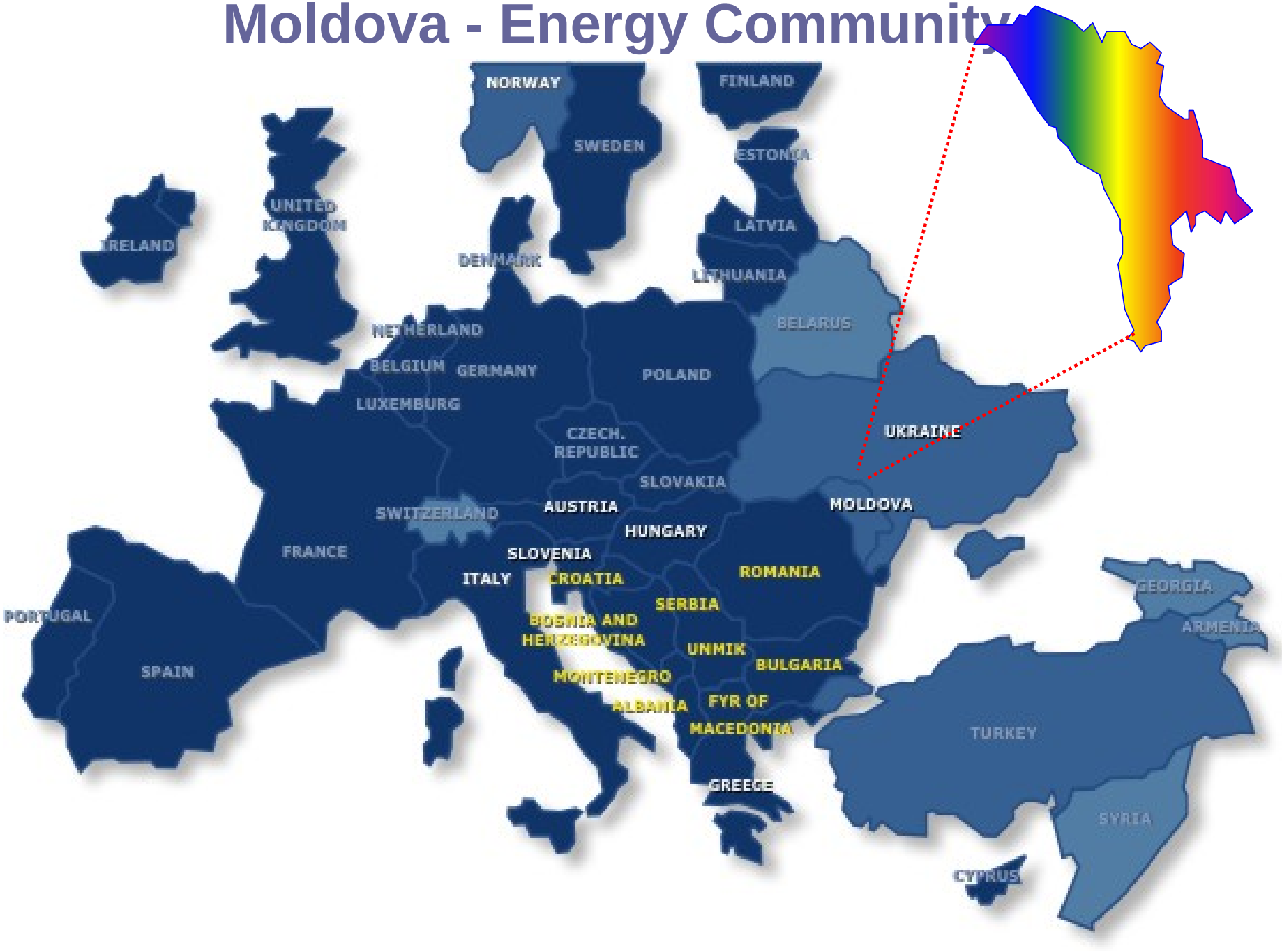
Energy Policy of Republic of Moldova

Moldova - Energy Community



Country profile

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are needed to see this picture.

- Moldova has a population of approximately 3.7 million with a GDP of around $6,04 million U.S.
- *Transnistria* is a breakaway territory located between Nistru river and Moldova's eastern border with Ukraine. Since 1990, it is an unrecognized state, fully supported (but not recognized) by Russia. It is *de jure* part of Moldova, but *de facto* not controlled by Moldova.

Largely Russian and Ukrainian-speaking

Declared independence in 1990

Not recognised internationally

Separatist capital is Tiraspol

Population under a million

1,400 Russian troops established in Transnistria

Present condition of the energy sector

Electricity sector:

In 1997 State Owned Company "Moldenergo" was unbundled into:

- **Generation**: JSC "CET-1 Chisinau", JSC "CET-2 Chisinau", JSC "CET-Nord Balti";
- **Distribution**: JSC "RED Chisinau", JSC "RED Nord", JSC "RED Nord-Vest", JSC "RED Centru", JSC "RED Sud";
- **Transmission and central dispatch**: state-owned enterprise "Moldtranselectro", which acquired all other assets and activities of the state owned company „Moldenergo".

Privatization: In 2000 the Spanish company "Union Fenosa" acquired 100% of the share capital in three distribution companies, namely JSC "RED Chisinau", JSC "RED Centru" and JSC "RED Sud".

- The Electricity system in the Transnistria region is operated by Dnestrenergo company, with headquarters in Tiraspol. Dnestrenergo includes Eastern electricity networks in Dubasari city, South Eastern electricity networks in Tiraspol city and the Dubasari Hydro Power Station.

Gas sector:

The Russian-Moldovan joint venture JSC **Moldovagaz**:

- 50% of its shares owned by "Gazprom" of Russia,
- 36.6% by the Republic of Moldova, and
- 13.4% by the Transnistria region (which now belong also to Russia).

Programmes and strategies of Republic of Moldova related to energy:

- Moldovan National Development Strategy 2008-2011;
- Energy Strategy of the Republic of Moldova until 2010;
- Energy Strategy of the Republic of Moldova until 2020;
- National Programme of Energy Conservation for 2003-2010;
- National Energy Efficiency Programme 2011-2020 (to be adopted).

Energy Strategy of the Republic of Moldova until 2020

Specific measures:

- creating a more efficient, reliable and competitive national energy industry that is geared towards serving the needs of the customer;
- enhancing security of energy supply;
- promoting energy and economic efficiency;
- liberalizing the energy market and further restructuring the power industry; and
- boosting Moldova's role as an important transit country for electricity and gas.

International Agreements

Moldova has been a signatory party to:

- **Energy Charter Treaty**.
- **Energy Community** - became a member as of May 1, 2010. Moldova has an obligation to adopt core parts of the EU *acquis communautaire.*
- **The United Nations Framework Convention on Climate Change** (UNFCC) - adhered to it on 9 June 1995.
- **The Kyoto Protocol** - ratified it on 22 April 2003.
- **The Copehagen Accord** and the 2010 Cancun Agreements.

