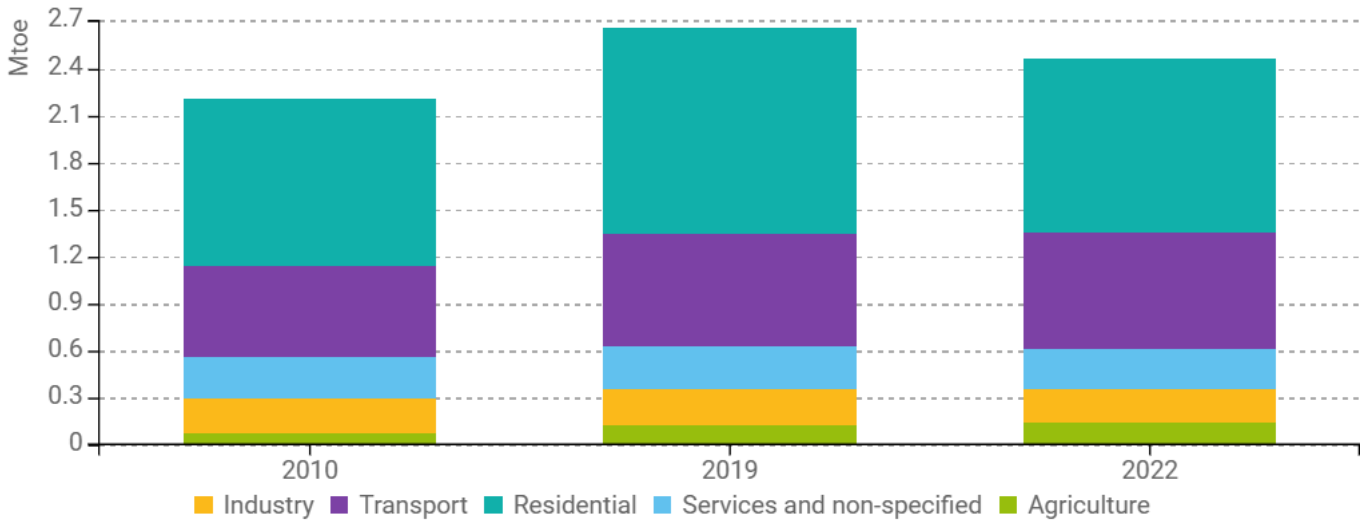
Energy efficiency trends and policies

Overview

Moldova's total final energy consumption reached 2.5 Mtoe in 2022, an increase of 12% (i.e. 0.3 Mtoe), compared to the 2010 level. In 2022, the largest consuming sector is residential, representing 45% of total final energy consumption. The share of residential has slightly decreased (-3 points since 2010), while transport increased its share by almost 4 points, from 26.3% to 30%. The share of agriculture also increased from 3.2% to 5.6%.

Figure 1: Final energy consumption by sector (with climatic corrections)



Source: ODYSSEE

As shown in Figure 2, final energy intensity has decreased by 12% since 2015, 1 point slower than the primary energy intensity (-13%). This trend reflects improved energy efficiency, demonstrating that economic growth is being achieved with lower energy consumption. It indicates sustainable development, highlighting the decoupling of economic output from energy use, while accounting for weather-related factors.

