW (68%) - solar energy, 161 MW (27.7%) - wind, 7 MW (1.2%) - biogas and 16.75 MW (2.9%)¹⁷⁰- large and small capacity hydropower plants (Figure 13). Electricity generation from these sources increased in 2024 to 692 GWh.

Between 2015 and 2023, the largest amount of electricity delivered by a single installation under the RES comes from the current 3.6 MW power plant belonging to ‘Sudzucker Moldova’, which uses as fuel the biogas produced from organic waste (sugar beetroot), obtained at the sugar factory in Chisinau. Drochia. In 2023, this power plant generated 10.5 GWh out of a total of 13.8 GWh generated by biogas plants. At the same time, as regards the Stanca-Costesti hydroelectric power plant, it is worth noting that the generation of electricity at this plant lately is characterized by more pronounced fluctuations from one year to another, as well as by a decrease compared to the period 2001-2010, also as a result of climate change.

At the same time, in 2022 and 2023, there was a significant reduction in biomass production in the form of firewood, from 670 ktoe in 2018 and 614 ktoe in 2020 to 374 ktoe in 2022 and 410 ktoe in 2023, but, on the other hand, an increase in the production of wood briquettes and pellets and other vegetable waste, as well as an increase in combustible agricultural and animal waste (Figure No 15).



¹⁶⁹Report on the activity of ANRE 2023, table 9, p. 23

¹⁷⁰CNED: <https://cned.gov.md/en/content/capacities-installed>

Source: compiled on the basis of NBS data

Figure 15. Structure of consumption of biofuels and waste 2017-2023

The share of firewood in total biofuels and waste decreased from over 85% in 2018-2020 to 75% in 2022 and 2023. As a consequence, the share of biofuels and waste in gross inland energy consumption decreased from around 26% in 2017 and 2018 to 20% in 2022 and 2023, and the share of RES decreased from 26% to 22% (2023) (Table 34 and Annex 1). The increase in electricity production from RES, in particular wind and photovoltaic plants, has helped to reduce the share of biofuels and waste in the total primary production recorded by the NBS from over 98% in 2014-2018 to 93% in 2023.

Table 34

Evolution of gross inland consumption of energy from renewable sources (2010-2023)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
INTERNAL BRUT CONSUMPTION	2,633	2,676	2,624	2,643	2,669	2,686	2,796	2,939	3,066	2,938	2,807	3,115	2,770	2,632
Primary production	523	555	594	599	654	655	709	770	798	668	682	761	524	584
Biofuels and waste	505	535	580	585	641	644	698	760	787	653	668	742	499	543
Electricity	7	7	3	4	5	4	4	5	6	10	8	14	20	37
Petroleum products	11	13	11	10	8	7	7	5	5	5	6	5	5	4
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Natural gas	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Thermal energy	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SER - total*	512	542	583	589	646	648	702	765	793	663	676	756	519	580
RAS in CIB, %	19.4	20.3	22.2	22.3	24.2	24.1	25.1	26.0	25.9	22.6	24.1	24.3	18.7	22.0

Source: compiled on the basis of NBS data

According to EUROSTAT public data, with the contribution of the NBS, which ensures the harmonised calculation of the share of energy from RES based on a common calculation tool for EU and Energy Community countries,¹⁷¹ the share of RES in the consumption of energy for heating and cooling (RES-H&M) in the Republic of Moldova in 2023 was 40.7%, the maximum value of this indicator - 46.1% - being recorded in 2017. The share of RES in electricity consumption (RES-E) increased to 9.2%¹⁷² in 2023, and in the transmission sector (RES-T) to 0.022% (Table 35 and Annex No 1). The share of RES in gross final energy consumption as defined in Directive (EU) 2018/2001¹⁷³ was 23%.

¹⁷¹[https://ec.europa.eu/eurostat/web/energy/database/additional-data#Short%20assessment%20of%20renewable%20energy%20sources%20\(SHARES\)](https://ec.europa.eu/eurostat/web/energy/database/additional-data#Short%20assessment%20of%20renewable%20energy%20sources%20(SHARES))

¹⁷²According to Directive (EU) 2018/2001, *gross final consumption of electricity from renewable sources* (SR) is calculated as the amount of electricity produced from SR, including the production of electricity from energy self-consumers in SR and from energy communities in SR; Article 7 (2)

¹⁷³According to Directive (EU) 2018/2001 of 11 December 2018 on the promotion of the use of energy from renewable sources, *gross final consumption of energy* means the energy products supplied for energy purposes to industry, transport, households, services, including public services, agriculture, forestry and fisheries, the consumption of electricity and heat in the sector of electricity and heat production and transport fuels, as well as losses of electricity and heat in distribution and transport, Article 2, p.4

Table 35

Share of RES in gross final energy consumption

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
SER-Î&R	34.6	36.3	39.0	40.0	43.6	44.5	45.5	46.1	44.5	40.4	39.2	36.9	38.4	40.7
SER-E	1.8	1.8	1.7	1.7	1.9	2.0	1.9	2.1	2.6	3.0	3.1	3.6	5.5	9.2
SER-T	0.71 1	0.72 0	0.01 6	0.01 7	0.01 2	0.01 1	0.01 5	0.02 1	0.01 8	0.01 2	0.01 5	0.01 6	0.01 7	0.02 2
Total RES	21.4	22.1	24.3	24.4	26.2	26.2	26.9	27.8	27.0	23.8	23.6	22.2	21.5	23.0

Source: compiled on the basis of EUROSTAT-BNS data

As regards the use of *RES in the heating and cooling sector*, it should be noted that the main sources of heating in Moldova are currently biomass, natural gas, electricity, district heating and coal (Annex 1). Biomass in the form of firewood, agricultural combustible waste and wood waste is the main source of heating, accounting for 45% of final energy consumption in the residential sector in 2023. Wood briquettes and pellets and other vegetable waste represent only 2% of all biofuels and waste used in the residential sector in 2023, or 1% of final energy consumption in this sector. According to the CNED, more than 100 MW of biomass heating capacity, with EU support, was incorporated between 2011 and 2017 in the public and residential sectors and more than 300 boilers were installed across the country. At the same time, more than 3,000 small boilers (20 kW to 25 kW each) have been installed in the residential sector, demonstrating the interest of final consumers in this technology, driven mainly by high fossil fuel energy tariffs. There has been a reduction in the use of biomass boilers between 2019 and 2021, partly due to low gas prices, but as a result of the 2021 energy crisis and the unprecedented increase in energy prices, demand for biomass boilers has increased. In the public sector, biomass heaters are installed in 317 public institutions with a total installed capacity of 65 MW¹⁷⁴. The list of solid biofuel producers/suppliers in the Republic of Moldova includes 42 companies¹⁷⁵.

In the transport sector, renewable energy consumption has been very low between 2010 and 2023, with a slight increase in recent years – from 0.012 % in 2019 to 0.022 % in 2023.

ii. Trajectories of developments with existing policies and measures at least up to year 2040 (including for the year 2030)

The share of RES in the gross final energy consumption of the Republic of Moldova (according to Ministerial Council Decision No 2022/02/MC-EnC amending EnC Ministerial Council Decision No 2021/14/CM) is expected to be 27% in 2030. This objective is agreed only for the right bank of the Dniester River (data for the territories on the left bank will be addressed in the next update of the NECP). According to the results of modelling future developments based on measures adopted and being implemented, the share of RES in gross final energy consumption will increase to 26.1% in 2030 and is expected to increase to 27.5% in 2040 (Table 36). In order to reach the target of 27% in 2030, additional measures will be adopted and implemented. The results of the modelling of the implementation of the planned additional measures indicate the achievement of 30% RES in gross final energy consumption in 2030.

Table 36

Estimated developments in the share of RES in gross final energy consumption by 2040, %

¹⁷⁴https://cned.gov.md/sites/default/files/document/attachments/lista_institutiilor_publice_detinatoare_de_centrale_ter_mice_pe_baza_de_biocombustibil_solid_pentru_pagina_web.pdf

¹⁷⁵https://cned.gov.md/sites/default/files/document/attachments/040724_lista_producatori_de_biomasa_actualizata_2024.pdf

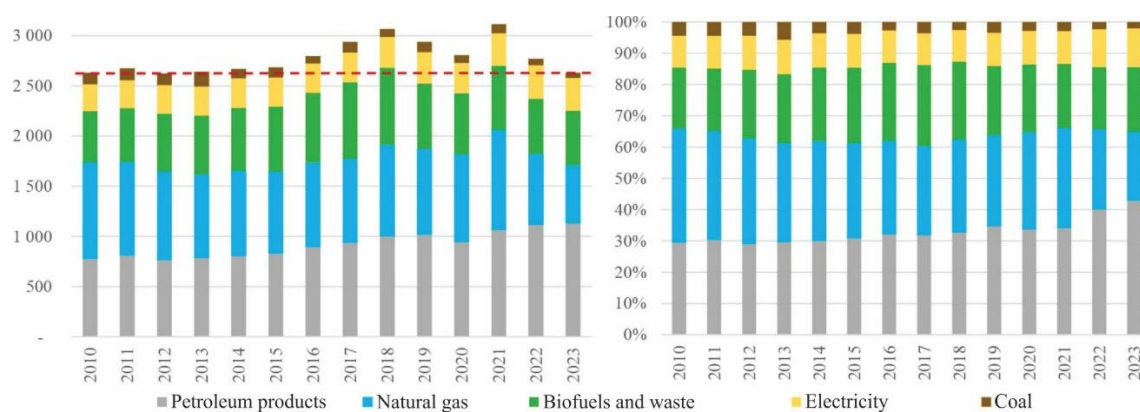
Source: compiled on the basis of EUROSTAT-BNS data and modelling results

	2015	2016	2017	2018	2019	2020	2021	2022	2023	With measures approved, under implementation			With additional measures planned		
										2030	2040	2050	2030	2040	2050
SER-Î&R	44.5	45.5	46.1	44.5	40.4	39.2	36.9	38.4	40.7	40.1	40.2	37.4	42.5	39.9	31.9
SER-E	1.98	1.94	2.1	2.6	3.0	3.1	3.6	5.5	9.2	23.8	28.2	25.5	31.2	48.0	64.5
SER-T	0.01	0.01	0.02	0.01	0.01	0.01	0.01	0.01	0.02	0.4	1.9	3.7	6.9	13.2	18.3
Total RES	26.2	26.9	27.8	27.0	23.8	23.6	22.2	21.5	23.0	26.1	27.5	25.2	30.0	34.9	34.6

4.3. Energy efficiency dimension

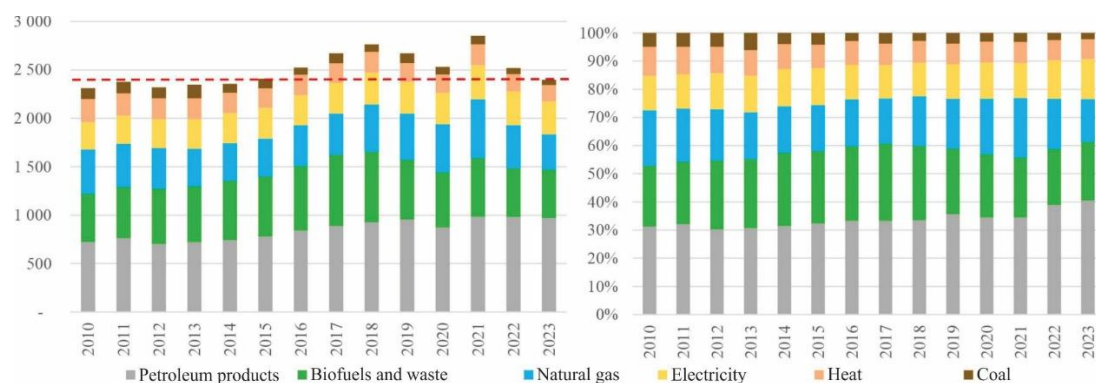
i. Current primary and final energy consumption in the economy and by sector (including industry, residential, services and transport)

In 2023, gross inland energy consumption was 2.63 Mtoe, falling below 2013 and final energy consumption was 2.4 Mtoe, falling below 2015 (Figures 16 and 17 and Annexes 2 and 3).



Source: compiled on the basis of NBS data

Figure 16. Evolution of gross inland energy consumption (2010-2023, ktoe)



Source: compiled on the basis of NBS data

Figure 17. Evolution of gross final energy consumption (2010-2023, ktoe)

It should be noted that in 2020-2023, energy consumption was characterised by a number of extraordinary developments, reaching maximum values and falling to the minimum values recorded in 2010-2023, but also over a longer period of time. For example, gross inland energy consumption

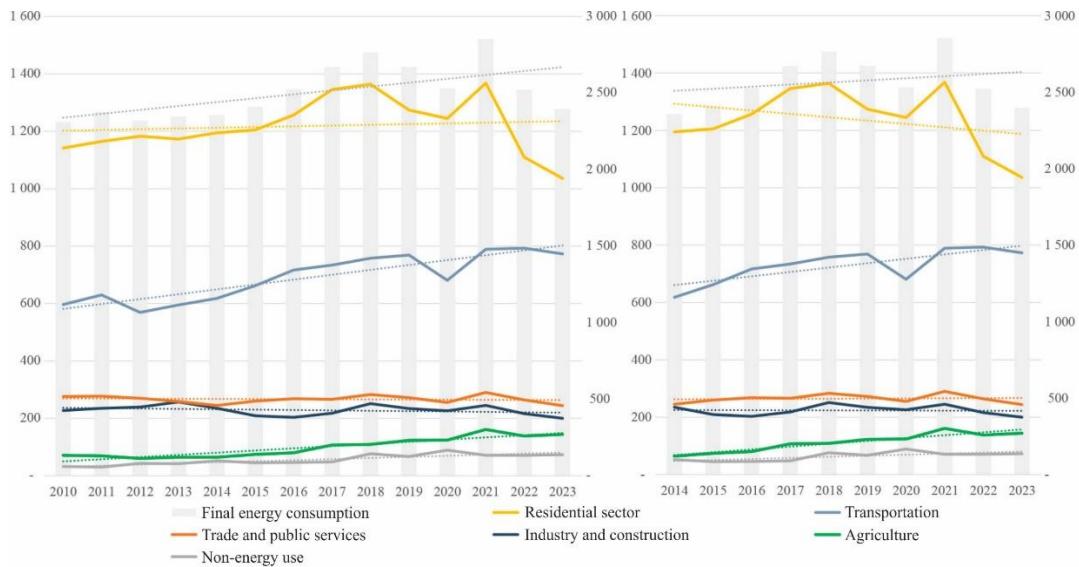
(GIC) and final energy consumption (FEC) reached their highest level in two decades in 2021 – 3.1 Mtoe and 2.85 Mtoe respectively, exceeding the maximum level set for these indicators for 2030 (3.0 Mtoe for CIB and 2.8 Mtoe for FEC) in line with Moldova's commitments under the Energy Community. 2021 saw the highest level of consumption for the period 2010-2023 in the residential sector – 1,368 ktoe, in trade and public services – 290 ktoe and in agriculture – 161 ktoe. 2021 also saw the highest level of natural gas consumption since 2010: 997 ktoe in the CIB and 602 ktoe in the CFE, but also in the residential sector – 389 ktoe, in trade and public services – 101 ktoe, in industry – 76 ktoe and in transport – 31 ktoe, mainly driven by low natural gas prices which for 12 months to November 2021 were at their lowest level since 2011. The share of natural gas in CFE, in the residential sector, but also in transport reached in 2021 the highest level since 2010, i.e. 21.1%, 28.4% and 3.9% (Figures 16 and 17). At the same time, 2021 also saw the highest level of consumption of petroleum products: 982 ktoe in CFE, but also in agriculture – 145 ktoe.

The period immediately following 2021 is marked by a sharp overall decline in energy consumption, mainly due to the unprecedented increase in prices of natural gas and other energy sources since 2021 Q3 (Figure No 16). Gross inland energy consumption in 2023 was 15.5% (483 ktoe) lower than in 2021, and final energy consumption was 16% (456 ktoe) lower. By sector, the reduction in energy consumption was as follows: in the residential sector – 24% (332 ktoe), in trade and public services – 16% (46 ktoe), in industry – 18% (45 ktoe), in agriculture – 11% (17 ktoe), in transport – 2% (16 ktoe), and in electricity and heat production at district heating and thermal power plants, the reduction in energy consumption was 19.3% (78 ktoe) (Figure No 17) the total CFE and in the residential sector decreased in all energy sources, of which natural gas and biofuels and waste recorded the largest decrease (in toe), followed by heat, coal, electricity and petroleum products. In the residential sector, consumption of natural gas decreased by 40.4% (157 ktoe), biofuels and waste – 19.3% (115 ktoe), heat – 22% (27 ktoe), coal – 31% (14 ktoe), electricity – 9% (14 ktoe) and petroleum products – 9% (5 ktoe).

In the 2020-2023 average, the share of fossil fuels in gross inland energy consumption is 68%, including oil products – 37.6%, natural gas – 27.9% and coal – 2.5%, while biofuels and waste account for 20.7% and electricity – 11.3%. In final energy consumption, over the same period, the share of fossil fuels is 58%, including petroleum products – 36.9%, natural gas – 18.5% and coal – 2.8%, while biofuels and waste account for 21.2%, electricity – 13.3% and heat – 7.3%.

Compared to the average energy consumption for 2010-2019, the average consumption for 2020-2023 was higher for both gross inland energy consumption and final energy consumption, with the latter having a more pronounced increase (100 ktoe versus 64 ktoe) due to the increase in energy consumption in the transport and agriculture sectors, by 94 ktoe and 60 ktoe respectively. In the other sectors, on average over the periods mentioned, the evolution was declining, with the most pronounced decrease being in the residential sector (41 ktoe) and in the production of electricity and heat at district heating and thermal power plants (46 ktoe), followed by industry. (9 ktoe), trade and public services (4 ktoe).

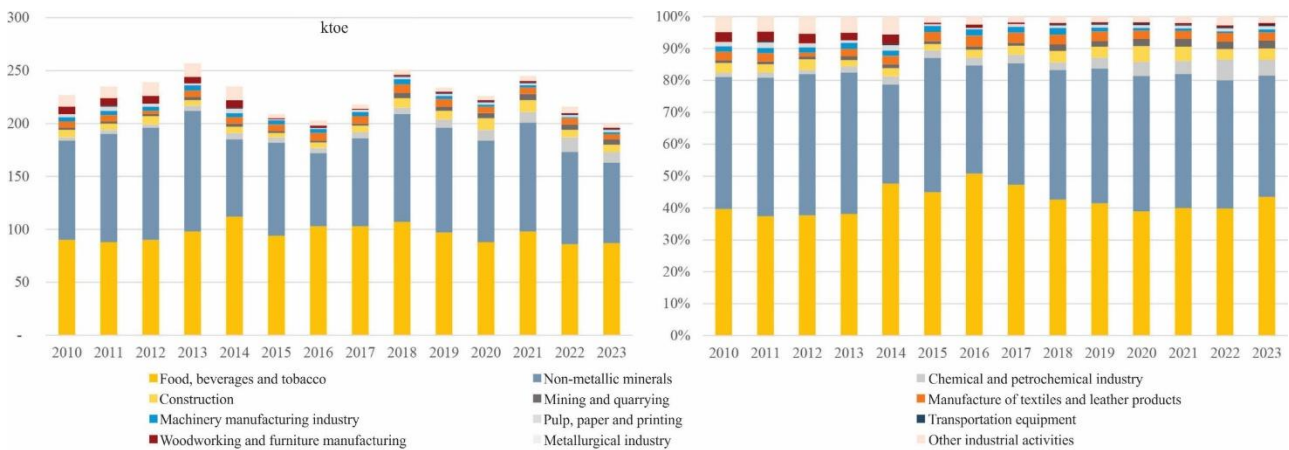
Between 2010 and 2023, there is a general trend of increasing consumption of petroleum products (in transport, agriculture, industry and construction) and electricity (in trade and public services and in the residential sector). At the same time, a general trend of decreasing consumption is observed for heat and coal. The consumption of biofuels and waste has been predominantly declining since 2018, while the consumption of natural gas has been declining sharply since 2021. In 2023, the minimum values for 2010-2023 were recorded for gross inland consumption of natural gas and coal, and for final energy consumption – for biofuels and waste, natural gas, heat and coal. The evolution by sector has a predominantly upward dynamics in transport and agriculture, but downwards in industry and in trade and public services. If the analysis period is shortened, the evolution in the trade and public services sector turns into an upward trend, and in the case of the residential sector, the shortening of the analysis period turns an upward trend into a pronounced downward trend (Figures No 18 and No 19).



Source: compiled on the basis of NBS data

Figure 18. Evolution of gross final energy consumption broken down by sector) 2010-2023; 2014-2023, ktoe

In *industry and construction*, food, beverages and tobacco accounted for the largest share of total energy consumption – 43.5% (87 ktoe, 2023) and non-metallic minerals – 38% (76 ktoe), followed by chemicals and petrochemicals (5%, 10 ktoe), construction (3.5%, 7 ktoe), textiles and leather (2.5%, 5 ktoe), mining (2.5%, 5 ktoe), machinery (1%, 2 ktoe) and others (Figure No 18).



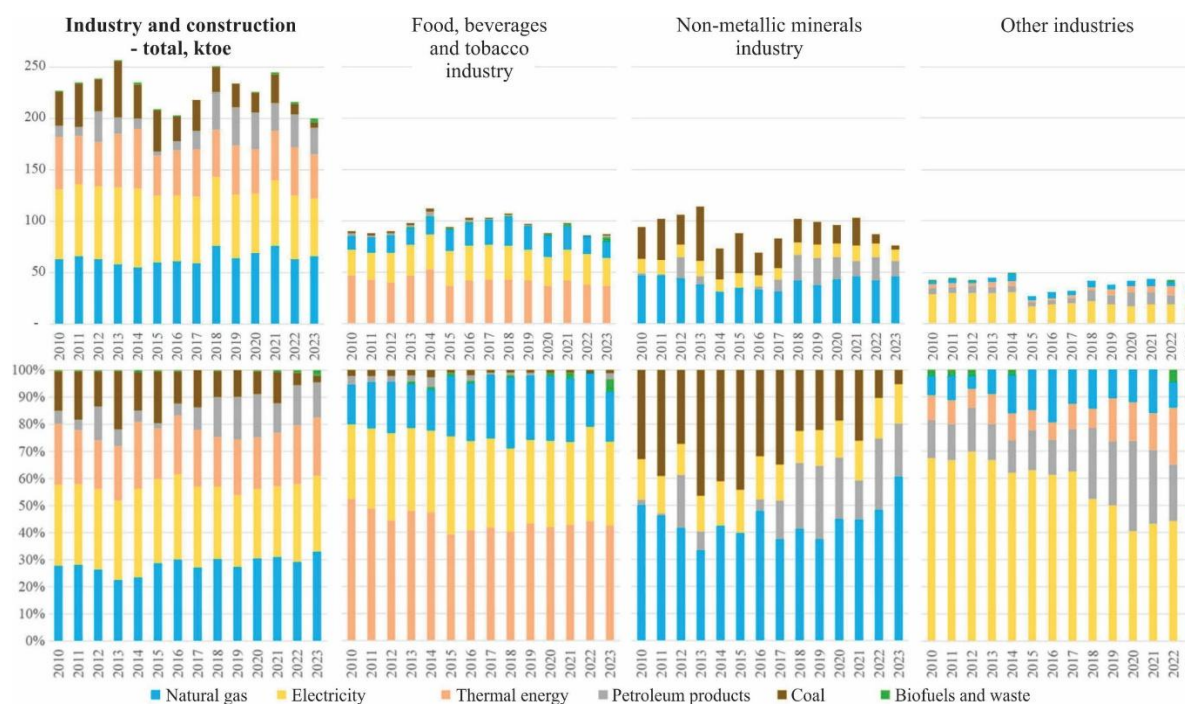
Source: compiled on the basis of NBS data

Figuranr. 19. Evolution of gross final consumption in industry and construction 2010-2023; 2014-2023, ktoe/%).

Natural gas and electricity dominate total energy consumption in industry and buildings, with a share in 2023 of 33% (66 ktoe) and 28% (56 ktoe), respectively, followed by heat – 21.5% (43 ktoe), petroleum products – 13% (26 ktoe), coal – 2.5% (5 ktoe) and biofuels and waste – 2% (4 ktoe) (Figure No 20). The food, beverage and tobacco industry has the largest share in industry and construction in terms of heat consumption – 86% (37 ktoe, 2023), electricity – 48% (27 ktoe) and biofuels and waste – 100% (4 ktoe), and ranks second in terms of natural gas consumption – 24% (16 ktoe) and coal – 20% (1 ktoe). In turn, the non-metallic mineral industry ranks first in consumption of natural gas (70%, 46 ktoe), petroleum products (58%, 15 ktoe) and coal (80%, 4 ktoe) and second in electricity consumption (20%, 11 ktoe) in total by industry and construction. The chemical and petrochemical industry ranks second in terms of consumption of thermal energy (14%, 6 ktoe), while the construction sector ranks second (19%, 5 ktoe) and third in terms of consumption of petroleum products (15%, 4 ktoe). Therefore, the effects of the increase, especially in 2022, in the prices of natural gas, electricity and heat, but also other energy products were mainly reflected in the

prices of products manufactured in the food, beverage and tobacco industry, the non-metallic mineral industry, the chemical and petrochemical industry, but also in other industries that use these energy products in its technological processes.

Although the consumption of natural gas in industry and construction decreased in 2022 to the level of 2010 and 2012 (63 ktoe), this decrease did not reach the minimum level recorded in 2014 (55 ktoe), and in 2023 the total consumption of natural gas increased due to the increase in the consumption of natural gas in the non-metallic mineral industry and despite the decrease in that consumption in the food, beverages and tobacco industry. At the same time, in the total energy consumption in industry and construction in the last decade, coal consumption had the largest reduction, decreasing in 2023 to a minimum of 5 ktoe compared to 55 ktoe in 2013, a sharp decrease being recorded in 2021-2023, but also in other years of that period. Electricity consumption, in total by industry and construction, also declined in 2023 to a minimum level over the 2010 period, as a result of the reduction in electricity consumption in the food, beverage and tobacco industries, and in the non-metallic minerals industry. At the same time, the reduction in total thermal energy consumption is due to the reduction in consumption in the food, beverages and tobacco industry to the lowest level in the period of 2010, the same level of thermal energy consumption being recorded in this sector in 2015 and 2020. On the other hand, the consumption of petroleum products since 2018 (the year marked by the highest level of consumption of petroleum products in industry and construction (37 ktoe compared to 11 ktoe in 2010)) was characterised by both an increase and a decrease from one year to the next, in total also in the non-metallic mineral industry, but also by a reduction in the consumption of petroleum products in the construction sector in 2022, 2023, and a stable level of that consumption in the extractive industry in 2020-2023. And the consumption of biofuels and waste in the food, beverage and tobacco industry increased between 2020 and 2023.

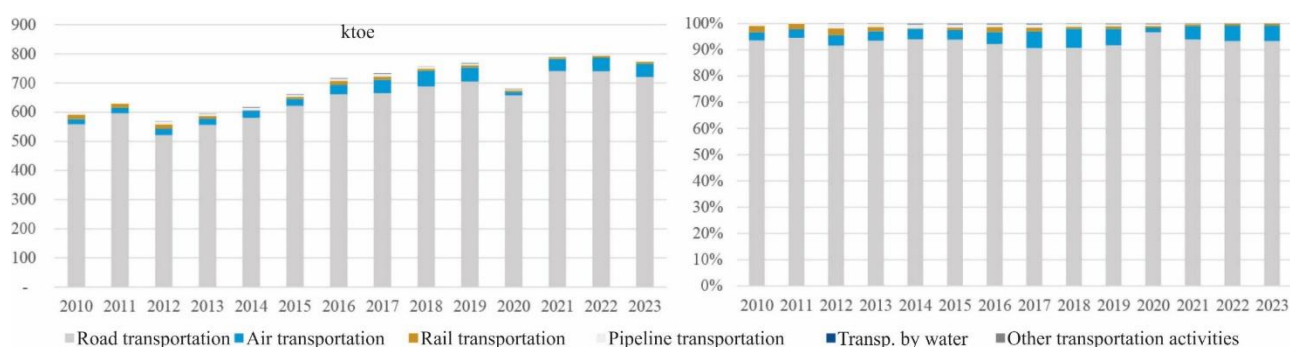


Source: compiled on the basis of NBS data

Figure 20. Evolution and structure of energy consumption in industry and construction (2010-2023, ktoe)

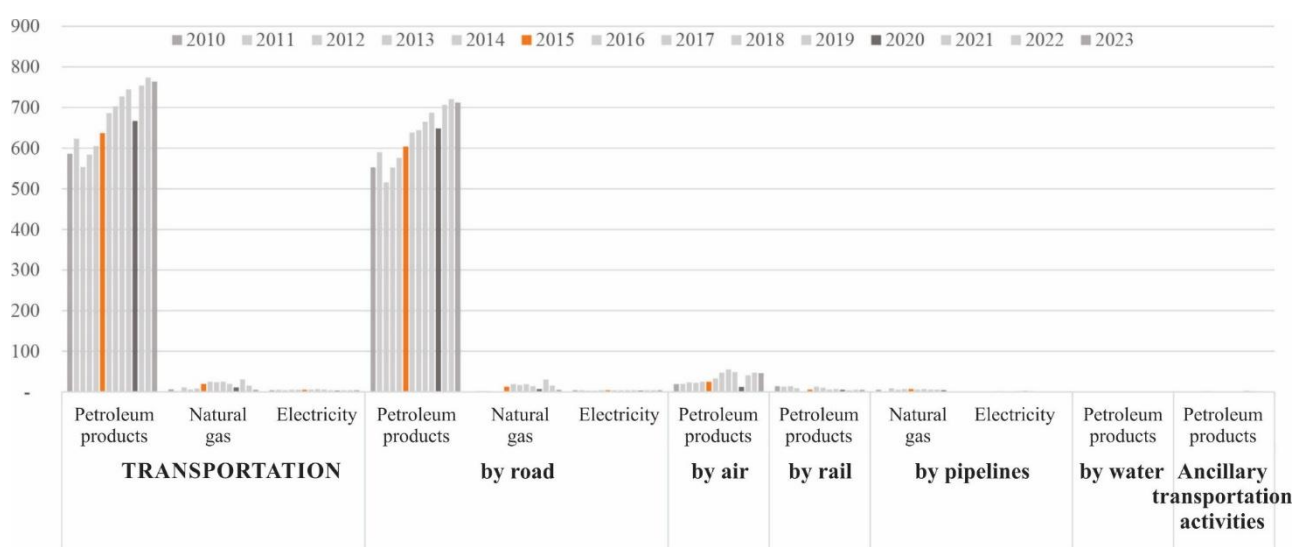
In *transport*, road transport accounts for the largest share of total energy consumption – 93.3% (721 ktoe), followed by air transport – 6% (46 ktoe) and rail transport – 0.6% (5 ktoe) and 0.1% (1 ktoe) of other transport related activities (Figures No 21 and No 22). In 2021-2023, energy consumption levels for transport activities were highest since 2010, reaching the highest level (793 ktoe) in 2022 for the whole period. This is due to the evolution of energy consumption in

road/automotive transport (land transport of passengers and goods by car) where the consumption of petroleum products reached the maximum level of 721 ktoe (97.4%) in 2022 and of natural gas – 30 ktoe (4%) in 2021. While consumption of natural gas decreased in 2023 six times (to 5 ktoe) from its peak, consumption of petroleum products decreased by only 1% to the second highest level (712 ktoe) in the period of 2010. Consumption of petroleum products in motor transport includes diesel – 72.2% (514 ktoe), petrol – 26.7% (190 ktoe) and liquefied petroleum gas – 1.1% (8 ktoe). Diesel engines are more energy efficient than gasoline engines, but they contribute to higher emissions of particulates and other pollutants. Electricity consumption in automotive transport remains stable at 4 ktoe, which in 2023 represents 0.6% of the total.



Source: compiled on the basis of NBS data

Figure 21. Evolution of energy consumption in the transport sector (2010-2023, ktoe)



Source: compiled on the basis of NBS data

Figure 22. Evolution and structure of energy consumption in the transport sector (2010-2023, ktoe).

Consumption of petroleum products in air transport has been characterised by a predominantly upward trend since 2010, with a peak (55 ktoe) in 2018 and a recovery in 2022, 2023, at a high level, for the corresponding period, after the sharp drop in consumption in 2020 due to the pandemic. At the same time, the evolution of energy consumption in rail transport is opposite to that in road and air transport, with a continuous decline since 2016, reaching the minimum level (4 ktoe) in 2021.

In the residential sector, the consumption of biofuels and waste in 2023 constitutes 46.4% (481 ktoe) of total energy consumption in this sector, followed by natural gas – 22.4% (232 ktoe), electricity – 13.9% (144 ktoe), heat – 9.4% (97 ktoe), petroleum products – 4.9% (51 ktoe) and coal – 3% (31 ktoe). More than 80% of total energy consumption in the residential

sector is used for space heating in the cold season and cooling in the hot season, while the rest is used for cooking, lighting, hot water and household appliances. The share of natural gas, electricity and heat combined constitutes 46% in total per sector, reaching up to 100% in urban dwellings and below 20% in the many rural dwellings not connected to natural gas and district heating. While 100% of Moldovan homes are supplied with electricity, 99% of thermal energy is supplied to consumers in Chisinau and Balti municipalities and only 1% in several other cities, including Ungheni, Glodeni, Floresti, Comrat, Orhei, the rest of consumers in a total of 1,535 localities on the right bank of the Dniester River heat their homes mostly with biofuels and waste and natural gas. Of the total biofuels and waste, only 2% (10 ktoe) are in the form of wood and other vegetable waste briquettes and pellets, and 98% include firewood (400 ktoe, 83.2%), agricultural combustible waste (46 ktoe, 9.6%), wood waste (24 ktoe, 5%) and wood charcoal (1 ktoe, 0.2%).

As mentioned above, although the overall evolution of energy consumption in the residential sector between 2010 and 2023 was upwards, reaching 1 368 ktoe in 2021 compared to 1 142 ktoe in 2010, in the last two years total consumption in this sector fell to the lowest level in the whole period and in 2023 was 9% below the 2010 level. A comparable development was also in the case of natural gas consumption, although the lowest level of gas consumption in the residential sector was recorded in 2015, the highest level being in 2021. In 2022 and 2023, as in 2015, the decrease in natural gas consumption is due to a strong increase in gas prices. At the same time, the consumption of biofuels and waste, heat, but also coal, decreased in 2023 to the lowest level since 2010, and electricity consumption has been decreasing since 2021, remaining in 2023 at the level of 2019 and 2015.

