

ENERGY, WATER SERVICES AND MUNICIPAL WASTE
MANAGEMENT SERVICES REGULATORY COMMISSION
OF THE REPUBLIC OF NORTH MACEDONIA



EU4Energy Workshop 1: New Roles of DSOs under the Clean Energy Package

**Elena Kolevska, MSc. El. Eng.
Head of Electricity Department**

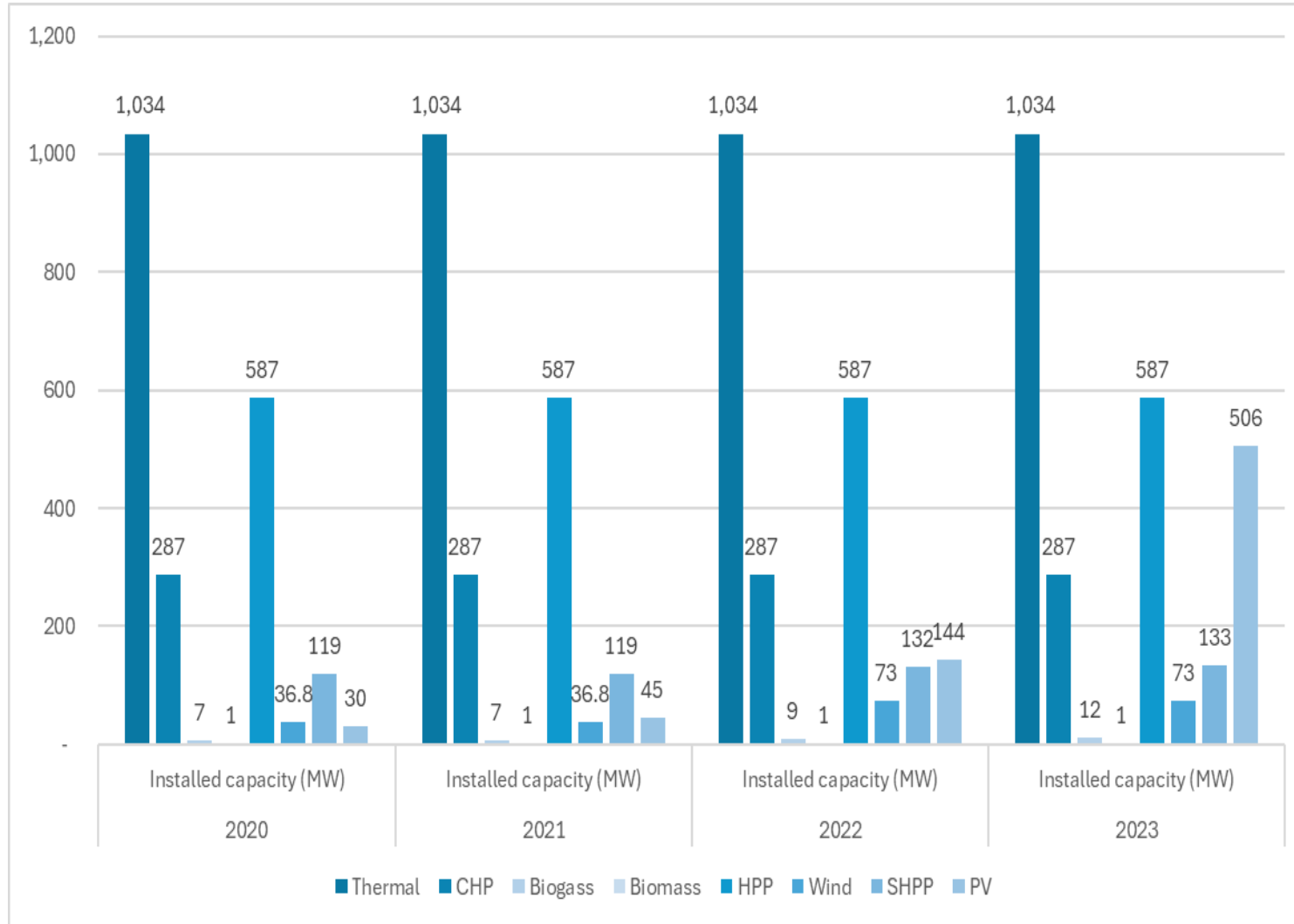
25-26 of July 2024, Berlin

Power system and basic data



- 25.713km²,
- 1.8 Million population,
- NATO member & US Strategic Partner,
- EU Association Country since 2005,
- Energy Community Contracting Party, since its establishment.
- Interconnection points with neighbors - Greece (2x400 kV), Bulgaria (1x400 kV), Serbia (1x400 kV); and Kosovo (1x400 kV);
- Ongoing project for construction of interconnection 400 kV line with Albania;
- 6.738 GWh electricity consumption in 2023;
- 97% - domestic production;
- 3% - imports;

