



# The impact of energy import dependency on affordable and reliable energy access in Europe

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# Research Purpose

The purpose of this study is to analyze and assess the relationship between dependence on energy imports and access to affordable and reliable energy in Europe, with a focus on the specific cases of the Republic of Moldova and Romania, in the context of Sustainable Development Goal 7 (SDG 7—Affordable and Clean Energy).

Through a comparative analysis of Eurostat data for the periods 2015-2024 and 2021–2024, the study aims to identify the extent to which external energy dependence influences the transition to renewable sources, energy prices, and the population’s energy vulnerability.





# Objectives of the Research Article

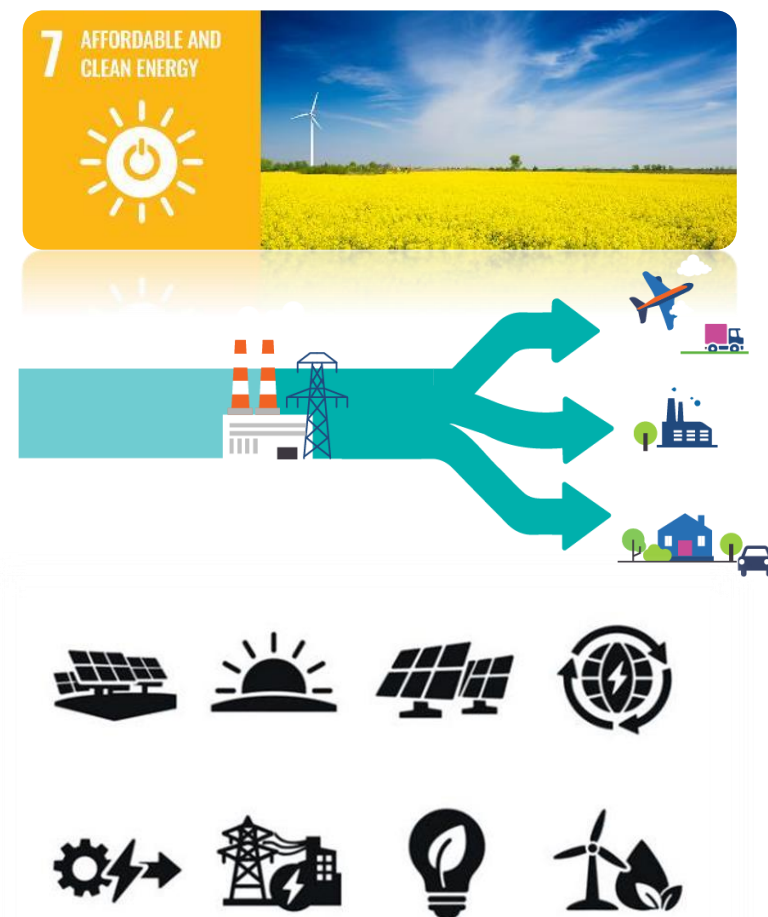
1. **To analyze** a comparative analysis of the level of energy dependence on imports across 10 European countries and to identify the position of Romania and the Republic of Moldova within the European context.
2. **To examine** the relationship between energy import dependence and SDG 7 indicators through statistical analysis.
3. **To assess** the trajectories of the energy transition in Romania and the Republic of Moldova and to estimate the gap relative to the RED III target for 2030.
4. **To identify** the main barriers to the green transition in the Republic of Moldova and to formulate public policy recommendations.

# Background & Definitions

**SDG 7 (Affordable and Clean Energy)** — One of the UN's 17 Sustainable Development Goals, which aims to ensure universal access to affordable, reliable, sustainable, and modern energy by 2030.

**Energy Import Dependency** — The extent to which a country relies on foreign imports to meet its energy needs, expressed as a percentage of gross available energy. The higher the value, the greater the country's energy vulnerability.

**Renewable Energy** — Energy produced from renewable natural sources—solar, wind, hydro, and biomass—which reduces dependence on imported fossil fuels and directly contributes to achieving SDG 7 targets.



