

Core partner:



4EM – MCP

Motor Challenge Programme - Energy Efficient Electric Motor Systems in
New Member and Candidate Countries

Market Investigation Plan – Romania activities report

4EM – MCP is cofinanced by:



 European Commission

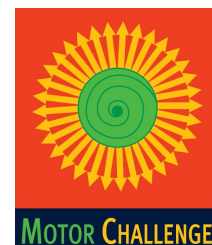


26th June 2006

Krakow

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Energy , basic info, 2004

Balanced energy resources: coal, gas, hydro, nuclear, oil,

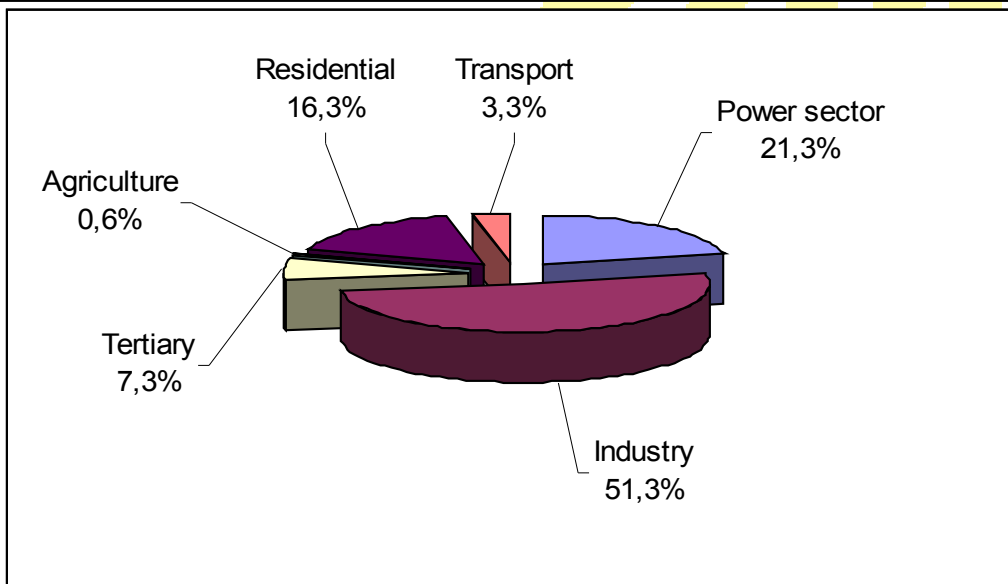
Dependency : 28%, increasing

Consumption: 39 Mtoe, increasing

Energy efficiency: low

Electric energy consumption for main activities, 2004

	GWh	%
ELECTRICAL ENERGY CONSUMPTION	49 243	100,0
out of which:		
➤ agriculture and forestry	271	0.6%
➤ industry and construction	25 257	51.3%
➤ power industry	10 469	21.3%
➤ transport	1 617	3.3%
➤ residential	8 043	16.3%
➤ other	3 586	7.3%



Legislation, strategy, programmes on energy efficiency (I)

The basic laws governing the energy sector are

- ***the Electricity Law 318/2003***
- ***the Energy Efficiency Law 199/Nov.2000***
- ***the National Strategy for Energy Development on Medium term (2001-2004)***

An energy intensity reduction of 3% per year was estimated in the national economy up to 2004.

- ***the Energy Road map***

The document which now stands as the energy strategy covering the period until 2015 is the one submitted to the European Commission during accession negotiations.

- ***the National Strategy for Energy Efficiency***

The basic scenario foresees that the energy intensity should be reduced by 30-50% until the year 2015.

Legislation, strategy, programmes on energy efficiency (II)

- As result of analyzing the available energy efficiency potential, the Strategy gives priority first to the *Housing Sector*. The *Industrial Sector* comes only in second position as priority.
- For the industrial sector, the targets are the high energy consuming branches, respectively the chemical and petrochemical industry, the steel and metallurgic industry, the machine building industry and the pulp and paper industry.

