



ENEr2i EU Brokerage Event



**Power Engineering Institute
of Academy of Sciences of Moldova**

Moldova research landscape in Energy Sector

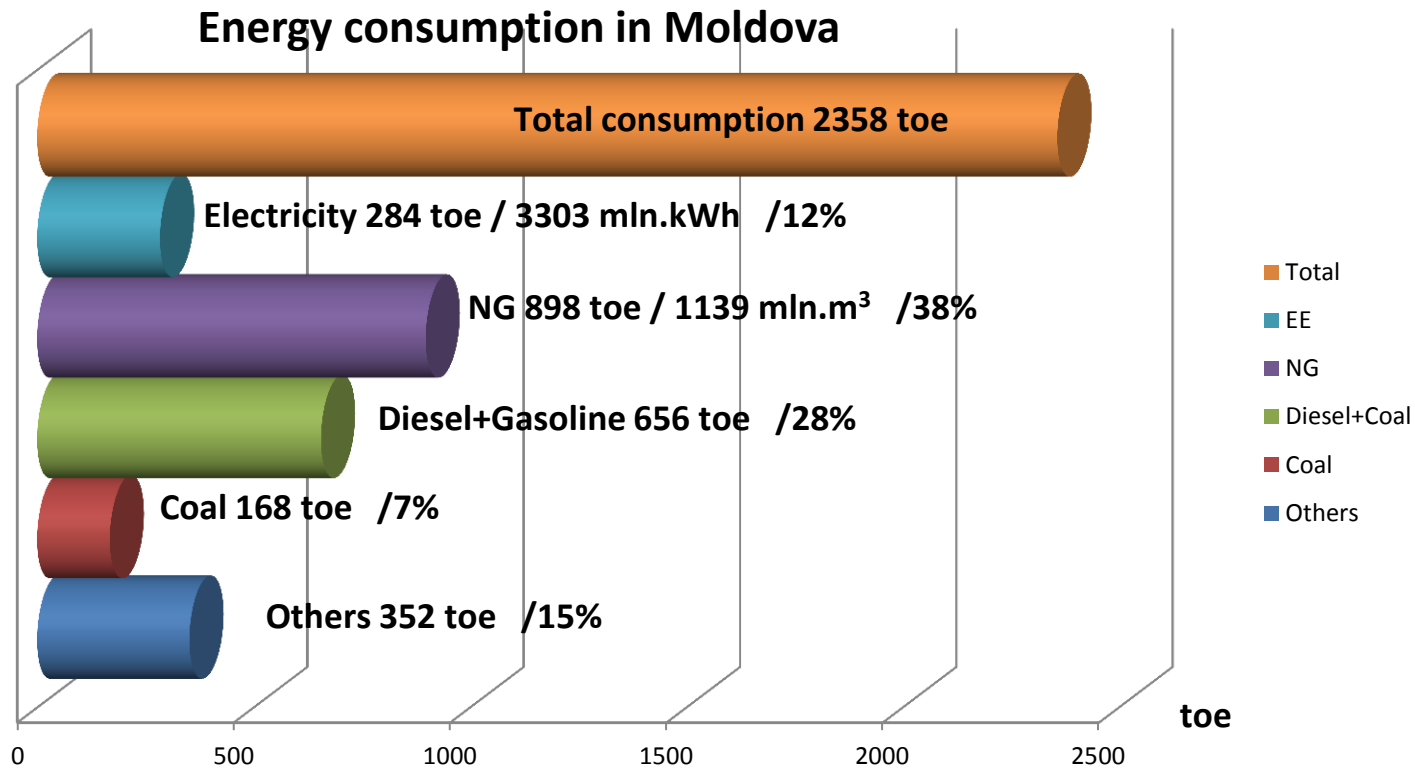
Dr. Mihai Tîrșu, Deputy Director of IPE

Committee of the Regions, Brussels, 23 June, 2014