These developments in energy consumption have a major impact on overall developments in the residential sector and introduce a high degree of uncertainty into estimates of future developments. What is certain, however, is that as energy prices fall, consumption will increase, albeit more moderately, thanks to energy efficiency measures implemented in the residential sector.

*The transformation sector*¹⁷⁶ has a decreasing share in gross inland energy consumption, with 13.9% in 2023 compared to 18.7% in 2010, with the lowest share (13.2%) in 2019. District heating (CET) and thermal power plants (CT) – producers of energy for public purposes and own consumption – account for 88.8% (326 ktoe) in 2023 of the total energy reflected in the Energy Balance in ‘Transformation, *inputs*’, and power plants (RES) – 10.4% (38 ktoe) and petrochemical plants and charcoal production entities – 0.8% (3 ktoe). In 2023, the energy consumption at district heating and thermal power plants in the process of transformation into heat and power was the lowest since 2010 – the year with the highest consumption – 468 ktoe, the difference being 142 ktoe, or 30% less in 2023.

Heating and thermal power plants – producers of energy for public purposes account for 81% of total energy consumption in CET and CT, with 19% going to producers of energy for their own consumption. TECs recorded in 2023 the lowest level since 2010 for energy consumption in transformation processes and the decrease compared to 2021 was 20% (57 ktoe) for producers for public purposes and 39% (9 ktoe) for producers for own consumption. At the same time, in TCs – producers for public purposes, the overall evolution of energy consumption in heat transformation processes was comparable to that in TECs, but in this case the minimum level was recorded in 2022, while TCs – producers for own consumption had a different evolution from the other producers, and the minimum levels for primary energy consumption were in 2015 and 2016.

The share of fossil fuels used in total electricity and heat generation decreased from 96% in 2010 to 93% in 2020 and 84% in 2023. Heating and thermal power plants – energy producers for public purposes run on natural gas, and only CET-2 in Chisinau municipality. Chisinau currently has the actual (real) possibility to operate also on fuel oil, this option being exceptionally implemented in the 2021/2022 and 2022/2023 heating season when fuel oil consumption increased to 95 ktoe in 2023 (or 36% of the total energy consumption on these producers), compared to 12 ktoe in 2021 and

¹⁷⁶ Includes (i) quantities of fuels used for the primary or secondary conversion of energy, (ii) quantities of renewable energies and waste used for the conversion of primary forms of energy into secondary forms, and (iii) quantities of crude oil entering refineries. NBS, Energy balance - Methodological notes

zero in the other years of the period under review. For TECs and thermal power plants - self-consumption energy producers, the share of natural gas is lower, or 43% for TECs and 52% for TCs in 2023, with biofuels and waste also used: 35% at TQs (agricultural combustible waste and wood and other vegetable waste briquettes and pellets) and 21% at TECs (organic waste gas), but also petroleum products: 13% at CTs and 36% at TECs (fuel oil). Among these producers only, the consumption of biofuels and waste and of petroleum products in 2022 and 2023 was considerably higher than in previous years for thermal power plants, while no significantly different consumption was recorded at TECs, although the consumption of natural gas reached the minimum level in this period for all the above-mentioned energy producers, including for public purposes and own consumption.

Under ‘Transformation,*outputs*’, although the overall evolution in the period 2010-2023 is similar to that under ‘Transformation,*inputs*’, by final product category, namely heat (201 ktoe or 66.1% of the total 2023), electricity (101 ktoe, 33.2%) and petroleum products (2 ktoe, 0.7%) the evolutions are different. The production of heat and petroleum products fell in 2023 to its lowest level in the period under review, while electricity generation in recent years is generally on the rise. At the same time, the analysis by generation sources shows that, while electricity generation at power plants (RES) is increasing sharply in recent years, electricity generation at TECs fell in 2022 and 2023 to the lowest level.

The energy intensity of the Republic of Moldova continues to decrease in the last decade as a result of the above-mentioned developments in GDP and gross inland energy consumption. In terms of energy consumption per capita, although this indicator was higher in 2023 compared to 2015, in recent years it has been decreasing, with the exception of 2021.

ii. Current potential for the application of high-efficiency cogeneration and efficient district heating and cooling

The Republic of Moldova has significant potential for the future introduction and operation of high-efficiency cogeneration systems and efficient district heating and cooling systems.¹⁷⁷

According to the International Energy Agency (IEA), Moldova's district heating infrastructure covers over 60% of the country's urban population, with about 1,200 km of operated district heating pipelines.

However, a significant part of the existing district heating systems in the Republic of Moldova are old and with low efficiency indicators, which leads to high energy losses, frequent failures and poor quality of heat supply.

To solve this problem, the Government has launched several initiatives to improve the efficiency and reliability of the country's centralized heat supply systems.

For example, in 2015 the Government launched a comprehensive programme to modernise district heating systems, with the support of international donors such as the EU and the World Bank.

The programme includes the replacement of old pipelines, the installation of new thermal stations and the introduction of energy-efficient technologies such as co-generation and waste heat recovery systems.

Moreover, the IEA estimated that the technical potential of high-efficiency cogeneration in the Republic of Moldova is around 2,600 GWh per year. The implementation of high-efficiency cogeneration technologies in the country could lead to significant energy savings, reduced emissions and improved energy security.

In conclusion, the Republic of Moldova has significant potential for the application of high-efficiency cogeneration systems and efficient district heating and cooling systems, and the Government has launched several initiatives to improve the efficiency and reliability of the country's centralized heat supply systems.

¹⁷⁷Comprehensive assessment of national heating potential and heating roadmap to be carried out by the World Bank

ENERGY FINAL CONSUMPTION	2,313	2,410	2,531	2,853	2,521	2,397	2,762	100.0	2,689	100.0	2,633	2,235	100.0	2,086
Petroleum products	722	778	871	982	980	971	1,073	38.8	838	31.2	738	576	25.8	593
Biofuels and waste	500	620	571	609	502	499	568	20.6	613	22.8	575	480	21.5	273
Natural gas	456	393	496	602	448	364	467	16.9	516	19.2	532	423	18.9	415
Electricity	282	317	326	355	347	340	391	14.2	413	15.4	460	486	21.7	551
Thermal energy	240	202	188	215	180	170	198	7.2	271	10.1	296	232	10.4	229
Coal	113	100	79	90	64	53	65	2.3	37	1.4	32	37	1.7	23
Other products									-	-	-	0.7	0.03	0.9

Source: compiled from NBS data and modelling results

iv. Cost-optimal levels of minimum energy performance requirements resulting from national calculations in accordance with Article 5 of Directive 2010/31/EU, as adapted and adopted by Ministerial Council Decision 2010/02/MC-EnC and Ministerial Council Decision 2021/14/MC-EnC

An apartment with an area of 73 m² and a ground floor house with an area of 136 m² were chosen as references for determining the optimal levels of minimum energy performance requirements in terms of costs. In order to take account of representativeness in terms of functionality and geographical location, including indoor and outdoor climatic conditions, reference buildings have been selected for the following regions: Center (EC), Chisinau (CH), North (NO), South (SO). As an objective of the measures, the standard renovation according to the LTBS was adopted.

The cost-optimal levels of minimum energy performance requirements resulting from national calculations are presented in Table 39.

Table 15

Cost-optimal levels of minimum requirements energy performance resulting from national calculations

	Energy saving, TJ/housing	Costs of energy performance measures		Saving achieved
		Euro/Housing	Euro/m2 area	
CE Apartment	0,016	3.880	73	45.5%
Apartment CH	0,016	4.302	73	45.5%
Apartment NO	0,016	3.851	73	45.5%
Apartment SO	0,016	4.006	73	45.6%
Ground House CE	0,021	9.390	136	40.4%
Soil house CH	0,026	15.597	136	40.4%
Soil house NO	0,021	9.030	136	40.4%
Soil House SO	0,021	10.661	136	40.2%

4.4. Energy security dimension

i. Current energy mix, domestic energy resources, import dependency, including relevant risks

Energy consumption in the Republic of Moldova depends to a large extent on the import of energy resources, which affects energy security. The share of primary production in gross inland consumption (GDP) is only 22%, compared to the peak recorded in 2010-2023 of 26% in 2017 and 2018. Since 2014, the share of imports in the CIB is close to 70%, with the exception of 2022, when

the highest level was recorded – 80%, and 2016, when the share of imports fell to the lowest level – 65% (Table 40).

The main own energy resources are renewable energy sources, the key component of which is biomass, which constitutes 93% of primary energy production, with the other RES (hydro, wind, solar, etc.) accounting for 6%. The production of solar and wind energy has been on the rise in recent years. Hydroelectric power is produced by the Stanca-Costesti hydroelectric power plant, but also by a small number of small hydroelectric installations.

Table 40

Evolution of energy consumption (2010-2023, ktoe)

Table 40. Evolution of primary production, imports, exports and deliveries from other sources, 2010-2023, ktoe

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Primary production	523	555	594	599	654	655	709	770	798	668	682	761	524	584
Biofuels and waste	505	535	580	585	641	644	698	760	787	653	668	742	499	543
Electricity	7	7	3	4	5	4	4	5	6	10	8	14	20	37
Petroleum products	11	13	11	10	8	7	7	5	5	5	6	5	5	4
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Natural gas	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electricity from MGRES	258	213	209	161	224	283	286	195	219	246	279	296	232	282
Import	1,813	1,937	1,832	1,924	1,801	1,766	1,818	2,012	2,109	2,031	1,935	2,126	2,231	1,817
Petroleum products	738	824	761	810	799	851	920	958	1,026	1,029	971	1,037	1,282	1,208
Natural gas	960	931	885	833	851	815	838	835	913	854	868	999	779	516
Coal	113	125	113	156	88	98	60	120	85	92	80	74	77	52
Electricity	2	57	73	125	63	2	-	97	82	55	14	14	90	36
Biofuels and waste	-	-	-	-	-	-	-	2	3	1	2	2	3	5
Export	13	14	19	34	22	16	15	34	27	9	21	8	194	101
Petroleum products	9	14	18	34	18	14	15	34	27	9	20	7	184	67
Electricity	-	-	-	-	-	-	-	-	-	-	-	-	8	29
Biofuels and waste	4	-	1	-	4	2	-	-	-	-	1	1	2	5
INTERNAL BRUT CONSUMPTION	2,633	2,676	2,624	2,643	2,669	2,686	2,796	2,939	3,066	2,938	2,807	3,115	2,770	2,632
Petroleum products	776	812	764	785	803	829	896	937	1,002	1,018	946	1,064	1,113	1,130
Natural gas	962	930	885	834	850	816	837	836	911	855	872	997	710	579
Biofuels and waste	512	537	574	584	629	650	698	764	766	652	609	640	549	544
Electricity	267	277	285	290	292	289	290	297	307	311	301	324	334	326
Coal	116	120	116	150	95	102	75	105	80	102	79	90	64	53

Source: compiled on the basis of NBS data

Petroleum products account for the largest share of total imports, followed by natural gas, electricity and coal. Petroleum products are mainly supplied from Romania (96.8% in 2024,

according to the ANRE Report). The supply of petroleum products is diversified according to origin, routes and suppliers. Since 2021, the Republic of Moldova has also managed to diversify supplies of natural gas, which are currently procured from regional markets. This is a major achievement compared to the recent 100% reliance on a single source and on the sole supplier of natural gas imports.

Electricity is mainly provided from imports and from the MGRES power plant on the left bank of the Dniester River. Electricity is imported from Romania and other EU countries. Over the years, electricity has been imported from Ukraine, but this is currently affected by military actions and the destruction of energy infrastructure in the neighboring country. The Republic of Moldova also has local electricity generation capacities: RES-based TECs and plants (Figure 23).

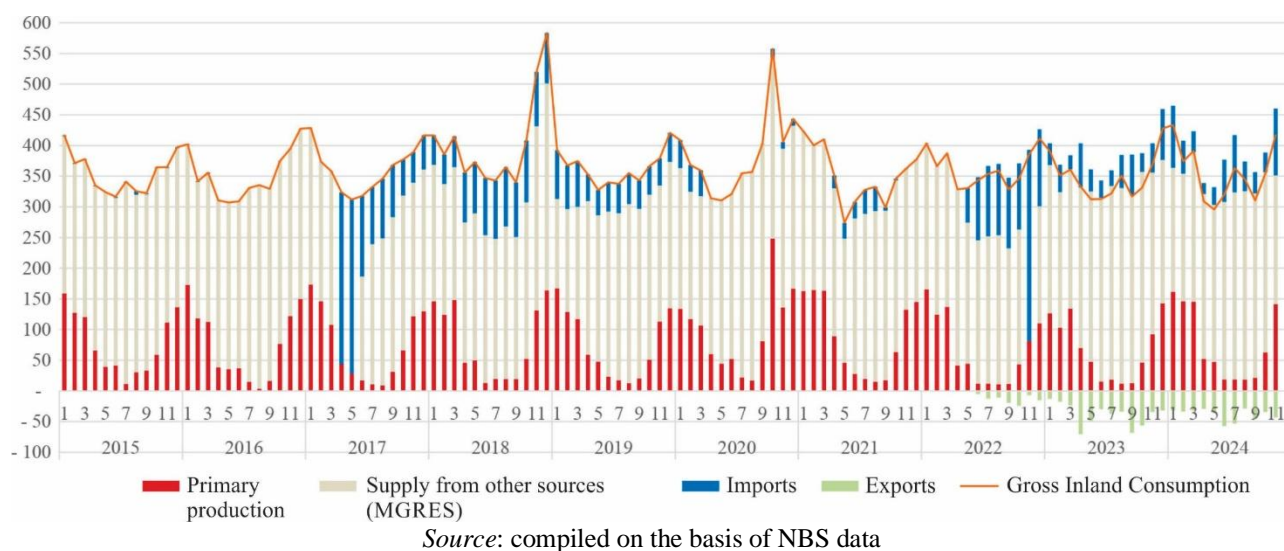


Figure 23. Evolution and structure of electricity insurance (2015-2024)

ii. Estimated trajectories of developments, with existing policies and measures at least until 2040 (including for 2030)

The estimated evolution of primary production and imports of energy and energy resources is presented in Table 41. Imports are expected to decline by 2040 as a result of increased local RES production and stabilisation of consumption. Since there are no significant deposits of oil, natural gas and coal on the territory of the country, the import dependence of these types of fuel is maintained and will depend only on the evolution of demand for them. Dependence on petroleum products is associated with a lack of oil refining capacity. Energy production (mainly biomass and residues) decreased in 2022 and 2023, but the measures taken must contribute to a recovery in volumes and a further increase in energy production. The structure and volume of energy imports are expected to change insignificantly. The use of solid fuels is expected to be lower.

Table 41

Energy insurance structure of the Republic of Moldova (2010-2040)

	2010	2015	2020	2021	2022	2023	With existing measures in place	2040	With planned measures	2040
Primary production	523	655	682	761	524	584	711	784	848	848
Biofuels and waste	505	644	668	742	499	543	620	645	516	516

Electricity	7	4	8	14	20	37	86	132	323
Petroleum products	11	7	6	5	5	4	5	7	9
Import (without electricity)	1,811	1,764	1,921	2,112	2,141	1,781	1,999	1,944	1,633
Petroleum products	738	851	971	1,037	1,282	1,208	1,145	1,059	827
Natural gas	960	815	868	999	779	516	796	831	753
Coal	113	98	80	74	77	52	51	43	38
Biofuels and waste	-	-	2	2	3	5	7	11	15
Electricity from imports and from MGRES	260	285	293	310	322	318	327	269	209

Source is: compiled from NBS data and modelling results

In the past, Moldova was a major exporter of electricity to the region, with exports from MGRES ceasing in 2014. The implementation of RES will help increase cross-border flows, and the implementation of high-efficiency cogeneration projects will help increase the country's energy security.

4.5. Dimension "Internal Energy Market"

4.5.1. Electricity interconnectivity

i. Current level of interconnection and main interconnections

7 airlines of 330 kV (LEA) and 12 LEA of 110 kV connect the electricity systems of the Republic of Moldova and Ukraine. a 400 kV OHL and 4 110 kV OHL connect the power systems of the Republic of Moldova and Romania¹⁷⁸.

The interconnection capacity for Moldova-Ukraine is 800 MW, for Moldova-Romania 250 MW and for Romania-Moldova 425 MW. The level of transfer of interconnections from the Republic of Moldova (including RT) and Ukraine was 26.7%, the level of transfer Republic of Moldova – Romania – 8.3% and Romania – Republic of Moldova – 14.1% (current limitation, see p. 2.4.1).

The maximum electrical load of the electricity system of the Republic of Moldova in 2023 was 1 019 MW and in quarters. I-III 2024 – 1 013 MW.¹⁷⁹ The capacities of power plants in the Republic of Moldova include "Termoelectrica": CET-1 – 66 MW and CET-2 – 258 MW, 'CET-Nord' – 37.4 MW, CHE Costești – 16 MW, SER – 317 MW (right bank of the Nistru river); 'MGRES' – 2,520 MW and CHE Dubăsari – 48 MW (RT)¹⁸⁰.

ii. Estimated trajectories for interconnector extension requirements (including for the year 2030)

Interconnection capacity will increase from 700 MW to 1 320 MW (WEM scenario) and to 1 630 (2025), then 1 930 MW (2030-2050) (WPM scenario) (Figure 24).

Peak loads are expected to increase from 945 MW to 1,675 MW in 2050 (WEM scenario) to 1,946 MW in 2050 (WPM scenario) (Figure No 25).

¹⁷⁸https://www.moldelectrica.md/ru/network/annual_report

¹⁷⁹Moldelectrica - Technical and economic indicators: https://www.moldelectrica.md/en/network/annual_report

¹⁸⁰https://moldelectrica.md/ru/electricity/energy_sources

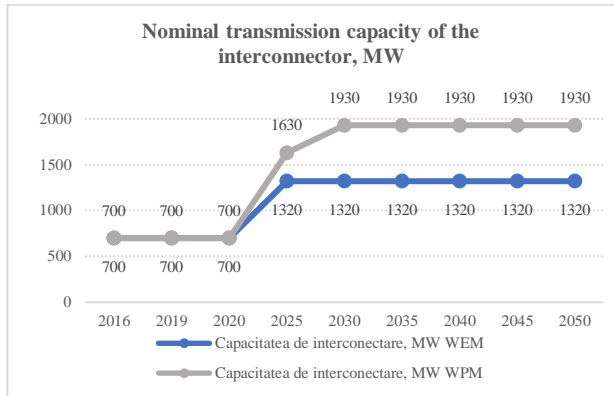


Figure 24. Nominal transmission capacity of interconnections, MW

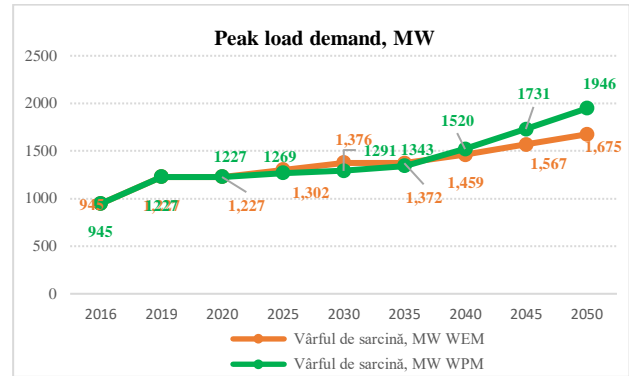


Figure 25. Peak load, MW

Installed renewable electricity generation capacity (hydro, wind and photovoltaic) is set to increase from 23 MW¹⁸¹ in 2016 to 942 MW in 2050 (WEM scenario) and up to 3 035 MW (WPM scenario) (Figure 26).

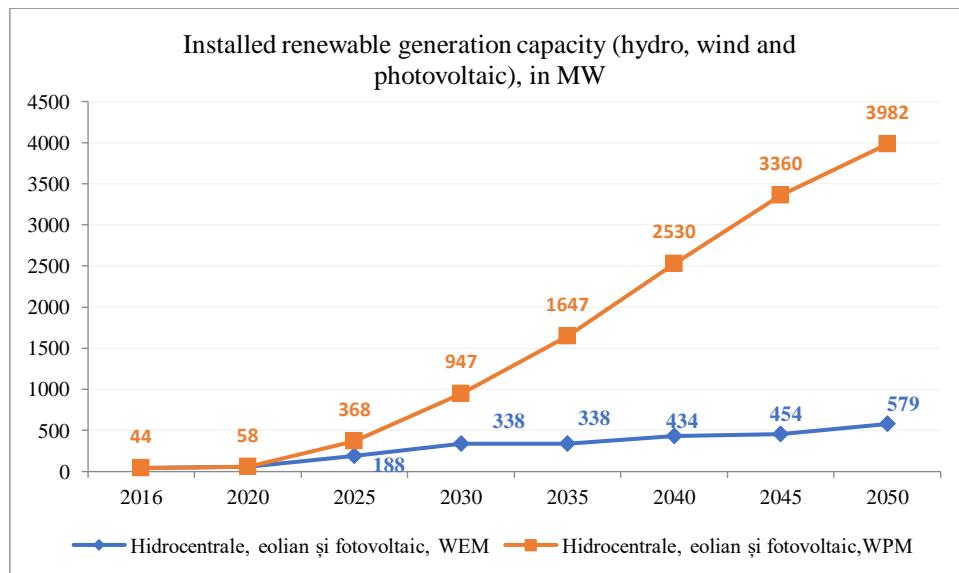


Figure 26. Installed renewable electricity generation capacity (hydro, wind and photovoltaic), MW

4.5.2. Electricity and gas transmission infrastructure

i. Key features of existing electricity and gas transmission infrastructure

Electricity

SE “Moldelectrica” is the transmission system operator and carries out activities related to the transmission of electricity through high voltage electricity grids and other networks related to centralised management of the energy system, as well as manages cross-border flows, operating in synchronised mode with ENTSO-E. The interconnection of the electricity transmission system of the Republic of Moldova with Ukraine and Romania is ensured through 400 kV OHL Vulcanesti – Isaccea (Romania), 7 OHL 330 kV with Ukraine and 16 OHL 110 kV, of which 4 are with Romania (Figure no. 27).¹⁸²

¹⁸¹Including: biogas – 2,8 MW, wind – 2,3 MW, FV – 1,78 MW, but also CHE Costești – 16 MW. Source: Report on the activity of ANRE in 2016

¹⁸²https://moldelectrica.md/ru/activity/interstate_power_lines (asof 01.10.2022)

with EU requirements.¹⁸³ ‘Vestmoldtransgaz’ operates the entire natural gas transmission system on the right bank of the Nistru River and manages all cross-border interconnection points indicated in Table 42.

Table 42

Technical entry/exit capacity at interconnection points with Ukraine and Romania

Interconnection points	Technical input capacity, m ³ /day (20 °C)	Output technical capacity, m ³ /day (20 °C)
PI Alexeevca	7 900 000	12 000 000
PI Ananiev	7 900 000	14 000
PI Grebeniki	36 000 000	3 960 000
PI Causeni	12 000 000	36 000 000
PI Limanskoe	0	0
PI Ungheni	5 250 725	2 040 159
Total	69 050 725	54 014 159

The interconnection of the natural gas system of the Republic of Moldova with the Romanian system (EU, ENTSO-G) is ensured through the Iasi-Ungheni-Chisinau gas pipeline, its maximum capacity being 1.5 billion m³/year.

The Republic of Moldova does not have LNG reception infrastructure and natural gas storage facilities, and the historical transit of natural gas to the Balkan countries (through the Trans-Balkan Corridor) has been stopped since January 2020, the last deliveries on this route to Romania were made in March 2022¹⁸⁴.

ii. Trajectories of developments in network expansion requirements at least until 2040 (including for 2030)

Electricity

The electricity transmission network development plan for 2018-2027 was drawn up in 2017¹⁸⁵ and a new plan for 2025-2034 is currently being finalised. It includes measures necessary to ensure the application of Law No 107/2016 on electricity.¹⁸⁶

The development of the electricity transmission network foresees the following new OHL:

- OHL 400 kV Vulcanesti – Chisinau – project under implementation, financed by the WB;¹⁸⁷
- LEA 400 kV Balti – Suceava (RO) – project under implementation, financing agreement with the EBRD, signed in March 2024;¹⁸⁸

- OHL 400 kV Straseni – Gutinas (RO) – Memorandum of Understanding signed with the US Government, represented by USAID).

Other projects to develop regional interconnections include:

- Balti 2nd OHL circuit 330 kV – CHE Dnestrovsk (UA) – project included in the Peci 2024 preliminary list¹⁸⁹,

- construction of a high-voltage interconnector Yuzhnoukrainsk – Prymorsk – Vulcanesti – Isaccea Nuclear Power Plant (UA – MD – RO);

- construction of the 400 kV OHL Vulcanesti – Artiz (UA).

¹⁸³ ANRE: <https://www.anre.md/registry-de-licensiere-3-261> and <https://www.anre.md/de-azi-operator-system-of-transport-of-natural-gas-in-republic-moldova-srl-vestmoldtransgaz-is-certificate-definitive-in-conformity-with-requirements-ue-3-914>

¹⁸⁴ ENTSO-G Transparency Platform, <https://transparency.entsog.eu>

¹⁸⁵ https://moldelectrica.md/ru/network/perspective_plan

¹⁸⁶ https://www.legis.md/search/getResults?doc_id=135004&lang=ru#

¹⁸⁷ https://www.moldelectrica.md/ru/finances/competitive_energy_market

¹⁸⁸ <https://energie.gov.md/en/content/was-signed-financing-agreement-line-electric-air-balti-suceava-cu-berd>

¹⁸⁹ Energy Community: Moldova – Annual Implementation Report, 1 November 2024

Many documents on the regulation of cross-border capacity have been adopted for the implementation of these projects. The allocation of capacity between the Republic of Moldova – Romania, the Republic of Moldova – Ukraine is reflected in the following documents:

1) Law no. 107/2016 on electricity and the amendments introduced by Law no. No 414/2023;

2) electricity market regulations:

- ANRE Decision No 283/2020 approving the rules of the electricity market,
- ANRE Decision no. 168 of 31.05.2019 on the approval of the Regulation on the connection to the electricity networks and the provision of electricity transmission and distribution services;
- ANRE Decision No 424/2019 approving the Regulation on access to electricity transmission networks for cross-border exchanges and congestion management in the electricity system;¹⁹⁰

- capacity allocation agreements with TSOs of neighbouring countries¹⁹¹;
- the procedures and instructions of the transmission system operator concerning the balancing mechanism¹⁹²;

- Joint roadmap between the Republic of Moldova – Energy Community – European Commission for further reforms in the *electricity sector* of the Republic of Moldova (Ministry of Energy, 2024), which includes 31 points and planning actions to:

- obtaining observer status in the NEMO Committee, developing a roadmap for joining EU market coupling;

- developing a roadmap for joining EU balancing platforms and implementing cross-border exchange of balancing capacity, implementing joint capacity allocations with Ukraine;

- establishing day-ahead and intraday markets;

- developing a roadmap for phasing out and/or restructuring public service obligations (PSOs);

- developing a roadmap for retail competition and cost-reflective prices;

- Implementation of the Transparency Regulation and others.

The mechanism for allocating capacity to the interconnections of the electricity systems of Romania and the Republic of Moldova was established. This involves conducting annual, monthly and daily joint auctions, based on the *Transmission Capacity Allocation Rules (MD/RO Monthly and Annual Connection Capacity Allocation Rules) and MD/RO Daily Capacity Allocation Rules*.¹⁹³

Similar documents on the allocation of broadband capacity between the electricity systems of Ukraine and the Republic of Moldova are in the process of approval.

Natural gas

The need for the expansion of natural gas networks can be considered after examining all the proposed scenarios as well as after their feasibility study.

All current gas transmission infrastructure projects are outlined in the TSO Development Plan 2023-2032.

4.5.3. Electricity and gas markets, energy prices

i. Current situation on electricity and natural gas markets, including energy prices

Electricity

Electricity market participants

^{Electricity market} participants include: 5 companies authorised by ANRE, with licences issued for the production of electricity ('Termoelectrica' SA, 'CET-Nord' SA, 'Costești Hydroenergetic Node' SE, 'Picador-Grup' LTD and 'Moldavskaia GRES' SA), a company with licences for the transmission of electricity and for the centralised management of the electricity system ('Moldelectrica' SE), the

¹⁹⁰https://www.legis.md/search/getResults?doc_id=130369&lang=ru

¹⁹¹https://moldelectrica.md/ru/network/capacity_allocation

¹⁹²https://moldelectrica.md/ru/electricity/balancing_mechanism_docs

¹⁹³https://moldelectrica.md/files/docs/market/Rules_allocation_termen_lung_MD-RO.pdf

electricity market operator ('Operator Piața de Energie M' LTD), with a licence issued on 19 March 2024, 2 electricity distribution operators, 84 companies with licences for the supply of electricity (Energocom SA, ÎCS 'Premier Energy' LTD, SA 'Supplying Electricity Nord' and others), 10 RES producers and others¹⁹⁴.

Local electricity generation in 2023 was 1 010,8 GWh, including 603,5 GWh – CETs, 68,8 GWh – NHE Costești, 337,4 GWh – other RES producers and 1,1 GWh – other domestic producers (Table 43).¹⁹⁵ The share of local generation in total electricity purchases increased to 23% in 2023, as a result of the increase in the share of RES producers, while the share of TECs in 2022 and 2023 decreased sharply.

Table 43

Structure of electricity generation in 2018-2022, million kWh

	GWh					% of electricity production - total					% in electricity purchases - total				
	2019	2020	2021	2022	2023	2019	2020	2021	2022	2023	2019	2020	2021	2022	2023
	Electricity production - total	801.1	851.4	984.7	851.1	1,010.8	100.0	100.0	100.0	100.0	100.0	18.6	19.9	21.4	18.9
Thermoelectrica	601.3	621.0	695.5	528.0	524.6	75.1	72.9	70.6	62.0	51.9	14.0	14.5	15.1	11.7	12.1
CET-North	58.3	100.5	102.4	83.6	78.9	7.3	11.8	10.4	9.8	7.8	1.4	2.4	2.2	1.9	1.8
NHE Costești	64.0	46.7	67.5	41.2	68.8	8.0	5.5	6.9	4.8	6.8	1.5	1.1	1.5	0.9	1.6
other RES producers	74.9	81.3	116.6	197.0	337.4	9.3	9.5	11.8	23.1	33.4	1.7	1.9	2.5	4.4	7.8
other domestic producers	2.5	1.9	2.7	1.4	1.1	0.3	0.2	0.3	0.2	0.1	0.1	0.0	0.1	0.0	0.0
Power Purchases - Total	4,301.9	4,269.8	4,591.7	4,512.9	4,333.1										

Source: compiled on the basis of ANRE data

Development of the wholesale electricity market

The interconnection of electricity systems is an important step for the development of the wholesale electricity market. The legal framework for the electricity market in the Republic of Moldova is exposed in a number of documents¹⁹⁶:

- Law No 107/2016 on electricity,¹⁹⁷ as amended;
- Electricity market rules approved by ANRE Decision No 283/2020;¹⁹⁸
- Regulation on connection to electricity networks and provision of electricity transmission

¹⁹⁴<https://www.anre.md/registrul-de-licentiere-3-134>, list updated on 28 January 2025, and <https://www.anre.md/registrul-de-licentiere-3-79>, updated on 22 August 2024.

¹⁹⁵Report on the activity of ANRE 2023, Table 3

¹⁹⁶https://moldelectrica.md/ru/network/capacity_allocation

¹⁹⁷https://www.legis.md/search/getResults?doc_id=105710&lang=en

¹⁹⁸ https://www.legis.md/search/getResults?doc_id=131508&lang=en

and distribution services, approved by ANRE Decision No 168/2019;¹⁹⁹

- Regulation on access to electricity transmission networks for cross-border exchanges and congestion management in the electricity system, approved by ANRE Decision No 424/2019;²⁰⁰
- capacity allocation agreements of neighbouring countries' interconnections with TSOs;
- TSO procedures and instructions;
- Joint Roadmap between the Republic of Moldova – Energy Community – European Commission for further reforms in the *electricity sector* of the Republic of Moldova.

Electricity market rules

The rules of the electricity market of the Republic of Moldova²⁰¹ are aimed at:

- create conditions for the supply of electricity;
- manage the energy system in accordance with operating rules and procedures;
- ensure stable relations between electricity market participants;
- to streamline the relations between market participants and the subjects of the external areas of dispatch control;
 - implement electricity metering with accurate measurement of volumes of electricity supplied to the grid in accordance with bilateral electricity supply contracts between distribution companies, suppliers and independent consumers;
 - ensure non-discriminatory access to the grid to all electricity distribution networks, independent producers, suppliers and consumers.

The rules define the requirements for market participants, the obligations of TSOs, the relationship between electricity distribution networks (RDEs), suppliers, independent customers, generators and TSOs.

The rules streamline the interaction of market participants during: electricity purchasing (1), supply organisation (2), dispatch control (3), electricity metering (4).

1. *The power purchase rules* for DSOs and independent customers shall be based on bilateral power supply contracts and capacities designed to:

- a) cover the load and technological consumption of electricity transmission;
- b) for electricity reserves and capacities;
- c) for dispatching services.

Bilateral agreements are signed between DSOs, independent customers and electricity producers, electricity suppliers and TSOs. If there are contracts with external sources, then the national TSO ('Moldelectrica' SE) and the external TSO manage the supply of electricity and capacity.

Bilateral agreements contain information on the duration of the contract, volumes and schedule of electricity and capacity supply, delivery points, conditions for increasing/decreasing/terminating deliveries, reserve volumes of electricity, etc.

2. *The rules for organising the supply* and delivery of *electricity* include:

- annual and monthly electricity consumption forecasts (including peak loads, typical days), which are drawn up by DSOs and suppliers and transmitted by TSOs;
- electricity generation and supply forecasts, minimum and maximum capacities, available capacity, annual repair plans and other equipment operating parameters, which shall be drawn up by the producers and transmitted by the TSO;
- TSOs shall provide consumption forecasts, annual load curves, peak loads, typical days in RDE to independent consumers and manufacturers;
- the supply of electricity from MGRES is carried out on the basis of bilateral contracts between DSOs, suppliers and MGRES and agreements signed between TSOs and the GOC 'Dnestrenergo';

¹⁹⁹https://www.legis.md/search/getResults?doc_id=130721&lang=en

²⁰⁰https://www.legis.md/search/getResults?doc_id=130369&lang=en

²⁰¹Electricity market rules of the Republic of Moldova

- the organisation of electricity supply from Ukraine, Romania and Bulgaria is carried out by TSOs from the Republic of Moldova and TSOs from Ukraine and Romania, based on bilateral contracts between suppliers from the Republic of Moldova, Ukraine, Romania and Bulgaria.