Forecast of investment needs for energy efficiency projects by 2015

Sector	Primary resources savings (1,000 toe/year)	Total investments necessary (EUR million)	Savings in acquisition of primary resources (EUR million)	Benefits from emission trading (EUR million)
Industry	337	110	540	34

National motors and motor systems manufacturers (I)

- good tradition and experience
- main TPSCAM manufacturers are:

POWER [kW]	S.C. ELECTROPRECIZIA S.A.	S.C. BEGA ELECTROMOTOR S.A.	S.C. TMD S.A.	S.C. UMEB S.A.
1,1	*	*		
1,5	*	*		
2,2	*	*		
3	*	*		
4	*	*	*	
5,5	*	*	*	
7,5	*	*	*	
11	*	*	*	*
15	*	*	*	*
18,5	*	*	*	*
22	*	*	*	*
30		*	*	*
37		*	*	*
45		*	*	*
55		*	*	*
75			*	*
90			*	*

TPSCAM- three-phase squirrel cage asynchronous motors



Example of questionnaire used for investigations: BEGA ELECTROMOTOR manufacturer

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CHESTIONAR

- Preconizați să introduceți motoarele cu randament ridicat în fabricația Dvs.? DA NU
- Aveți în prezent posibilitatea să furnizați motoare eff2? DA NU
- Aveți în prezent posibilitatea să furnizați motoare eff1? DA NU
- Ce procent apreciați că vor reprezenta cererile pentru motoare eff1 în anul 2008?
 5% 10% 20% 50% 70% 100%
- Ce procent apreciați că vor reprezenta cererile pentru motoare eff1 în anul 2010?
 5% 10% 20% 50% 70% 100%
- Apreciați că veți produce eff1 prin:
 aplicarea cercetării din programul național de cercetare de excelență (CEEX -2006): DA NU
 utilizarea ambelor alternative anterioare: DA NU
- Pentru o estimare a eficienței programului MCP în România aproximați numărul motoarelor fabricate de societatea Dvs. în următorii ani, ca și puterea medie ponderată în funcție de repartizarea efectivă a fabricației pe puteri în societatea Dvs. (spre ex. 1,7 kW) pentru aceste motoare:

2008	2007	2008	2009	2010
100 mil buc.	200 mil buc.	200 mil buc.	2500 mil buc.	5000 mil buc.
2008	2007	2008	2009	2010
2,8 kW	5,5 kW	5,5 kW	7,5 kW	15 kW
- Apreciați necesitatea convingerii beneficiarilor asupra utilității aplicării motoarelor cu eficiență ridicată, ca:
 Foarte importantă Importantă Utilă Puțin folositoare
- În ce an considerați că solicitările beneficiarilor români se vor îndrepta majoritar spre eff1?

Questionnaire filled in by BEGA ELECTROMOTOR S.A.
 according the communication no. 1191/6 April 2006

National motors and motor systems manufacturers (II)

New TPSCAM absorbed by the Romanian market (th. pieces)

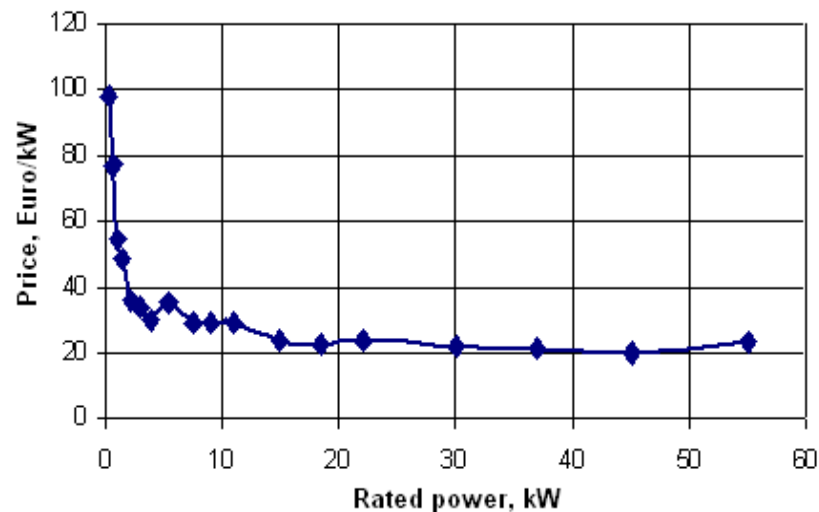
■ Costs

In respect to the price criterion the figures for Romanian products are competitive, but the equipment efficiency is limited to eff3.

