



**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**

**NATIONAL REPORT**

**Bulgaria**

**SOFIA, June 2006**



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## 1. COUNTRY CONTEXT

Table 1: General indicators for Bulgaria

Population	7 904 094 (2001 census)
Expected population in 2020* year	7 000 000.
Number of households	2 922 715 (2001 census)
Number of households in 2020*	2 830 000
Area	110 910 km <sup>2</sup>
GDP	38 008 million BGN (2004) 19 441 million Euro
GDP trend*	5 % increase each year till 2015
Share of residential in the total electricity usage in the country	33 %
Inflation	4 %
Currency	Bulgarian lev (BGN) fixed exchange rate to EURO 1 EUR is equal to 1,955 BGN

\* *Economic development forecast of Republic of Bulgaria, Agency for economic analysis and forecasts*

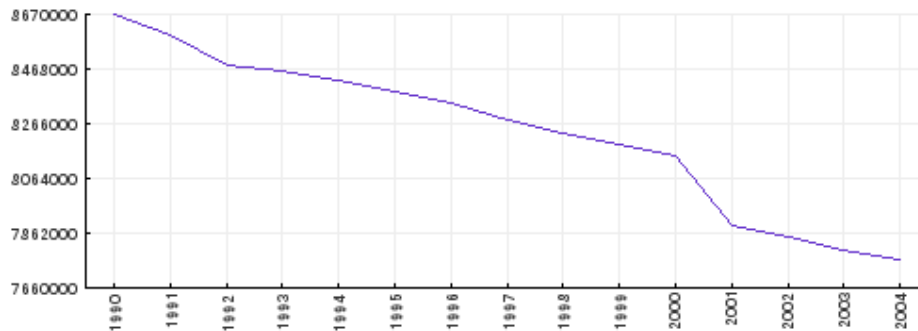
### Short country overview and economic situation

Bulgaria is a middle-size country in South-east Europe with a population of 7.7 million and a surface of about 110 910 km<sup>2</sup>. Bulgaria is situated on the Balkan Peninsula and comprises both mountain areas (the Balkan and Rodepe mountain) and lowlands (the Danube plain to the North and the plains between the mentioned mountains). The Danube River forms to a large extent the northern frontier with Romania; other neighboring countries are Yugoslavia, the Former Yugoslav Republic of Macedonia, Greece and Turkey. In the East, Bulgaria borders the Black Sea, where the important seaport of Varna is located. The capital of Bulgaria is Sofia, with a population of more than 1 million inhabitants.

### *Population*

The population of Bulgaria according the last census held in 2001 is 7 904 094 and the last data from the National statistical institute shows that it is constantly decreasing in the last four years. The 2004 data shows that the number if inhabitants has fallen down to 7 761 049. The number of households according the 2001 census is 2 922 715 of which 1 995 259 are living in cities and 927 456 in rural areas. The average number of household members is 2.7.

*Figure 1: Trend in the population in Bulgaria*



Source: National statistical institute, [www.stat.bg](http://www.stat.bg)

### *Currency*

In the mid 90's, Bulgaria endured an acute crisis. In 1997, the IMF currency board system was introduced which succeeded in stabilizing the economy, overcoming the inflation. The Bulgarian lev (BGN) is bound up to the EURO at a fixed exchange rate of 1 EUR equal to 1,955 BGN.

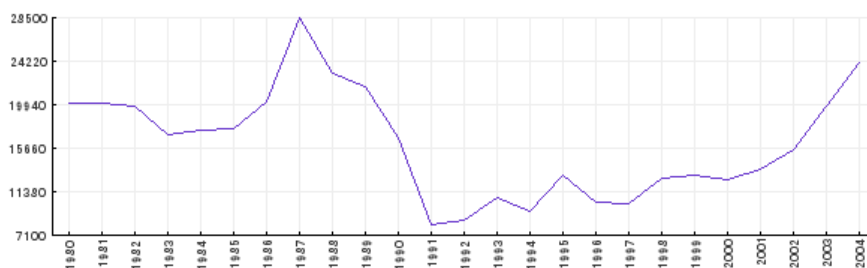
### *Economic growth, GDP, inflation rate*

Bulgaria's economy continues to expand dynamically prior to the country accession to the EU, which is expected to take place in 2007. In the last few years the economic growth of the country is over 4 % annually, in 2004 the economic growth rate in real terms is 5,7 %.

The inflation rate for the last few years (compared to 1995) has been relatively stable - between 3.2 in 2000 to 4.2 in 2004 and 2005.

In 2004 the GDP was 38 008 million BGN or 19 441 million EUR, which is 5,6 % growth compared to 2003. In 2004 the GDP per capita was 4885 BGN or 2499 EUR compared to 2 258 EUR for 2003.

Figure 2: Trend in GDP growth



Source: National statistical institute, [www.stat.bg](http://www.stat.bg)

## General energy and energy efficiency policy

A legislative reform took place in the energy sector in the period 2002-2004. The relevant legislative and sub-legislative basis was established, aligned with the European directives that clearly defined the functions of the State energy institutions towards stimulation of energy efficiency. Two separate laws were adopted - The Energy Law and the Energy Efficiency Law.

### *The Energy Law*

The new Energy law adopted by the 39<sup>th</sup> National Assembly on 26<sup>th</sup> of November 2003 is a basic legislative act for Bulgaria. The law is based on the Energy strategy of 2002 and lays the foundations for the introduction of a regulatory regime for the electricity, natural gas and heat domestic markets, which are in line with the EU Directives regarding the electricity and natural gas markets.

### *Energy efficiency law*

The Energy efficiency law adopted by the 39<sup>th</sup> National Assembly on 19<sup>th</sup> of February 2004 and promulgated in the State Gazette on 5<sup>th</sup> of March 2004 is a new law regulating the public relations regarding the implementation of the state energy efficiency policy. The Energy efficiency law sets out the objectives and the state support to the energy efficiency improvement as a national priority.

### *Electricity pricing reform*

An electricity price reform was realized as part of a large-scale and accelerated restructuring of the sector in line with the Energy Strategy.

## Energy sector

The Bulgarian energy sector is characterized by comparatively high share of solid fuels (41 %) in the structure of energy production. The share of nuclear installed capacity is 23%, of oil - 23% and that of natural gas - 13%. The overall energy dependence of the country on imported fuels – nuclear, oil and coal is relatively high.

