

**Capacity-Building Programme for the Removal of
Barriers to the Cost-Effective Development and
Implementation of Energy Efficiency Standards and
Labelling in EU Candidate Countries**

S&L-EUCC

COUNTRY REPORT

ROMANIA

Bucharest, June 2006

Acknowledgement

The National Report of Romania on the Capacity-Building Programme for the Removal of Barriers to the Cost-Effective Development and Implementation of Energy Efficiency Standards and Labelling in EU Candidate Countries - S&LEUCC project, financed by the Global Environment Facility and the United Nations Development Programme, was developed by a team of the **Energy Research and Modernising Institute – ICEMENERG** under the leadership of Dipl. eng. Mariana Nicoleta BARBUTA and with the active collaboration of the Clasp-Econoler International Consortium international consultants.

The team would like to express its gratitude to the Romanian Agency for Energy Conservation, Ministry of Economy and Trade and its departments: Directorate for Energy Policy, General Directorate for Industrial Policy and Directorate for European Integration and Negotiations, National Authority for Consumer Protection, the Ministry of Environment and Water Management, the Ministry of Public Finance, the Romania's Standardization Association, for their contribution to the report elaboration.

The team would like to recognize the important contribution of the Romanian other sectors as: University of Politechnic-Faculty for Energy, testing laboratories, consumers' associations.

This report would not have been so comprehensive and would not have reflected in full the current situation in Romania without the active collaboration of the main market stakeholders – producers, importers, distributors, retailers and big market chains.

TABLE OF CONTENTS

1	COUNTRY CONTEXT	3
2	INSTITUTIONS AND STAKEHOLDERS	5
2.1	Institutional stakeholder analysis	5
2.2	Analysis of institutional stakeholders	10
2.3	Analysis of market chain stakeholders	12
2.4	Information on market chain stakeholders'	12
2.4.1	Description of Manufacturer	15
2.4.2	Marketing strategy and positioning of manufacturers on the market.....	17
2.4.3	Description of Importers	18
2.4.4	Description of Wholesalers.....	21
2.4.5	Description of Retailers	21
2.4.6	Description of large buyers.....	21
2.5	Market chain stakeholder analysis	22
2.5.1	Position of manufacturer/importers toward Verification, labeling and regulation in general.....	23
2.5.2	Position of Wholesalers toward S&L	23
2.5.3	Position of Retailers toward S&L.....	24
2.5.4	Large public and private sector buyers	24
2.5.5	The general public.....	24
3	OVERVIEW OF THE NATIONAL MARKET	29
4	POLICY & LEGAL SECTION	36
4.1	Policy – transposition of EU labeling and MEPS directives	36
	The actual situation of the EU directives on energy efficiency harmonization	37
4.2	Policy – adoption of other related EU directives	40
4.3	Policy – Financial instruments	41
4.4	Legal – Verification procedures	42
5	TEST FACILITIES FOR PERFORMANCE TESTING	44
5.1	Testing entities and facilities	44
5.1.1	Verification capacity	45
5.1.2	Test facilities for performance testing.....	46
5.2	Participation in international standards organizations	46
5.3	Translation, adoption and interpretation of performance test procedures	47
6	OTHER PROGRAMS THAT CAN BE RELATED TO S&L ACTIVITIES	52
7	THE ELECTRICITY SECTOR AND EMISSION FACTORS	55
7.1	The electricity sector	55
7.2	Greenhouse gas emissions	60
8	PRIORITY FOR THE REGIONAL SUPPORT PROGRAM	62

1 COUNTRY CONTEXT

General information about Romania is presented in this section.

Romania has an area of 238,391 km² and a population of 21,7 million inhabitants (2004 census). Thus, it is one of the medium – size European countries. Among the countries participating in the project, Romania occupies the second place by its size (after Turkey). The forecasts estimate that population will decrease in the future. About 53 % of the population lives in towns and 47 % in the rural areas. The forecasts estimate that urban population will increase to 60% by 2025.

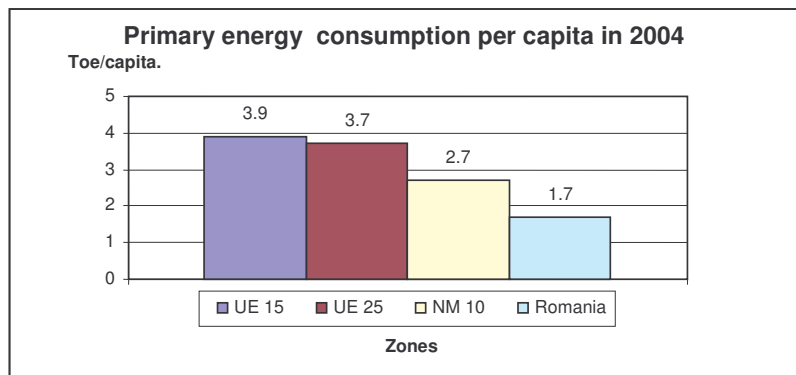
The GDP/capita in 2004, calculated at the official exchange rate, was of 2718 €, 8 times lower than the average value at the level of the European Union and 2.4 less than the average value in the 10 New Member States of the EU.

All the forecasts estimate that economic development will register a rate superior to the EU average, so that it will substantially reduce this gap.

The transition period was characterized by a high rate of inflation. 2004 was the first year after 1990 when the inflation rate was below 10 %. It is estimated that the inflation rate will continue to decrease.

Due to a high inflation rate, in 2005, the national currency was denominated. The new leu (heavy leu) was introduced, representing 1 RON = 10000 ROL. In parallel, an appreciation of the national currency against the euro was registered.

In 2004, primary energy consumption amounted to 39 million toe. Nevertheless, primary energy consumption per capita (1.7 toe) is less than the values registered in the European Union countries (please see the following chart).



Source: EUROSTAT site

In the same year, electricity consumption amounted to 38.8 TWh, out of which the industrial consumption represented 65 %, and the household consumption 21 %.

Out of the total number of dwellings (buildings) at the national level, 98% are connected to the electricity distribution networks (99.4% in towns and 96.3% in the rural area).

The electricity household consumption per capita amounted to 371 kWh, a low value, too, in comparison with that in the EU countries.

Significant differences between consumption in the urban and rural areas are also registered due to the different purchase power of the population living in these two areas. Electricity consumption per dwelling was of 1407 kWh in the urban area and 734 kWh in the rural area (values registered in 2002).

National Baseline Report - Romania

A special tariff was utilized (and still is) for the low income population (social tariff). This tariff is utilized by certain household consumers whose monthly consumption does not surpass 60 kWh. After July 1, 2007 the electricity market will be completely liberalized and the social tariff will cease to exist.

The main macroeconomic indicators are given in following table.

Population	21.673 million in 2004
Expected population in next 20 years	20.838 million in 2015
	20.020 million in 2025
Number of households	8.175 million in 2004
Number of households trend	8.123 million in 2015
	8.065 million in 2025
Area	238,391 km ²
GDP	2,718 Euro per capita in 2004
GDP trend	5,142 Euro per capita in 2015
	9,230 Euro per capita in 2025
Share of residential in the total electricity usage in the country	22 %
Inflation	9.3 % in 2004
	8.6 % in 2005
Currency	Leu Actual exchange rate with Euro (January 2006) 3.6445 Leu/Euro Trend: 4.0532 in 2004 3.6234 in 2005

2 INSTITUTIONS AND STAKEHOLDERS

This section presents each involved institution and provides detailed analysis about their interest regarding the introduction of S&L EU regulation and the role they can play in a future program.

The main institutions having responsibilities within S&L in Romania are the ones involved in the environmental protection, having as primary goal the energy efficiency increase;

- Ministry of Economy and Trade through its specialized departments (Energy, Industrial Policy and European Accession) and mainly by its subordinated Romanian Agency for Energy Conservation - **ARCE**;
- Ministry of Environment and Water Management as Romanian GEF Focal Point and United Nations Framework Convention for Climate Change (UNFCCC) Focal Point;
- Ministry of Public Finances through its specialized departments.

An important role for the implementation of the future program will be also played by the following institutions:

- Governmental agencies (mainly ARCE and Romanian Energy Regulatory Authority – **ANRE**, National Authority for Consumer Protection – **ANPC**);
- Romania/Bucharest Chamber of Commerce and Industry – **CCIRB**;
- Civil society (Romanian Standardization Association - **ASRO**, Romanian Accreditation Association - **RENAR**, Romanian Consumers Association - **APC**);
- Non-Governmental organizations for environmental protection such as - **Terra Mileniul III**, The Romanian Energy Policy Association - **APER**, World Energy Council Romanian National Committee - **CNR-CME**);
- Research institute (Energy Research and Modernizing Institute – **ICEMENERG**);
- Universities (University “Politehnica” Bucharest, the Energy Faculty).
- Manufacturers (ARCTIC Gaesti)
- Importers (Whirlpool Romania, Indesit Company, Gorenje Romania, BSH Electrocasnice SRL, Daewoo Electronics Europe, Candy Hoover Romania)
- Retailers (Carrefour, Altex)

2.1 Institutional stakeholder analysis

This section presents the roles and interests of institutional stakeholders for the project. It represents an overview of the institutional stakeholders for the implementation of appliance standards and labels in Romania. This includes government ministries / departments, government agencies and institutions, and the civil society, private sector representatives and academic stakeholders. The information is presented in the following table.

National Baseline Report - Romania

Organization name	Representative (name)	Contact details	Position in the market or within government	Attitude towards S&L programs *	Options to respond to S&L programs
0	1	2	3	4	5
Project management					
ARCE	Cristiana CALUGAR	Tel: 314 59 29 Fax: 312 31 97	S&L National Project Director and Director for ARCE Market Surveillance Department	Supportive	Strengthen the monitoring activity
Ministry of Environment and Water Management	Silviu Stoica	Tel: Fax:	GEF Focal Point Director	Supportive	Letter of Endorsement
ICEMENERG	Mariana BARBUTA	Tel: 346 27 38 Fax: 346 27 90	S&L National Project Manager Senior researcher	Supportive	Directly involved in the programme
UNDP Romania	Roxana Suciu	Tel; 201 78 06 Fax: 201 78 28	Head of Energy and Environment Section	Supportive	Directly involved in the programme
Government ministries / departments					
Ministry of Economy and Trade	Eugen ȚAPU NAZARE	Tel: 202.54.04; 202.54.03 Fax: 202.54.71	Secretary of State for Industrial Policy	9	Including the S&L activities within Romanian industrial policy, monitoring the test labs set up and improvement the industrial products' efficiency
- General Department of Industrial Policy	Aurel MITU	Tel: 305.52.02 Fax: 311.24.31	Deputy Director General		
Ministry of Economy and Trade - General Department of European Integration and Negotiations - Department for Programs with International Organizations - General Department of Quality and Environmental Infrastructure	Bogos ZSOLT Cătălina GROZA Steluța GOANȚĂ Cristiana ION	Tel: 212.96.28; 202.51.20 Fax: 312.28.50 Tel: 202.52.40 Fax: 202.52.45 Tel: 202.52.70 Fax: 202 52 75 Tel: 202.52.80 Fax: 202.52.84	Secretary of State for European Integration Director Director	9	Meets the basic requirement of European Integration by coordinating the international programs and in the future by managing the Sectorial Operational Programme on Enhancing the Competitiveness

National Baseline Report - Romania

0	1	2	3	4	5
Ministry of Economy and Trade - General Department of Energy Policy	Darius MEȘCA Felicia RACAȘANU	Tel: 212.51.65; 202.54.10 Fax: 212.59.73 Tel: 202.53.89 Fax: 202.53.94	Secretary of State for Energy Policy Deputy Director	9	This Department is the Intermediary Organization for energy in the Sectorial Operational Programme on Enhancing the Economic Competitiveness and elaborates the Romanian energy policy, the Energy Efficiency Programmes and coordinates ARCE's activity. S&L programme meets its basic requirement of mitigating the dependence on imported hydrocarbons Coordinates other international programmes which funds can support some S&L activities
Ministry of Public Finances – General Department of State Owned Assets	Adriana ȘUȚA	Tel: 319.97.25 Fax: 319.98.55	Director	8	The department being in charge of state budget disbursement to all central/local authorities (including other ministries), within S&L programme will be able to diminish the pressure upon the financial resources for importing hydrocarbons
Ministry of Environment and Water Management	Daniela TOMA	Tel: 4100421 Fax: 410 20 67	Counselor	9	It is the central authority with responsibilities for environment protection (including emission registry, JI projects). Meets the basic goal of mitigation the emissions of greenhouse gas and creates the pre-requisites for providing the environmental label

National Baseline Report - Romania

0	1	2	3	4	5
National Agency for Scientific Research ANCS	Eugen SCARLAT	Tel: 310 27 09 Fax: 319 23 22	Counselor	9	The authority can provide funds for the scientific research and for setting up and developing laboratories for testing the products Mai implement in the educational process new applicative directions
Government agencies / institutions					
Romanian Agency for Energy Conservation - ARCE	- Ioan Silviu LEFTER - Cornel RADULESCU	Tel: 313.60.02 Fax: 312.31.97 Tel: 3145929 Fax: 3123197	- President - Vice-president	10	S&L programme meets ARCE's basic goal of energy conservation ARCE is responsible for organizing and developing the monitoring system for energy labeling ARCE is willing to create through this project a system for testing the appliances that are on the market in order to check the accuracy of the information provided on the label.
National Authority for Consumer protection - ANPC	Gioga STAMA	Tel: 315 66 92 Fax: 314 34 62	Counselor	9	Support S&L programme through activities as verification of the products and services conformity with the requirements stated or imposed by regulations, with control actions in order to protect consumer rights and economic interest at the supplying of products and services and through participation in the monitoring process for labeling conformity

National Baseline Report - Romania

0	1	2	3	4	5
Trade unions, industry associations, Chambers of Commerce					
Romania/Bucharest Chamber of Commerce and Industry - CCIB	Nicolae VASILE	Tel: 319 00 79 Fax:	President of Industry Section	9	Protection and support of the competition between the economic agents, manufacturers and importers
Civil sector, consumer & environmental NGOs, other					
Romanian Standardization Association - ASRO	Iulian FLOREA	Tel: 312 47 44 Fax: 315 58 70	Head of Department	8	Translation of EN standards
Romanian Accreditation Association - RENAR	Vasile TANASE	Tel: 310 13 90 Fax: 310 22 74	ELECTROMECHANICS Coordinator auditor System auditor Technical auditor (Testing of electric products)	9	Activities for accreditation of testing labs (procedures and devices)
Romanian Consumers Association - APC	Rusu GHEORGHE	Tel: 312 62 07 Fax:	Engineer	9	Information received from the consumers
TERA Mileniul III	Lavinia ANDREI	Tel: 312 68 70 Fax: 312 68 70	President	10	Awareness rising campaigns in relation to Kyoto Protocol and environmental protection in general
Research institute and Universities					
Energy Research and Modernizing Institute = ICEMENERG	Mircea GHITULESCU	Tel: 346 27 38 Fax: 346 27 90	Director of Energy Environment Center	10	- Aiming to be an agent for the program implementation - Continuity in the labeling and increasing energy efficiency activities
University "Politehnica" Bucharest, the Energy Faculty	Adrian Alexandru BADEA	Tel: 402 95 44 Fax: 318 10 02	Vice Rector for Education	9	Organizing training courses for students and post graduate with respect to energy efficiency and S&L

Note * Figures meaning: 9-10 - S&L Advocate; 7- 8. Supportive; 5- 6 Cooperative; 3- 4 Not interested and 1- 2 Opponent.

The attitude scores were assigned by the team, after meeting with stakeholders and based on discussions with these

2.2 Analysis of institutional stakeholders

The involved organizations are described in this section : government ministries / departments, government agencies & institutions, and other relevant organizations from within the civil society and others.

During the elaboration of the present report, numerous bilateral discussions took places with the institutions stakeholders; these discussions were meant to agree on two main issues related to the future regional project:

- Program content;
- Potential co-financing sources and institutions commitment modalities.