3. *Rules for operational and technological interaction in dispatching control and transmission of electricity and capacities between DSOs, generators, suppliers, independent customers and TSOs shall be based on bilateral contracts for the provision of dispatching control and transmission services and capacities, rules and operating procedures of TSOs and TSOs of external dispatching control areas.*

4. *Electricity metering rules shall include monthly accounting of the balance of electricity flows at external and internal borders for each DSO, final customer, supplier, producer, which shall be carried out at the TSO settlement centre. It also determines the actual volume of balancing electricity for each DSO, supplier, the technological consumption of electricity for its transmission through the grid and the preparation of electricity supply documents.*

The new *electricity market model includes* the bilateral contracts market, the day-ahead market, the intraday market, the balancing electricity market, the system services market. Market participants' activities are carried out using a special information system 'Wholesale electricity market' on the special software platform and on the Internet, Figure No 29.

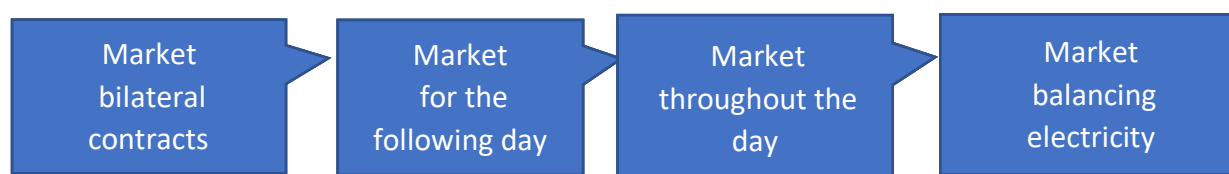


Figure 29. Model of the electricity market

Capacity allocation Republic of Moldova – Romania

The joint capacity allocation Republic of Moldova – Romania is carried out on the auction platform of 'Transelectrica', in accordance with the 'Monthly and Annual Common Capacity Allocation Rules' and the 'Daily Capacity Allocation Rules' approved by SE 'Moldelectrica' and CNTEE 'Transerelectrica' SA, as of October 2022²⁰².

Currently, the available transmission capacity is limited for the Ukraine – Republic of Moldova control block, based on the decision of the Continental Europe Regional Group, and this limited capacity is shared between the TSO borders of the neighbouring countries, according to the agreed sharing rules. This limitation is subject to changes based on system monitoring and gradually increases.

The available transport capacity is shown in Table 44.

Table 44

Total capacity of interconnectors in quarters I, II and III 2024

		Trim. 1	Trim. 2	Trim. 3	Trim. 4
with Ukraine	UA > MD	0-562	0-640	-	0-100
	MD > AU	0-355	0-650	0-325	0-100
with Romania	RO > MD	200*+255	200*+255	200*+320	200*+315
	MD > RO	200*+82	200*+82	200*+107	200*+82

Source: SE "Moldelectrica"

Import of electricity

²⁰²https://moldelectrica.md/ru/network/md_en_allocation

Electricity imports from Ukraine have been unstable in recent years as a result of the situation in the country. In 2023, they fell to 153 GWh, from 474 GWh in 2022, and to zero in the third quarter of 2024. At the same time, the import of electricity from Romania has remained high since 2022: 481 GWh in 2022, 306 GWh in 2023 and 420 GWh in the first to third quarters of 2024²⁰³ (Table 45).

Table 45

Import of electricity from Ukraine and Romania, as well as supply from MGRES²⁰⁴

	2018	2019	2020	2021	2022	2023	2018	2019	2020	2021	2022	2023
Supply from MGRES, million kWh	2.543,9	2.856,8	3.251,3	3.445,6	2.708,34	3.293,7	72,7	81,6	95,1	95,5	73,9	87,8
Import from Ukraine's energy system, million kWh	955,7	644	167,1	161,5	474,32	153,1	27,3	18,4	4,9	4,5	12,9	4,1
Import from the Romanian energy system, million kWh	0	0	0	0	480,77	306,1	0,0	0,0	0,0	0,0	13,1	8,2

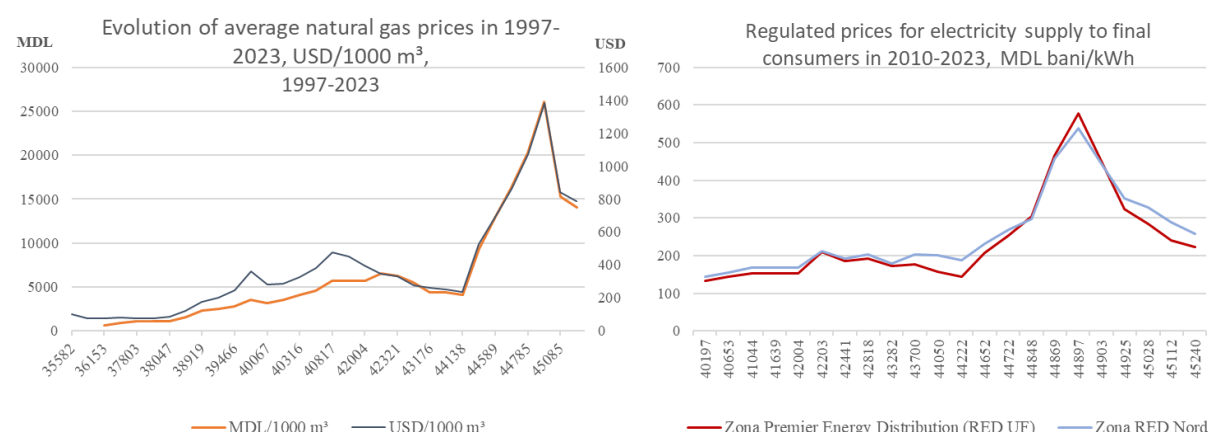
The supply of electricity to consumers is carried out by 'Premier Energy' LTD, 'Supply of Electricity North' SA (FEE Nord) and other suppliers. The total amount of electricity usefully delivered to consumers in 2023 decreased to 3 889 GWh compared to 4 156 GWh in 2021. In 2023, 'Premier Energy' LTD supplied 2 871 GWh and FEE Nord – 1 006 GWh, compared to 2 728 GWh and 1 046 GWh in 2021. Electricity consumption by final customers, who used the eligible consumer right, decreased from 381 GWh in 2021 to 12 GWh in 2023²⁰⁵.

Renewable energy sources

As mentioned above, the total capacity of RES-based power plants, including installations under metering and net billing mechanisms, reached 580 MW at the end of 2024, of which 395 MW (68%) – solar, 161 MW (27.7%) – wind; 7 MW (1.2%) on biogas and 16.75 MW (2.9%) on large and small hydropower. Electricity generation from these sources increased in 2024 to 692 GWh.

Electricity prices

Electricity prices for final consumers were characterised in 2022 by a sharp increase, resulting primarily from the unprecedented increase in natural gas prices (Figure 30), but also from the significant increase in electricity prices in regional markets. Since 2023, electricity prices have stabilised.



Source: compiled on the basis of ANRE data

Figurur1 No. 30. Annual average gas and electricity prices for final consumers by component, EUR/kWh²⁰⁶

²⁰³Moldelectrica: Technical and economic indicators, https://www.moldelectrica.md/en/network/annual_report

²⁰⁴https://www.moldelectrica.md/ru/network/annual_report

²⁰⁵Report on the activity of ANRE, Table 4

²⁰⁶Energy Community: Moldova – Annual Implementation Report, 1 November 2024

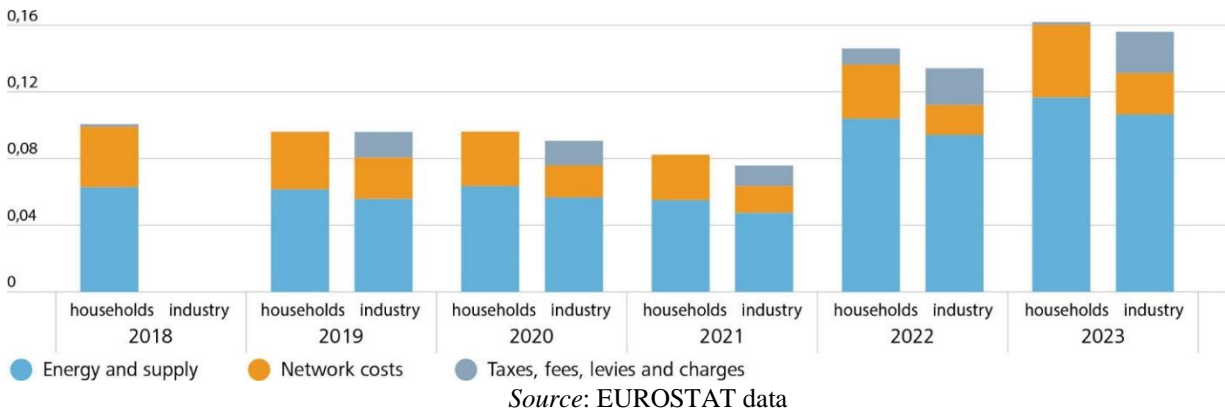


Figure 31. Electricity price structure

Natural gas sector

Law No. 108/2016 on natural gas²⁰⁷ lays down the basic principles and rules governing the obligations and rights of participants in the natural gas market of the Republic of Moldova.

According to ANRE’s Licensing Register,²⁰⁸ natural gas markets are registered 55 licence holders, including: a transmission system operator (TSO); 30 suppliers, including ‘Energocom’ and JSC ‘Moldovagaz’; 19 distribution system operators (DSOs), including 12 DSOs affiliated to JSC ‘Moldovagaz’; 5 companies that sell compressed natural gas for vehicles at filling stations. On the left bank of the Dniester River there is one TSO and 6 DSOs not licensed by ANRE (Figure no. 32).

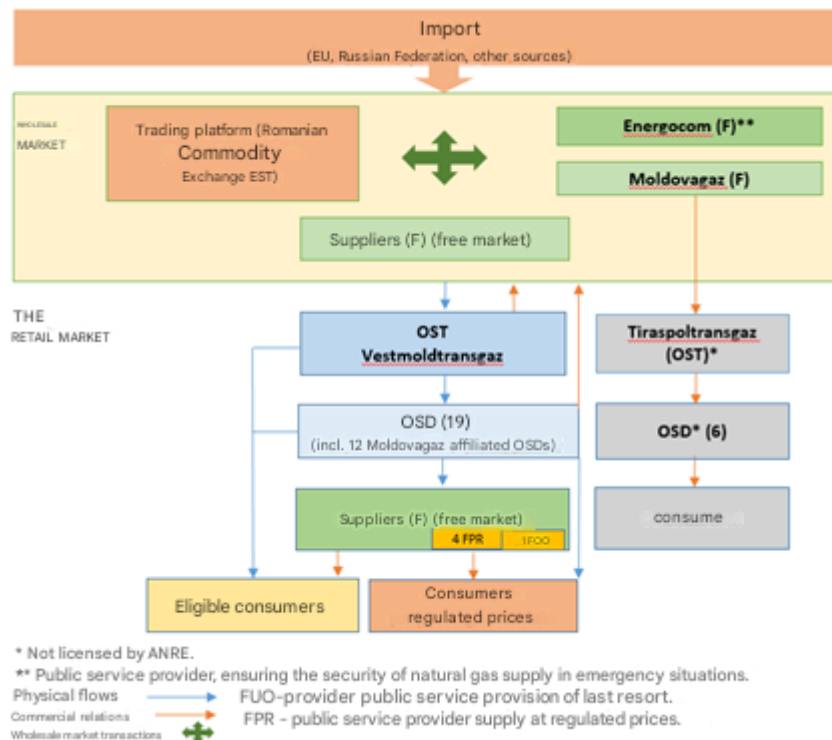


Figure 32. Gas market scheme of the Republic of Moldova, 2023 (ANRE)²⁰⁹

²⁰⁷ LP108/2016 (legis.md)

²⁰⁸ <https://anre.md/licensing-registry-3-261>

²⁰⁹ ANRE – Market study of natural gas in the Republic of Moldova for the years 2022-2023 (Article 97 of Law No 108/2016 on natural gas), 2024

According to *the 2022-2023 Gas Market Study of the Republic of Moldova* conducted in 2024 by ANRE, the Republic of Moldova has ensured the transposition into primary and secondary legislation of all acts related to Energy Package III, which forms the necessary legal basis for the integration of the national gas market into the European internal market, ensuring compliance with EU standards and norms.

In accordance with Article 92 of Law No 108/2016 on natural gas, the natural gas market of the Republic of Moldova consists of the *wholesale market and the retail market*. When Law No 108/2016 on natural gas was adopted (Article 114), the retail natural gas market was declared **open** and every final consumer in the Republic of Moldova has the right to choose and change supplier. This Law transposes Directive 2009/73/EC concerning common rules for the internal market in natural gas and establishes the special legal framework for the organisation, regulation, effective functioning and monitoring of the natural gas market, for the supply of natural gas to final customers under conditions of accessibility, availability, reliability, continuity, quality and transparency. Law No. 108/2016 on natural gas establishes the necessary mechanisms to establish the rules of the natural gas market, to ensure free access to the gas market, to develop the natural gas market and its integration into the regional natural gas market, to establish measures aimed at guaranteeing the security of gas supply, to ensure the proper fulfilment of public service obligations, to ensure compliance with the rights of final consumers, to the transparency and integrity of the natural gas market and others.

The Gas Networks Code, approved by ANRE Decision No 420/2019, sets out the regulatory framework for ensuring and managing efficient and transparent access to the natural gas transmission and distribution networks. Similarly, the Gas Networks Code sets out the procedures applied by the transmission system operator in order to carry out its tasks effectively, in particular to ensure the interoperability and exchange of data and balance in the gas transmission system, the allocation of gas transmission network capacity and harmonised tariff structures for the transmission of natural gas.

The rules of the natural gas market, approved by ANRE Decision No 534/2019, lay down the legal framework for the conduct of transactions for the sale and purchase of natural gas, the structure, procedures, principles and standards for the organisation and functioning of the natural gas market, the types of contracts concluded on the natural gas market, the rights and obligations of the participants in the natural gas market, including the obligations of the participants in the natural gas market in relation to balancing.

Regulation on the supply of natural gas, approved by ANRE Decision No 113/2019, regulates: the legal relations between the final consumer, the supplier and the system operator with regard to the supply of natural gas, including the supply of natural gas by the supplier of last resort and the supplier that has the obligation to supply natural gas to household consumers and small commercial companies in the context of public service obligations, the contracting and billing of natural gas, the disconnection, the reconnection of the natural gas installations of final consumers, the limitation and interruption of the supply of natural gas, the quality of the natural gas supply service, the examination of complaints and the settlement of disagreements between suppliers, system operators and final consumers.

In *the report on the implementation of provisional balancing measures* drawn up by Vestmoldtransgaz LTD and approved by decision of the ANRE Board of Directors No 516/2023, it is stated that the liquidity of the wholesale natural gas market is manifested by:

- significant fluctuations in the purchase prices of natural gas on international markets, which affect the ability of suppliers to procure significant volumes of natural gas;
- mechanisms for integration into developing regional markets;
- in 2023, SA ‘Moldovagaz’, which supplies natural gas at regulated prices, procured natural gas from SA ‘Energoacom’, which had a public service obligation to purchase natural gas and sell it to public service providers.

Among the progress made by the Republic of Moldova in creating an effective natural gas market is the approval by ANRE, on 14 March 2022, of the operation of the ‘Romanian Commodity

Exchange EST' LTD as operator of the natural gas trading platform in the Republic of Moldova, this company having as shareholder the Romanian Commodity Exchange - the oldest private operator of centralized commodity trading markets in Romania.²¹⁰

Starting January 1, 2025, all large enterprises in Moldova will purchase natural gas only on the free market, at negotiable prices, and from January 1, 2027 the same provisions will apply to medium-sized enterprises. Also, household consumers and public institutions will have a discretionary right to choose between the free market and the regulated market, the state ensuring the existence of universal service providers and the last option for securing gas supplies to household consumers.²¹¹

Gas prices and tariffs

Figure 33 shows the dynamics of the purchase price of natural gas by JSC Moldovagaz for the period 2015-2023.

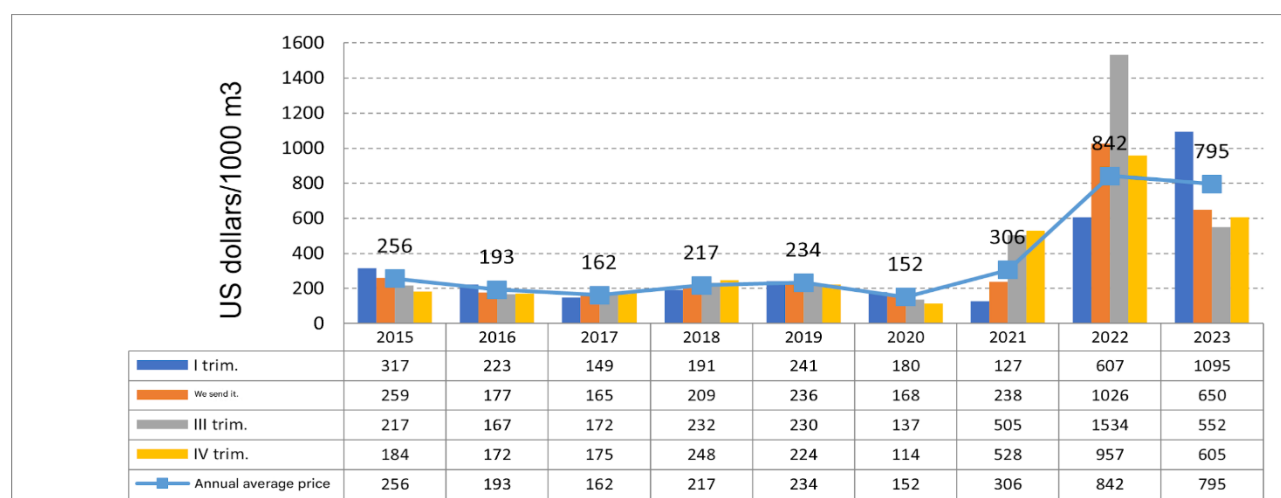
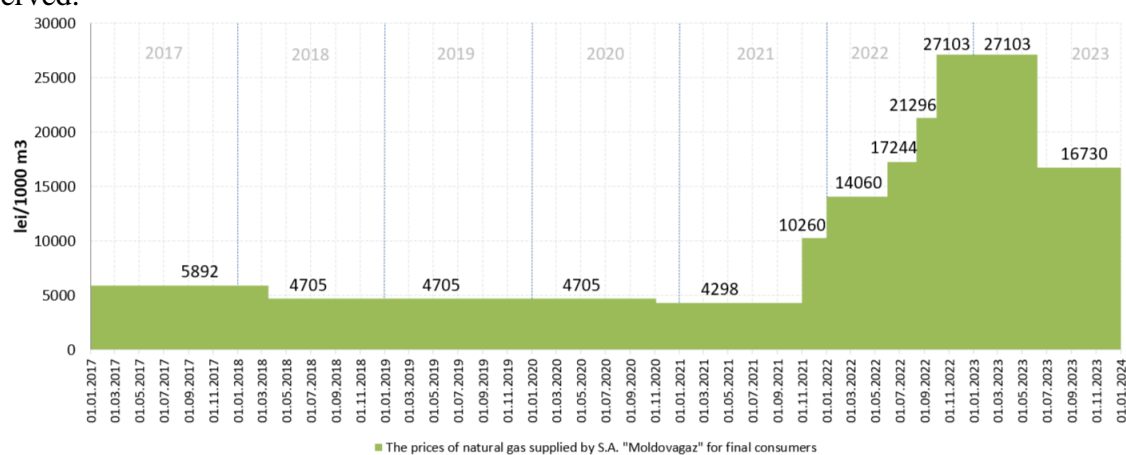


Figure 33. Dynamics of the purchase price of natural gas for the period 2015-2023²¹²

As mentioned above, the evolution of natural gas prices in the Republic of Moldova has been marked in recent years by an unprecedented increase (Figures no. 33 and no. 34), a result of the evolution of natural gas prices on European markets. Since 2023, a stabilisation of natural gas prices is observed.



²¹⁰BRM East Energy - Mission and Values

²¹¹<https://www.energie.gov.md/en/content/constantin-borosan-starting-from-1-January-2025-enterprises-large-will-purchase-gas>

Figure 34. Evolution of natural gas tariffs for household consumers in 2017-2023, MDL/1.000 m³, excluding VAT²¹³

Table 46

**Evolution of annual average natural gas prices for consumers
households and non-households, euro/gigajoule (gross calorific value – GCV)**

	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Medium-sized households	8.9	8.4	8.6	7.1	8.3	8.4	6.7	23.4	30.1	22.7
Medium-sized non-household consumers	7.8	7.1	7.3	6.7	7.4	7.4	5.2	21.0	38.6	15.7

Source: compiled on the basis of EUROSTAT data²¹⁴

The largest share in the structure of the tariff for the supply of natural gas (85.16%) is that of the purchase price of natural gas.

ii. Evolution trajectories with existing policies and measures until at least 2040 (including for 2030)

Electricity

1) Energy sector indicators. Forecasts

Electricity consumption per inhabitant per year under the WEM scenario increases from 1.27 MWh/capita in 2016 to 3.19 MWh/capita in 2050. Heat consumption per inhabitant was 0.88 MWh/capita in 2016 and is assumed to increase to 1.39 MWh/capita in 2050 (Figure 35).

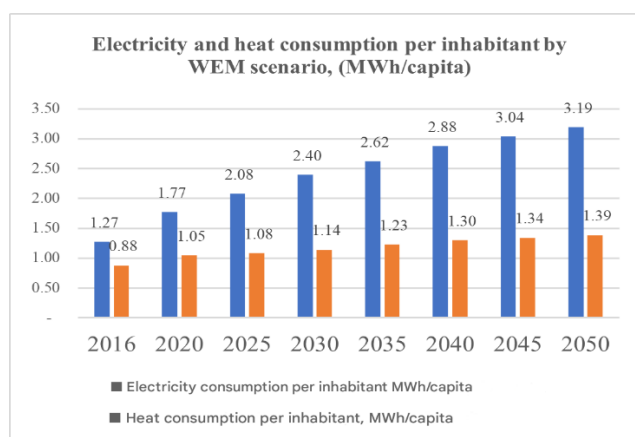


Figure 35. Electricity and heat consumption per inhabitant in WEM scenario, MWh/capita

Peak demand is expected to increase from 1,019 MWh (Q III 2024) to 1,168 MWh in 2050.

By 2050, the share of RES in electricity generation is expected to increase to 43% (WEM), the share of RES in electricity supply to 25.5% and the share of RES in final energy consumption to 25.2%.

The average electricity prices, produced through various technologies, which are estimated for 2050 (WEM scenario) are:

- 1) Biomass/biogas TEC: 0,09 to 0,22 EUR/kWh;
- 2) Natural gas-based TEC: 0,11 to 0,12 EUR/kWh;
- 3) natural gas power plants: EUR 0,07/MWh;
- 4) photovoltaic systems: 0,05 to 0,07 EUR/kWh;
- 5) wind power installations: 0,04 – 0,07 EUR/kWh.

²¹³<https://www.cursbnm.md/curs-currency-medium-monthly-bnm-2022>

²¹⁴<https://ec.europa.eu/eurostat/databrowser/view/ten00118/default/table?lang=en>

The average price of imported electricity was 0.05 (2016) and 0.07 (2020) and would reach 0.09 euro/kWh for both scenarios by 2050.

The average electricity price will increase from 0.05 in 2016 to 0.09 euro/kWh in 2050 (Figures 36 and 37) (indicator: average electricity cost, euro/kWh).

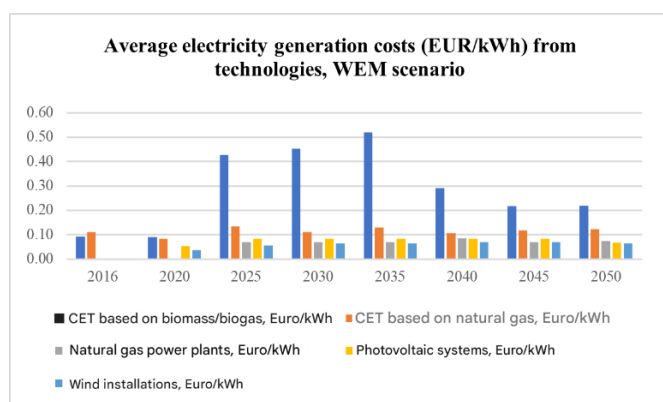


Figure 36. Average electricity generation costs (EUR/kWh) WEM

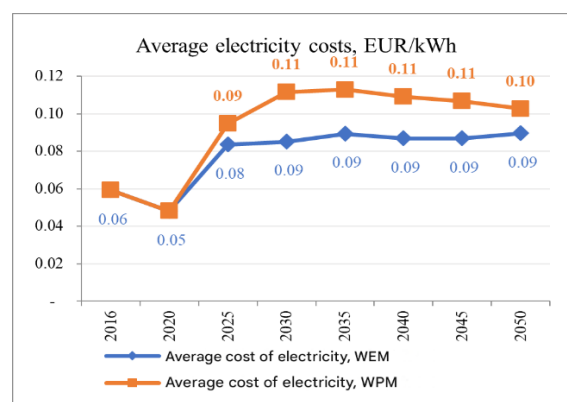


Figure 37. Average electricity costs, EUR/kWh

2) Installed capacity per technology

The installed capacity per technology in 2050 under the WEM/WPM scenarios is estimated as follows:

- natural gas power plants – 139 MW/40 MW;
- Natural gas-based TECs – 313 MW/298 MW;
- Biomass/biogas TECs – 10 MW in both scenarios;
- hydropower plants – 25 MW in both scenarios;
- wind power plants – 400 MW/2,100 MW;
- solar photovoltaic installations – 507/900 MW;
- Industrial TECs – 12MW/11 MW;
- electricity storage capacities – 70 MW/488 MW.

3) Losses in electricity transmission and distribution networks, in % of total generation plus net imports, are estimated to be, in 2050, according to WEM/WPM requirements, as follows:

- in the transport network – 2.99% / 2.26%,
- in the distribution network – 5.5% / 4.75%.

Natural gas

According to the estimates obtained for the WEM and WPM scenarios, the gross inland consumption of natural gas by 2050 will be 954 ktoe/885 ktoe. The forecasted values for natural gas imports almost coincide with the forecasts for gross inland consumption. At the same time, distribution losses are on an overall downward trend, and in 2050 they will decrease by about 40% compared to 2016.

Since 2014, the share of final consumption of natural gas in gross inland consumption of natural gas has been increasing, reaching 60% in 2021. According to the modelling results of the WEM/WPM scenarios, in 2050 this share will be reduced to 46%/47% and the final consumption of natural gas is estimated to be 532 ktoe/415 ktoe. The modelling shows that the share of the residential sector in the final consumption of natural gas will increase to 66% (WEM)/68% (WPM) and will decrease in industry. The per capita consumption of natural gas in 2050, according to the WEM scenario, will be 2.69 MWh (~253 m³), 58% higher than in 2016 (Figure No 38).

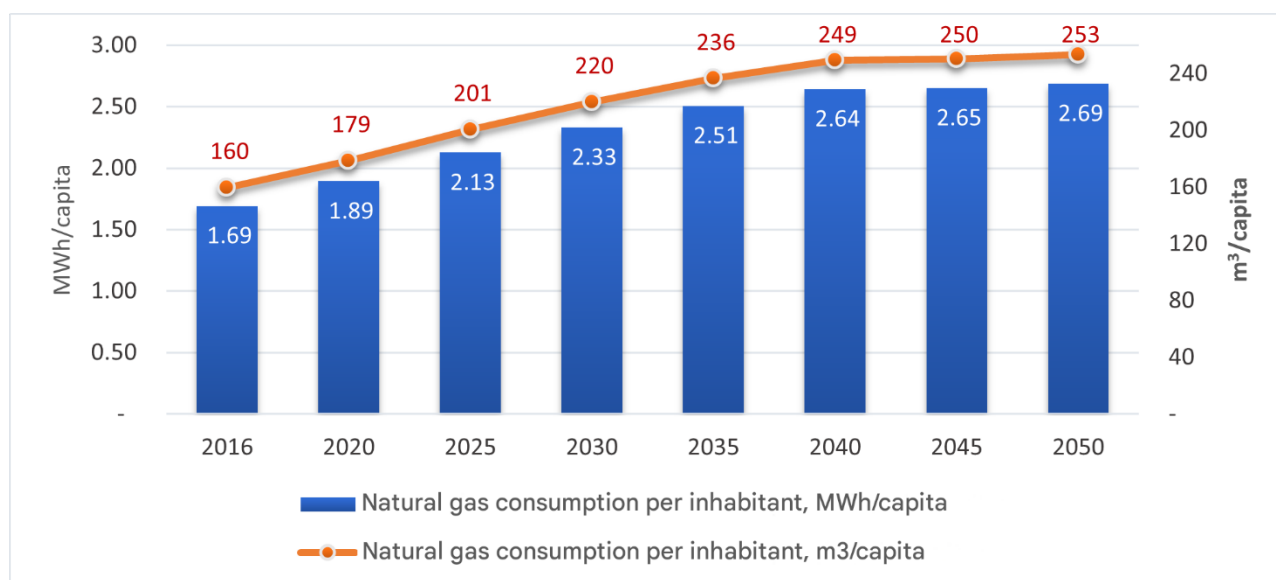


Figure 38. Natural gas consumption per inhabitant for the period 2016-2050 (WEM scenario), MWh/capita and $m^3/capita$ (calculated)

4.6. Research, innovation and competitiveness dimension

i. Current situation of the low-carbon technology sector and, to the extent possible, its position on the global market (to be analysed regionally or globally)

Currently, in the Republic of Moldova, research and development activities in the energy sector are limited and there are a limited number of producers of low-carbon technologies. In 2021, the Global Clean Technology Innovation Programme started in the Republic of Moldova²¹⁵ to support clean technology companies in the country to develop their innovative solutions and expand the market uptake of clean technology innovations. The programme helps existing and new SMEs and start-ups by identifying creative entrepreneurs who will leverage their skills to develop their innovative ideas into comprehensive technologies ready to enter national and global markets.

The Global Cleantech Innovation Programme in Moldova (GCIP Moldova) focuses on improving institutional, market and ecosystem capacities to support emerging startups with clean technologies and strengthening policies and mechanisms for technological innovation within and by SMEs.

Current energy research priorities in the Republic of Moldova are energy efficiency and renewable energy, smart grid control devices, as well as energy storage, but most companies in the energy sector are still service-oriented, mainly in the areas of RES and EE. There is therefore significant potential for scaling up low-carbon and energy-efficient solutions, from the demonstration phase, which is fundamental, to bringing renewable energy technologies to the market and achieving greater energy savings.

ii. Current level of public and, where available, private spending on research and innovation for low-carbon technologies, current number of patents and current number of researchers

According to the NBS, in 2023, the research and development activity was carried out in 47 entities, including 20 research institutes and centers, 16 higher education institutions and 11 units of other types. The reduction in the number of establishments (20 fewer than in 2022) was largely driven by the reorganisation of public higher education institutions, through the merger (absorption) of 18 public research institutes. Of the total number of units that carried out research and development, 30 institutions (or 63.8%) were in the form of public ownership.

²¹⁵<https://gcip.tech/country/moldova/>

As at 31 December 2023, 3 526 employees were employed in research and development, down 9.3% from the number recorded at the end of the previous year. Of the total number of employees involved in research and development, 1,823 were women, representing 51.7%. According to the work schedule, 55.2% of the employees who carried out research and development work worked full-time. Of the total number of employees engaged in research and development activities, 3 166 were active in public institutions (89.8% at the end of 2023, compared to 89.3% at the end of 2022).

Depending on the level of professional training, 43.0% of R&D employees had doctoral education and post-doctoral programmes, 42.1% had master's and bachelor's degrees, 4.9% had post-secondary technical vocational education and 10.0% had other degrees. By professional category, researchers accounted for the largest share of R&D employees in 2023, 73.3% of the total. The distribution of researchers by age group shows that, in 2023, the majority of researchers were over 64 years old (24.7%). At the same time, compared to 2022, there is a decrease in the share of young researchers up to the age of 35 (by 3.9 pps), as well as an increase in the share of researchers aged 45-54 (by 1.6 pps).

In 2023, as in the previous year, most researchers work in the field of natural sciences (788 people, or 30.5%), while the fewest researchers work in the field of humanities (199 people, or 7.7%). Compared to 2022, the share of researchers in the field of engineering and technological sciences has increased (by 1.5 percentage points). The breakdown by year is shown in Figure 39.

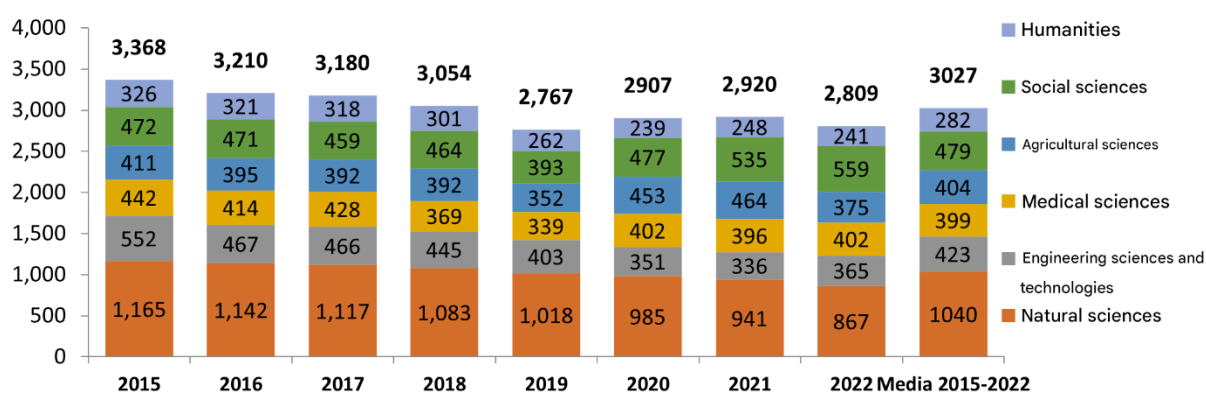


Figure 39. Distribution of researchers by year and field

Also in 2023, spending on research and development activities amounted to MDL 663.5 million, representing 0.23% of gross domestic product, compared to 2.23% at EU-27 level in 2022 (of which 1.48% is business investment). In 2023, compared to 2022, spending on research and development increased by MDL 40.9 million (or 6.5%), including in public institutions – by MDL 21.6 million (or 4.1%).