ENEr2i EU Brokerage Event

General aspects of energy sector in Moldova

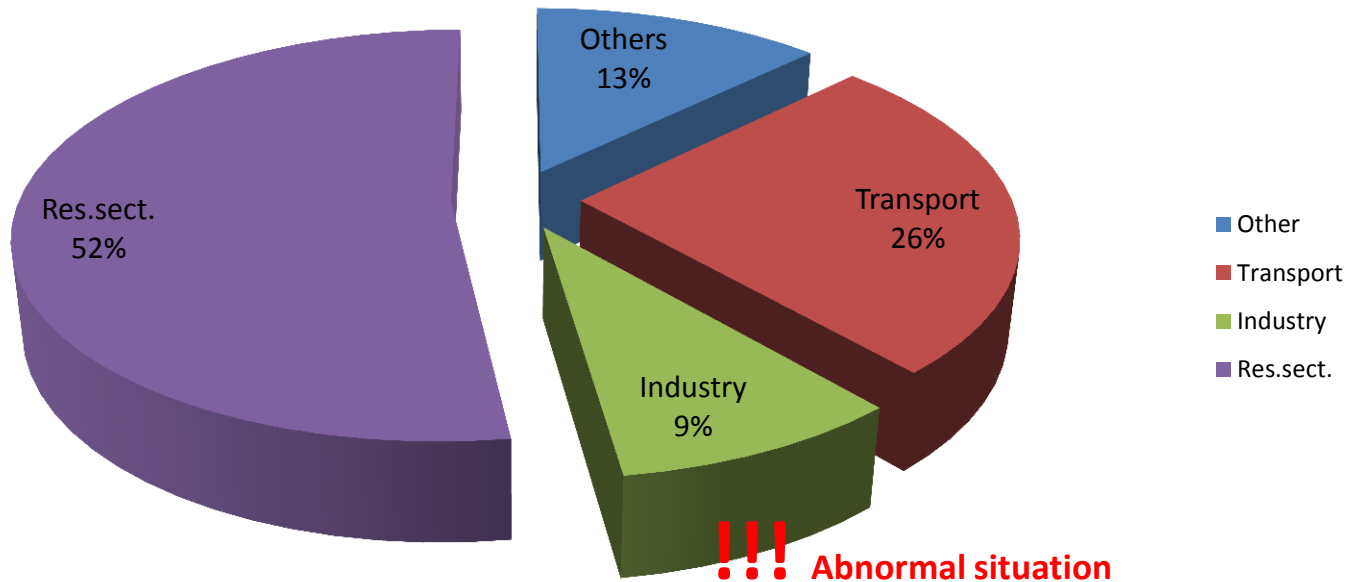
- ✓ Moldova is a country with very limited own energy resources, which is why import more than **95%** of necessary energy.
- ✓ Main types of energy consumed in the Moldova are:



ENER2i EU Brokerage Event

General aspects of energy sector in Moldova

Distribution of energy consumption in 2012, %

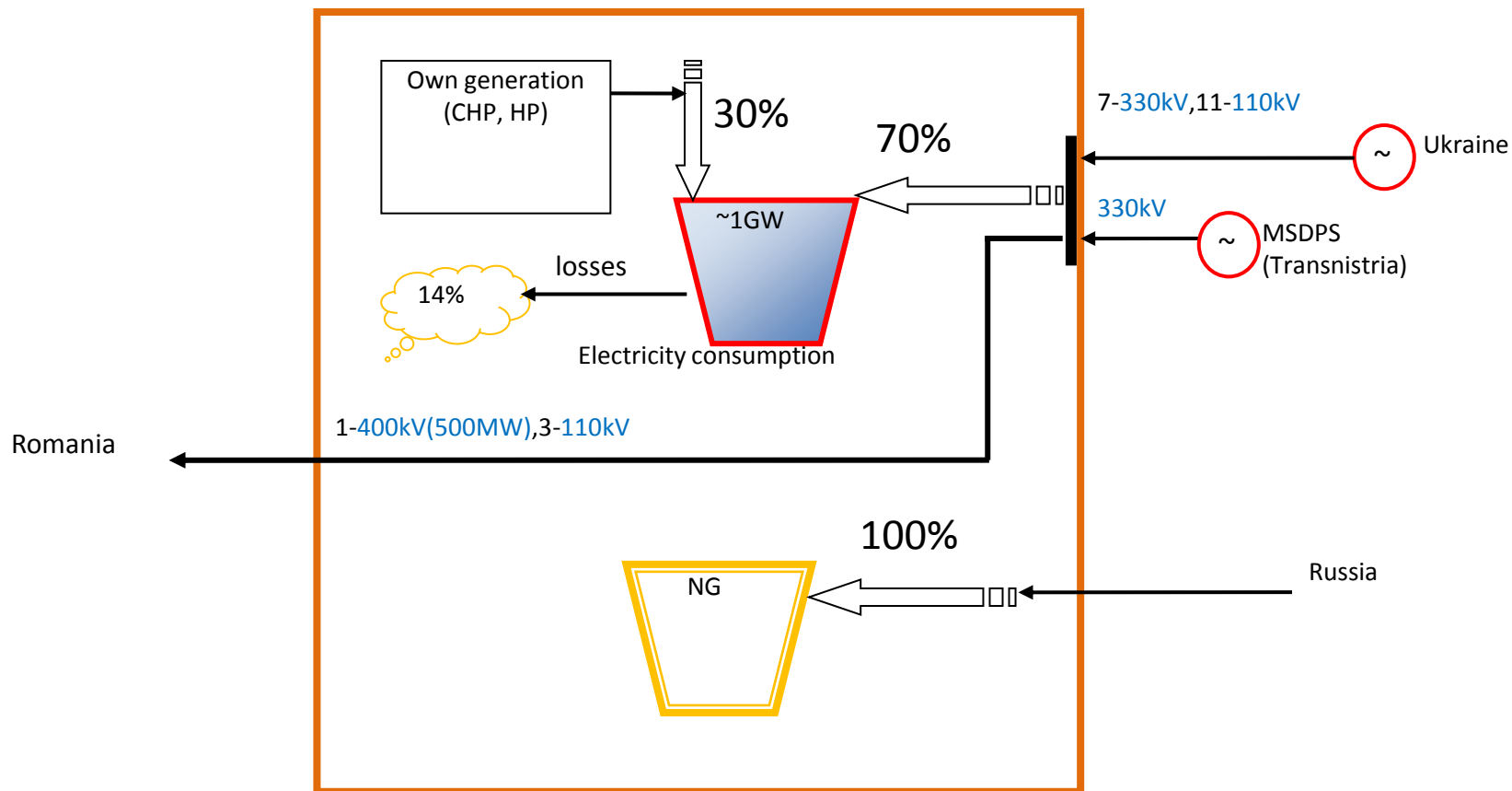


Distribution of consumed energy among main sectors

➤ So, residential sector consuming **52%** of total energy and industry only **9%!!!**

ENER2i EU Brokerage Event

Energy sources of Moldova



➤ About 70km of 400kV line Vulcanesti (Moldova) – Isaccea (Romania) is passing through Ukraine.

ENEr2i EU Brokerage Event

Key problems of energy sector

1. Due to lack of interconnections of power systems of Moldova and Romania country has no opportunity to merge (connect to) **ENTSO-E** and respectively ensure diversification of electricity suppliers.
2. Power system of Moldova need a lot of investments to be reinforced and be able to reduce losses and ensure high capacity transit in all directions.
3. Very small capacity (**about 390MW**) of own electricity generation sources (renewable energy sources potential is not used). Mostly EE is produced by CHPs, which are old and have low efficiency because of thermal load missing.
4. Energy efficiency is very low in country. Most of people and enterprises using old equipment and technologies that result in energy intensity about 3 times more then in EU.
5. High losses in district heat system – **more 20%**.
6. All **100%** of NG are imported from Russia through Ukraine. From technical point of view there is no possibility to import NG from others countries.