Programme content:

The discussions were focused on the following main components for the full size project:

- Setting up a testing laboratory for all appliances subject to energy labeling (in a first stage for refrigerators, freezers, washing machines and air conditioners). This action will require some appropriate regulations, setting up, and accreditation of the laboratory and identification the financing sources (for the initial costs and for its operation later on)
- Analyzing the EU best practice and adopting a procedure to allow for incentives to appliance buyers, in order to purchase only high energy efficient products. This will require appropriate regulations and possible ARCE re-organization to make the system fully operational in short time.
- Capacity building for ARCE branches to operate as consultancy centers for energy labeling of appliances, with the possibility of making practical demonstrations for third parties ;
- Creating an electronic web-site for public information, awareness rising and consultancy for appliance acquisition. Adopting the best practices from the developed countries in order to create a children-dedicated structures;
- Development of the educational /promotional materials for potential customers showing the benefits of purchasing only energy efficient appliances.
- The implementation of a training curricula dedicated to secondary/ high schools and to those universities which develop energy audit courses.
- Development and strengthening the monitoring structures of ARCE. Adopting a rewarding scheme for individuals that are observing the rules and regulations regarding the S&L.
- Assistance for the implementation of the EU Directive concerning Eco-Design Label, especially for the part that is focused on energy efficiency and labeling.
- Improving the data collection system - extending the data collection to all appliances that are subject to energy labeling (right now the available data are only for refrigerators and washing machines).

Potential co-financing sources which have been discussed are the ones that are already in place or whose probability in the future is very high, and the same time are respecting Romanian regulation particularly in the domain of free concurrence. These co-financing sources are as follows:

- The Sectorial Research and Development Programme of the Ministry of Economy and Trade can provide part of the initial costs related to the establishment of a testing entity;
- The Structural Funds of the European Union available through the Operational Structural Programmes. These funds can be used for setting up and functioning of a testing entity for appliances subject to labeling process;
- Fund from the Ministry of Education and Research – National Agency for Scientific Research through the Excellency Research Program, Module 4 – Projects on infrastructure development for assessing and licensing the conformity for equipping the testing laboratories for the appliances subject to energy labeling;

- Environmental funds supporting the elimination of obsolete appliances and encouraging the acquisition of energy effective and environment-friendly products
- Funds provided by the importers and manufactures of appliances subject to energy labeling for training the sellers of afore mentioned appliances.

The role of the main institutional stakeholders is presented below.

Ministry of Economy and Trade is playing an essential role in the implementation of the appliances labeling program in terms of energy efficiency, being directly involved in various specific activities through its subordinated departments:

- *The Department of Industrial Policy* – develops the policy in the national industrial production field, including appliances. Within its activity, it may propose regulations regarding products' performances and modalities to encourage the production of highly efficient devices (through observing the legislation on free competition on the market);
- *The Department of European Integration* – is the coordinator of the implementation of EU funds and the programmes financed by other international organizations that falls within the responsibilities of the Ministry. The Ministry is also responsible for the transposition of the EU directives on appliances labeling. The Ministry is also the Management Authority for the Sectorial Operational Programme on Enhancing the Economic Competitiveness;
- *The Department of Energy Policy* – is involved in the development of the national strategy in the energy field and is responsible for lowering the country dependence on the imported energy resources. It coordinates ARCE activity for increasing the energy efficiency and extending the capitalization of renewables. It is also responsible for monitoring the energy labeling regulation enforcement. This department has the attributions of an Intermediary body for energy in the Sectorial Operational Programme on Enhancing the Economic Competitiveness.

Based on the Government Decision no. 497/01 of April 2004, the institutional framework has been created for the coordination, implementation and management of the communitarian financial support awarded to Romania through the structural funds.

The Ministry of Economy and Trade has been assigned to be the management authority for the Sectorial Operational Programme on Enhancing the Economic Competitiveness. As such, it is responsible for the management, implementation and coordination of the financial assistance granted through this program.

Ministry of Public Finances provides financial resources for the priority projects/programmes elaborated by the other Ministries and local authorities. It is the Management Authority for the Communitarian Support Framework Programmes.

Ministry of Environment and Waters Management

The Ministry of Environment is the GEF Political and Operational Focal Point and is coordinating the GEF intervention at the country level. In the same time, the Ministry of Environment is the National Authority for Environment protection – including the atmosphere protection. In this regard, is the focal point for the UNFCCC convention being responsible to elaborate the national reports to the Secretariat Convention. It is also the coordinator of the National Commission for Climate Change and the main administrator of the National Emission Registry. It is also the authority responsible for JI programmes and projects.

Romania/Bucharest Chamber of Commerce and Industry is a non-governmental, public-interest, self-sufficient organization meant to promote Romanian trade and industries inside and outside the country, and to defend the interests of Romanian traders before the domestic authorities and in their relations with specialized foreign organizations.

Their major goal-mission consists in the thriving business community support and promotion for the benefit of businesses in the field of industry, agriculture, trade, tourism and services. Through their activities they promote:

- High-standard distribution of products and services;
- Quality guarantee of products and services, standardization.

Conclusions: based on the discussions with the representatives of all the above mentioned stakeholders, we can conclude that actually all institutions involved, more or less, support the future labeling program, with the content and the sources of co-financing afore mentioned. They also mentioned some particularities that we underline below:

- **The Ministry of Economy and Trade – the Department of Energy Policy** stands for the project but has a pessimistic attitude regarding the set up of Energy Efficiency Fund and the possible rebate programmes (finances given to consumer buying efficient appliances, either directly or through the utility bill)
- **The Ministry of Economy and Trade – The Department of Industrial Policy** stands for the project and suggests an analysis of the possibility to access the environmental funds for the appliances subject to labeling (joined to those addressed to collecting the obsolete devices and to those for programming devices with recyclable components)
- **The Ministry of Economy and Trade – the Department of European Integration** considers that the project should not be related to the adjustment of EU regulations in the field as this process is already planned. It stands for the other components of the project from its position of Management Authority for the Sectorial Operation Program regarding the Structural Funds given by the EU for Romania.
- **Ministry of Public Finances** – stands for the project and showed openness to allocate some state funds if the project is to be presented as priority project by the Ministry of Economy and Trade. The Ministry also draws the attention that the proposal for the reimbursement of some amounts of money to the population who bought appliances subject to energy labeling may create some suspicion on breaking the regulation of the Competition Council referring to the state support. The suggestion was to identifying some solutions/best practices from EU countries that can be easily adopted in Romania. The Ministry also pointed out that there is urgency on this matter, because the provisions for these types of incentives should be included in the new Fiscal Code which is underway to be finalized and submitted to the Parliament for approval. The Ministry representative also suggested that after the project approval, an inter-ministries Committee should be set up for the correlation of the tasks of the ministries involved and the executing expert teams. Such a committee might be relevant now as well, during the consultations and project design.
- **National Agency for Scientific Research** stands for the project and may become committed to provide co-financing sources by including the topics within the Excellency Research Program. These issues referred to the infrastructure's development for the assessment and compliance with respect to the endowment of testing laboratories for appliances subject to the energy labeling process.

2.3 Analysis of market chain stakeholders

The first step in the market analysis was to identify the various stakeholders that will need to be consulted during the formulation of the full size project. They will be described in more detail in the following section.

2.4 Information on market chain stakeholders'

In this section we describe, the organizations and buyers group involved in the market chain should be. We include in this section all actors that are involved in day to day manufacturing, trading and purchasing of appliances (manufacturers and importers, retailers, large public).

National Baseline Report - Romania

Organization name	Relevance to the market	Number of operators	Main characteristics	Number of brands on the market
Manufacturers and importers				
ARCELIK (1 st place)	40% - refrigerators 20% - washing machines	1 factory : Arctic Gaesti	Arctic has its own chain of retailers which sells only Arctic brand products. Also the Arctic brand is sold in every appliances store because of the brand public awareness and low price	2 (Beko and Arctic)
GORENJE Romania (5 th place)	7% - refrigerators 3.1% - washing machines	Gorenje Romania SRL, Subsidiary of Gorenje Slovenia	Intermediate the contracts between Romanian distributors and the «mother » company from Slovenia. Work with 8 distributors.	1 (Gorenje)
INDESIT Company (2 nd place)	16% - refrigerators 28.1% - washing machines		Intermediate the contracts between Romanian distributors and the «mother » company from Italy. The main distributor is Waldmessner Invest SRL Bucharest (exclusive distributor of Indesit and Ariston for Cash&Carry stores and Carrefour Chain)	2 (Ariston and Indesit)
WHIRLPOOL Romania (3 rd place)	11.9% - refrigerators 31.5% - washing machines	Whirlpool Romania SRL Contracts with 10 major distributors	They import the products and then they resale to the distributors. 10 major distributors	2 (Whirlpool and Polar)
DAEWOO Electronics Europe	0.3% - refrigerators 0.6% - washing machines	1 exclusive importer and distributor Relco SA	The «mother » company has branches for particular areas of the world. The company conducts it's operations in Romania through Daewoo Electronics Europe GmbH	1 (Daewoo)
B/S/H/ Electrocasnice SRL	2.3% - refrigerators 2%-washing machines		They import and distribute their own products	2 (Bosch and Siemens)
CANDY HOOVER Romania	1% - refrigerators 3%-washing machines		Intermediate the contracts between Romanian distributors and the «mother » company from Italy. Works with 4 distributors	1 (Candy)
FRANKE Romania	25-30% of the built in appliances market, but under 1% of the total appliances	25 showrooms in the main cities (4 in Bucharest)		

	market			
Retailers				
CARREFOUR	1% of the market share	<i>5 hypermarkets in the country, 3 of them in the capital, Bucharest</i>	Carrefour sell all range of appliances, but is not a specialized seller	
ALTEX + Media Galaxy	30% market share	<i>Over 120 stores and mega stores in the whole country</i>	Altex sell only electronics and appliances	
Flanco:	20% of market share	85 stores in the whole country (12 in Bucharest)	Flanco sell electronics and appliances	
Domo:	20 % of the market share	104 stores in the whole country (10 in Bucharest)	Domo sell electronics and appliances	
Cora	1% of the market share	<i>2 hypermarkets in Bucharest</i>	Cora sell all range of appliances, but is not a specialized seller	
Selgros+Metro:	5% of the market	12+23 cash and carry stores	Not a specialized seller	
Cosmo:	5% of the market	<i>63 stores in the whole country</i>	Cosmo sell only electronics and appliances	
Independent retailers:	18% of the market share			

Note: At the beginning of 2006, several discussions were held between the main importers, in order to establish a branch of CECED in Romania. The discussions are still in progress.

The sources of the table data are:

- GfK (2005 data)
- Interviews with manufacturers
- Manufacturers web sites

2.4.1 Description of Manufacturer

Arctic is the most famous Romanian brand, reaching 99% brand awareness in two words: tradition and quality and the only Romanian manufacturer.

Arctic has almost 30% share on appliances market, with 40% share on refrigerators segment, 20% on washing machines segment (3rd place) and 20% on gas cookers segment (2nd player on the respective market).

Arctic is part of the Arçelik A.S. corporate group that became major Arctic stockholder of the company in 2002, having a yearly production capacity of 1,200,000 units. Arctic products are intended for both the domestic markets (50%) and the export markets (50%), the main ones being Great Britain, France, Spain and Germany.

Arçelik A.S. is the largest private Turkish industrial corporation, producing refrigerators, washing machines, dish-washers, cookers and vacuum cleaners. The overall production capacity of the 11 plants controlled by Arçelik reaches 7 million appliances and 8.2 million parts thereof. With an overall turnover of 1.9 billion Euros in 2003, Arçelik ranks among the top 5 European producers of home appliances.

Data and figures about Arctic

1968 - The foundation of the company

1970 – The manufacture of the first Romanian refrigerator.

1972 - First refrigerator exported to France.

In the years that followed 1989, the company switched to private ownership.

1997 - The first listing with Bucharest Stock Exchange.

The controlling interest was taken-over by the European Bank for Reconstruction and Development and by Societe Generale Group. Then a comprehensive company modernization and technology upgrading program was implemented, based on investments of more than 30 million Euros into the plant. The investment was logically sequenced by the launch of a new refrigerators line with a fresher design and better technical performances.

2002 - Arctic company was bought by the Turkish group Arçelik, a manufacturer and distributor of home appliances of all sorts of sizes, parts and electronic devices at global level.

2003 - Launch a wider line of products: refrigerators, washing machines, gas cookers and vacuum cleaners. This launch positioned Arctic as the leading company on the home appliances market in Romania, with a share of almost 30%.

2004 - Investments reached 143 million Euros. Each year, Arçelik reinvests 1.1% of its turnover in research and development.

2004 – Opening of a new production line that doubled the production capacity from 325,000 units (2003) to 750,000 units (2004).

2005 - Annual production rises to 1,200,000 units.

2005 - Market leaders, with an annual turnover of EUR 90 million and 1440 employees.

The growth of the production capacity was backed-up by the expansion of export markets. 50% of the 2004 production was aimed to France, Great Britain, Germany, Poland, Spain and the Eastern European countries.

In 2004 – implementation of Productive Maintenance (TPM). This system was developed by the "Japan Institute Plant Maintenance" and its local implementation was supported and guided by Takashi Koizumi and a team of Japanese experts. The system grounds on the "zero loss" principle and targets an increase in the production capacity, while cutting down costs. Meanwhile, Arctic embraced the Six Sigma management program as well. This will secure the hard-to-get competitive edge by increased effectiveness and lower costs. The program's basic concepts are: problem solving and preventing flaws.

Data summary for Arctic manufacturer:

The company produces and assembles components for appliances.

Arctic manufactures refrigerators with 1 door, 2 doors, freezers, vertical show-window, and washing machines and sells the products on the internal market (50%) and exports 50% of the production.

Their current annual production is 1.200.000 units.

They have a future plan for expansion of their production level due to strong increase of the position on the market and continuously increase of demand.

Arctic has a major financial capability and have modern plants due to investments made by Arcelik Company in the last 4 years.

Arctic have no difficulties in producing higher efficiency equipment. They already produce A and A+ appliances.

2.4.2 Marketing strategy and positioning of manufacturers on the market

Brands available at national level, grouped by manufacturers:

There are over 40 brands on the refrigerators' market. Among these, Arctic, Indesit, Whirlpool, Zanussi, Electrolux, Gorenje, Ariston and Beko are the most important (more detailed aspects in the following summary table).

There are over 30 brands on the washing machines' market Indesit, Whirlpool, Arctic, Ariston, Beko, Zanussi, Bosch are the most important (more detailed aspects in the following summary table).