In 2022, the majority of current expenditure was made in the field of natural sciences: 35.2%, followed by medical sciences: 17.6%, agricultural sciences: 17.3%, engineering and technology: 14.6%, social sciences: 9.1% and humanities: 6.2%.

In the list of priority areas funded by the 2021 Innovation and Technology Transfer Projects Competition, launched by ANCD in July 2020, the area 'Environment and Climate Change' (Priority III) appears. Projects submitted under the 5 strategic directorates in the field, including the 'Secure, Clean and Efficient Energy' strategic directorate, received total funding of MDL 1.92 million for 2021. The additional competition for 2021, launched by ANCD in March 2021, provided for the financing of projects under Priority III 'Environment and Climate Change' in a total volume of MDL 2.52 million.

In 2022, according to Patent Panorama:15, 48 fewer patents were issued by AGEPI than in 2021. Overall, after 2010, the number of patents has been continuously decreasing as a result of the reduced budget allocation for research since 2007.

iii. Distribution of current price elements that make up the three main price components (energy, grid, taxes/taxes)

The main factors influencing tariffs are as follows:

- the cost of imported energy resources (electricity, natural gas);
- the exchange rate of the national currency against the US dollar;
- the costs necessary for the production, transmission and distribution of electricity and natural gas;
- volumes of natural gas, electricity and heat produced and supplied to consumers;
- depreciation of fixed assets;
- tariff deviations;

The rate of return is determined by the cost of electricity/natural gas supplied or by the weighted average cost of capital method (for regulated activities).

iv. Description of energy subsidies, including for fossil fuels

The concept of vulnerable customers is defined by primary legislation, while the social assistance program and the assistance for the cold period of the year provide measures for their protection.

In 2022, a dedicated fund for reducing energy vulnerability was set up to compensate for energy consumption and the replacement of old appliances. Compensation is granted to household consumers for solid fuel/wood, consumption of natural gas, heat and electricity, according to the method and conditions established annually by the Government, for each cold season of the year.

Diesel

The Government approved the Regulation on the granting of complementary subsidies for the excise duty on diesel from the National Fund for the Development of Agriculture and Rural Areas.²¹⁶

The Regulation provides that the top-up subsidy is granted in two stages, for diesel purchased from 16 November 2022 to 29 June 2023, and was submitted no later than 31 July 2023, and diesel purchased from 30 June 2023 to 30 September 2023 inclusive, was submitted no later than 30 September 2023, as follows:

amounting to:

100% of the excise duty rate set for 2023 or MDL 3,248 per tonne – for micro, small and medium-sized farmers;

100% of the excise duty rate set for 2022 or MDL 2 980 per tonne – for micro, small and medium-sized farmers;

amounting to:

30% of the excise duty rate set for 2023 or MDL 974.4 per tonne – for large farmers;

30% of the excise duty rate set for 2022 or MDL 894 per tonne – for large farmers.

5. IMPACT ASSESSMENT POLICIES AND PLANNED MEASURES

5.1. Impacts of planned policies and measures described in Section 3 on the energy system and greenhouse gas emissions and removals, including comparison of estimates with existing policies and measures; (as described in section 4)

²¹⁶Government Decision No 466/2023 approving the Regulation on complementary subsidisation measures and specific eligibility conditions for complementary subsidisation from the National Fund for the Development of Agriculture and Rural Areas

i. Projections on energy system development and GHG emissions and removals as well as the impact of the implementation of Directive 2001/80/EC as adapted and adopted by Ministerial Council Decision 2013/05/MC-EnC as amended by Decision 2015/07/MC-EnC and Directive 2010/75/EU as adapted and adopted by Ministerial Council Decision 2013/06/MC-EnC as amended by Decision 2015/06/MC-EnC, in particular as regards the limited lifetime derogation

The total volume of greenhouse gas (GHG) emissions in the energy sector remains unchanged under the existing measures scenario.

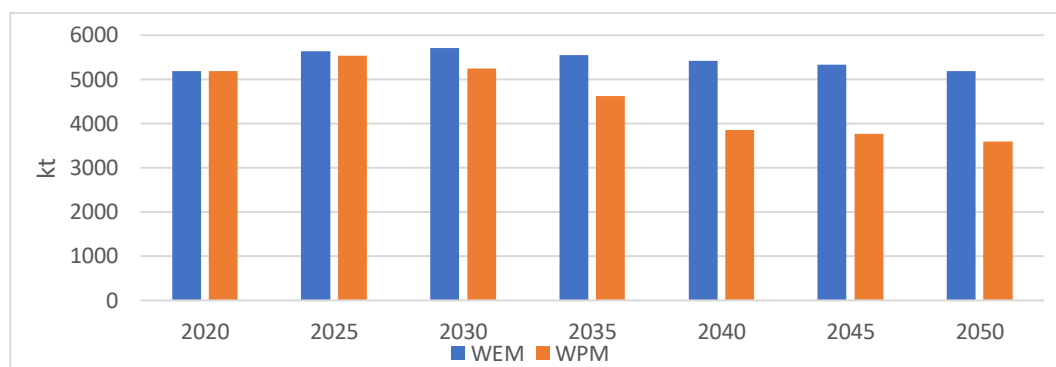


Figure 40. Estimates of total GHG emissions in the energy sector for the years 2020-2050

If the WPM scenario is implemented, emissions will be reduced by about 1.6 Mt CO₂e or 31% less in 2050 compared to the WEM scenario. Only emissions from the energy sector on the right bank of the Dniester river are taken into account in the graph.

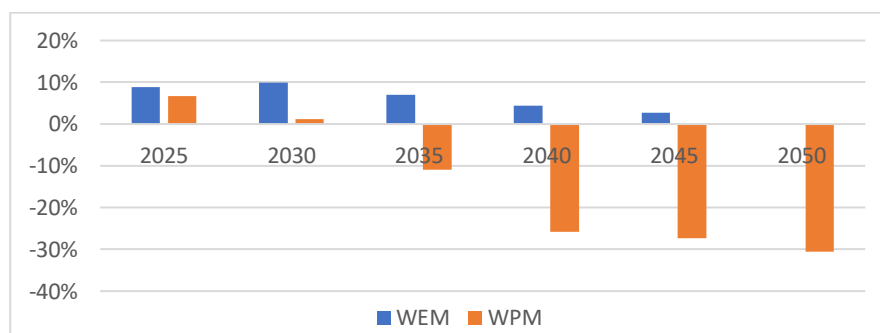


Figure 41. Total GHG emission reductions in percentage compared to 2020

Between 2020 and 2025, the trends in the WEM and WPM scenarios coincide: in both cases total GHG emissions are expected to increase by around 5-8% by 2025: up to 5,643 kt CO₂e in the WEM scenario and up to 5,536 kt CO₂e in the WPM scenario. After 2025, trends show the differences between WEM and WPM scenarios until 2050. According to the WEM scenario, GHG emissions in 2035 are more or less equal to those in 2020 and subsequent fluctuations do not exceed 1-2% of the 2020 level. According to that scenario, by 2050, GHG emissions will reach 5,182 kt CO₂e. The WPM scenario assumes an 11% reduction in GHG emissions in 2035 compared to 2020, and 26% in 2040 compared to 2020, reaching up to 3,852 kt CO₂e. Thereafter, no significant GHG fluctuations are forecast, which are estimated to reach 3,604 ktCO₂e in 2050.

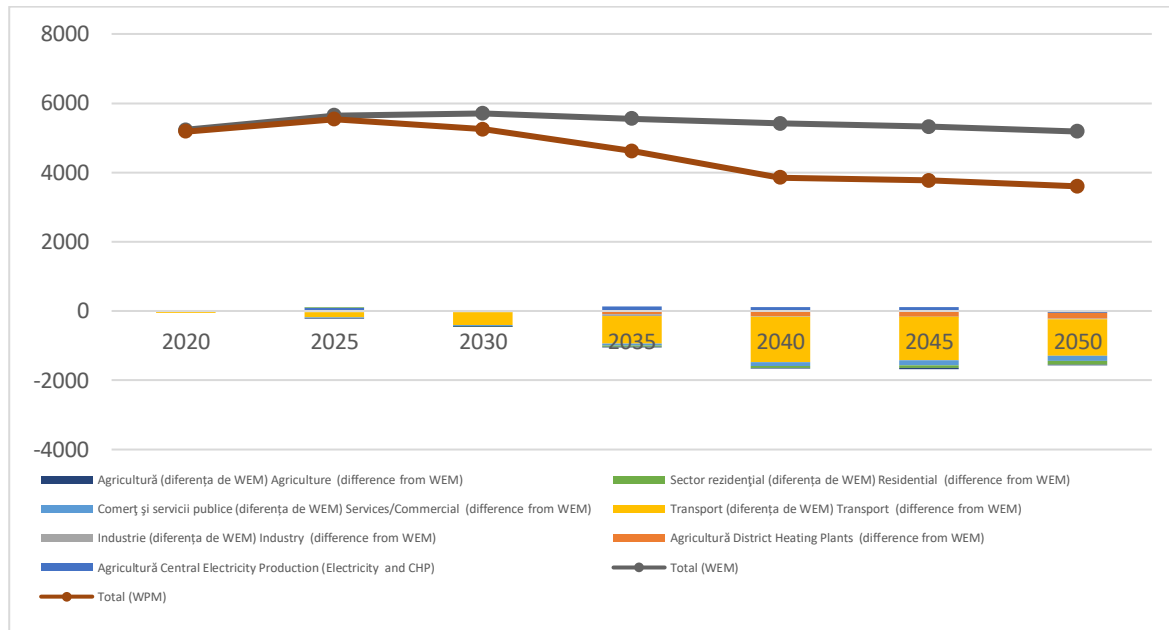


Figure 42. Total CO₂ emissions by sector

Despite the fact that, under both scenarios, total GHG emissions in 2030 are roughly the same, sectoral contributions in these scenarios are different. In the WPM scenario, GHG emissions are lower in *the district electricity generation sectors (power plants and CET)* – by 87.1 kt CO₂e, *transport* – by 361 kt CO₂e, *district heating* – by 12.7 kt CO₂e compared to the WEM scenario.

In 2050, the contribution of *the centralised electricity generation sector (CE and CET)* in the WEM scenario to the WPM scenario will continue and reach the level of 47 kt CO₂e. The most significant GHG emission reduction in the WPM scenario will occur in the transport sector: the difference between GHG emissions in the WPM and WEM scenarios will be 1063,9 kt CO₂e. A significant reduction of GHG emissions in trade and public services is also projected: with 153.5 kt CO₂e in WPM compared to the WEM scenario.

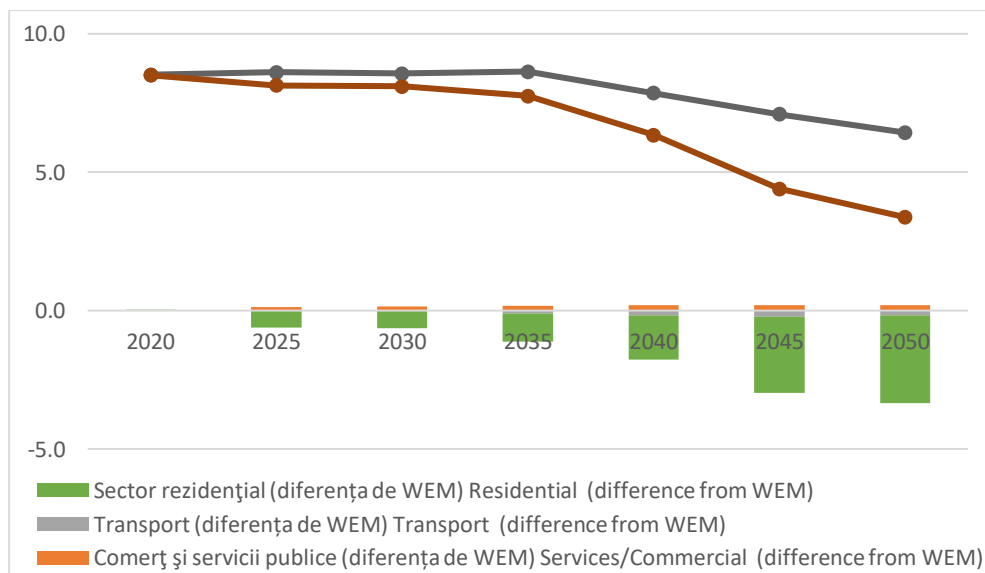


Figure 43. Total CH₄ emissions per sector

As regards CH₄ emissions, it should be noted that different sectors show varying emission trends. CH₄ emissions from trade and public services exceed WPM by 0.15 kt CO₂e WEM emissions by 2030 and 0.2 kt CO₂e in 2050. As for the transport or residential sectors, there is a decrease in CH₄ emissions in the WPM scenario compared to the WEM scenario. In the WPM scenario, CH₄ emissions in the residential sector are 0.7 kt CO₂ lower in 2030 and 3.23 kt CO₂ lower in 2050 than

in the WEM scenario. In the transport sector, the gap between emissions becomes stable by 2035 and reaches 0.13 kt CO₂e in 2050.

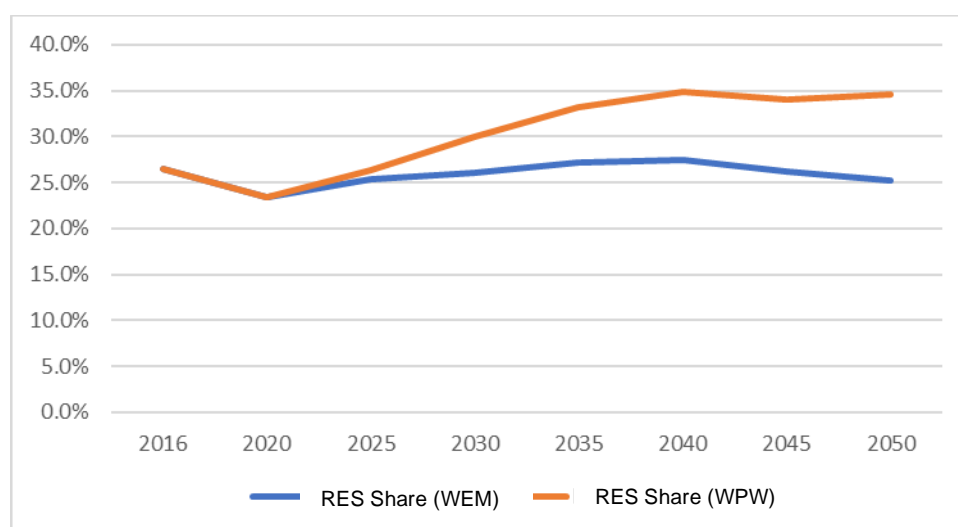


Figure 44. Share of RES in CFBE in %

The share of RES in gross final energy consumption (GFE) is expected to be 25.2% in the WEM scenario and 34.6 in the WPM scenario towards 2050. In the heating sector, the estimated share of RES by 2050 is 37.4% in the WEM scenario and 31.9% in the WPM. In electricity, the share of RES is expected to increase to 25.5% in WEM and 64.5% in WPM in 2050. In transport, the share of RES in the WEM scenario increases to 3.7% in 2030 and in WPM to 18.3% in 2050.

The WPM scenario foresees a more intensive development of generation capacities. Total installed capacity will be in 2030 as follows: in the WEM scenario – 1,230 MW, in the WPM scenario – 1,438 MW, and by 2050: in the WEM scenario – 1,477 MW and in the WPM scenario – 3,871 MW. Almost all generation sources are developing more intensively in the WPM scenario, with the exception of natural gas-fired power plants and CETs: their installed capacity in the WEM scenario will be 388 MW in 2030 and 453 MW in 2050, and in the WPM scenario: 381 MW in 2030 and 338 MW in 2050. In both scenarios, a reduction in the installed capacity of natural gas-based TEC is expected after 2030: to 313 MW in 2050 in the WEM scenario and to 297 MW in the WPM scenario. In both scenarios, the development of generation capacities is based on RES and high-efficiency cogeneration. Although both scenarios do not yet include waste-based TEC construction, they will be included in further modelling.

At the same time, in both scenarios, the creation of electricity storage systems in batteries is foreseen: 70 MW to 2030/2050 in WEM and 488 MW to 2050 in WPM.

In the WPM scenario, RES capacities are expected to increase more intensively than in the WEM scenario. Thus, in the WEM scenario, RES capacities will reach 766 MW in 2030 and 942 MW in 2050, and in the WPM scenario – 981 MW in 2030 and 3,035 MW in 2050. Variable RES – photovoltaic and wind farms – account for the largest share in both scenarios. The total installed capacity of wind farms in the WEM is 266 MW in 2030 and 400 MW in 2050, and in the WPM scenario it is 390 MW in 2030 and 2,100 MW in 2050 in the WPM scenario. In photovoltaic installations the projected increase in the WEM scenario is 525 MW in 2030 and 507 MW in 2050, and in the WPM scenario: 560 MW in 2030 and 900 MW in 2050.

In the district heating sector, the increase in total installed capacity will be based on the increase in high-efficiency cogeneration capacities, but also the deployment of RES (biomass and others). The results of the Heating Roadmap, which is currently under development, will be reflected in the next NECP.

Primary energy consumption (gross inland consumption) in the WEM scenario is projected to increase from 2,949 ktoe in 2030 and 2,957 ktoe in 2050, while in the WPM scenario it decreases to 2,529 ktoe in 2050, through the implementation of additional energy efficiency improvement

measures and other measures. In *final energy consumption*, the estimated evolution is downwards in both scenarios: in WEM from 2,762 ktoe in 2030 to 2,633 ktoe in 2050, and in WPM – to 2,086 ktoe. In *industry and construction*, energy consumption is expected to increase in both scenarios, namely: in WEM – from 241 ktoe in 2030 to 266 ktoe in 2050, and in WPM – to 254 ktoe, respectively. Final energy consumption in the *residential sector* in the WEM scenario increases from 1,206 ktoe in 2030 to 1,311 ktoe in 2050 and in the WPM scenario decreases to 906 ktoe in 2050. This trend in the WPM scenario is primarily driven by the implementation of additional energy efficiency measures and the decrease in solid biomass consumption. Also, in the WPM scenario, compared to the WEM scenario, there is a reduction in electricity consumption. In *trade and public services*, projected developments by scenario are, as in the residential sector, increasing in the WEM scenario, from 295 ktoe in 2030 to 301 ktoe in 2050, and decreasing in the WPM scenario – to 257 ktoe. The WPM scenario shows a change in the structure of energy resources compared to the WEM scenario: a more pronounced decrease in the share of natural gas consumption and an increase in the share of electricity, with the share of solid biomass and district heating decreasing. Final energy consumption in *the transport sector* decreases in both scenarios: in WEM – from 839 ktoe in 2030 to 632 ktoe in 2050, and in WPM – to 555 ktoe. In the WPM scenario, diesel/diesel fuel consumption (without bio component) is lower than in the WEM scenario, and in both scenarios there is a considerable increase in electricity consumption. In *agriculture and forestry*, *energy consumption* is decreasing in both scenarios: from 182 ktoe in 2030 to 122 ktoe in 2050 in the WEM and to 113 ktoe in the WPM.

The *final energy intensity* indicator in both scenarios shows a significant decrease: from 0.23 toe/€1,000 in 2030 to 0.12 toe/€1,000 in 2050 in the WEM scenario and 0.09 toe/€1,000 in the WPM scenario.

The trends associated with the *energy import dependency* indicator show a slight increase in the WEM scenario – 2,231 ktoe in 2050, but a major decrease in the WPM scenario – to 1,657 ktoe.

According to both scenarios, *primary production* will increase until 2040, reaching 784 ktoe in WEM and 848 ktoe – in WPM, and by 2050 this indicator will decrease to 727 ktoe in WEM, while in WPM it will further increase – to 873 ktoe in 2050.

In terms of *energy export* estimates, as mentioned above, Moldova has been a major electricity exporter in the region in the past, with exports from MGRES ceasing in 2014. Although the resumption of export by this company is not foreseen in the modelled scenarios, this is not excluded and will be considered in further modelling. At the same time, the implementation of electricity generation projects based on RES will contribute to the increase in cross-border flows, including the export of electricity already recorded in recent years. The Republic of Moldova is also an exporter of petroleum products (biofuels). In the WEM and WPM scenarios, the consumption of these products in the country is expected to increase by 2050, which will reduce the respective exports.

Energy consumption in the production of electricity and heat is expected to decrease in both scenarios, following the implementation of highly efficient modern technologies, both in cogeneration and in the production of heat or electricity. The results of the Heating Roadmap will allow for the adjustment of the modelling and will be reflected in the next NECP.

Electricity, *heat and gas losses* will continue to decrease. *Electricity* losses in the transmission network, as a percentage of total production plus net imports, will decrease from 2.77% in 2023 to 2.26% in 2050, and electricity losses in the distribution network will decrease from 5.79% to 4.75%. *Heat* losses in district heating are expected to be reduced to 17.6% by 2050 compared to 19% in 2023. Total losses in the *natural gas* network are expected to fall to 2.83% by 2050, compared to 5.4% in 2023.

ii. Assessment of policy interactions (between existing and planned policies and measures within a policy dimension and between existing and planned policies and measures in different dimensions), at least until the last year of the period covered by the plan

See general description of interactions listed in Chapter 1.

iii. Assessment of interactions between existing and planned policies and measures and between those policies and measures and the Energy Community's policy measures on climate and energy

See general description of interactions listed in Chapter 1.

5.2. Macroeconomic, environmental, skills and social impacts (in terms of costs and benefits as well as cost-effectiveness) of the planned policies and measures described in Section 3, at least until the last year of the period covered by the plan, including a comparison with projections in the context of existing policies and measures

The macroeconomic and, to the extent possible, environmental impacts on health, employment and education, professional skills, as well as social impacts, are the effects that the policies and measures included in this NECP have on various social and economic aspects. These effects can be positive or negative, direct or indirect, short-term or long-term, and may vary depending on the context and the point of view of various stakeholders.

Macroeconomic implications: it represents the impact on the overall indicators and structure of the economy, such as GDP, inflation, trade balance, public finances, industry structure, competitiveness, innovation, etc. Policies and measures in this NECP will stimulate economic growth by reducing energy costs, increasing productivity, creating new markets and jobs, improving energy security and preventing damage caused by climate change. However, they will entail costs and trade-offs, such as increased initial investment, redistribution of income and wealth, cost adjustment for affected sectors and regions, etc.

Health effects: this is the impact on people's physical and mental well-being, such as mortality, morbidity, quality of life, healthcare costs, etc. Implementing policies and measures in this NECP will improve health-related indicators by reducing air pollution, mitigating the effects of extreme weather events, preventing infectious diseases, promoting an active lifestyle, etc. However, certain health risks or problems may also occur, such as exposure to hazardous materials or technologies, increased demand for cooling or heating services, changes in diet or vector-borne diseases, etc.

Environmental impacts: they constitute impacts on the environment and natural ecosystems, such as biodiversity, water resources, land use, waste disposal, etc. The policies and measures stipulated in this NECP could have a protective effect on the environment by reducing GHG emissions, improving resource efficiency, preserving natural habitats, etc. However, they could put pressure on the environment or lead to trade-offs: by making more active use of materials and water resources, to shift emissions or impacts to other regions or sectors.

Impact on employment: it affects the quantity and quality of jobs in the economic field, e.g. the level of employment, wages, qualifications, working conditions, social protection, etc.

The policies and measures in this NECP will create job opportunities by increasing demand for labour-intensive industries, such as RES deployment, advanced training and reskilling, improving labour standards and rights, etc. However, such actions can lead to job losses or job exchanges (e.g. in the fossil fuel sector), structural changes in the labour market, skills mismatches, labour mobility problems or relocation.

It is worth mentioning, in particular, the creation of additional jobs, especially in the field of electricity generation technologies. Those jobs are related to either the production and installation of power generation technologies or the operation and management (O&M) of power plants. In this respect, employment factors were used (Table 47) resulting from the examination of several studies focused on EU countries that share the same characteristics as the Republic of Moldova.

Table 47

Employment Factors Renewable Energy Sources

	Installation (person-years/MW)		O&M (Jobs/MW)	
Solar installations (VF)	10	15	0,2	0,4
Onshore wind energy	10	15	0,2	0,4
Biomass	15	20	0,2	0,4

With their help, the jobs expected to be created under the WEM and WPM plans due to the use of the new RES capacity for photovoltaic solar panels, wind energy and biomass were estimated. These results are illustrated in Figure 45.

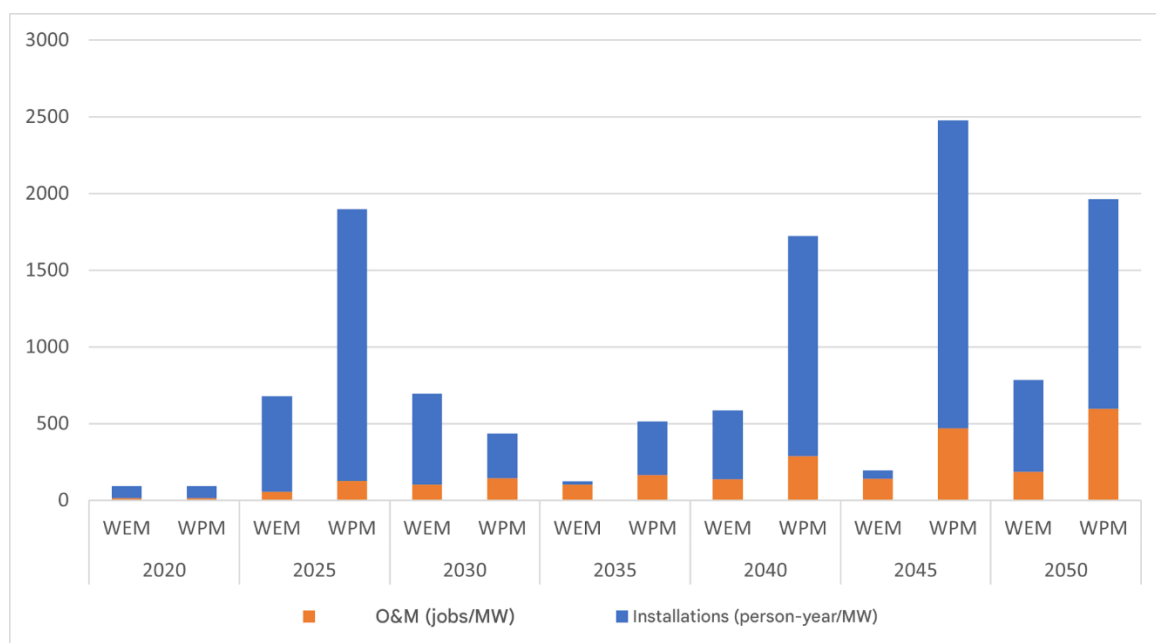


Figure No 45. Estimated trajectories for jobs created according to WEM and WPM plans due to use of new RES capacity for solar photovoltaic panels, wind energy and biomass (average annual estimates over a five-year period) from 2020 to 2050

Between 2020 and 2030, in the WPM scenario most jobs are created in the first five years – the average annual number of workers for renewable energy installations during this time reaches 1,774 person-years (in the second half of the decade this indicator falls 6 times lower: 291 persons-years). At the same time, the average annual number of jobs in O&M for the two five-year periods differs slightly: 126 jobs in O&M in 2020-2025 and 144 jobs in O&M in 2026-2030. In the WEM scenario, the deployment of RES evolves at a more uniform and slower pace, leading to a similar trend for the jobs created for their deployment. In the WEM scenario, the average annual number of plant workers is 623 and 593 person-years, and the number of jobs in O&M is 55 and 103 person-years for the periods 2020-2025 and 2026-2030, respectively.

For the period 2031-2050, the employment in the field of installations in the WPM scenario is considerably higher than the employment in the WEM scenario. The average annual person-year ratio in the WEM and WPM scenarios, respectively, is as follows: 20 and 350 person-years in 2031-2035, 449 and 1 434 person-years until 2036-2040, 55 and 2 006 person-years in 2041-2045, 602 and 1,367 person-years in 2045-2050. In terms of the average number of jobs year O&M, there is a slightly smaller difference between the scenarios. Thus, the number of person-years for O&M SER in the WEM and WPM scenarios respectively is: 103 and 165 jobs in 2031-2035, 136 and 289 jobs in 2036-2040, 142 and 471 jobs in 2041-2045, 184 and 596 jobs in 2046-2050.

In the field of education, the implementation of policies and measures in that NECP will improve educational outcomes by increasing access to electricity and digital technologies, raising environmental and literacy awareness. However, there is a risk of creating problems or barriers in the field of education, such as unequal access to energy services or technologies, lack of adequate infrastructure or resources for education, the need for curriculum reform or teacher training.

Social consequences: these are the consequences for social cohesion and integration into society, such as the reduction of poverty, inequality, the promotion of gender equality, the protection of human rights, the formation of social capital, etc.

The implementation of the policies and measures set out in this NECP will improve social outcomes: reducing social poverty and improving access to basic services, empowering women and marginalised groups, strengthening social participation and dialogue, addressing human rights issues related to energy and climate. However, when implementing the plan, the possibility of creating conflicts or social tensions, e.g. due to inequality or polarisation, social isolation or discrimination, resistance or opposition from affected groups, is to be taken into account.

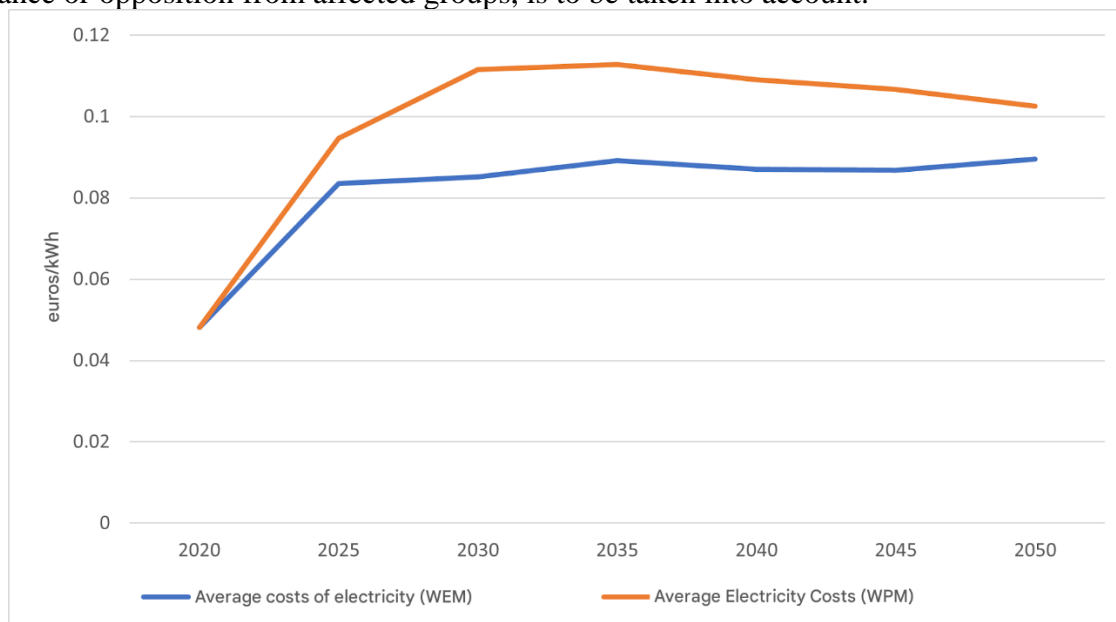


Figure 46. *Estimated average cost trajectories for electricity supply for the period 2020-2050*

Between 2020 and 2050, average electricity costs show a general upward trend in the WEM and WPM scenarios. In the WPM scenario they increase steadily from 0.048 euro/kWh in 2020 to 0.111 euro/kWh in 2030, followed by a slight decrease to 0.102 euro/kWh in 2050. In the WEM scenario, given the lack of costs for implementing energy efficiency measures, average electricity costs increase at a slower pace. Thus, already in 2030, the average cost for electricity is 0.085 euro/kWh, which is 31% less than in the WPM scenario. In 2050, the cost difference in both scenarios becomes smaller: in the WEM scenario, the average electricity cost is €0.089/kWh, or 14.0% lower than in the WPM scenario.

5.3. Overview of investment needs

i. Existing investment flows and future investment assumptions about planned policies and measures

The lack of financial resources is considered one of the main barriers to achieving ambitious sustainable development targets in the Republic of Moldova. The development and operation of various financial instruments at national level is a mandate assigned by law to the Energy Efficiency Agency. However, for various reasons (lack of finance, low energy tariffs, high interest rates for financing provided by local banks, etc.), the market for financial services for the energy sector is not yet developed.

As a result of high financing needs, the availability of financial support and technical assistance from international financial institutions and international development agencies will be crucial to ensure the implementation of complex energy and climate policies in the Republic of Moldova.

Currently, the Government has access to financing from international financial institutions and international organisations under preferential conditions through various financial instruments:

- external loans;
- grants.

The interest rate for these preferential financial resources is low or does not apply under the conditions for grants or subsidies. The repayment period for loans is several times longer than for commercial loans, with a grace period for many loans.

Over the past decade, the largest disbursements through climate-related projects have been made by UNDP, the European Union, USAID, the World Bank, the European Investment Bank, the EBRD.

Table 48 presents the portfolio of energy and climate projects implemented in the Republic of Moldova by international organizations and IFIs.

Table 48

**Portfolio of implemented energy and climate projects
in the Republic of Moldova by international organizations and IFIs**

Impact areas	UNDP	BM	EBRD	EIB	USAID
Biomass	X	X	X		
Mitigation and adaptation to climate impacts	X	X			
Climate risks	X				
Centralised heating		X	X		
Energy efficiency	X	X	X	X	X
Natural gas			X	X	X
Reduction of GHG emissions	X				X
Policies		X			X
Electrical systems		X	X	X	X
Renewable sources		X			X
Sustainable urban development	X				
Capacity building	X				X

Source: IFI, UNDP, USAID, expert assessment

A complete portfolio of projects of international organizations and key international financial institutions related to energy and climate in the Republic of Moldova is presented in Annex no. 3.