As example one may see in the right figure the prices for three phase two poles induction motors offered by BEGA Electromotor on first quarter of 2005.

Year	2005	2006
Romanian made TPSCAM	160	190
Imported TPSCAM	30	40
Annually new TPSCAM in Romania	190	230

TPSCAM- three-phase squirrel cage asynchronous motors



Importers

- **DUTCHI Motors B.V.**

Dutchi Motors B.V. dealer is a dynamic participant, interested to sell efficiency motors in the future on our market. According to their catalogue, they have TPSCAM for all range of powers from Annex 1 (also see <http://www.dutchi.com>).

- **FROSYS SRL**

FROSYS is located in Cluj-Napoca and it is a Romanian-French company, founded in 1994 as a supplier of electrical equipment and system integrator. This firm is importing TPSCAM from Siemens for some Romanian customers. (see www.frosys.ro/eng).

- **EXSTEEL ENG SRL**

This firm, located in Cluj is importing motor systems from Bonfiglioli, Italy (see www.exsteel.ro.)

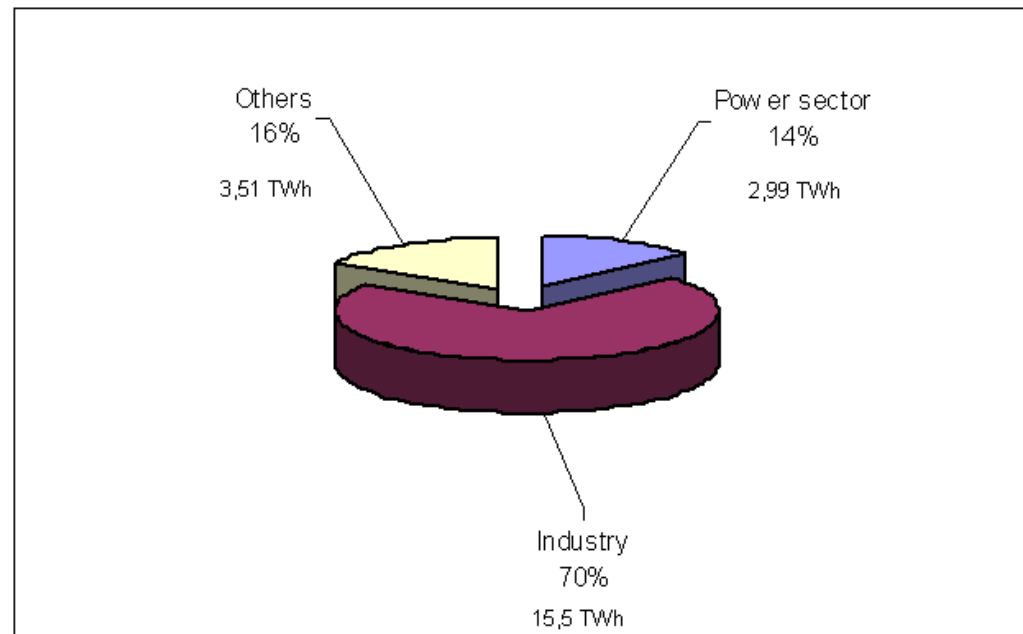
- **SIEMENS SRL Automation&Drives**

Evaluation of motor penetration to end users (I)

