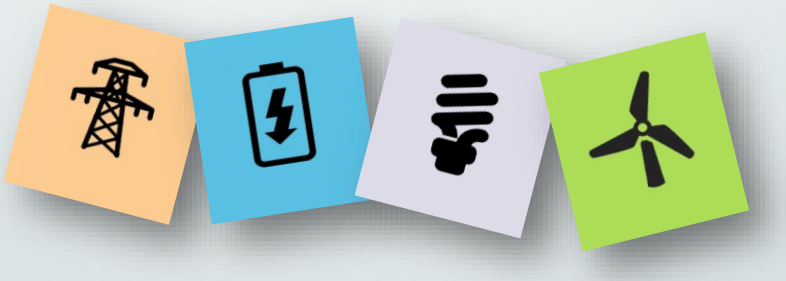
Ministry of Infrastructure
and Regional Development
of Republic of Moldova

UNECE Renewable Energy Uptake

UNECE Sustainable Energy Expert Week 2022

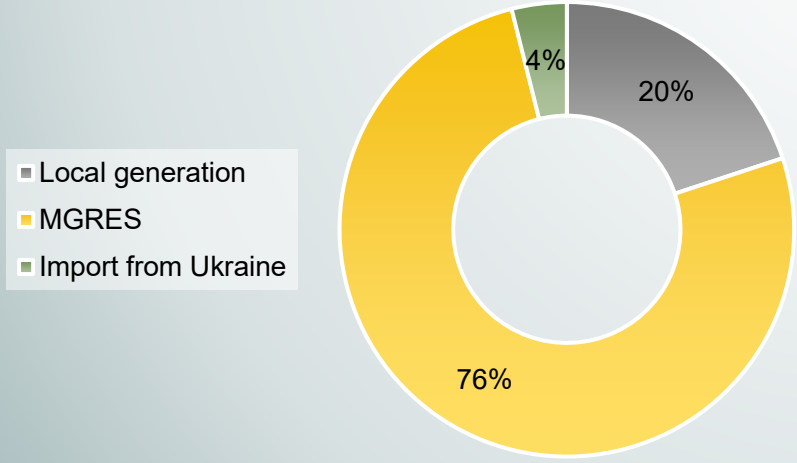
Ninth Session of the Group of Experts on Renewable Energy

RENEWABLE ENERGY IN MOLDOVA: FLEXIBILITY CHALLENGES AND THE PATH AHEAD



ENERGY SECTOR - CHALLENGES AND THREATS

Most of the Republic of Moldova energy resources are being imported from a limited number of suppliers from Eastern Europe



- 80% of country's electricity consumption is ensured from import or MGRES.
- 20% of domestic electricity consumption is being generated mainly by local Combined Heat and Power plants and only 3% from Renewable energy sources

RENEWABLE ENERGY DEPLOYMENT

In 2020, the share of energy from renewable sources in gross final energy consumption by 2020 was 25,06%

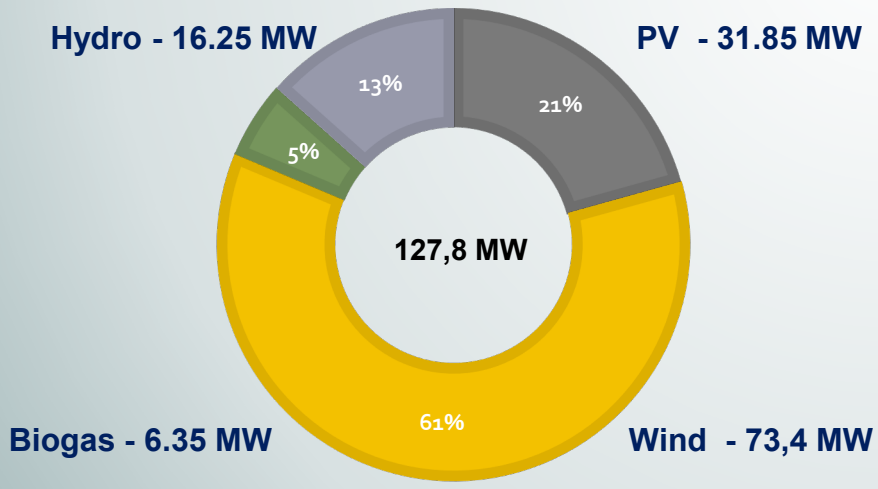
- ✓ 17% RE target by 2020 was achieved.
- ✓ 20% RE voluntary target set in the National Energy Strategy 2030 was achieved.
- ✓ Biomass remain the main RE souce