Among other important actors who also contributed to technical assistance projects and the provision of trade finance and grants in the energy and climate portfolio, we should mention institutions such as:

- Swiss Agency for Development and Cooperation;
- the European Commission;
- GIZ;
- Governments of Romania and Sweden.

The total financing disbursed for energy efficiency and climate change mitigation projects through official development assistance mechanisms in the Republic of Moldova in 2015-2021 amounts to USD 63.9 million. Annex 4 presents the main data on financing at project level in the energy and climate change sector in the Republic of Moldova according to the official OECD statistics on development assistance for the period 2015-2021.

The promotion of energy efficiency and renewable sources is considered a basic priority for the energy sector in the Republic of Moldova, for which assistance from international institutions is encouraged. In this respect, the existing regulatory framework provides for support from domestic and foreign investors for electricity generating installations from wind, photovoltaic, biogas or solid biomass cogeneration plants by providing feed-in tariffs and a fixed price.

Investments in energy transmission infrastructure are also expected to increase the sector's resilience, reduce fuel consumption, increase public security as well as increase economic revenues. The assessment carried out in the energy transport sector points to the need for enormous investments in physical infrastructure, but also associated measures such as institutional and policy changes, capacity building and the development of strategic documents for the Republic of Moldova to adapt and strengthen resilience to climate change.

Priority criteria for energy efficiency and climate-related investments in the Republic of Moldova should be in line with the following national priorities:

- alignment with national sectoral climate change mitigation strategies and plans, as well as national legislation;
- contributing to reducing vulnerability at national level and enhancing the sustainable and climate-resilient development of energy infrastructure;
- contributing to the transformational adaptation of the energy sector;
- contributing to improved economic performance with a high level of shared environmental, social and gender benefits;
- financing the needs of vulnerable groups, target population, sectors, development regions, country;
- the financial and economic feasibility on the basis of which sectoral investment options have been prioritised;
- the total number of direct and indirect beneficiaries.

ii. Risk factors or barriers in the sector or market in the national or regional context

A number of capacity-related assessments have been carried out in the Republic of Moldova at national and sub-national levels, in particular at sectoral level, identifying gaps and constraints that act cumulatively as barriers to progress in planning climate change activities and their implementation in the country's energy sector. The most important of these are:

- the World Bank technical assistance document;
- sectoral assessments of the impact of climate change in the framework of the National Communication No. 5 of the Republic of Moldova to the UNFCCC;
- the assessments of the technological needs of the Republic of Moldova submitted to the UNFCCC;
- Developing the Country Programme for the Republic of Moldova to work with the CVF between 2023 and 2027;
- other project-based assessments carried out by national and external stakeholders.

These studies highlighted barriers for the energy sector to effective energy sector policies related to climate change, policies stemming from political instability, socio-economic conditions and uncertainties about future climate conditions, as well as limited financial, technological, institutional and individual knowledge.

Climate change has long-term negative impacts on the country's economic growth and affects the energy sector directly or indirectly. According to the National Communication No. 5 of the Republic of Moldova to the UNFCCC, the energy sector in the Republic of Moldova is likely to be affected by three types of negative climate impacts:

- temperature rises;
- changes in precipitation patterns;
- increased climate aridity, associated with increased frequency and intensity of extreme weather events (heat and cold, floods, storms with heavy rains and hail, severe droughts).

The Republic of Moldova has a sectoral policy framework in the field of climate change with many complementarities and links to cross-cutting policy issues on sustainable development. Therefore, mitigation priorities that are related to the energy sector of the Republic of Moldova stem from both national climate change policies and the national and sub-national development policies and plans with which they are connected.

Tables 49 and 50 summarise the climate impacts and vulnerabilities of the energy sector in the Republic of Moldova, as well as mitigation priorities.

Climate Change Impacts and Main Vulnerabilities of the Energy Sector in the Republic of Moldova

Climate risk	Probability of risk	Impact of climate risk on the sector and its vulnerability
Energy sector		
High temperatures	Lifted	Increased electricity demand due to high summer temperatures and the need for indoor air conditioning and cooling in industrial processes
	Lifted	Increased consumption of natural gas due to high electricity demand
	Lifted	Large electricity losses due to intensive use of electric cooling equipment in high temperature conditions
	Lifted	Reduced capacities of power plants to generate electricity and heat due to insufficient heat load
Changes in the water regime	Lifted	Higher electricity demand for irrigation due to lower soil moisture
	Average	Reduced capacity of power plants to generate electricity due to decreased water flow in the Prut and Dniester rivers due to low rainfall
Extreme weather events (heat, frost, droughts, floods, winds, hail storms, more frequent and intense heavy rains)	Average	Low resilience of infrastructure in the energy sector, including useful life of assets, higher capital expenditure and operating costs
	Average	Increased energy intensity due to higher electricity consumption for air conditioning and irrigation systems. Increased intermittency in electricity supply
	Average	Wood production compromised by climate change (drought), including biomass production for energy generation and production of liquid fuels
	Average	Longer duration of unplanned distortions in electricity supply resulting from increased frequency of spontaneous fires and need to protect airways
	Average	Decrease in the share of renewable electricity generation due to reduced balancing energy reserves
Transport sector (fuel consumption aspects)		
High temperatures	Lifted	Low resilience of transport infrastructure, including asset lifetimes, higher capital expenditures and operating costs
Changes in the water regime	Lifted	Increased deterioration of road surface and higher fuel consumption for means of transport
	Lifted	Longer runway length at the airport and more fuel needed due to less dense air
	Lifted	Longer travel time due to speed restrictions
Extreme weather events (heat, frost, droughts, floods, winds, hail storms, more frequent and intense heavy rains)	Average	Infrastructure deformations caused by heatwaves, storms, floods and snow variations: damage to roads, railways, airport runways, pipeline system, cycle paths and sidewalks, bridges and viaducts.
	Average	Reduced circulation of public transport and/or higher costs that will primarily affect vulnerable groups
	Average	Delays in travel schedules and calendars
	Average	Reduced visibility due to fog, snow, loss of manoeuvrability, obstruction of access routes, use of chemical dispersion treatment

Source: UpdatedNDA (2020), expert assessment

Climate change priorities in the energy sector of the Republic of Moldova

Sector	Priority	Main activities to support the energy sector
1	2	3
Energy	Ensuring secure, clean and affordable energy	<p>Reducing the incidence of energy poverty, largely by implementing measures to help reduce energy costs and make energy consumption more efficient</p> <p>Promoting the development of 'green' energy. Stimulate interest in the production and consumption of 'green' energy by harnessing renewable energy sources (wind turbines and hydrological installations, photovoltaic systems, solar panels for space and water heating systems), including the use of technologies for the efficient and clean production of biomass, as well as facilitating the connection of generating installations with existing distribution capacities</p> <p>Promoting public lighting modernization projects</p> <p>Promoting climate technologies that can create jobs in the energy sector for both women and men and young people</p>
	Promoting greater resilience of climate-smart infrastructure in the energy sector	<p>Developing quality, safe, sustainable and resilient infrastructure across the country to support economic development and the well-being of the population, with a focus on broad and equitable access for all</p> <p>Construction of energy storage facilities for wind and photovoltaic power plants</p> <p>Promoting centralized electricity generation (solar photovoltaic systems, hydraulic installations, microhydroelectric stations, etc.)</p> <p>Promoting energy efficiency (e.g. use of modern energy generation and transport technologies, thermal insulation of buildings, construction of refrigerating appliances near the TEC and production of cold steam to preserve fruit and vegetables, etc.)</p> <p>Restoration of substation equipment in distribution networks designed for defrosting or introduction of new defrosting technologies</p> <p>Improve the robustness of the electricity transmission system and distribution infrastructure</p> <p>Optimisation of heat supply by establishing free economic zones close to the TEC for the economic production of sectors using steam or hot water in technological processes (greenhouses, absorption chillers, processing of agricultural raw materials, etc.)</p> <p>Promoting climate-resilient buildings and infrastructure and increasing their energy efficiency performance</p> <p>Examination of current building standards to ensure the resilience and energy efficiency of buildings as well as the presence of additional mitigation effects</p> <p>Contribute to the development of a robust network of climate-smart infrastructure projects</p>
Transport sector (fuel consumption aspects)	Improve understanding of climate change risks and support planning capacities for climate-resilient infrastructure in the transport sector	<p>Organizing trainings on the impact of climate risks for decision makers managing the construction of transport infrastructure</p> <p>Carrying out regular assessments of the level of resilience of transport infrastructure to the impacts of climate change;</p> <p>Creating a research-analysis-assessment platform on climate change risks with impact on transport infrastructure, with the involvement of insurance companies in order to select the best mechanisms</p> <p>Informing the target and general public about climate risks in the transport sector using geo-referenced data on climate hazards, social and gender vulnerabilities, risk mapping covering different threat scenarios, other tools</p> <p>Conduct research on the design and development of advanced materials and technologies to increase the resilience of roads, railways, aerodromes, ports to climate hazards</p> <p>Adjusting urban planning and land use to climate change risks for transport infrastructure (roads, bridges, railways, waterways, aerodromes)</p> <p>Promote funding schemes to support climate change actions addressing specific needs, geographical areas or other transport sector specific elements</p>

1	2	3
		Conduct gender impact assessment in the implementation of infrastructure projects, collect gender-disaggregated data, as well as the specific needs of men, women, children, persons with disabilities and other vulnerable groups, to ensure an inclusive and equitable approach. Identify and address differences in access to and use of infrastructure, thereby promoting equal opportunities and reducing inequalities among diverse social groups
	Improving access to a climate-resilient and safe public transport system	Ensure access for all citizens to safe transport systems at fair, accessible and sustainable prices for all, and improve road safety, in particular by expanding the public transport system, taking into account the distinct needs of women, men and persons with disabilities, for vulnerable groups, ensuring accessibility, safety and inclusion for all social groups Promoting a well-developed network of cycle paths, accessible pedestrian paths Promoting more sustainable consumer behaviour in the use of transport
	Building sustainable transport infrastructure	Implementation of adaptation measures to combat the effect of thermal variation: heat-resistant streets and highways, landscape protection, heat-resistant paving materials, rutting; modifying the construction schedules so as to work in the cooler parts of the day; design designed for the highest temperatures used in the replacement of old elements or in new constructions; adaptation of cooling systems Promoting and implementing adaptation solutions for extreme precipitation volumes, such as weather-resistant paving materials and coating with more rut-resistant bitumen; the use of the most efficient technologies to ensure the sealing and renovation of asphalt concrete; wider use of efficient road maintenance methods, including preventive and corrective maintenance; improving flood protection; wider use of water flow monitoring sensors; modernisation of road sewerage systems and improved collection and disposal of rainwater from roads; indentations or slopes in the pavement; implementation of higher standards for water discharge capacity for new transport infrastructure and major rehabilitation projects Identify and implement corporate leadership and advanced technology models for transport infrastructure management in response to the impacts of climate change Purchase of equipment necessary for cleaning and widening river beds and development of a navigation monitoring system, etc. Contribute to the development of a robust network of climate-smart infrastructure projects designed to adequately reflect the distinct needs of women, men, girls, boys, persons with disabilities and other vulnerable groups

Source: UpdatedNDA (2020), expert assessment

Efforts will thus be made to move towards a more coordinated and integrated approach to incorporating climate change issues into the energy policy of the Republic of Moldova (e.g. through the active involvement of the Climate Change Coordination Mechanism led by the National Climate Change Commission).

Some policies in the energy sector of the Republic of Moldova have been officially validated by 2020, while a few policies cover the period up to 2030. Therefore, in the process of identifying cross-sectoral and sectoral adaptation priorities, the draft policy documents, the legislative and regulatory framework that went through various stages of public consultations and government approvals were taken into account.

The main systemic barriers for greater political engagement in addressing climate change mitigation issues in planning actions in the energy sector include:

- insufficient prioritisation of climate change issues in the national energy policy agenda;
- insufficient knowledge of energy decision-makers about the magnitude of climate change impacts and the threat to economic growth and resilience of energy infrastructure;
- lack of funding;
- Lack of capacity to design a complex policy and implement it.

National actors benefiting from engagement and participation in actions of the Global Agenda for Climate Change have a limited level of awareness and knowledge about the trends and opportunities presented in the Global Agenda for Sustainable Energy, in particular about opportunities related to a range of information, tools, technical assistance and project financing.

Current legislation and policy documents in the energy sector in the Republic of Moldova include the following obstacles:

- climate impacts are insufficiently addressed in laws and policy documents related to the energy sector;
- the lack of a specific reference to climate change in many laws hampers the development of mitigating actions relevant to the energy and energy efficiency sectors in the Republic of Moldova, as the responsible authorities cannot apply for funding for climate change-related activities;
- the sectoral strategies do not take into account or make a direct link to climate change and energy efficiency, energy security considerations in the proposed sectoral measures and targets, even when these targets are directly affected by climate variability and change.

Table 51 outlines the barriers and gaps to climate change mitigation at sectoral level in the Republic of Moldova.

Table 51

Sectoral Climate Change Mitigation Barriers and Gaps in the Republic of Moldova

Sector	Favourable environment	Organisational environment
Energy	<ul style="list-style-type: none"> – Limited integration of mitigation measures in the development of company plans, national and sectoral plans (energy efficiency, renewable energy deployment) – Lack of target requirements on climate mitigation in legal documents related to the energy sector 	<ul style="list-style-type: none"> – Limited ability to provide training and exchange of experience with other energy organisations on best practices and techniques to reduce institutions' vulnerabilities to climate change – Need to develop a coordination mechanism with service providers to ensure the flow of information to support operational activities in the energy sector

Sector	Favourable environment	Organisational environment
	<ul style="list-style-type: none"> - Limited financial and institutional capacity to improve energy efficiency and renewable energy governance and implementation capacity - Limited capacity building and training for workers and service providers (with a focus on energy management, energy audit, sustainable strategic planning) 	<ul style="list-style-type: none"> - Limited capacity to conduct economic analyses of the costs and benefits of climate change mitigation interventions to support the increased uptake of new technologies and approaches in energy policy planning - Climate change mitigation is currently not a job opportunity in the energy sector
Transport sector (fuel consumption aspects)	<ul style="list-style-type: none"> - The financial resources of the Road Fund are not channelled towards climate-related risk research and/or impact assessment, capacity or planning for the transport sector and a change in the laws underpinning its governance is needed - Technical standards for the design, construction and operation of transport infrastructure need to be adapted to the potential impact of climate change as well as to new modes of urban mobility - Inadequate methodologies for measuring the climate impact of related policies and plans and available financial resources - Insufficient management capacities (financial, technical and commercial) in the transport infrastructure maintenance system 	<ul style="list-style-type: none"> - Limited technical capacity to organise and create the technical options needed to adapt to climate events - Lack of adequate facilities to enable entities to rehabilitate transport infrastructure, with a focus on more efficient use of fuel; - Lack of effective policies at national level addressing the removal of obsolete and non-compliant vehicles from the State Register and monitoring of scrapping operations - Limited integration of mitigation measures into company development plans, national, municipal and sectoral plans related to the transport sector - Mitigating climate change is currently not an opportunity for employment in the transport sector

Source: UpdatedCND (2020), Expert assessment

Table 52 reflects the country's cross-sectoral needs and priority actions to be taken to avoid key barriers to climate change mitigation and gaps in the Republic of Moldova.

Table 52

Barriers and gaps on climate change mitigation at cross-sectoral level in the Republic of Moldova

Policy framework and institutional capacities	Systemic barriers and gaps	Organisational barriers and gaps	Individual barriers and gaps
Disaster risk reduction	Climate change mitigation issues are not sufficiently integrated in the legislation on disaster preparedness of the energy sector in the Republic of Moldova	Lack of a complex strategy	Low awareness of disaster risk reduction measures for energy infrastructure
National development policies	Climate change mitigation issues are not sufficiently integrated in the national strategies	Reporting on climate-related issues in the energy sector is not strengthened. The climate change "portfolio" is not seen from	Energy policy makers do not see climate change mitigation as an important issue requiring special attention

	for the development of the energy sector in the Republic of Moldova	the perspective of a holistic and programmatic approach	
Economic and sectoral development policies	Legislation in climate-sensitive sectors does not sufficiently address climate change mitigation as an integral aspect of sectoral policy	Energy authorities do not have a clear legal mandate to carry out complex work on climate issues	Poor climate mainstreaming in energy policy at municipal level
Environmental policies	Climate-related strategies are in their infancy and not yet reflected in sectoral policies	Restructuring and changing programme mandates often result in reduced availability of programme-related information. There is a need to prepare convincing budget requests explaining the development links of energy and environmental programmes	Policy makers and staff still lack expertise to design and implement climate change mitigation programmes and plans for the energy sector
Administration and Public Management	The climate change mitigation portfolio is not sufficiently assessed or monitored. Lack of continuous support for mitigation initiatives in the energy sector leads to continuity gaps	Government agencies may report on the implementation of the programme, but do not necessarily incorporate lessons learned in the future design of the programme. Unclear alignment between the Agency's budget preparation and policy priorities	Sectoral agencies may not have the necessary expertise to analyse the data they collect in the field of energy and climate and to use findings from mitigation projects at sectoral level. Staff often lack specialised training or mentoring
Gender and vulnerable groups	Climate change mitigation in the energy sector is not sufficiently integrated into human health and related social services legislation	Limited understanding of the methodological approach for integrating mitigation in the energy sector at organisational level. Limited disaggregated data on the gender impact of climate change	Low awareness of climate change mitigation and related practices hampers community resilience development
Knowledge management	Lack of indicative policies and/or strategies on knowledge management in the energy sector	Limited understanding within government and key agencies on knowledge management in the energy sector	Climate change and its impacts are not prioritised or used in the daily agenda of government officials in charge of energy policy
Communication and awareness raising	Insufficient policies and/or guiding strategies on climate risk communication and awareness in the energy sector in the Republic of Moldova	Limited understanding within government and key agencies of the need for communication and awareness-raising campaigns	Low awareness of communication practices that can improve community resilience
Gender and vulnerable groups	Lack of clear legal framework and regulations requiring regular gender analyses in the transport sector	Transport institutions do not have clear procedures or trained staff to carry out gender analyses, resulting in the lack of implementation of this practice in the planning and monitoring process	Decision-makers and influencers are not aware of the importance of gender analysis and the impact that such analysis has on the accessibility and use of transport by all categories of citizens
Knowledge management	There is no well-developed institutional framework to empower and coordinate efforts to mainstream gender equality in the transport sector	Lack of specialised departments or qualified gender equality staff in transport institutions	Staff in the transport sector do not receive adequate training or mentoring to integrate gender considerations

Source: Updated NDA (2020)

iii. Analysis of additional public financial support or resources to close identified gaps in point ii

Public funding instruments can play an important role in achieving the objectives of the NECP in the Republic of Moldova. Financial assistance will be needed for the next priority mitigation measures (Table 53).

Table 53

Necessary funding and expected benefits from the implementation of key measures included in the NECP of the Republic of Moldova

Measure	Description	Necessary funding and expected benefits
1	2	3
Capacity limits, maximum shares and capacity categories in the field of renewable electricity up to 31 December 2025, Government Decision No 401/2021	<p>The draft was drawn up with a view to adjusting the legal framework for the application/implementation of the support schemes provided for in Article 34 of Law No 10/2016 on the promotion of the use of energy from renewable sources to the current conditions, namely the fixed price, established by tender, for eligible producers who own or will own power plants with a cumulative power exceeding the capacity limit set by the Government, and the fixed tariff, established and approved by the ANRE Board of Directors for eligible producers who own or will own power plants with a cumulative power not exceeding the capacity limit set by the Government, but which must not be less than 10 kW.</p> <p>The document provides for the allocation of new quotas of renewable electricity generation capacities for a longer period of time, i.e. until 2025, which will be supported by the support schemes provided by the framework law - fixed price and fixed tariff, respectively.</p> <p>At the same time, the project provides for the allocation of shares of intermittent production capacities, such as 310 MW photovoltaic and wind installations, as well as non-intermittent technologies, such as 90 MW cogeneration and hydroelectric installations, for the announced time period.</p>	Based on the data provided by the relevant international institutions, the value of the investments necessary for the construction of all the capacities proposed for allocation by the Government, of the lot of generation units, would be between 400 and 800 million euros, depending on the interest in project development, the cost of technologies and, implicitly, the effect of the "economy of scale"
Environmental Strategy for the years 2024-2030 and the Action Plan for its implementation	Reduce greenhouse gas emissions in the energy sector by at least 25%; a 20% reduction in GHG emissions from housing, industry and agriculture; 15% reduction in GHG emissions from the transport sector	<p>Reducing air pollution, greenhouse gas emissions and vehicle emissions can bring annual benefits of up to 2.5% of GDP.</p> <p>The long-term economic benefits from improved sewerage systems, wastewater collection and treatment would amount to 0.44% – 1.73% of GDP.</p> <p>66.2 million lei in the transport sector, which will determine the reduction of carbon emissions in this sector by 15% compared to the baseline scenario.</p>

1	2	3
		Approximately 329 million lei for the implementation of mitigation measures with direct or indirect impact on greenhouse gas emissions generated in the industrial sector
The Low Emission Development Programme until 2030 and the Action Plan for its implementation, Government Decision No 659/2023	The target is consistent with that set out in the National Determined Contribution (2020) and is geared towards unconditionally reducing total national greenhouse gas emissions by at least 70% by 2030 compared to 1990. The emissions reduction target could be conditionally increased to 88%, subject to the availability of external support	For 2021-2030 – US\$3.3 billion unconditionally and US\$2.5 billion conditionally
Programme for the promotion of the 'green' economy for the period 2018-2020 and Action Plan for its implementation, Government Decision No 160/2018	<p>Objective: promoting the implementation of the principles of the 'green' economy in the Republic of Moldova in harmony with economic development and social well-being. The implementation of the programme will ensure the development of the necessary capacities of all those involved in the planned activities, through the achievement of the following specific objectives, by 2020:</p> <ul style="list-style-type: none"> - ensuring the conditions for good governance and strengthening the institutional and management potential in promoting the "green" economy by 30% at national level - ensuring that measures are promoted to implement the principles of the "green" economy, so that 17% of gross final energy consumption comes from renewable energy sources and energy efficiency is improved by 8.2%; - ensuring the greening of around 30% of small and medium-sized enterprises by providing adequate support for the implementation of the principles of the green economy - ensuring the promotion of organic farming by implementing the principles of the "green" economy and extending the area of agricultural land used for organic farming by around 20%; - reducing air pollution by 30% through the development of sustainable transport; - ensuring the promotion of measures aimed at implementing the principles of the "green" economy in construction by 15% - ensuring the implementation of the principles of resource efficiency and clean production in around 30% of companies and organisations - ensuring that at least 15% of all public procurement meets sustainable procurement criteria - improving students' knowledge of the green economy and sustainable development by at least 30% - raise public awareness of the "green" economy and sustainable development by at least 30% - putting into operation the monitoring system for green growth indicators 	The overall cost for the implementation of the Program is estimated at approximately 122.5 million lei

1	2	3
Second Project to Improve the Efficiency of the Central Heat Supply System (PIESACET-2)	Increasing the efficiency of the centralized heating supply system in Chisinau	92 million euros
Law on the ratification of the Loan Agreement between the Republic of Moldova and the European Bank for Reconstruction and Development for the implementation of the project “Thermal Power System of Balti Municipality” (SA “CET-Nord”), Phase II, Presidential Decree No 289/2021	<p>The aim of the project is to improve the quality of services provided to the inhabitants of the municipality by rehabilitating the domestic hot water supply system, implementing the horizontal distribution system within the block, ensuring thermal comfort in buildings through individual management of heat consumption, optimizing operational costs, remote centralized control and monitoring, reducing thermal energy losses, etc.</p> <p>This investment will help mitigate infrastructure problems and promote systemic decarbonisation. This will encourage a reduction in electricity imports, leading to better energy security and significant reductions in CO₂emissions.</p> <p>The new investment builds on the improvements achieved in the first phase of the project, completed in 2019, which resulted in a significant reduction in natural gas consumption, CO₂ emissions and better quality district heating services.</p> <p>The provisions of the project result from the need to fulfill the commitments assumed by our country towards sustainable development, energy efficiency and the achievement of the objectives of the Energy Strategy of the Republic of Moldova until 2030.</p> <p>Thus, for the implementation of the project, the Republic of Moldova will contract a loan of 15 million euros from the EBRD, as well as a grant of 2 million euros from the Eastern Europe Partnership for Energy Efficiency and Environment (E5P). The total budget of the project is EUR 17 million, with an implementation period of 3 years (2022-2025)</p>	Investments through energy efficiency measures in public buildings worth 75.5 million euros. Estimated savings of 5.2 million euro/year (which could be excluded from the budgets of public institutions or directed by the management of these institutions to cover other needs)
Financing contract between the Republic of Moldova and the European Investment Bank for the implementation of the Project ‘Energy Efficiency in the Republic of Moldova, approved by Law No 89/2022	The project is oriented towards the implementation of a national program of energy rehabilitation of the building stock of the Republic of Moldova, which includes public buildings owned/managed by central and local public authorities, characterized by a low energy performance, due to both the age of the constructions and the acute lack of investment in the works of consolidation and increase of energy efficiency during their use. In order to carry out the Energy Efficiency in the Republic of Moldova Project, the Republic of Moldova has contracted a loan of EUR 30 million from the European Investment Bank (EIB), another loan of EUR 30 million from the European Bank for Reconstruction and Development (EBRD), a grant of EUR 15 million from the European Commission's Neighbourhood Investment Platform through the EIB, as well as EUR 0.5 million, non-reimbursable loan from the Technical Assistance Trust Fund for the Eastern Partnership countries (EPTATF). Thus, the total budget of the project is about 76.9 million euros, of which about 1.4 million euros is the contribution of the Government. Project implementation period: 2022-2027. The main category of	Investments through energy efficiency measures in public buildings amounting to EUR 72 400,000. Estimated savings of 5.2 million euro/year (which could be excluded from the budgets of public institutions or could be directed by the management of these institutions to cover other needs)

1	2	3
	<p>project beneficiaries are public institutions, namely 10 medical institutions of national importance (stage I) and public (social) institutions of local/municipal importance (kindergartens, schools, municipal and district hospitals) (stage II). The specific objectives of the project are to improve the energy performance indicators of buildings, focusing on improving/rehabilitating the building envelope, heating, ventilation and air conditioning systems, implementing lighting systems, thermal energy distribution, harnessing renewable energy sources, improving the indoor comfort of buildings, reducing CO₂ emissions, thus mitigating the impact on climate change. At the same time, building consolidation works (walls, foundation, etc.) recommended for safety and health reasons are implemented</p>	
<p>National programme in the fields of research and innovation for the years 2024-2027 and the Action Plan for its implementation</p>	<p>Achieving the development objectives set out in the National Development Strategy through a joint effort of central authorities, research and innovation organizations, with the involvement of the business environment. Particular emphasis will be placed on integration into the European Research Area (ERA) by progressively transforming the internal functioning of research and innovation organisations and developing links with their EU counterparts, including by making full use of the opportunities arising from the status of country associated to Horizon Europe. Research includes strategic priority "innovative technologies, sustainable energy, digitalisation"</p>	<p>The estimated costs for the implementation of projects selected through competition according to priorities and strategic directions are estimated at 0.63% of GDP in 2027</p>
<p>The Net-Zero Carbon Commitment with Science-Based Targets, signed by the Holcim Group on 21 September 2020, during Climate Week in New York</p>	<p>With a view to implementing the "Net Zero Carbon" commitment with "Science-Based Targets" by 2030, according to the Holcim Group Investment Roadmap launched in 2019, the Holcim Group declares its ambition to increase its CO₂ mitigation targets by reducing the intensity of emissions from cement production, up to 475 kg of net CO₂ emissions per tonne of cement produced</p>	<p>Estimated costs and benefits: 160 million Swiss francs by 2030</p>
<p>Government Decision No 561/2020 approving the Regulation on packaging and packaging waste</p>	<p>Partial transposition of Directive 94/62/EC of the European Parliament and of the Council of 20 December 1994 on packaging and packaging waste. Priority measures to prevent the generation of packaging waste and principles to reduce the final disposal of packaging waste through re-use, recycling and recovery are set out in the Regulation.</p>	<p>The costs paid by producers per tonne of materials placed on the market range from 14 euro/tonne (United Kingdom) to 200 euro/tonne (Austria), with an average of EUR 92/tonne; for the Republic of Moldova, the costs shall be estimated on the basis of the respective feasibility studies;</p>
<p>Government Decision No 836/2020 approving the Regulation on the granting of direct payments per head of livestock</p>	<p>Support for the agricultural sector</p>	<p>For the implementation of the program it was planned to allocate 140 million lei from the state budget</p>
<p>The Land Improvement Programme to ensure sustainable management of</p>	<p>Achieving the objectives set by 2025 on preventing, halting soil degradation and increasing fertility, combating erosion on 482 hectares; tackling deep erosion on 1900 hectares; combating wind erosion (deflation) on 170 hectares; improvement</p>	<p>4,278 billion lei were planned, of which 59,626 million from the state budget and 4,219 billion from</p>

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soil resources for the years 2021-2025 and the Action Plan for the years 2021-2023 for its implementation, approved by Government Decision No 864/2020	of the soil on 68.5 thousand hectares; chemical improvement on 500 hectares; improvement of water (irrigation installations) and extension of irrigated areas by 68 thousand hectares; preserving and increasing soil fertility on 5 thousand hectares	external sources; the benefits correspond to the objectives set out above
Environmental Strategy for the years 2024-2030 and the Action Plan for its implementation	Extension of forest areas up to 15% of the country's territory, of natural areas protected by the state up to 8% of the territory	83 million lei
The Low Emission Development Programme of the Republic of Moldova until 2030 and the Action Plan for its implementation, approved by Government Decision no. 659/2023	3.8 thousand hectares afforested annually; 5.9% of the total area (860 thousand hectares) of degraded land improved by afforestation; 3.6% of the total area of degraded land planted with forest vegetation; 12 thousand hectares of protective forest strips planted, 10 thousand hectares of energy forest crops planted	2,597 million lei from the state budget, 1,621.4 million lei from external assistance
The Horticulture Development Programme for 2021-2025 and the Action Plan for its implementation, approved by Government Decision No 840/2020	This document will contribute to the objective of guiding investments to strengthen the value chain and processing infrastructure of agricultural production and modernizing the processing industry by creating a system of small and medium-sized enterprises for processing, storing and packaging agri-food products, set out in the Plan for the agricultural sector and the food industry.	3,026 million lei for the establishment of multi-annual plantations and 391 million lei for the grubbing up of aging multi-annual plantations
Project of the Forestry Strategy of the Republic of Moldova on Climate Change for 2018-2025 and Action Plan for its implementation	Extension of the areas covered with forest vegetation outside the forest fund by 13.5 thousand hectares; creation of rural and urban green spaces on 5 thousand hectares; planting energy forest crops on an area of about 10.0 thousand hectares	160.3 million lei for all activities
Draft National Plan for the expansion of areas covered with forest vegetation for the years 2019-2024	Extension of forest vegetation on a total area of 13.0 thousand hectares from the account of degraded land, as well as providing 71.5 million pieces of planting material for extension works	545.8 million lei for the implementation of all activities
Concept of the National Reforestation Campaign 2022-2031 (draft)	Extension of forest vegetation on a total area of 76 thousand hectares of new land, including 66 thousand ha of forest plantations (forests) and 10 thousand hectares of strips of protection of riparian forests and agricultural land. The structure by type of property is as follows: state property – 9.12 thousand hectares or 12.0%, ATU property – 46.2 thousand hectares (60.8%), private property – 20.68 thousand hectares (27.2%). The planting needs within the Campaign will include about 48 million seedlings annually (40 million for planting; 8 million repair mark-ups), total for the whole period – 450 million saplings	The cost of implementing the Program until 2022 is 383 273 million lei, of which 374 585 million from the state budget and 8 688 million from other sources, including the MAC-P project of the World Bank (5 163 million lei)

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Environmental Strategy for the years 2024-2030 and the Action Plan for its implementation	The overall objective of the strategy is to create an effective environmental management system, including (Specific Objective 7 Creating an integrated air quality management system, reducing emissions of pollutants into the atmosphere by 30% by 2023 and greenhouse gases by at least 20% by 2020 compared to the baseline scenario. In the waste sector, an estimated 15% reduction in GHG emissions compared to the baseline is expected by 2020	Approximately 110 million lei are planned for the implementation of actions and measures to achieve these objectives. The action plan also includes other legislative measures for which the allocated budget is not indicated
Waste management strategy in the Republic of Moldova for 2013-2027, approved by Government Decision no. 248/2013	The 2013-2027 waste management strategy promotes a new way of collecting municipal waste, recovering reusable materials, protecting the environment and implementing a unitary street sanitation programme to help reduce the amount of waste landfilled in these areas by establishing an appropriate treatment system for each type of waste, with the aim of protecting the environment. The overall objectives of the Strategy are: development of integrated household waste management systems by harmonizing the legislative, institutional and regulatory framework to EU standards; territorial division of the country into 8 waste management regions; increasing the amount of waste recycled and recovered by 20-30% by 2025; reducing the amount of biodegradable waste landfilled; development of regional waste disposal infrastructure through the construction of 7 solid domestic landfills at regional level and 2 stations for mechanical-biological treatment in Chisinau and Balti municipalities; recultivation of at least 50% of non-compliant landfills by 2027	The cost of implementing the provisions of the strategy on the development of municipal waste management infrastructure indicates EUR 145 168,000 with the support of internal and external funding attracted and implemented for the development of institutional capacity, infrastructure and waste management services
Draft National Programme for Waste Management 2023-2027 and Action Plan for its implementation	<p>The national programme for waste management for 2023-2027 is prepared with a view to implementing the Government Action Plan for 2020-2023, approved by Government Decision No 636/2019, and will contribute to achieving the objective of developing by 2027 an economically efficient integrated waste management system that ensures the fundamental right to a healthy and safe environment and the achievement of the main sustainable development indicators included in the country's strategic framework for sustainable development.</p> <p>The programme contains specific objectives for the management of each type of waste and the achievement of the general objectives. In the context of municipal waste and climate change mitigation, this includes measures to promote and implement selective waste collection systems in all urban and rural areas, where possible, in both the domestic and manufacturing sectors, as well as in sorting, composting and recycling facilities. It is also planned to develop municipal waste disposal capacities (construction of 8 regional landfills and 2 mechanical biological treatment plants) equipped with methane recovery facilities.</p> <p>The programme provides for measures to reduce the amount of biodegradable municipal waste by 15% of the total amount of municipal waste, by developing the system for the collection at source of biodegradable waste for residents and other entities, including by implementing the selective collection of food/kitchen waste</p>	The modernisation of the integrated municipal waste management infrastructure in the period 2026-2030 will require approximately EUR 200 million financed by the EIB/EBRD loan and the compensation of approximately 25% of the investments will be covered by the contribution from the state budget

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	and developing capacities for the separate treatment of food/kitchen waste. Improving aerobic and anaerobic processes and building composting and fermentation capacities for waste can indirectly contribute to minimising the generation of waste as well as its sustainable disposal and thus reduce GHG emissions	

Two categories of funding are needed to meet GHG emission reduction targets in the context of low-emission development. The first should ensure that an adequate level of GHG emission reduction capacity is achieved. The second comprises the investments needed to implement the measures and technologies contributing to the proposed GHG reductions.