The primary and the final energy intensity in Bulgaria are significantly higher than the average EU one. The calculated primary energy intensity (PEI) and final energy intensity

(FEI) for 2004 are 0.34 kgoe /€2000ppp and 0.16 kgoe /€2000ppp. In spite of these high values, PEI and FEI in the last years tend to decrease, which means that the GDP grows in conditions of energy consumption decline. This comes mostly as a result of the increase of the energy and fuel prices.

The main sectors, which have influence on the setting up of the final energy consumption in Bulgaria, are as follows:

- Industry, which accounts for about 38.4% of the final energy consumption. The specific energy consumption per production unit is 15-30% higher than that in the EU countries;
- The residential sector accounts for about 24.7% of the final energy consumption. The increase in the specific energy consumption is 3.14% per year. The electricity consumption in the residential sector is 34.7-38.1%;
- Transport accounts for about 25% of the final energy consumption. There is a steady trend of increase of the automobile fleet, which consumes about 63% of the liquid fuels and shows an increase by 1% per year. The energy intensity is 30–40% higher than that in the EU countries;
- The services sector, which covers all types of activities related to provision of services for the population (education, health care, tourism, administrative services, trade, communications, defense, police forces, utilities, etc), accounts for about 8% of the total final energy consumption in the country.

### **Electricity production and consumption**

The total electricity generated in 2004 is 41 515 million KWh, 51 % was produced by the TPP and 41% by the nuclear power plant.

The industry is the main consumer of electricity with growing trend in the years 2000-2004, which is an indicator for accelerating economic growth in the country. The share of industry consumption varies between 51% in 2000 and 58% in 2004 (prognosis for 2005 is 58%).

The next important electricity consumer is the household sector with share in the total consumption of 39% in 2000 and 33% in 2004 (prognosis for 2005 is 33%).

## **2. INSTITUTIONS AND STAKEHOLDERS**

### **2.1. INSTITUTIONAL STAKEHOLDERS**

The institutional stakeholders are divided in three main groups:

- Ministries and government agencies responsible for the development and implementation of the energy efficiency policy in the country – Ministry of economy and energy, Ministry of environment and waters, Energy Efficiency Agency.
- Government institutions responsible for the verification and control of the implementation of the existing legislation in the area of energy efficiency – Commission for Consumer Protection, State agency for metrology and technical

supervision, Bulgarian accreditation service - Executive Agency at the Ministry of Economy and Energy and Bulgarian standardization institute.

- Civil sector including different consumer protection NGOs and industrial associations who can participate in the future project activities.

Table 2: Institutional stakeholders

Organization name	Representative (name)	Contacts detail	Position in the market or within government	Attitude towards S&L programs	Options to respond to S&L programs
<b>Project management</b>					
Center for Energy Efficiency EnEffect	Zdravko Genchev Project director	+359 2 963 17 14 zgenchev@mail.orbitel.bg			
	Bilyana Chobanova Project Manager	+359 2 963 17 14 bpetkova@eneffect.bg			
GEF Focal Point	Yordan Dardov, Deputy minister of environment and water	+359 2 940 62 57 kabinet502@moew.government.bg			
<b>Government ministries / departments</b>					
Energy Efficiency Agency at the Ministry of Economy and Energy	Yordan Yordanov	+359 2 981 58 02 yordanov@seea.government.bg	Responsible for coordination and implementation energy efficiency policy	Supportive	Same as MEE Will be project implementing agency and will assign a project director
	Stoyan Todorov	+359 2 981 58 02 stodorov@seea.government.bg			
	Snejana Todorova	+359 2 915 40 13 stodorova@ seea.government.bg			

Ministry of Environment and Water	Daniela Stoicheva	+359 2 940 62 22, 981 13 85 dstoytcheva@moew.government.bg	Climate change policy department, UNFCCC focal point	Cooperative	No specific activities planned Participation in project SC
	Kremena Gocheva	+359 2 940 61 80 k.gocheva@moew.government.bg			
Ministry of Finance	Rumen Porojanov	+359 298 59 25 30 r.porodzanov@minfin.bg		Cooperative	Participation in project SC
Ministry of Economy and Energy	Kostadinka Todorova	+359 2 92 63 255 todorova@doe.bg	Responsible for development of overall energy and energy efficiency policy	Supportive	<p>Participation in project steering committee</p> <p>Experts from MEE will be trained in all the major aspects related to development, application and monitoring of the policy of energy efficiency of household appliances and evaluation of its impact</p> <p>Expert will participate in monitoring and analysis of the Project results</p> <p>MEE will check and control the implementation of the V&amp;E plans implemented by Commission for consumer protection</p> <p>MEE will take active part in consumer information campaign also providing co-financing for some activities</p> <p>MEE will develop jointly with project PMU the financial incentive scheme</p>
	Anna Kamburova	+359 2 926 31 35 a.kamburova@mee.government.bg			
	Grisha Zahariev	+359 2 926 32 13 g.zahariev@mee.government.bg			
	Boncho Bonchev	+359 2 940 72 34 b.bonchev@mee.government.bg			

<b>Government agencies / institutions</b>					
Commission for Consumer Protection at the Ministry of Economy and Energy	Emiliya Elchinova	+359 2 988 58 81 gl.direkcia@ktzp.bg	Control institution for energy efficiency labeling regulation implementation	Cooperative	Main officials from the Commission will be trained as trainers and will conduct regular trainings to inspectors compliance checking of shops and of appliance energy efficiency declarations;  Will be responsible for annual development, implementation and reporting of Verification and enforcement plan for retailers and Verification and enforcement plan for products
Bulgarian Standardization Institute	Valentina Docheva	+359 2 817 45 85 Valentina.Docheva@bds-bg.org	Development of standards	Cooperative	
	Stoyka Nacheva	+359 2 817 45 85 stoika.nacheva@bds-bg.org			
State Agency for Metrology and Technical Surveillance	Svetlozar Tolev	+359 2 980 92 96 mktinspdiv@sasm.orbitel.bg	Market control	Cooperative	Will provide expert support for the implementation of Verification plan for products
National Statistical Institute	Diana Yancheva	+ 359 2 985 77 01 dyancheva@nsi.bg	Collection of statistical information	Supportive	May be involved in the process of tracking project activities impact by performing annual market and consumer survey
Bulgarian Accreditation Service Executive Agency at the MEE	Olga Pencheva	+359 2 873 5306 o.pencheva@nab-bas.bg	Test laboratories accreditation	Indifferent	n.a.