Manufacturing group	Corresponding brands	Image attached to the brand
ARCELIK	ARCTIC	Romanian brand, Trust, Good price, Extended warranty
	BEKO	Modern, quality for good price
INDESIT COMPANY	INDESIT	Young families, good quality, relatively cheap
	ARISTON	Luxurious brand, High price, Good quality
WHIRLPOOL	WHIRLPOOL	Very good quality/price ratio
	POLAR	Low prices, unknown quality, not the first choice
GORENJE	GORENJE	Well known for decades, good quality, reasonable prices
ELECTROLUX GROUP	ELECTROLUX	Good quality, high prices
	AEG	Almost not known in Romania
	ZANUSSI	Associated mostly with cooking machines (due to Romanian producer bought by Zanussi)
BSH	BOSCH	High quality, high prices, Conservatory shape, big volumes
	SIEMENS	High quality, high prices, Conservatory shape, big volumes
SAMSUNG	SAMSUNG	Low market share, good products, very high prices
LG	LG	Low market share, good products, very high prices
DAEWOO	DAEWOO	Low market share, alternative technologies
ANTONIO MERLONI	ARDO	Practically disappeared from the market
GENERAL ELECTRIC	GE	High prices
CANDY GROUP	CANDY	Not very popular, innovative technologies, fair prices

2.4.3 Description of Importers

Organization name	Relevance to the market	Number of operators	Main characteristics	No. of brands on the market
Importers				
GORENJE Romania	7% - refrigerators 3.1% - washing machines	Gorenje Romania SRL, representative office of Gorenje Slovenia	Intermediate the contracts between Romanian distributors and "mother" company from Slovenia. Work with 8 distributors.	1
INDESIT Company	16% - refrigerators 28.1% - washing machines	Indesit Company Romania SRL, representative office of Indesit Company Italy	Intermediate the contracts between Romanian distributors and the "mother" company from Italy. The main distributor is Waldmessner Invest SRL Bucharest (exclusive distributor of Indesit and Ariston for Cash&Carry stores and Carrefour)	2
WHIRLPOOL Romania	11.9% - refrigerators 31.5% - washing machines	Whirlpool Romania, subsidiary of Whirlpool Company Contracts with 10 major distributors	They import the products and then they resale to the distributors. 10 major distributors	2
DAEWOO Electronics Europe	0.3% - refrigerators 0.6% - washing machines	1 exclusive importer and distributor Relco SA	The «mother » company has branches for particular areas of the world. The company conducts the operations in Romania through Daewoo Electronics Europe GmbH, Germany	1
B/S/H/ Electrocasnice SRL	2.3% - refrigerators 2%-washing machines	Subsidiary of BSH Hausgerate, Germany	They import and distribute their own products	2
CANDY HOOVER Romania	0.4% - refrigerators 2.4%-washing machines	Subsidiary of Candy Group Italy	Intermediate the contracts between Romanian distributors and the "mother" company from Italy. Work with 4 distributors	1
FRANKE Romania	0.5% - refrigerators (built-in) 0.5%-washing machines (built-in)	25 showrooms in the main cities (4 in Bucharest)	Leader of the built-in appliances 25-30% of the market	
ELECTROLUX	15.1% - refrigerators 7.2%-washing machines	Subsidiary of Electrolux Group	Leader of the cooking machines market with Zanussi brand. They own a cooking machines factory in Satu Mare, northern part of Romania.	3

DAEWOO

Daewoo Electronics Company appeared on the Romanian market in 1995, offering cooling appliances, washing machines, microwaves ovens, vacuum cleaners, AC and TV sets.

The total market of Daewoo products, since 1995 is:

- 1 mil TV sets
- 100,000 washing machines
- 40,000 AC systems

Since 2003, Daewoo Electronics works in Romania as Daewoo Electronics Europe GmbH (Butzbach, Germany) subsidiary – specially designed for European unified markets.

Exclusive importer: **RELCO S.A**

Str. Fabrica de Glucoza nr. 15

Bucuresti, sector 2

Tel: 204.74.25

Fax: 242.08.19

Contact:

Daewoo Electronics Europe GmbH

Str. Al. I. Cuza nr. 81, etaj 3, sector 1, Bucuresti

Tel: +40 21 260 2299 - Fax: +40 21 260 3060

E-mail: office@daewoo-electronics.ro

The retail chain of Daewoo appliances:

ALTEX, MEDIA GALAXY, FLANCO, DOMO, COSMO, METRO CASH&CARRY, SELGROS, CARREFOUR, CORA and online at: <http://www.plantelectronic.ro>

WHIRLPOOL ROMANIA SRL

Whirlpool was present in Romania since 1996. The company grows from an 11% market share in 1997 to almost 20% in 2004.

The brands of Whirlpool Company on the Romanian market are Whirlpool and Polar with washing machines and dryers, refrigerators and freezers, microwave ovens, dishwashers, AC systems, built-in appliances.

The retail chain of **Whirlpool** products: national chains of specialized stores, independent distributors, cash & carry mega stores and hypermarkets.

The post-sell service is assured at national level in over 50 authorized centers.

Contact:**Whirlpool Romania**

Bd. Prof. Dimitrie Pompei nr.9-9A, corp 14A, parter, Sector 2, Bucuresti

Consumer line: 021 305.41.41

Tel: 0040 20 40 334

Fax: 0040 21 20 40 340

Email: office@whirlpool.ro

GORENJE

Works with 8 main importers who signs contracts directly with mother company in Slovenia. The Romanian subsidiary obligations are: marketing, contracts intermediation post-sell services.

Gorenje Romania SRL has a budget approved by mother company and detains absolute spending control of an 80% of it.

Of a total of 3.5 million appliances sold worldwide by Gorenje Group, Gorenje Romania sold 60000 (1.7%) in 2005.

Distribution chain of Gorenje:

- 27% national chain of stores
- 10% cash&carry stores (Metro+Selgros)
- 11% Hypermarkets (Carrefour+Cora)
- 52% independents

The second hand market is not a threat for Gorenje especially due to strong decrease of this kind of market during last 3-4 years. The on-line sells are at low level in Romania.

From the efficiency point of view, the Gorenje products sold in Romania have:

- A class (90%) and B class (10%) for washing machines
- A+ class (5%), A class (90%) and B class (5%) for refrigerators

The average prices of Gorenje appliances are 116% comparing to an average 100% percent of the totality of appliances of the market.

The market share of Gorenje at the end of 2005 was 7% for cooling and 3% for washing machines

Franke Romania

Built in appliances and kitchen furniture importer and distributor.

Leader of built in market with 25-30% of the market, but low importance on appliances market (under 1%).

Franke Romania is a subsidiary of Franke Italy who decides the range of products sold in Romania, the marketing strategy, the budget etc.

After the discussions with Franke representative it became clear that they do not feel they can influence the market because of the addressability of their products (higher prices for people with higher level of incomes – a small amount of Romanian population). At this stage our program is not suitable for them due to their already constant continuously policy of selling higher efficiency built in appliances.

Conclusion:

Among major Romanian importers we distinguish two types of organization:

- Representative offices of a mother company. Main representatives: Gorenje and Indesit, with limited attributions such as marketing, contracts intermediary, after-sales services etc.
- Subsidiaries who have a large portfolio of activities, among them import and distribution of appliances. Main representatives: BSH, Whirlpool, Electrolux

On the Romanian market there are 7 major players as follows (ordered by market share, at the end of 2005):

1. Indesit Company – 18.6%
2. Whirlpool – 15.7%
3. Gorenje – 4.2%
4. Electrolux (only with Electrolux brand) – 2.2%
5. BSH – 2.2%
6. Arcelik (only with Beko brand) – 2.2%
7. Candy – 1%

The rest of the companies and brands existing on the market have each of them less than 1% of the total appliances market.

The appliances market is complete with Arcelik (with Arctic brand, listed on producers chapter) with 26% and Electrolux Group (with Zanussi brand) with 18.2% (especially due to gas ovens-not interesting for us, produced by Samus Satu-Mare, bought by Electrolux in 1995).

2.4.4 Description of Wholesalers

There is none in the country

2.4.5 Description of Retailers

The largest retailers in Romania are:

- FLAMINGO-FLANCO
- DOMO
- ALTEX (MEDIA GALAXY GROUP)
- MEDIA GALAXY
- COSMO
- CARREFOUR ROMANIA
- CORA ROMANIA
- SELGROS CASH AND CARRY
- METRO CASH AND CARRY

We don't have hard data about the market share of the main actors on retailers market. We can only estimate this share as following:

- Media Galaxy Group (Altex + Media Galaxy): 30% of market share
- Flamingo-Flanco: 20% of market share
- Domo: 20% of the market share
- Carrefour + Cora (hypermarkets share): 5% of the market share
- Selgros+Metro (cash and carry share): 5% of the market
- Cosmo: 1% of the market
- Independent retailers: 19% of the market share

Publicity is organized at both the retail shop and manufacturers' level

Commercials are mostly on TV, Radio, newspapers and magazines, especially regarding prices of products.

After-sales services' is organized mostly through manufacturers

Any aspect regarding widening of the product range will be negotiated at the central office of the retailer.

2.4.6 Description of large buyers

There is none in the country

2.5 Market chain stakeholder analysis

Organization name	Attitude towards the label and the accompanying program	Options to respond to S&L programs	Support needed to respond to S&L program	Related work for program carrier
Manufacturers and importers				
ARCTIC	<i>Supportive</i>	Capable of positive response regarding project involvement if legislative and financial help provided by governmental factor	- information regarding this project	Contact with headquarters to present program
GORENJE ROMANIA	<i>Supportive</i>	Capable of positive response regarding project involvement if legislative and financial help may be provided by governmental factor	- must receive information regarding the updated laws to be respected in S&L - they need information regarding S&L for dishwashers, dryers, electric ovens	- Finding the right contact person – who must be able to solve the problems.
INDESIT COMPANY	<i>Negative</i>	Very few as headquarter based in Italy defines the range of appliances. They are not very interested about the project.	As representative office they don't need any support.	They consider is better to contact Romanian companies who sale their products, to present the program
WHIRLPOOL ROMANIA	<i>Supportive</i>	- media campaign - all range A+ products (washing) - flyer, catalogue, poster	- information regarding this project - conferences and quarterly meetings	- feedback - legislation
DAEWOO Electronics Europe	<i>Neutral</i>	Still in contact with mother company in order to decide the attitude toward project	information regarding this project	Contact with headquarters to present program
B/S/H/ Electrocasnice SRL	<i>Supportive</i>	Yes, coordinated with the HQ in Germany	Prior program information for RO	Contact with government to develop attractive OR mandatory training sessions for salesmen;

Organization name	Attitude towards the label and the accompanying program	Options to respond to S&L programs	Support needed to respond to S&L program	Related work for program carrier
CANDY HOOVER ROMANIA	<i>Supportive, considering the protective effect for the environment</i>	In settling the range, we are focused on products with very good energetic performances. Does not know at this moment if they could be involved in the project, due to low market share	-information about this project -training	Contact with headquarters to present program
FRANKE ROMANIA	Negative	Not interested due to low market share	Non applicable	Non applicable
Retailers				
CARREFOUR	<i>Supportive</i>	They are interested to participate in project	information regarding this project -training	Together with retailer we have to identify the most suitable actions in order to fulfill the project goals
ALTEX	<i>Neutral</i>	They oscillate in their response. They even change the contact person with a lower ranked one.	information regarding this project	Contact with headquarters to present program (again)
FLANCO	<i>Negative</i>	NA	NA	Contact again headquarters if there will be training sessions or we have to print a brochure for them
DOMO	<i>Negative</i>	NA	NA	
CORA	<i>Negative</i>	NA	NA	
SELGROS+METRO	<i>Negative</i>	NA	NA	
COSMO	<i>Negative</i>	NA	NA	

2.5.1 Position of manufacturer/importers toward Verification, labeling and regulation in general

Arctic initially reacts with vigilance (we need many high level intervention from ministry of economy and trade in order to respond at our questionnaire), but at this time they manifest positive feelings about their involvement in the bigger project. They insist on legislation amendment in order to oblige every importer to verify their new range of appliances to an independent accredited laboratory. *Note: the EU law doesn't allow this.*

We can mention here that Arctic have its own laboratory for their products. But is the only actor on the market who does that in Romania, because the importers came with certification of foreign laboratories for their products.

About Importers we can say that the major actors were opened to the project, but they expect more information about the project and some signals from the governmental level. Only Indesit and Franke decline clearly the possibility of participating in the project, each of them with different reasons: Indesit probably due to strong positioning on the market does not need "complication" and Franke due to small market share and high level addressability of their products. As a possible "friend" in the project we can mention Gorenje.

2.5.2 Position of Wholesalers toward S&L

There is none in the country

2.5.3 Position of Retailers toward S&L

About Retailers: contrary to manufacturers, they manifested interest at the beginning but after the Stakeholders meeting in January, seems to be a little distant and not very interested. Maybe we can stimulate them through manufacturers and importers in order to respond to the project. The main barriers in the market could be:

- The incorrect understanding of the real goals of the main project
- Lack of incentives for participant companies
- Lack of environmental culture in Romania
- Low interest from energy distributors (Electrica branches)
- The main concerns of the stakeholders are related to their benefit after participation in this project (increase of the sales volume).

2.5.4 Large public and private sector buyers

In Romania there are no large public or private sector buyers. Rarely, some private or public institutions may buy a large number of appliances (i.e. large hotel chains, ministries, city halls, local authorities). They are following the public acquisition rules and regulations but there is no specific reference to the product energy label.

2.5.5 The general public

The economic development registered in the last years has led to an increase in the population income (following table).

Total income of households

Euro-Exchange rate monthly/household

Year	2000		2001		2002		2003	
	Total income	Money income	Total income	Money income	Total income	Money income	Total income	Money income
Total value	167.1	113.6	200.5	149.2	210.7	160.5	211.7	158.6
Employees	232.1	193.1	280.1	241.8	295.3	258.4	297.6	257.2
Peasants	158.4	62.7	166.4	70.3	178.6	82.7	185.4	84.0
Retired people	134.2	88.6	147.9	103.3	145.9	103.3	156.4	114.2
Unemployed	139.0	82.7	160.9	108.1	165.8	113.8	163.9	110.1

Source: - The National Institute of Statistics "The Statistical Yearbook of Romania", collections;
- The site of the National Bank of Romania.

Based on these data the following remarks can be made:

- The total income includes:
 - The money income (salaries, pensions, unemployment payment etc);
 - The equivalent of products and services from own sources (in rural area its share represents the majority)
- In this project (acquisition of household appliances and electricity payment) it is the money income that is of interest.
- There are great differences between the money income of the active population in the urban areas (employees) and other social categories.
- The share of the money income within the total income is increasing for all the social categories. On an average, this share has increased from 68% in 2000 to 75% in 2003.

National Baseline Report - Romania

- The money income (in US \$ at the exchange rate) has significantly increased, but its value is still lower than that of the population in the EU Member States. The money income of the rural population, retired and unemployed people, especially, is very low.
- The price of the household appliances is practically the same as in the developed countries (most of these appliances are imported).
- The price of electricity has lately increased and this matter will be further discussed.

The following table presents the structure of the population expenditure.

Total expenditure of households. Details (Euro-ER monthly/household)

Year	2000	2001	2002	2003
Money expenditure <i>Of which:</i>	112.8	148.8	160.8	158.6
- Food and beverages	24.8	34.9	36.7	36.2
- Non-food goods	14.1	25.5	29.0	29.5
- Payment of services	16.6	22.4	25.9	25.5
- Taxes and dues	6.8	19.8	22.5	18.8
Employees <i>Of which:</i>	186.2	235.6	253.0	253.5
- Food and beverages	46.5	57.3	58.9	59.3
- Non-food goods	35.5	45.0	49.3	52.2
- Payment of services	30.5	40.3	46.5	46.4
- Taxes and dues	23.3	50.7	57.2	53.0
Peasants <i>Of which:</i>	62.5	70.5	80.1	83.4
- Food and beverages	7.8	10.7	12.6	13.2
- Non-food goods	8.6	9.0	10.9	11.8
- Payment of services	4.2	3.8	4.7	5.1
- Taxes and dues	0.7	1.3	1.5	1.4
Unemployed <i>Of which:</i>	95.1	113.1	116.0	135.1
- Food and beverages	25.9	32.4	32.5	37.4
- Non-food goods	14.8	17.6	19.5	23.8
- Payment of services	13.9	18.0	19.4	23.8
- Taxes and dues	3.5	8.6	9.5	8.9
Retired people <i>Of which:</i>	83.9	109.3	116.3	108.8
- Food and beverages	17.0	25.6	26.4	25.1
- Non-food goods	12.8	16.7	19.6	18.4
- Payment of services	11.6	15.6	17.5	16.9
- Taxes and dues	1.8	8.3	9.1	5.2

Source: - The National Institute of Statistics "The Statistical Yearbook of Romania", collections;
- The site of the National Bank of Romania.

The following main remarks should be made regarding these data:

- The value of the money expenditure has increased as much as the money income;
- The food and beverages expenditure represents about 22-23%. The respective share is minimum in the case of the peasant families (about 15%) who obtain the respective products from their own households;
- The value of the non-food goods (including household appliances) has increased on an average from US\$ 13/month in 2000 to US\$ 33.4/month in 2003. In this respect the highest amounts are spent by the employees (US\$59.1 /month in 2003), and the lowest by the population in the rural area (US \$13.4/month in 2003).
- The expenditure for the services payment (including electricity) has increased on an average from US\$ 13.5/month to US\$ 28.9 /month in 2003. This increase is the result of an increase in quality and tariffs. The population in the rural area spends very little on services (US \$3.9/month in 2000 and US\$ 5.8 /month in 2003).

