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Industrial Energy Efficiency in Moldova

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UNIDO National Experts

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Industrial Energy Efficiency in Moldova

Presentation outline

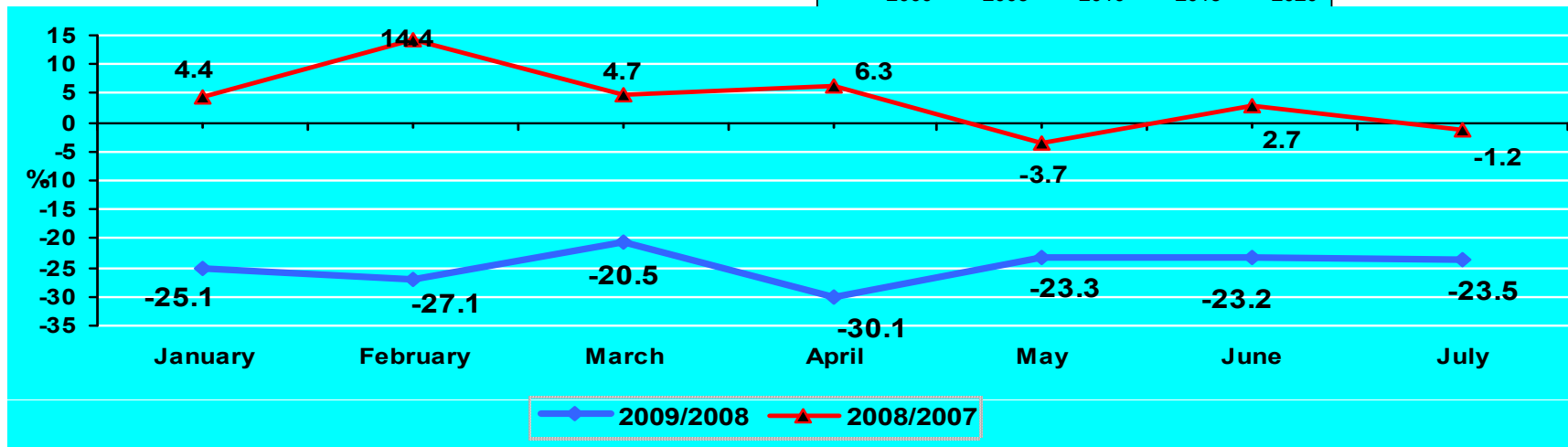
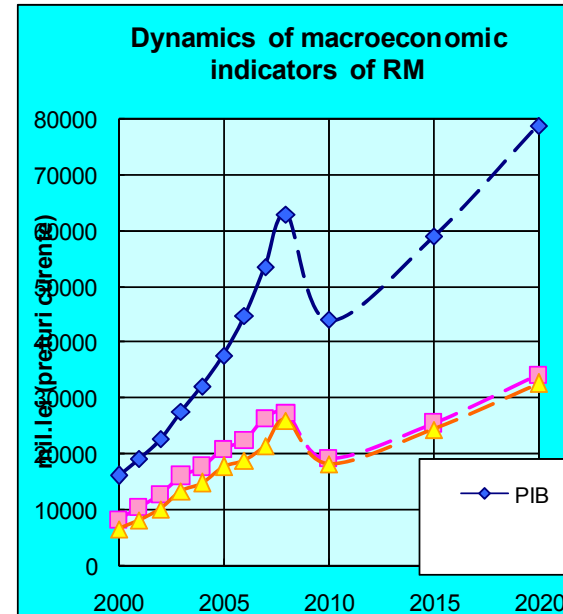
1. Moldova context
2. Energy performance of Moldovan industry
3. Barriers to improved industrial energy efficiency (IEE)
4. Policy and regulatory frameworks for IEE
5. Conclusions



Industrial Energy Efficiency in Moldova

1. Moldova Context

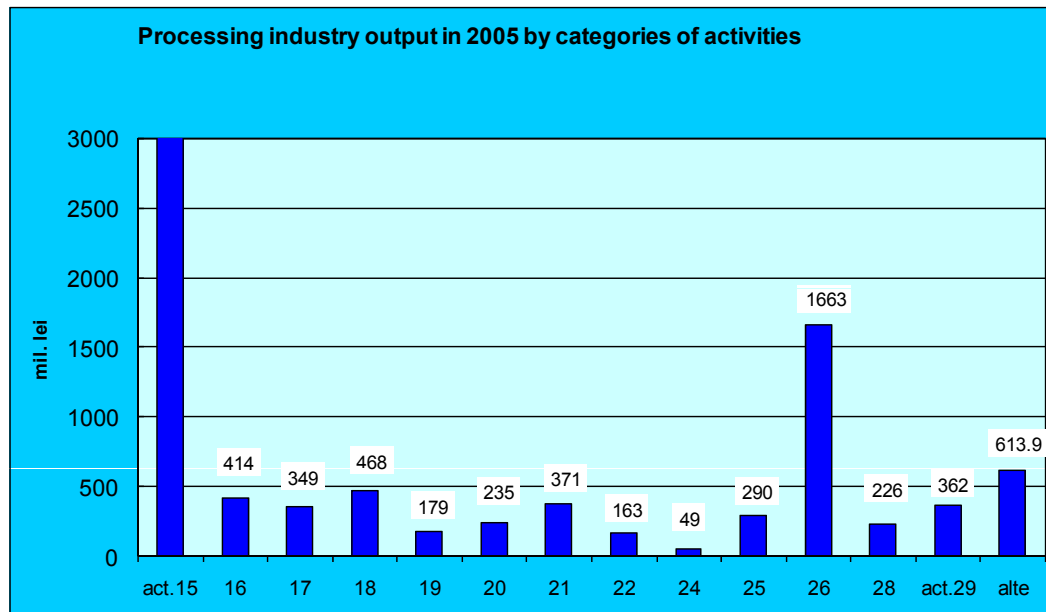
Monthly evolution of industrial production output in comparable prices (last year averages), percentage change compared to the respective month of the precedent year