ENER2i EU Brokerage Event

Main Regulatory Documents

- **In 2010 Republic of Moldova signed the Energy Community Treat**
- **In 2011 the Government of Republic Moldova signed the Agreement for implementation of EU Directives and Regulations in electricity and gas sector until 2015 (Third Energy Package)**
- **In 2013 was adopted new document “Energy Strategy of Moldova till 2030”.**
- **National Plans for Energy Efficiency and renewable sources.**
- **Laws on energy, electricity, gas, renewables**

ENEr2i EU Brokerage Event

Main Priorities in Energy Sector

1. Development of legal regulatory framework in the electricity/gas sectors

(Completion of the Second legislative Package in the electricity/gas sectors (on-going), implementation of Third legislative Package in the electricity/gas sectors)

2. Strengthening of institutional and organisational framework in the electricity/gas sectors (Central Electricity Supplier)

(Sectoral capacity building, TSO certification, facilitation of energy market liberalisation, Unbundling of Moldovagaz SA)

3. Electricity/NG markets development

(integrate the national market of the RoM into the wider regional markets, foreseen in two directions: towards Ukraine and towards Romania)

4. Major electricity/gas infrastructure investment projects including cogeneration

(Combined cycle turbine (CCGT) cogeneration plant of 650* MWe;

400 kV interconnection line Suceava (RoM) - Balti (Romania), length: 115km/52km;

400 kV interconnection line Straseni-Ungheni (RoM) - Iasi (Romania), length: 100km/70km;

330 kV interconnection line Balti (RoM) - HPP Novodnestrovsk (Ukraine), length: 123km/87km;

Completion of the on-going project of construction of Iasi (RO) – Ungheni (RoM) gas interconnection, and Extension of the Iasi–Ungheni gas pipeline on the RoM territory, Ungheni-Chisinau)

5. Increasing energy efficiency

(Implementation of different national and international Programs with grant component)

6. Development of own generation sources

(400MW wind installation)

ENEr2i EU Brokerage Event

Main institutions involved in Energy Sector

- 1. Ministry of Economy (Energy Department)** – is the main body responsible for energy sector policies
- 2. National Energy Regulatory Agency (ANRE)** – entitled among others to approve relevant methodologies, tariffs for regulated energy undertakings, market monitoring and customers' protection
- 3. Agency for energy Efficiency** – entitled to implement the state policy in the field of energy efficiency
- 3. Moldelectrica SE** - the state-owned single power transmission system operator (TSO) of RoM, which also provides market operator functions in a limited scope
- 4. Moldovagaz JSC** - a single vertically integrated company controlling import, transit, transmission, wholesale supply, distribution and retail supply of NG
- 5. Electricity Distribution companies** – 3 companies

ENEr2i EU Brokerage Event

Research institutions in energy field

- 1. Institute of Power Engineering of Academy of Sciences of Moldova** – the main public organisation which make fundamental and applied researches in energy area and offer all necessary scientific support to MoE in development of important documents (ES2030, laws etc.)
- 2. Energy Faculty of Technical University of Moldova** – outside of educational process also have some research activities.
- 3. State Agricultural University of Moldova** – also beside educational process make some researches in the area of using energy for agricultural sector.