<b>Trade unions, industry associations, Chambers of Commerce</b>					
Bulgarian Industrial Association	Dimitar Brankov	+359 2 980 03 03 brankov@bia-bg.com	Good contacts with manufacturers, possible source of information	Cooperative	Will present information about project activities, energy efficiency appliance benefits to their members  Possible involvement in the implementation of the Products verification plan by checking for possible noncompliance with respect to the declared energy class
Bulgarian Chamber of Commerce and Industry	Petar Terziyski	+359 2 980 4038 petar_terziyski@yahoo.com	Possible source of information about the market	Cooperative	
<b>Civil sector, consumer &amp; environmental NGOs, other</b>					
National Chamber of Electrical Engineering in Bulgaria	Rumen Atanasov	+359 2 963 3532 bcee@bcee-bg.org	Represents local manufacturers of electrical equipment, very good reputation within both government and market stakeholders	Supportive	Possible involvement in the implementation of the Products verification plan by checking ъха саехшоцц for possible noncompliance with respect to the declared energy class
Association for Customers Protection "Potrebitel BG"	Danail Danev	+359 2 981 08 25 d.danev@potrebitel.bg	Consumer association	Advocate	Provide targeted information to consumers on appliance energy efficiency via their web site and by organising targeted events
Federation of Consumers in Bulgaria	Petar Karlev	+359 2 980 4038 fcb@mobikom.com	Consumer association	Cooperative	n.a.
Bulgarian National	Bogomil Nikolov	+359 2 989 01 06	Consumer	Advocate	Provide targeted information to

Consumer Association		nap@bnap.org	association		consumers on appliance ee via their web site, during regular meetings with consumers, media, etc.
Association of the Dealers of Electrical Household Appliances and Audio-Visual Equipment (ATEA)	Stiliyan Stanev	+359 2 982 37 47 atea@ask.bg	Almost all big importers and dealers of appliances are its members	Cooperative	n.a.
<b>Testing Laboratories</b>					
Elprom-ILEP Ltd. Testing Laboratory for Electro-technical Products	Nikolay Popov	+359 2 868 32 95 npopov@abv.bg	Testing of appliances	Supportive	May provide expert support in the implementation of products verification plan
IEP Laboratory	Nina Tencheva	+359 898 520 744 lep_laboratory@mail.bg	Testing of appliances	Supportive	May provide expert support in the implementation of products verification plan

## 2.2. INSTITUTIONAL STAKEHOLDERS ANALYSIS

### GOVERNMENT INSTITUTIONS – MINISTRIES, AGENCIES

#### Ministry of Economy and Energy

**The Ministry of Economy and Energy (MEE)** was incorporated by decision of the Bulgarian Parliament in August 2005 through a merger of the Ministries of Economy and Ministry of Energy and Energy Resources. The Ministry of Economy and Energy is working on the development of the economic and energy policy of the Bulgarian state. The common trends in this policy are increasing the competitiveness of the national economy and the various institutions, encouraging investments, innovations, entrepreneurship, exports, modernization of the industrial base, stimulating measures for energy efficiency improvements in industry and expansion of renewable energy resources use. It also takes part in the implementation of the integration policy and efficient foreign economic cooperation. The organizational structure of the ministry includes specialized and general departments and an inspectorate department, which support the Minister of Economy and Energy in performing his duties, provide technical assistance to his activity and administrative servicing to legal persons and citizens.

In the ministry two departments are closely related to development and implementation of standards and labeling policy and programs in the country. **The Energy Efficiency and Protection of the Environment Department** has been assigned the responsibility to develop and implement the policy for promotion of energy efficiency and the use of RES, as well as the monitoring and control of implementation activities. The department prepares, in coordination with other agencies and ministries, programmes for improvement of the efficiency of energy end-use and promotion of the use of RES at the national, regional and sector levels, proposes priority measures and prepares the required documents for procurement of funding for their implementation from international financial institutions and funds and assistance programmes in the energy field. **The Consumer Protection Department** works out medium-term strategies for the development of the consumer protection policies, coordinates the work of the Consumer Protection Commission and interacts with the district heating, power and gas distribution companies and the companies engaged in the heat accounting for the purposes of consumer protection.

Through its participation in the Steering Committee and the Stakeholder Consultancy Committee of the project, the Ministry of Economy and Energy has declared its full support for the development of the Project Proposal and the future implementation of a national programme for market transformation aimed at promotion of more energy efficient appliances. The experts from the ministry will participate actively together with EnEffect and UNDP in the future consultations related to the planning of the project activities and setting in place of financial and other mechanisms for promotion of the manufacture and purchase of energy efficient appliances.

## **Energy Efficiency Agency**

**The Energy Efficiency Agency (EEA)** is an executive agency with the Minister of Economy and Energy. The Agency develops and submits for approval short- and long-term national programmes for energy efficiency and monitors their implementation, cooperates actively with the different ministries and institutions, branch organizations, district administrations and local authorities and business entities in the process of development and implementation of energy efficiency programmes and projects. The Agency is the body, which may propose the development and upgrading of standards and regulatory acts in the field of energy efficiency with a view to harmonization of the domestic legislation with the European norms and promotion of energy efficiency improvement at energy end-users. In 2003-2004 the Agency was the leading unit in the development of the Energy Efficiency Act, as well as of a number of by-laws – the Ordinance concerning energy performance of buildings, the Ordinance concerning building auditing and the Ordinance concerning energy certification of buildings. The specialized administration is split into two directorates. The overall activities related to the implementation of the national long- and short-term energy efficiency programmes, elaboration of regulatory acts related to energy efficiency and attraction of foreign investments from European programmes and funds and other sources for procurement of financing for energy efficiency programmes and projects are concentrated in the *Programmes, Projects and International Collaboration* Directorate. In the *Energy Efficiency Control* Directorate are concentrated the activities related to the control on implementation of the provisions of the Energy Efficiency Act with respect to energy auditing and certification of buildings. Currently most of EEA activities are targeted towards energy efficiency in buildings, however they have included improvement of appliance energy efficiency as one of the measures for improvement energy efficiency in the residential sector, planned in the National long term energy efficiency program.

The management of the Energy Efficiency Agency supports the elaboration of the Project Document, whose envisaged activities comply with the national policy in the field of energy efficiency. However their future participation is conditional on the MEE decisions and orders.