# Research directions



Increasing renewables share as a tool to cut import dependency



Aligning candidate countries with RED III and REPowerEU targets



Impact of import dependency on household electricity prices and energy poverty

# Key barriers



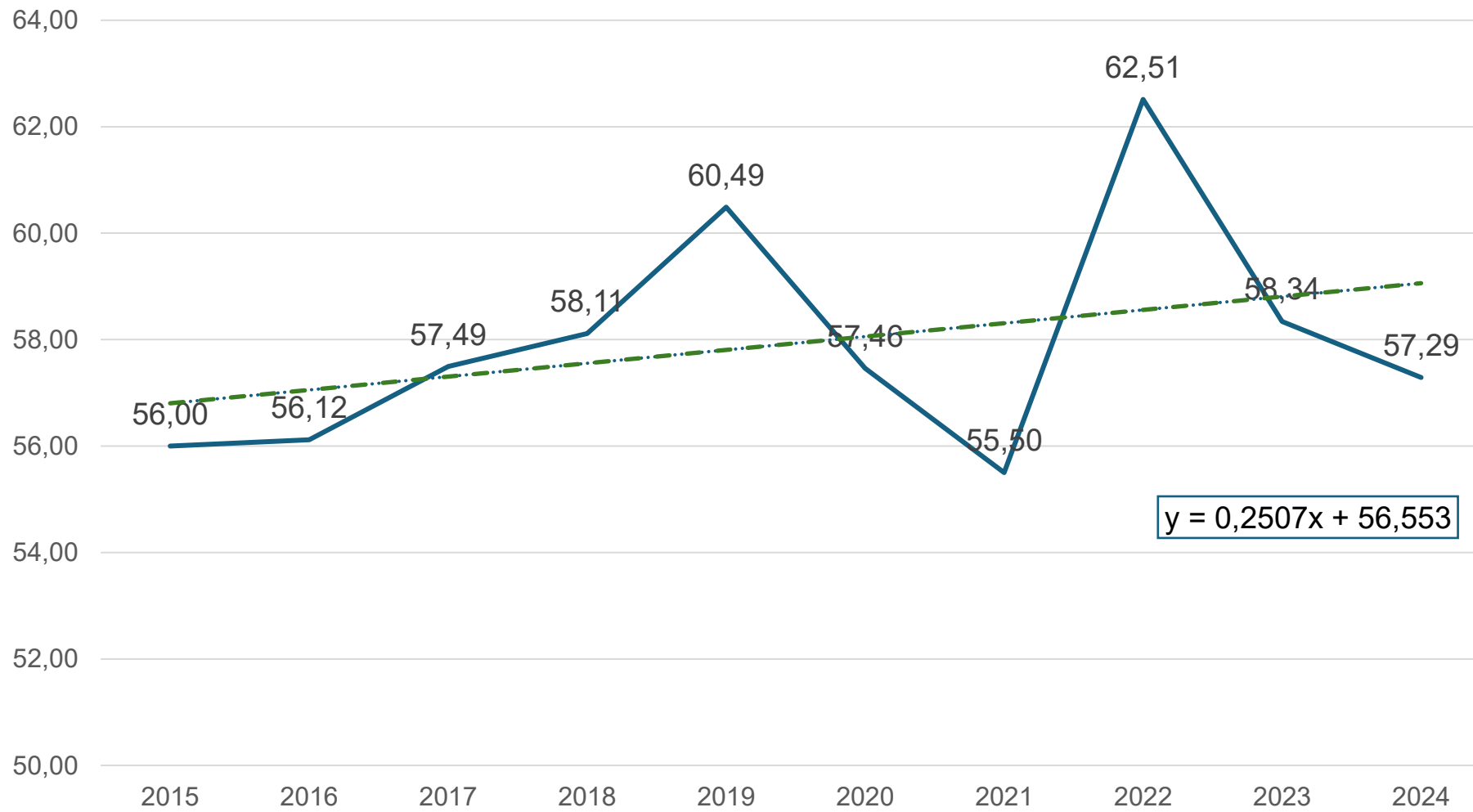