Industrial Energy Efficiency in Moldova

1. Moldova Context



15.	<i>Manufacture of food products and beverages</i>
16.	<i>Manufacture of tobacco products</i>
17.	<i>Manufacture of textiles</i>
18.	<i>Manufacture of wearing apparel; dressing and dyeing of furs</i>
19.	<i>Manufacture of leather, leather products and manufacture of footwear</i>
20.	<i>Manufacture of furniture</i>
21.	<i>Manufacture of paper and paperboard</i>
26.	<i>Manufacture of other non-metallic mineral products</i>
28.	<i>Manufacture of fabricated metal products, except machinery and equipment</i>
29.	<i>Manufacture of machinery and equipment</i>



Industrial Energy Efficiency in Moldova

1. Moldova context

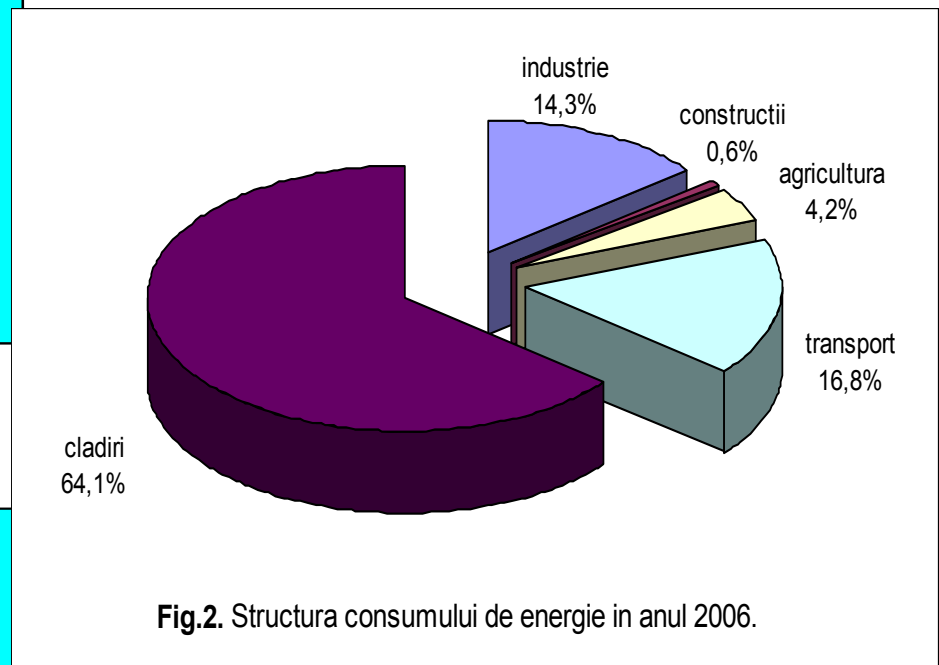
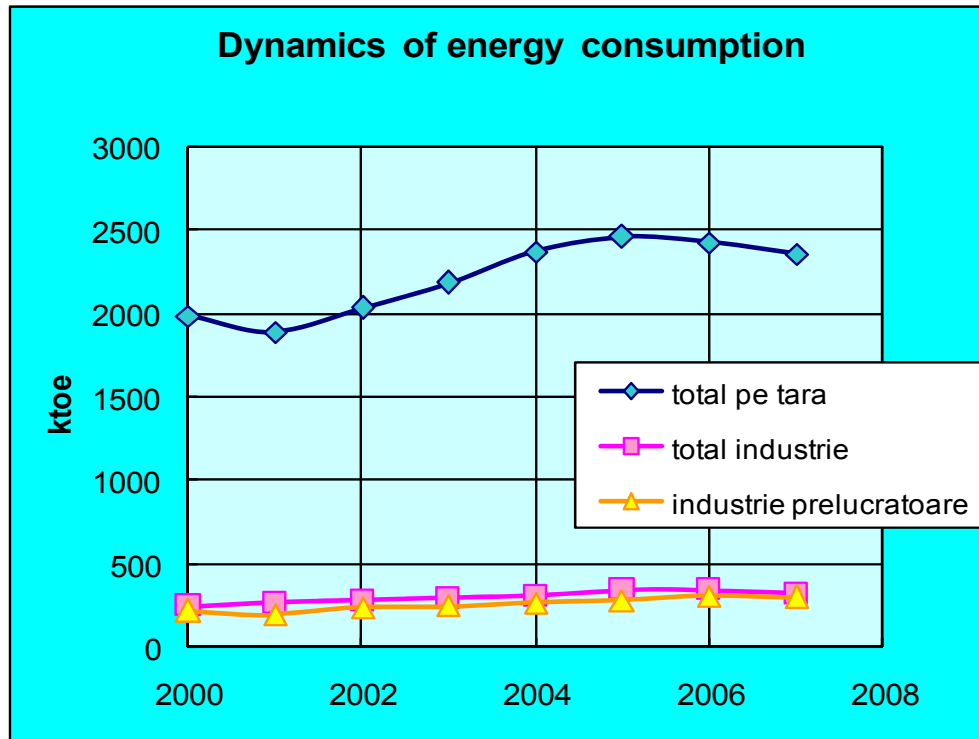
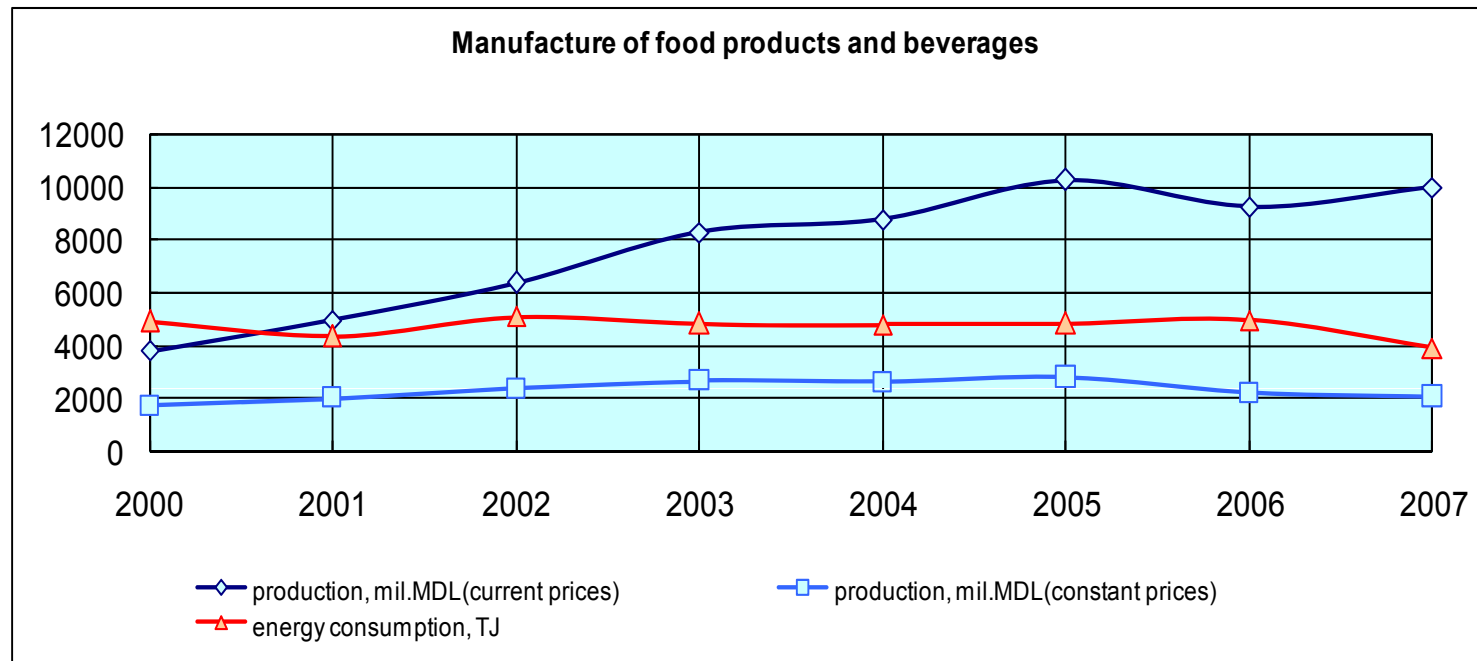