ENEr2i EU Brokerage Event

Main Research Activities of Institute of Power Engineering

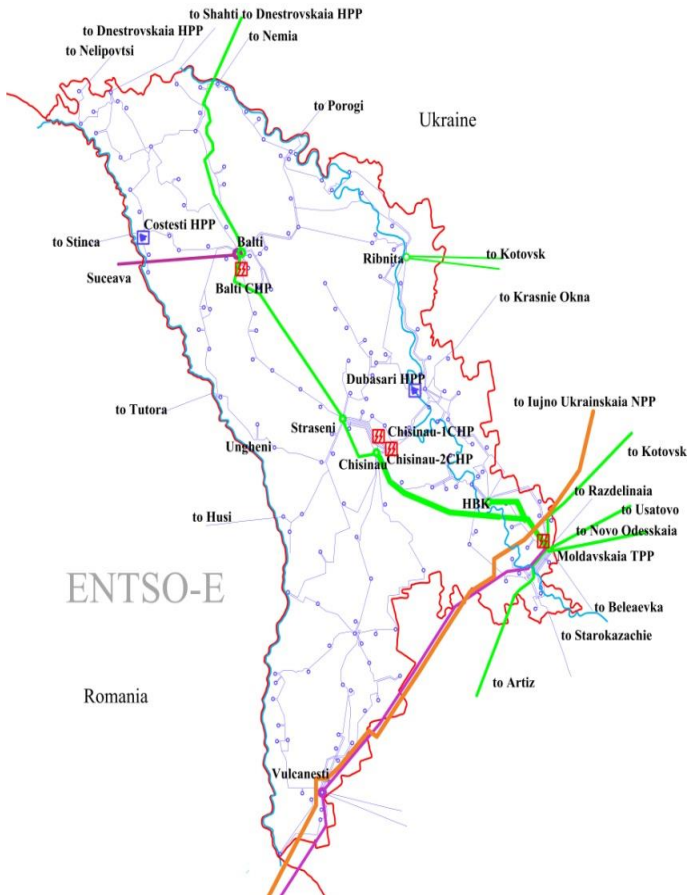
The staff of IPE is about 60 people and we are making researches in the most important fields of energy sector:

- Support in elaboration of state policy documents;
- Researches in the field of production, transport and distribution of electricity;
- Elaboration of models for analyses and forecast of energy security;
- Elaboration of most competitive scenarios for development of power sector and its integration in regional market;
- Development of more efficient and less expensive technical solutions for power flow management;
- Research on power system stability and level of losses for realisation of different scenarios, like connecting of high capacity wind installations.
- Researches in energy efficiency and using of RES

ENEr2i EU Brokerage Event

OWN RECENT RESEARCH ACTIVITIES

- ❑ Researches related to operating mode of power system after building of 3 lines on 400kV necessary for interconnection with Romania (Balti-Suceava, Vulcănești - Isaccea and Strășeni-Ungheni-Iasi), each having a capacity of 500MW
- ❑ What kind of renewable energy sources are more suitable for our country from point of view: “How balance the power system and which will be the influence on the tariff?”
- ❑ Development of Road Map for implementation of ES2030
- ❑ Providing energy audits for improving energy efficiency



ENEr2i EU Brokerage Event

GAS SECTOR

❑ The consumption of NG decreased because the tariff was increased too much for last years, but consumers income remain the same.

❑ A lot of consumers (as result) changed the gas boilers on biomass boilers.

100% of NG are imported from one source (Russia).

- ❖ Technically, it is not possible diversification of gas suppliers due to lack of gas pipeline connection with Romania.
- ❖ ES2030 preview construction of gas pipeline Iasi-Ungheni with capacity of 1,5 mill.m³ per year and length of 43km that had to be done in 2013 (it is planned to be ready this summer).
- ❖ Another gas pipeline that is not in ES2030, but is already subject of discussion between Governments of Republic Moldova and Romania is the Ungheni-Chisinau pipeline with length of 130km.
- ❖ In this aspect the IPE made researches on possibilities to create underground storage of NG in the territory.

ENEr2i EU Brokerage Event

GENERAL CONCLUSIONS

Strategic Objectives:

- Promote energy efficiency in all the sectors of the economy and use of renewable energy sources,
- Build the energy connections with Ukraine and Romania;
- Integrate the national energy system in the European energy system;
- Diversify the country's energy supply sources;
- Improve use of energy and fuels in their production, transport, distribution and supply;
- Settle the debts and stabilize the financial situation of enterprises operating in the energy sector;
- Bring the private investments in the rehabilitation and construction of energy enterprises.

THANKS FOR YOUR ATTENTION!

Contacts:

Institute of Power Engineering of ASM

Tel. 022-738141

www.ie.asm.md

tirsu.mihai@gmail.com