High cost of clean technologies



Lack of qualified workforce

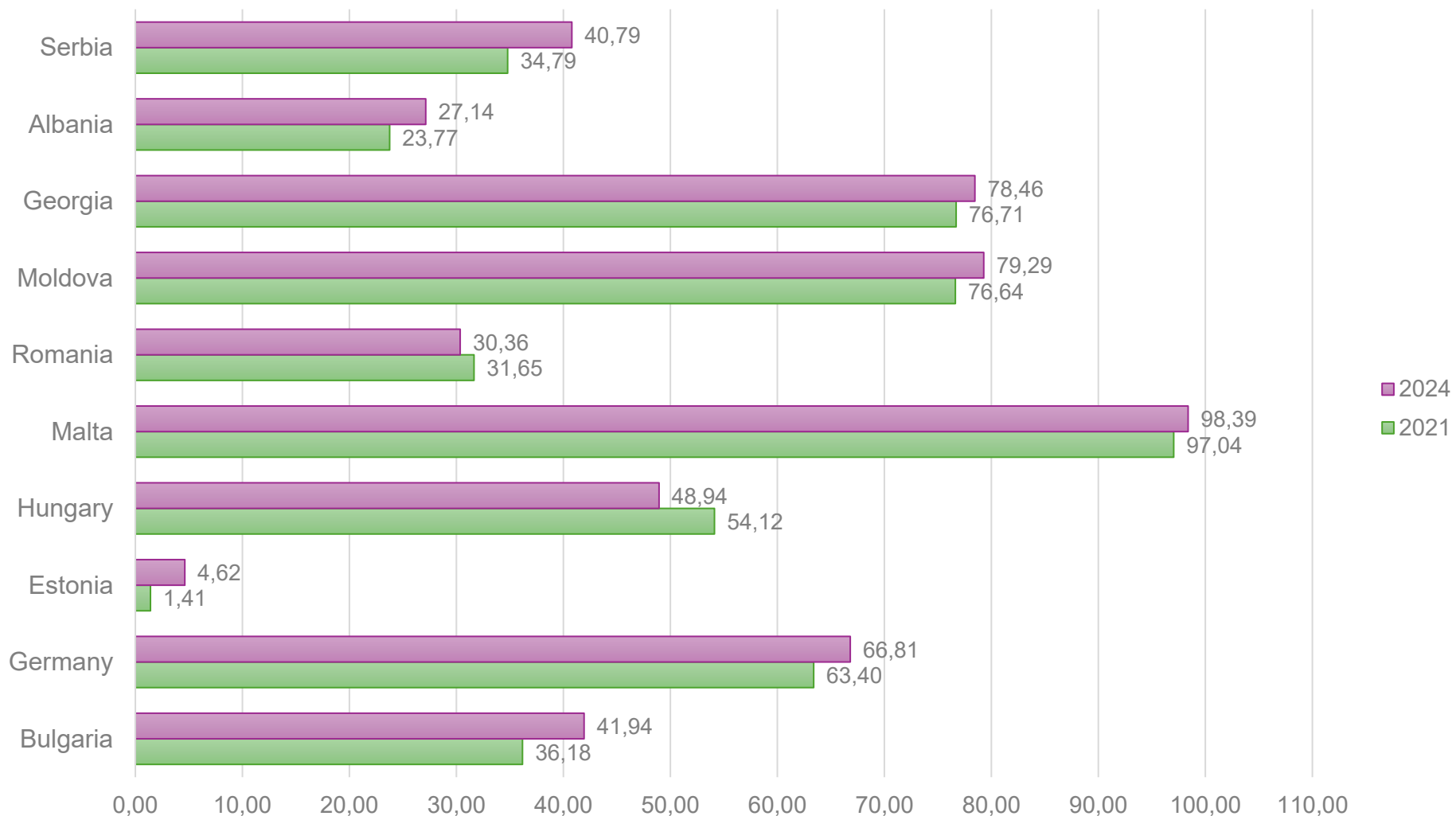


Gap from RED III 2030 target



**Figure no. 1.** Evolution of energy import dependency in the EU-27, 2015–2023 (%)

Source: Own elaboration based on Eurostat, Energy import dependency, dataset nrg\_ind\_id (2015–2024)