Renewable energy sources sectoral contribution	2020 (%)
RES in heating and cooling	41,17
RES in electricity	3,15
RES in transport	0,18
Overall RES share (%)	**25,06**

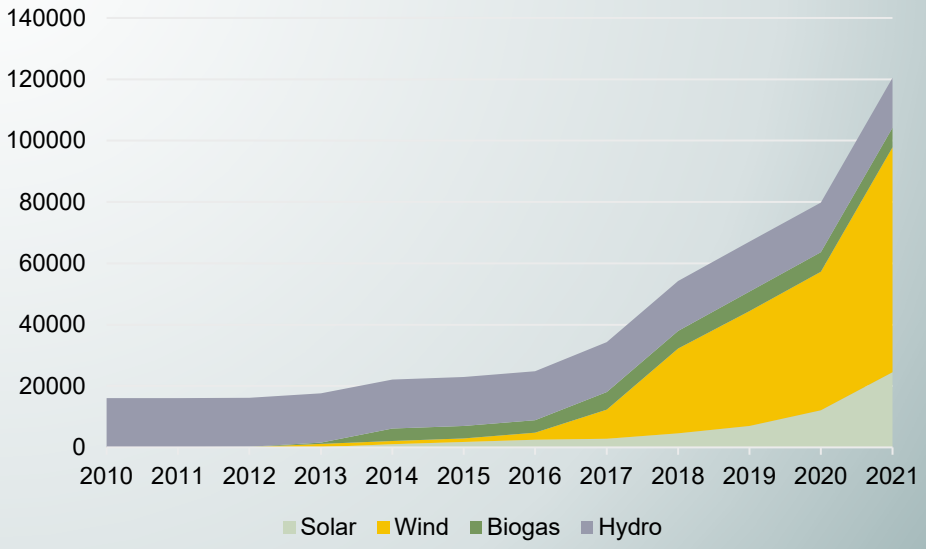
RENEWABLE ENERGY DEPLOYMENT

- RES installed capacities – 111,04 MW+16,8 MW net metering
- Renewable generation capacity increased by 40,6 MW (+33%) in 2021

Installed renewable energy capacity



Dynamics of renewable energy growth, kW



RENEWABLE ENERGY DEPENDING ON SUPPORT SCHEME

kW	Market based	RES Law 160/2007	RES Law 10/2016	Net-metering mechanism	TOTAL
Solar	5.398	2.121	7.512	16.800	**31.85**
Wind	46.387	27.000	-	2	**73.389**
Biogas	-	5.709	637	-	**6.346**
Hydro	16.000	254	-	-	**16.254**
Total	**67.785**	**35.084**	**8.149**	**16.802**	**127.051**

SECONDARY NORMATIVE FRAMEWORK ON PROMOTION OF USE OF RE (1)

- Law on the promotion of use of renewable energy sources

  (transposes the Directive 2009/28/EC and the EC Guidelines on State aid for environmental protection and energy 2014-2020)

Law No.10 of 26.02.2016

MoIRD Competence

- Regulation on carrying out tenders for **providing the status of eligible producer** — DECISION APPROVED
- GD on approving the limits of capacity, maximum rates and categories capacity in the field of electrical energy until 2025 — DECISION APPROVED
- Regulation on **qualification of RES equipment installers** — DECISION APPROVED
- GD on **assignment of central power supplier** — DECISION APPROVED