Fig.2. Structura consumului de energie in anul 2006.



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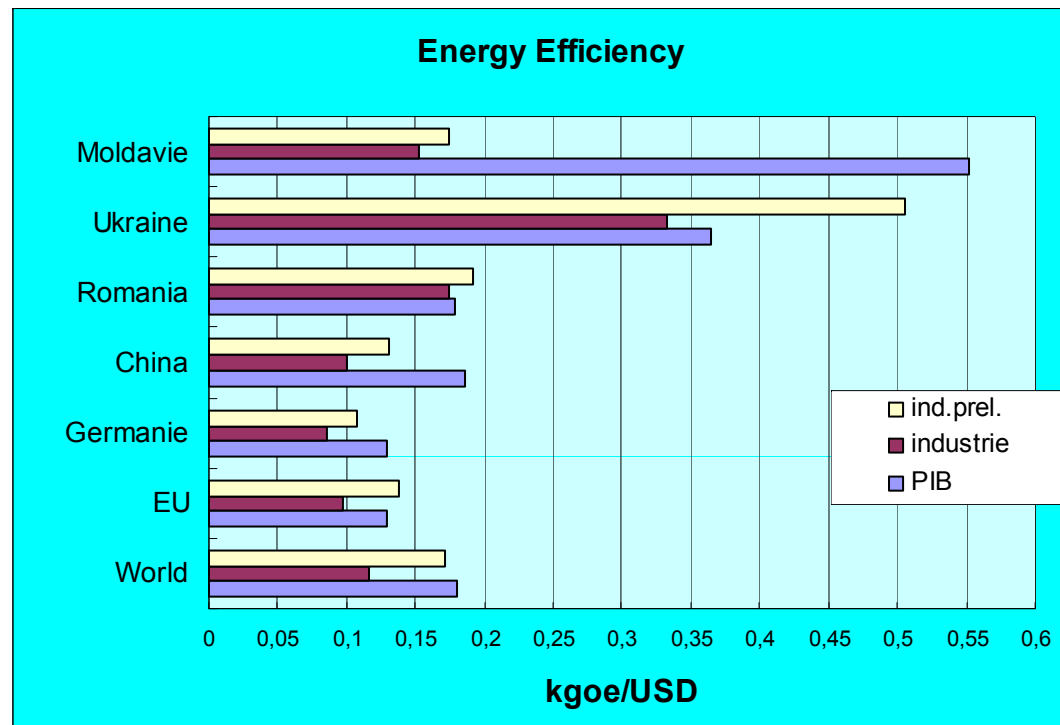
1. Moldova context