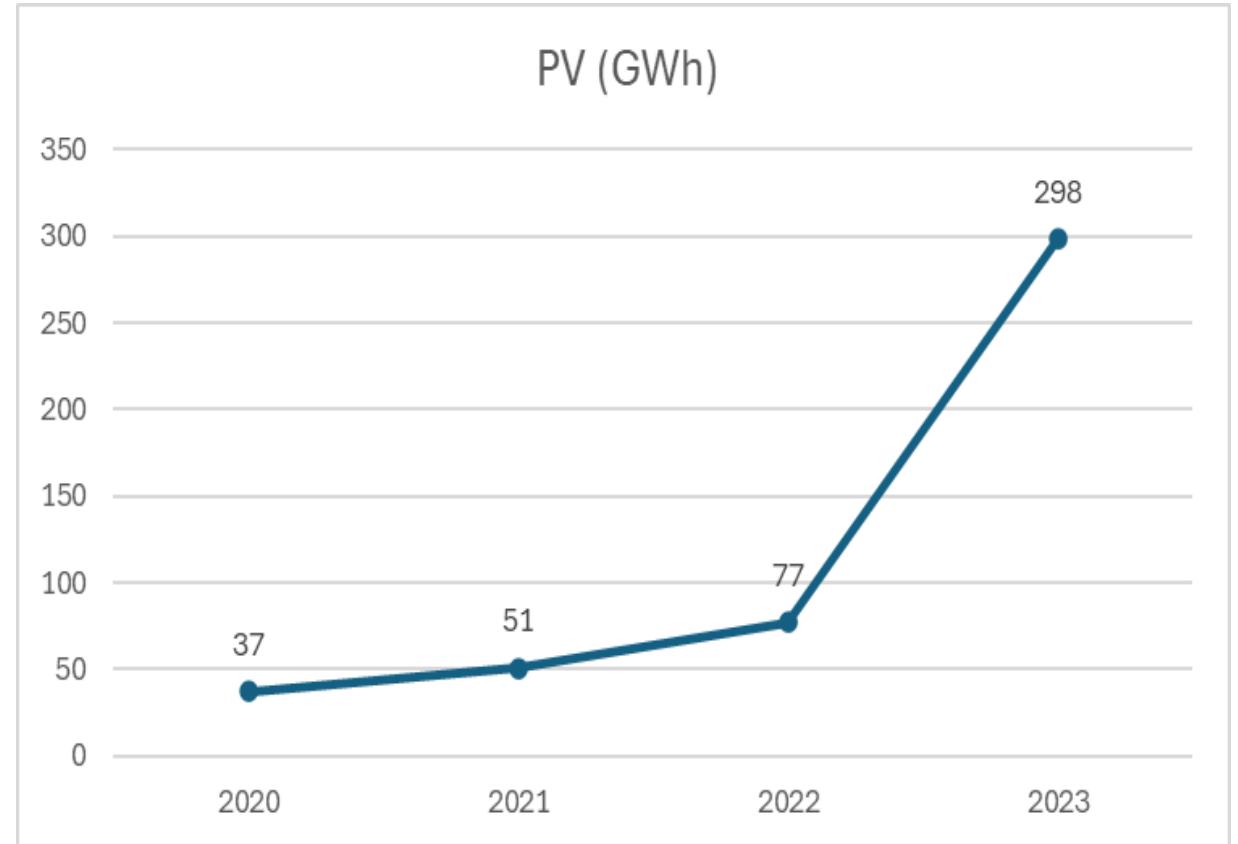
Installed Capacity and RES



- Total installed capacity in North Macedonia is 2.633 MW
- RES is represented with 1.312 MW or 49,83%
- The highest share are HPP with 22,% and after that PVs with 19,22%
- **PVs 252% installed capacity increase in 2023 compared to 2022 !**

Electricity Production including RES

	2020	2021	2022	2023
Type of PP	GWh	GWh	GWh	GWh
Total	5.127	5.284	5.633	6.553
TPP	2.51	2.105	3.034	3.032
CHP	1.119	1.517	967	1.348
RES	1.498	1.662	1.632	2.173
HPP	1.003	1.132	1.034	1.277
WPP	117	103	107	165
Small HPP	284	321	363	371
PV	37	51	77	298
Biogas	57	54	51	62
Biomass	0	0	0	0



PVs generation 287% increase in 2023 compared to 2022 !