The household electricity consumption varies around 8 TWh representing about 20-23% of the total final consumption of electricity (following table).

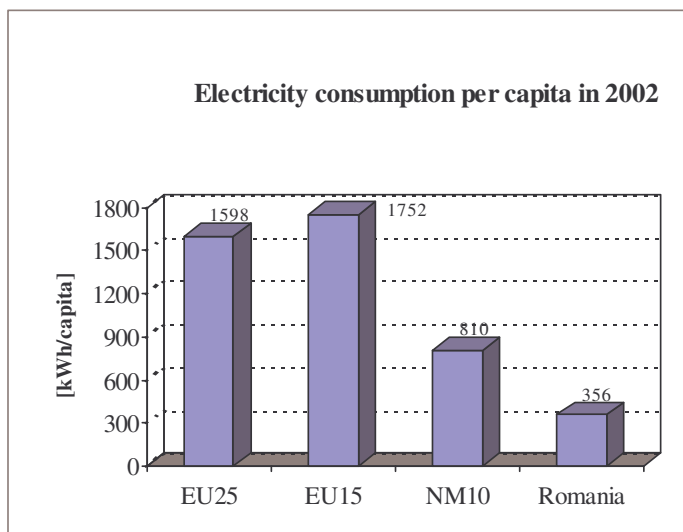
Household electricity consumption						
Consumption	M.U.	2000	2001	2002	2003	2004
Total final electricity consumption	TWh	32.735	36.294	35.569	37.501	38.774
Household electricity consumption	TWh	7.652	7.724	7.771	8.243	8.043
	%	23.4	21.3	21.8	22.0	20.7
Electricity consumption/capita	kWh/capita	341	345	356	379	371

Electricity consumption per capita (371 kWh/capita in 2004) has got much lower values than the EU25 average and even the average in the new EU Member States. The low income of the population has been a determining factor. In order to protect the population whose payment possibilities are low the so- called social tariff was introduced for the household consumers whose electricity consumption is lower than 2 kWh/day. In fact, this represents utilization of crossed subsidies between the former and the rest of consumers.

The social tariff and the other tariffs that are considered usual tariffs have increased lately, and the latter are comparable with the ones in the new EU Member States.

Privatization of the great electricity distribution and supply companies, as well as the total liberalization of the electricity market starting from July 1, 2007 will further increase the price of electricity. Therefore, the price of electricity already represents a powerful signal for stimulating the acquisition of more efficient equipment.

On the other hand, it is estimated that the level of education and culture of the population (especially in the rural area) is relatively low. In general, household consumers favor energy efficiency. Nevertheless, a campaign to educate and inform them would still be required.

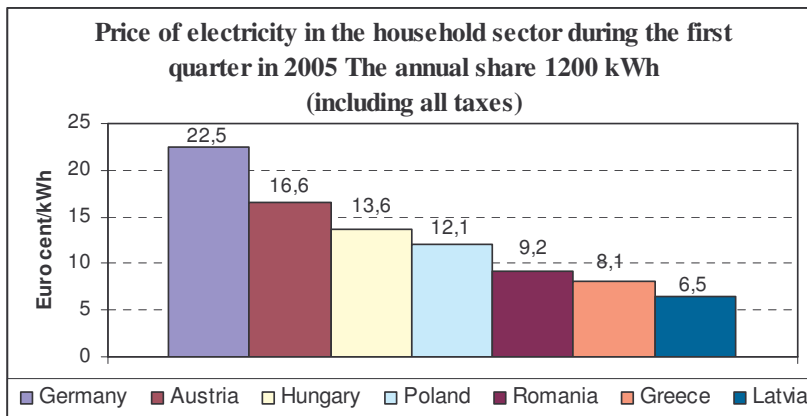


Source:- The National Institute of Statistics "The Statistical Yearbook of Romania";
- The site of Eurostat.

**The average electricity price for the household consumers
according to the annual consumption**
[Euro-ER/kWh]

Year	Annual consumption (kWh)	
	600	1200
2000	0.0306	0.0628
2001	0.0361	0.0737
2002	0.0377	0.0680
2003	0.0424	0.0765
2004	0.0472	0.0851
Quarter I 2005	0.0483	0.0920

Source: - The site of Romanian Energy Regulatory Authority, prices



Source: - The site of Eurostat

Before starting to calculate the supplementary cost amortization paid for a higher energy class refrigerator it is necessary to review the refrigerator prices.

The refrigerator prices depend on a large number of factors. The price of the same refrigerator may vary significantly from one distributor to another. The following examples clearly illustrate it.

Type of refrigerator	FLANCO Shop		DOMO shop		EMAG Shop	
	RON	EURO	RON	EURO	RON	EURO
Zanussi ZC 1941,1 door, 166+18 l, class B	849.0	241.2	749.9	213.0		
Arctic RD 29N, 2 doors, 222+71 l, class A			949.9	269.9	967.4	274.8
Arctic RD 29NS+, 2 doors, 222+71 l, class A+			999.9	284.1	1013.9	288.0
Arctic RD 29S, 2 doors, 222+71 l, class B	1149.0	326.4				

Source: sites

- www.arctic.ro
- www.flanco.ro
- www.emag.ro
- www.domo.ro

Thus, the Zanussi ZC 1941 refrigerator can be bought from the DOMO distributing company for 749.9 RON, or from FLANCO Company paying 13 % less.

The Arctic refrigerator type RD 29S, class B, costs more if you buy it from FLANCO than a fridge of the same capacity, with the same technical performances, but in class A+ sold by the DOMO Company.

Under these circumstances, it goes without saying that a buyer will gather information on the trade network in the first place and then on the energy efficiency class.

At the same time there are great price differences between similar or close performance types of refrigerators relating to the manufacturer, the warranty, etc.

Resuming the discussion on additional costs amortization, the table presented above lists the acquisition costs of two Arctic refrigerators that are practically the same (RD 29N and RD 29 NS+) of which:

- The first, a class A one, with an annual electricity consumption of 324 kWh;
- The second, a class A+ one, with an annual electricity consumption of 252 kWh.

The difference between the annual electricity consumption of the two household appliances is of 72 kWh.

The difference in price between the household appliances ranges between:

- 50 RON (14.2 EURO) at DOMO shop;
- 46.5 RON (13.2 EURO) at EMAG shop.

At an electricity price amounting to 0.27 RON/kWh (0.08 EURO/kWh) and annual savings of 72 kWh, there results an amortization time of 2.5 years in case the refrigerator has been bought from the DOMO shop. It will take even less (2.4 years), if the appliance is bought from EMAG. In spite of a shorter amortization of a supplementary investment made in a household appliance the buyer should be educated through a campaign relating to the advantages of acquiring a higher -class refrigerator.

The amortization issue becomes superfluous if we compare two shops. A class B refrigerator sold by FLANCO costs more than a similar one (class A+) sold by DOMO or EMAG (Arctic RD 29 refrigerator).

This last aspect poses another problem that the developing team will have to solve. The issue is whether the information given by the label is correct or not. The legislation stipulates that the manufacturer/importer is fully responsible for the correctness of information. ARCE (the Romanian Energy Conservation Agency) and ANPC (the National Agency for Consumer's Protection) control and, sometimes fine, the companies, in case the appliances are not labeled, or the dimensions and content on the label do not correspond with the models mentioned in the legislation. Nevertheless, no one verifies whether the information (energy consumption and the energy class, implicitly) on the label is true or not.

In Romania there are no accredited testing labs, so that a check should be carried out at a laboratory abroad. The person (the buyer or the controlling authority) requiring this verification will have to pay for it. Nevertheless, there are no financial means that can cover the cost for such verifications.

In Romania the average salary is very low: around 200 euro/month. In this respect would be difficult to convince the large public to buy a more expensive appliance just for the environmental or energy savings reasons (even if you can explain that the price difference will be covered in the next few years). Therefore is essential to mobilize governmental resources in order to put in place a reimbursement scheme for citizens.

3 OVERVIEW OF THE NATIONAL MARKET

Note: *The below data refers only to refrigerators (1 door, 2 doors, combi, table top), washing machines and washer-dryers (GfK data for 2005. The data were collected periodically during last year - GfK market report at every two months)*

Total market:	842,000 units
Total internal production	250,000 units
Imports:	592,000 units
• Total cooling:	429,000
Combi:	284,000
Double door:	104,000
Single door:	29,000
Table top:	9,000
• Total washing machines:	410,000
- Front loading:	329,000
- Top loading:	81,000
• Total washer-dryers:	3,000

98% of the imports came from EU.

The dryers, dishwashers and electric ovens markets are insignificant in Romania.

Note: *The majority of the data collected were from GfK, National Institute of Statistics, Arctic and Carrefour as follows:*

- *for Arctic we presented both GfK and Arctic data*
- *for the importers we have presented data from GfK (details) and National Institute of Statistics (just for cross-tabulation of gross amount of refrigerators+freezers together, washing machines respectively)*
- *For the retailers the data source was direct contact and retailers' websites.*

Arctic

Arctic appliances sold on internal market in 2005-GfK data (units):

- 2 doors refrigerator-freezer down (combi):	112,748 (39.7% of the market)
- 2 doors refrigerator-freezer top (double door):	40,248 (38.7% of the market)
- 1 door refrigerator (single door):	17,719 (61.1% of the market)
- Table top:	6,264 (69.6% of the market)
- Total cooling production of Arctic:	317,000 units
- Total exports:	140,021 units
- Washing machines front loading:	63497 (19.3%of the market)
- Washing machines top loading:	-
- Washer dryer:	-

Arctic average prices in 2005 (euro):

- 2 doors refrigerator-freezer down (combi):	332
- 2 doors refrigerator-freezer top (double door):	293
- 1 door refrigerator (single door):	240
- Table top:	180
- Washing machines front loading:	299
- Washing machines top loading:	-
- Washer dryer:	-

Arctic own data:*Units sold on internal market in 2005:*

- Refrigerators with 2 doors (freezer down)	180,000
- Refrigerators with 2 doors (freezer up)	65,000
- Refrigerators with 1 door, over 90cm	35,000
- Freezers (up-right)	25,000
- Glass door refrigerators	8,000
- Freezers (chest)	3,000
- Refrigerators with 1 door, <90cm	1,000
- Washing machines	100,000

Indesit*Indesit appliances sold on internal market in 2005 (units):*

- 2 doors refrigerator-freezer down (combi):	43,452 (15.3% of the market)
- 2 doors refrigerator-freezer top (double door):	16,640 (16% of the market)
- 1 door refrigerator (single door):	-
- Table top:	-
- Washing machines front loading:	87,843 (26.7% of the market)
- Washing machines top loading:	20,169 (24.9% of the market)
- Washer dryer:	2,241 (74.75%)

Indesit average prices in 2005 (euro):

- 2 doors refrigerator-freezer down (combi):	393
- 2 doors refrigerator-freezer top (double door):	356
- 1 door refrigerator (single door):	-
- Table top:	-
- Washing machines front loading:	352
- Washing machines top loading:	367
- Washer dryer:	465

Ariston*Ariston appliances sold on internal market in 2005 (units):*

- 2 doors refrigerator-freezer down (combi):	4,260 (1.5% of the market)
- 2 doors refrigerator-freezer top (double door):	3,432 (3.3% of the market)
- 1 door refrigerator (single door):	-
- Table top:	-
- Washing machines front loading:	6,251 (1.9% of the market)
- Washing machines top loading:	1,053 (1.3% of the market)
- Washer dryer:	387 (12.9%)

Ariston average prices in 2005 (euro):

-2 doors refrigerator-freezer down (combi):	648
-2 doors refrigerator-freezer top (double door):	579
-1 door refrigerator (single door):	-
-Table top:	-
-Washing machines front loading:	448
-Washing machines top loading:	388
- Washer dryer:	468

Bosch*Bosch appliances sold on internal market in 2005 (units):*

-2 doors refrigerator-freezer down (combi):	5,396 (1.9% of the market)
---	----------------------------

National Baseline Report - Romania

-2 doors refrigerator-freezer top (double door):	1,872 (1,8% of the market)
-1 door refrigerator (single door):	-
-Table top:	-
-Washing machines front loading:	6,580 (2% of the market)
-Washing machines top loading:	648 (0.8% of the market)
- Washer dryer:	-

Bosch average prices in 2005 (euro):

-2 doors refrigerator-freezer down (combi):	449
-2 doors refrigerator-freezer top (double door):	553
-1 door refrigerator (single door):	-
-Table top:	-
-Washing machines front loading:	411
-Washing machines top loading:	485
- Washer dryer:	-

Siemens*Siemens appliances sold on internal market in 2005 (units):*

- 2 doors refrigerator-freezer down (combi):	859 (0.3% of the market)
- 2 doors refrigerator-freezer top (double door):	1,560 (1,5% of the market)
- 1 door refrigerator (single door):	-
- Table top:	-
- Washing machines front loading:	987 (0.3% of the market)
- Washing machines top loading:	-
- Washer dryer:	-

Siemens average prices in 2005 (euro):

- 2 doors refrigerator-freezer down (combi):	721
- 2 doors refrigerator-freezer top (double door):	343
- 1 door refrigerator (single door):	-
- Table top:	-
- Washing machines front loading:	520
- Washing machines top loading:	-
- Washer dryer:	-

Candy*Candy appliances sold on internal market in 2005 (units):*

- 2 doors refrigerator-freezer down (combi):	1136 (0.4% of the market)
- 2 doors refrigerator-freezer top (double door):	416 (0.4% of the market)
- 1 door refrigerator (single door):	-
- Table top:	-
- Washing machines front loading:	8,883 (2.7% of the market)
- Washing machines top loading:	729 (0.9%)
- Washer dryer:	-

Candy average prices in 2005 (euro):

- 2 doors refrigerator-freezer down (combi):	386
- 2 doors refrigerator-freezer top (double door):	318
- 1 door refrigerator (single door):	-
- Table top:	-
- Washing machines front loading:	297

- Washing machines top loading:	360
- Washer dryer:	-

Daewoo

Daewoo appliances sold on internal market in 2005 (units):

- 2 doors refrigerator-freezer down (combi):	568 (0.2% of the market)
- 2 doors refrigerator-freezer top (double door):	-
- 1 door refrigerator (single door):	-
- Table top:	-
- Washing machines front loading:	-
- Washing machines top loading:	2268 (2.8%)
- Washer dryer:	-

Daewoo average prices in 2005 (euro):

- 2 doors refrigerator-freezer down (combi):	471
- 2 doors refrigerator-freezer top (double door):	-
- 1 door refrigerator (single door):	-
- Table top:	-
- Washing machines front loading:	-
- Washing machines top loading:	339
- Washer dryer:	-

Zanussi

Zanussi appliances sold on internal market in 2005 (units):

- 2 doors refrigerator-freezer down (combi):	25,560 (9% of the market)
- 2 doors refrigerator-freezer top (double door):	12,584 (12.1%)
- 1 door refrigerator (single door):	10,411 (35.9%)
- Table top:	1,593 (17.7%)
- Washing machines front loading:	23,300 (7%)
- Washing machines top loading:	1701 (2.1%)
- Washer dryer:	-

Zanussi average prices in 2005 (euro):

- 2 doors refrigerator-freezer down (combi):	363
- 2 doors refrigerator-freezer top (double door):	285
- 1 door refrigerator (single door):	232
- Table top:	186
- Washing machines front loading:	318
- Washing machines top loading:	325
- Washer dryer:	-

Electrolux

Electrolux appliances sold on internal market in 2005 (units):

- 2 doors refrigerator-freezer down (combi):	13,064 (4.6% of the market)
- 2 doors refrigerator-freezer top (double door):	728 (0.7%)
- 1 door refrigerator (single door):	-
- Table top:	-
- Washing machines front loading:	2,632 (0.8%)
- Washing machines top loading:	2187 (2.7%)
- Washer dryer:	27 (0.9%)

Electrolux average prices in 2005 (euro):