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2. Energy performance of Moldovan industry

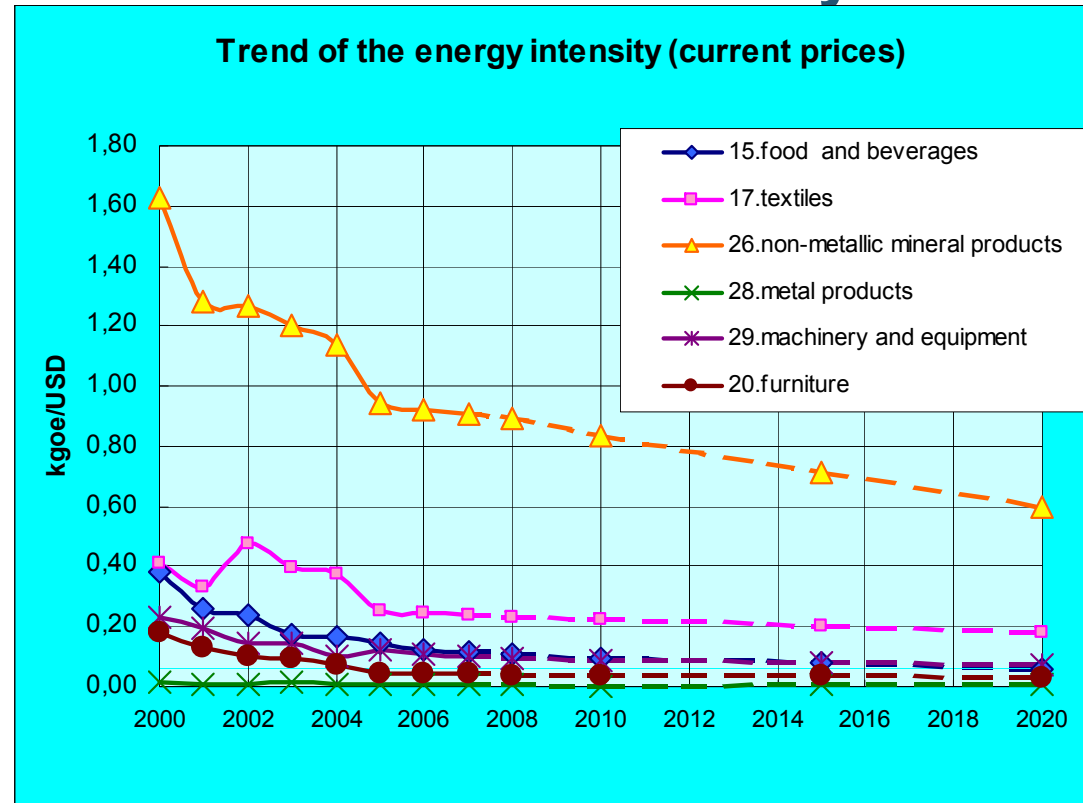


Source: http://www.worldenergy.org/publications/energy_efficiency_policies_around_the_world_review_and_evaluation/1230.asp



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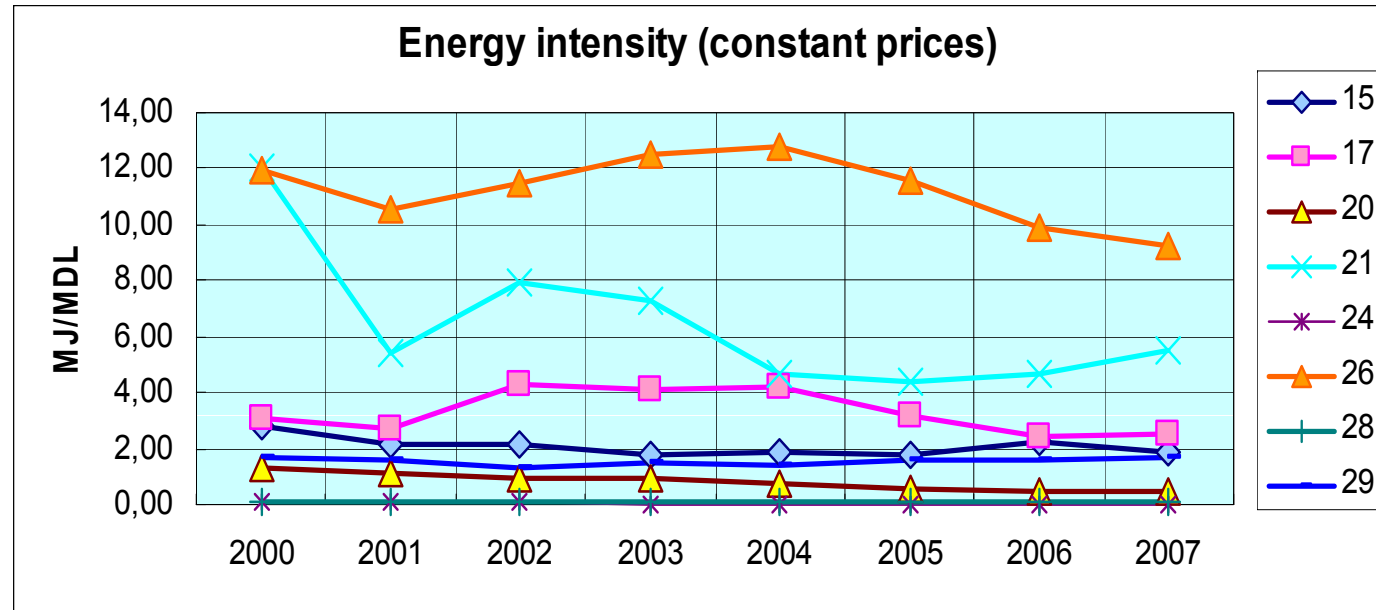
2. Energy performance of Moldovan industry