National Regulatory Authority - ERC

Establishment of Macedonian NRA – ERC:

- established in 2003 with the amendments of the Energy Law, in operation since 2004 (20 years),
- currently at ERC are: 1 president and 6 commissioners, 31 professionals and 2 administrative employees,
- ERC is organised in 8 departments, and currently two employees are on the position as advisors to the President and Members of the Commission,
- ERC is independent body with own budget and decision-making procedures,
- ERC is member of ECRB, ERRA, MEDREG and BES, and observer to EWG ACER and CEER,
- Roles and responsibilities as in the Third internal energy market package



Electricity Distribution System Operators

- ERC has issued two licenses for two separate electricity distribution system operators (DSO):
 - Elektrodistribucija DOOEL Skopje, whole territory of the country
 - AD ESM Skopje – Energetika Branch (only in industrial area in the city of Skopje with only 56 industrial customers)
- Basic data for Elektrodistribucija

Voltage level (kV)	110kV (OH)	110kV Cable	35kV (OH)	35kV Cable	20(10)kV (OH)	20(10)kV Cable	0,4kV (OH)	0,4kV Cable
Length (km)	189	2	917	181	6.932	3.421	12.642	4.843
Share (%)	98,95	1,05	83,53	16,47	66,95	33,05	72,30	27,30

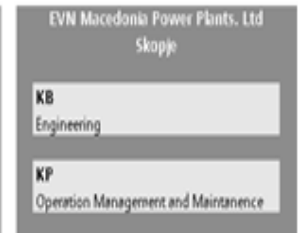
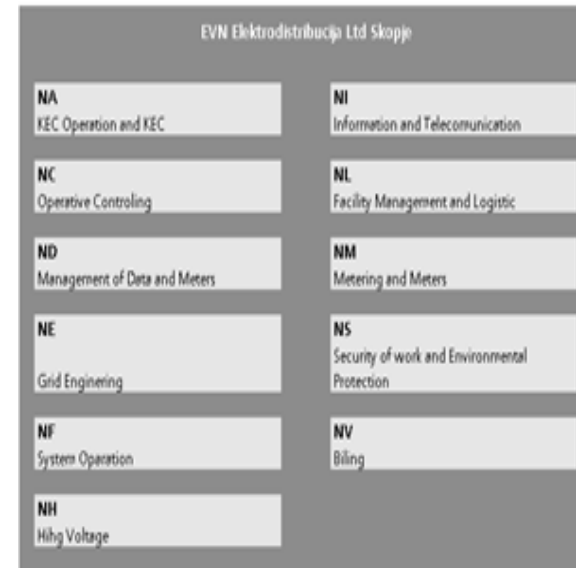
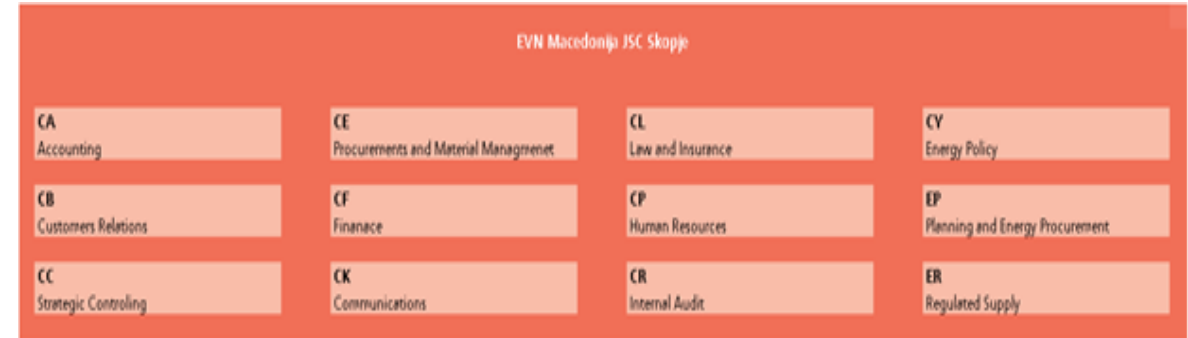
Voltage level TS (kV/kV)	110/xx, with TSO	110/xx	35(20)/10	10/0,4
Number	41	13	76	7.423

