industry and waste sectors²¹

State: 22.06.2023

Renewable energy targets

National Renewable Energy Action Plan for 2013-2020 – "objective to cover at least 17% of the gross final energy consumption with renewables" 22

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Voluntary target of 20% set in the National Energy Strategy 2030²³

Renewable energy potential

- Up to 20 GW of wind power capacity²⁴, up to 4.5 GW of PV capacity²⁵
- Wind is most abundant renewable energy source; biomass is the most popular renewable energy source; so far limited development of solar PV (mostly roof-top solar); public sector has expanded use of solar heating in kindergardens and hospitals in last years; limited use of geothermal energy so far²⁶
- The overall rooftop solar PV potential is being analysed within the HiQSTEP initiative launched under the Eastern Partnership.²⁷
- "According to Moldova's NBS, 752 ktoe (kilotonnes of oil equivalent) of biomass were used in 2017, representing app. 10% of biomass potential."
- The Stinca-Costesti hydropower plant on the Prut River has installed capacity of 16 MW. The HPP on the Dniester River generates 48 MW, but does not feed into the local market. The total new capacity of small hydropower plants planned to be built does not exceed 1 MW. ²⁹
- With respect to RE Capacity, in 2021 the total capacity constituted 111 MW, including: 73.4 MW from Wind, 16 MW from Large hydropower, 15 MW from Solar, 6,35 MW from Biogas and 0.25 MW from small hydropower.³⁰

Renewable energy support regime

- Renewable Energy Law (No. 160-XVI of 12.07.2007), introduced a feed-in tariff for 15 years³¹
- "Feed-in tariffs for small installations (those with capacities below 4 MW in the case of wind and 1 MW for other technologies)" ³²
- Fiscal Code no.1163/1997 put some tax exemptions for renewable energy technologies in place³³.
- Law no.276/2016 on subsidy principles in the development of agriculture and rural environment established the Agricultural and Rural Development Fund and priority investment fields, including investment stimulation for the energy efficiency practices implementation³⁴.

Relevant laws, policies, and plans

- Law on the promotion of the use of energy from renewable sources (Law no. 10 of 26.02.2016), in force since 2018, provides for
 - Non-discriminatory grid connection
 - Net metering
 - Priority dispatch
 - Obligation of central electricity supplier to purchase renewable-generated electricity for 15 years
 - Combination of feed-in tariffs and auction-based mechanism for wind and PV projects³⁵
- The Law on Electricity (Law No. 107 of 27.05.2016) implements liberalisation of the electricity market
- Energy Strategy of the Republic of Moldova until 2030 ("The Energy Strategy"), adopted in 2012³⁶
- The Government Decision No 689 11.07.2018) approved capacity limits, maximum allowances and capacity categories for electricity from renewable sources by 2020³⁷
- Renewable energy action plans at the national level³⁸

Renewable heating systems are supported by the *Moldova Energy and Biomass Project* which is funded by the EU³⁹, implemented 2011-2014 and second phase 2015-2018 with funds from EU and implemented via UNDP⁴⁰⁴¹; aimed at increasing the use of energy from biomass sources⁴²

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- Energy Efficiency Fund in Moldova, is supported by the EU Delegation in Moldova, the fund supports small energy efficiency projects⁴³
- integrated National Energy and Climate Plan
- "Government Action Plan for the period 2020-2023, approved by GD no.636/2019, stipulates the transposition of the "Clean Energy for All European" Package until December 2022."⁴⁴

Regulatory framework for citizen energy

- Law on the promotion of the use of energy from renewable sources (Law no. 10 of 26.02.2016): "supports the development of small-scale, community-promoted renewable energy projects." ⁴⁵
- The net metering introduced in 2018 by the Law on the promotion of the use of energy from renewable sources has been introduced to encourage "project owners who cover their own electricity consumption with small, renewable-based generation units of up to 200 kW capacity." 46
- The Ministry of Economy and Infrastructure and the Energy Efficiency Agency are promoting local community driven renewable energy projects.⁴⁷
- "Legal provisions allow establishing cooperatives in various sectors, including energy, and lie within the Civil Code of Moldova, the Law on entrepreneurial cooperatives and the Law on production cooperatives." 48
- Law no.845/1992 on entrepreneurship and enterprises is a general law related to all legal forms of businesses currently
- "Cooperatives are regulated by the Civil Code of the Republic of Moldova, 1107/2002, Art.171-178; Laws No 73 from 12.04.2001 on the entrepreneurial cooperatives and No 1007 of 25.04.2002 on production cooperatives."⁴⁹
 - "The entrepreneurial cooperatives are the most suitable form of business close to energy cooperative if it's assumed that energy generated by cooperative members is consumed also by its members."
- "The legal framework does not define the concept of energy cooperative" 51, but "makes it possible to register the cooperatives in various fields, including in the energy sector." 52
- Draft National Development Strategy "Moldova 2030", approved by the GD no.377/2020, stipulates the facilitation in the development of the local energy communities in order to increase the energy self-sufficiency at the local level"⁵³.

Evaluation of the legal framework

Recommendations provided by the Energy Community Report 2022⁵⁴:

- Adoption of amendments to the Renewables Law to transpose and implement Directive (EU) 2018/2001 by the end of 2022.
- Simplification and streamlining of permitting procedures need to enable faster deployment of renewables.