Industrial Energy Efficiency in Moldova

2. Energy performance of Moldovan industry

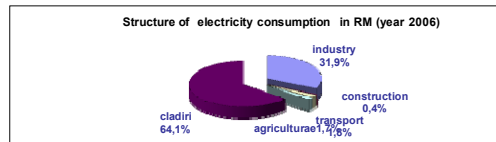




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2. Energy performance of Moldovan industry

Trend of electricity consumption, in GWh



	2000	2001	2002	2003	2004	2005
15.food and beverages	224	220	250	259	265	276
17.textiles	29	33	33	35	38	40
26.non-metallic mineral products	120	106	132	140	190	207
28.metal products	1,0	1,0	1,0	3,0	2,0	2,0
29.machinery and equipment	33	36	37	44	40	39
20.furniture	5,7	4,2	3,1	2,9	2,2	1,4



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2. Energy performance of Moldovan industry

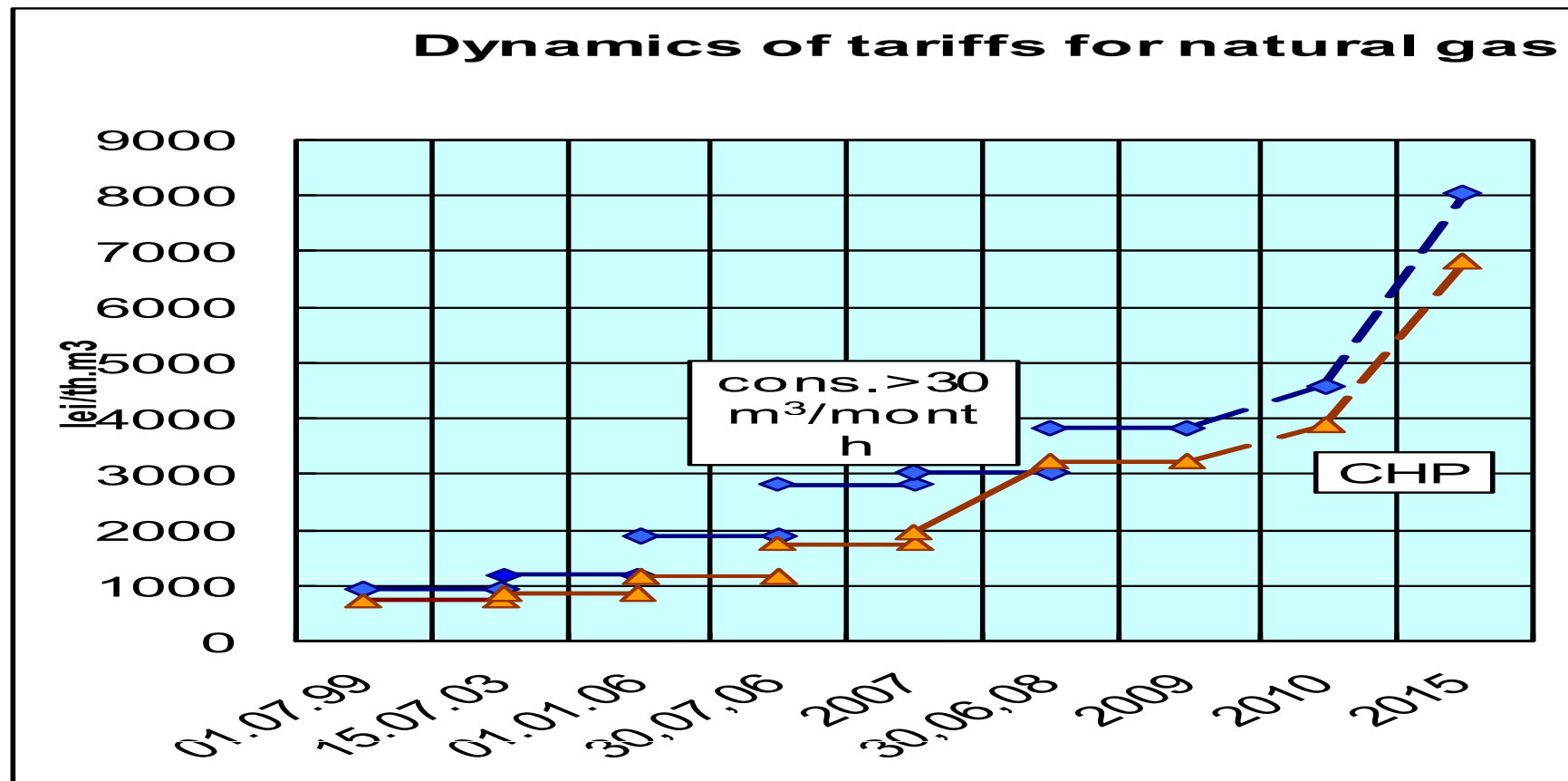
Trend of heat consumption, in GWh

	2000	2001	2002	2003	2004	2005
15.food and beverages	939,3	983,5	991,6	870,6	896,2	926,4
17.textiles	33,8	39,6	41,9	44,2	46,6	47,7
26.non-metallic mineral products	17,5	22,1	16,3	15,1	15,1	15,1
29.machinery and equipment	1,2	4,7	2,3	3,5	3,5	3,5
20.furniture	3,5	3,5	2,3	4,7	3,5	2,3