The technical and capacity-building needs in the field of climate change are currently valued at USD 1 530 thousand, the technology transfer needs are valued at USD 675 thousand, and for the implementation of NAMA, which aims at reaching the nationally determined conditional contribution – USD 4.9 billion, according to the ERDF 2030.

The investments required for the unconditional implementation of measures and technologies that lead to GHG reduction and, at the same time, ensure the sustainability of the development of the national economy, are valued at around USD 8.3 billion for the period 2021 – 2030, according to the 2030 PDER.

The cost of implementing conditional (supported) actions for the same period is 2.6 billion U.S. dollars. The estimated total cost of unconditional and conditional actions included in the PDER for 2021-2030 is USD 10.9 billion (Table 54).

Annex 3 consolidates the expected specific costs for key energy efficiency and low carbon technologies and their projections until 2050.

Table 54

**Financing needs in the context of insurance
the Low Emission Development of the Republic of Moldova**

No. crt	Odds	Necessary assistance
	Total technical and capacity development needs, thousands of US dollars	1.530
1.	Supporting the country's capacity building capacity and strengthening the national inventory system	50
2.	Strengthen national capacity to develop GHG inventory for the LULUCF sector, including developing the land use matrix and completing the transition to the 2006 IPCC guidelines for the LULUCF sector	30
3.	Strengthen the capacity of the national network of research institutions to conduct studies, research and assessments to identify additional mitigation opportunities, including financial and organisational justifications in terms of social, technical and economic impact	170
4.	Strengthen national capacity to prepare viable NAMA project proposals in the transport, industry and agriculture sectors to attract investment	100
5.	Strengthening the policies, legal framework and management of the forestry sector in the Republic of Moldova	50
6.	Strengthening the capacity of waste stakeholders to implement EU directives and regulations	40
7.	Facilitating dialogue for the transfer of experience and lessons learned, as well as training relevant stakeholders and experts within the administrative structure of the Republic of Moldova for the successful implementation of the national MRV system, with a special focus on MRV under the PDER and NAMA	40
8.	Engaging and mobilising the private sector in low-emission and climate-resilient actions	300
9.	Mobilization of investments for the implementation of the NDC of the Republic of Moldova	300
10.	Integrate mitigation and adaptation measures and targets into business development plans and national and sectoral energy sector plans	200
11.	Training of stakeholders and promotion of workshops dedicated to afforestation, land restoration practices, creation of silvopastoral systems and sustainable grassland management	50
12.	Training of stakeholders, including through workshops on renewables and energy efficiency, and development of appropriate technical and financial demonstration tools (in the context of NAMA on renewables and energy efficiency)	200
Financial needs for the implementation of NAMA actions, millions of US dollars		

	Total including	4.838
1.	Promotion of low capacity TECs in the Republic of Moldova	23
2.	Promotion of heat pumps in the Republic of Moldova	180
3.	Promotion of wind energy in the Republic of Moldova	640
4.	The use of solar energy for the production of domestic hot water in the Republic of Moldova	606
5.	Promoting efficient lighting in the Republic of Moldova	236
6.	Hybrid and electric buses and minibuses in Chisinau	344
7.	Replacement of clinker in cement production	100
8.	Reduce GHG emissions in enteric fermentation by including dried grape marc in rations	228
9.	Implementation of the soil conservation works system in the Republic of Moldova	5
10.	Afforestation of degraded land, riparian areas and protective curtains in the Republic of Moldova	144
11.	Use of energy willow for thermal energy production in the Republic of Moldova	89
12.	Promotion of energy produced from waste in the Republic of Moldova	15
13.	Other unconditional NAMA actions	2.271
The need to implement technology transfer, thousands of US dollars		
	Total including	675
1.	Institutional assistance in promoting advanced technologies	250
2.	Training stages on advanced knowledge and technologies in the operating process	125
3.	Identifying the most relevant and effective financial instruments to be applied by financial institutions in the Republic of Moldova in promoting and implementing climate investments	300

Table 55 consolidates the analysis of the current availability of energy efficiency and decarbonisation financing mechanisms in the Republic of Moldova and the priorities for their improvement.

Table 55

Analysis of the current availability of energy efficiency financing mechanisms, decarbonisation in the Republic of Moldova and priorities for their improvement

Measure	State of play of the adoption of measures in the Republic of Moldova	Impact of measures	
Market-based instruments			
Emissions trading	Not implemented	Lifted	High priority for improvement
Scheme of energy efficiency obligations	Implemented	Environment	Medium priority for improvement
Sustainable public procurement	Not implemented	Lifted	Medium priority for improvement
Incentives facilitating third party funding/ESS	Partially implemented	Lifted	High priority for improvement
Incentives for innovative technology manufacturers	Partially implemented	Environment	Medium priority for improvement
Technology introduction schemes	Partially implemented	Environment	Medium priority for improvement
Green certificates	Not implemented	Lifted	High priority for improvement
Auctioning system for the promotion of renewable sources	Partially implemented	Environment	Medium priority for improvement
Tariffs			
Preferential feed-in tariffs for renewables	Implemented	Lifted	Good level of policy adoption

5.4. Impact of planned policies and measures described in Section 3 on other Contracting Parties and/or Member States of the European Union and regional cooperation, at least until the last year of the period covered by the plan, including comparison of projected trajectories with existing policies and measures

i. Impact on the energy system of neighbouring States and other Contracting Parties and/or Member States of the European Union, to the extent possible

The key factor of the NECP influencing the regional energy sector is related to the implementation of policies and measures in the gas and electricity markets of the Republic of Moldova.

Apart from non-large-scale renewable energy capacities, the balance of electricity demand in the Republic of Moldova is provided from Ukraine and RT (from SAÎ “Moldavskaya GRES” thermal power plant, owned by the Russian company “Inter RAO”), which together cover about 80% of electricity demand. Traditionally, the Republic of Moldova relies on Ukraine both for reserves and for balancing its production. This dependency severely limits its ability to integrate variable renewable energy sources into the electricity grid. Therefore, most of the flexibility in the Moldovan electricity system depends on the Ukrainian electricity system.

The Republic of Moldova has taken concrete measures to diversify the supply of natural gas and electricity, including by creating interconnections with Romania, which has contributed to improving energy security.

In recent years, the Republic of Moldova has made notable progress in diversifying natural gas supply routes and adopting EU legislation to liberalize the natural gas market. Thanks to new national and cross-border gas transmission and distribution infrastructure, increased access to energy markets in neighbouring countries and changing regional energy flows, the country now has access to a number of new possibilities to mitigate its high dependence on natural gas supplies.

By continuing to actively restructure the sector, liberalising the internal market and harmonising with EU legislation, the Republic of Moldova is successfully moving towards achieving the higher connectivity and interoperability needed to exploit these opportunities.

Strengthening cooperation with the EU institutions is a crucial factor to increase cooperation mechanisms in the gas sector, to ensure the exchange of best practices, the exchange of information and the coordination of efforts in planning preventive actions and emergency response.

As regards the process of planning preventive actions in the gas sector, there are several important steps that the Republic of Moldova can take to increase cooperation with other EU Member States:

- once potential risks are identified, the Republic of Moldova should work with other Contracting Parties to develop a comprehensive emergency prevention and response plan. The plan should set out the roles and responsibilities of each contracting party and establish communication and coordination protocols;
- stakeholders may organise joint training and exercises with other Contracting Parties in order to ensure adequate preparedness to respond to emergency situations. These exercises can help identify gaps in the plan and improve communication and coordination;
- The Republic of Moldova intends to cooperate with other Contracting Parties to exchange best practices and lessons learned from previous emergencies.

The complex dependence on natural gas supplies and transit from Russia, combined with its control over the natural gas system, creates too high a connection and a number of associated security risks.

The Republic of Moldova has taken concrete steps to diversify its gas supply in cooperation with the EU contracting parties by creating interconnections with Romania. The completion of the Iasi-Ungheni-Chisinau gas pipeline, together with the possibility to use the trans-Balkan route for the reverse regime, are the main technical options for diversifying the sources of gas supply in cooperation with the EU Contracting Parties.

In order to allow sufficient natural gas flows to the Republic of Moldova during the cold season, Romania, with the support of other EU partners, is building on its territory the Onești – Gherăiești – Lețcani natural gas pipeline and two compressor stations in Onești and Gherăiești. The completion of this project will allow the supply to the Republic of Moldova of 1.5 billion m³/year of natural gas, with sufficient pressure and flow.

Another option to support sustainable security of gas supply is to explore the possibility of using natural gas storage facilities in Ukraine and Romania to cover demand in exceptional circumstances or peak demand, as was the case in 2022.

In December 2019, the Memorandum of Understanding between the Ministry of Economy and Infrastructure of the Republic of Moldova and the Ministry of Energy and Environmental Protection of Ukraine on cooperation in the field of security of gas supply was signed.

In February 2022, the Memorandum of Understanding between the Ministry of Infrastructure and Regional Development of the Republic of Moldova and the Ministry of Energy of Romania on cooperation in the field of energy security was signed.

Recent changes to regional and domestic gas infrastructure and internal market reforms may lead to a new reality where security of gas supply can be significantly improved.

In July 2021, LTD ‘Moldovatrangaz’ joined the Memorandum of Understanding on trans-regional cooperation for the development of an integrated gas market for South-Eastern and Eastern Europe (SEEGAS).

In 2019, LTD ‘Moldovatrangaz’ carried out the reconstruction works of the gas metering station in Causeni, in order to ensure the conditions for the reverse regime through the Trans-Balkan gas pipeline, which was considered one of the main alternative options for the supply of natural gas to the Republic of Moldova if a gas transit agreement between the Russian Federation and Ukraine had not been concluded. Reverse technical capacity on the main transit route is 18 million m³/day.

In December 2019, LTD ‘Moldovatrangaz’ concluded an interconnection agreement with the Ukrainian natural gas TSO (GTSOU) in accordance with the Network Code for Interoperability and Data Exchange Rules. The agreement covers the interconnection points Grebeniki, Causeni, Alexeevka and Ananiev and provides a virtual point for delivery to Moldovan consumers near the border.

LTD "Vestmoldtrangaz" has concluded an interconnection agreement with the adjacent TSO Transgaz Romania for the Ungheni interconnection point.

A burden-sharing agreement was signed between the Republic of Moldova and Ukraine to increase the flexibility of the functioning of the natural gas supply system of the Republic of Moldova and provide additional options to mitigate risks related to the supply of natural gas.

Despite high transit tariffs, there is interest from private companies in Ukraine and Romania, which could increase natural gas transit volumes with associated reductions in transport costs. LTD Moldovatrangaz has signed contracts for the provision of services in the natural gas transmission system with 14 international traders, 11 of which have tested the dispatch of natural gas in different directions on the transmission network of the Republic of Moldova.

Both LTD ‘Moldovatrangaz’ and LTD ‘Vestmoldtrangaz’ have joined the Regional Booking Platform (RBP) developed by FGSZ, the Hungarian TSO. The Republic of Moldova intends to change the measurement of natural gas in its transmission system to energy units. Since November 2022, capacity allocation auctions have been conducted in accordance with the Network Code on Capacity Allocation Mechanisms (CAM), which allows fair and non-discriminatory access for all system users through an electronic platform certified by ENTSO-G. The gas network codes have been transposed, allowing the backhaul gas transmission service through interconnection points (P1). Overall, this creates a positive trend towards increased interoperability and regional market integration in cooperation with TSOs in Romania and Ukraine.

In August 2020, GTSOU carried out a South-North transport test, requested by a private company, to enable the delivery of natural gas from the Revithoussa LNG terminal in Greece via the Balkan pipeline, through Bulgaria and Romania, to Ukraine. The technical viability of this route has been demonstrated, although commercial viability is still unclear. The above developments indicate

a solid political basis for regional cooperation and integration with regional markets to make the Republic of Moldova an important transit hub for the region.

As of 2023, the Republic of Moldova, as a Contracting Party of the Energy Community, will be able to buy natural gas from a common EU energy platform. The EU mechanism for demand aggregation and joint purchasing of natural gas is important to improve security of energy supply. Participation in the EU Mechanism is dedicated to all natural gas undertakings consuming natural gas established in the Energy Community and fulfilling the criteria set out in Council Regulation (EU) 2022/2576.

Thus, the Republic of Moldova, which until recently was exclusively supplied from Ukraine and TR, will have access to a number of supply possibilities in cooperation with the EU Contracting Parties and Ukraine. These include:

- traditional supply of Russian natural gas through Ukraine;
- the purchase of natural gas on EU markets to be supplied through Ukraine or Romania;
- the purchase of Russian natural gas supplied through TurkStream and the Trans-Balkan Reverse Regime (FIGTB) at the Romanian-Ukrainian border (SMG Isaccea/SMG Orlovca);
- access to LNG markets, in particular after the early completion of the Alexandroupolis LNG terminal and the Bulgaria-Greece interconnector.

In accordance with Article 108 of Law No 108/2016, in order to ensure security of gas supply, the competent authorities of the Republic of Moldova shall cooperate with the competent authorities of the countries that are part of the Energy Community, promoting bilateral and regional cooperation.

Collaboration refers to situations that cause or may cause serious disruptions in the supply of natural gas both to the Republic of Moldova and to another country that is a Contracting Party of the Energy Community.

Bilateral and regional cooperation shall aim in particular at:

- coordination of measures concerning the security of gas supply in exceptional circumstances;
- identification of interconnections, their development and upgrading, including the provision of bi-directional capacities;
- identification of the conditions and practical arrangements for mutual assistance.

In accordance with EU Regulation 2017/1938, the Energy Community Secretariat shall coordinate the actions of the competent authorities related to security of supply for the Contracting Parties, including the Republic of Moldova, through the Security of Supply Coordination Group.

Cooperation and solidarity mechanisms have also been developed between the Contracting Parties of the Energy Community and the Republic of Moldova.

The specialized central body of the Republic of Moldova ensures a regional collaboration with the competent authorities of the neighboring countries in order to ensure measures to prevent and reduce the impact of possible exceptional situations in the field of gas supply. Transmission system operators shall ensure collaboration with adjacent transmission system operators in neighbouring countries in order to prevent possible disruptions in the supply of natural gas and minimise the damage that may be caused in such a situation.

In order to ensure security of gas supply, the specialised central body together with the transmission system operators will work with the competent public authorities and adjacent transmission system operators in neighbouring countries (Romania and Ukraine).

The central specialised body, together with the transmission system operators, shall participate in the development of joint preventive action plans and joint emergency plans, in collaboration with the competent public authorities and adjacent transmission system operators in neighbouring countries.

The contingency plan for the supply of natural gas to the Republic of Moldova, having regard to the requirements of Articles 8 and 10 of Regulation (EU) 2017/1938 concerning measures to safeguard the security of gas supply, includes measures that meet the following conditions:

- no measure restricts natural gas flows on the natural gas market at national level as well as within the Energy Community;

- the supply of natural gas to another Contracting Party of the Energy Community is not endangered or seriously affected.

In the event of an exceptional situation, the competent authority for natural gas undertakings of the Republic of Moldova, as well as other public authorities, shall have the following obligations and responsibilities:

- Early Warning Situation: if the early warning situation cannot be adequately managed by applying measures at national level, at the Commission's direction, to communicate this to the Chair of the Energy Community's Security of Supply Coordination Group in order to convene a meeting of the Group to examine the situation created and to assist the Republic of Moldova in coordinating the measures implemented at national and regional level to deal with the early warning situation;

- state of alert: if the alert situation cannot be adequately managed by applying measures at national level, at the Commission's direction, to communicate this to the Chair of the Energy Community Security of Supply Coordination Group, in order to convene a meeting of the Group to examine the situation created and to assist the Republic of Moldova in coordinating the measures implemented at national and regional level to deal with the alert situation.

- emergency situation: if the emergency situation cannot be adequately managed by applying measures at national level, at the Commission's direction, to communicate this to the Chair of the Energy Community Security of Supply Coordination Group, to convene a meeting of the Group to examine the situation and to assist the Republic of Moldova in coordinating the measures implemented at national and regional level to deal with the emergency situation.

ii. Impacts on energy prices, utilities and energy market integration

The Republic of Moldova depends entirely on imports of energy resources. Moldova's energy consumption is relatively low compared to neighbouring countries such as Romania and Ukraine. Therefore, the impact of the Republic of Moldova on energy prices, utilities and energy market integration of neighbouring countries is likely to be limited.

However, the Republic of Moldova has some potential to influence energy prices in the region by diversifying its energy sources and increasing the production of energy from renewable sources. The Republic of Moldova has made efforts to reduce its dependence on Russian natural gas by building a natural gas interconnector with Romania, through which it has access to alternative sources of natural gas supply on the European market. Moldova also plans to connect its electricity grid with Romania and the EU's internal electricity market, which would allow it to import cheaper and cleaner electricity from other countries. In addition, the Republic of Moldova has a high potential for renewable energy sources, in particular wind, solar and biomass, which could contribute to reducing greenhouse gas emissions and lowering energy costs.

By diversifying its energy sources and increasing renewable energy production, the Republic of Moldova could improve its energy security and resilience, as well as contribute to regional and global efforts to mitigate climate change. This could also have positive effects on energy prices in neighbouring countries, by creating more competition and cooperation in the energy market, as well as reducing reliance on fossil fuels. However, these efforts require significant investment and political support.

iii. Impact on regional cooperation

The planned measures will have an impact on the energy systems of neighbouring countries, including through joint international projects, which will require joint action in the future.

400 kV Vulcanesti – Chisinau line. The project will contribute to increasing the capacity and improving the reliability of the electricity transmission system in the Republic of Moldova, diversifying routes and sources of electricity supply, creating potential opportunities for the development of competitive markets and regional integration.

400 kV Balti – Suceavaleine. The project includes the construction of the 400kV high-voltage electricity transmission line between the city of Balti and the border with Romania, which will be part of the Balti – Suceava interconnection and will include the following components:

- component 1. Construction of a new 400/330 kV substation in Balti and extension of the existing 330 kV substation in Balti;
- component 2. Construction of a 400 kV electricity transmission line between Balti and the Romanian border.

The project will improve the energy security of the Republic of Moldova by accelerating the ongoing integration with ENTSO-E and facilitate the development of regional integration, as the Republic of Moldova will introduce a new route for the exchange of electricity.

OHL project 400 kV Straseni – Gutinas. Currently (since July 2024), the feasibility study is ongoing. This project will receive funding following the signing of a Memorandum of Understanding between the Ministry of Energy and USAID (the value of the investment has not yet been determined). It will increase energy flows between the Republic of Moldova and Romania, as well as energy security.

Maingas pipeline Ungheni – Chişinău. The Ungheni-Chisinau natural gas pipeline is the result of a proposal to extend the existing Ungheni-Iasi natural gas interconnector by 120 km. The general objective of the project “Connecting the natural gas transmission system in Romania with the natural gas transmission system in the Republic of Moldova from Iasi to Ungheni” is to ensure a high level of energy security of the Republic of Moldova and the North-Eastern part of Romania by diversifying natural gas sources.

The plan to ensure the security of gas supply contains provisions regarding the fact that the specialized central body of the Republic of Moldova guarantees a regional collaboration with the competent authorities of the neighboring countries, in order to ensure measures to prevent and reduce the impact of possible exceptional situations in the field of gas supply. Transmission system operators shall ensure collaboration with adjacent transmission system operators to prevent possible disruptions in the supply of natural gas and minimise the damage that may be caused in such a situation.

1. In order to ensure security of gas supply, the specialised central body jointly with the transmission system operators shall liaise with the competent public authorities and transmission system operators of neighbouring countries (Romania and Ukraine), but also with other countries, as appropriate, in particular with regard to:

- coordination of measures related to security of gas supply in exceptional circumstances;
- identification of interconnections, their development and upgrading, including to ensure bi-directional capacity;
- identification of the conditions and practical arrangements for mutual assistance.

2. The central public administration body in the field of energy, together with transmission system operators, shall participate in the development of joint preventive action plans and joint emergency plans, in collaboration with the relevant public authorities and adjacent transmission system operators in neighbouring countries.

3. The contingency plan shall include measures that must meet the following conditions:

- no measure restricts natural gas flows on the natural gas market at national level as well as within the Energy Community;
- the supply of natural gas to another Contracting Party of the Energy Community is not endangered or seriously affected.

4. In the event of an exceptional situation, the Competent Authority, natural gas undertakings and other public authorities shall have the following obligations and responsibilities:

- **Early Warning Situation:** if the early warning situation cannot be adequately managed by applying measures at national level, at the Commission's direction, to communicate this to the Chair of the Energy Community's Security of Supply Coordination Group in order to convene a meeting of the Group to examine the situation and to assist the Republic of Moldova in coordinating the measures implemented at national and regional level to deal with the early warning situation;

- **state of alert:** if the alert situation cannot be managed properly by applying national measures, at the Commission's direction, to communicate this fact to the Chair of the Energy Community Security of Supply Coordination Group, in order to convene a meeting of the group to

examine the situation created and to assist the Republic of Moldova in coordinating the measures implemented at national and regional level to deal with the alert situation;

- emergency situation: if the emergency situation cannot be managed in an appropriate way, by applying the measures at national level, at the Commission's direction, to communicate this fact to the Chair of the Energy Community Security of Supply Coordination Group, to convene a meeting of the Group to examine the situation and to assist the Republic of Moldova in coordinating the measures implemented at national and regional level to deal with the emergency situation.

5. In order to increase the flexibility and resilience of the natural gas supply system, the Republic of Moldova started to store natural gas in Ukraine and Romania during the period 2020-2022.

Through burden-sharing mechanisms with these neighbouring countries, the flexibility of the functioning of the natural gas supply system of the Republic of Moldova will be enhanced, providing additional options to mitigate natural gas supply risks.

6. IMPLEMENTATION STAGES AND FRAMEWORK MONITORING, REPORTING AND EVALUATION

i. Implementation

All competent institutions mentioned in the NECP will be responsible for its implementation.

The implementation of detailed measures and policies in the five dimensions of the NECP requires the involvement of the most important national institutions, efficient management as well as adequate international assistance. In order to achieve the objectives set out in the document, financial support from donors is also needed.

The purpose of the institutional arrangements for the implementation of this NECP is to cover 3 main areas:

- 1) national planning of measures and policies developed within the national regulatory framework and strategic development priorities;
- 2) efficient management of public and donor finances;
- 3) monitoring and control of the implementation of the planned actions set out in this NECP.

ii. Monitoring

The monitoring of the implementation of the NECP will be carried out jointly by the Ministry of Energy and the Ministry of Environment. In order to ensure the monitoring process, by order of the Minister of Energy, a monitoring group will be created, which will periodically evaluate the implementation of policies and measures, as well as the achievement objectives. Based on the information collected and systematized, the group will draft the annual implementation report and submit it to the Government.

National GHG emissions and trends are regularly reported in Moldova's national communications to the UNFCCC (since 2000) as well as in national inventory reports (since 2010). These documents are elaborated based on studies, researches, reports made by national consultants, including with international experience in the field, selected to perform calculations and analysis of retrospective information and with responsibilities to develop short, medium and long-term GHG emission scenarios for each sector, based on macroeconomic development scenarios of the Republic of Moldova.

iii. Reporting and evaluation

As part of the monitoring process, annual monitoring reports will be produced, which will include information on implementation measures and policies, as well as on the progress made towards achieving each individual objective referred to in this NECP. In coordination with the Energy Community Secretariat, the document will be reviewed and updated every two years, starting in 2025. After each iteration, the updated version of the document will undergo a full monitoring, reporting and evaluation process and will be approved by the Government.

Annex 1
Energy balance 2010-2023 total products, ktoe

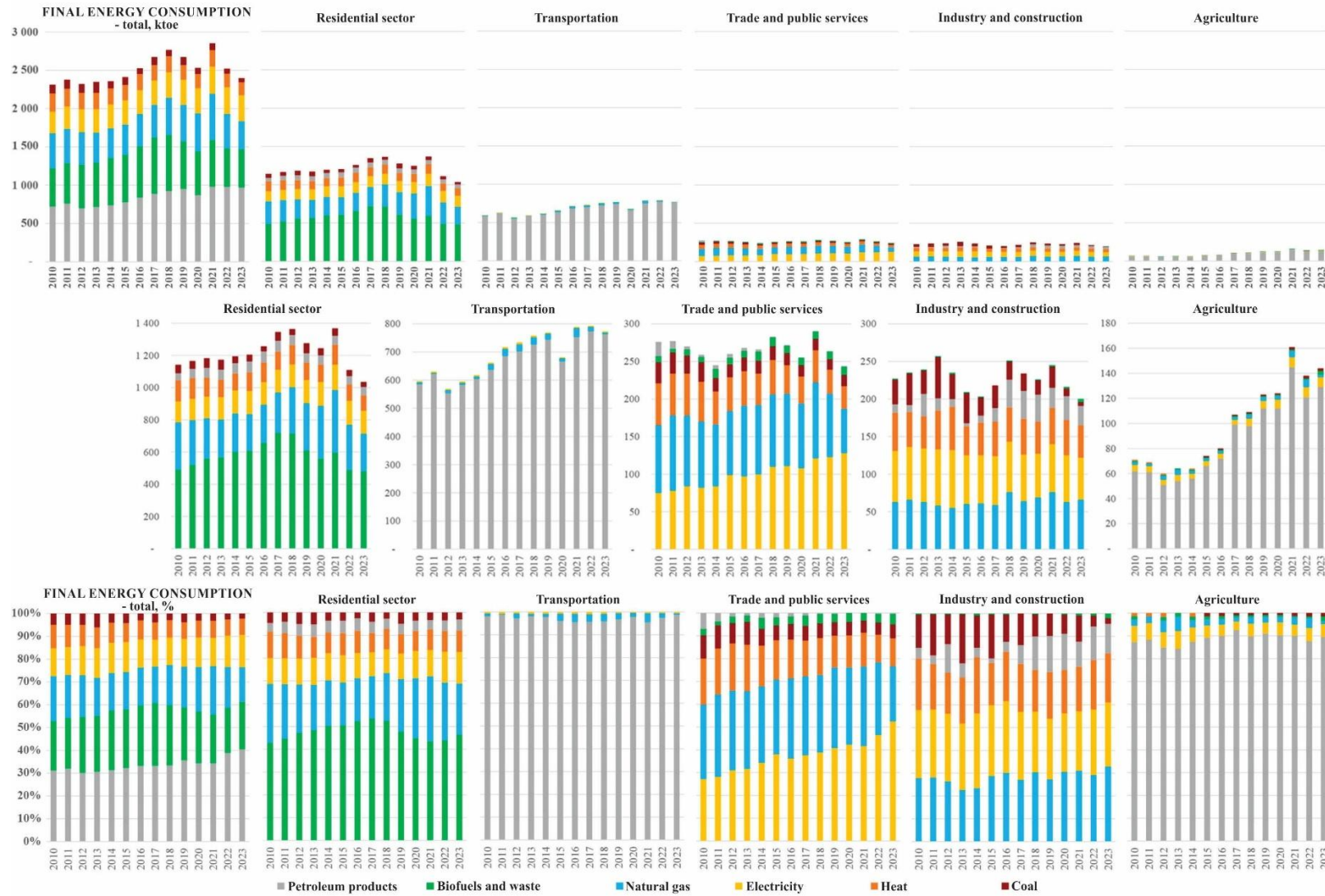
	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Primary production	523	555	594	599	654	655	709	770	798	668	682	761	524	584
Supply from other sources (MGRES)	258	213	209	161	224	283	286	195	219	246	279	296	232	282
Imports	1,813	1,937	1,832	1,924	1,801	1,766	1,818	2,012	2,109	2,031	1,935	2,126	2,231	1,817
Exports	13	14	19	34	22	16	15	34	27	9	21	8	194	101
Bunkers	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Stock changes	52	(15)	8	(7)	12	(2)	(2)	4	33	-	(68)	(60)	(23)	50
GROSS INLAND CONSUMPTION	2,633	2,676	2,624	2,643	2,669	2,686	2,796	2,939	3,066	2,938	2,807	3,115	2,770	2,632
TRANSFORMATION, INPUTS	493	466	444	436	443	415	424	411	430	389	388	427	373	367
Power plants	8	7	3	6	7	4	4	7	10	13	12	18	24	38
Thermal power plants - energy producers for public purposes	321	302	292	270	283	279	279	260	285	257	256	284	241	227
Thermal power plants - producers of energy for own consumption	27	24	22	31	39	31	32	29	28	22	17	23	18	14
Heat only plants - energy producers for public purposes	60	55	53	49	46	39	44	50	41	35	40	41	27	37
Heat only plants - producers of energy for own consumption	60	59	52	58	50	44	46	49	53	55	54	56	58	48
Oil refineries	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Petrochemical plants	17	19	22	21	17	16	18	14	12	5	7	3	4	2
Liquefaction plants	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Charcoal production entities	-	-	-	1	1	2	1	2	1	2	2	2	1	1
Other processing installations	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TRANSFORMATION, OUTPUTS	398	377	357	350	352	331	346	336	345	315	315	350	301	304
Power plants	7	7	3	5	6	5	4	5	7	11	10	15	21	38
Thermal power plants - energy producers for public purposes	248	237	227	210	208	216	217	213	224	204	208	233	189	186
Thermal power plants - producers of energy for own consumption	23	21	19	28	35	18	22	24	21	16	13	18	14	12

Heat only plants - energy producers for public purposes	53	48	46	41	40	43	47	42	43	36	34	37	31	28
Heat only plants - producers of energy for own consumption	47	46	44	48	44	38	41	38	42	44	43	45	41	38
Oil refineries	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Petrochemical plants	20	18	18	18	18	11	15	14	8	4	7	2	4	2
Liquefaction plants	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Charcoal production entities	-	-	-	-	1	-	-	-	-	-	-	-	1	-
Other processing installations	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Energy industry own use	17	16	14	12	17	18	19	17	16	19	18	17	13	14
LOSSES	176	165	159	155	152	129	128	128	124	104	96	97	93	85
FINAL CONSUMPTION	2,345	2,406	2,364	2,390	2,409	2,455	2,571	2,719	2,841	2,739	2,620	2,924	2,592	2,470
FINAL ENERGY CONSUMPTION	2,313	2,376	2,321	2,348	2,357	2,410	2,525	2,671	2,765	2,672	2,531	2,853	2,521	2,397
INDUSTRY	227	235	239	257	235	209	203	218	251	234	226	245	216	200
Metallurgical industry	-	-	-	-	1	-	-	-	-	-	-	-	-	-
Chemical and petrochemical industry	3	4	3	5	6	5	5	6	6	8	10	10	14	10
Non-metallic minerals	94	102	106	114	73	88	69	83	102	99	96	103	87	76
Machinery manufacturing industry	4	4	4	5	4	4	4	4	5	3	2	2	1	2
Transportation equipment	-	1	-	-	1	-	-	-	1	1	1	1	1	1
Mining and quarrying	2	2	2	3	3	2	2	2	5	4	5	6	5	5
Food, beverages and tobacco	90	88	90	98	112	94	103	103	107	97	88	98	86	87
Pulp, paper and printing	3	4	3	2	4	1	1	2	2	2	2	2	2	2
Woodworking and furniture manufacturing	7	7	7	6	7	1	2	1	1	1	1	1	1	1
Construction	7	6	8	5	6	4	5	6	9	8	11	11	7	7
Manufacture of textiles and leather products	6	6	3	6	6	6	7	7	8	7	6	6	6	5
Other industrial activities	11	11	13	13	12	4	5	4	5	4	4	5	6	4

TRANSPORTATION	597	630	569	595	618	662	717	734	758	769	681	789	793	773
Air transport	19	20	23	22	25	25	33	47	55	49	12	41	47	46
Road transport	558	596	521	556	581	621	661	665	688	705	658	741	740	721
Rail transport	14	13	14	9	1	6	13	10	6	7	5	4	5	5
Pipeline transportation	6	1	10	7	8	8	8	10	8	6	4	1	-	-
Transportation by water	-	-	-	-	1	1	1	1	-	1	-	-	-	-
Ancillary transport activities	-	-	1	1	2	1	1	1	1	1	2	2	1	1
OTHER FIELDS OF ACTIVITY	1,489	1,511	1,513	1,496	1,504	1,539	1,605	1,719	1,756	1,671	1,624	1,819	1,512	1,424
Residential (population)	1,142	1,165	1,183	1,173	1,195	1,205	1,257	1,346	1,364	1,274	1,245	1,368	1,110	1,036
Trade and public services	276	277	270	259	245	260	268	266	283	272	255	290	264	244
Agriculture	71	69	60	64	64	74	80	107	109	123	124	161	138	144
NON-ENERGY CONSUMPTION	32	30	43	42	52	45	46	48	76	67	89	71	71	73
Statistical differences	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Source: NBS

Final energy consumption by sector, ktoe and %



Source: compiled on the basis of NBS data

Primary energy consumption by sector, ktoe and %



Source: compiled on the basis of NBS data

Primary and final energy consumption in the economy and by sector between 2010 and 2023, ktoe