Category of connection	MV1	MV2	LV 1.1	LV 1.2	LV2	Total
Number	78	1.247	6.874	3.558	901.804	913.564

Year (Consumption)	2021 (MWh)	2022 (MWh)	2023 (MWh)	2023/22 (%)	2023/2021 (%)
MV1	230,823	218,143	188,106	-13.77	-18.51
MV2	819,075	773,668	737,378	-4.69	-9.97
LV1.1 - Public lighting	87,787	67,339	60,363	-10.36	-31.24
LV1.2	423,035	376,138	340,330	-9.52	-19.55
LV2 - Households	3,316,805	3,080,244	2,995,531	-2.75	-9.69
LV2 - Rest	752,759	705,742	670,521	-4.99	-10.92
Total	5,630,284	5,221,274	4,992,229	-4.39	-11.33

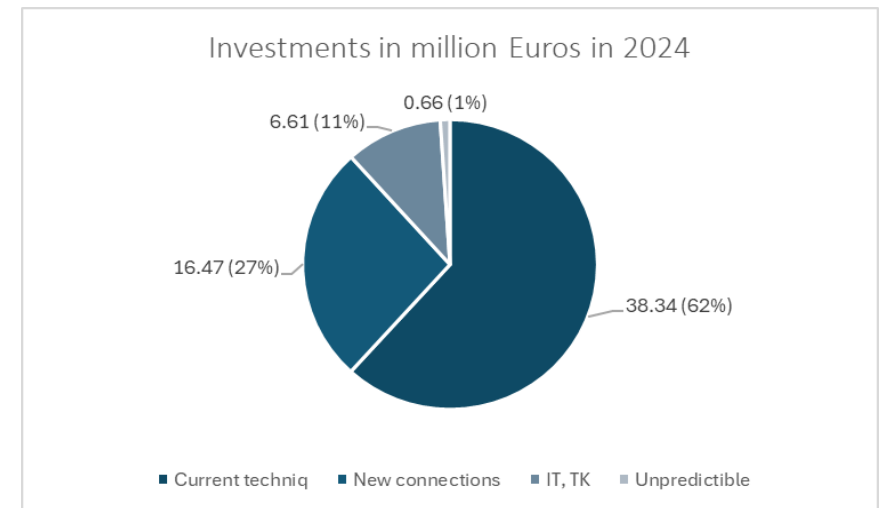
Unbundling of DSO

- Separate legal entity established by EVN Macedonia (90% of shares EVN AT and 10% of shares GoNM),
- EVN Macedonia has established:
 - EVN Elektrani, generation company
 - EVN Supply, supply company
 - EVN HOME, universal supplier for households and small consumers and supplier of last resort (newest)
 - Elektrodistribucija, distribution company.
- Compliance program approved by ERC,
- Compliance officer approved by ERC,
- Regular annual reports for the implementation of the compliance program approved by ERC,
- Separate logo that aims not to confuse customers.