Industrial Energy Efficiency in Moldova

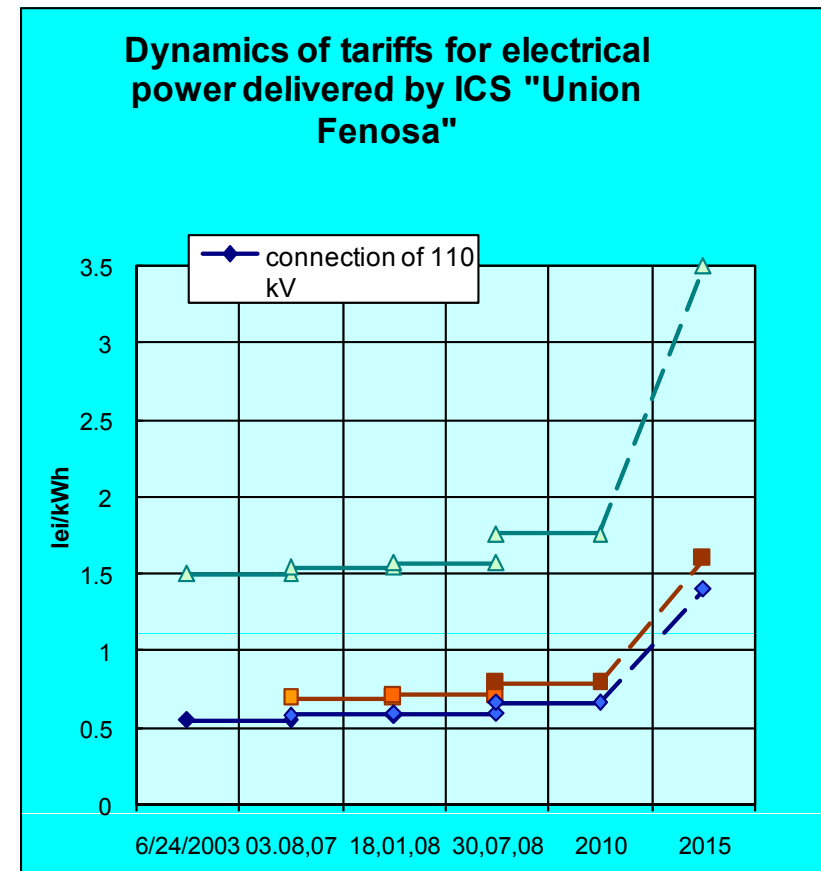
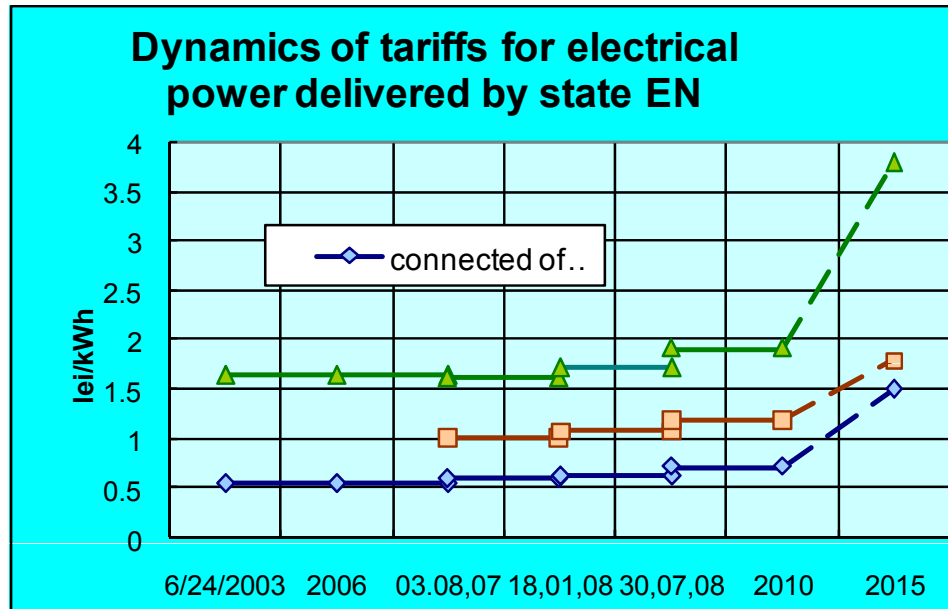
2. Energy performance of Moldovan industry