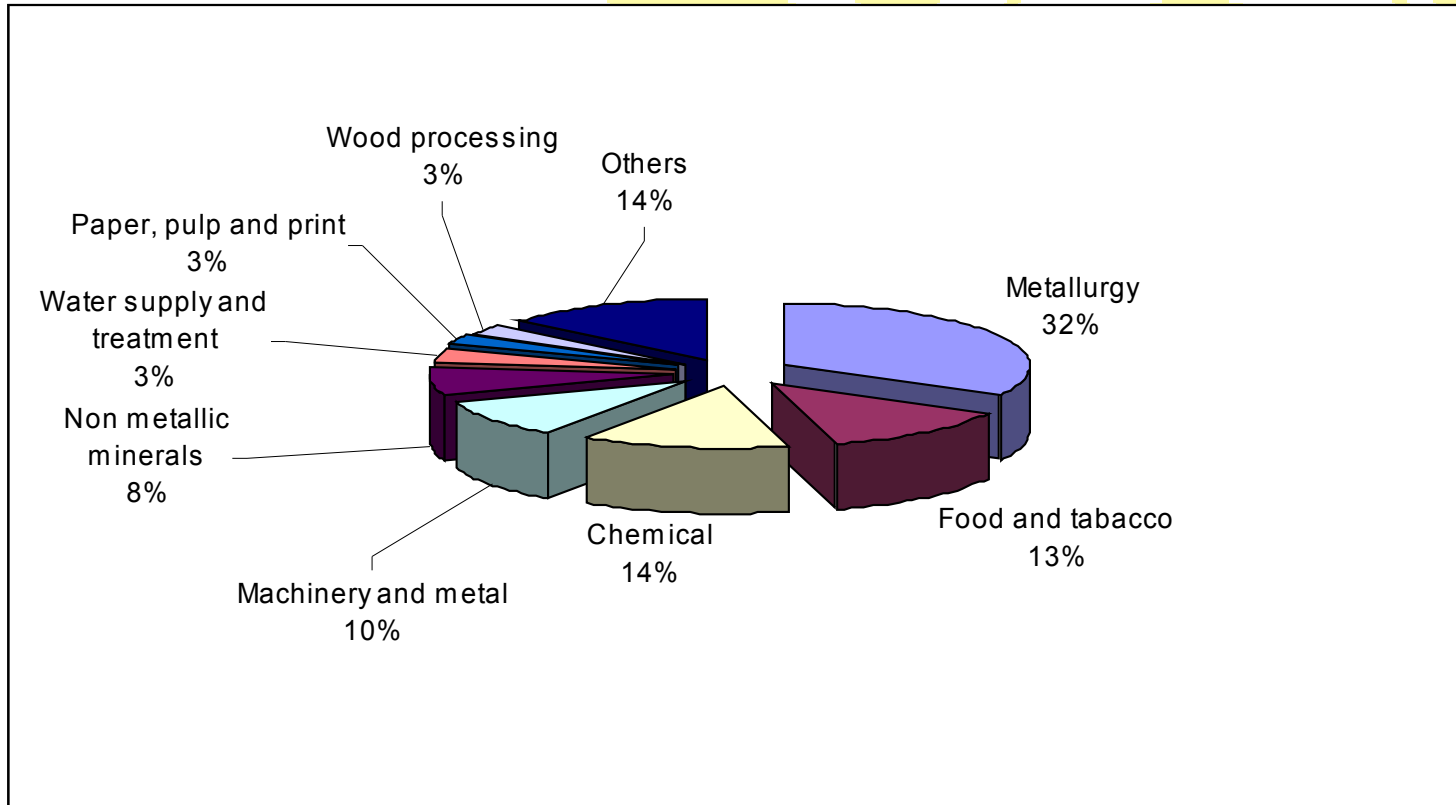
- No Romanian statistical data regarding the share of motor electricity consumption.
- It is necessary to rely on known shares from previous European studies, with slight specific modifications.
- It results:

The total electricity consumption in motor systems (including the power sector) is estimated to 22 TWh in 2004