- 2 doors refrigerator-freezer down (combi):	440
- 2 doors refrigerator-freezer top (double door):	416
- 1 door refrigerator (single door):	-
- Table top:	-
- Washing machines front loading:	380
- Washing machines top loading:	418
- Washer dryer:	689

Gorenje*Gorenje appliances sold on internal market in 2005 (units):*

- 2 doors refrigerator-freezer down (combi):	24,140 (8.5% of the market)
- 2 doors refrigerator-freezer top (double door):	2,392 (2.4%)
- 1 door refrigerator (single door):	116 (0.4%)
- Table top:	36 (0.4%)
- Washing machines front loading:	11,515 (3.5%)
- Washing machines top loading:	1,215 (1.5%)
- Washer dryer:	-

Gorenje average prices in 2005 (euro):

- 2 doors refrigerator-freezer down (combi):	452
- 2 doors refrigerator-freezer top (double door):	324
- 1 door refrigerator (single door):	342
- Table top:	323
- Washing machines front loading:	361
- Washing machines top loading:	401
- Washer dryer:	-

Beko*Beko appliances sold on internal market in 2005 (units):*

- 2 doors refrigerator-freezer down (combi):	2556 (0.9% of the market)
- 2 doors refrigerator-freezer top (double door):	4264 (4.1%)
- 1 door refrigerator (single door):	-
- Table top:	-
- Washing machines front loading:	11,186 (3.4%)
- Washing machines top loading:	-
- Washer dryer:	-

Beko average prices in 2005 (euro):

- 2 doors refrigerator-freezer down (combi):	410
- 2 doors refrigerator-freezer top (double door):	502
- 1 door refrigerator (single door):	-
- Table top:	0
- Washing machines front loading:	338
- Washing machines top loading:	-
- Washer dryer:	-

LG*LG appliances sold on internal market in 2005 (units):*

- 2 doors refrigerator-freezer down (combi):	568 (0.2% of the market)
- 2 doors refrigerator-freezer top (double door):	520 (0.5%)

- 1 door refrigerator (single door):	-
- Table top:	-
- Washing machines front loading:	4277 (1.3%)
- Washing machines top loading:	-
- Washer dryer:	-

LG average prices in 2005 (euro):

- 2 doors refrigerator-freezer down (combi):	793
- 2 doors refrigerator-freezer top (double door):	818
- 1 door refrigerator (single door):	-
- Table top:	-
- Washing machines front loading:	392
- Washing machines top loading:	-
- Washer dryer:	-

Samsung*Samsung appliances sold on internal market in 2005 (units):*

- 2 doors refrigerator-freezer down (combi):	-
- 2 doors refrigerator-freezer top (double door):	208 (0.2%)
- 1 door refrigerator (single door):	-
- Table top:	-
- Washing machines front loading:	1974 (0.6%)
- Washing machines top loading:	-
- Washer dryer:	-

Samsung average prices in 2005 (euro):

- 2 doors refrigerator-freezer down (combi):	-
- 2 doors refrigerator-freezer top (double door):	992
- 1 door refrigerator (single door):	-
- Table top:	-
- Washing machines front loading:	342
- Washing machines top loading:	-
- Washer dryer:	-

Whirlpool*Whirlpool appliances sold on internal market in 2005 (units):*

- 2 doors refrigerator-freezer down (combi):	37204 (13.1%)
- 2 doors refrigerator-freezer top (double door):	6344 (6.1%)
- 1 door refrigerator (single door):	-
- Table top:	-
- Washing machines front loading:	79289 (24.1%)
- Washing machines top loading:	48600 (60%)
- Washer dryer:	99 (3.3%)

Whirlpool average prices in 2005 (euro):

- 2 doors refrigerator-freezer down (combi):	385
- 2 doors refrigerator-freezer top (double door):	323
- 1 door refrigerator (single door):	-
- Table top:	-
- Washing machines front loading:	336
- Washing machines top loading:	340

National Baseline Report - Romania

- Washer dryer: 1313

Polar

Polar appliances sold on internal market in 2005 (units):

- 2 doors refrigerator-freezer down (combi): 5964 (2.1%)
 - 2 doors refrigerator-freezer top (double door): 1352 (1.3%)
 - 1 door refrigerator (single door): -
 - Table top: -
 - Washing machines front loading: -
 - Washing machines top loading: -
 - Washer dryer: -

Polar average prices in 2005 (euro):

- 2 doors refrigerator-freezer down (combi): 318
 - 2 doors refrigerator-freezer top (double door): 270
 - 1 door refrigerator (single door): -
 - Table top: -
 - Washing machines front loading: -
 - Washing machines top loading: -
 - Washer dryer: -

Ardo

Ardo appliances sold on internal market in 2005 (units):

- 2 doors refrigerator-freezer down (combi): -
 - 2 doors refrigerator-freezer top (double door): -
 - 1 door refrigerator (single door): -
 - Table top: -
 - Washing machines front loading: 1974 (0.6%)
 - Washing machines top loading: 729 (0.9%)
 - Washer dryer: 237 (7.9%)

Ardo average prices in 2005 (euro):

- 2 doors refrigerator-freezer down (combi): -
 - 2 doors refrigerator-freezer top (double door): -
 - 1 door refrigerator (single door): -
 - Table top: -
 - Washing machines front loading: 338
 - Washing machines top loading: 354
 - Washer dryer: 455
 Other brands till 100%

4 POLICY & LEGAL SECTION

4.1 Policy – transposition of EU labeling and MEPS directives

The basic law on energy efficient utilization in Romania is the Law no. 199/ 2000 with its subsequent modifications. In its initial form, that was published in the Official Gazette no. 577 of November 17, 2000, the law had a distinct chapter (Chapter 4) entitled “Energy Efficiency Standards”. Among other things, the chapter stipulated the following:

- *Article 8(1): “At the proposal of the Romanian Agency for Energy Conservation, the Ministries concerned and the Romanian Standardization Association, technical regulations and national energy efficiency standards for the large energy consuming equipment, installations and technologies, buildings, as well as other fields of activity, are approved by Government Decisions.”*
- *Article 9: “The producers and importers of equipment, installations and technologies cannot sell rent, or market the respective products in Romania in any other form without observing the national energy efficiency standards.”*

The initial law also included articles relating to the development and application of the energy efficiency standards.

The law has been subsequently modified and was republished in the Official Gazette no. 734 of October 8, 2002. In this new form (which is still valid) the law does not explicitly include the chapter concerning energy efficiency standards.

References to standardization and labeling are included in chapter 5 (Energy Efficiency Technical Regulations). The chapter specifies that:

- *Art. 9 (1) The Ministry of Economy and Commerce, at the proposal made by the Romanian Energy Conservation Agency issues energy efficiency regulations for the big energy consuming appliances, equipment and installations.*
- *Article 10 The producers and importers of appliances, equipment and installations for which energy efficiency regulations have been developed cannot market them unless they observe these technical regulations.*

According to this latest form of the Energy Efficiency Law energy labels are accompanied by the energy efficiency technical regulations, and the Ministry of Economy and Commerce approves them. In fact, during this entire period of time (including January 2006) the Government has adopted decisions relating to the energy labeling of the household appliances.

Currently, the Law 199/2000 (republished in 2003) on energy efficient utilization was modified and completed by Law 56/2006

The Romanian Government has paid utmost attention to harmonizing the Romanian legislation with the Directives of the Commission on household appliances energy efficiency. Government decisions for harmonizing the Romanian legislation with the Commission Directives have been issued for:

- refrigerators, freezers and combination thereof;
- washing machines;
- combined washer-driers;
- household lamps;
- electric tumble driers
- dishwashers;
- electric ovens;
- ballasts for fluorescent lighting;
- air conditioners.

- boilers

The Romanian Standardization Association has also adopted the specific European standards. The actual situation is given in the Table below.

All these Government decisions specify that:

- Only the household appliances that have a label informing about their energy consumption in a visible place and are accompanied by a form including different information, can be marketed.
- The supplier is responsible for the appliance labeling and for providing the form and all the information that is needed.

The actual situation of the EU directives on energy efficiency harmonization

Directive	Harmonized document (No. and title of Government Decision)	Date of publication in the Official Gazette	Date of entry into force
Council Directive 92/75 /EEC of 22 September 1992 on the indication by labeling and standard product information of the consumption of energy and other resources by household appliances;	Law no. 199/2000 (republished in 2003) on energy efficient utilization Modified and completed by Law 56/2006	Official Gazette 734/08.10.2002 Official Gazette 291/31.03.2006	90 days since its publication 90 days since its publication
Commission Directive 94/2/ EEC of 21 January 1994 implementing Council Directive 92/75 /EEC with regard to energy labeling of household electric refrigerators, freezers and their combinations;	Government Decision 1039/27.08.2003 on energy efficiency requirements with regard to energy labeling of household electric refrigerators for their marketing It replaced Government Decision no. 573/14.06.2001	Official Gazette 634/10.09.2003 Official Gazette 375/11.07.2001	9 months since the publication date
Council Directive 96/57/EC of 3 September 1996 on energy efficiency requirements for household electric refrigerators, freezers and combinations thereof. Commission Directive 2003/66/EC of 3 July 2003 amending Directive 94/2/ EC of 21 January 1994 implementing Council Directive 92/75 /EC with regard to energy labeling of household electric refrigerators, freezers and their combinations European standard EN 153	Government Decision 972 of 15 June 2004 modifying and completing Government Decision 1.039/2003 on energy efficiency and energy labeling requirements for household electric refrigerators for their marketing Romanian standard SREN 153	Official Gazette 639/15.07.2004	30 days since the publication date
Directive 95/12/EEC of 23 May 1995 implementing	Government Decision 1252/13.10.2005 establishing	Official Gazette 1014/16.11.2005	30 days since its publication

National Baseline Report - Romania

Directive	Harmonized document (No. and title of Government Decision)	Date of publication in the Official Gazette	Date of entry into force
Council Directive 92/75/EEC with regard to energy labeling of household washing machines European standard EN 60456	the requirements for the household washing machines energy labeling and energy efficiency Replaced Government Decision 598/ 21.06.2001 Romanian standard SREN 60456		
Directive 96/60/EC of 19 September 1996 implementing Council Directive 92/75/EEC with regard to energy labeling of household combined washer- driers European standard EN 50229	Government Decision no. 671/19.07.2001 with regard to energy efficiency and energy labeling of household combined washer-driers Government Decision no. 230 of 24/03/2005 for the modification and completion of Government Decision no. 671/2001 with regard to the energy efficiency and energy labeling of the household combined washer- driers Romanian standard SREN 50229	Official Gazette 445/08.08.2001 Official Gazette 299/11./04.2005	9 months since the publication date 30 days since its publication date
Directive 98/11/EC of 27 January 1998 implementing Council Directive 92/75/EEC with regard to energy labeling of household lamps European standards EN 50285	Government Decision 1056 of 18.10.2001 with regard to energy efficiency and energy labeling of household lamps Romanian standards SREN 50285	Official Gazette 727/15.11.2001	9 months since the publication date
Directive 2000/55/EC of the European Parliament and of the Council of 18 September 2000 on energy efficiency requirements for ballast for fluorescent lighting European standards EN 50294	Government Decision 1160 of 02.10.2003 establishing the requirements of energy efficiency for market introduction of ballasts for the fluorescent lighting sources Romanian standards SREN 50294	Official Gazette 716/14.10.2003	9 months since the publication date
Directive 95/13/EC of 23 May 1995 implementing Council Directive 92/75/EEC with regard to energy labeling of household electric tumble driers European standard EN 61121	Government Decision no.1274/ 20.12.2001 with regard to energy efficiency and energy labeling of household electric tumble driers Romanian standard SREN 61121	Official Gazette 845/28.12.2001	9 months since the publication date
Directive 97/17/EC of 16 April 1997 implementing	Decision Government 86/19.01.2006 with regard to	Official Gazette 129/10.02.2006	30 days since its publication

National Baseline Report - Romania

Directive	Harmonized document (No. and title of Government Decision)	Date of publication in the Official Gazette	Date of entry into force
Council Directive 92/75/EEC with regard to energy labeling of household dishwashers European standard EN 50242	energy efficiency and energy labeling of the household dishwashers Replaced the Government Decision 27/17.01.2002 Romanian standard SREN 50242 (not translated in Romanian)		
Commission Directive 2002/40/EC of 8 May 2002 implementing Council Directive 92/75/EEC with regard to energy labeling of household electric ovens European standard EN 50304	Government Decision 456/05.04.2006 with regard to energy efficiency and energy labeling of household electric ovens Replaced the Government Decision 1117/ 10.10.2002 Romanian standard SREN 50304	Official Gazette 364/26.04.2006	30 days since the publication date
Directive 2000/55/EC of the European Parliament and of the Council of 18 September 2000 on energy efficiency requirements for ballasts for florescent lighting	Government Decision 1160/2.10.2003 on energy efficiency requirements for the ballasts for fluorescent lighting It Replaced the Government Decision 1549/18.12.2002	Official Gazette 716/14.10.2003	On 1.07.2004, except for art. 12 line (3) that enters into force on 1 .01.2007
a. Commission Directive 2002/31/EC of 22 March 2002 implementing Council Directive 92/75/EEC with regard to energy labeling of household air-conditioners b. European standards EN 255-1, EN 814-1	Government Decision 407/2.04 2003 with regard to energy labeling of household air- conditioners Government Decision 1871/22.12.2005 with regard to the energy efficiency and energy labeling of the household air –conditioners	Official Gazette 267/17.04.2003 Official Gazette 69/25.01.2006	17.04.2004 30 days since the publication
Council Directive 92/42 of 21 May 1992 on efficiency requirements for new hot-water boilers fired with liquid or gaseous fuels SR EN 297; 303-2;303-3;625;676;677	Government Decision 270/2002 on efficiency requirements for new hot-water boilers fired with liquid or gaseous fuels	Official Gazette 238/09.04.2002	12 months since the publication date

4.2 Policy – adoption of other related EU directives

The actual situation of the EU directives on ecological labeling

Directive	Harmonized document (No. and title of Government Decision)	Date of publication in the Official Gazette	Date of entry into force
Council Directive 86/594/EEC of 1 December 1986 on airborne noise emitted by household appliances	Government Decision no. 482 of 1 April 2004 regarding the establishment of the conditions for the introduction on the market of the household appliances in agreement with the level of noise transmitted through the air amending Government Decision no. 672 of 19 July 2001	Official Gazette 348/21.04.2004	30 days since the publication date
Council Directive 86/594/EEC of 1 December 1986 on airborne noise emitted by household appliances	Government Decision no. 672 of 19 July 2001 (annulled through Decision 482/2004, art 13) regarding the establishment of the conditions for the household appliance introduction on the market in relationship with the noise level transmitted through the air	Official Gazette 445/08.08.2001	6 months since the publication date
Regulation (EC) no 1980/2000 of the European Parliament and of the Council of 17 July 2000 on a revised Community eco-label award scheme	Government Decision no. 189 of 28 February 2002 regarding the establishment of the procedure for ecological label issuing	Official Gazette 166/08.03.2002	6 months since the publication date
a) Decision 2000/40/EC of 16 December 1999 establishing the ecological criteria for the award of the Community eco-label to refrigerators b) Commission Decision 2004/669/EC of 6 April 2004 revised ecological criteria for the award of the Community eco-label to refrigerators	Government Decision no. 827 of 31 July 2002 regarding the establishment of the criteria for the ecological label issuing for the refrigerator product group	Official Gazette 638/29.08.2002	6 months since the publication date
a) Decision 2000/45/EC as regards the validity of the ecological criteria for the award of the Community eco-label to washing machines b) Commission Decision 2003/240/EC of 24 March 2003 amending Decision 2000/45/EC	Government Decision no. 40 of 16 January 2003 regarding the establishment of the criteria for the ecological label issuing for the washing machines of household use	Official Gazette 82/10.02.2003	6 months since the publication date

Directive	Harmonized document (No. and title of Government Decision)	Date of publication in the Official Gazette	Date of entry into force
Commission Decision 2001/689/EC of 28 August 2001 establishing ecological criteria for the award of the Community eco-label to dish washers	Government Decision no. 325 of 20 March 2003 regarding the establishment of the criteria for the ecological label issuing for the dish washers of household use	Official Gazette 223/03.04.2003	6 months since the publication date
a) Decision 1999/568/EC of 27 July 1999 establishing the ecological for the award of the Community eco-label to light bulbs b) Commission Decision 2002/747/EC of 9 September 2002 revised ecological criteria for the award of the Community eco-label to light bulbs	Government Decision no. 542 of 7 April 2004 regarding the establishment of the Criteria for the ecological label issuing for the electric lamps of household use	Official Gazette 338/27.04.2004	3 months since the publication date
Commission Decision 2002/255/EC of 25 March 2002 the ecological criteria for the award of the Community eco-label to televisions	Government Decision no. 815 of 14 July 2005 regarding the establishment of the Criteria for the ecological label issuing for the televisions	Official Gazette 728/11.08.2005	30 days since the publication date

4.3 Policy – Financial instruments

Romania's legislation and the strategies developed by the Romanian government clearly stipulate that energy efficiency represents a priority in our country. Nevertheless, Romania has had to cope with great financial difficulties lately. Inflation and budget deficit reduction has been a target jointly established with the International Monetary Fund. Utilization of financial instruments to support energy efficiency policy has been drastically limited.