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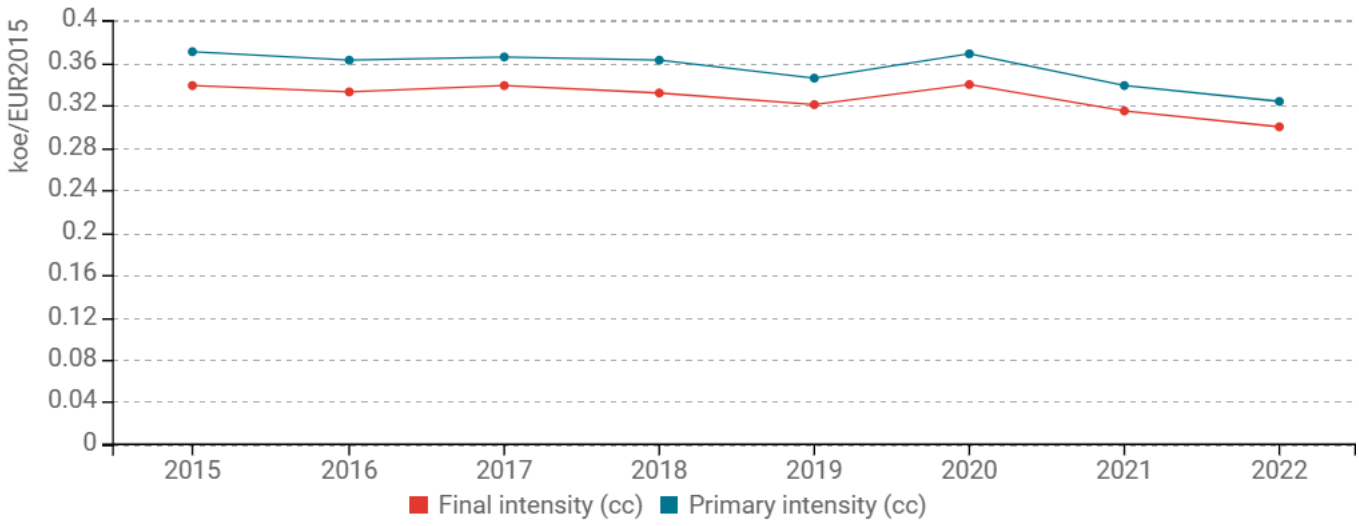
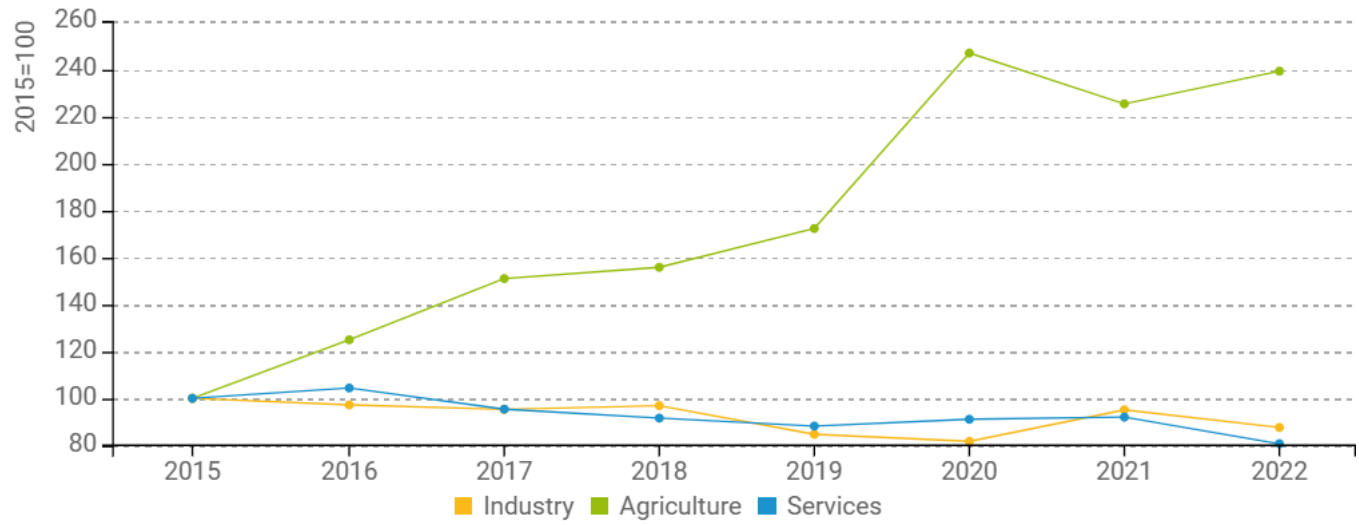
Figure 2: Primary and final intensities (with climatic corrections)



Source: ODYSSEE

Figure 3 shows the final intensity by sector. It indicates that the energy intensity of the industrial sector dropped by 12% between 2015 and 2022. During this period, the energy intensity of the agricultural sector increased significantly by 139%, while the energy intensity of the services sector decreased by 19%.

Figure 3: Final intensity by sector



Source: ODYSSEE

Figure 4 shows the factors influencing changes in total energy supply. Between 2010 and 2022, Moldova's total energy supply increased by approximately 0.1 Mtoe, mainly driven by final consumption variation (0.2 Mtoe) and non-energy uses (0.02 Mtoe). This increase was partially counterbalanced by reductions in power sector consumption (-0.01 Mtoe) and other transformations (-0.06 Mtoe).