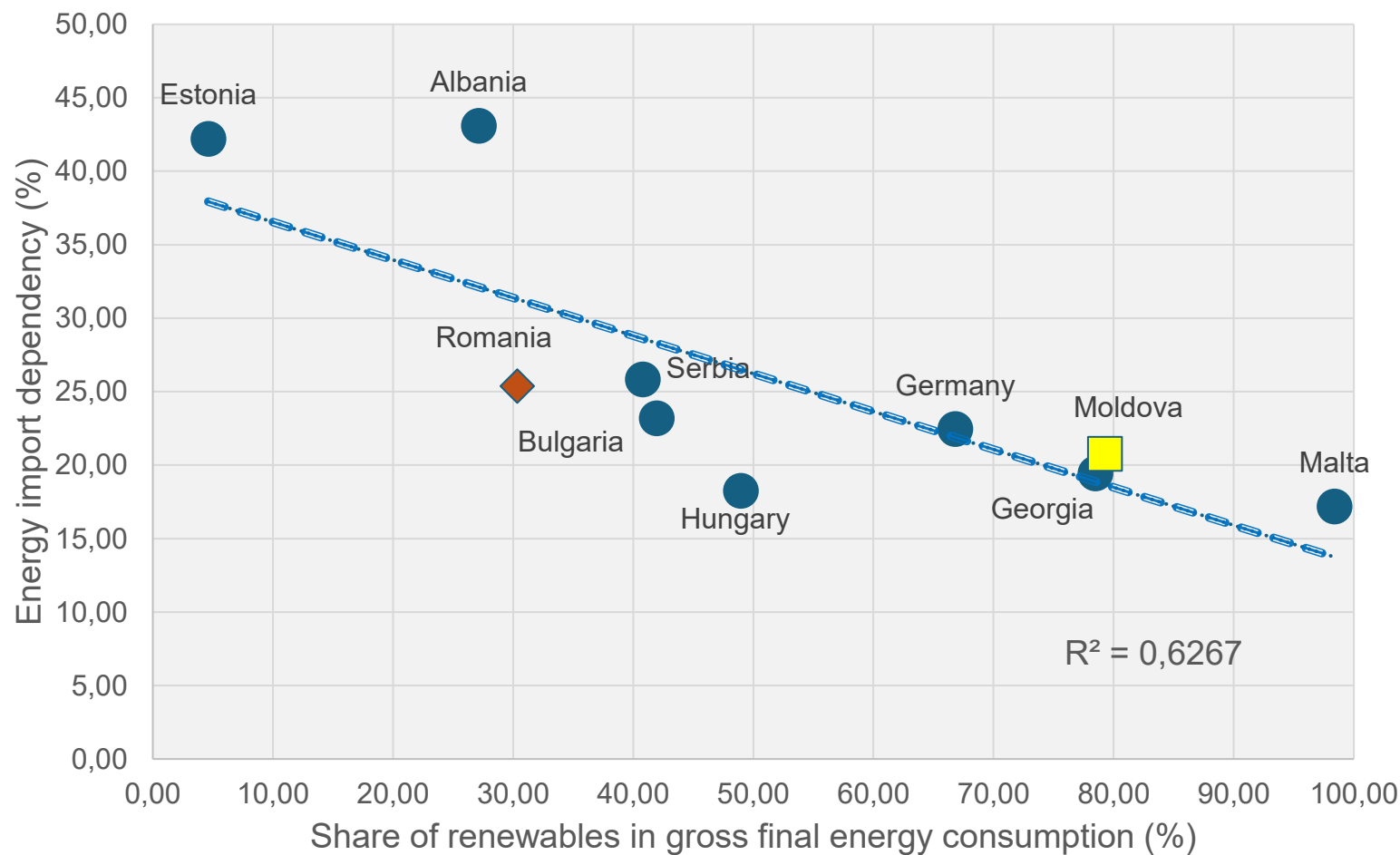
**Figure no. 2.** Changes in energy import dependency across selected European countries, 2021 and 2024 (% of gross available energy)

