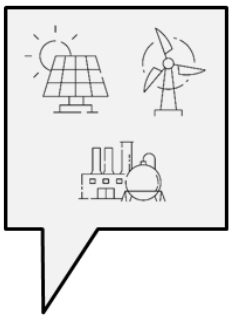
14 June 2022

Renewables, Resilience and Flexibility Options in the Republic of Moldova



HARDTALK

CONCLUSIONS

As part of the UNECE RE-Uptake project, a UNECE Renewable Energy Hard Talk took place in Chisinau, Moldova on June 14, 2022. The exclusive event dealt with the integration of renewable energy with a focus on resilience and flexibility options in the energy system of the Republic of Moldova.

The event was organized by the UNECE project team, which is made up of representatives from UNECE, REN21, dena, BMWK and the Ministry of Infrastructure and Regional Development of the Republic of Moldova.

More than 50 participants joined the Hard Talk, which featured presentations, interventions and discussion from selected Moldavian and international energy sector stakeholders, including: the Ministry of Infrastructure and Regional Development of the Republic of Moldova, the National Energy Regulatory Agency, Moldelectrica, CET Nord, Premier Energy Moldova, RED Nord, the Energy Community Moldova, World Bank, USAID, European Business Association, Energy Efficiency Agency, Termoelectrica, American Chamber of Commerce Moldova, and others.

Key issues, challenges, solutions and recommendations regarding the **successful expansion and integration of renewables, including resilience and flexibility options** were discussed. The Hard Talk is intended to speed up existing processes to further progress renewable energy deployment, diversification and security of supply and the development of an attractive market for renewable energy in the Republic of Moldova.

Tuesday, 14 June 2022, 09:00-14:15 (EEST)

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

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

Due to a lack of domestic resources and generation assets, the energy system of the Republic of Moldova lacks system flexibility options and relies almost exclusively on Ukraine for system balancing. As the share or variable renewable energy sources increases, so too will the need to flexibility options.

Recommendation/s

- A comprehensive power system plan should be finalised as soon as possible and align future grid reinforcements and extensions with the planned deployment of renewable energy capacities in order to ensure efficient system integration.
- Development of standards and guidelines for relevant actors: generators and plant operations, network operators, etc.
- Implementation of intelligent equipment and systems for effective management of renewable energy systems.
- Establishment and maintenance of a database of renewable energy systems for analysis, planning and forecasting.
- The responsibility for system balancing, including balancing costs as a result of increasingly intermittent generation from higher shares of renewable energy and subsequent deviations in planned from actual production volumes remains unclear and the respective bylaws are yet to be finalised. Clear rules and responsibility for balancing need to be finalised and applied as soon as possible.
- Stakeholder training should be developed and implemented, including: network codes (ENTSO-E), system operator requirements, market rules, best practices, technical solutions, etc.
- As a short-term measure, battery energy storage systems (BESS) could be integrated to provide frequency control services and allow for accurate real-time balancing.
- In the medium to long-term further increase of storage, either BESS or possibly pumped-storage hydro power plants could enable higher shares of renewable energy system (RES) integration and mitigate spilled energy and the need for curtailment.

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

In addition to providing renewable energy for heating and electricity, bioenergy can provide short-term flexibility to help stabilize the electricity grid with both positive and negative ancillary services and provide long-term flexibility through storage and transportation of biomass-based energy. The current promotion and support of bioenergy projects, in particular biogas plants, is insufficient to incentivize further investment and market development.

Recommendation/s

- The role of Bioenergy in contributing to system flexibility and integration of other RES should be further explored and exploited.
- A bioenergy strategy that promotes the use of biomass, further develops biomass trade and communication across the relevant supply chains and increases the role of bioenergy in the energy sector should be developed.
    - This strategy should build upon the work in biomass previously undertaken by UNDP and partners from 2011-2018 and ensure sustainable development of bioenergy resources taking into account the low level of forestation in the country.
- Promotion of Bioenergy technologies, including biogas plants should consider additional benefits such as flexible ancillary services (flexibility premiums) to ensure sufficient incentives for investments and market development.

3. Network losses

The majority of RES in the Republic of Moldova are connected to the distribution network. Long-distance transport of electrical energy produced by renewable energy systems through distribution networks of medium voltage generate significant energy losses.

Recommendation/s

- Sophisticated modeling and tracking tools should be developed and optimised, such as interactive maps with load curve graphs for various geographical areas.
- RES could be paired with BESS to enable greater flexibility and optimal dispatch.

4. Maintenance of renewable energy systems and system equipment

Given the immaturity of the renewable energy sector, processes, supply chains and standards are not yet sufficiently established for the proper operation, servicing and maintenance of renewable energy systems and equipment, thus creating even more uncertainty for successful network integration and operation.

Recommendation/s

- Complete technical regulatory framework with minimum requirements for operation of electrical equipment and renewable energy systems.
- Complete regulation on maintenance procedures. Maintenance of installations should be carried out by properly certified, specialised personnel.
- Periodic assessment of RES systems, including technical and performance tests and standards
- Scheduled maintenance should be planned and coordinated between relevant parties
- Development of interaction agreements between stakeholders and involved parties: OEM suppliers, operators, service providers, etc.

5. Network access for renewable energy systems

The number of valid requests for RES connection to the electricity network are far greater than those that are actually issued and connected despite capacities being available. Quotas are often reserved but not actually used.

Recommendation/s

- Remove barriers for market participants - connection requests should be based on liability and guarantees
- Identify solutions that would allow the maximum quotas for renewable capacity approved by the Government to be reallocated to other technologies if quotas are not met.
- Increase the maximum capacity for net metering – the process to amend the capacity limit should be initiated and completed as soon as possible.