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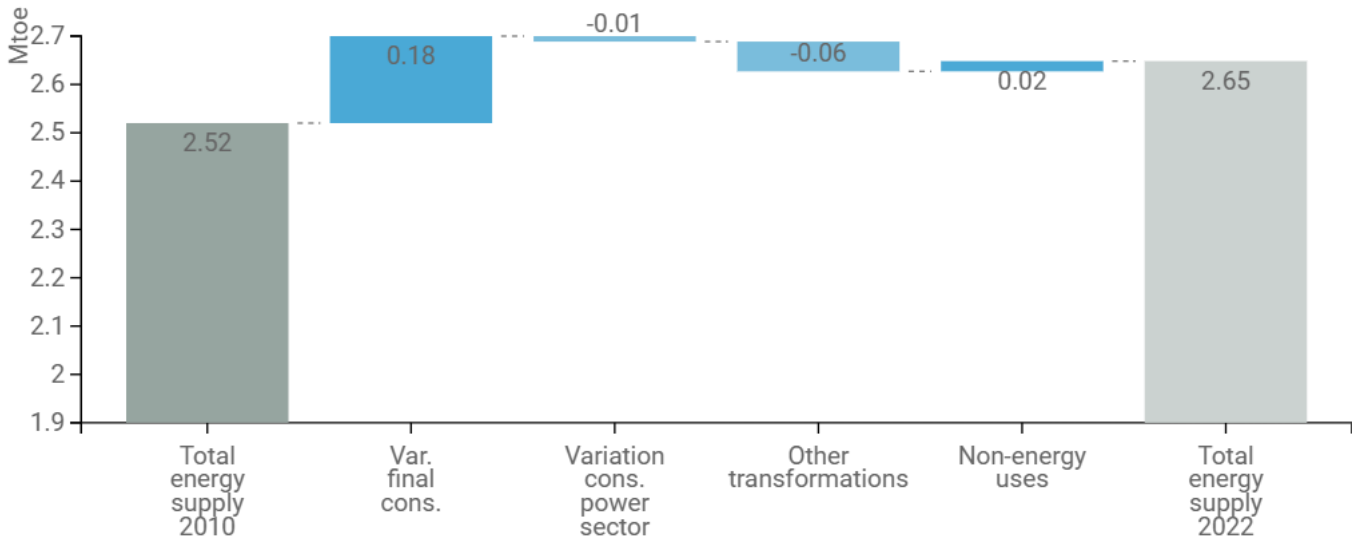
Figure 4: Main drivers of the total energy supply variation



Source: ODYSSEE

Moldova's energy efficiency efforts are steadily progressing, with clear alignment to the Energy Community's goals and the inclusion of 2030 energy efficiency targets in the National Development Strategy. In May 2023, significant amendments to the Law on Energy Efficiency laid the legal groundwork for integrated planning, ensuring the updating of specific targets, improved energy metering, and enhanced user access to information. In terms of buildings, Moldova has successfully transposed the Energy Performance of Buildings Directive, adopting laws related to building energy certification and the renovation of central government buildings. Energy Efficiency Obligation Scheme Programme was updated in 2023 to ensure alignment with the revised Energy Efficiency Directive. The National Centre for Sustainable Energy is responsible for managing funding for energy efficiency projects in residential buildings, including overseeing a dedicated residential energy efficiency fund. In the terms of energy-efficient products, Moldova took a significant step by adopting a law in October 2023 to transpose the EU's Framework Labelling Regulation. In March 2024, new energy labelling regulations were introduced for five product groups, further enhancing the country's commitment to energy efficiency. Lastly, Moldova's heating and cooling legislation is largely aligned with EU directives, although its implementation is ongoing. Outdated heating systems in major cities are being replaced with more efficient alternatives to enable consumption-based billing, while secondary legislation is being updated for a smooth transition.