Source: Own elaboration based on Eurostat, Energy import dependency by country, dataset nrg\_ind\_id, 2021 and 2024

**Table no. 1.** Selected affordable and clean energy indicators (SDG 7) for EU-27, Romania and Moldova, 2021 and 2024

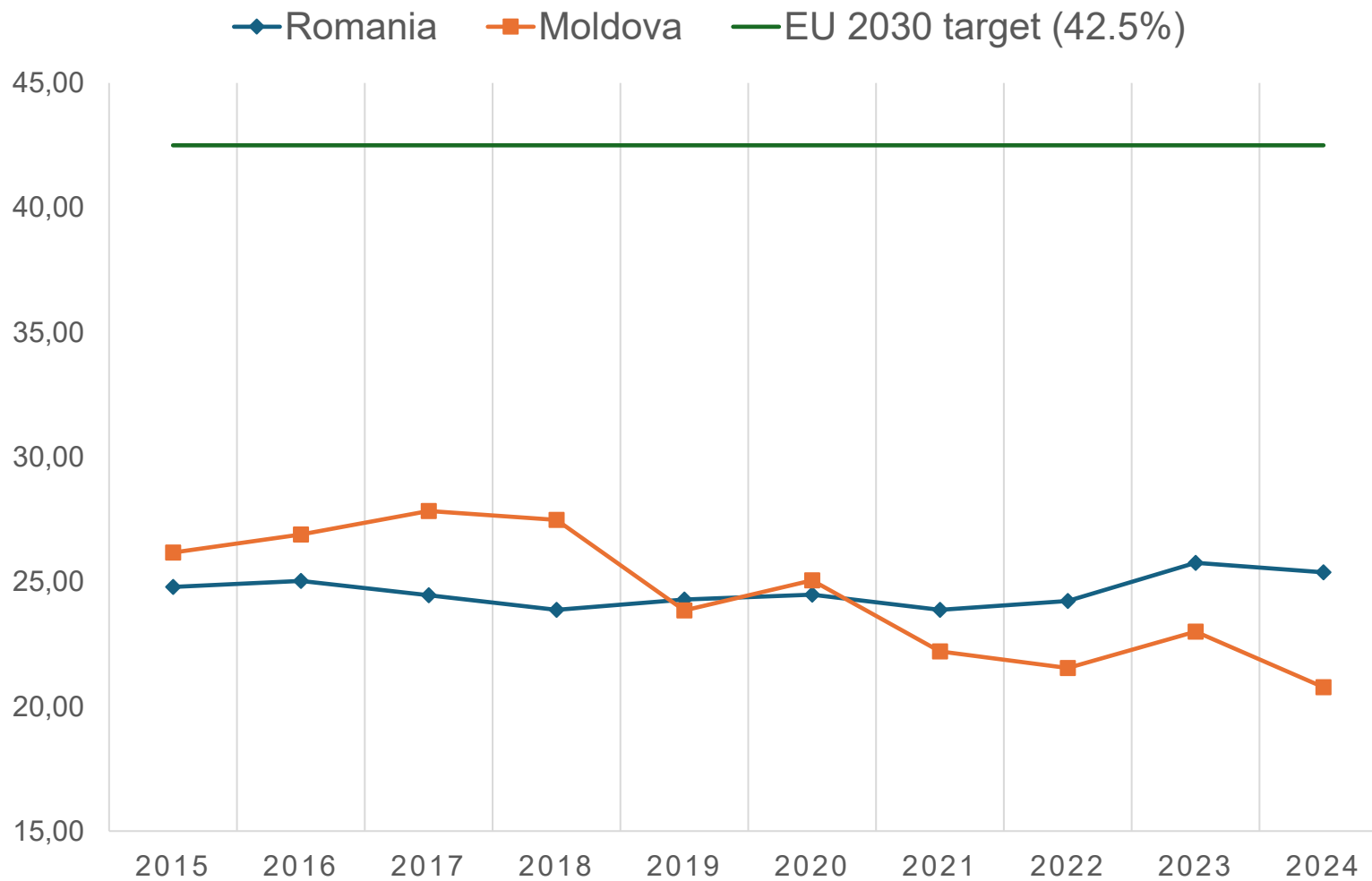
Indicator (SDG 7)	EU-27 2021	EU-27 2024	Romania 2021	Romania 2024	Moldova 2021	Moldova 2024
Energy import dependency (%)	55,50	57,28	31,65	30,36	76,64	79,29
Share of renewables in gross final energy consumption (%)	21,89	25,25	23,87	25,37	22,20	20,76
Population unable to keep home adequately warm (%)	6,90	9,20	10,10	10,80	-	-
Energy productivity (PPS per kgoe)	10,11	13,52	13,34	19,13	-	-
Electricity prices – households (€/kWh)	0,13	0,19	0,07	0,05	0,05	0,08