SECONDARY NORMATIVE FRAMEWORK ON PROMOTION OF USE OF RE (2)

MoIRD Competence

- Regulation on **solid biofuels** — DECISION APPROVED
- Regulation concerning **sustainability criteria** for biofuels, and the procedure for the verification of compliance with the sustainability criteria to biofuels production — SUSPENDED
- Regulation for the calculation of final **consumption of energy from renewable sources in transport** — DECISION APPROVED
- *Revision* of National Action Plan in the field of renewable energy 2013-2020** — SUSPENDED

MoE* Competence

- Methodology for calculating the **impact of biofuels** on the emission of greenhouse gases — DECISION APPROVED

*Ministry of Environment
** MoIRD and ME* are currently developing the National Energy and Climate Plan /NECP/

EXISTING SUPPORTING SCHEMES FOR RE INVESTMENTS

ACCORDING TO THE LAW ON PROMOTION OF THE USE OF RENEWABLE ENERGY

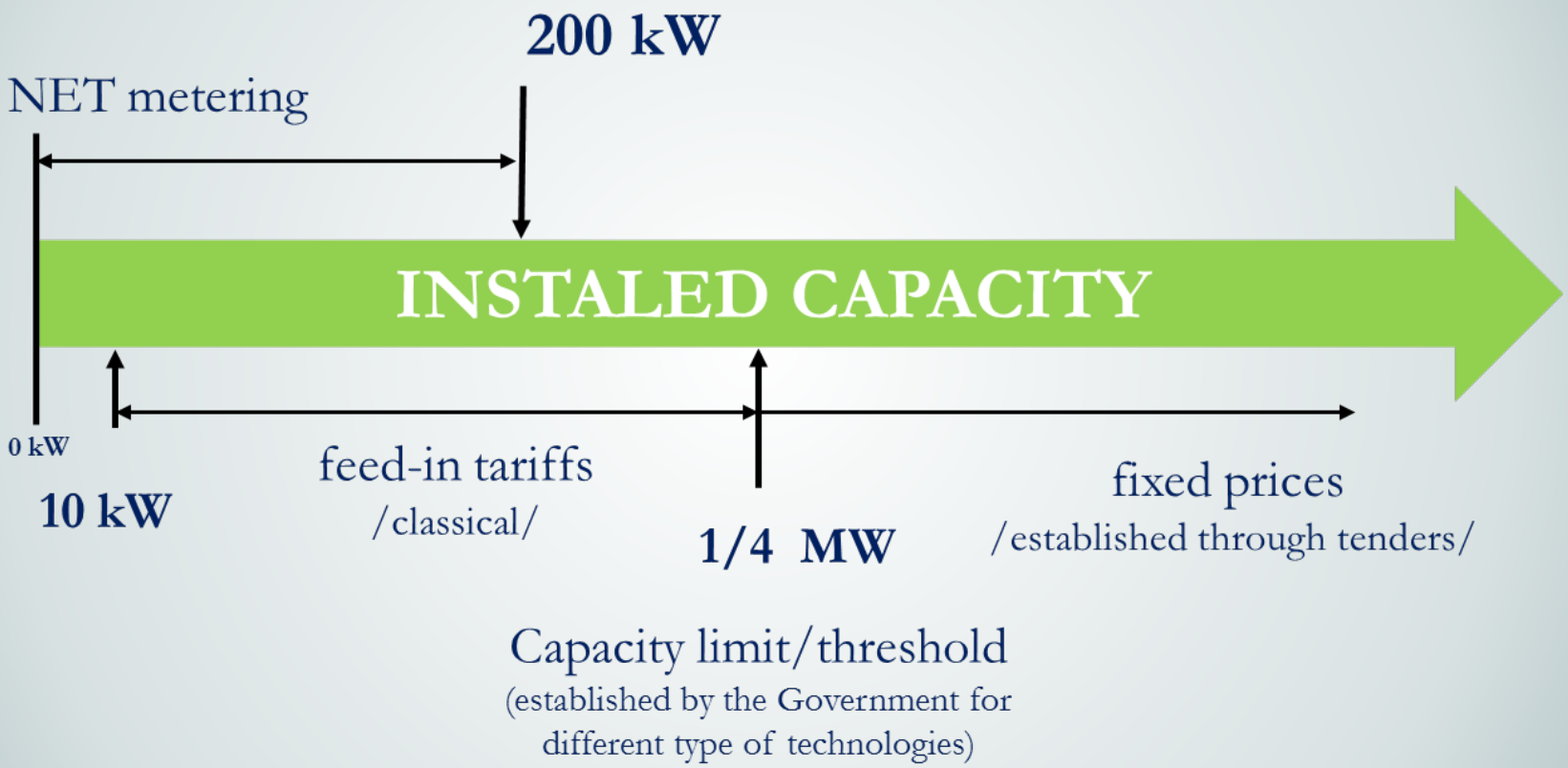
In order to increase the production and use of electricity from RES the following supporting scheme will be applied:

- fixed price (auctions) – for producers who holds or will hold power plants with a power greater than the cumulative capacity limit set by government
- fixed tariffs - for producers who holds or will hold power plants with cumulative power capacity not exceeding the limit set by the government, but not less than 10 kW
- NET metering for small RES investors who aim at covering their own electricity consumption

- The concept of Single Buyer is applied
- Electric system operator/TSO/ and DSOs gives priority to RES-E producers

SUPORT SCHEMES IN FIELD OF RE

PRODUCTION AND USE OF RE-E



RES-E GENERATION CAPACITIES
KEY CHARACTERISTICS, GOV DECISION – 401/2021

Capacity limits, quotas and and RE categories are established in the G.D

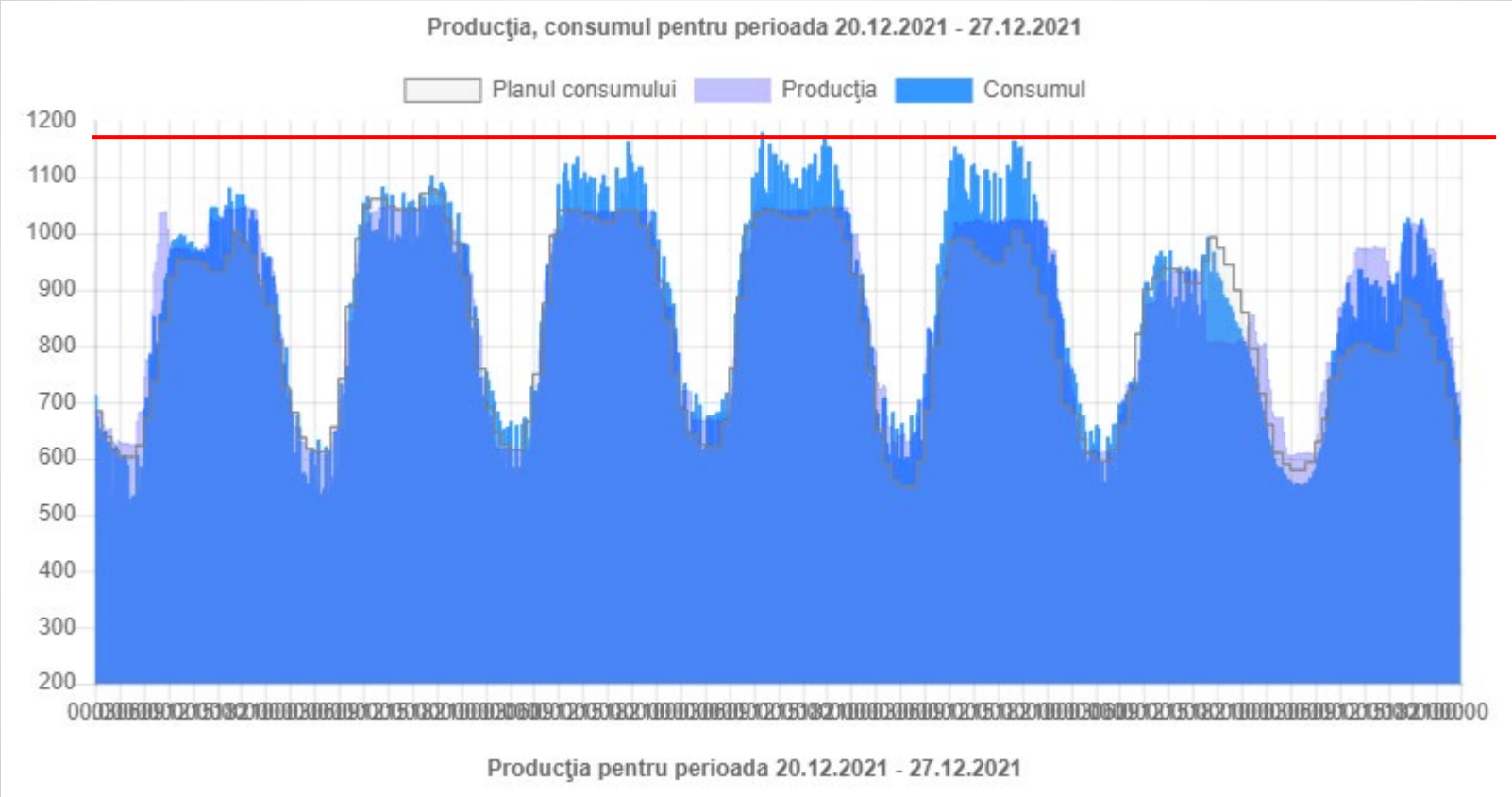
Type of technology	Capacity categories	Applicable support scheme, MW		Capacity categories	Capacity limits MW*
	MW	TOTAL MW	Feed-in tariff	Auctions	
TOTAL		**410**	**245**	**165**	**-**
Intermittent sources					
Wind plant	**–**	**120**	**15**	**105**	**4,0**
large wind installations	0,501- 4		12	–	4,0
small wind installations	< 0,5		3		
Solar PV	**–**	**200**	**140**	**60**	**–**
PV on buildings	< 0,05		20	–	1,0
	0,051-0,2				
	0,201-1,0				
Other PV	< 1,0		120		
SubTotal		**320**	**155**	**165**	**–**

RES-E GENERATION CAPACITIES
KEY CHARACTERISTICS, GOV DECISION – 401/08.12.2021

Capacity limits, quotas and and RE categories are established in the G.D.