Energy Sector Overview

Key challenges:

- lack of own energy resources (natural gas, oil, coal);
- total reliance on imports of fossil fuels and electricity;
- low levels of Energy Efficiency and Renewable Energy Source use;
- dominance of imported natural gas;
- non-uniform location of electricity generation capacity (insufficient generation capacity located on the right bank of Nistru River, where electricity generation represents only 30% of total consumption);
- advanced level of wear and tear of the equipment (about 60-70%) of power stations, high voltage power lines and distribution networks;
- insufficient amount of investments in the energy sector; and
- low level of natural gas supply to rural areas.

Energy Strategy of the Republic of Moldova until 2020

Specific objectives:

(i)Security of Supply will be achieved:

- by increasing the capacity for interconnection with Romania and the Ukraine;
  - Joint Operational Programme Romania – Ukraine – Republic of Moldova 2007 – 2013 is ongoing. The programme is funded by the European Union. Under this programme Romania and Moldova plan to build the Ungheni-Iasi pipeline.
  - The implementation of the project on synchronization of the energy system of Moldova with the European Network of Transmission System Operators for Electricity (ENTSO-E) continues.

(ii) Energy Efficiency and Renewable Energy Sources

- gradual approximation of national legislation with the relevant EU *acquis communautaire***.**
- Production of energy from RES: 6% in 2010 and 20% in 2020.

(iii) Opening-up of the Domestic Energy Sector

- 2009 Law on electricity and 2009 Law on natural gas.

Institutional Framework

- **The National Agency for Energy Regulation** (ANRE) - established in 1997, primarily regulates and supervises the electricity, oil, natural gas and district heating sub-sectors.
- **The Agency for Energy Efficiency** (EEA) - established in December 2010. It shall:
  - implement state policy in energy efficiency and renewable energy sources;
  - participate in drafting normative acts including technical regulations and standards in Energy Efficiency and Renewable Energy;
  - develop minimum Energy Efficiency requirements for devices and equipment produced in or imported to the Republic of Moldova and submit them for approval to the central branch authority in charge of the energy sector;
  - take part in drafting national programmes and action plans on energy efficiency;
  - draft Energy Efficiency and Renewable Energy innovative programmes and to provide assistance to the central and local public authorities in drafting such programmes; etc.

Legislative developments

Electricity sector

The key normative act governing the domestic electricity sector is the **2009 Law on Electricity**, which transposed *Directive 2003/54/EC concerning common rules for the internal market in electricity*.

- Article 52 of the Law provides that the electricity market shall be fully liberalized for non-household consumers by 1 January 2013 and for household consumers by 1 January 2015.

Gas sector

In accordance with the transposition obligations imposed on Moldova as part of its acquisition of the status of a full contracting party to the Energy Community, the **2009 Law on Natural Gas** transposed *Directive 2003/55/EC concerning common rules for the internal market in natural gas* into domestic legal order in Moldova.

Legislative developments

Oil

Moldova has not enacted any specific legislation governing the exploration and production of crude oil. The primary piece of legislation governing the oil sector (gasoline and diesel oil) is the **2001 Law on the Petroleum products market.**

- Article 13 of Law on the Petroleum Products Market sets special conditions for major importers of petroleum products (e.g. owned or leased oil storage-*at least 5 thousand* m^3- and minimum volume of required capital-*at least $ 750,000 U.S*.

Legislative developments

Energy efficiency

In the field of energy efficiency, the **2010 Law on Energy Efficiency** partially transposes the *Directive 2006/32/CE on energy end-use efficiency and energy services.*

Article 27 requires the development and adoption of several pieces of primary and secondary legislation; namely:

- the National Program on Energy Efficiency for 2011-2020;
- the National Action Plan on Energy Efficiency for 2011-2014;
- the Law on Energy Performance of Buildings;
- the Regulation on Minimum Energy Efficiency Requirements for Buildings;
- the requirements for ecological design.

The Government:

- Adopted the Regulation of the Energy Efficiency Agency.

Legislative developments

Renewable Energy Resources

The current targets for the development of renewable energy sources are stipulated in the **2007 Law on Renewable Energy Sources.**

- Article 6 of the law ensures that in 2020 the production of energy from Renewable Energy Sources will amount to about 6% of total energy and 20% in 2020.
- introduction of feed-in tariffs for a term of 15 years. Feed in tariffs – include: *(i)* guaranteed grid access, *(ii)* long-term contracts for the electricity produced, *(iii)* purchase prices that are methodologically based on the cost of renewable energy generation and tend towards grid parity.
- Creation of Energy Efficiency Fund.

Legislative developments

December 17, 2009 - Parliament approved Law on Amending and Supplementing Some Laws no.170 which:

- Conveyed the responsibility for heat tariff setting from the local public authorities to the national energy regulator (ANRE);
- Transferred the responsibility for the national energy regulatory agency's budget approval and Administrative Board assignment from the Government to the Parliament.

These changes allow setting the heat tariffs at the cost-recovery level.

Heat Sector Development

In 2010 the Government drafted the following documents to address the heat sector debts:

- *Concept on Energy Sector Restructuring addressing the debts settlement and companies' economic and financial improvement, and*
- *the Memorandum on Addressing the Crisis of Thermal Sector in Chisinau municipality, (mun. Chisinau, CHP-1, CHP-1, „Termocom" heat supplier, „Moldovagaz" JSC, „Chişinău-gaz" Ltd).*

Also, negotiations were carried with the World Bank for financial support for the development of the heat sector restructuring plan.

Energy Balance (thousand tons of oil equivalent)	2002	2003	2004	2005	2006	2007	2008	2009
Resources, total	**2036**	**2189**	**2377**	**2463**	**2430**	**2358**	**2410**	**2312**
Internal resources	92	87	84	87	92	88	110	124
liquid fuel	–	2	8	10	7	16	26	38
solid fuel	65	79	71	70	78	69	77	81
hydroelectric energy	27	6	5	7	7	3	7	5
Import	**1785**	**1956**	**2096**	**2185**	**2157**	**2115**	**2104**	**1973**
liquid fuel	485	577	609	622	603	643	668	659
natural gas	977	1062	1083	1205	1201	1110	1057	977
solid fuel [1]	98	166	115	103	105	110	124	84
electricity	225	151	289	255	248	252	255	253
Stocks of fuel at the beginning of year	159	146	197	191	181	155	196	215
Distribution, total	**2036**	**2189**	**2377**	**2463**	**2430**	**2358**	**2410**	**2312**
Internal consumption[2]	1892	1978	2144	2278	2271	2160	2191	2071
transformed into other types of energy	802	681	783	842	817	767	764	716
technological needs:	1090	1297	1361	1436	1454	1393	1427	1355
industry and constructions	117	124	130	161	163	156	142	85
agriculture	80	80	71	61	59	52	51	46
transport	248	279	254	267	285	325	336	291
commerce and communal needs	86	137	126	120	123	119	120	172
residential	477	575	656	704	691	598	632	660
other	82	102	124	123	133	143	146	101
Export	1	12	42	3	4	7	5	15
Stocks of fuel at the end of year	143	199	191	182	155	191	214	226