Some of the (generous) legislative provisions stipulating allocation of certain amounts for the promotion of energy efficiency solutions have been subsequently annulled. And when such funds were allocated, district heating investments were considered a priority.

This category of financial instruments includes financing of the Romanian Energy Conservation Agency. This Agency is the national body specialized in energy efficiency with a legal status and functional, organizational and financial autonomy, subordinated to the Ministry of Economy and Commerce. Among other prerogatives, ARCE:

- Implements and monitors the national policy in the energy efficiency field and the energy efficiency programmes;
- Participates in the development of the technical norms and regulations aiming at increasing energy efficiency;
- Certifies conformity of the apparatus, equipment and installations by means of tests, carries out the technical evaluation and authorizes energy efficiency investment projects that require financing from the special funds for the energy systems development and from other sources at the Government's disposal;
- Provides free of charge consulting for the development and application of projects for increasing energy efficiency;

- Develops and co-ordinates the personnel training and certification;
- In cooperation with the National Consumer Protection Authority supervises the market for ensuring observance of the energy efficiency regulations.

In 2004, ARCE's income and expenditure budget amounted to about 550,000 euro of which 360,000 euro from the state budget.

ARCE has contributed to certain energy efficiency project financing. In 2004, 54 investment projects were financed from the budget amounting to about 5.6 million euro of which 74 % represented district - heating investments. No investment was made for energy labeling.

In 2004 ARCE inventoried 464 economic agents marketing household appliances in Romania. Periodically, unexpected or scheduled verifications have been carried out with the participation of the National Consumer Protection Authority, too. During these verifications labels that did not correspond to those required by the legal provisions, as well as lack of standard technical information forms have been identified. From the verifications carried out in 2004 a number of 301 economic agents did not observe the legal provisions and 119 warnings and 182 fines totaling about 19,000 Euro were given. The verifications underlined the fact that the legislation in the field is not known.

The increase in the electricity price has represented another financial instrument that has already been presented. Mention should be made that this increase has been registered in the context of the energy market liberalization and privatization of the companies in this field. Great difficulties have been encountered due to the low purchase power of the population. In certain instances, this increase has not been accompanied by suitable informative mass media campaigns or campaigns made by other means for informing the population on the possibilities to increase energy efficiency as a mean to compensate for the price.. The electricity distribution and supply companies themselves, in their turn, did not organize such campaigns. There were no financial incentives to stimulate the acquisition of energy efficient equipment.

Plans for the energy efficient equipment promotion have been and are still developed. It is the financial means that lacks. The means will become available in the course of time, as the actual economic difficulties at the national level will be surpassed.

On the other hand the importance of certain programmes financed by the EU in the field of energy efficiency, in general, and standardization and labeling, in particular, should also be mentioned. These programmes have greatly contributed to Romania's progress in this field.

4.4 Legal – Verification procedures

Currently, the legal instruments for verifying compliance with national appliance energy efficiency regulations are limited to papers verifications and these activities are not probed through testing in a certified laboratory. The government needs to complete a set of procedures to effectively enforce the regulations and needs budgets and assigned mandates for testing and legal enforcement.

Verification of retailers' obligations:

ARCE utilized penalties as a financial instrument in case the legal provisions relating to energy labeling were not observed.

Under the Law 199/200, the non-observance of the energy efficiency technical provisions (including those relating to labeling) represents an infringement of the law and is sanctioned by fines from Euro 60 to Euro 320, as well as by confiscation of the respective goods. The fines go to the state budget.

Verification of suppliers' obligations:**The objectives of the control activity are:**

- to verify the fulfillment of the requirements of Technical regulations on the indication by labelling and standard product information of the energy efficiency of household electric appliances;
- to dispose corrective actions and/or apply sanctions, by case.

The mains aspects monitored during the control actions are:

- the energy consumption and the energy efficiency class of the household electric appliances indicated in the label and the fiche that should be together with the products;
- the energy efficiency class established in conformity with the provisions of the standards concerning the the method of measure of performances of energy consumption;
- the responsibilities of the suppliers of appliances (manufacturer or his authorized representative in Community and in Romania, and after the adhering in Community), or the person who places the product on the market) requested by the legislation in force.

During the control actions were checked the followings:

- existence of label for energy consumption, energy efficiency class, level of noise and other characteristics, if any
- existence of CS or CE marking if are respected the requirements in the conformity with assessment procedures and provisions relating CE marking;
- existence of the fiche with the standard product information written on label;
- results of electricity consumption measurements carried out in according to procedures specified in EN standards
- technical documentation that attest the conformity of appliances with the requirements
- manufacturer conformity declaration
- information content on label and fiche are in Romanian language
- results of the actions control, corrective actions and/or apply sanctions, by case, were committed in the finding report draw out by the ANPC.

Within ARCE, there is a Regulation of Finding, Notifying and Sanctioning the Infringements to the provisions Law 56/2006 which modify and complete Law no. 199/2000 regarding the efficient use of energy, as well as to the technical specifications for labeling household appliances regarding energy efficiency.

The average budget for this activity for year 2005 was 150000 EUR.

5 TEST FACILITIES FOR PERFORMANCE TESTING

5.1 Testing entities and facilities

Test labs have to be certified by RENAR (Romanian Accreditation Association) accordingly with SR EN ISO/ CEI 17025. The Romanian Accreditation Association (RENAR) is a full member of ILAC, and as such, offers accreditation services (accreditation body for testing / analysis / metrological calibration laboratories, inspection and certification bodies) to local testing laboratories in Romania. Accreditation for a testing laboratory is normally based on a set of test standards in specific areas of specialty. Since performance testing of specific appliances will be an entirely new area for Romania, accreditation for any testing laboratory would have to be obtained based on the specific CENELEC or EN standards requirements. RENAR is also the national safety testing authority.

Main accredited testing laboratories with respect to safety testing for electric and electronic products are:

- ICPE – Bucharest (Among other products they test household appliances and other purposes SR EN 60335 – 1, SR EN 60335 - 2, Electric lamps for household use SR EN 60598)
- LABOREX 2000 – Balotesti (Among other products they test household appliances and other purposes SR EN 60335 - 1, Electric lamps for household use SR EN 60598)
- TEHNOTON – Iasi (Among other products they test household appliances and other purposes SR EN 60335 – 1, SR EN 60335 - 2)
- ELBA – Timisoara (Electric lamps for household use SR EN 60598)

There is no accredited testing laboratory for performance testing for household appliances.

In Romania there is an internationally accredited Standardization Body **ASRO - ROMANIAN STANDARDS ASSOCIATION**

There are harmonized safety standards that are accepted (SR EN) and followed for electric lamps for household use, appliances for cooking, tumble dryers for household use, the noise level for electric household appliances.

Harmonized Safety standards accepted and followed

Standard	Title	Directive (Official Document)
SR EN 60335-1:2004	Safety of electric household appliances-general regulation	Low Voltage equipment 73/23/EEC
SR EN 60335-2-11[1995]:2004	Tumble dryers for household use	
SR EN 60335-2-14:2004	Appliances for cooking	
SR EN 60061-1:2002 SR EN 60432 SR EN 60598 SR EN 61347	Electric lamps for household use	
SR EN 60704-1:2002 SR EN 60704-1:2000	Measuring methods and verification the noise level for household appliances Test code for determination of airborne acoustical noise	Ministry of Economy and Commerce Order 383/22.06.2004 Official Gazette

National Baseline Report - Romania

SR EN 60704-2-1:2002		639/15.07.2004
SR EN 60704-2-1:2001		Official Journal EU C-74/23.03.2002
SR EN 60704-2-2:1996		
SR EN 60704-2-3:1996		
SR EN 60704-2-4:1996		
SR EN 60704-2-4:2003		
SR EN 60704-2-5:1996		
SR EN 60704-2-6:2000		
SR EN 60704-2-7:2000		
SR EN 60704-2-8:2000		
SR EN 60704-2-11:2000		
SR EN 60704-2-13:2001		
SR EN 60704-3:1997		

Main Government activities regarding test appliances' Laboratory :

Currently the government develops some activities and support for set up testing labs through research programmes as follows:

- Ministry for Economy and Commerce "Programme for increasing the products' competitiveness" - GD 1247/2005 (budget financing to fit out and/or arrangement testing labs, products' compliance and/or receiving Eco-label)
- - Ministry for Education and Research – Excellency research – Programme 4

5.1.1 Verification capacity

There is a compliance-checking program for EE products. ELECTRICA (Electricity Authority), ANRGN (National Regulatory Authority in Natural Gas Sector), ANRE (National Energy Regulatory Authority) checks for compliance or deals with fatalities due to electrical or fuel-fired equipment.

There is a safety testing authority RENAR which is the unique accreditation body for testing / analysis / metrological calibration laboratories, inspection and certification bodies (quality / environment management systems, products/services, and personnel)

RENAR represents Romania in similar international forum and signs bilateral and multilateral recognition protocols for accreditations and certifications performed in Romania and for certificates issued by the Romanian accredited bodies aiming to achieve the free circulation of products and services on the internal and international market

Note :

In North America and in the EC manufacturers and importers/distributors contract with accredited testing agencies such as UL, CSA, Inchcape, etc. to have their products tested or verified and certified. The certification agency applies its registered mark on every certified product. Normally,

these testing and certification agencies protect the use of their mark to prevent abuse or misrepresentation, and so they have their own internal process for verification for compliance and for tracking the models and firms that did receive the test results. Some of these agencies maintain lists of approved products as well.

Governments that wish to verify performance normally purchase the products and pay for testing. This is not done very often, only where controversy is encountered. There is also a Challenge Procedure established in several countries, where any party can bring about an action to have a product in question tested. If the test result proves that the product performance does not comply with the declaration, the manufacturer of the original equipment must pay for all testing costs and also is notified to fix the problem with the product or lose certification. If the product passes, then the original party is charged with all the costs of testing.

5.1.2 Test facilities for performance testing

Manufacturers of appliances often invest in their own (limited) testing facilities that may be used for quality control and product development research. With some modifications and upgrading of these facilities, the performance of these laboratory facilities may be brought up to the level where the test results would be consistent with or comparable to test results from accredited test laboratories. In these cases, manufacturers may be able to declare the performance of their products reliably.

There is a procedure regarding manufacturers' self-declaration (**SR EN 45014/2000 General criteria for suppliers' declaration of conformity**)

Only the Arctic producer has the possibility to undertake consistent testing activities for refrigerators and freezers.

NGOs, private and non-profit service organizations and educational facilities have no test facilities that can be used for appliance performance testing, or to be transformed or adapted for testing for performance of appliances.

5.2 Participation in international standards organizations

Romania's Standardization Association **ASOCIAȚIA DE STANDARDIZARE DIN ROMÂNIA** - (ASRO) is a National Member of ISO/IEC, as well as of CEN/CENELEC and as such, has full access to ISO and IEC Standards, and CEN and CENELEC Norms, as well as the right to participate in the formulation and modifications of ISO/IEC and of CEN and CENELEC Norms that cover most areas of commerce and trade (including electrical- and fuel-fired equipment, fire and safety requirements as well as testing building materials such as strength of concrete, etc). Many of the ISO/IEC standards are adopted as CEN/CENELEC Norms (entirely or with modifications by the EC as European Norms) but there is not always a one-to-one correspondence between ISO/IEC and EN standards.

Through participation in ISO/IEC, ASRO has the capability, knowledge and experience to adopt or modify and translate and review translations with local stakeholders and to publish National Standards based on international standards for use in Romania.

The main goal of the Association is to develop national standardization and to participate to the European, Regional and International standardization process.

ASRO's certification are:

- Quality Management Systems Certification Body (ASRO OC-SMC)
- Environmental Management System Certification Body (ASRO EMS-CB)
- Conformity Marks Office (ASRO-CMO)
- Full membership of ISO/IEC/CEN/CENELEC

In conclusion, ASRO is on track to becoming fully proficient in the process of adopting EN standards, translating, checking with local stakeholders and publishing standards.

5.3 Translation, adoption and interpretation of performance test procedures

The Romanian responsible body for the transposition of international testing procedures of equipment is ASRO - ROMANIAN STANDARDS ASSOCIATION

Some of the ISO or EN test standards for appliances' performances have already been adopted and translated into national standards as follows:

Standard		Title	Directive	Obs.
SR EN 153:2004	EN 153:2004	Energy efficiency and labeling . Household electric refrigerating appliances	2003/66/EC of 3 July amending Directive 94/2/EC of 21 January 1994 implementing Council Directive 92/75/EC with regard to energy labeling of household electric refrigerators, freezers and their combinations	
SR EN 50242:2002 +A1:2003 +A2:2003 +A3:2004	EN 50242:1998 +A1:1999 +A2:2001 +A3:2003	Electric dishwashers for household use-test methods for measuring the performance	Directive 97/17/EC of 16 April 1997 implementing Council Directive 92/75/EEC with regard to energy labeling of household dishwashers	Adopted but needs translation
SR EN 814-1:2003 SR EN 255-1:2003 SR EN 14511-1:2004	EN 814-1:1997 EN 255-1:1997 EN 14511-1:2004	Air conditioners, for space heating and cooling. Part 1: Terms and definition	Commission Directive 2002/31/EC of 22 March 2002 implementing Council Directive 92/75/EEC with regard to energy labeling of household air-conditioners	Adopted but needs translation

National Baseline Report - Romania

Standard		Title	Directive	Obs.
SR EN 50285:2001	EN 50285:1999	Energy efficiency of electric lamps for household use - Measurement methods	Commission Directive 98/11/EC of 27 January 1998 implementing Council Directive 92/75/EEC with regard to energy labelling of household lamps	
SR EN 50294:2001/A1:2003 SR EN 50294:2001/A2:2004	EN 50294:1998/A1:2001 EN 50294:1998/A2:2003	Measurement method of total input power of ballast-lamps circuits	Directive 2000/55/EC of the European Parliament and of the Council of 18 September 2000 on energy efficiency requirements for ballast for fluorescencr lighting	Adopted but needs translation
SR EN 60081:2003 SR EN 60081:2003/A1:2003 SR EN 60081:2003/A2:2004	EN 60081:1998 EN 60081:1998/A1:2002 EN 60081:1998/A2:2003	Double-capped fluorescent lamps- Performance specifications		Adopted but needs translation
SR EN 50304:2001	EN 50304:2001	Electric ovens for household use - Methods for measuring the energy consumption	Commission Directive 2002/40/EC of 8 May 2002 implementing Council Directive 92/75/EEC with regard to energy labelling of household ovens	