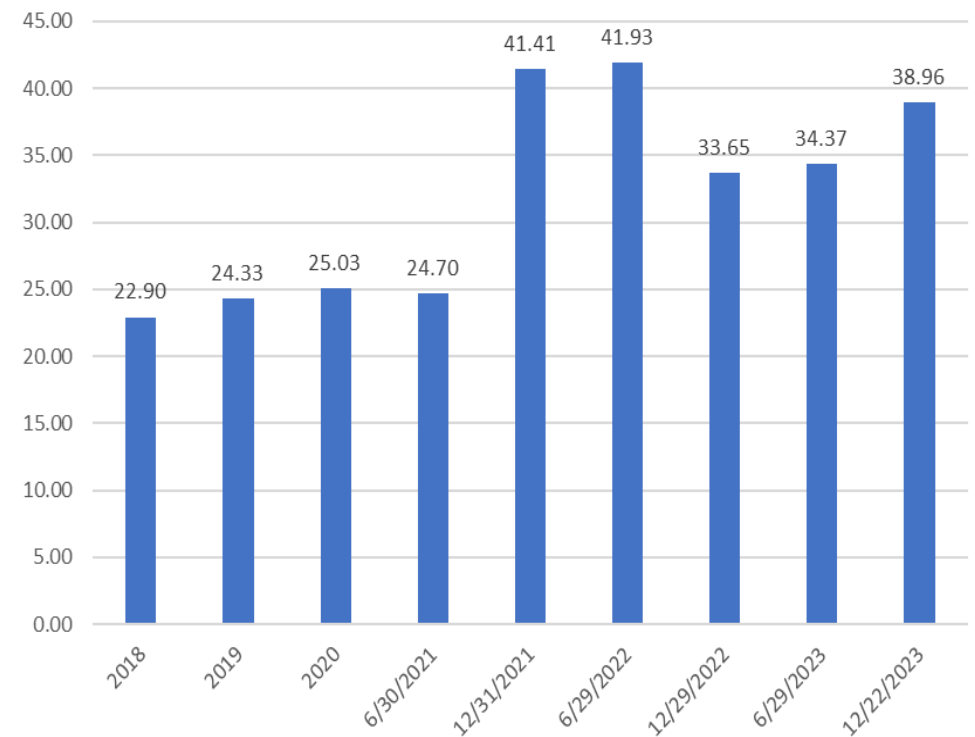
Grid Development

- ERC approves 5 - year network development plan of DSO every year for the period of next five years that should be submitted to ERC by 31st of October.
- The plan incorporates all necessary information for the expansion and upgrade of the electricity distribution system and the information submitted by the competent institutions about the needs for connection of new users to the electricity distribution network, as well as the needs and possibilities for construction and connection of electricity storages.
- Harmonization with the Ministry for the construction of new capacities for RES, electricity generation and achieving the national goals and the indicative trajectory for RES, energy efficiency, reduction of greenhouse gas emissions and increase of the security in the electricity supply.
- Grid development plan takes into account needs for development of:
 - Current technic: HV lines TS, Meters and metering equipment, MV/LV network, Dislocation of meters)
 - New connections and request of investment by the clients
 - IT and TK, Infrastructure and vehicles,
 - Unpredictable investments



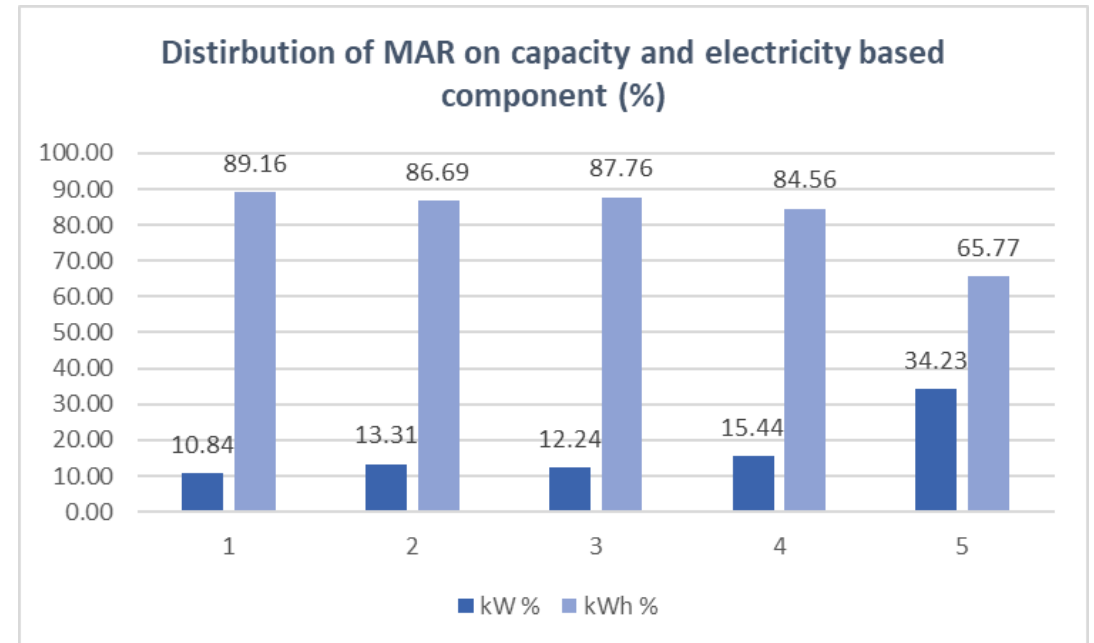
Investments and tariff setting

- For each regulated period (3-year), DSO shall prepare and submit for approval to the ERC investment plan in which, because of the foreseen investments, the following should be shown:
 - the expected increase in the efficiency of the operation of the DSO by reducing the losses;
 - improvement of the quality of the delivered electricity from the networks, and
 - the impact on the increasement of the number of power plants that use renewable energy sources and their spatial distribution.
- ERC
 - Adopts Rulebook on the manner and conditions for determining the regulated maximum revenue and regulated average tariffs for transmission of electricity, organization and management of the electricity market and distribution of electricity
 - Adopts Tariff system for electricity distribution
 - Approves plan for decreasing the losses in the distribution network and considers costs only for approved losses
 - Adopts decisions for maximum allowed revenue and average regulated tariff for electricity distribution and calculates $MAR_t = BRT + Lt + SPT - Kt$
 - Redistributes MAR on the tariff elements depending on the definitions of connections