Figure 2.1. Breakdown of the formation of energy and fuel resources, %

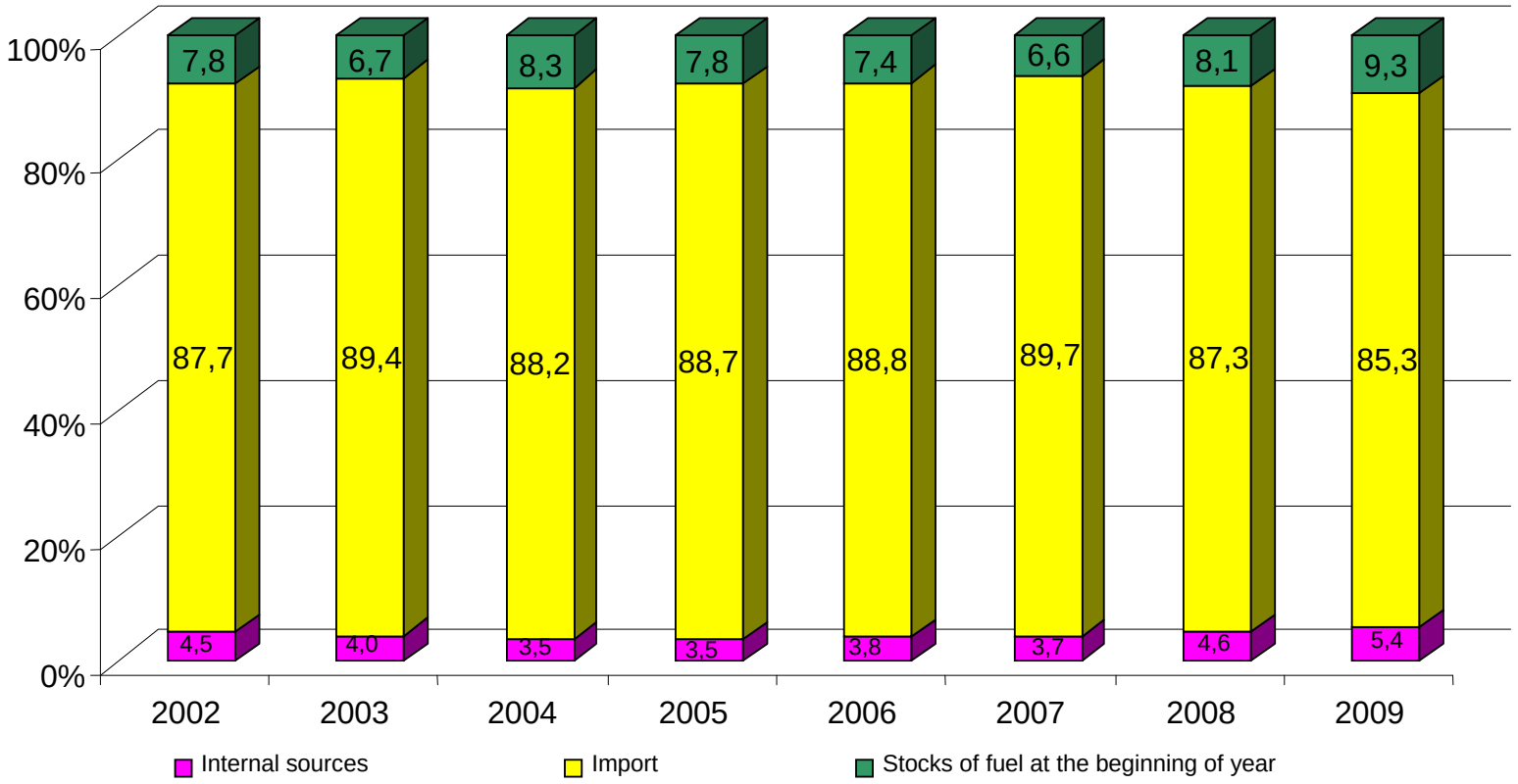


Figure 2.2. Structure of distribution of energy and fuel resources, %

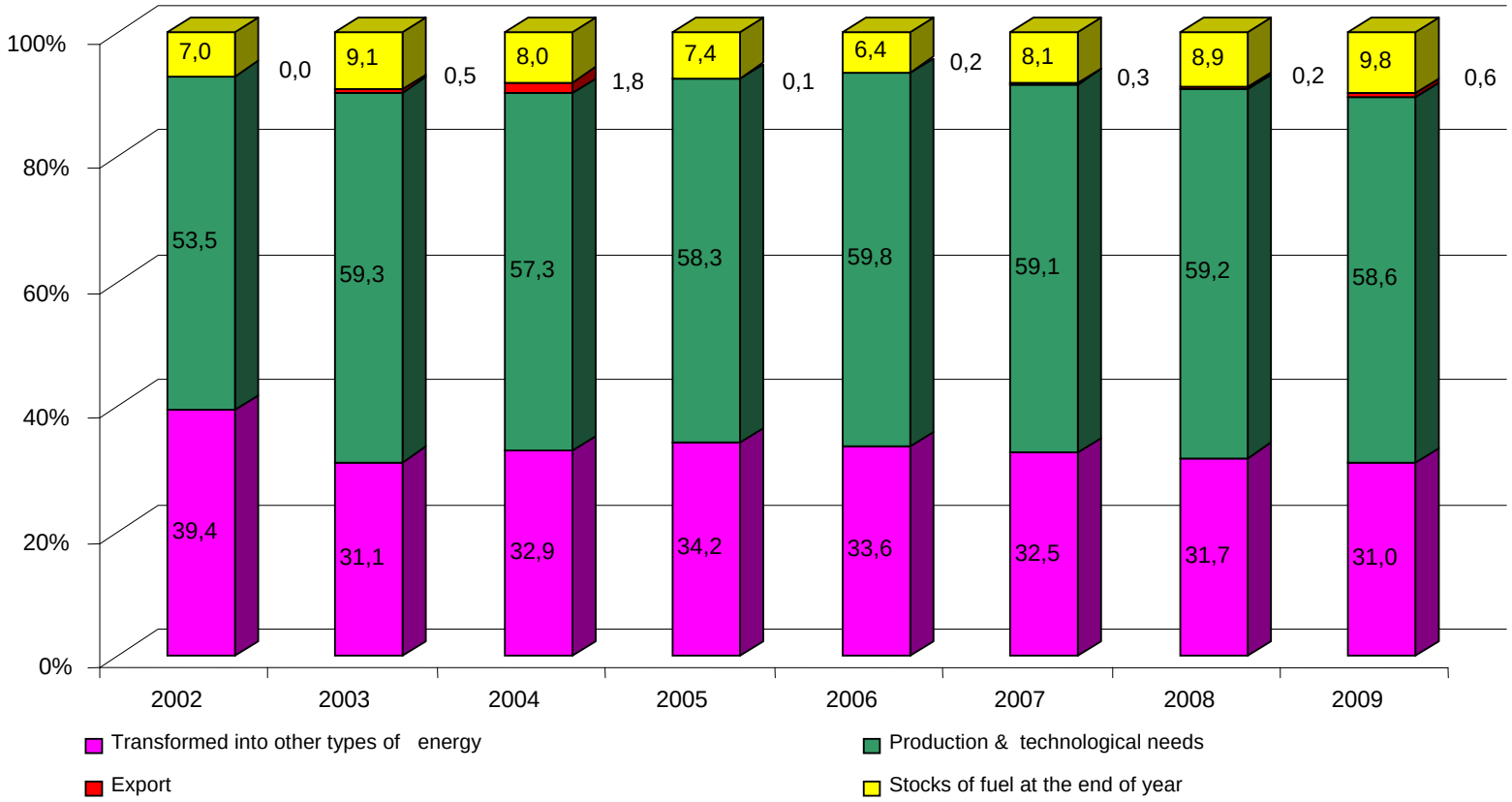


Figure 2.3. Total primary energy supply by fuel, 2002 - 2009, %

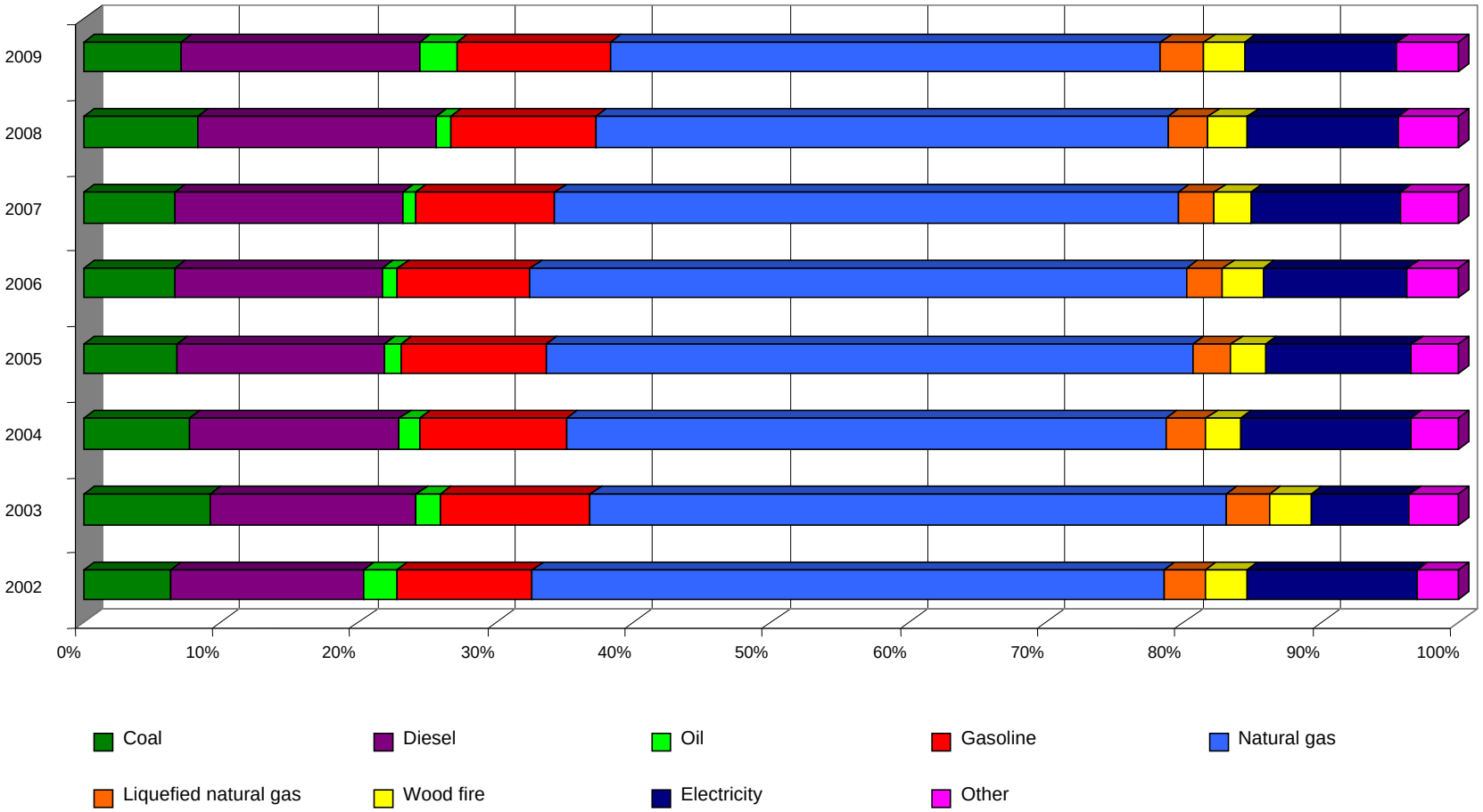


Table 2.3. Final consumption of energy and fuel for technological needs per sector (including losses)

	2002	2003	2004	2005	2006	2007	2008	2009
Terajoule								
Production-technological needs, total, including:	**45653**	**54339**	**57207**	**60300**	**60884**	**58527**	**59763**	**56746**
industry	4692	5012	5430	6749	6705	6360	5893	3604
constructions	146	117	174	195	275	294	264	151
agriculture	3345	3282	3009	2613	2563	2200	2175	1971
transport	10357	11635	10686	11239	11942	13705	14068	12209
commerce and comunal services	3609	5567	5207	5059	5163	5056	5113	7276
residential	19981	24093	27529	29480	28967	25094	26553	27680
other	3523	4633	5172	4965	5269	5818	5697	3855
Thousand tons of oil equivalent								
Production-technological needs, total, including:	**1090**	**1297**	**1361**	**1436**	**1454**	**1393**	**1427**	**1355**
industry	113	121	126	157	157	150	136	82
constructions	4	3	4	4	6	6	6	3
agriculture	80	80	71	61	59	52	51	46
transport	248	279	254	267	285	325	336	291
commerce and comunal services	86	137	126	120	123	119	120	172
residential	477	575	656	704	691	598	632	660
other	82	102	124	123	133	143	146	101

Figure 2.4. Breakdown of energy and fuel resources consumption per sector in 2002 and 2009, %