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Table 1: Sample of cross-cutting measures

Measures	NECP measures	Description	Expected savings
The programme on implementation of the energy efficiency obligation scheme for the period 2024-2026	No	According to the data collected during the draft long-term sectoral strategy for the renovation of the national real estate fund (May 2020), conducted with the support of the European Union, the potential for reducing final energy consumption in residential buildings is approximately 45%. Therefore, improving the energy performance of residential buildings is the most sustainable way to mitigate the impact of high energy prices and tariffs on the population. Facilitating this process can be achieved by implementing an attractive financing mechanism for renovating and enhancing the energy efficiency of dwellings. This programme aims to achieve the following specific objectives: (i) annual achievement of a minimum of 2.4 ktoe of new energy savings for final consumers in the residential sector, (ii) annual renovation of a heated area of at least 155 thousand m2 in residential blocks and 56 thousand m2 in individual houses, (iii) reduction of energy resource consumption by at least 30% compared to consumption under normal conditions in buildings of the residential sector benefiting from financing programmes.	14.4 ktoe of cumulative energy savings over the period 2024-2026

Source: MURE

Buildings

As shown in Figure 5, final consumption in the residential sector has increased by 5% since 2010, reaching 1.1 Mtoe in 2022 from 1 Mtoe. At the same time, final consumption in the services sector has slightly decreased by 3%. The consumption of buildings has decreased by 13% since 2019, of which 15% in the residential sector. In 2022, around 74% of the consumption of buildings was in the residential sector.

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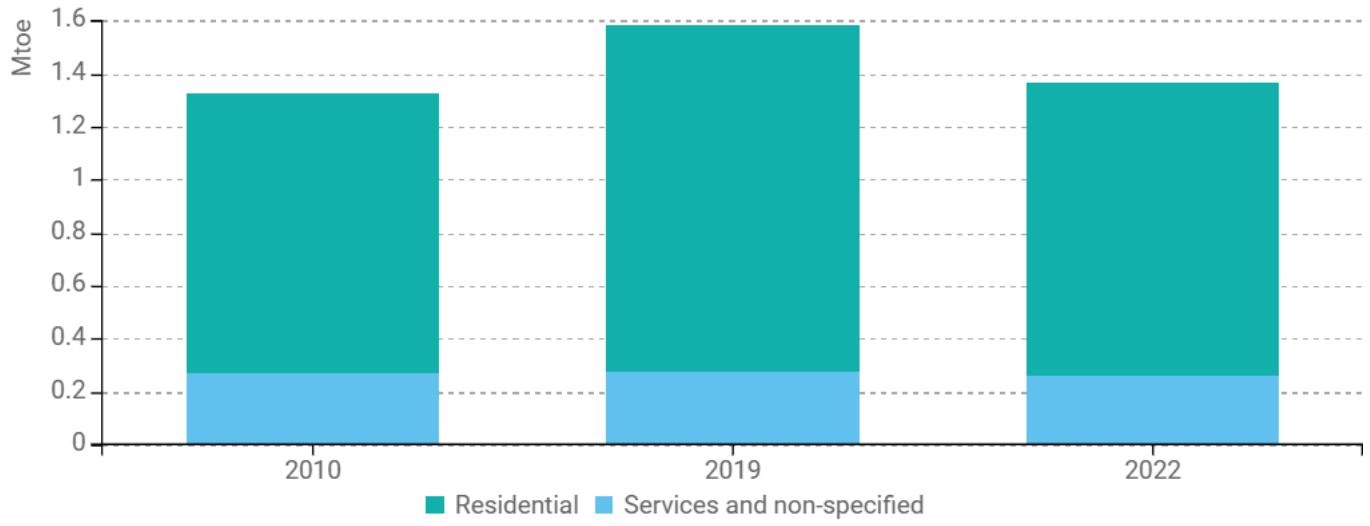
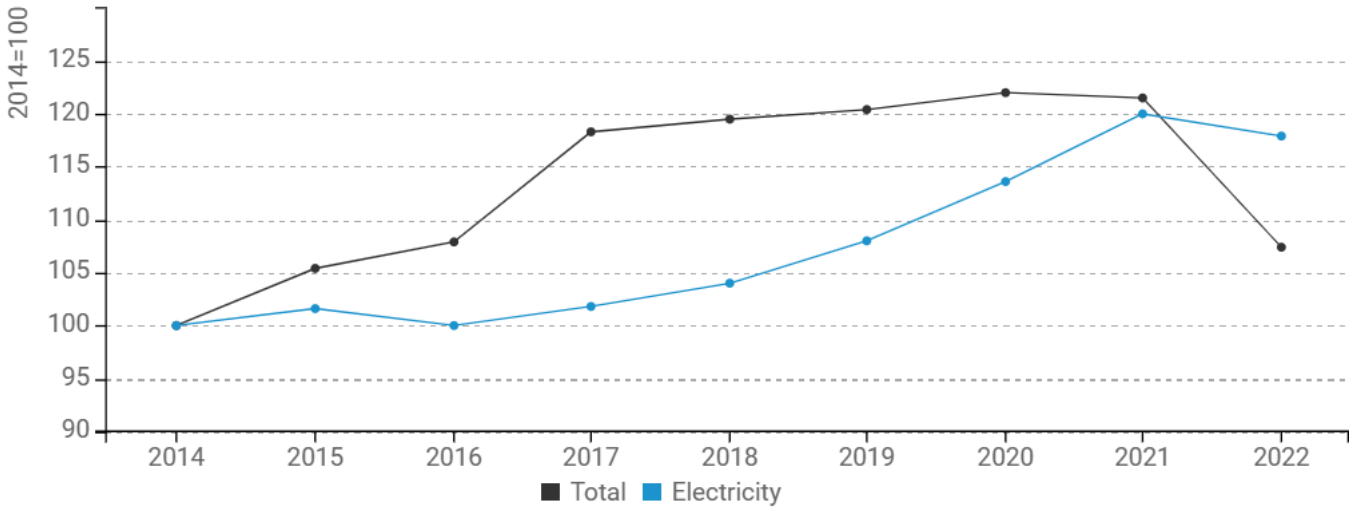
Figure 5: Final energy consumption in buildings (with climatic corrections)