6. Review methodology for setting and communicating tariffs for RES

Previously set tariffs have been insufficient in driving investments and the methodology by which they were determined have been criticised, as well as how relevant stakeholders were involved and informed.

Recommendation/s

- The method for calculating tariffs and other mechanisms should be made transparent and all relevant actors should be consulted.
- When determining tariffs for different RES, additional factors and aspects should be considered by the regulator when calculating and adjusting tariffs. For example, additional benefits beyond energy such as flexibility, security of supply, fostering the establishment of local industry, and other intangible benefits should be considered.
- Tariffs should be reviewed to allow for adjustments or other mechanisms to better account for inflation, exchange rate movements, other effects such as lack of required resources, e.g. biomass resources.

7. Increasing attractiveness for renewable energy investments and project development

The current regulation and secondary legislation on the promotion of RES is yet to successfully create an attractive regulatory framework and market for private investments.

Recommendation/s

- Dedicated policies to increase investor interest should be explored and implemented (e.g. reduced import duties for RES).
- A bankable Power Purchase Agreement (PPA) should be developed, including guarantees and predictability for involved stakeholders, such as: offtake obligation, balancing obligations and costs, clear rules on liability for non-compliance, instruments to ensure payment security, rules on the transfer of obligations in the event of a new central supplier, and specified duration terms, amongst others.
- Rules for the designation of long-term central supplier should be established.
- Protection against changes in the law after the implementation of support schemes is required.
- For renewable energy auctions, clear and transparent rules, including transparent auction design and implementation with the involvement of the energy community should be prioritised.
- Focus state support programs to areas of activity with potential to produce raw material (biomass) for non-variable, flexible technologies, such as biogas CHP plants.
- Optimisation of net metering mechanism (change of calculation period, shift to net billing)
- Increase the maximum capacity for net metering – the process to amend the capacity limit should be initiated and completed as soon as possible.

8. Difficulties in finding funding sources and financial services

The financial and banking sector in the Republic of Moldova is comparatively small and has less experience and limited expertise with capital-intensive renewable energy projects. The relative immaturity and limited understanding results and higher perceived risk associated with renewable energy projects, ultimately leading to higher financing costs and unattractive lending arrangements.

Recommendation/s

- Enhance and standardize required finance and project documentation to promote clarity, understanding and transparency.
- Diversify funding programs for RES projects and facilitate access to the financial market.
- Improve bankability of projects including the establishment of a bankable PPA.

9. Lack of qualified energy sector experts and specialists

There is a lack of qualified specialists on the labor market. Skilled workers will be required throughout the emerging renewable energy industry in the Republic of Moldova. This includes technicians and engineers but also managers, economists and other specialists. Dedicated renewable energy training and education at vocational, tertiary and technical levels is lacking. Such investment and nurturing of human resources and expertise is required to maximise and ensure the development of local economies.

Recommendation/s

- Capacity building: investors, design engineers, installers, supporting staff, and other specialists.
- Update existing curricula in local universities and develop new programs that introduce students to the new technologies and skills required.
- Encourage the connection/collaboration between universities and industry and promote an industry-oriented focus for research/academic programs.
- The introduction of renewable energy training programs and a focus on specific areas such as PVs should be prioritised in order to realise benefits as soon as possible.

10. Bureaucratic hurdles and misalignment between relevant authorities

Requirements to obtain building permits and other required project documents are far too onerous and require coordination with and approval by multiple bodies resulting in lengthy project development timelines, and therefore, need to be streamlined.

Recommendation/s

- Establish a central body or authority, a ‘one-stop-shop’ to streamline the process for approval and licensing of RES project development.
- Optimise and standardise project documentation to promote clarity, understanding and transparency.

11. Strategic planning of renewable energy deployment and alignment with climate targets

Planning and economic resource analysis for solar and wind is lacking. This hinders strategy and policy development and the setting of realistic targets, least-cost power system planning, and the ability to develop and implement appropriate support mechanisms.

Recommendation/s

- A comprehensive plan that aggregates energy sector data such as renewable energy zoning, energy resource potentials and historical statistical trends, together with qualitative and quantitative information, into a clearly formulated and evidence-based development pathway will allow for sound decision-making and sector development. Energy Action Plans should also be developed at a municipal level.
- RE zones should be developed in accordance with analysis of resource potential, grid access and ability to receive renewable inflows, geographic and environmental aspects, proximity to demand, etc.

For further information, please contact:

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This event and associated works of the UNECE RE-Uptake Project was commissioned by the Federal Ministry for Economic Affairs and Climate Action. Through various projects, dena supports the German government in implementing energy and climate policy goals.

Federal Ministry for Economic Affairs and Climate Action

In cooperation with

UNECE: The United Nations Economic Commission for Europe is one of the five regional commissions under the jurisdiction of the United Nations Economic and Social Council. All activities relating to the Hard Talks are implemented in close cooperation with the UNECE Secretariat.

UNECE

REN21: REN21 is the global community of renewable energy stakeholders from Science, academia, governments, NGOs and industry. They provide up-to-date facts, figures and peer-reviewed analysis on global developments in technology, policy and markets, to inform decision makers.

REN21 RENEWABLES NOW

MIRD: The Ministry of Infrastructure and Regional Development is the central specialized body, which promotes state policy in the field of infrastructure and regional development and operates in accordance with the Constitution and Laws of the Republic of Moldova, Parliamentary Decisions, Acts of the President, Government Decisions and Orders, as well as other normative acts.

Republic of Moldova
Ministry of Infrastructure and Regional Development