## **Ministry of Environment and Water**

**The Ministry of Environment and Water (MoEW)** is a governmental institution responsible for formulation and application of the governmental policy related to protection of the environment. The competences of the ministry comprise the power of authority to perform activities related to the application, co-ordination, control and evaluation of the policies and measures aimed at reduction of the impacts of climate change on the environment at the national level. The MoEW is responsible for the elaboration and reporting of the national inventories of GHG emissions, as well as the formulation and application of policies and measures for mitigation of climate change. It plays a principal role in the compilation, implementation, control, updating and adaptation of the National Action Plan on Climate Change. The recently created Climate Change Policy Department, headed by the National Coordinator on the UN Framework Convention on Climate Change, co-ordinates also the activities related to the country's commitments under the Kyoto Protocol, as well as its participation in the flexible mechanisms implementation - Joint Implementation and Emissions Trading. From the beginning of 2007 the department will co-ordinate and monitor the implementation of the National Plan for allocation of the Assigned Amounts in the

framework of the European Emissions Trading Scheme. The GEF Focal Point is the Vice minister of Environment and Water.

The MoEW is very interested in the development of the project proposal and the following approval and successful implementation of the project, as it will have impact on the climate change mitigation. The ministry declared its support to the project.

### **Ministry of Finance**

**The Ministry of Finance** was involved during the drafting of the Energy Efficiency Law mainly in connection with the introduction of fiscal preferences for physical persons and legal entities, engaged in energy efficiency activities, through appropriate amendments to the Law on Local Taxes and Charges and the Law on Corporate Income Taxation. They demonstrate good understanding of the energy efficiency issues in general and are willing to work together with the Ministry of Economy and Energy, the Energy Efficiency Agency and the project implementation unit on the assessment of possibilities and the development of financial mechanisms and incentives to support the market transformation of household appliances.

### **Commission for Consumer Protection**

The **Commission for Consumer Protection** (former Commission on Trade and Consumer Protection - until 10 June 2006) within the Ministry of Economy and Energy performs the following control functions according to the power of authority assigned to it by the Law on Consumer Protection (Promulgated in SG Vol. 99/9 December 2005, in force as of 10 June 2006):

- Control on any misleading, incorrect and not allowed by the law advertising;
- Elaboration of guidelines and recommendations concerning specific inequitable clauses in the contracts with consumers;
- Control on the safety of non-edible goods and services in compliances with the provisions of the law;
- Control with respect to labeling of consumer goods, including with respect to their energy efficiency.

A large portion of the commission's activities is oriented also to the effective application of the legislation, promotion of novelties in the legislation concerning consumer protection of goods and services and improvement of the co-ordination with other specialized and control bodies to ensure more effective consumer protection. The Market control department and its regional subsidiaries are directly engaged in the monitoring of the implementation of the provisions of the Ordinance for energy labeling of appliances, whereat by virtue of the law they have the right of free access to retailer shops, the right to request the appropriate documents related to their control, to take samples for laboratory testing, to involve experts of the respective fields in the cases when the check is particularly complicated and requires specific knowledge, as well as to sanction identified violations. The checks are performed according to a schedule coordinated with and approved by the Chairman of the Commission. The total personnel of the department, including the regional inspectors, is 130 persons. It was stressed that they do not have a special delegated budget for the control they perform for compliance of shops and products with the requirements of the energy efficiency labeling.

The commission is willing to support and participate in the future project activities, especially those concerning development of verification and enforcement procedure and capacity building.

### **Bulgarian Accreditation Service Executive Agency**

The Bulgarian Accreditation Service Executive Agency is the only national body for accreditation of:

- Testing and calibration laboratories;
- Bodies for certification of products, personnel and management systems;
- Control bodies;
- Executives authorized to perform environmental checks.

The agency plans and collects documentary evidence for its activities in compliance with the new international standards, applicable to all the national accreditation bodies: EN ISO/IEC 17011:2004 "Assessment of compliance – General requirements for accreditation bodies, performing licensing of bodies empowered to conduct assessment of compliance". The Bulgarian Accreditation Office Executive Agency operates on the basis of the domestic law, the standards of the series BDS EN 45000, ISO/IEC 17000, and the guidelines of the EA and ISO/IEC.

The Bulgarian Accreditation Office Executive Agency is active in the field of: development of the accreditation system in the Republic of Bulgaria, collaboration for strengthening of the Bulgarian system of testing laboratories and control and certification bodies with the aim to enhance their credibility and demand for their services by Bulgarian manufacturers and salesmen. An Accreditation Board operates at the Agency that is a public advisory body in the field of organization and management of the activities related to accreditation and survey of stakeholders – physical persons and legal entities. Technical Accreditation Committees have been established for certain specific sectors. They have advisory functions related to the technical requirements of the accreditation and the issues related to the application of the accreditation systems. The agency will be the responsible institution for testing facilities accreditation in terms of appliance performance testing.

### **State Agency on Metrology and Technical Supervision (SAMTS)**

The major directions in which the SAMTS operates are: scientific metrology; metrology control and supervision; assessment of compliance; technical supervision of facilities bearing higher risk; international co-operation and European integration; market supervision; and fuel quality control. The agency signs bilateral and multi-lateral co-operation agreements and takes part in the implementation of international projects. It participates in the work of the International Organization of Legal Metrology (OIML), the European Organization for Co-operation in the field of Legal Metrology (WELMEC) and in the work of the UNECE.

SAMTS performs market supervision with respect to compliance with the provisions of the Law on Metering and the Law on Technical Requirements of Products and the ordinances concerning its application through surveys, product inspection on the marketplace, sample or test-sample taking from products, performance of tests and drafting of reports concerning product compliance. The SAMTS contributes to the setting in place of a national system for assessment of compliance by assisting and coordinating the participation of the individuals  
Center for Energy Efficiency EnEffect

who possess licenses to perform assessment for compliance in the framework of international projects and programmes. The budget they have for performing their activities and safety testing they are performing is not sufficient for efficient implementation of the market control functions.

Experts from the Agency can provide technical expertise and consultations during the development and implementation of national verification and enforcement plan for product compliance as well as during the process of identification and contracting of an independent lab.

### **Bulgarian Institute of Standardization (BIS)**

The Bulgarian Institute of Standardization is the national body on standardization in Bulgaria and works actively on the harmonization of the national standards with European and international norms. The 2006 standardization programme comprises work on standards in 88 fields, which is being performed by 88 Technical Commissions with BIS.