Source: ODYSSEE

Energy consumption per capita in households increased by 7% between 2014 and 2021 and has been steadily rising, but it decreased significantly in 2022, driven by higher prices. In 2022, per capita electricity consumption in households was 18% higher than in 2014.

Figure 6: Energy and electricity consumption in households per capita (with climatic corrections)



Source: ODYSSEE

After increasing steadily from 2017 to 2020, the unit consumption per capita for space heating decreased rapidly, by 17% or 9%/year: it stood– in 2022 11% below its 2017 level.

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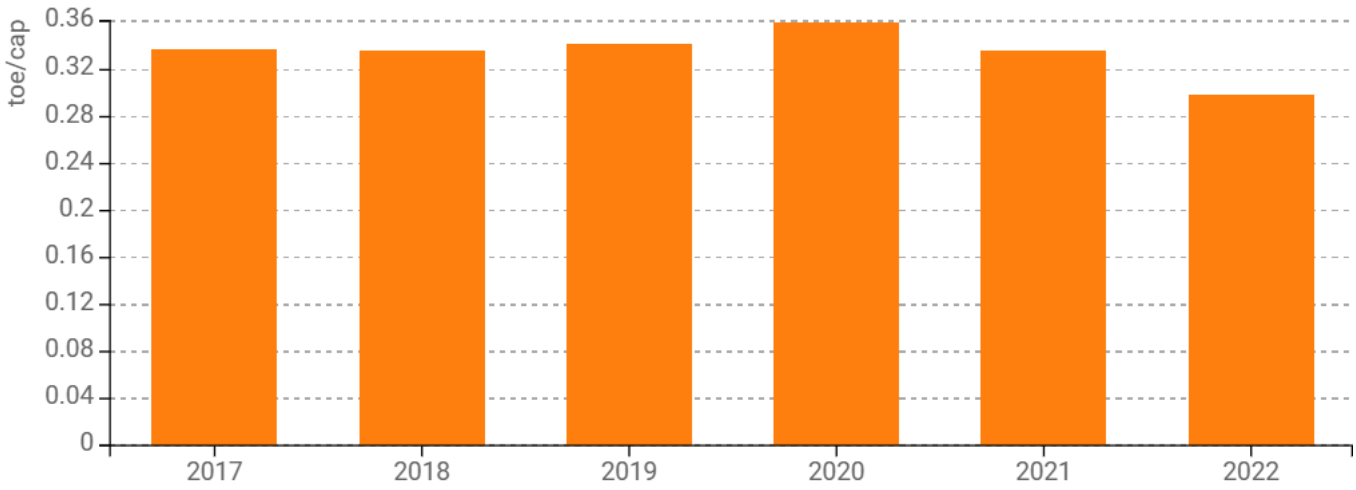
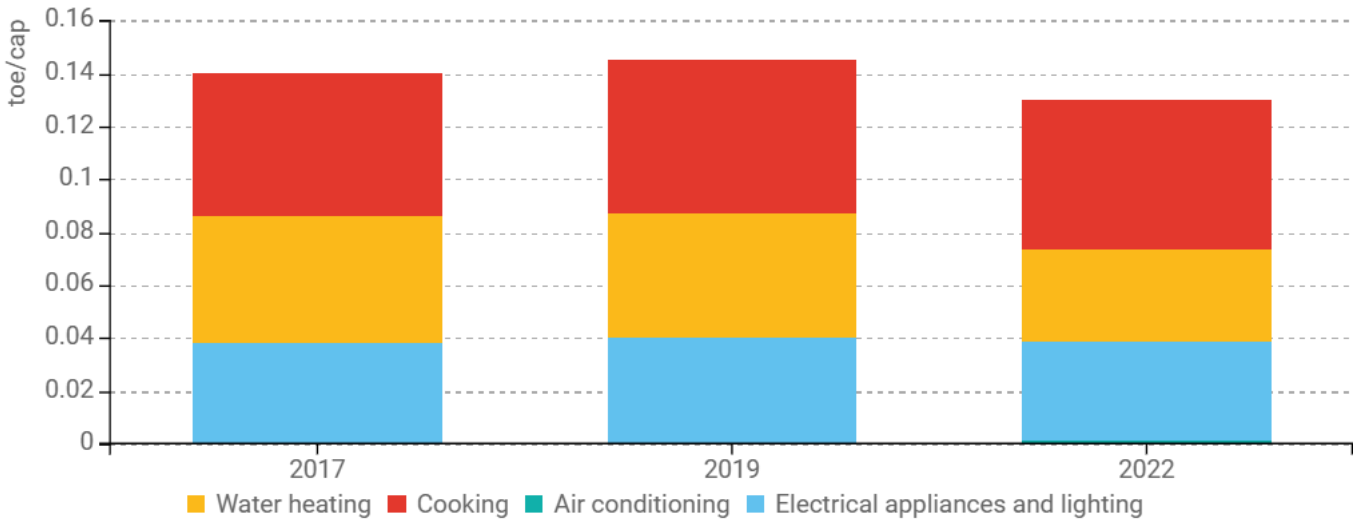
Figure 7: Energy consumption per capita for space heating in households (with climatic corrections)



Source: ODYSSEE

The energy consumption per capita for the other households end-uses (cooking, water heating and appliances) stayed relatively constant until 2019 and then decreased by 7%.

Figure 8: Energy consumption per capita by end-use in households (except space heating)



Source: ODYSSEE

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The transposition of the Energy Performance of Buildings Directive has been completed. In October 2023, Parliament adopted a new Law on Energy Performance of Buildings intended to transpose Directive 2018/844. In September 2024, Moldova adopted new regulations on energy performance certification of building and building units, as well as qualifications and registering of experts for certification and inspection of heating systems, ventilation and air conditioning. The programme for the implementation of the obligation to ren ovate central government buildings 2024–2026 was adopted in March 2024, followed by the adoption of Financing Programme for Energy Efficiency in Residential Sector in April 2024. How ever, a long-term building renovation strategy and a plan for nearly-zero energy buildings were not yet adopted.