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Average 2020- 2023	% GIC	% FEC	%
GROSS INLAND CONSUMPTION	2,633	2,676	2,624	2,643	2,669	2,686	2,796	2,939	3,066	2,938	2,807	3,115	2,770	2,632	2,831			100.0
Petroleum products	776	812	764	785	803	829	896	937	1,002	1,018	946	1,064	1,113	1,130	1,063			37.6
Natural gas	962	930	885	834	850	816	837	836	911	855	872	997	710	579	790			27.9
Biofuels and waste	512	537	574	584	629	650	698	764	766	652	609	640	549	544	586			20.7
Electricity	267	277	285	290	292	289	290	297	307	311	301	324	334	326	321			11.3
Coal	116	120	116	150	95	102	75	105	80	102	79	90	64	53	72			2.5
Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-
TRANSFORMATION, INPUTS	493	466	444	436	443	415	424	411	430	389	388	427	373	367	389	13.7		100.0
Natural gas	434	413	400	380	396	365	369	360	381	349	352	372	242	200	292			75.0
Petroleum products	38	34	34	36	28	23	30	24	19	8	7	21	83	108	55			14.1
Electricity	7	7	3	4	5	4	4	5	6	10	8	14	20	37	20			5.1
Biofuels and waste	12	10	5	8	12	21	20	20	23	22	21	20	28	22	23			5.9
Coal	2	2	2	8	2	2	1	2	1	-	-	-	-	-	-			-
Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-
TRANSFORMATION, OUTPUTS	398	377	357	350	352	331	346	336	345	315	315	350	301	304	318			100.0
Heat	287	272	259	254	250	239	253	245	255	230	223	251	211	201	222			69.8
Electricity	91	87	80	78	83	81	78	77	82	81	85	97	85	101	92			29.0
Petroleum products	20	18	18	18	18	11	15	14	8	4	7	2	4	2	4			1.2
Biofuels and waste	-	-	-	-	1	-	-	-	-	-	-	-	1	-	0			0.1
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-

Natural gas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Energy industry own use	17	16	14	12	17	18	19	17	16	19	18	17	13	14	16	0.5		100.0
Electricity	17	16	14	12	17	16	16	15	14	18	17	15	12	13	14			91.9
Heat	-	-	-	-	-	2	3	2	2	1	1	2	1	1	1			8.1
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-
Natural gas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-
Petroleum products	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-
Biofuels and waste	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-
LOSSES	176	165	159	155	152	129	128	128	124	104	96	97	93	85	93	3.3		100.0
Electricity	52	50	50	46	40	33	37	37	38	37	35	37	40	37	37			40.2
Heat	47	40	41	40	40	35	37	40	39	34	34	34	30	30	32			34.5
Natural gas	72	70	64	64	68	58	50	49	44	30	24	23	20	15	21			22.1
Petroleum products	4	4	4	5	4	3	4	2	3	3	3	3	3	3	3			3.2
Coal	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-			-
Biofuels and waste	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-
FINAL CONSUMPTION	2,345	2,406	2,364	2,390	2,409	2,455	2,571	2,719	2,841	2,739	2,620	2,924	2,592	2,470	2,652	93.7		
FINAL ENERGY CONSUMPTION	2,313	2,376	2,321	2,348	2,357	2,410	2,525	2,671	2,765	2,672	2,531	2,853	2,521	2,397	2,576	91.0	#####	100.0
Petroleum products	722	762	701	720	740	778	840	889	925	953	871	982	980	971	951			36.9
Biofuels and waste	500	527	569	576	615	620	669	733	730	619	571	609	502	499	545			21.2
Natural gas	456	447	421	390	386	393	418	427	486	476	496	602	448	364	478			18.5
Electricity	282	291	298	306	313	317	311	317	331	327	326	355	347	340	342			13.3
Heat	240	232	218	214	210	202	213	203	214	195	188	215	180	170	188			7.3
Coal	113	117	114	142	93	100	74	102	79	102	79	90	64	53	72			2.8
Industry and construction	227	235	239	257	235	209	203	218	251	234	226	245	216	200	222	7.8	8.6	100.0
Natural gas	63	66	63	58	55	60	61	59	76	64	69	76	63	66	69			30.9

Electricity	68	70	71	75	77	65	64	65	67	62	58	64	62	56	60			27.1
Heat	51	47	43	52	58	39	44	46	46	48	43	48	47	43	45			20.4
Petroleum products	11	9	30	16	10	4	9	18	37	37	36	27	32	26	30			13.6
Coal	33	42	31	55	33	40	24	30	24	23	19	28	10	5	16			7.0
Biofuels and waste	1	1	1	1	2	1	1	-	1	-	1	2	2	4	2			1.0
Transportation	597	630	569	595	618	662	717	734	758	769	681	789	793	773	759	26.8	29.5	100.0
Petroleum products	586	623	554	584	605	637	686	703	727	745	667	754	774	764	740			97.5
Natural gas	7	2	11	6	8	20	25	24	25	20	11	31	15	5	16			2.0
Electricity	4	5	4	5	5	5	6	7	6	4	3	4	4	4	4			0.5
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-
Biofuels and waste	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-
Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-
Residential (population)	1,142	1,165	1,183	1,173	1,195	1,205	1,257	1,346	1,364	1,274	1,245	1,368	1,110	1,036	1,190	42.0	46.2	100.0
Biofuels and waste	490	521	559	567	600	609	658	720	716	610	559	596	489	481	531			44.7
Natural gas	294	277	250	234	239	226	236	250	286	293	327	389	280	232	307			25.8
Electricity	130	133	135	139	143	144	140	141	142	144	150	158	150	144	151			12.6
Heat	132	128	118	109	107	118	123	115	122	109	109	124	101	97	108			9.1
Petroleum products	44	59	62	63	64	66	69	66	62	58	56	56	52	51	54			4.5
Coal	52	47	59	61	42	42	31	54	36	62	44	45	38	31	40			3.3
Trade and public services	276	277	270	259	245	260	268	266	283	272	255	290	264	244	263	9.3	10.2	100.0
Electricity	75	78	84	82	84	99	97	100	110	111	108	121	123	128	120			45.6
Natural gas	90	100	94	88	82	85	94	92	96	96	86	101	84	59	83			31.3
Heat	56	56	56	53	44	45	46	42	46	38	36	43	32	30	35			13.4
Coal	28	28	24	26	18	17	18	17	18	16	15	15	14	15	15			5.6
Biofuels and waste	8	5	8	7	12	9	9	12	12	10	10	10	10	11	10			3.9

Petroleum products	19	10	4	3	5	5	4	3	1	1	-	-	1	1	1			0.2
Agriculture	71	69	60	64	64	74	80	107	109	123	124	161	138	144	142	5.0	5.5	100.0
Petroleum products	62	61	51	54	56	66	72	99	98	112	112	145	121	129	127			89.4
Electricity	5	5	4	5	4	4	4	4	6	6	7	8	8	8	8			5.5
Natural gas	2	2	3	4	2	2	2	2	3	3	3	5	6	2	4			2.8
Biofuels and waste	1	-	1	1	1	1	1	1	1	1	1	1	1	3	2			1.1
Coal	-	-	-	-	-	1	1	1	1	1	1	2	2	2	2			1.2
Heat	1	1	1	-	1	-	-	-	-	-	-	-	-	-	-			-
Non-energy consumption	32	30	43	42	52	45	46	48	76	67	89	71	71	73	76	2.7		100.0
Petroleum products	32	30	43	42	49	36	37	36	63	58	72	60	51	50	58			76.6
Biofuels and waste	-	-	-	-	3	9	9	11	13	9	17	11	20	23	18			23.4
Coal	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-			-
Natural gas	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-
Electricity	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-
Heat	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-

Source: compiled on the basis of NBS data

Transformation sector: energy consumption and production between 2010 and 2023, ktoe

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	Maximum 2010-2019	Average 2020-2023	%	
TRANSFORMATION, INPUTS	493	466	444	436	443	415	424	411	430	389	388	427	373	367	493	389	100.0	100.0
Natural gas	434	413	400	380	396	365	369	360	381	349	352	372	242	200	434	292		75.0
Petroleum products	38	34	34	36	28	23	30	24	19	8	7	21	83	108	38	55		14.1
Electricity	7	7	3	4	5	4	4	5	6	10	8	14	20	37	10	20		5.1
Biofuels and waste	12	10	5	8	12	21	20	20	23	22	21	20	28	22	23	23		5.9
Coal	2	2	2	8	2	2	1	2	1	-	-	-	-	-	8	-		-
Power plants	8	7	3	6	7	4	4	7	10	13	12	18	24	38	13	23	5.9	100.0
Electricity	7	7	3	4	5	4	4	5	6	10	8	14	20	37	10	20		85.9
Biofuels and waste	-	-	-	1	1	-	-	2	4	3	4	4	4	1	4	3		14.1
Natural gas	1	-	-	1	1	-	-	-	-	-	-	-	-	-	1	-		-
Petroleum products	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
Electricity and/or heat producers for public purposes:																		
Thermal power plants	321	302	292	270	283	279	279	260	285	257	256	284	241	227	321	252	64.8	100.0
Natural gas	321	302	292	270	283	279	279	260	285	257	256	272	175	132	321	209		82.8
Petroleum products	-	-	-	-	-	-	-	-	-	-	-	12	66	95	-	43		17.2
Biofuels and waste	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
Heat only plants	60	55	53	49	46	39	44	50	41	35	40	41	27	37	60	36	9.3	100.0

Natural gas	60	55	53	49	46	39	43	49	40	35	40	41	27	37	60	36		100.0
Biofuels and waste	-	-	-	-	-	-	1	1	1	-	-	-	-	-	1	-		-
Petroleum products	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
Electricity and/or heat producers for own consumption:																		
Thermal power plants	27	24	22	31	39	31	32	29	28	22	17	23	18	14	39	18	4.6	100.0
Natural gas	8	10	11	17	25	14	12	15	18	16	14	14	4	6	25	10		52.8
Petroleum products	19	14	11	14	11	7	11	9	6	2	-	6	11	5	19	6		30.6
Biofuels and waste	-	-	-	-	3	10	9	5	4	4	3	3	3	3	10	3		16.7
Coal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-
Heat only plants	60	59	52	58	50	44	46	49	53	55	54	56	58	48	60	54	13.9	100.0
Natural gas	44	46	44	43	41	33	35	36	38	41	42	45	36	25	46	37		68.5
Biofuels and waste	12	10	5	6	7	9	9	10	13	13	12	11	20	17	13	15		27.8
Petroleum products	2	1	1	1	-	-	1	1	1	1	-	-	2	6	2	2		3.7
Coal	2	2	2	8	2	2	1	2	1	-	-	-	-	-	8	-		-
Petrochemical plants	17	19	22	21	17	16	18	14	12	5	7	3	4	2	22	4	1.0	100.0
Petroleum products	17	19	22	21	17	16	18	14	12	5	7	3	4	2	22	4		100.0
Charcoal production entities	-	-	-	1	1	2	1	2	1	2	2	2	1	1	2	2	0.4	100.0
Biofuels and waste	-	-	-	1	1	2	1	2	1	2	2	2	1	1	2	2		100.0
Oil refineries	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Liquefaction plants	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Other processing installations	-	-	-	-	-	-	-	-	-	-	-	-	-	-				

TRANSFORMATION, OUTPUTS	398	377	357	350	352	331	346	336	345	315	315	350	301	304	398	318	100.0	100.0
Heat	287	272	259	254	250	239	253	245	255	230	223	251	211	201	287	222		69.8
Electricity	91	87	80	78	83	81	78	77	82	81	85	97	85	101	91	92		29.0
Petroleum products	20	18	18	18	18	11	15	14	8	4	7	2	4	2	20	4		1.2
Biofuels and waste	-	-	-	-	1	-	-	-	-	-	-	-	1	-	1	0		0.1
Power plants	7	7	3	5	6	5	4	5	7	11	10	15	21	38	11	21	6.6	100.0
Electricity	7	7	3	5	6	5	4	5	7	11	10	15	21	38	11	21		100.0
Electricity and/or heat producers for public purposes:																		
Thermal power plants	248	237	227	210	208	216	217	213	224	204	208	233	189	186	248	204	64.3	100.0
Heat	167	159	153	140	137	143	147	145	153	137	136	154	128	125	167	136		66.5
Electricity	81	78	74	70	71	73	70	68	71	67	72	79	61	61	81	68		33.5
Heat only plants	53	48	46	41	40	43	47	42	43	36	34	37	31	28	53	33	10.2	100.0
Heat	53	48	46	41	40	43	47	42	43	36	34	37	31	28	53	33		100.0
Electricity and/or heat producers for own consumption:																		
Thermal power plants	23	21	19	28	35	18	22	24	21	16	13	18	14	12	35	14	4.5	100.0
Heat	20	19	16	25	29	15	18	20	17	13	10	15	11	10	29	12		80.7
Electricity	3	2	3	3	6	3	4	4	4	3	3	3	3	2	6	3		19.3
Heat only plants	47	46	44	48	44	38	41	38	42	44	43	45	41	38	48	42	13.1	100.0
Heat	47	46	44	48	44	38	41	38	42	44	43	45	41	38	48	42		100.0
Petrochemical plants	20	18	18	18	18	11	15	14	8	4	7	2	4	2	20	4	1.2	100.0
Petroleum products	20	18	18	18	18	11	15	14	8	4	7	2	4	2	20	4		100.0
Charcoal production entities	-	-	-	-	1	-	-	-	-	-	-	-	1	-	1	0	0.1	100.0

Biofuels and waste	-	-	-	-	1	-	-	-	-	-	-	-	1	-	1	0	100.0
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Source: compiled on the basis of NBS data

Annex 6: Energy consumption in industry and construction, 2010-2023, ktoe and %

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	%		
INDUSTRY AND CONSTRUCTION	227	235	239	257	235	209	203	218	251	234	226	245	216	200	100.0	100.0	
Natural gas	63	66	63	58	55	60	61	59	76	64	69	76	63	66		100.0	33.0
Electricity	68	70	71	75	77	65	64	65	67	62	58	64	62	56		100.0	28.0
Heat	51	47	43	52	58	39	44	46	46	48	43	48	47	43		100.0	21.5
Petroleum products	11	9	30	16	10	4	9	18	37	37	36	27	32	26		100.0	13.0
Coal	33	42	31	55	33	40	24	30	24	23	19	28	10	5		100.0	2.5
Biofuels and waste	1	1	1	1	2	1	1	-	1	-	1	2	2	4			2.0
Food, beverages and tobacco	90	88	90	98	112	94	103	103	107	97	88	98	86	87	43.5		100.0
Heat	47	43	40	47	53	37	42	43	43	42	37	42	38	37		86.0	42.5
Electricity	25	26	29	30	34	34	34	34	33	30	28	30	30	27		48.2	31.0
Natural gas	13	15	17	16	17	21	22	24	28	23	21	23	17	16		24.2	18.4
Biofuels and waste	-	-	-	1	1	1	1	-	1	-	1	2	-	4		100.0	4.6
Petroleum products	3	2	2	2	4	-	2	1	1	1	-	-	-	2		7.7	2.3
Coal	2	2	2	2	3	1	2	1	1	1	1	1	1	1		20.0	1.1
Non-metallic minerals	94	102	106	114	73	88	69	83	102	99	96	103	87	76	38.0		100.0
Natural gas	47	47	44	38	31	35	33	31	42	37	43	46	42	46		69.7	60.5
Petroleum products	2	1	21	8	-	-	3	12	25	27	22	15	23	15		57.7	19.7

Electricity	14	14	12	15	12	14	11	11	12	13	13	15	13	11		19.6	14.5
Coal	31	40	29	53	30	39	22	29	23	22	18	27	9	4		80.0	5.3
Chemical and petrochemical industry	3	4	3	5	6	5	5	6	6	8	10	10	14	10	5.0		100.0
Heat	1	1	-	1	1	-	-	1	1	4	5	5	8	6		14.0	60.0
Electricity	2	3	3	3	4	4	4	4	4	3	3	3	3	3		5.4	30.0
Natural gas	-	-	-	-	1	1	1	1	1	1	2	2	1	1		1.5	10.0
Biofuels and waste	-	-	-	-	-	-	-	-	-	-	-	-	2	-			-
Petroleum products	-	-	-	1	-	-	-	-	-	-	-	-	-	-		-	-
Construction	7	6	8	5	6	4	5	6	9	8	11	11	7	7	3.5		100.0
Petroleum products	5	5	6	3	4	3	3	4	7	6	10	8	5	5		19.2	71.4
Natural gas	1	-	1	1	1	1	1	1	1	1	-	1	1	1		1.5	14.3
Electricity	1	1	1	1	1	-	1	1	1	1	1	2	1	1		1.8	14.3
Manufacture of textiles and leather products	6	6	3	6	6	6	7	7	8	7	6	6	6	5	2.5		100.0
Electricity	3	3	3	3	3	3	4	5	5	4	3	3	4	4		7.1	80.0
Natural gas	1	1	-	1	1	1	1	-	1	1	2	2	1	1		1.5	20.0
Heat	2	2	-	2	2	2	2	2	2	2	1	1	1	-		-	-
Mining and quarrying	2	2	2	3	3	2	2	2	5	4	5	6	5	5	2.5		100.0
Petroleum products	1	1	1	2	2	1	1	1	4	3	4	4	4	4		15.4	80.0
Electricity	1	1	1	1	1	1	1	1	1	1	1	2	1	1		1.8	20.0
Machinery manufacturing industry	4	4	4	5	4	4	4	4	5	3	2	2	1	2	1.0		100.0
Electricity	4	4	4	4	3	4	4	4	4	3	2	2	1	2		3.6	100.0
Natural gas	-	-	-	1	1	-	-	-	1	-	-	-	-	-		-	-

Pulp, paper and printing		3	4	3	2	4	1	1	2	2	2	2	2	2	2	2	1.0	100.0	
Natural gas	1	2	1	-	2	1	1	1	1	1	1	1	1	1	1	1		1.5	50.0
Electricity	1	1	1	1	1	-	-	1	1	1	1	1	1	1	1	1		1.8	50.0
Heat	1	1	-	1	1	-	-	-	-	-	-	-	-	-	-	-		-	-
Biofuels and waste	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-
Transportation equipment		-	1	-	-	1	-	-	-	1	1	1	1	1	1	1	0.5	100.0	
Electricity	-	-	-	-	1	-	-	-	1	1	1	1	1	1	1	1		1.8	100.0
Natural gas	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-
Woodworking and furniture manufacturing		7	7	7	6	7	1	2	1	1	1	1	1	1	1	1	0.5	100.0	
Electricity	6	6	6	5	5	1	1	1	1	1	1	1	1	1	1	1		1.8	100.0
Natural gas	-	-	-	1	1	-	1	-	-	-	-	-	-	-	-	-		-	-
Biofuels and waste	1	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-		-	-
Heat	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-		-	-
Metallurgical industry		-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
Electricity	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-		-	-
Other industrial activities		11	11	13	13	12	4	5	4	5	4	4	5	6	4	4	2.0	100.0	
Electricity	11	11	11	12	11	4	4	3	4	4	4	4	4	6	4	4		7.1	100.0
Natural gas	-	-	-	-	-	-	1	1	1	-	-	1	-	-	-	-		-	-
Heat	-	-	2	1	1	-	-	-	-	-	-	-	-	-	-	-		-	-

Source: compiled on the basis of NBS data

Energy consumption in transport between 2010 and 2023, ktoe/%

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	%		
TRANSPORTATION	597	630	569	595	618	662	717	734	758	769	681	789	793	773	100.0	100.0	
Petroleum products	586	623	554	584	605	637	686	703	727	745	667	754	774	764		100.0	98.8
Natural gas	7	2	11	6	8	20	25	24	25	20	11	31	15	5		100.0	0.6
Electricity	4	5	4	5	5	5	6	7	6	4	3	4	4	4		100.0	0.5
Road transport	558	596	521	556	581	621	661	665	688	705	658	741	740	721	93.3	100.0	
Petroleum products	553	590	516	552	576	604	638	644	665	687	648	707	721	712		93.2	98.8
Natural gas	1	2	2	1	1	13	19	17	19	14	7	30	15	5		100.0	0.7
Electricity	4	4	3	3	4	4	4	4	4	4	3	4	4	4		100.0	0.6
Air transport	19	20	23	22	25	25	33	47	55	49	12	41	47	46	6.0		
Petroleum products	19	20	23	22	25	25	33	47	55	49	12	41	47	46		6.0	
Rail transport	14	13	14	9	1	6	13	10	6	7	5	4	5	5	0.6		
Petroleum products	14	13	14	9	1	6	13	10	6	7	5	4	5	5		0.7	
Pipeline transportation	6	1	10	7	8	8	8	10	8	6	4	1	-	-	-		
Natural gas	6	-	9	5	7	7	6	7	6	6	4	1	-	-		-	
Electricity	-	1	1	2	1	1	2	3	2	-	-	-	-	-		-	
Transportation by water	-	-	-	-	1	1	1	1	-	1	-	-	-	-	-		
Petroleum products	-	-	-	-	1	1	1	1	-	1	-	-	-	-		-	
Other transport activities	-	-	1	1	2	1	1	1	1	1	2	2	1	1	0.1		
Petroleum products	-	-	1	1	2	1	1	1	1	1	2	2	1	1		0.1	

Source: compiled on the basis of NBS data

Gross domestic product and gross value added by economic activity, 2014-2023,
RON million – CAEM Rev. 2, updated on 4 January 2024

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Gross Domestic Product	131,964	146,740	159,010	176,007	189,063	206,256	199,734	242,079	274,488	300,466
Net taxes on products	17,546	18,690	19,927	24,066	26,036	27,304	26,772	34,231	38,169	-
Gross value added - total	114,418	128,050	139,083	151,941	163,026	178,952	172,961	207,847	236,319	258,844
Wholesale and retail trade; repair of motor vehicles and motorcycles	18,869	21,699	24,626	27,342	30,107	32,127	30,065	37,434	45,568	49,728
Manufacturing (processing industry)	13,288	14,697	15,955	17,548	19,037	20,408	20,186	23,336	25,394	24,702
Agriculture, forestry and fishing	18,569	18,814	19,844	21,472	19,184	20,957	18,708	25,628	22,273	22,889
Construction	10,354	10,947	12,044	13,141	16,252	18,088	19,967	19,307	20,913	18,628
Real Estate Activities	11,831	13,833	14,416	14,349	15,302	15,901	16,375	16,470	19,843	21,050
Information and communication	6,834	7,362	7,613	8,079	9,058	10,566	9,751	12,913	18,105	20,197
Education	6,027	6,792	7,066	7,482	8,236	9,341	9,930	11,642	14,658	17,300
Health and social work activities	4,395	4,856	5,479	6,563	7,118	8,611	9,206	13,237	14,514	18,120
Transportation and storage	4,393	6,438	7,395	8,546	8,024	8,529	6,985	9,640	12,649	14,458
Public administration and defence; compulsory social security	4,096	4,621	5,011	6,004	6,457	7,095	7,701	8,771	9,959	10,842
Financial and insurance activities	4,276	4,070	4,272	4,609	5,307	5,954	6,103	6,853	8,578	10,926
Professional, scientific and technical activities	2,714	2,946	3,368	3,508	3,947	4,571	4,122	4,561	5,445	5,236
Production and supply of electricity, heat, gas, hot water and air conditioning	3,021	4,074	4,508	4,789	4,834	4,769	4,007	5,023	4,165	6,794
Accommodation and food service activities	1,064	1,124	1,195	1,542	1,974	2,530	1,336	2,010	3,470	4,815
Administrative and support service activities	1,184	1,696	1,676	1,958	2,526	2,995	2,038	3,340	3,328	3,844
Other service activities	1,257	1,504	1,932	2,167	2,318	2,531	2,631	2,744	2,850	3,463
Arts, entertainment and recreation	708	938	1,082	907	1,102	1,566	1,514	2,348	2,334	2,956
Water supply; sewerage, waste management and remediation activities	730	773	801	1,034	1,110	1,178	1,236	1,310	1,265	1,608
Mining and quarrying (extractive industry)	487	482	394	483	640	776	812	968	666	678
Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use	324	383	405	416	492	461	291	313	343	609

Source: NBS

Gross domestic product and gross value added by economic activity
– constant prices 2015 euro, 2015-2022, – estimate

	2015	2016	2017	2018	2019	2020	2021	2022
Gross Domestic Product	7,022	7,344	7,664	7,999	8,329	7,701	8,876	8,792
Net taxes on products	894	900	976	1,021	1,035	981	1,172	1,135
Gross value added - total	6,127	6,449	6,695	6,984	7,306	6,729	7,716	7,667
Wholesale and retail trade; repair of motor vehicles and motorcycles	1,038	1,114	1,163	1,245	1,266	1,141	1,328	1,356
Manufacturing (processing industry)	703	728	772	831	886	850	872	858
Agriculture, forestry and fishing	900	1,066	1,114	1,065	1,053	736	1,087	843
Construction	524	502	518	616	663	727	666	631
Real Estate Activities	662	670	662	684	699	706	699	763
Information and communication	352	370	379	396	456	391	485	541
Education	325	320	314	317	329	340	371	425
Health and social work activities	232	230	251	254	282	291	346	367
Transportation and storage	308	325	364	326	337	276	378	369
Public administration and defence; compulsory social security	221	221	231	236	245	257	271	278
Financial and insurance activities	195	213	219	238	225	222	243	299
Professional, scientific and technical activities	141	151	152	166	187	156	165	162
Production and supply of electricity, heat, gas, hot water and air conditioning	195	196	196	193	188	168	223	141
Accommodation and food service activities	54	55	66	82	103	53	79	117
Administrative and support service activities	81	85	91	112	121	78	123	115
Other service activities	72	78	84	87	91	87	90	80
Arts, entertainment and recreation	45	46	37	43	59	53	81	78
Water supply; sewerage, waste management and remediation activities	37	38	44	44	45	44	50	48
Mining and quarrying (extractive industry)	23	22	27	34	36	37	43	27
Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use	18	19	18	21	19	12	12	11

Deflating indices of gross domestic product
and gross value added, 2015-2022-CAEM Rev. 2, updated on 4 January 2024

	2015		2016		2017	2018	2019	2020	2021	2022
Gross domestic product	112.0	103.6	106.3	103.2	105.4	105.6	106.4	118.9		
Net taxes on products	106.6	106.0	112.0	104.0	104.2	104.4	109.2	121.1		
Gross value added - total	112.8	103.2	105.4	103.1	105.5	105.8	105.9	118.6		
Agriculture, forestry and fishing	116.9	89.1	103.1	94.0	109.0	126.4	91.2	113.6		
Mining and quarrying (extractive industry)	103.2	84.1	102.8	103.6	112.6	102.5	101.3	110.4		
Manufacturing (processing industry)	106.0	104.9	103.9	100.8	100.6	103.5	114.4	113.5		
Production and supply of electricity, heat, gas, hot water and air conditioning	133.9	109.8	107.1	103.0	101.4	92.5	93.9	134.1		
Water supply; sewerage, waste management and remediation activities	106.4	101.9	111.3	107.9	105.3	107.8	92.1	98.6		
Construction	105.1	114.8	106.7	104.8	104.2	100.9	107.3	120.0		
Wholesale and retail trade; repair of motor vehicles and motorcycles	114.8	105.8	106.7	103.2	105.7	104.7	108.8	125.9		
Transportation and storage	145.2	108.9	103.3	105.6	103.4	99.8	101.0	141.9		
Accommodation and food service activities	102.4	104.1	107.9	103.8	102.2	102.7	101.8	119.7		
Information and communication	99.3	98.5	103.5	107.5	101.3	108.5	108.1	132.7		
Financial and insurance activities	105.3	96.0	104.8	105.7	120.2	104.6	103.4	102.7		
Real Estate Activities	115.6	102.9	100.8	103.3	101.9	102.1	101.8	111.6		
Professional, scientific and technical activities	99.0	107.0	103.5	103.4	103.2	109.7	105.4	128.8		
Administrative and support service activities	127.9	94.3	109.2	104.0	110.5	107.8	104.1	109.2		
Public administration and defence; compulsory social security	112.2	108.4	115.8	106.6	107.5	104.9	111.8	116.4		
Education	114.1	105.7	108.4	110.4	111.3	104.1	110.4	114.9		
Health and social work activities	111.1	113.8	111.1	109.2	112.0	105.3	131.9	105.8		
Arts, entertainment and recreation	121.7	113.5	104.9	103.1	105.8	110.3	100.5	104.9		
Other service activities	109.5	118.7	105.2	103.0	106.7	111.3	100.8	123.8		
Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use	109.3	103.2	105.0	102.8	105.4	103.8	104.1	122.4		

Source: NBS

Annex 11
Average official exchange rates, 2014-2023, lei

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
US\$	14.0388	18.8161	19.9238	18.4902	16.8031	17.5751	17.3201	17.6816	18.9032	18.1607
EURO	18.6321	20.8980	22.0548	20.8282	19.8442	19.6741	19.7436	20.9255	19.8982	19.6431

Source: NBM

Annex 12
Estimated costs for key measures
Energy Efficiency and Technologies
low carbon by 2050

Photovoltaic systems

Capital investment cost trajectories for photovoltaic installations no sun tracking system, utilitarian scale							
		Unit	2015	2020	2030	2040	2050
Costs of equity investments	Reference level	euro 2015/kW	1.020	830	720	580	500
	Diversified	euro 2015/kW		790	600	450	370
	ProRES	euro 2015/kW		690	450	370	320
	Min	euro 2015/kW		650	390	310	260
	Max	euro 2015/kW		920	870	780	730
Costs O&M	-	% CAPEX	1.7%	1.7%	1.7%	1.7%	1.7%
Capital investment cost trajectories for photovoltaic installations flat surface, commercial scale							
		Unit	2015	2020	2030	2040	2050
Costs of equity investments	Reference level	euro 2015/kW	1.140	920	810	650	560
	Diversified	euro 2015/kW		880	670	510	410
	ProRES	euro 2015/kW		770	500	410	350
	Min	euro 2015/kW		720	430	350	290
	Max	euro 2015/kW		1.030	970	880	810
Costs O&M	-	% CAPEX	2.5%	2.5%	2.5%	2.5%	2.5%
Capital investment cost trajectories for photovoltaic installations sloping surface, residential scale							
		Unit	2015	2020	2030	2040	2050
Costs of equity investments	Reference level	euro 2015/kW	1.360	1.100	960	780	670
	Diversified	euro 2015/kW		1.050	800	600	490
	ProRES	euro 2015/kW		920	600	490	420
	Min	euro 2015/kW		860	520	410	350
	Max	euro 2015/kW		1.230	1.150	1.050	970
Costs O&M	-	% CAPEX	2%	2%	2%	2%	2%

Solar thermal energy

Capital investment cost trajectories for storage parabolic gutters							
		Unit	2015	2020	2030	2040	2050
Costs of equity investments	Reference level	euro 2015/kW	6.000	5.650	5.100	4.530	4.200
	Diversified	euro 2015/kW		4.630	4.040	3.630	3.420
	ProRES	euro 2015/kW		4.920	3.760	3.430	3.280
	Min	euro 2015/kW		4.120	3.040	2.660	2.490
	Max	euro 2015/kW		5.800	5.470	5.120	4.910
Costs O&M	-	% CAPEX	1.7%	1.7%	1.7%	1.7%	1.7%
Capital investment cost trajectories for solar storage towers							
		Unit	2015	2020	2030	2040	2050
Costs of equity investments	Reference level	euro 2015/kW	5.280	4.970	4.480	3.990	3.690
	Diversified	euro 2015/kW		4.070	3.560	3.190	3.010
	ProRES	euro 2015/kW		4.330	3.310	3.010	2.880
	Min	euro 2015/kW		3.620	2.680	2.340	2.190

	Max	euro 2015/kW		5.110	4.820	4.510	4.320
Costs O&M	-	% CAPEX	1.7%	1.7%	1.7%	1.7%	1.7%

Heat and electricity produced from biomass

Trajectories of capital investment costs of a TEC with subcritical biomass steam turbines							
		Unit	2015	2020	2030	2040	2050
Costs of equity investments	Reference level	euro 2015/kW	3.600	3.400	3.310	3.230	3.120
	Diversified	euro 2015/kW		3.330	3.180	3.050	2.910
	ProRES	euro 2015/kW		3.380	3.190	3.100	2.980
	Min	euro 2015/kW		3.220	3.020	2.850	2.660
	Max	euro 2015/kW		3.520	3.480	3.450	3.400
Costs O&M	-	% CAPEX	2%	2%	2%	2%	2%

Capital investment cost trajectories of a TEC with subcritical biomass steam turbines

Capital investment cost trajectories of a TEC with subcritical biomass steam turbines							
		Unit	2015	2020	2030	2040	2050
Costs of equity investments	Reference level	euro 2015/kW	5.300	5.010	4.870	4.760	4.590
	Diversified	euro 2015/kW		4.900	4.680	4.490	4.280
	ProRES	euro 2015/kW		4.980	4.700	4.560	4.390
	Min	euro 2015/kW		4.740	4.450	4.190	3.920
	Max	euro 2015/kW		5.180	5.130	5.080	5.010
Costs O&M	-	% CAPEX	2%	2%	2%	2%	2%

Capital investment cost trajectories for an installation Organic Biomass Rankine Cycle

Capital investment cost trajectories for an installation Organic Biomass Rankine Cycle							
		Unit	2015	2020	2030	2040	2050
Costs of equity investments	Reference level	euro 2015/kW	4.700	4.440	4.320	4.220	4.070
	Diversified	euro 2015/kW		4.340	4.150	3.980	3.800
	ProRES	euro 2015/kW		4.420	4.160	4.040	3.900
	Min	euro 2015/kW		4.200	3.950	3.720	3.480
	Max	euro 2015/kW		4.600	4.540	4.510	4.440
Costs O&M	-	% CAPEX	2%	2%	2%	2%	2%

Capital investment cost trajectories for power plants based on the combustion of biofuel obtained as a result of anaerobic digestion

Capital investment cost trajectories for power plants based on the combustion of biofuel obtained as a result of anaerobic digestion							
		Unit	2015	2020	2030	2040	2050
Costs of equity investments	Reference level	euro 2015/kW	3.100	2.930	2.850	2.780	2.680
	Diversified	euro 2015/kW		2.860	2.740	2.630	2.510
	ProRES	EUR 2015/kW		2.910	2.750	2.670	2.570
	Min	euro 2015/kW		2.770	2.600	2.450	2.290
	Max	euro 2015/kW		3.030	3.000	2.970	2.930
Costs O&M	-	% CAPEX	4%	4%	4%	4%	4%