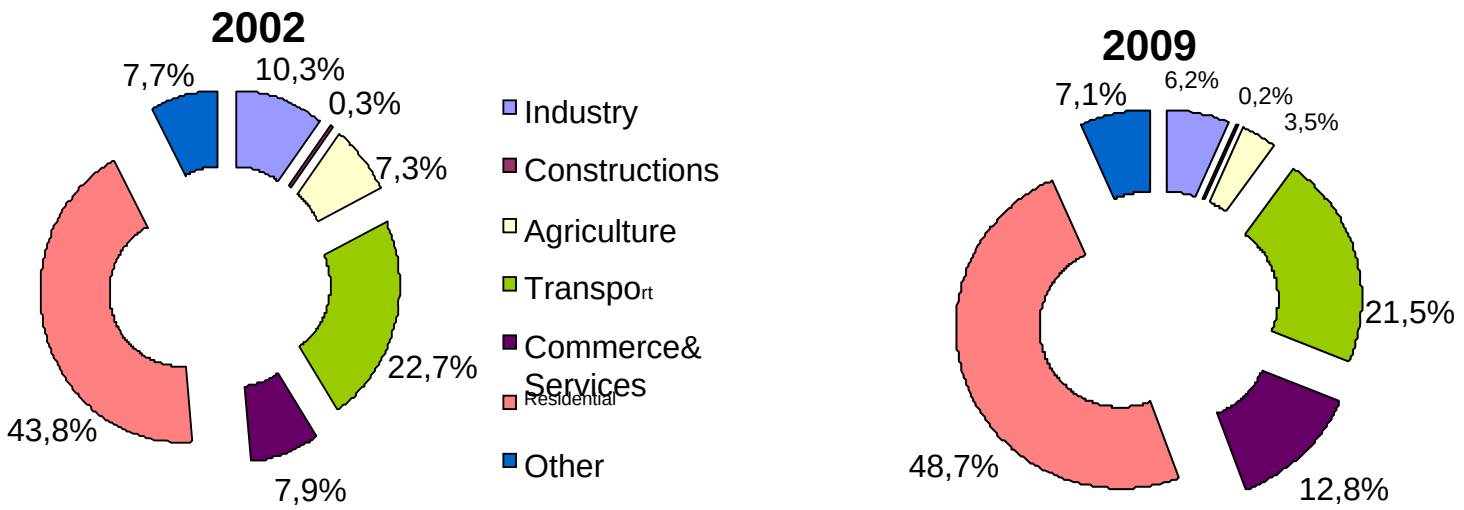


Table 2.4. Electricity consumption per sector for years 2002 – 2009, %

	2002	2003	2004	2005	2006	2007	2008	2009
Electricity consumption, **total**	100,0	100,0	100,0	100,0	100,0	100,0	100,0	100,0
Industry	29,9	34,2	33,1	33,3	31,9	31,2	27,7	25,8
Constructions	0,4	0,3	0,4	0,4	0,5	0,5	0,4	0,4
Transport	2,5	2,0	1,8	1,7	1,8	1,9	1,8	1,5
Agriculture	2,6	2,1	1,8	1,7	1,7	1,5	1,6	1,8
Commerce and services	23,1	23,0	20,5	23,0	23,4	22,1	24,5	25,6
Residential	31,6	33,1	36,5	35,6	35,9	38,5	40,0	42,9
Other	9,9	5,3	5,9	4,3	4,8	4,3	4,0	2,0

Figure 2.5. Breakdown of electricity consumption per sector in 2002 and 2009, %

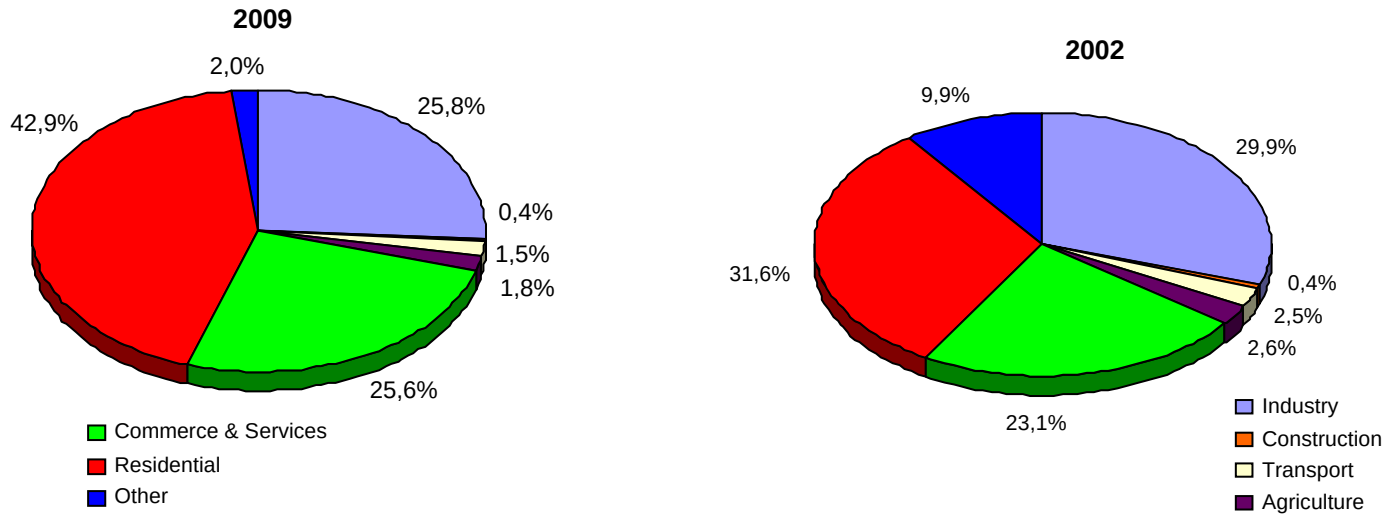


Table 2.5. Installed capacity and electricity production (2009) of power plants in the Republic of Moldova

	MRPS*	CET-1	CET-2	CET-Nord	HPP Dubasari	HPP Costesti	PPs in sugar factories (SFPP)
Electric Capacity (MW)	2520	66	240	28,5	48	16	98
Availability (hours/year, 2009)		8542	8011	3990		6137	720
Electricity produced (GWh, 2009)		154,9	854,4	67,8		83,7	5,8
Type of fuel used	Gas, coal, HFO	gas, HFO	gas, HFO	gas, HFO			Gas, HFO
Amount of fuel used (tn)							
- gas (thousand m^3)		84,8	326,8	44,3			N/A
- HFO (tn)		0,9	3	0			N/A

Table 2.6. Power generation (Electricity production) for years 2001-2010, mil. kWh