BIS represents the Republic of Bulgaria as a regular member in the International Standards Organization and the International Electrical Engineering Commission and as an affiliate member in the European Organization of Standardization in the field of Electrical Engineering (CENELEC) and the European Organization of Standardization (CEN). The institute maintains contacts with a number of foreign standardization organizations: DIN Deutsches Institut für Normung; BSI British Standards Institution; UNI Ente Nazionale Italiano di Unificazione; ASTM International American Society for Testing and Materials; WSSN World Standards Services Network; WTO World Trade Organization. It participates in the work of the technical committees of ISO/IEC. The Information Center of BIS possesses a rich library of standards: international (ISO, IEC), European (CEN, CENELEC), Austrian (ÖN), German (DIN), British (BSI), French (AFNOR), Italian (UNI), Russian (ГОСТ), Japanese (JIS), Polish (PN), Czech (CSN), U.S. (ASTM).

### **State Energy and Water Regulatory Commission**

The state regulatory activities in the energy sector and water supply services sector is performed by the State Energy and Water Regulatory Commission (SEWRC). The principal power of authority of the commission comprises issue of licenses for production, distribution and sale of electricity and regulation of energy prices. The setting up of prices and tariffs is conducted following the principles of equity of consumers and producers, due consideration of the economically justified profit levels as well as ban on cross-subsidizing between the different groups of producers.

## **CIVIL SECTOR**

### **Bulgarian Industrial Association**

The Bulgarian Industrial Association (BIA) is a non-profit association, a non-governmental organization of Bulgarian industry, established on 25 April 1980. Members of BIA are 87 branch organizations, 26 regional organizations, 10 associations of businesses in municipalities and 56 local authorities, the Bulgarian Academy of Sciences, universities and science-and-technical unions, the Central Cooperative Union, more than 15,000 companies, including 263 of the 300 biggest companies in Bulgaria. In compliance with the Labour Code

BIA is recognized as representative organization of employers at the national level. It participates through its delegated representatives in the work of the Economic and Social Council, the Council for Economic Growth with the Council of Ministers, the Council on Fiscal Policy with the Minister of Finance, the State-Public Consultative Commission in support of the Customs Administration, the national Consultative Council on Standardization and the Accreditation Board with the Bulgarian Accreditation Service Executive Agency, the National Council on Metrology, the Bulgarian Council for Voluntary Certification, in different commissions at the national level, including working groups on harmonization of the regulatory framework with the EU legislation.

BIA protects the interests of its members in the process of setting up the economic policy of Bulgaria, in the development and upgrading of the regulatory framework related to the economic activities, in the drafting of analyses, studies and expert assessments in the field of industrial, fiscal and social policy, protection of the environment, technical requirements with respect to the products, development of small and medium-size enterprises, etc. Through its branches BIA can support the large scale information dissemination and project activities promotion to different stakeholder groups.

### **The National Chamber of Electrical Engineering in Bulgaria (NCEEB)**

The NCEEB is a nation-wide representative of the major part of the Bulgarian electrical engineering industry. It takes part in several projects for establishment of independent testing laboratories for product certification, incl. in collaboration with VDE and assists the public and state authorities in implementing the European technical legislation. The chamber has a very good reputation among both local manufacturers, foreign companies and government institutions and is willing to support the project by provision of technical expertise and promotion of the future activities among their members via their electronic newsletter, internet site and presentations at regular meetings and workshops organized by the chamber.

### **Bulgarian National Consumer Association**

The major objectives of the Bulgarian National Consumer Association are: to inform and consult the public on the issues of consumer protection; to assist consumers in defense of their rights and interests and in getting access to justice; to contribute to protection of the environment and represent consumers and protect their interests before governmental bodies, physical persons and legal entities and international organizations.

The Bulgarian National Consumer Association achieves these objectives by: approving work programmes and creation of research units on specific problems; organizing forums and meetings on the issues of consumer protection and protection of the environment; establishment of contacts with organizations and individuals whose field of activity coincides with the thematic sphere of the association; organizing of debates and development of position papers on drafts of regulatory acts; dissemination of information materials related to consumer and environment protection; participation in extra-court judicial institutions for review of consumer claims; delivering of consultations to consumers; submission of claims for protection of consumers' collective interests; organization and conducting tests of goods and products available on the Bulgarian market and presentation of the results to the general public; dissemination of information about salesmen in the Republic of Bulgaria and the governmental institutions responsible for consumer protection; design and dissemination of

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printed matter, films and radio programmes on consumer protection and protection of the environment; development of and participation in international projects on the subject of consumer protection; setting up of consumer information and consumer advice centers.

### **Federation of Consumers in Bulgaria**

The Federation of Consumers in Bulgaria (FCB) exists since 1990 and in 1995 the FCB, together with sister-organizations from Greece, Albania, Romania and Yugoslavia, has founded a Balkan Consumer Center, to which Cyprus and Turkey acceded later. The activities of FCB are oriented exclusively towards protection of the rights and interests of consumers and evolve via 23 regional consumer unions in almost all regional cities. They focus on three main directions:

- Protection of the economic interests of consumers through participation in the development of the legislative and regulatory framework; drafting of position papers on governmental, institutional and municipal decisions concerning specific consumer interests.
- Support for any efforts to guarantee physical safety and improved quality of goods and services through: effective partnership with the governmental and municipal bodies for control of the safety and quality of consumer goods; market studies and broad publicity of the results supporting the correct orientation of consumers and building of new consumer behaviour on the market.

Design, organization and implementation of programmes for consumer education and information through: organization of international conferences and symposia on relevant subjects; organization of training for the promoters of activities related to consumer protection for the purposes of dissemination of the organization's goals and objectives, awareness raising concerning their rights and the methods to stand up for them; participation in regular emissions on the Bulgarian Radio and the Bulgarian National TV and maintaining permanent rubrics in the central and regional media aimed at formation of consumer behaviour and attitudes which are adequate to the new type of market-based relationships.

### **Potrebitel BG Association**

The Potrebiteľ BG Association for consumer protection to public benefit was created in the framework of the activities implemented under a project funded by the PHARE Programme on the subject of development of civil society. With financial support from the EU and the Government of Bulgaria an Internet website has been set up – [www.potrebitel.bg](http://www.potrebitel.bg). The website features a platform for digitally signed claims and is supported by a local club with a desk for submission of claims in the city of Plovdiv. The website offers also a Customer Advice Guide with useful hints.

The three consumer organizations described are generally supportive to the project and will contribute to fullscale project implementation activities especially in those related to consumer awareness and information dissemination. They will provide access to all their information channels, use of web sites and will promote the project at regular meetings with consumers and media they are organizing.