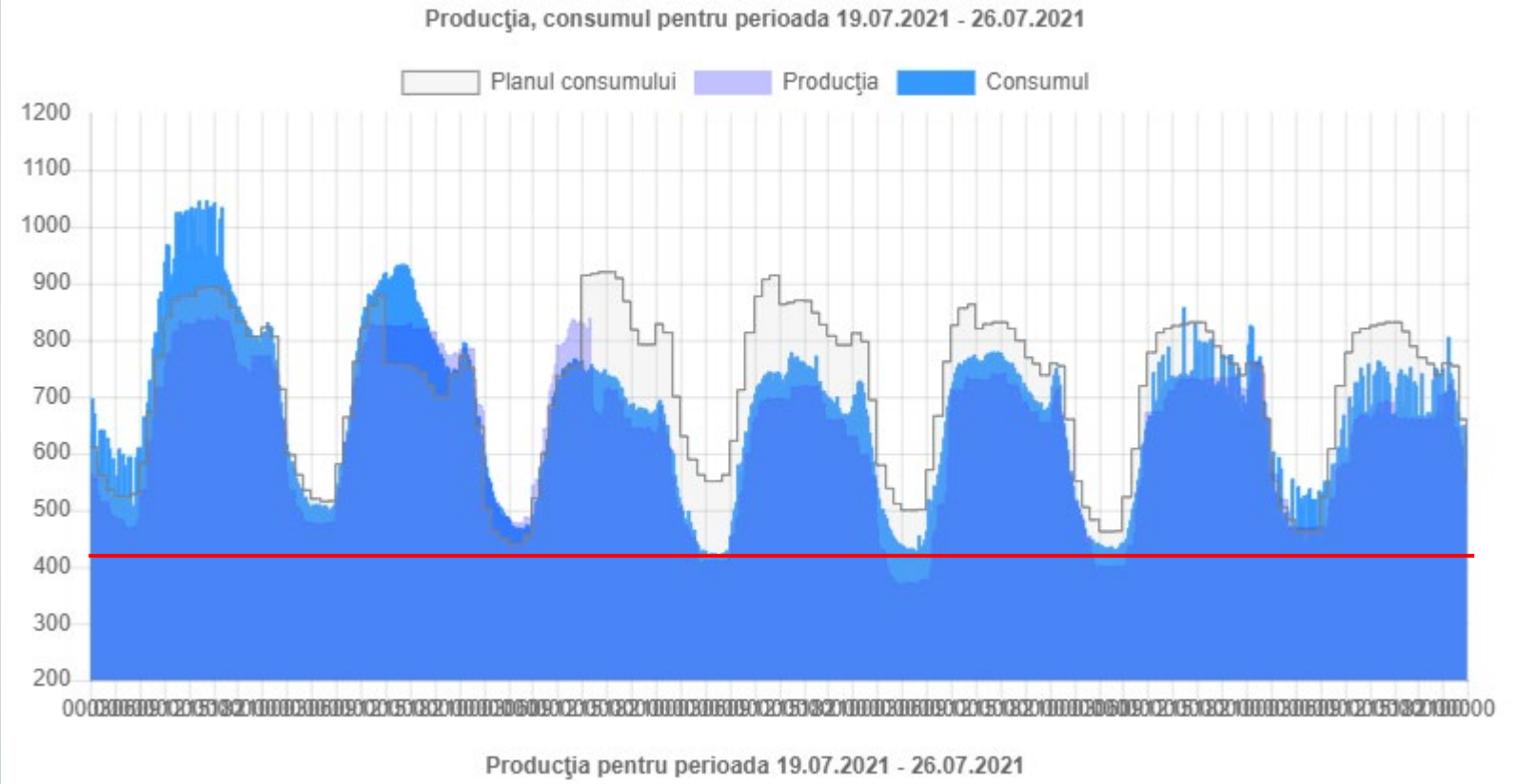
Type of technology	Capacity categories	Applicable support scheme, MW		Capacity categories	Capacity limits
	MW	TOTAL MW	feed-in tariff	Auctions	MW*
Non-intermittent sources					
Cogeneration on biogas, total: Out of which:	–	65	65	–	–
• Cogeneration on biogas produced by harnessing the energy potential of animal manure, livestock waste, agricultural waste, agricultural crops, energy plants, food industry waste, etc.,	–		35	–	–
• Cogeneration on biogas produced by harnessing the municipal solid waste	–		20	–	–
• Cogeneration on biogas produced by harnessing the municipal liquid waste/wastewater/	–		10	–	–
Cogeneration on syngas(on slid biofuel, agricultural waste, including energy crops/ plants)	–	10	10	–	–
Cogeneration on direct combustion (solid biofuel, agricultural waste, including energy crops/ plants, municipal solid waste)	–	10	10	–	–
Hydro	–	5	5	–	–
SubTotal	–	90	90	–	–