Table 2: Sample of policies and measures implemented in the building sector

Measures	NECP measures	Description	Expected savings, impact evaluation
Law No. 282/2023 on Energy Performance of Buildings (Legea nr. 282/2023 cu privire la performanța energetică a clădirilor)	No	Improving the energy performance of buildings is a strategic objective for Moldova, given the significant share of the building sector in national energy consumption and its substantial untapped potential for primary energy savings. In October 2023, Moldova adopted a new law on the energy performance of buildings intended to transpose Directive EU 2018/844. In this context, the regulations on the energy efficiency certification procedure for buildings and building units, as well as the regulations on the qualification and registration of energy assessors, heating system inspectors, and ventilation and air conditioning system inspectors were approved in September 2024.	2.751 PJ (total annual savings in 2030)
The Voucher Program for household appliances (Programul de vouchere pentru electrocasnice)	No	The Voucher Program for household appliances is a national program that provides financial aid to reduce energy resource consumption in vulnerable households by replacing old, high-energy-consuming appliances with new, energy-efficient ones. Vouchers are allocated for: (i) refrigerators, (ii) washing machines. The beneficiaries of the Voucher Program were selected through the 'Energy Vulnerability' information system, developed in accordance with the provisions of Law No. 241/2022 on the Energy Vulnerability Reduction Fund. The value of the vouchers, the criteria for selecting beneficiaries, and the approved budget for the voucher distribution sessions are determined for each session separately.	0.085 PJ (total annual savings in 2030)