### **2.3. MARKET CHAIN STAKEHOLDERS**

The following analysis has been developed based on meetings with different market stakeholder representatives and discussion on their activities, attitude towards energy efficiency standards and labels and participation in a national program for energy efficiency household appliances. The differentiation of the stakeholders is made in three main groups – manufacturers, importers and wholesalers/retailers. In the table summary information is presented for the most important players from each group and later more details are presented in the text.

Table 3: Market stakeholders

	Representative (name)	Contacts detail	Position within organization	Weight / importance on the market (relevant S&L program)
<b>Manufacturers</b>				
Liebherr	Dimitar Valkov	Tel. +359 32 615495 Dimitar.valkov@liebherr.com	Regional sales manager	Market share at the local market – 2%
Eldominvest	Nikola Akpunarliev	Tel. +359 52 5719 67 mail@eldominvest.com	Quality and technical manager	Market share at the local market – 1%
Indesit Company Bulgaria	Rada Ilieva	Tel. +359 2 969 36 55; 971 25 81; 971 11 27; 971 33 55 rada.ilieva@indesitcompany.com	Marketing coordinator	Large market share; leading position of the Indesit brand in the categories: refrigerators (14.8%), washing machines (18%), electric ovens (12.4%). Good positions in the categories tumble dryers and dish washers. Lower market share of the Ariston brand.
Gorenje Bulgaria Ltd.	Pepa Georgieva	Tel. +359 2 962 65 10 gorenje@techno-link.com	Sales Manager	Producer with leading market position
<b>Importers</b>				
Expo 2000	Nadejda Atanasova	Tel. +359 2 962 58 64 atanasova@expo2000.bg	PR	Relatively small market share of the represented Bosch and Siemens brands, because of their high class.
Kuppersbusch	Anna Kirilova	Tel. +359 2 962 66 35 vkg@techno-link.com	Client Service	Representing high class brands, mainly in-built products
LP	Marin Strandjaliev	Tel. +359 2 9711210 info@mvh-bg.com		Relatively small market share of the Zanussi and Electrolux brands, because of their higher class

<b>Retailers, big chains</b>				
K&K Electronics – chain Technomarket	Emil Georgiev Chavdar Dobrev	Tel. +359 2 942 11 48 emil_georgiev@kkelectronics.com chavdar_dobrev@kkelectronics.com	Product managers	The largest retailer; having about 70% of the market together with Videolux.
ZORA	Ani Haralambieva	Tel. +359 2 936 61 52 e-mail: a.haralambieva@zora.bg	PR	Group of retailers with Densi, having together a market share of approximately 25%.
Densi	M. Zgurev	Tel. +3592 9601213 mzgurev@densi.bg	Manager	Group of retailers with Zora, having together a market share of approximately 25%.
Aladin	Todor Evtimov	Tel. +3592 8122278; todor.evtimov@aladin.bg	Product manager	Part of the smallest group of retailers that have about 5% market share.
Moderen dom	Radoslav Penev	Tel. +359 2 951 66 45; 953 16 18; 852 89 89 moderen_dom@bitex.com	Sales manager	Part of the smallest group of retailers that have about 5% market share.
Interserviz Uzunovi	Valentin Damianov	Tel. +359 2 98120 00; 981 40 00 sofia@isu.bg	Regional manager	Part of the smallest group of retailers that have about 5% market share.
Videolux – chain Technopolis	Bojidar Kolev Dimitar Dimitrov	Tel. +359 2 92 11 600 tony@technopolis.bg	President Financial director	The largest retailer; having about 70% of the market together with K&K electronics.
Technomix	Ognian Lybomirov	Tel. +359 2 8101010 ogimix@abv.bg	Owner	Part of the smallest group of retailers that have about 5% market share.
Moderen dom	Radoslav Penev	Tel. +359 2 951 66 45; 953 16 18 moderen_dom@bitex.com	Sales manager	Part of the smallest group of retailers that have about 5% market share.
Technolux	Todor Evtimov	Tel. +359 2 812 22 78; todor.evtimov@aladin.bg	Product manager	Part of the smallest group of retailers that have about 5% market share.

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Interserviz Uzunovi	Valentin Damianov	Tel. +359 2 981 20 00; 981 40 00 sofia@isu.bg	Regional manager	Part of the smallest group of retailers that have about 5% market share.
Metro Cash & Carry	Stilyan Kolev	Tel.+359 2 976 23 55	Sales manager	One of the largest hypermarket chains, offering wide range of products.

Table 4: Activities performed by different market stakeholders

Name of stakeholder	Type of activities			
	MANUFACTURING/ ASSEMBLY	IMPORT	WHOLESALE/ DISTRIBUTION	RETAIL
Aladin (Technolux)*	Yes (Assembly abroad and in BG)	Yes	Yes	Yes
Classico	No	Yes	Yes	No
Densi	Yes (Assembly abroad)	Yes	Yes	Yes
Eldominvest	Yes (Manufacturing in BG)	No	No	No
Gorenje	Yes (Manufacturing abroad)	Yes	No	No
Indesit	Yes (Manufacturing abroad)	Yes	No	No
Interservice Uzunovi	No	Yes	Yes	Yes
K & K Electronics (Technomarket Evropa)*	Yes	Yes	Yes	Yes
Kueppersbusch	No	Yes	No	Yes
Liebherr	Yes (Manufacturing in BG)	Yes	No	No
Moderen dom	No	Yes	Yes	Yes
Technomix	No	Yes	Yes	Yes
Videolux (Technopolis)*	Yes (Assembly abroad)	Yes	Yes	Yes
Whirlpool	Yes	Yes	No	No
Zora	Yes (Assembly abroad)	Yes	Yes	Yes

\* The name in the brackets is the retailer chain owned by the company.

The survey didn't show a clear differentiation of categories among the various stakeholders. In most of the cases one company works in more than one field of activity. The market is dominated by two of the main big specialized retailer chains: Technopolis and Technomarket Evropa. The fact was confirmed by the two chains themselves and by the companies with smaller store chains. Retailer chain ZORA and hypermarket Metro Cash & Carry are also recognized as important players on the market. Big retailer chains and hypermarkets are expected to continue to be leading on the market. As they continue to evolve and develop, the market share of smaller stores is expected to drop further. Importers identify a wide array of brands as important on market.

Most of the contacted market stakeholders (with some exceptions like Whirlpool, Metro) have declared high support to the development and implementation of national appliance energy efficiency program and especially activities related to consumer awareness and setting up a national system for financial incentives. Also due to the lack of effective verification system for products compliance mainly the foreign manufacturers representatives would welcome the development and implementation of a national plan in this area.