Distribution Tariffs

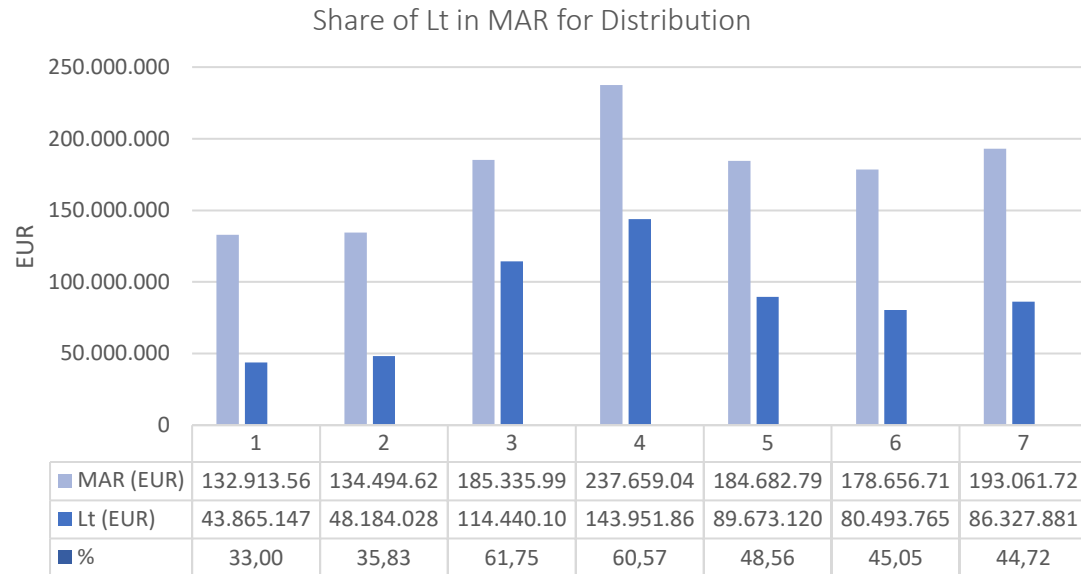
Connection category	Capacity (den/kW)	Active electricity (den/kWh)	Reactive electricity (den/kVAr)
MV1	X	X	X
MV2	X	X	X
LV1.2.	X	X	X
LV1.1.		X	
LV2		X	



In November 2023 ERC changed the Tariff system for distribution of electricity:

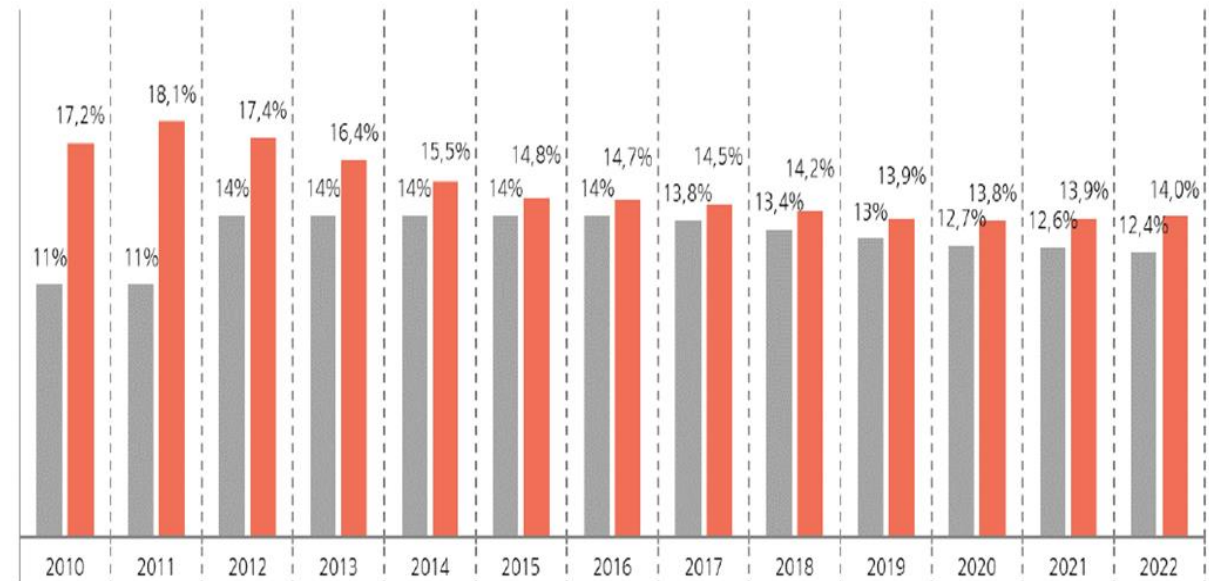
- Introduction of new tariff element fix charge named access to the distribution network,
- High installation of the PVs on the rooftop and prosumers that decreased delivery of electricity,
- Additional raising costs to the rest of the consumers that uses electricity from the network,
- Capacity component has been increased in order to all consumers to participate in the fixed cost of DSO