Motors
consumption
distribution on
sectors

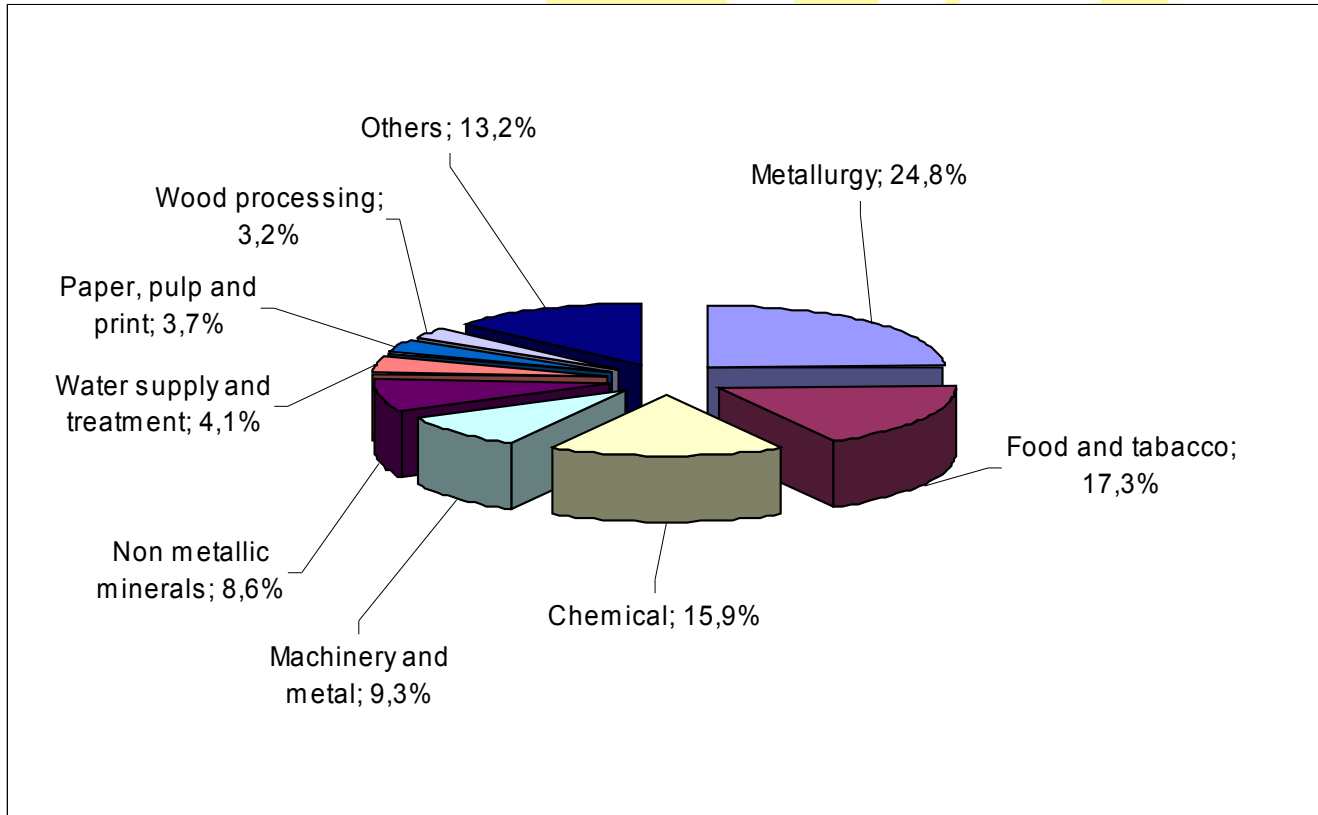


Evaluation of motor penetration to end users (II)



Electricity consumption by industry, 2004. Total 22 257 GWh

Evaluation of motor penetration to end users (III)



Motors electricity consumption by industry, 2004. Total 15.5 TWh

Other national activities (I)

Few research and studies specific on energy efficient motors and motor systems

- The PHARE study 'Integrated Energy Services to Industry' was financed in 1999 by the EC: to identify investments with average and high costs and to prepare the documentation necessary for large-sized investment projects.
- The SAVE II study 'Schemes and Measures to Implement in Romanian Industry Long Term Agreements' financed by the EC

Other activities (II)

- Within the national CEEEX research programme, ICPE-ME is developing the project "Electrical energy enhancing by induction motors", financed for the next two years in order to carry on researches and appropriate designs for new efficient TPSCAM.
- the national branch of IEC, International Electrotechnical Committee

Conclusions

- Few specific data on EE motors systems and information structures
- Difficult to approach private companies
- Only a top-down approach is possible to estimate data, starting for electricity consumption. It resulted

22 TWh consumed by motor systems in 2004

- Large majority of motors are low efficient
- It is needed a sustained and long campaign to promote efficient motors

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