Source: Own elaboration based on Eurostat, datasets nrg\_ind\_id, sdg\_07\_40, sdg\_07\_60, sdg\_07\_30, nrg\_pc\_204 (2021 and 2024)



**Figure no. 3.** Correlation between energy import dependency and share of renewables in gross final energy consumption, selected European countries, 2024 (%)

Source: Own elaboration based on Eurostat, datasets nrg\_ind\_id and nrg\_ind\_ren (2024)



**Figure no. 4.** Renewable energy share trends in Romania and Moldova compared to the EU 2030 target, 2015–2024 (%)

**Table no. 2.** Economic challenges of Moldova's green transition

Challenges	Description	Impact on Moldova	Recommended solution
<b>High cost of technology</b>	Renewable energy sources and energy-efficient solutions require significant investments that are beyond the reach of most enterprises.	Renewables share declined to 20.76% (2024) — investment gap widening	Access to EU pre-accession green funds; public co-financing mechanisms for SMEs adopting clean technologies
<b>Limited budget</b>	Share of "green" budget expenditure <1% (2024)	No structural budget allocation for energy transition programs	Increase green budget to minimum 3–5%; align fiscal planning with REPowerEU and National Energy Strategy targets
<b>Lack of infrastructure and personnel</b>	Only ~5% of jobs are in "green" sectors.	Limited institutional monitoring — key SDG 7 data missing for Moldova	Develop national green skills programs; strengthen energy data reporting capacity through EU technical assistance
<b>Insufficient tax and subsidy reform</b>	Benefits for fossil fuels exceed incentives for renewable energy sources	Misaligned subsidies slow private investment in renewables — dependency rising to 79.29%	Phase out fossil fuel subsidies; introduce tax incentives for renewable producers and energy-efficient households

Source: Own elaboration based on Eurostat, datasets nrg\_ind\_id, nrg\_ind\_ren (2021–2024) and national budget reporting data

# Research Conclusions

- Moldova (79,29% dependency, 2024) represents a critical anomaly — a landlocked country reaching island-state dependency levels, while renewables share declined from 26,17% to 20,76% (2015–2024)

- Romania follows a favorable trajectory, reducing dependency and increasing renewables share in line with EU-27 average

- Strong negative correlation ( $r = -0.79$ ) confirmed: countries with higher renewables share show lower energy import dependency

- Accelerating renewable energy deployment is not a policy option but a strategic necessity, especially for Moldova in its EU integration process