Gasified biomass TEC

	Unitate	2015	2020	2030	2040	2050
A. Date din domeniul energetic/tehnic						
Capacitatea de generare a energiei termice	MWth	5 - 30				
Generarea energiei electrice	MWel	1 - 15				
Randamentul electric net	[%]	18	18	19	19	20
gradul de utilizare a combustibilului necesar pentru electricitate	%	23	23	24	24	24
gradul de utilizare a combustibilului necesar pentru încălzirea centralizată	%	77	77	76	76	76
Gradul total de utilizare, sarcina nominală	%	85	85	85	85	85
Gradul total de utilizare, media anuală	%	78	78	78	78	78
Consumul de energie electrică	%	2,3	2,2	2,1	2	2
Durata tehnică a vieții	Ani	20	25	25	25	30
Furnizarea de abur		+	+	+	+	+
Apă fierbinte (până la 140 °C)		o	o	O	o	o
Apă caldă (până la 105 °C)		(o)	(o)	(o)	(o)	(o)
Temperaturi joase (până la 70 °C)		-	-	-	-	-
B. Date privind mediul						
CO2	g/MJth	170	170	170	170	170
SO2	g/GJth	<	<	<	<	<
NOX	g/GJth	70	70	65	65	60
CH4	g/GJth	<	<	<	<	<
N2O	g/GJth	<	<	<	<	<
Particule	g/GJth	<	<	<	<	<
C. Date financiare						
Calitatea estimărilor		medie				
Investiții nominale	M€/MWel,max	5,3	5,3	5,1	4,9	4,7
- dintre care echipament	M€/MWel,max	3,4	3,4	3,2	3	3
- dintre care instalații	M€/MWel,max	1,9	1,9	1,9	1,9	1,7
O&M fixe	k€/MWel,max/a	108	108	97	97	86
O&M variabile, cu excepția costurilor pentru electricitate	€/MWhel,max	4	4	4	4	4

Biogas-powered ICE gas engine

	Unitate	2015	2020	2030	2040	2050
A. Date din domeniul energetic/tehnic						
Capacitatea de generare a energiei termice	MWth	0,4 - 9,0				
Generarea energiei electrice	MWel	0,3 - 11				
Randamentul electric net	[%]	41				
gradul de utilizare a combustibilului necesar pentru electricitate	%	49	49	51	53	53
gradul de utilizare a combustibilului necesar pentru încălzirea centralizată	%	51	51	49	47	47
Gradul total de utilizare, sarcina nominală	%	85	85	86	88	88
Gradul total de utilizare, media anuală	%	79	79	80	82	82
Consumul de energie electrică	%	0,2	0,2	0,2	0,2	0,2
Durata tehnică a vieții	ani	25	25	30	30	30
Furnizarea de abur		N/A	N/A	N/A	N/A	N/A
Apă fierbinte (până la 140 °C)		--	--	--	--	--
Apă caldă (până la 105 °C)		(o)	(o)	(o)	(o)	(o)
Temperaturi joase (până la 70 °C)		(+)	(+)	(+)	(+)	(+)
B. Date privind mediul						
CO2	g/MJth	210	210	200	190	190
SO2	g/GJth	160	140	120	120	120
NOX	g/GJth	205	170	150	150	150
CH4	g/GJth	<	<	<	<	<
N2O	g/GJth	<	<	<	<	<
Particule	g/GJth	<	<	<	<	<
C. Date financiare						
Calitatea estimărilor		medie				
Investiții nominale	M€/MWel,ISO	0,8	0,8	0,7	0,7	0,7
- dintre care echipament	M€/MWel,ISO	0,7	0,7	0,6	0,6	0,6
- dintre care instalații	M€/MWel,ISO	0,1	0,1	0,1	0,1	0,1
O&M fixe	k€/MWel,ISO/a	9	9	9	9	9
O&M variabile, cu excepția costurilor pentru electricitate	€/MWhel,ISO	13,1	13,1	13,1	13,1	13,1

Ignitubular boilers

	Unitate	2015	2020	2030	2040	2050
A. Date din domeniul energetic/tehnice						
Capacitatea de generare a energiei termice	MWth	20 - 250				
Gradul total de utilizare, sarcina nominală	%	95	95	95	95	95
Gradul total de utilizare, media anuală	%	87	87	87	87	87
Consumul de energie electrică	%	0,5	0,5	0,4	0,4	0,4
Durata tehnică a vieții	Ani	30	30	35	35	40
Furnizarea de abur		-	-	-	-	-
Apă fierbinte (până la 140 °C)		o	o	o	o	o
Apă caldă (până la 105 °C)		(o)	(o)	(o)	(o)	(o)
Temperaturi joase (până la 70 °C)		+	+	+	+	+
B. Date privind mediul						
CO2	g/MJth	60	60	60	60	60
SO2	g/GJth	<	<	<	<	<
NOX	g/GJth	20	20	18	18	15
CH4	g/GJth	<	<	<	<	<
N2O	g/GJth	<	<	<	<	<
Particule	g/GJth	<	<	<	<	<
C. Date financiare						
Calitatea estimărilor		medie				
Investiții nominale	M€/MWth	0,1	0,1	0,1	0,1	0,1
- dintre care echipament	M€/MWth	0,06	0,06	0,06	0,06	0,06
- dintre care instalații	M€/MWth	0,04	0,04	0,04	0,04	0,04
O&M fixe	k€/MWth/a	2	2	1,9	1,9	1,8
O&M variabile, cu excepția costurilor pentru electricitate	€/MWh	0,2	0,2	0,2	0,2	0,2

Electric boiler

	Unitate	2015	2020	2030	2040	2050
A. Date din domeniul energetic/tehnice						
Capacitatea de generare a energiei termice	MWth	1 - 30				
Randamentul total, sarcina nominală	%	99	99	99	99	99
Randamentul total, media anuală	%	98	98	98	98	98
Consumul de energie electrică	%/MWth	101	101	101	101	101
Durata tehnică a vieții	ani	20	20	20	20	20
Furnizarea de abur		o	o	o	o	o
Apă fierbinte (până la 140 °C)		o	o	o	o	o
Apă caldă (până la 105 °C)		(o)	(o)	(o)	(o)	(o)
Temperaturi joase (până la 70 °C)		o	o	o	o	o
B. Date privind mediul						
CO2	g/MJ	-	-	-	-	-
SO2	g/GJ	-	-	-	-	-
NOX	g/GJ	-	-	-	-	-
CH4	g/GJ	-	-	-	-	-
N2O	g/GJ	-	-	-	-	-
Particule	g/GJ	-	-	-	-	-
C. Date financiare						
Calitatea estimărilor CAPEX		medie				
Investiții nominale	M€/MW	0,12	0,12	0,12	0,12	0,12
- dintre care echipament	%	0,08	0,08	0,08	0,08	0,08
- dintre care instalații	%	0,04	0,04	0,04	0,04	0,04
O&M fixe	€/MW/a	0,5	0,5	0,5	0,5	0,5
O&M variabile, cu excepția costurilor pentru electricitate	€/MWh	0,2	0,2	0,2	0,2	0,2

Electric heat pump

	Unitate	2015	2020	2030	2040	2050
A. Date din domeniul energetic/tehnice						
Capacitatea de generare a energiei termice	MWth	43,009				
Capacitatea de răcire	MWth	0,7 - 7				
COP al sistemului de încălzire	%	350	360	370	380	410
COP al sistemului de răcire	%	250	260	270	280	310
Consumul de energie electrică	%/MWth	10	9	7	5	4
Durata tehnică a vieții	ani	20	20	25	25	25
Furnizarea de abur		N/A	N/A	N/A	N/A	N/A
Apă fierbinte (până la 140 °C)		N/A	N/A	N/A	N/A	N/A
Apă caldă (până la 105 °C)		--	--	--	--	--
Temperaturi joase (până la 70 °C)		(o)	(o)	(o)	(o)	(o)
B. Date privind mediul						
CO2	g/MJth	0	0	0	0	0
SO2	g/GJth	0	0	0	0	0
NOX	g/GJth	0	0	0	0	0
CH4	g/GJth	0	0	0	0	0
N2O	g/GJth	0	0	0	0	0
Particule	g/GJth	0	0	0	0	0
C. Date financiare						
Calitatea estimărilor CAPEX		ridicată				
Rata de învățare	%					
Investiții nominale	M€2016/MWth	1	1	1	1	1
- dintre care echipament	M€/MWth	0,36	0,33	0,3	0,28	0,27
- dintre care instalații	M€/MWth	0,36	0,33	0,3	0,28	0,27
O&M fixe	k€/MWth/a	3	3	2,7	2,4	2
O&M variabile, cu excepția costurilor pentru electricitate	€/MWth	2	1,8	1,7	1,6	1,6

Absorption heat pump

	Unitate	2015	2020	2030	2040	2050
A. Date din domeniul energetic/tehnice						
Capacitatea de generare a energiei termice	MWth	0,15 - 12				
Capacitatea de răcire	MWth	0,1 - 10				
COP al sistemului de încălzire	%	170	170	171	172	173
COP al sistemului de răcire	%	70	70	71	72	73
Consumul de energie electrică	%/MWth	1,5	1,5	1,5	1,5	1,5
Durata tehnică a vieții	Ani	25	25	25	25	25
Furnizarea de abur		N/A	N/A	N/A	N/A	N/A
Apă fierbinte (până la 140 °C)		N/A	N/A	N/A	N/A	N/A
Apă caldă (până la 105 °C)		--	--	--	--	--
Temperaturi joase (până la 70 °C)		(o)	(o)	(o)	(o)	(o)
B. Date privind mediul						
CO2	g/MJth	0	0	0	0	0
SO2	g/GJth	0	0	0	0	0
NOX	g/GJth	0	0	0	0	0
CH4	g/GJth	0	0	0	0	0
N2O	g/GJth	0	0	0	0	0
Particule	g/GJth	0	0	0	0	0
C. Date financiare						
Calitatea estimărilor CAPEX		medie				
Rata de învățare	%	7 - 8				
Investiții nominale	M€2017/MWth	0,42	0,39	0,38	0,37	0,35
- dintre care echipament	M€/MWth	0,21	0,195	0,19	0,185	0,175
- dintre care instalații	M€/MWth	0,21	0,195	0,19	0,185	0,175
O&M fixe	k€/MWth/a	2	2	2	2	2
O&M variabile, cu excepția costurilor pentru electricitate	€/MWth	0,3	0,3	0,3	0,2	0,2

District heating suspension

	Unitate	2015	2020	2030	2040	2050
A. Date din domeniul energetic/tehnice						
Capacitatea de generare a energiei termice	MW _{th}	0,01 - 0,5				
Randamentul total, sarcina nominală	%	98	98	98	98	98
Randamentul total, media anuală	%	95	95	95	95	95
Consumul de energie electrică	%/MW _{th}	neînsemnat				
Durata tehnică a vieții	Ani	20	20	20	20	20
Furnizarea de abur		N/A	N/A	N/A	N/A	N/A
Apă fierbinte (până la 140 °C)		(-)	(-)	(-)	(-)	(-)
Apă caldă (până la 105 °C)		(o)	(o)	(o)	(o)	(o)
Temperaturi joase (până la 70 °C)		(+)	(+)	(+)	(+)	(+)
B. Date privind mediul						
CO ₂	g/MJ _{th}	0	0	0	0	0
SO ₂	g/GJ _{th}	0	0	0	0	0
NO _x	g/GJ _{th}	0	0	0	0	0
CH ₄	g/GJ _{th}	0	0	0	0	0
N ₂ O	g/GJ _{th}	0	0	0	0	0
Particule	g/GJ _{th}	0	0	0	0	0
C. Date financiare						
Calitatea estimărilor CAPEX		Ridicat				
Rata de învățare	%					
Investiții nominale	M€ ₂₀₁₇ /MW _{th}	0,08	0,07	0,07	0,07	0,07
- dintre care echipament	M€ ₂₀₁₇ /MW _{th}	0,06	0,06	0,06	0,06	0,06
- dintre care instalații	M€ ₂₀₁₇ /MW _{th}	0,02	0,02	0,01	0,01	0,01
O&M fixe	k€/MW _{th} /a	0,13	0,13	0,13	0,13	0,13
O&M variabile, cu excepția costurilor pentru electricitate	€/MW _{th}	0	0	0	0	0

District heating pipe network

	Unitate	2015	2020	2030	2040	2050
A. Date din domeniul energetic/tehnice						
Densitatea termică lineară	MWh/(m.a)	1 - 5				
Pierderile nete	%	10	10	10	10	10
Consumul de energie electrică	%/MW _{th}	1	1	1	1	1
Durata tehnică a vieții	Ani	30	30	35	35	35
Furnizarea de abur		--	--	--	--	--
Apă fierbinte (până la 140 °C)		-	-	-	-	-
Apă caldă (până la 105 °C)		(o)	(o)	(o)	(o)	(o)
Temperaturi joase (până la 70 °C)		+	+	+	+	+
B. Date privind mediul						
CO ₂	g/MJ _{th}	0	0	0	0	0
SO ₂	g/GJ _{th}	0	0	0	0	0
NO _x	g/GJ _{th}	0	0	0	0	0
CH ₄	g/GJ _{th}	0	0	0	0	0
N ₂ O	g/GJ _{th}	0	0	0	0	0
Particule	g/GJ _{th}	0	0	0	0	0
C. Date financiare						
Calitatea estimărilor CAPEX		medie				
Rata de învățare	%					
Investiții nominale	€/m	500	498	496	494	490
- dintre care echipament	€/m	200	199	198	197	196
- dintre care instalații	€/m	300	299	298	297	294
O&M fixe	%/CAPEX/a	1	1	1	1	1
O&M variabile, cu excepția costurilor pentru electricitate	€/MWh	N/A	N/A	N/A	N/A	N/A

Hot water storage tank

	Unitate	2015	2020	2030	2040	2050
A. Date din domeniul energetic/tehnice						
Volumul de stocare a energiei termice	m ³	100 – 50 000				
Capacitatea de generare a energiei termice	MW	0,35 - 90				
Capacitatea netă de stocare	MWh	3 – 1 500				
Randamentul total, sarcina nominală	%	98	98	98	98	98
Randamentul total, media anuală	%	92	92	92	92	92
Consumul de energie electrică	%/MW _{th}	1	1	1	1	1
Durata tehnică a vieții	Ani	25	25	25	25	25
Furnizarea de abur		n/a	n/a	n/a	n/a	n/a
Apă fierbinte (până la 140 °C)		(o)	(o)	(o)	(o)	(o)
Apă caldă (până la 105 °C)		o	o	o	o	o
Temperaturi joase (până la 70 °C)		o	o	o	o	o
B. Date privind mediul						
CO ₂	g/MJ					
SO ₂	g/GJ					
NO _x	g/GJ					
CH ₄	g/GJ					
N ₂ O	g/GJ					
Particule	g/GJ					
C. Date financiare						
Calitatea estimărilor CAPEX		medie				
Investiții nominale per cantitate de energie electrică produsă	M€/MW _{th}	0,088	0,088	0,088	0,088	0,088
- dintre care echipament	M€/MW _{th}	0,032	0,032	0,032	0,032	0,032
- dintre care instalații	M€/MW _{th}	0,056	0,056	0,056	0,056	0,056
O&M fixe	k€/MW _{th} /a	0,4	0,4	0,36	0,36	0,36
O&M variabile per MWh	€/MWh	n/a	n/a	n/a	n/a	n/a

Summary of measures

Size	Policy measure code:	Name of the policy measure:	Quantified target:	Type of measure	Implementation term	Implementation costs (million euro)	Sources of funding
Decarbonisation	PM_DC1	Carbon Border Adjustment Mechanism (WPM)	Reduce GHG emissions by 70% (with LULUCF) in 2030 compared to 1990 levels	Investment	2026-2030, including preparation period	10,1	Sources of external donors
Decarbonisation	PM_DC2	Implementation of a trading system emission allowances	Reduce GHG emissions by 70% (with LULUCF) in 2030 compared to 1990 levels	Reform	2025-2030	0,5	State budget, sources of external donors
Decarbonisation	PM_DC3	Climate Change Coordination Mechanism	Number of documents implemented under the coordination of the Commission	Reform	2024-2030	0,5	State budget, sources of external donors
Decarbonisation	PM_DC4	Development of Joint Credit Facility (JCM) projects with the Japanese Joint Credit Facility (JCM)	Reduce GHG emissions by 70% (with LULUCF) in 2030 compared to 1990 levels	Investment	2025-2030	10	Sources of the private sector
Decarbonisation	PM_DC5	Introduction of the carbon tax	Reduce GHG emissions by 70% (with LULUCF) in 2030 compared to 1990 levels Achieving climate neutrality by 2050	Reform	2024-2030, including preparation period	0,5	State budget
Decarbonisation	PM_DC6	Installation of battery energy storage systems to ensure automatic frequency control	Reducing carbon emissions by 280 ktCO ₂ in 2030	Investment	2024-2030	80	Private sector funds, investors,
Decarbonisation	PM_DC07	Construction of new biogas TECs	Reducing carbon emissions by 5.5 ktCO ₂ in 2030	Investment	2024-2030	7	Private sector funds, investors, WBG
Decarbonisation	PM_DC08	Construction of functioning TECs waste-based	Reducing carbon emissions	Investment	2025-2030	182	Private sector funds, investors, donors
Decarbonisation	PM_DC09	Developing the secondary regulatory framework for the implementation of the Law No 227/2022 on industrial emissions	Number of regulations adopted	Reform	2024-2030	0,5	State budget, sources of external donors
Decarbonisation	PM_DC10	Implementation of the management system of energy according to Moldovan standard SM EN ISO 50001: 2019	The contribution of energy efficiency to reducing final energy consumption	Reform and capacity building	2024-2030	1,1	Sources of the private sector
Decarbonisation	PM_DC11	Co-incineration of alternative fuels (biomass and solid household waste) in <i>clinker</i>	Reducing carbon emissions by 220 ktCO ₂ in 2030	Investment	2025-2030	120	Sources of the private sector
Decarbonisation	PM_DC12	Solid waste project in the Republic of Moldova	The aim of the project is to improve and develop solid waste management services in	Investment	2025-2030	68,1	State budget, sources of external donors

			the Participating Waste Management Areas and to address environmental challenges				
Decarbonisation	PM_DC13	Implementation of the system of conservative agriculture	Reduction of NO ₂ emissions by 76 ktCO ₂ e.	Investment	2025-2030	324	Sources of external donors, sources of the private sector
Decarbonisation	PM_DC14	Manure storage in communal platforms or in individual warehouses	Reduction of CH ₄ emissions by 69 ktCO ₂ e in 2030	Investment	2025-2030	105,5	Sources of external donors, sources of the private sector
Decarbonisation	PM_DC15	Promotion of cattle feeding technologies through the use of feed in the form of single mixtures (monorotation) without or with small amounts of green fodder	Reduction of CH ₄ emissions by 15 ktCO ₂ e in 2030	Investment	2025-2030	18,6	State budget, sources of external donors, sources of private sector
Decarbonisation	PM_DC16	Promotion of the use of grape marc in ruminant rations to reduce greenhouse gas emissions	Reduction of CH ₄ emissions by 11 ktCO ₂ e in 2030	Investment	2025-2030	4,85	Sources of external donors, sources of the private sector
Decarbonisation	PM_DC17	Afforestation of land	removals 320 kt CO ₂ e	Investment	2024-2032	233,75	State budget, sources of external donors, sources of private sector
Decarbonisation	PM_DC218	Creation of protective forest curtains	Increased Carbon Absorption	Investment	2025-2030	5	State budget, sources of external donors, sources of private sector
Decarbonisation	PM_DC19	Planting of energy crops	Replaced fuel	Investment	2025-2030	8,5	State budget, sources of external donors, sources of private sector
Decarbonisation	PM_DC200	Installation of 165 MW of VF	Reducing carbon emissions by 105 ktCO ₂ in 2030	Investment	2025-2030	160	Sources of the private sector
Decarbonisation	PM_DC21	Installation of wind farms with a capacity of 230 MW	Reducing carbon emissions by 178 ktCO ₂ in 2030	Investment	2025-2030	238	Sources of the private sector
Decarbonisation	PM_DC22	Promoting energy communities from renewable sources	Reducing carbon emissions	Investment	2025-2030	1,5	State budget, sources of external donors, sources of private sector
Decarbonisation	PM_DC23	Integration of biomass heaters in centralised power systems with thermal energy)	Carbon emission reduction of 101,0 kt CO ₂ e in 2030	Investment	2025-2030	471,5	Sources of external donors, sources of the private sector
Decarbonisation	PM_DC24	Interaction of heat pumps in centralised heat supply systems	Reducing carbon emissions by 230 ktCO ₂ in 2030	Investment	2025-2030	5	Sources of external donors, sources of the private sector
Decarbonisation	PM_DC25	Assessment of the energy potential of geothermal sources and definition of the regulatory framework necessary to capitalize on it.	Reducing carbon emissions	Politics	2025-2030	0,2	Sources of external donors, sources of the private sector
Decarbonisation	PM_DC26	Promoting the Sustainable Green Cities Initiative for the Republic of Moldova	Increase the share of RES in transport to 6.9% in 2030	Investment	2025-2030	1,8	State budget
Decarbonisation	PM_DC27	Promotion of biofuels and bioliquids	Increase the share of RES in transport to 6.9% in 2030	Investment	2025-2030	24,3	Sources of external donors, sources of the private sector

Decarbonisation	PM_DC28	Promoting electrification of transport rail	Increase the share of RES in transport to 6.9% in 2030	Reform	2025-2030	0,5	State budget
Decarbonisation	PM_DC29	Promoting green technologies in the private sector	Reduction of GHG emissions by 70% in 2030 compared to base year 1990	Investment	2024-2030	45	Sources of external donors
Decarbonisation	PM_DC30	Promoting energy efficiency in SMEs	Reduction of GHG emissions by 70% in 2030 compared to base year 1990	Investment	2024 – 2030	75	Sources of external donors
Decarbonisation	PM_DC31	Promoting innovative technologies in SMEs	Reduction of GHG emissions by 70% in 2030 compared to base year 1990	Investment	2025-2030	4,4	State budget, sources of external donors
Decarbonisation	PM_DC32	Promoting rural competitiveness and resilience	Reduction of GHG emissions by 70% in 2030 compared to base year 1990	Investment	2024-2030	4,4	Sources of external donors
Decarbonisation	PM_DC33	Promote considerable reductions in fine particulate matter and black carbon emissions on roads	Reduction of pollutant emissions, including indirect GHG emissions	Regulation	2025-2030	0,5	State budget, sources of external donors
Energy efficiency	PM_EE1	Renovation of residential buildings	Cumulative effect of 17 ktoe	Investment	2025-2030	248	Sources of external donors
Energy efficiency	PM_EE2	Renovation of buildings in the public sector of the State	Cumulative effect of 4.28 ktoe	Investment	2025-2030	193,8	State budget, sources of external donors, sources of external donors
Energy efficiency	PM_EE3	National Information System in the field of energy efficiency "SINEE"	Integrated information monitoring system in the field of energy performance in various sectors of the economy	Reform	2025-2030	1,5	State budget, sources of external donors
Energy efficiency	PM_EE4	Regulatory framework for the certification of the energy performance of buildings	The secondary regulatory framework necessary for the implementation of the energy performance certification of buildings developed. Initiation of energy performance certification of buildings	Reform	2025-2030	1,5	State budget, sources of external donors
Energy efficiency	PM_EE5	Deployment of smart metering systems and other advanced technologies metering to better respond on request, remote metering and billing according to the hours of electricity consumption	Cumulative effect of 13.4 ktoe Average annual effect of 2.6 ktoe	Reform	2025-2030	70	Sources of external donors, sources of the private sector
Energy efficiency	PM_EE6	Promotion of energy services and energy performance contracting	Regulatory framework for the implementation of energy services and energy performance contracting developed, market for energy services created	Reform	2024-2030	1,0	State budget Grants and funding from international organisations and development partners
Energy efficiency	PM_EE7	Efficient energy consumption in public buildings through the implementation of the Super ESCO mechanism.	Cumulative effect of 1.5 ktoe	Investment	2025-2030	30	State Budget, Grants and funding from international organisations and development partners
Energy efficiency	PM_EE8	Promotion of clean and efficient road transport vehicles from an energy point of view	New means of transport purchased by operators with public service contracts meet minimum efficiency and environmental requirements	Reform	2025-2030	20	State budget, sources of external donors, sources of private sector
Energy efficiency	PM_EE9	Increasing the share of alternatively fuelled motor	Cumulative effect of 2 ktoe Average annual effect of 0.4 ktoe	Investment	2025-2030	50	State budget, sources of external donors, sources of private sector

		vehicles, as well as developing the necessary national infrastructure for electric vehicles, charging points and their parking infrastructure	2030 – 11 thousand EVs				
Energy efficiency	PM_EE10	Increased use of rail for freight and passengers	Cumulative effect of 17.5 ktoe Average annual effect of 2.92 ktoe Shifting 30% of road freight to rail freight	Investment	2023-2030	186	State budget, sources of external donors
Energy efficiency	PM_EE11	Promoting sustainable mobility	Cumulative effect of 2.0 ktoe Average annual effect of 0.33 ktoe	Investment	2025-2030	5	State budget, sources of external donors, sources of private sector
Energy efficiency	PM_EE12	Carrying out mandatory energy audits by large enterprises	Contribution to all end-use measures Number of companies that prepared the energy audit	Reform	2025-2030	3	State budget, sources of private sector, sources of external donors
Energy efficiency	PM_EE13	Implementation of energy efficiency measures and exploitation of renewable energy sources within the industrial sector	Cumulative effect of 2.0 ktoe	Reform and	2024-2030	8	State budget, sources of external donors, sources of private sector
Energy efficiency	PM_EE14	Implementation of energy labelling and ecodesign requirements for energy-related products	Cumulative effect of 50.0 ktoe	Reform	2025-2030	1,5	Sources of the private sector
Energy efficiency	PM_EE15	Implementation of universal street lighting, with priority given to power supply from RES	Contribution to the objective of energy efficiency and recovery of renewable energy sources	Investment	2025-2030	4	Sources of the private sector
Energy efficiency	PM_EE16	Promotion/upgrading of high TEC units efficiency	Construction of new TECs with minimum high-efficiency cogeneration technologies 55 MW electrical power. 33.12 ktoe cumulative over 6 years	Reform and investment	2025-2030	82,5	Sources of external donors, sources of the private sector
Energy efficiency	PM_EE17	Modernisation of centralised heat supply systems	Cumulative effect of 5.5 ktoe Average annual effect of 0.91 ktoe Losses in the district heating network in % of the total volume of heat transferred: 18.1% (1.1% reduction compared to 2020) Full installation of Individual Thermal Points (ITPs) within SACET Chisinau Full deployment of ITP in SACET Balti Reconstruction of internal heating systems of residential blocks in Chisinau and Balti by moving to horizontal distribution of heat	Reform and investment	2024-2030	340	, Sources of external donors, sources of private sector
Energy efficiency	PM_EE18	Promoting measures to improve efficiency Energy in Electrical Infrastructure	Cumulative effect of 8.8 ktoe Average annual effect of 1.46 ktoe Electricity losses in the transmission grid will be reduced in % of total production plus net imports: 0.86 % reduction compared to 2020	Reform and investment	2025-2030	165	State budget, sources of external donors, sources of private sector

			Electricity losses in the distribution grid in % of total generation, plus net imports decrease by 0.85% compared to 2020				
Energy efficiency	PM_EE19	Promoting energy efficiency improvement measures in gas infrastructure	Cumulative effect of 13.7 ktoe Average annual effect of 2.28 ktoe Natural gas losses in the transmission network in % of the total volume of transferred natural gas: 3.72% reduction compared to 2020	Reform and investment	2025-2030	72,9	Sources of external donors, sources of the private sector
Energy efficiency	PM_EE20	Developing sustainable and innovative procurement of energy efficiency projects	Contribution to all end-use measures	Reform and investment	2025-2030	-	Sources of the state budget, sources of the private sector
Energy efficiency	PM_EE21	Making electricity consumption more efficient by replacing old inefficient appliances with the Home Appliances Voucher Program	Cumulative effect of 7 ktoe	Financial support	2024-2030	22	State budget, sources of external donors, sources of private sector
Energy efficiency	PM_EE30	Strengthening the institutional capacity of the Public Support Institution	Positioning the NED as a national focal point for addressing Moldova's energy efficiency requirements	Reform and investment	2023-2030	1,5	State budget, sources of external donors, sources of private sector
Energy security	PM_SE1	Construction of 400 kV OHL Vulcanesti – Chisinau	Increase in cross-border electricity transmission capacity along the Vulcanesti-Chisinau corridor	Investment	2020 -2026	61	Sources of external donors
Energy security	PM_SE2	400 kV OHL Balti – Suceava	Increase cross-border electricity transmission capacity	Investment	2025-2027	37	Sources of external donors
Energy security	PM_SE3	400 kV OHL Straseni – Gutinas	Increase cross-border electricity transmission capacity	Investment	2025-2031	-	Sources of external donors
Energy security	PM_SE4	Approval of the Electricity Transmission Network Development Plan 2025-2034, 10 years (TYNDP)	In order to ensure the long-term capacity of transmission networks, as well as their modernisation and development in a safe, reliable and efficient manner, SE "Moldelectrica" is obliged to draw up and propose for approval to the national regulatory authority a 10-year electricity transmission network development plan (TYNDP). The current plan is for 2018-2027 and has not been updated since 2017	Reform	2025-2034	0,2	Sources of external donors
Energy security	PM_SE5	Increasing the firm, bidirectional capacity of the natural gas transmission network at all interconnection points; diversification of routes and sources of supply of natural gas	Increase cross-border electricity transmission capacity	Investment	2024-2030	0,2	Sources of external donors
Energy security	PM_SE6	Removal of internal restrictions in the gas transmission system	Study on removing technical limitations transmission of natural gas on the territory of the Republic of Moldova	Research	2025-2030	0,2	State budget
Energy security	PM_SE7	Maintaining security stocks of natural gas	Maintaining security stocks of natural gas	Investment	2025-2030	EUR 16.5 million	Sources of the private sector

Energy security	PM_SE8	Creation of minimum stocks of petroleum products	Number of days of consumption	Investment	2025-2030	30	Sources of the private sector
Energy security	PM_SE9	Improving energy-related cybersecurity	Enhancing energy-related cybersecurity	Investment	2025-2030	1,5	State budget, sources of external donors
Internal energy market	PM_IEM1	Transposition and implementation of the Network Codes and EU Guidelines for the electricity sector, transposition of the Electricity Integration Package	Infrastructure, policies and measures related to market-based price formation, market integration aimed at increasing trading capacity, consumer protection and improving competition, regional integration	Reform	2024-2030	2,5	State budget, sources of external donors
Internal energy market	PM_IEM 2	Obtaining by SE "Moldelectrica" of ENTSO-E observer status	Developing opportunities for participation in the European electricity market in order to increase the flexibility of the national energy system, diversifying electricity supply	Reform	2025-2030	0,5	State budget, sources of external donors
Internal energy market	PM_IEM 3	Implementation of the Development Plan of the 10-year transmission power grid (TYNDP)	Increasing reliability indicators, as well as ensuring an adequate response to the increase in consumer demand and electricity generation capacity.	Investment	2025-2030	40	Sources of external donors
Internal energy market	PM_IEM 4	Development of the transport network natural gas and interconnection capacities	Exploring the possibility of building gas storage facilities (underground or ground) in the Republic of Moldova	Investment	2025-2030	0,2	Sources of external donors, sources of the private sector
Internal energy market	PM_IEM 5	Increasing transparency and integrity wholesale energy markets	Increase the availability of operational data on electricity and natural gas volumes for transactions for market participants.	Reform	2025-2030	1,5	Sources of external donors
Internal energy market	PM_IEM 6	Establishing day-ahead and intraday markets	Increase in the number of transactions and electricity market participants.	Reform	2024-2025	0,3	State budget/ANRE budget (Regulatory payments)/tariff for electricity market operation service
Internal energy market	PM_IEM 7	Nominated electricity market operator (NEMO)	Increase in the volume of electricity transported, increase in the number of market participants, implementation of same-day and next-day electricity transactions and increase in the number of bilateral contracts	Reform	2025-2030	0,01	State budget/ANRE budget (Regulatory payments)/tariff for electricity market operation service
Internal energy market	PM_IEM 8	Day-ahead market coupling and intraday with similar markets in the EU	Increase in the number of transactions and electricity market participants and the possibility for electricity market participants to trade on a larger market with a larger number of participants for the purpose of trading electricity or procuring electricity at lower prices	Reform	2025-2030	1,5	State budget/ANRE budget (Regulatory payments)/tariff for electricity market operation service v
Internal energy market	PM_IEM 9	Continuous market opening and gradual liberalisation of electricity and gas markets	Increasing the quality of supply indicators, smart grid deployment, aggregation, demand response services, and distributed storage and generation	Reform	2025-2030	1,5	Sources of external donors
Internal energy market	PM_IEM 10	Facilitating the switching process	Improved quality of electricity supply indicators, increased system flexibility, increased	Investment	2025-2030	0,5	Sources of external donors

			number of suppliers, increase in number of contracts				
Internal energy market	PM_IEM 11	Identifying adequate social aid tailored to the needs of vulnerable consumers	Protection of vulnerable consumers through adequate social aid, such as compensation for the consumption of natural gas, heat and electricity	Investment	2025-2030	2,3	State budget, sources of external donors
Research, innovation and competitiveness	PM_RIC1	Project competition on the transfer of innovations and technologies, including in the field of "Environment and Climate Change"	Increasing the level of technological readiness in the field of energy (Qualitative objectives)	Research	2025-2030	7,4	State budget, sources of external donors
Research, innovation and competitiveness	PM_RIC2	Improving the management of research, innovation and development	Increasing the level of technological readiness in the field of energy (Qualitative objectives)	Research	2025-2030	4,6	State budget, sources of external donors
Research, innovation and competitiveness	PM_RIC3	Promoting the creation and use of science and technology parks and innovation incubators	Increasing the level of technological readiness in the field of energy (Qualitative objectives)	Research	2025-2030	210	State budget, sources of external donors, sources of private sector
Research, innovation and competitiveness	PM_RIC4	Establishment, involvement and creation of networks of intermediary institutions associated with the flow of information, management, technology and funding for technology transfer	Increasing the level of technological readiness in the field of energy (Qualitative objectives)	Research	2025-2030	1,8	State budget, private sector sources
Research, innovation and competitiveness	PM_RIC5	Promoting smart specialisation	Development of innovative products	Research	2025-2030	18,4	State budget, bears of the private sector
Research, innovation and competitiveness	PM_RIC6	<i>Sandbox</i> for energy innovation and technology	Development of innovative products	Research	2025-2030	25	Sources of the private sector
Research, innovation and competitiveness	PM_RIC7	Support cooperation between other Member States in the field of technology transfer and capitalise on research results	Increasing the level of technological readiness in the field of energy (Qualitative objectives)	Research	2023-2030	5,5	Sources of external donors