Source: MURE

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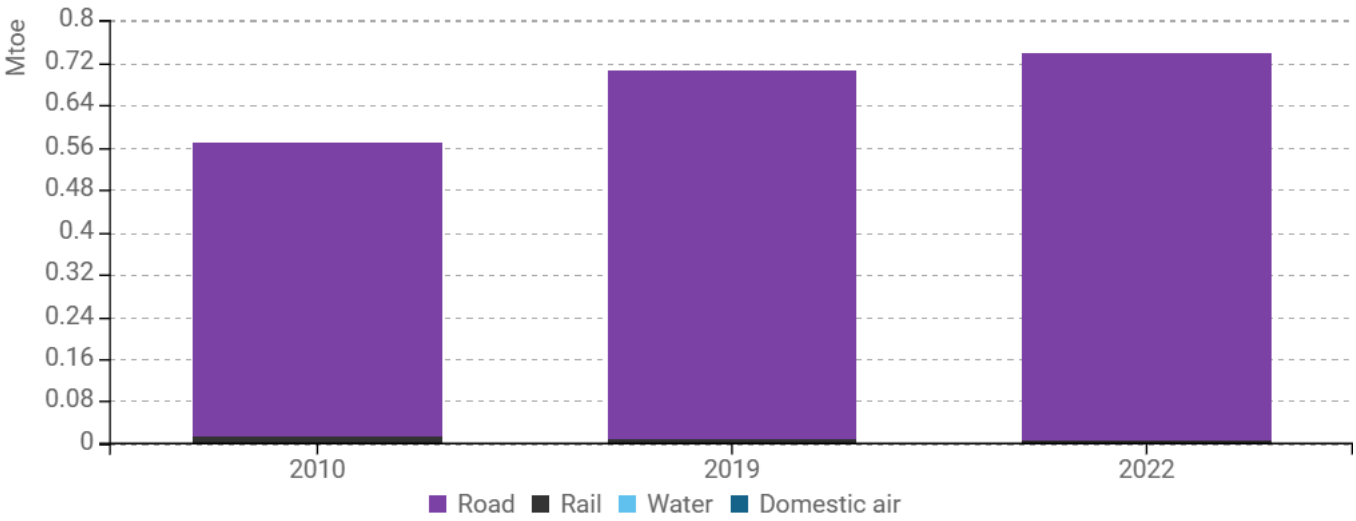
Transport

Final energy consumption in transport is dominated by road transport, covering 99% of total consumption in 2022. Compared to 2010, the share of road transport increased by 1.8% points, to the detriment rail transport, which consumption stayed almost constant.

Figure 9: Transport energy consumption by mode



Source: ODYSSEE

The transport sector in Moldova has significant potential for energy savings. The following measures and policies are planned for implementation up to 2050: (1) deployment of electromobility, (2) improvements to public transport infrastructure, (3) development of sustainable regional and municipal mobility plans, (4) enhancing rail transport efficiency, (5) promoting rail over road freight transport, (6) enhancing energy efficiency in freight transport, (7) transitioning public and freight transport to hybrid or electric vehicles, (8) encouraging fuel-efficient driving.