Losses in the Distribution Network



1-01.07.2020, 2-01.07.2021, 3-01.01.2022, 4-01.07.2022, 5-01.01.2023, 8-01.07.2023, 7-01.01.2024

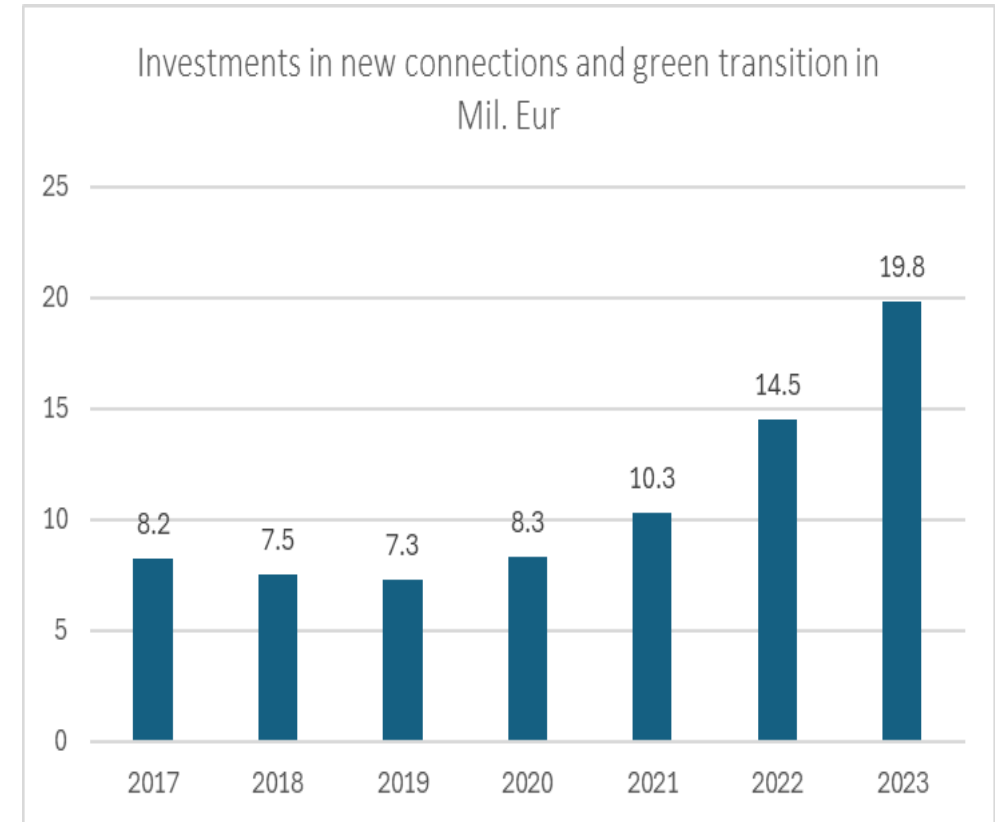
■ MAR (EUR) ■ Lt (EUR) ■ %



- Electricity for covering the losses is purchased by the DSO according to rules approved by ERC on the transparent and objective and nondiscriminatory manner,
- ERC approves plan for decreasing of the losses in which until December 2023 the percent was approved,
- In 2023 ERC approved the plan in which quantities were approved for the next regulatory period.
- Rulebook for setting the MAR was changed to reflect the real situation in network in which the input quantities have been decreasing due to the high share of RES.