Standard		Title	Directive	Obs.
SR EN 50229:2001 SR EN 50229:2003	EN 50229:1997 EN 50229:2001	Electric clothes washer-dryers for household use – Methods of measuring the performance	Commission Directive 96/60/EC of 19 September 1996 implementing Council Directive 92/75/EEC with regard to energy labelling of household combined washer-driers	
SR EN 60311:2002 +A1:2002 +A2:2002 SR EN60311:2004	EN 60311:1997 +A1:1997 +A2:2000 EN60311:2003	Electric irons for household or similar use - Methods for measuring performance		SR EN60311:2004 has been adopted but needs translation
SR EN 60312:2000 +A1:2002 +A2:2005	SR EN 60312:1998 +A1:2000 +A2:2004	Vacuum cleaners for household use - Methods of measuring the performance		SR EN60312:A1:2002 and A2:2005 have been adopted but needs translation
SR EN 60456:2001 +A11:2001 +A12:2004 +A13:2004 SR EN 60456:2005	EN 60456:1999 +A11:2001 +A12:2001 +A13:2003 EN 60456:2005	Clothes washing machines for household use - Methods for measuring the performance	Commission Directive 95/12/EC of 23 May 1995 implementing Council Directive 92/75/EEC with regard to energy labelling of household washing machines	
SR EN 60350:2003	EN 60350:1999	Electric cooking ranges, hobs, ovens and grills for household use - Methods for measuring performance		

National Baseline Report - Romania

Standard		Title	Directive	Obs.
SR EN 60661:2003 +A1:2004	EN 60661:2001 +A1:2003	Methods for measuring performance of electric household coffee makers		
SR EN 60705:2002 SR EN 60705:2002/A1:2005	EN 60705:1999 EN 60705:1999/A1:2004	Household microwave ovens - Methods for measuring performance		
SR EN 61121:2002 SR EN 61121:2002/A11:2003 SR EN 61121:2005	EN 61121:1999 SR EN 61121:1999/A11:2000 EN 61121:2005	Tumble dryers for household use - Methods for measuring the performance	Commission Directive 95/13/EC 23 May 1995 implementing CD92/75/EEC with regard to energy labelling of household electric tumble driers	
SR EN 61254:2003	EN 61254:1994	Electric shavers for household use-Methods for measuring the performance		
SR EN 61591:2000	EN 61591:1997	Household range hoods - Methods for measuring performance		
SR EN 61817:2003 +A1:2005	EN 61817:2001 +A1:2004	Household portable appliances for cooking, grilling and similar use Methods for measuring performance		
SR EN ISO 23953-1:2006 SR EN ISO 23953-2:2006	EN ISO 23953-1:2005 EN ISO 23953-2:2005	Refrigerated display cabinets.Part 1 Vocabulary Part2 Classification requirements and test conditions		Adopted but needs translation

National Baseline Report - Romania

Standard	Title
SR EN 50285:2001	Energy efficiency of electric lamps for household use - Measurement methods
SR EN 50304:2001	Electric ovens for household use - Methods for measuring the energy consumption
SR EN 50229:2001 SR EN 50229:2003	Electric clothes washer-dryers for household use – Methods of measuring the performance
SR EN 60311:2002	Electric irons for household or similar use - Methods for measuring performance
SR EN 60312:2000	Vacuum cleaners for household use - Methods of measuring the performance
SR EN 60350:2003	Electric cooking ranges, hobs, ovens and grills for household use - Methods for measuring performance
SR EN 60456:2005	Clothes washing machines for household use - Methods for measuring the performance
SR EN 60661:2003	Methods for measuring the performance of electric household coffee makers
SR EN 60705:2002 SR EN 60705:2002/A1:2005	Household microwave ovens - Methods for measuring performance
SR EN 61121:2002 SR EN 61121:2002/A11:2003	Tumble dryers for household use - Methods for measuring the performance
SR EN 61254:2003	Electric shavers for household use - Methods for measuring the performance
SR EN 61591:2000	Household range hoods - Methods for measuring performance
SR EN 61817:2003	Household portable appliances for cooking, grilling and similar use - Methods for measuring performance
SR EN 441-9:1999	Refrigerated display cabinets. Part 9:Electrical energy consumption test

6 OTHER PROGRAMS THAT CAN BE RELATED TO S&L ACTIVITIES

The residential sector is the most important sector where we can intervene through energy efficiency measures. The main reason accounting for this choice is the necessity to diminish the price paid by the population for energy, by diminish the energy consumption.

In the residential sector, the main actions to be implemented for improving the economic potential of energy efficiency are:

- Modernization of the interior heating installations;
- Rehabilitation of the heat supply distribution networks (in the building substations and the distribution networks);
- Introduction of energy consumption management measures for final consumers by mounting flow distributors (hot water meters) by staircase, cost distributors by flat and pre-payment meters afterwards;
- Thermal insulation of dwellings.

In the residential sector several investment projects, a campaign for informing and rising the public interest and energy efficiency studies have been developed. The EU PHARE Programme has financially supported most of these actions. Details relating to these actions are further presented.

The investment project entitled “Energy Efficiency in Buildings – Household Survey and Emergency Saving Measures in Collective Dwellings (Targu Mures)”, that was allotted ECU 150 thousand, aimed at analyzing the condition of the dwelling thermal insulation and developing demo projects. The objective of the project was to implement certain urgent measures for energy saving in the collective dwellings in the Targu Mures municipality.

The project “Study – Energy Rehabilitation of a Block of Flats (Bucharest)” was allotted ECU 45 thousand. The objective of the study was to take certain steps for reducing energy consumption in apartments.

The project entitled “Campaign for increasing awareness relating to energy efficiency in Romania”, amounting to ECU 220 thousand aimed at initiating and carrying out a campaign for informing and increasing public awareness by organizing events and activities focusing on energy efficiency at the institutional and decision-making levels in the industrial sector.

The study entitled “Save II Programme SACHA – State of the art of cooling household and other major appliances standards, market and technology in Central and Eastern European countries for energy efficiency improvement in ECE member states”, aimed at evaluating the level of population endowment with refrigerators and coolers, as well as with other standard household appliances in the residential sector. It has also assessed the market and technological level in Central and Eastern European countries (ECE) for improving energy efficiency in the ECE member states.

The project entitled “Energy efficiency improvement in the field of urban heating” amounting to Euro 5 million was financed through the EU PHARE programme. The project aimed at introducing heat regulating equipment and flow meters in the blocks of flats connected to the district heating systems.

Another project was developed for the thermal rehabilitation of two pilot blocks of flats situated in Piatra-Neamt municipality. The main objective of the project was to increase the owners’ awareness relating to the financial advantages of thermal rehabilitation. The costs of the two buildings thermal rehabilitation approximately amount to Euro 340 thousand and will be covered by amounts from the state budget, local budgets and other sources legally established.

The Ministry of Transport, Construction and Tourism has initiated a project for the thermal rehabilitation of 12 blocks of flats in 12 counties from 4 climate zones in Romania. 25% of the design and execution costs evaluated at about Euro 2.2 million will be provided by the Ministry of

Transports, Constructions and Tourism, following that the rest be covered by the Counter-trade Romanian-Swiss Fund.

The thermal rehabilitation and modernization of buildings aims at improving the performances of the construction elements for thermal insulation confining the interior heated space from the exterior, as well as at increasing energy efficiency of the interior installations that supply heat and hot water for domestic use. This aims at correcting the deficiencies that the 2 interested factors, namely the population, owning most of the dwellings, and the state, both as an owner and institution, have to face by:

- Saving energy at the level of the entire building, thus reducing energy consumption for heating and for the preparation of hot water for domestic use;
- Diminishing the actual costs of heat paid by the population, thus lowering the energy bill paid by the lodgers;
- Observing the comfort parameters required by the technical regulations in force;
- Reducing fuel imports;
- Increasing energy efficiency with positive effects on environmental protection and human health, by reducing pollutant emissions from the generation, conversion, transport and consumption of energy;
- Easing the country budget of a great part of the present expenses.

In the main energy consumer - industrial sectors, investment studies and projects have been developed, their synthetic presentation is made below.

The study entitled "Catalogue – Energy measurement, control, automatic regulation and management equipment (APAVE)", amounting to ECU 30 thousand, was financed by the European Union through the PHARE programme and aimed at disseminating information on all the available equipment in the field of automatization and control, and energy metering, respectively.

The study entitled "The energy audit in the AMBRO Suceava paper mill", amounting to ECU 50 thousand, was financed by the European Union through the PHARE programme and aimed at transferring the know-how for the development of the energy audits and recommendations on the energy efficient utilization and increase in energy efficiency in the pulp and paper sector.

"Energy conservation and fuel replacement in the cement industry – MOLDOCIM", amounting to ECU 150 thousand, was financed by the EU through the PHARE programme and was designed for the implementation of some measures for diminishing energy consumption in the cement industry and replacing the liquid and gaseous fuel with coal.

The study entitled "Training in management techniques for the energy management and energy conservation technologies", amounting to ECU 22 thousand, was financed by the European Union through the PHARE programme and aimed at preparing and carrying out a training course in the field of energy management and energy conservation technologies.

The study entitled "Services integrated into industry", amounting to ECU 600 thousand, was financed by the EU through the PHARE programme and aimed at identifying the average and high cost investments and preparing the documentation necessary for the great investment projects.

The study entitled "Measures for the implementation of the Long Term Agreements in the Romanian industrial sector", amounting to EURO 133 thousand, was financed by the EU through the SAVE II programme. The aim of the study was to develop a framework for the Long Term Agreements (LTA) for diminishing energy consumption in the major energy consumer industrial sectors (chemistry and metallurgy).

The investment project entitled "Monitoring and verification of energy consumption in industry", amounting to ECU 300 thousand, was financed through the EU PHARE programme and aimed at developing demo projects on case studies and organizing work seminars for the dissemination of the results. The project aimed at testing the way the scheme implemented in key enterprises in the three industrial sectors for the demo project monitoring and verification operated.

The study entitled "Increase in the energy management capability – financing of energy efficiency projects for the major energy consumers in industry", amounting to ECU 200 thousand, was

financed through the EU PHARE programme. The study aimed at developing a short-term investment plan financed by the companies and with contributions from the Phare programme.

The study "Energy conservation financing scheme", amounting to EURO 330 thousand was financed through the EU PHARE programme. The objective of the study was to assist in the training of the personnel from the economic sectors relating to the diverse energy efficiency project financing schemes.

There is also an international project that has a potential to linking with our full-scale project activities. The name of this project is "*CEECAP - Implementing EU Appliance Policy in Central and Eastern Europe*"

The project is developed with the aim of supporting Central and Eastern European countries in creating suitable conditions for implementing appliance labeling and efficiency policies in accordance with EU Appliance efficiency Acquis and programmes.

Main activities are the identification of the national experts and decision maker leaders, their training, design and preparation of national appliance labeling and efficiency actions, set-up of a national multi-disciplinary committee as a forum for discussion about best practices, cooperation opportunities and knowledge transfer.

The results will be an improved policy infrastructure for appliance labeling and efficiency and the future EU policies; a verification infrastructure for product and retailer compliance; collaborative activities to increase the consumer response to labels; and the establishment of a platform for information exchange and transfer.

The expected outcome of this project is a significant increase in the energy efficiency of the appliances sold and, thus, energy and carbon emissions savings. The electricity savings, although difficult to estimate, may exceed three TWh cumulative due to this project and national implementation activities. *The rationale for this project* is to speed up transformation of EE appliance markets, by means of transfer of knowledge Central to Central and West to Central Europe and sharing experiences, working collaboratively.

CEECAP approach is to build on achievements of previous projects: CEECAP 2002, 2003 and 2004, ELAR project (SAVE II), learning by doing mix of training, exchange of experiences and programme development & implementation, going from country status-quo analysis to (first steps of) programme implementation and developing links with public & private sector stakeholders, working collaboratively.

The main activities are detailed analysis of in-country situation, exchange of experiences & best practices between NMS and with EU-15 partners, development of plans to tackle critical issues, verification&enforcement, market introduction, stakeholder involvement and collaboration with IEA and EⁿR for technical support, high-quality inputs, training, and review of outputs

The project content:

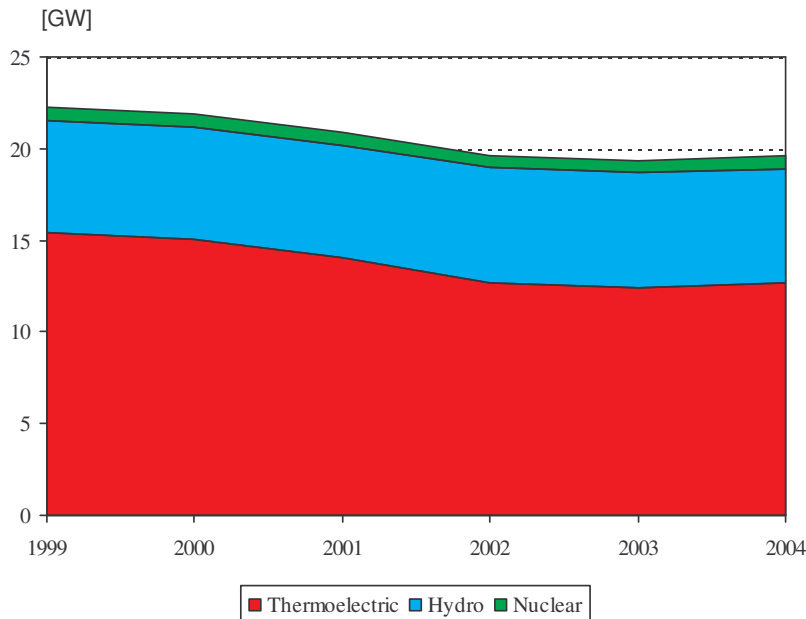
- Verification and enforcement capacity building: training and information exchange activities towards the state officials related also to general aspects of the EU appliance labeling regulations and policies.
- Market capacity building: training and information exchange activities towards manufacturers and retailers related to the market introduction and consumer and retailer education about appliance efficiency, and general aspects of EU regulations.
- Stakeholder collaboration capacity building: evaluation of the current appliance labeling policy implementation and its compliance, best practice information, setting up action-oriented stakeholder consultation platforms, for verification and market introduction actions.
- National verification and enforcement plans and actions: development of national verification and enforcement action plans, by national stakeholder platforms, and the start of the planned actions in the countries.
- Dissemination of CEECAP results: the dissemination will include other information channels, such as the EnR Labeling Working Group and the International Energy Agency's Demand Side Management Programme.

7 THE ELECTRICITY SECTOR AND EMISSION FACTORS

7.1 The electricity sector

Evolution of electricity production and consumption

The evolution of the installed capacity of the electricity generating installations at the national level and its structure are presented in the figure below.



Source: Romania's Energy Balance

Structure of production capacities at the end of the year in Romania

In the analyzed period of time the total installed capacity has diminished. The phenomenon was caused by the taking out of operation of the highly obsolete units at a quicker pace than the putting into operation of the new ones.

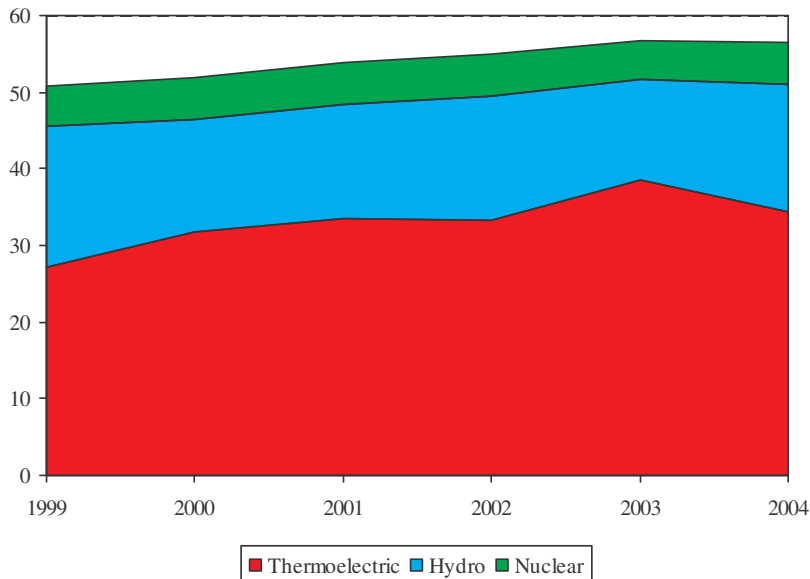
Thus, the following observations should be made:

- The installed capacity of the thermal power plants has witnessed a relatively important decrease (from 15.4 GW in 1999 to 12.6 GW in 2004), but still holds the greatest share in the structure of production capacities;
- In 2004, the units generating carbon – free energy (hydro and nuclear) had a 35.6% share of the total electricity generation capacity. This share has increased lately (30.5% in 1999) and will continue to increase by new hydropower unit and, especially, by new nuclear unit development.