Updated information about implementation of Renewable Energy-related provisions in Moldova is available on the Energy Community Page⁵⁵.

xisting citizen	nergy projects	nd/or research
Ë	ene	and

Citizen energy projects

- "Despite ongoing efforts to promote the concept of community self-sufficiency, mainly by sharing European best practices, the country has not yet experienced any such developments." ⁵⁶
- "Currently, there is no citizen's energy project in Moldova. In principle, energy cooperatives are legally possible, however the establishment is complex and the model is not known very well amongst Moldovans." ⁵⁷

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"NGO created ideas for different business models of energy cooperative's activities:

- 1. Farmers producing the crop residues (straw, orchards and vineyards) join energy cooperatives, and produce briquettes and pellets from biomass for its own use and for sale.
- 2. Entrepreneurs establish or join energy cooperative producing energy-efficient equipment and equipment for renewable resources (solar collectors, etc.)
- 3. Civil society and enterprises create energy cooperatives for production of RE (solar panels, wind generators, etc.), investing own capital but also loans and grants." 58
- National Contest "Renewable Energy Sources" 2017 and 2019, organized by Ministry of Education under United Nations Development Program, funded by EU, 32 schools engage in the contest⁵⁹⁶⁰
- Many schools are receiving support from Energy and Biomass Project and curriculums include renewable energy and energy efficiency as a subject since 2011⁶¹

Research and capacity building activities

Project "Transfer of Czech and West European best practices for the piloting of energy cooperatives in Moldova" 62

- under the Expertise on Demand component of the Czech-UNDP Partnership
- target was mapping legislation, conduct interviews with stakeholder and making recommendations for Moldova on local and national level: what would best models for the renewable energy communities be

Moldova Energy and Biomass project (funded by EU, implemented by $\mathrm{UNDP})^{63}$

- In all localities selected, project committees were set up, including mayors, local counselors, teachers, etc. The committee members have been trained in community mobilization techniques and provide residents information in community meetings to ensure ownership of heating plants and local contribution for their construction and the installation of solar panels.
- the Project provided assistance to key actors at different phases of project implementation: participatory identification of public buildings to shift to biomass heating, mobilization of population and community resources, joint energy audit of public buildings, preparation of project and budget proposals, ensuring daily operation and long-term maintenance of installed biomass heating systems.⁶⁴
- Courses on renewable energy /energy crops were integrated into vocational schools, schools, and teacher /professor training; study materials have been produced.

Relevant actors and stakeholders

NGOs

NGO Moldova Social Innovation Fund

NGO Association for Energy Autonomy

NGO Alliance for Energy Efficiency and Renewables

The Ministry of Economy and Infrastructure

NGO Rural Renaissance

NGO Eco-Visio

Governmental	The Energy Efficiency Agency	
bodies	National Energy Regulatory Agency (ANRE)	
	Ministry of Agriculture, Regional Development and Environment	
	The Energy Efficiency Fund (EEF)	
Local governments	Chiscareni village ⁶⁵ - school with biomass heating, village kindergarder with PV and solar heat, town hall and other institutions with biomass heating systems; linked to Moldova Energy and Biomass Project	
	Ialoveni City - Sustainable Energy and Climate Action Plan (SECAP) ⁶⁶	
	Festelita Village Hall - Energy efficiency excellence center in Festelita village 67	
	Cantemir Town, energy efficiency measures in public buildings ⁶⁸	
	Ungheni City Hall - beneficiary of the European Union project EU4Moldova: Key Regions ⁶⁹	
	Riscova Village, Riscova Eco-Center ⁷⁰	
	Milesti Village, PV public potable water pumping satiation	
	Crasnoarmeiscoe Village, biomass heating in all public buildings ⁷¹	
	Causeni Town, biomass heating in all public buildings	
	Razeni Village, Community Biogas Project ⁷²	
Private actors	PDG Fruits, an agro-industrial processing farm /cooperative, integratin renewable energy generation, including a wind turbine and roofto solar ⁷³	
	Traditional Ltd, agro-industrial processing farm, combining fruit growing with a photovoltaics park ⁷⁴	
	Energocom, the designated issuing body for guarantees of origin	
International/	Spelleken Associates	
supra-national	United Nations Moldova	
actors	Nordic Environment Finance Corporation	
Academia	Solid Biofuels Laboratory of the Agricultural University	
	of Moldova	
Others	National Environment Fund	
	Organization for SMEs Sector Development	
	Biomass Energy Association and Cluster	

Summarizing evaluations

Fields of Action

- Need for knowhow regarding organisation and management and project development of citizen energy projects⁷⁵
- Training and capacity development ⁷⁶
- Need for national law for decentralized and citizen energy⁷⁷

Barriers and recommendations identified by the study "International (West EU) models of cooperatives and case studies, project Transferring Best Practices for Piloting of Energy Cooperatives in Moldova⁷⁸:

- Lack of support for new communities/ financial obstacles in case of auctions
 - Accommodate longer times needed for energy communities to prepare projects, guarantee types of support for longer period (at least five years);

- Provide support by fixed tariffs, eliminate the need for energy communities to compete at auctions with large scale private projects;
- "Increase the yearly guaranteed amount of installed capacity for fixed price for RES based on the potential of community projects".
- Lack of funds: ensure funds accessible for non-commercial entities / energy communities
 - Prepare a grant programme for preparatory phase of community projects
- Tariff-structure-related challenges
- technical solutions for connections of energy production to the consumption points, e.g. microgrids;
- Change distribution tariff systems to incentivise local consumption.
 - Time-sensitive tariff structures
- **Distribution system:** allow self-consumption and selling to community members
- Lack of know-how
 - Establishing a public information source aiding the preparation and implementation of projects (Energy Efficiency Agency);
 - Facilitating pilot community projects;
 - Creating a knowledge-sharing platform for energy communities

Authors of the country profile: Gesa Geißler, Tamara Mitrofanenko

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