	2002	2003	2004	2005	2006	2007	2008	2009	2010
Total production of electricity:	**952,9**	**842,3**	**830,7**	**999,8**	**957,7**	**903,7**	**905,0**	**866,0**	**882,1**
CET-1 (CHP-1)	114,8	112,6	112,8	128,9	124,8	130,6	120,7	116,7	77,0
CET-2 (CHP-2)	677,6	622,2	607,7	724,7	689,6	682,2	640,7	639,4	665,4
CET-Nord	27,7	38,7	45,1	55,5	61,8	55,4	55,2	53,5	57,1
HPP Costesti	120,9	63,4	58,4	83,8	75,9	32,9	81,8	54,0	78,3
Other Power Producers	11,9	5,4	6,7	6,9	5,6	2,6	6,6	2,4	4,2

Table 2.7. Structure of electricity production by producer for years 2002-2009

	2002	2003	2004	2005	2006	2007	2008	2009
Million kWh								
Electricity, total inclusively by:	**1179**	**1046**	**1022**	**1229**	**1192**	**1100**	**1096**	**1033**
heat and power generation plant	1057	977	958	1137	1108	1061	1008	972
hydropower plant	121	64	59	85	77	33	82	55
other plants	1	5	5	7	7	6	6	6
Terajoules								
Electricity, total inclusively by:	**11237**	**3752**	**3682**	**4430**	**4293**	**3964**	**3950**	**3721**
heat and power generation plant	10093	3518	3449	4098	3992	3823	3632	3503
hydropower plant	1144	234	213	305	276	120	297	197
other plants	–	–	20	27	25	21	21	21
Thousand tons of oil equivalent								
Electricity, total inclusively by:	**268**	**90**	**88**	**106**	**102**	**95**	**94**	**89**
heat and power generation plant	241	84	82	98	95	91	87	84
hydropower plant	27	6	5	7	7	3	7	5
other plants	–	–	1	1	–	1	–	–

Figure 2.6. Production of electricity for years 2002-2009, million kWh

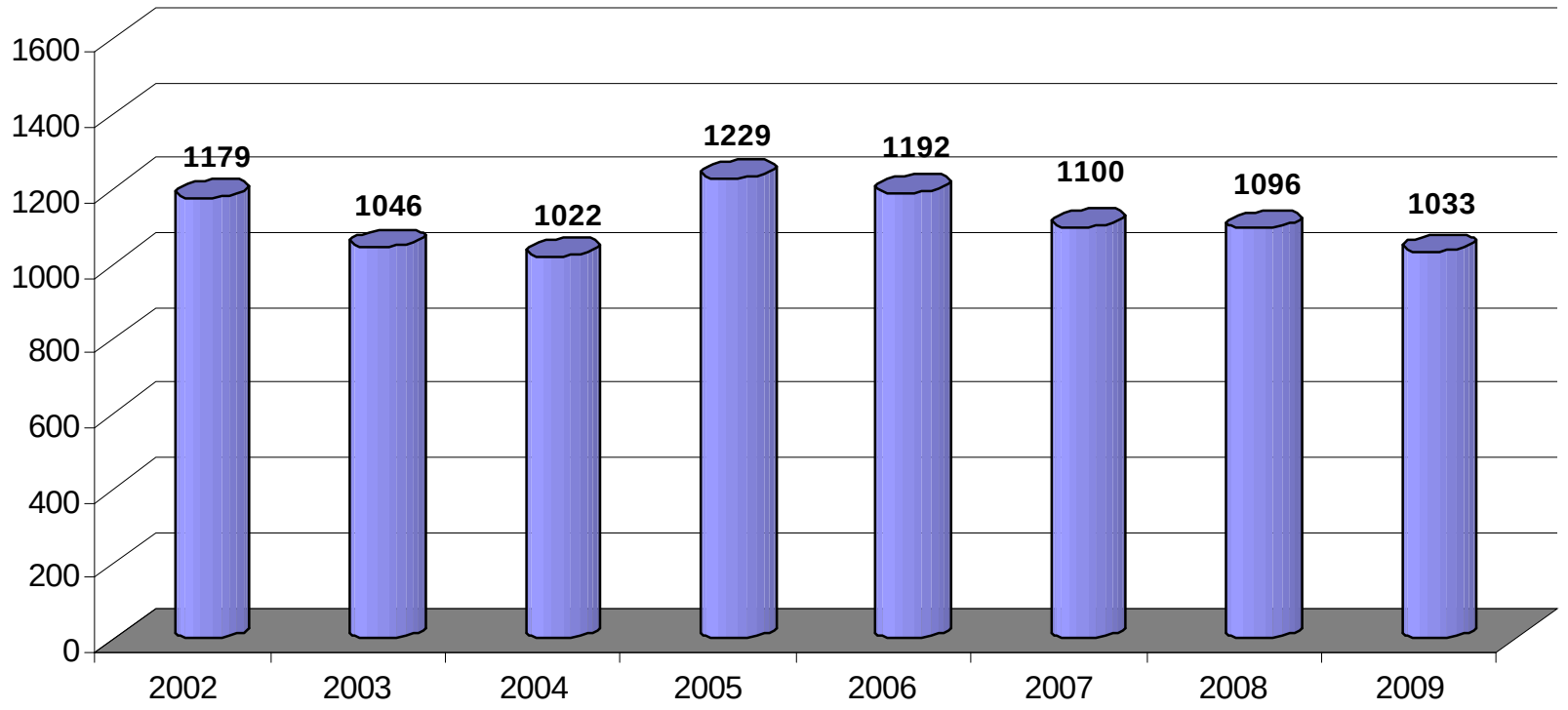


Table 2.8. Electricity imports and import cost 2007-2009

	2007	
	GWh	USD/MWh
Electricity import from Ukraine	2931	29.8
Cuciurgan (Transnistria)	0.5	-
	2008	
Electricity import from Ukraine	2958	46.6
Cuciurgan (Transnistria)	4	41.8
	2009	
Electricity import from Ukraine	7	52.4
Cuciurgan (Transnistria)	2934	57.7

Table.2.9. Heat generation by CHPs and thermal stations for years 2006-2010, Gcal

	Years				
	2006	**2007**	**2008**	**2009**	**2010**
CET-1 (CHP-1)	378800	329141	319634	271912	245481
CET-2 (CHP-2)	1204200	1159331	1153843	1126780	1193417
CET-Nord	222700	207435	199085	205757	239027
Termocom Thermal Power Plant Sculeni	260604	247548	235010	238000	241000
Termocom Thermal Power Plant South	197917	170684	160962	163000	166000

Table 2.10. Structure of production of thermal energy per producer for years 2002-2009