Rights of the RES Producers

- Transparent procedure for connection to the networks as part of the Transmission Grid Code and Distribution Grid Code, approved by ERC
- Transparent methodology for calculation of the fee for connection to the networks, approved by ERC as part of the network codes
- Excluded from part of the connection fee that refers to the providing of technical conditions in the distribution network
- Excluded from payment of the transmission and distribution charges for the generated electricity in accordance with the Energy law
- Excluded from balancing responsibility if RES generator has obtained status for preferential producer with feed-in tariffs
- Priority dispatch in accordance with the Energy law



Strengthening electricity market

- Electricity Market Operator (MEMO) also performs organized electricity market operator or power exchange,
- ERC approved Rules for operation of the organized electricity market and Decision for fees for participation on the day ahead electricity market,
- The Macedonian power exchange started operations in the domestic day-ahead market on 10th of May 2023 with delivery date of 11th of May 2023.
- By the end of 2023, 28 participants were registered on the day ahead market.
- MEMO DAM finished the year with a total of 335.479,1 MWh traded electricity and in the first six month of 2024 a total trade was 440.488 MWh.
- On 14th of November 2023 in Athens, a Memorandum of Understanding for the coupling of the electricity markets of Greece, North Macedonia, Albania and Kosovo were signed by National Regulatory Authorities, Transmission System Operators, and Power Exchanges.
- Possibilities for RES producers to use the PX for trading.
- Currently in the process is transposition of the Integration Electricity Market Package and RES Directive.

Prosumers and virtual producers

- **Prosumers:** households, community of households, small consumers, budget user, can generate electricity for own consumption and excess of produced electricity to delivered into the grid.
- Maximum install capacity for households is 6kW and for the rest of consumers is 40kW.
- SoUS is eligible to buy the excess of electricity.
- Supplier of the consumer is obliged to conclude the agreement for taking of the excess of produced electricity.
- Prosumers do not pay distribution charge for the electricity injected into the grid.
- Settlement period is six months.
- Total metering points: 918 (thereof legal entities: 450 and households: 468)
- Total installed capacity: 14.114 kW
- Total electricity injected in the grid: 6.536 GWh
- **"virtual producer" (VP)** is a producer or supplier that is a participant in the electricity market and that commercially and technically integrates electricity producers, prosumers and electricity storage operators connected to an electricity distribution network, thus enabling centralized management of their production and their treatment as a producer participating in the electricity market.
- In the Electricity Market Rules, the function of VP is elaborated with its rights and obligations and only for RES producers.
- RES who are previously registered as participants in the electricity market after concluding the contract with VP should submit a request for termination of the contract of participation in the electricity market.
- The VP commercially integrates the RES by concluding the contract to manage their produced electricity and sells it to the electricity market, in their name and on their behalf.
- VP provides balancing services in accordance with the Rules for balancing the power system.
- In 2023 were registered 15 VPs.

Digitalization

ERC approved changes of the Distribution Grid Code to introduce digitalization of the connection process, starting from the application for connection.

With this process the transparency should be improved on the user benefit and for monitoring purposes of the ERC.

Expectations of new requests for connection to the grid in front of the DSO.

	Connected				
Connected as of 15.07.20	MW	Planned (HP)	Planned (MP)	Planned (LP)	Total planned
TPP on bigass and biomass	12.6	11.7	9	25.4	46.1
PV	342.8	706.7	2,197.80	6,196.20	9100.7
PV prosumers	228	19.46	14.67	62.31	96.44
WPP					30
SHPP	148	18.8	1.9	504	524.7
Total	731.4	756.66	2223.37	6787.91	9767.94

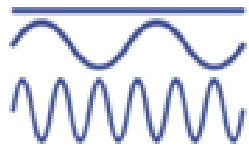
High probability: issued consent for connection, in procedure for construction permit

Medium probability: urbanistic planning,

Low probability: initial interest

Future challenges

- Preparation and adoption of new Energy law and transposition of CEP and Integration Electricity Market Package as adapted by the Ministerial Council of the Energy Community,
- Preparation and adaption of new Law on RES with transposition of RES Directive as adapted by the Ministerial Council of the Energy Community,
- New role of ERC to established an environment for transparent, none discriminatory and objective access to the networks and to the market of new market participants (storages, demand side response, flexibility, energy communities, EV, RES generators), and adjustment of the tariffs and mythologies to reflect the new reality,
- New responsibilities of DSO and TSO related to grid development, ancillary services, smart metering, data and information exchanges, etc.
- Integration of the regional electricity market and EU market based on common rules and market coupling.



THANK YOU FOR YOUR ATTENTION!



e-mail: elena.kolevska@erc.org.mk

URL: www.erc.org.mk