### 2.3.1. Description of Manufacturers

#### I. Local:

- **Aladin (Technolux):** Locally owned, assembly abroad and some in Bulgaria. Self-defined as assembler.
- **Densi:** Locally owned, assembly abroad.
- **EldomInvest:** Locally owned, local manufacturer.
- **K & E Electronics (Technomarket):** Locally owned, assembly abroad.
- **Videolux (Technopolis):** Locally owned, assembly abroad.
- **Zora:** Locally owned, assembly abroad.

#### II. Foreign:

- **Gorenje:** Foreign owned, foreign manufacturer.
- **Indesit :** Foreign owned, foreign manufacturer.
- **Liebherr:** Foreign owned, local manufacturer.
- **Metro Cash & Carry:** Foreign owned, assembly abroad.
- **Whirlpool:** Foreign owned, foreign manufacturer.

Table 5: *Manufacturers and assemblers*

MANUFACTURERS AND ASSEMBLERS		
	Locally-owned	Foreign-owned
<b>Local Production</b>	<b>Eldominvest</b>	<b>Liebher</b>
<b>Foreign Production</b>		<b>Gorenje, Indesit, Whirlpool</b>
<b>Local Assembly</b>	<b>Aladin (Technolux),</b>	
<b>Foreign Assembly</b>	<b>Aladin (Technolux), K &amp; K Electronics (Technomarket), Zora, Densi, Videolux (Technopolis)</b>	<b>Metro</b>

The only two companies that are typical manufacturers and deal with local production are **Eldominvest and Liebherr**.

**Eldominvest** is a Bulgarian company and it is not part of any international structure. The company manufactures water heaters (5 to 1000 liter volumes) and small electric cookers (brand “Diplomat”). Most of the production is in the heaters segment. They sell predominantly on the Bulgarian market. About 20% of the production is exported to Sweden, UK, Italy,

Slovakia and Romania. The total production capacity is 250,000 water heaters and 20,000 small cookers. The output for the year 2005 was about 24 million BGN (EUR 12 million).

**Liebherr** is a foreign company, which has production capacities in Germany and Austria also. It manufactures cooling appliances. The production range includes about 11 main models with more than 60 sub-models. The predominant part of the production of the plant "Liebherr - Hausgerete-Maritsa" is sold on the German market and only about 3% - on the Bulgarian market. Specific numbers for the production of Liebherr Bulgaria are not available. The turnover of the Liebherr Group for 2004 is EUR 4,590 million. Liebherr received state support at the initial investment stage. This is due to the fact that the investment was made in the vicinity of the city of Plovdiv, which had a relatively high unemployment rate at the time.

*Both companies* export to EU member states and comply with the importing country standards. They are planning expansion. Eldominvest has not specified the exact parameters of their expansion plans. Liebherr are expanding their production in Bulgaria and are currently building a second plant, on the same site. They expect to double capacity and refrigerator product range. Both companies consider that any new legislation concerning sales of high efficiency appliances should not have a negative effect on them

### **Indesit Bulgaria**

Indesit Bulgaria is owned by the Indesit Company based in Italy. It conducts the commercial operations of the mother-company on the territory of the country. Indesit Bulgaria imports the full range of household appliances under the various brands of Indesit Company.

### **Whirlpool Bulgaria**

Whirlpool Bulgaria is established as a company of Whirlpool in 1996. The company is specialized in the import of various household appliances: washing machines, dish washers, tumble dryers, refrigerators, freezers, cookers, microwave ovens, etc.

### **Gorenje Bulgaria**

Gorenje Bulgaria Ltd. is established as a company of the Gorenje Group based in Slovenia in the period 1992 – 93. It imports household appliances specializing in kitchen appliances.

**Zora** owns an important local retailer's brand: CROWN. These appliances are produced in Turkey (at the Vestel Factory) and then imported to Bulgaria. The following appliances are produced under the CROWN brand and have the following characteristics:

- Electric ovens: 7 models, average retail price of about 300 BGN / 150 EUR. None of them has an energy class label.
- Refrigerators:
  1. One-door: 9 models, average retail price of about 250 BGN / 130 EUR. 5 models do not have an energy class label and 4 have class B labels;
  2. Two-door: 10 models, average retail price of about 450 BGN / 230 EUR. 9 have class B label and 1 has no energy class label;
  3. Fridge and freezer: 12 models, average retail price of about 650 BGN / 330 EUR. 7 have class B label, 2 do not have an energy class label, 1 has A class label and 2 have A+ class labels.

- Freezers: 6 models, average retail price of about 450 BGN / 230 EUR. 4 have energy class B label and 2 do not have an energy class label.
- Dishwashers: 3 models, average retail price of about 300 BGN / 150 EUR. None has an energy class label.
- Air-conditioners: 12 models, average retail price of about 500 BGN / 250 EUR. None has an energy class label.
- Tumble-dryers: None produced under CROWN brand.
- Washing machines: 8 models, average retail price of about 350 BGN / 180 EUR. 4 have energy class B labels and 4 have energy class A label.

**Videolux (Technopolis)** owns two retailer's brands: SANG and KTN. The household appliances are produced in Turkey (at the Vestel Factory) and then imported to Bulgaria. The following appliances are produced under these brands and have the following characteristics:

KTN brand: Only 1 model mini-fridge is produced under this brand, no energy class label, sold at 175 BGN / 90 EUR.

SANG brand:

- Dishwashers: 1 model, no energy class label, sold at 420 BGN / 215 EUR.
- Freezers: 2 models, energy class B label, at average retail price of about 350 BGN / 180 EUR.
- Electric ovens: 5 models - 4 have no energy class label and only one has class C label, at average retail price of about 350 BGN / 180 EUR.
- Refrigerators: 10 models - 6 have energy class B labels, 4 have no energy class labels, at average price of about 400 BGN / 200 EUR.
- Washing machines: 7 models - 4 have class A label and 3 have no class label, at average retail price of about 350 BGN / 180 EUR.
- Tumble-dryers: No production.
- Air-conditioners: 5 models all without energy class labels, at average retail price of about 400 BGN / 200 EUR.

**K & K Electronics (Technomarket)** owns the retailer's brand of NEO. The appliances are produced in Turkey (at the Vestel Factory) and then imported to the country. No air-conditioners and tumble-dryers are produced under this brand. The following appliances are produced under the brand with the following characteristics:

- Refrigerators:
  1. One-door: 6 models, 5 without energy class label, one has energy class B label;
  2. Two-door: 4 models, 3 without energy class labels, one has energy class B label;
  3. Combo: 4 models, all without energy class label, average retail price of about 400 BGN / 200 EUR.