	2002	2003	2004	2005	2006	2007	2008	2009
Thousand Gcal								
Thermic energy, total inclusively by:	**3217**	**3347**	**3147**	**3591**	**3552**	**3094**	**3074**	**2638**
heat and power generation plant	2128	1922	1790	2140	2165	1855	1939	1647
hydropower plant	1087	1423	1357	1451	1386	1238	1133	990
other plants	2	2	–	–	1	1	2	1
Terajoul								
Thermic energy, total inclusively by:	**16225**	**14010**	**13184**	**15047**	**14882**	**12964**	**12879**	**11052**
heat and power generation plant	10738	8031	7499	8966	9072	7770	8126	6901
hydropower plant	5487	5950	5685	6081	5805	5188	4745	4146
other plants	–	29	–	–	5	6	8	5
Thousand tons of coal equivalent								
Thermic energy, total inclusively by:	**553**	**478**	**449**	**513**	**507**	**442**	**439**	**377**
heat and power generation plant	366	274	256	306	309	265	277	235
hydropower plant	187	203	193	207	198	177	162	142
other plants	–	1	–	–	–	–	–	–
Thousand tons of oil equivalent								
Thermic energy, total inclusively by:	**387**	**335**	**315**	**359**	**355**	**309**	**307**	**264**
thermoelectric power station	256	192	179	214	217	185	194	165
hydroelectric power station	131	142	136	145	138	124	113	99
other plants	–	1	–	–	–	–	–	–

Figure 2.7. Production of termal energy for years 2002-2009, thousand Gcal

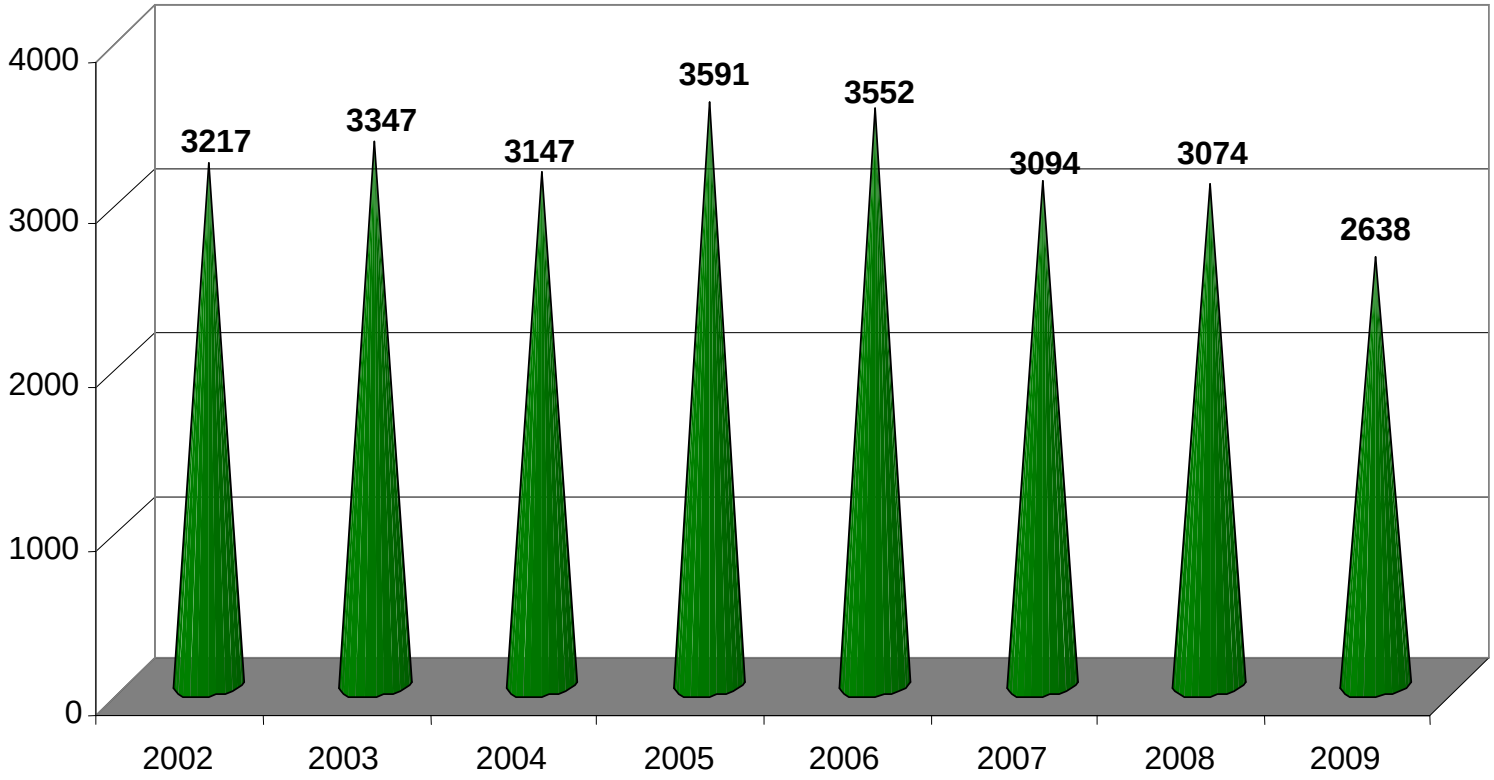


Table 2.11. Structure of consumption of thermal energy per sector, %

	2002	2003	2004	2005	2006	2007	2008	2009
Thermal energy consumption per sector, total	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**	**100,0**
Inclusively in:								
industry	36,6	33,4	37,6	32,7	32,1	28,4	28,6	18,8
constructions	0,1	0,15	0,2	0,2	0,2	0,2	0,2	0,1
transport	0,2	0,15	0,1	0,1	0,1	0,1	0,1	0,1
agriculture	0,5	0,4	0,5	0,6	0,4	0,3	0,4	0,4
commerce and communal services	15,6	16,8	16,2	18,4	17,4	18,0	18,5	21,2
residential	43,7	46,0	42,0	45,2	45,8	49,9	49,4	58,1
other	3,3	3,1	3,4	2,8	4,0	3,1	2,8	1,3

Figure 2.8. Breakdown of consumption of thermal energy per sector in 2002 and 2009, %