LOAD CURVE / WINTER PEAK – 1.150 MW



https://www.moldelectrica.md/ro/activity/operative_info

LOAD CURVE / SUMMER LOW – 400 MW



https://www.moldelectrica.md/ro/activity/operative_info

LOAD CURVE / MODELLING RESULTS

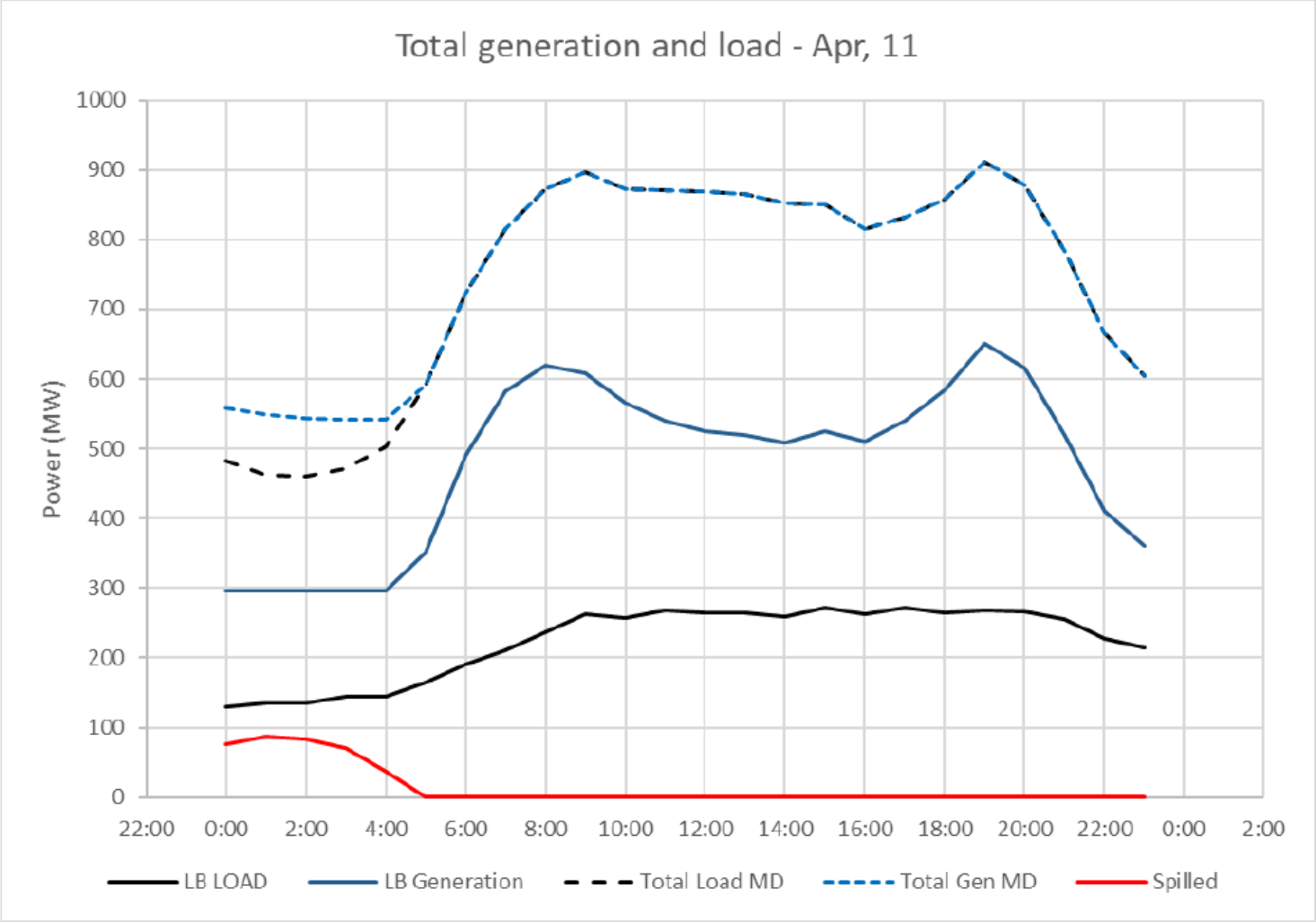


Fig. 5. Hourly results for one day with average daily load: Left Bank and total MD