Table 3: Sample of policies and measures implemented in the transport sector

Measures	NECP measures	Description	Expected savings
Promoting sustainable mobility	Yes	The measure will aim to promote energy efficiency in the transport sector by setting emission performance standards for new passenger cars and light commercial vehicles. Additionally, the promotion of energy-efficient vehicles will be supported through specific tax advantages to encourage the purchase of EVs and hybrid vehicles. The taxation framework for the transport sector will be optimized by selecting the most effective tax structures to balance the total cost of ownership while promoting vehicle energy efficiency and the use of low-emission fuels.	59.2 ktoe (cumulative effect in 2030)

Source: MURE

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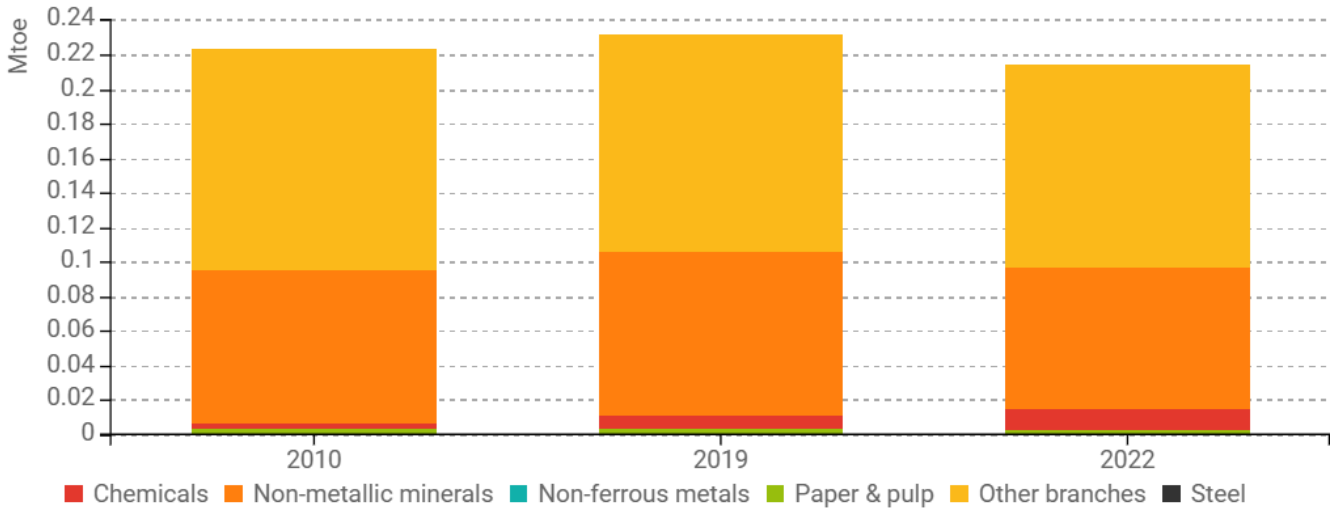
Industry

The final energy consumption of the industrial sector decreased from 0.22 Mtoe in 2010 to 0.21 Mtoe in 2022 (-4%). The two largest industrial branches are food and non-metallic minerals, with 41% and 38%, respectively, of the total consumption of industry. During this period, the energy consumption in the food industry decreased by 3%, while the energy consumption of non-metallic minerals decreased by 7%. The energy consumption of other industrial branches remained roughly stable.

Figure 10: Final energy consumption of industry by branch



Source: ODYSSEE

In 2023, Moldova submitted its Fifth National Communication to the UNFCCC, detailing decarbonization efforts across all sectors, and actively advancing its sustainable energy and decarbonization agenda. The country's updated Nationally Determined Contribution (NDC), submitted in March 2020, includes a commitment to reduce GHG emissions by 70% below 1990 levels by 2030, with emissions already 68.7% lower than in 1990. Financing programs are supporting small and medium-sized enterprises (SMEs) to enhance energy efficiency and install renewable energy plants, helping to reduce energy and fuel consumption. Expanding renewable energy exports is a key strategy for diversifying energy sources, improving energy security, reducing reliance on uncertain supplies, and promoting sustainable economic development. These efforts reflect Moldova's integrated approach to boosting renewable energy capacity, improving energy efficiency, and achieving long-term emission reductions.

Table 4: Sample of policies and measures implemented in the industry sector

Measures	NECP measures	Description	Impact evaluation
Promotion of energy efficiency in SME	Yes	The measure will support SMEs in improving energy efficiency and installing renewable energy plants. Its implementation will contribute to achieving Specific Objective 4, Action 4.2 of the Low Emission Development Program, aiming to reduce energy and fuel consumption by 7.627 ktce (unconditional) and an additional 3.748 ktce (conditional) by 2026.	Reducing GHG emissions by 70 % in 2030 compared to base year 1990

Source: MURE

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