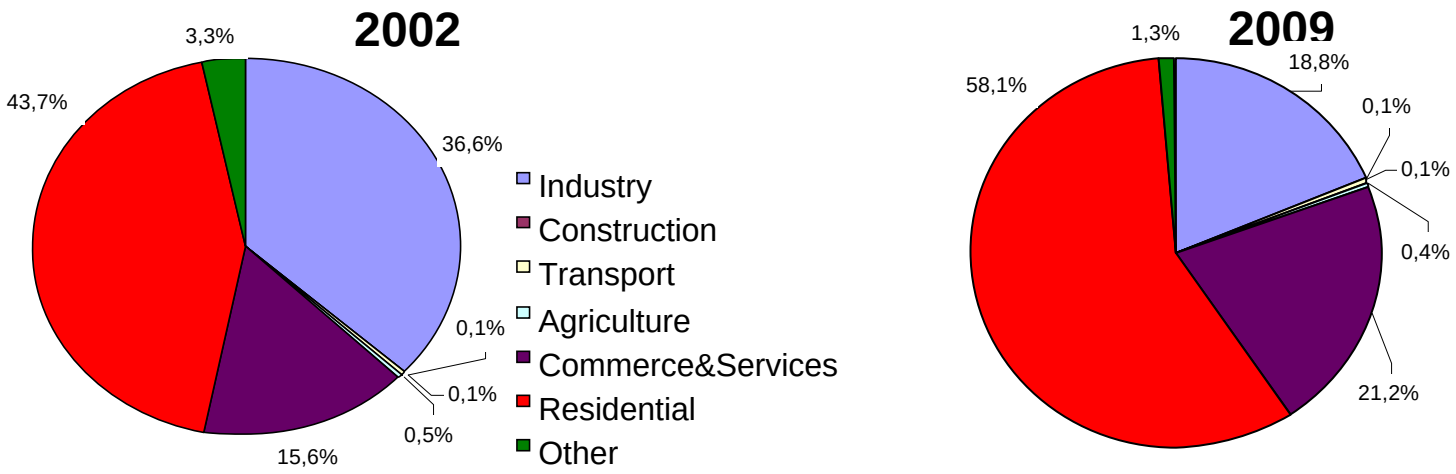


Table 2.12. Volume of natural gas transit through the territory of Republic of Moldova, billion m3

Year	I-st term	II term	III term	IV term	Total
2008	6612,06	5927,88	5664,89	4769,28	**22974,12**
2009	3462,37	3788,87	4962,24	5453,57	**17667,06**
2010	4355,26	4176,52	3117,63	5155,08	**16804,50**

Table 2.13. Gas consumption and uses

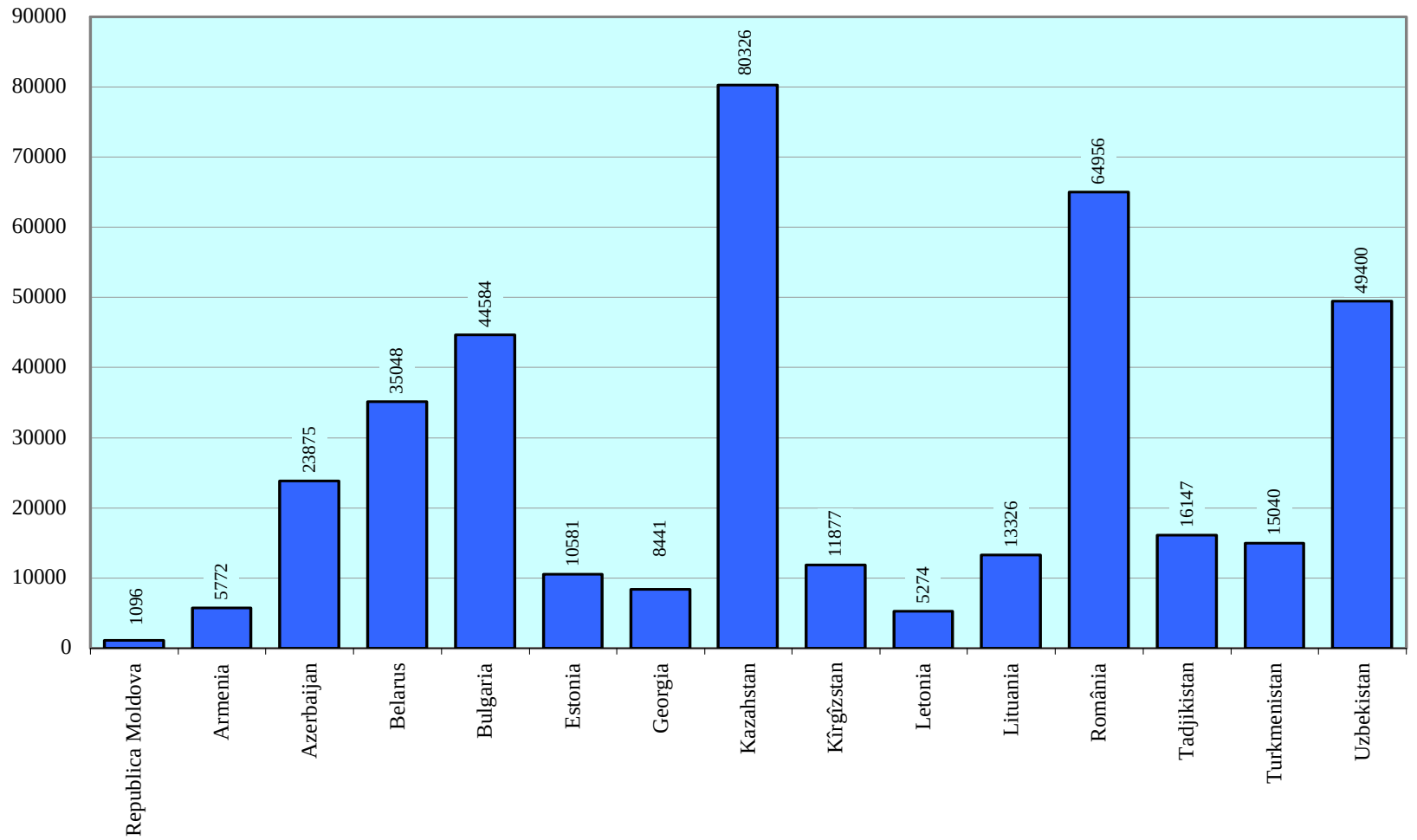
	2008	2009	2010
	mcm per year	mcm per year	mcm per year
Total consumption:	**1226,9**	**1126,27**	**1187,84**
Noncommercial gas in main pipelines	39,33	39,53	38,97
Noncommercial gas in distribution pipelines	56,78	56,83	59,09
Total consumption for consumers:	**1130,79**	**1029,91**	**1089,7**
Energy sector (CHPs and other thermal stations)	485,97	466,48	472,65
Residential	312,76	320,02	340,88
Other	312,64	219,72	254,48
Licence holders (others than Moldovagaz)	19,43	23,69	21,43

Table 2.14. Available technical potential of main types of RES

Type of RES	Technical potential		
	PJ		mtoe
Solar		50,4	1,2
Wind		29,4	0,7
Hydro		12,1	0,3
Biomass	Agricultural wastes	7,5	
	Fire wood	4,3	
	Wood processing wastes, pomace	4,7	
	Biogas	2,9	
	Biofuel	2,1	
	Total biomass	**21,5**	**0,5**
Total RES potential		**113,4**	**2,7**
*Low thermal potential energy sources, including geothermal energy**		*> 80,0*	*> 1,9*

* Evaluation of theoretical potential

Figure 2.9. Production of electricity in some countries in 2008, GWh



Thank You!
Rodica Zadnipru
State Chancellery

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