PRIORITIES AND FUTURE STEPS

Legislative and Policy

- Establishment and approval of RES targets for 2030 - NECP
- Transposition of Directive 2009/28/EC established a regulatory framework for the promotion of the use of energy from renewable sources – Clean Energy Package
- Launching of the first auction for renewables
- Increase support for electricity generation from biogas

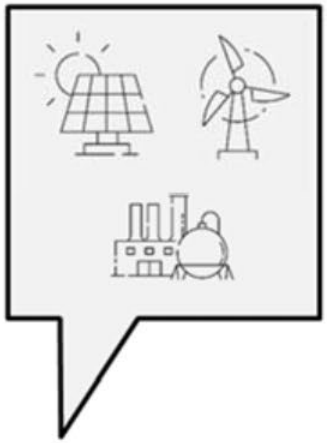
Technical

- Sector's electrification
- Flattening the load curve / operation in shifts
- Sector's coupling / i.e. Power to Heat
- Storage capacities
- Promotion of renewables in transport sector

UNECE REN21 RENEWABLES NOW dena Deutsche Energie-Agentur

14 June 2022

Renewables, Resilience and Flexibility Options in the Republic of Moldova



HARDTALK

CONCLUSIONS

RENEWABLE ENERGY **HARD**TALK

RENEWABLE ENERGY INTEGRATION – LEADING QUESTIONS:

- What flexibility options are available to increase system security and resiliency in Moldova?
- What actions need to be taken in the short to medium term to sufficiently plan for greater shares of variable renewable energy?

CHALLENGES AND POSSIBLE SOLUTIONS

Increasing and ensuring enough flexibility sources to account for increased shares of variable renewables

Consider the role that bioenergy can have in contributing to system flexibility and energy independence

Network losses

Maintenance of renewable energy systems and system equipment

Network access for renewable energy systems

- Comprehensive power system plan;
- Implementation of intelligent equipment and systems;
- Database of renewable energy systems for analysis;
- Clear rules and responsibility for balancing;
- BESS or possibly pumped-storage hydro power plants;
- Role of Bioenergy in contributing to system flexibility;
- Bioenergy strategy that promotes the use of biomass;
- Sophisticated modeling and tracking tools;
- Minimum requirements for operation of electrical equipment and RES;
- Certified personnel for maintenance;
- Remove barriers for market participants;
- Solutions for reallocating maximum quotas;
- Increase the maximum capacity for Net Metering;

CHALLENGES AND POSSIBLE SOLUTIONS

CHALLENGES AND POSSIBLE SOLUTIONS

- Review methodology for setting and communicating tariffs for RES
- Increasing attractiveness for renewable energy investments and project development
- Difficulties in finding funding sources and financial services
- Lack of qualified energy sector experts and specialists
- Bureaucratic hurdles and misalignment between relevant authorities
- Strategic planning of renewable energy deployment and alignment with climate targets

- Transparent consultation of method for calculating tariffs and other mechanisms;
- Additional factors and aspects should be considered by the regulator when calculating and adjusting tariff;
- Review of tariffs to inflation, exchange rate etc;
- Policies to increase investor interest;
- Bankable Power Purchase Agreement PPA;
- Protection against changes in the law
- Clear and transparent rules for renewable energy auctions;
- Diversify funding programs for RES;
- Enhance and standardize required finance and project document;
- Capacity building;
- Update curricula in universities and develop new programs;
- Renewable energy training programs;
- Establish a ‘one-stop-shop’;
- Optimize and standardize project documentation;
- Renewable energy zoning, energy resource, potentials and historical statistical trends.

THANK YOU!