Industrial Energy Efficiency in Moldova

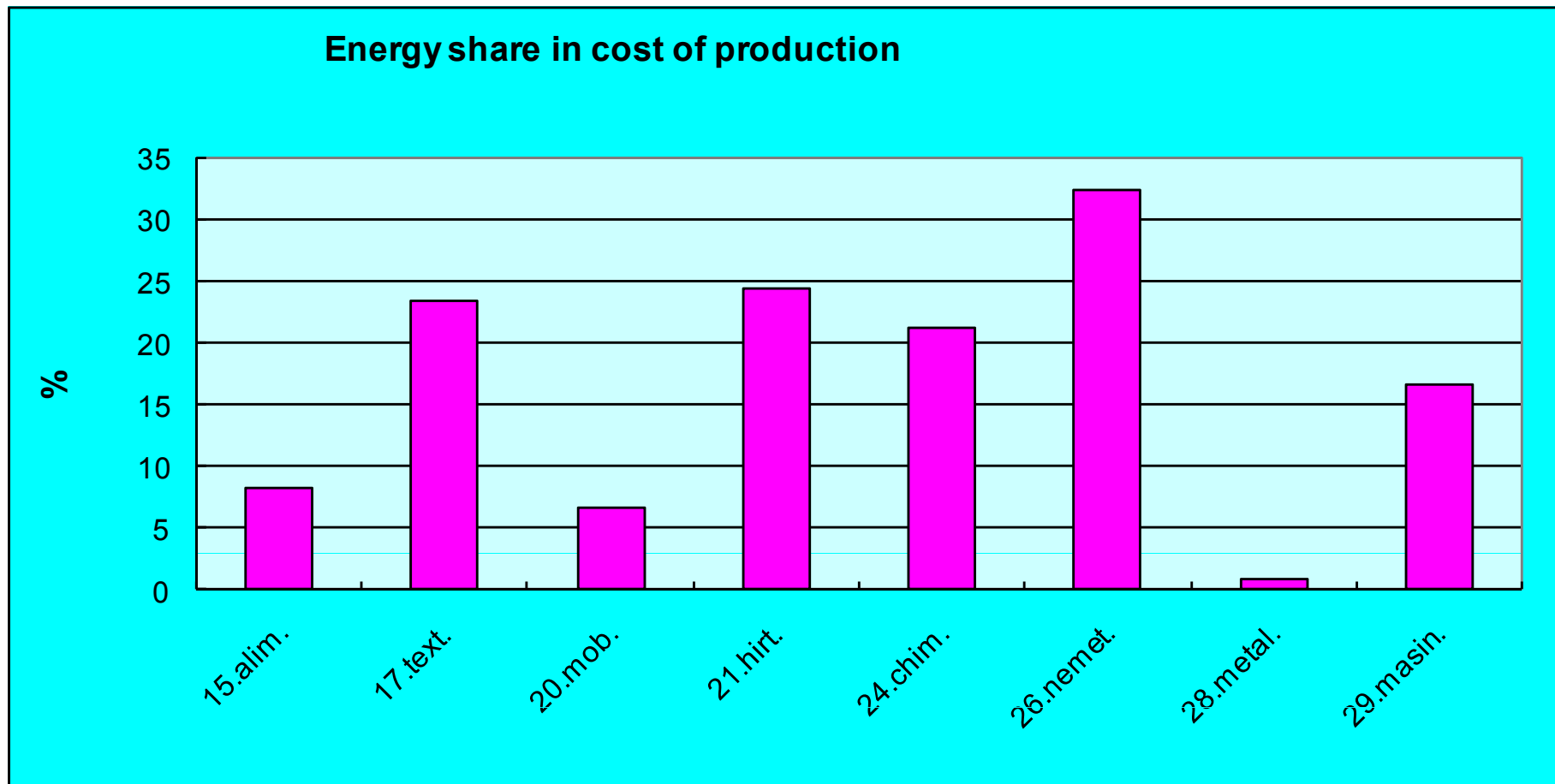
2. Energy performance of Moldovan industry





Industrial Energy Efficiency in Moldova

2. Energy performance of Moldovan industry





Industrial Energy Efficiency in Moldova

2. Energy performance of Moldovan industry

Category	Activities	Output (2007), mil.lei	Output by enterprise, mil.lei/enterprise	One worker output, thousand lei/pers.	Energy intensity MJ/leu	Energy weight, %
15.	Manufacture of food products and beverages	8605,8	32,4	296	0,47	8,1
17.	Manufacture of textiles	637,7	23,1	131,9	0,9	23,5
26.	Manufacture of other non-metallic mineral products	2664,7	64,3	355,9	3,2	32,5
29.	Manufacture of machinery and equipment	340,7	12,11	95,36	0,42	16,5



Industrial Energy Efficiency in Moldova

3. Barriers to improved industrial energy efficiency (IEE)

General impediments:

1. Lack of adequate energy conservation policies in the country: Ministry of Energy was liquidated, National Agency for Energy Conservation practically disappeared, there is no ESCO, laws in the energy area are adopted slowly, and the ones that are approved fail to function, energy conservation is discussed only at some scientific seminars and conferences etc.
2. Economic agents' uncertainty delay investments in general and impose the priority of investing in the technological equipment, which is commonly cheaper and less energy efficient.
3. The relatively low share of energy cost in the cost price of most of the priority industries' products in the republic: food, beverage, textile does not raise the interest of technological staff and therefore the low level of their knowledge in the area of energy, energy management, energy conservation.



Industrial Energy Efficiency in Moldova

3. Barriers to improved industrial energy efficiency (IEE)

4. Lack of capital at the enterprises and reduced availability of credits (bank interest too high , alternative forms of financing, outside banks, are underdeveloped).
5. Poor investment climate in the country.
6. Lack of initiative among many managers, inherited from the Soviet administrative order system
7. High level of corruption and bureaucracy at all levels.



Industrial Energy Efficiency in Moldova

4. Policy and legal frameworks for IEE Institutions promoting energy policies

1. Ministry of Economy and Commerce (MEC)
 - General department for energy security,
 - Department for power, cooperation of power systems,
 - Department for gasification and energy resources,
 - Department for thermal energy.
2. Ministry of Environment and Natural Resources
3. National Agency for Energy Regulation (ANRE).
4. National Agency for Energy Conservation (ANCE).
5. State Energy Inspection (IES).
6. Energy Institute of the Academy of Sciences of RM (IE AȘM).
7. Technical University of Moldova:
 - Energy Faculty
 - City development and architecture Faculty



Industrial Energy Efficiency in Moldova

4. Policy and legal frameworks for IEE

Strategies and programs:

- **Poverty Reduction and Economic Growth Strategy (PREGS).**
No.398/02.12.2004
- **EU-Moldova Action Plan.** <http://www.europa.md/rom/sbmen/31>
- **RM Strategy for Energy till 2020** aproved by Republic of Moldova
Government Decision no. 958 as of 21.08.2007
- **Concept of renovation of the republican heat supply sistem:** HG RM N 189 of
20.02.2003.
- **National Energy Conservation Program for the period 2003-2010.** HG RM N
1078 of 5.09.2003.
- **National Gasification Program of RM .** HG RM no. 1643 of 19 December 2002.
R. Moldova Official gazette (Monitorul Oficial) N 190-197 of 31.12.2002
- **Long term Energy Strategy of Republic of Moldova** brought in line with the
energy objectives of the European Union. Draft [e-Journal “*REGIONAL
ENERGY PROBLEMS (PROBLEMELE ENERGETICII REGIONALE)* № 2
(2006).].