The structure of the electricity generation capacities by fuel types in 2004 was the following:

- Coal : 35.5%;
- Liquid hydrocarbons : 8.0%;
- Gaseous hydrocarbons : 20.5%.

The evolution of electricity production in Romania and its structure are presented in the following figure.



Source: Romania's Energy Balance

Evolution of electricity generation and its structure in Romania

From the very beginning it should be pointed out that:

- Electricity production has reached 56.5 TWh in 2004 (11.4% greater than in 1999);
- The re-launching of demand after 1999 has led to an increase in heat and electricity production in absolute figures and as share;
- Regardless of the variations in total production, the share of thermal power units underlines their great importance in covering consumers' consumption;
- The share of fuels used for electricity generation is the following:
 - coal : 38%;
 - liquid hydrocarbon : 3.9%;
 - gaseous hydrocarbon : 19.1%.
- The share of carbon-free electricity (hydro and nuclear) amounted to 39% in 2004 against 46.3% in 1999 (nevertheless still 39% in 2000).

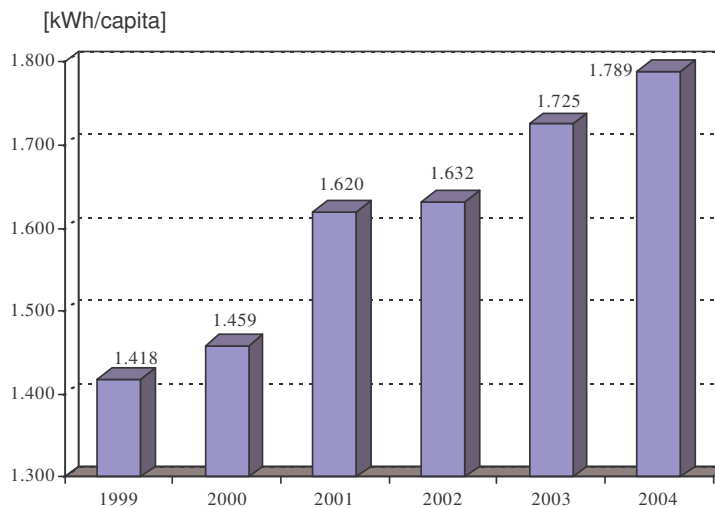
Evolution of final electricity consumption and its structure are presented in the table below. Industry remains by far the main electricity consumer. The second place is occupied by the household sector, although relatively far behind the former. Electricity consumption in the transport and services sectors is relatively low.

Șters: ¶

Final electricity consumption at the national level

Year	Total (TWh)	Of which : (%)				
		Manufacturing	Agriculture	Transport	Services	Household
1999	31.853	56.3	2.5	4.7	4.2	24.7
2000	32.734	55.0	1.9	5.7	8.3	23.4
2001	36.294	52.5	1.3	4.9	15.3	21.3
2002	35.569	58.0	1.2	5.5	7.6	21.8
2003	37.500	54.5	0.9	4.9	12.7	22.0

Evolution of final electricity consumption per capita is presented in the following figure.



Source: Romania's Energy Balance

Evolution of electricity consumption per capita

The following table presents a comparison of electricity consumption per capita at the European level.

Comparisons in electricity consumption per capita (kWh/per capita)

Country /Zone/year	Electricity per capita
Romania ¹⁾ / 2004	1,789
UE 15 ²⁾ / 2003	5,725
NM 10 ²⁾ / 2003	3,246

Source: 1) Romania's Energy Balance 2004, the National Institute of Statistics; 2) EUROSTAT site

In Romania electricity consumption per capita has low values as compared to the EU countries, but an upward trend has been registered.

Electricity sector reform

In 1990, the Romanian electricity sector was reorganized following the French model. Thus, the so-called "autonomous authority" – public institution with a commercial character - was established. In this way, the "Autonomous Electricity Authority " RENEL based on the model of Electricite de France appeared on the market. In the following years, within this reform have been externalized some activities and developed only the main activities.

The national monopoly structure was not endangered. The actual reform of the sector began in 1998 when RENEL was turned into joint stock companies and restructured and privatized afterwards. The legislative and institutional framework, allowing them to function as authentic energy markets, was also created.

- At present, the Ministry of Economy and Commerce (MEC) is the specialized body of the central public administration carrying out the Government's policy in the energy sector.
- The Ministry of Administration and Internal Affairs (MAI) plays an important part, as well. Most of the co-generation plants, as well as all the district heating systems are subordinated to municipalities and, from the technical point of view, are co-coordinated by the Ministry of Administration and Internal Affairs;
- The Romanian Electricity and Heat Regulatory Authority (ANRE) was set up in 1998 and was the first regulatory authority in the energy field in Romania (Government Ordinance 29/1998). It is a public and independent institution of national interest.
- ANRE develops and applies the compulsory regulatory system at the national level, necessary for the efficient, competitive functioning of the electricity market in transparent and consumption protection conditions.
- The National Regulatory Authority of the Public Services and Communal Development (ANRSC) was established in 2002. The authority issues regulations for the heat generation and distribution and district heating systems.
- At present, there are certain opinions in Romania supporting the idea of merging these regulatory authorities into a powerful and truly independent one.
- The Romanian Agency for Energy Conservation (ARCE) is the national institution specialized in energy efficiency, enjoying functional, organizational and financial autonomy, subordinated to the Ministry of Economy and Commerce.

Between 2000 and 2004 the legislative framework for the energy sector was developed in agreement with the sector evolution towards the market economy and the necessity to align it to the EU acquis. The main objectives were: de-monopolization, unbundling and creation of an actual competition – based environment, stimulation of private investments, attracting foreign capital, efficiency increase, promotion of modern management, ensuring the conditions Romania has to meet for integrating into the EU.

The primary legislation that was adopted (Electric Energy Law, Mine Law, Oil Law, Natural Gas Law, Law relating to nuclear activity carrying out under safe conditions, Energy Efficiency Law) creates the framework for the development of the specific activities in different branches of the sector. At the same time the strategies relating to energy efficient utilization and promotion of renewable energy sources have been developed and approved.

The general opinion is that there is certain instability of the legislative framework in force, as well as a limited capacity of the administration to enforce it.

Thus, the Energy Efficiency Law (no.199/2000) was modified by Government Ordinance no.78/2001, Law no.120/2002, Emergency Government Ordinance no.64/2003, and Government Ordinance no.60/2001. Its norms have undergone frequent modifications approved by Government decisions, as well.

De-monopolization and promotion of competition

The first attempt at de-monopolizing the electricity sector in Romania was made in 1998 when the National Electricity Authority (RENEL) was re-organized. Three bodies were established instead:

- The National Electricity Company (CONEL);
- The National Company "Nuclearelectrica";
- The National Authority for Nuclear Activities.

Efforts continued to be made in this direction in the following years. The adoption of the Community acquis played a decisive role in the actions that were carried out.

The current structure of the energy sector in Romania is the following:

- a) In the field of electricity production at the national level at the end of 2004 there were 47 companies licensed by ANRE. In the field of electricity generation in thermal power plants, the most important ones are the following:
- Rovinari Energy Complex;

- Turceni Energy Complex;
- Craiova Energy Complex;
- S.C. Termoelectrica S.A. Company, Bucuresti
- S.C. Filiala Electrocentrale Bucuresti S.A. Subsidiary;
- Deva Subsidiary Company
- 16 companies generating electricity and heat by cogeneration that are managed by municipalities.

The three energy complexes mentioned above have power plants running on coal and mines (mining exploitations). At present they are entirely state-owned companies to be privatized as it has been publicly announced.

S.C. Termoelectrica S.A. Company owns several combined heat and power plants all over the country and also the above mentioned subsidiaries (Bucuresti and Deva).

The company in the field of nuclear energy is the National Company Nuclearelectrica S.A. that is also an entirely state-owned company that presently cannot be privatized. It is responsible for the operation of Cernavoda NPP Unit 1, Unit 2 completion (scheduled to start operating in 2006), as well as the development of the following units.

Operation of the hydroelectric power stations is done by the Hidroelectrica S.A. The company it is also an entirely state-owned company. In 2004, eight small hydropower stations, the development of which started before 1990 but could not be completed due to the lack of funds, were privatized.

b) In the field of electricity transmission the managing company is the National Electricity Transmission Company Transelectrica S.A., an entirely state-owned company.

The Romanian transmission system represents public ownership, and Transelectrica acts only as an operator, as a member of ETSO.

In April, 2004 the Romanian Transmission System was interconnected with the UCTE network.

c) In the field of electricity distribution the company S.C. Electrica S.A. was set up. The company has eight subsidiaries, covering the territory of the entire country.

Among these 4 subsidiaries have been already privatized:

- Banat and Dobrogea with the Italian company ENEL;
- Oltenia with the Czech company CEZ;
- Moldova with the German company E.ON Energie.

At present these companies own (by buying shares and increasing capital) 51 % of the share stock. The other four distribution branches will also be privatized.

d) In the field of electricity supply there are 75 state-owned or private companies that are licensed to supply electricity issued by ANRE.

The restructuring, de-monopolization, and privatization activities have been carried out in parallel with the development of the legislative and institutional framework for competition promotion.

Thus, relating to the electricity market, the basic legislative framework is represented by the Electric Energy Law no.318/2003. At present, it is envisaged that this law will be modified so that to ensure full compatibility with the Directive 2003/54/CE on the common regulations of the internal electricity market.

The National Energy Regulatory Authority (ANRE) was established as well as the Commercial Operator of the Electricity Market (OPCOM) that operates as a subsidiary of CN Transelectrica SA.

The electricity market has begun to open in 2000, and it is now 83.5% open. In agreement with the specific EU directives and Romania's commitments assumed during the negotiations for accession, the electricity market will be entirely open by 01.07.2007.

Romania was in favor of the de-centralized electricity market model utilized in Europe where the producers and the suppliers are free to conclude electricity sales. The relations between the participants in the market are mainly based on contracts that can be bilaterally negotiated or regulated.

Besides contracts, the participants in the wholesale electricity market can also participate in the day-ahead energy market organized a day before the dispatching day. This market is operated by an Energy Exchange. Participation in this market is voluntary and there is no obligation entailed on the participants to make a bid or buy on this market. This is based on simple price-quality bids for each hourly trading interval of the day-ahead market. The participants can also make export and import offers. The transactions on the market are concluded at the closing price of the market.

Since July 2005, OPCOM has begun managing and operating the Day-Ahead Market (PZU). At present, on this market about 7-8 % of the total electricity consumption is traded and it is envisaged to attain about 15% in 2007.

In 2005 the Balancing Market, operated by the Transmission and System Operator (CN Transelectrica SA), began its activity, too. On this market electricity is sold and/or bought for compensating the deviations from the scheduled values of electricity production and consumption. All the producers are requested to trade the remaining available electricity amounts on the balancing market, on the basis of simple price-amount bids.

7.2 Greenhouse gas emissions

Romania ratified the UN Framework Convention on the Climate Changes (UNFCCC) through the Law no. 24/1994 and was the first country from the Annex I of UNFCCC that ratified the Kyoto Protocol through the Law no. 3/2001. Actually Romania's commitments were the following:

- To reduce the greenhouse gas emissions by 8% against the emission level registered in 1989 between 2008 and 2012;
- To develop a national GHG emission assessment system by 2007;
- To develop and implement policies aiming at promoting sustainable development;
- To develop a National GHG Emission Registry before the first period of commitment, meaning 2008,.

At present, the total net GHG emissions are by 45% lower than in 1989.

Total GHG emissions against the reference year (1989=100%) (%)

Total emissions	1992	1994	1996	1998	2000	2001	2002	2003
	66.7	63.9	68.5	54.1	48.1	49.4	51.3	53.9

Source: Eurostat

Even if we consider the scenario of a powerful economic increase and lack of supplementary measures, it is very unlikely that the emissions increase will surpass the target value assumed through the Kyoto Protocol.

The reduction registered in the last decade was mainly due to the industrial production decrease and economic restructuring in the period of transition to the market economy. At the same time, the commissioning of Cernavoda NPP Unit 1 in 1996 ad a significant impact on the GHG emissions.

The evolution of the greenhouse emissions is presented in the below table and the amounts are given in CO₂ equivalent. The same table also presents the CO₂ emissions, the most important greenhouse gas. The emissions from the energy sector are distinctly presented.

Greenhouse gas (GHG) emissions

Year	Total GHG emissions	Of which:		CO ₂ emissions	Of which:	
		Electricity industry			Electricity industry	
M.U.	mil.tonnes	mil.tonnes	%	mil.tonnes	mil.tonnes	%
1992	177.6	69.1	38.9	130.4	67.9	52.1
1994	170.4	66.6	39.1	126.8	65.4	51.6
1996	183.4	70.6	38.5	138.7	69.2	49.9
1998	144.9	53.4	36.9	109.0	52.4	48.1
2000	129.7	47.0	36.2	94.6	46.1	48.8
2001	133.9	50.2	37.5	98.8	49.3	49.9
2002	139.2	50.9	36.6	105.6	50.0	47.3
2003	142.9	51.3	35.9	105.9	50.2	47.4

Source: United Nations Framework Convention on Climate Change; <http://ghg.unfccc.int/>

The average value of the specific GHG emissions (CO₂tonnes/MWh) has been calculated in the following hypotheses:

- The GHG emissions corresponding to the electricity industry that have been considered are the emissions in the table above;
- The net electricity consumption from internal production (excluding the power plant own consumption and the network losses) has been calculated on the basis of the data published by the National Institute of Statistics.

The following results have been obtained:

Year	GHG emissions [mil. CO ₂ equivalent tonnes]	Net electricity consumption [TWh]	Specific emissions [CO ₂ tonnes /MWh]
2000	46.9	38.0	1.23
2001	50.1	40.0	1.25
2002	50.9	39.7	1.28
2003	51.3	41.6	1.23

Therefore, the average value that can be considered is 1.25 CO₂ tonnes/MWh. In case only the electricity production of the thermal power plants is considered (the net consumption corresponding to this production, respectively); the average value is of 1.65 CO₂ tonnes /MWh.

The analyses carried out by types of thermal power plants have led to the conclusion that marginal emissions can be estimated to 2.0 CO₂ tonnes /MWh.

8 PRIORITY FOR THE REGIONAL SUPPORT PROGRAM

The grid of project component and the priorities for Romania are those which were presented previously:

- Test laboratory identified and established for refrigerators, freezers and washing machines;
- Analyzing the EU practice and adopting a procedure for allowing incentives for the buyers of the appliances subject to energy labeling, for purchasing some highly energy effective products, which require appropriate regulations and possible ARCE reorganization to make the procedure operable in time;
- Capacity building of ARCE branches to operate as consultancy centers for energy labeling of appliances with the possibility of making practical demonstrations;
- Creating an electronic web-site for information, increasing the awareness and consultancy for appliance acquisition. Adopting the practice in the developed countries in terms of developing children-dedicated structures;
- Evolving promotion materials showing the benefits of purchasing energy effective appliances addressed to potential customers;
- Their implementation in the educational schedule secondary and high schools and at the university level where energy auditor training course are organized lessons to promote energy efficiency labeling;
- Development and strengthening the monitoring structures within ARCE as well as adopting some efficient motivate methods for the individuals to observe the regulations on energy labeling and mainly for displaying some compliant efficiencies;
- Assistance for implementing EU Directive concerning Eco-Design Label for the part focused on energy efficiency and labeling.
- Extension of official data gathering with information about all appliances subject to energy labeling (present there are data only for refrigerators and washing machines).

This grid of project component was analyzed by weighting the criteria recommended in the Draft regional report template.