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4. Policy and legal frameworks for IEE

Specific Objectives of the Strategies and Programs in the area of enhancing energy efficiency include:

- Implementation of the National Energy Conservation Program 2003-2010 and its extension, with updating every two years, taking into consideration the EC Green Paper as of 22 June 2005 “Energy efficiency or achieving more with less” and the Green Paper of 8 March 2006 “European Strategy for sustainable, competitive and secure energy”;
- Development, approval and application of **standards** aimed at increasing the energy efficiency by using equipment in conformity with the EU legal standards on energy efficiency;
- Development and encouragement through material and moral incentives of the **initiative** in the area of energy conservation and enhancement of energy efficiency in the budget, residential sectors and in the national economy branches, including the energy sector;



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4. Policy and legal frameworks for IEE

- Promotion of using most **efficient technologies**' and economically viable and non-polluting energy equipment in all branches of the national economy;
- Encouraging the application of new **investment and incentives norms for** increasing the energy efficiency, such as establishing of energy resources' consumption norms on specific terms, accepting the use of freed energy resources resulting from better efficiency for other production needs or for ensuring the enterprise or organization activity;
- Setting up a **database** on energy efficiency and providing free access for legal entities and natural persons to that information;
- Promotion of providing **consulting and audit** services by private or state organizations, which will offer information on energy efficiency programs and technologies and will deliver technical assistance to state and private sector users;
- Establishment of **regional demonstration centers** for energy efficiency;
- Development of **price and tax policies** to provide clear signals about favouring energy efficiency.



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4. Policy and legal frameworks for IEE

Measures to achieve specific objectives include:

- **Relaunching and expansion of National Energy Conservation Agency**, which shall have responsibilities with regards to implementation of the National Energy Conservation Program;
- **Cooperation** in the energy efficiency and use of renewable energy sources areas **with European Union structures** and CIS ones, including technical assistance;
- **Monitoring EU secondary legislation transposition** with regards to energy saving and energy efficiency;
- **Promotion of energy efficiency** through technologies minimizing energy consumption in buildings, especially in public ones, including through the usage of renewable energy sources;



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4. Policy and legal frameworks for IEE

- Development and supply of some **financial support tools** for energy efficiency projects, efficient technologies and research and development in the respective area; to this end, funds shall be accumulated both from the state budget and from grants;
- Actions to set up energy service companies (**ESCO-s**) and using other financial instruments and organizational approaches to stimulate commercial banks to invest in energy efficiency projects;
- Establishing minimum energy efficiency standards** for various equipment and technologies (e.g. for buildings, transport, household appliances, ordinary industrial equipment, etc), that shall be gradually harmonized with the EU standards;
- Consideration given to the possibility of setting up a market for selling **white and green certificates**;
- Reviewing methodologies** of price and taxes definition for energy products in such a way as to include energy efficiency facilities.



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4. Policy and legal frameworks for IEE

Laws:

- Republic of Moldova Law on Energy No.1525-XIII as of 19.02.98.
- Republic of Moldova Law on Standardization Nr.590-XIII as of 22.09.95
- Law on Concept regarding Privatization of power sector enterprises, no. 63-XIV of 25 June 1998;
- Republic of Moldova Law on Gas. No.136-XIV as of 17.09.98
- Republic of Moldova Law on Energy Conservation No.1136-XIV of 13.07.2000.
- Law on Promoting power production from renewable energy sources. HP RM no. 39 as of 23.02.2007.
- Law on Thermal Energy, Draft (>10 years old).
- Law on Energy Efficiency, Draft



Industrial Energy Efficiency in Moldova

6. Conclusions

1. Republic of Moldova industry, till the actual crisis, had had a growth rate of about 6% per year, which was mostly due to inflation.
2. In the industrial production output, the absolute largest share is held by **food and beverage** branches of industry.
3. RM industry's energy intensity is relatively low, thanks to predomination of less or non-energy consuming branches.
4. From energy saving point of view, the following industries present more interest:
 - 15 – food and beverage products,
 - 17 – textile industry,
 - 26 – non-metal minerals products manufacture.



Industrial Energy Efficiency in Moldova

6. Conclusions

5. National Strategies and Programs of economic development in general, and of industry, in particular, pay due attention to **energy efficiency**
6. Legislation necessary for the respective Strategies and Programs objectives' realization has been developed, but is approved with some difficulties and is **inadequately complied with**.
7. **Insufficient** attention is given to enhancing energy efficiency in the Republic of Moldova.



Industrial Energy Efficiency in Moldova

6. Conclusions

8. A number of impediments are in the face of enhancing energy efficiency in the RM:

- Managerial – lack of interest from the government, ministries, leadership of some enterprises;
- Economic – lack of capital, reduced availability of credits, poor investment climate etc.
- Psychologic – uncertainty caused by the unstable situation in the country and economic crisis, lack of initiative among staff at all levels.



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Thank you for your attention !

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