- Freezers: 2 models, without energy class label.
- Washing machines: 8 models - 5 have no energy class label, 3 have energy class A label, average retail price of about 350-400 BGN / 180-200 EUR.
- Dishwashers: 3 models. None has energy class label, average retail price of about 300 BGN / 150 EUR.
- Electric ovens: 6 models - 4 have energy class A label and 2 have no energy class label, average retail price of over 300 BGN / 150 EUR.

**DENSI** has the retailer's brands BESS and DELTA. The appliances are produced in Turkey (at the Vestel Factory) and then imported to the country. The following appliances are produced under these brands with the following characteristics:

DELTA Brand:

- Freezers: 1 model, at average retail price of 490 BGN / 250 EUR, no energy class label.
- Refrigerators: 6 models at average retail price of about 550 BGN/280 EUR, none has energy class label.

BESS Brand:

- Washing machines: 8 models, at average retail price of about 370 BGN / 190 EUR. One has energy class A label. The other seven have no energy class labels.
- Refrigerators: 5 models, at average retail price of 350 BGN / 180 EUR. None has energy class label.

**Aladin (Technolux)** owns the retailer's brands ELITE and PROLUX. The appliances are produced in Turkey (at the Vestel Factory) and then imported to the country.

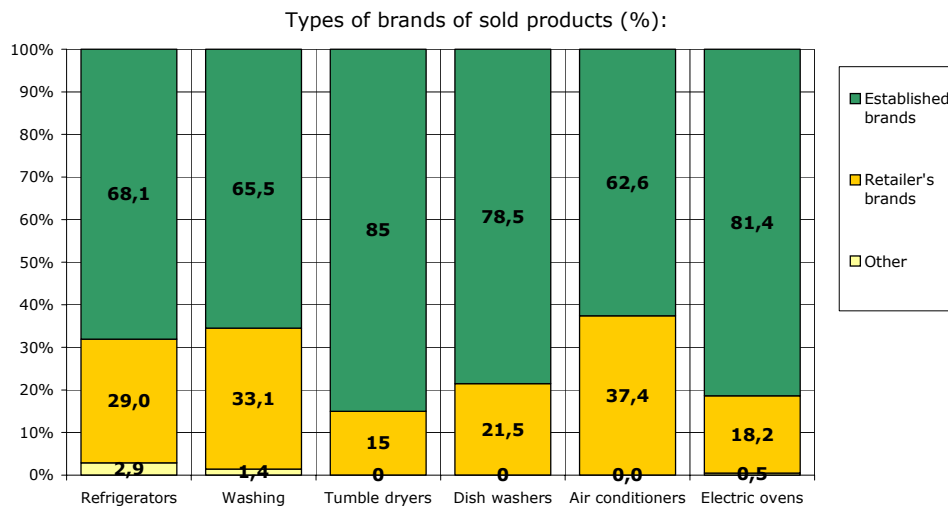
**METRO Cash & Carry Bulgaria** has the ALASKA retailer's brand. The appliances are also produced in Turkey (at the Vestel Factory) and then imported to Bulgaria.

Table 6: Brands available at national level, grouped by manufacturers

Manufacturer	Brand
Liebherr - Hausgerate-Maritsa EOOD	Liebherr
Eldominvest Ltd.	Diplomat
Indesit Company	Indesit
	Ariston
Arcelik	Beko
	Bloomberg
Aladin Ltd.	Elite
BSH Bosch und Siemens Hausgerate GmbH	Bosch
	Siemens
Candy	Candy
	Hoover
	Rosieres
Conegliano	Conegliano
Daewoo Electronics	Daewoo
Klimatechniki S.A., Greece	Davoline
De Longhi Group	DeLonghi
Densi	BESS
	DELTA
Grupa Fagor (Mondragon Cooperacion Cooperativa)	Edesa
	Fagor
	Brandt
Fuji Electronics	Fuji
General Electric	General Electric
Gorenje Group	Gorenje
	Korting
Haier Group	Haier
Hisense	Hisense
Hitachi	Hitachi
Hyundai	Hyundai
K & K Electronics	Neo
LG Electronics	LG
"Wrozamet" S.A., Poland, owned by two Spanish companies: Mondragon Corporacion Cooperativa and Grupa Fagor	Mastercook

Metro Cash & Carry	Alaska
Midea	Midea
Miele	Miele
Mitsubishi Electric	Mitsubishi
Nippon	Nippon
Panasonic	Panasonic
Polar	Polar
Samsung Electronics	Samsung
Sharp Electronics	Sharp
Iar Siltal	Siltal
Snaige	Snaige
Sogo	Sogo
Vestel	Vestel
Vestfrost	Vestfrost
Videolux	KTN
	Sang
Whirlpool	Whirlpool
Electrolux Group	Zanussi
	Electrolux
	AEG
Zora (Vestel) - Zora is the owner of the brands. The brands are produced in Vestel factory	Crown
	Ayco

Figure 3: Types of brands of sold products



The “established brands” are the well-known and recognized brands mainly imported from the EU and the Central and East European countries. The “retailer’s brands” are local brands (most of them owned by the biggest importers/retailers chains but produced abroad). Most of the retailer’s brands are produced in Turkey and the Asian countries (mainly China). According to the data from the quantitative research conducted the majority of sold appliances are established brands.

### **2.3.2. Marketing strategy and positioning of manufacturers on the market**

#### **Market distribution chain**

The manufacturers leave a significant degree of freedom to the importers in the terms of possibility to select from their product ranges. The most typical situation is that manufacturers offer the full range of products to importers, wholesalers and retailers and they decide on the range and volume of orders.

The general preference of the manufacturers is to have as few intermediaries as possible in the overall market distribution chain. This ensures control and predictability of pricing levels. It is valid in general and particularly for the key foreign manufacturers to have well-established relations with the hypermarkets (Technomarket, Technopolis, etc.).

The main foreign-owned local manufacturers prefer not to be engaged in retailing activities, while the main Bulgarian-owned manufacturers have a clear preference for the retailing route.

The appliances market is dynamic and a price-driven one. The consequence is a preference for short routes to end-users, with as few intermediaries as possible.

Section 2.3 has already outlined the ownership overlap between the various segments of the market chain. Most of the stakeholders are involved in many, in some cases all, segments (assembly – manufacturing – import – wholesale - retail). The key reason for this appears to be that the market is a price-driven one. Through such a strategy, players attempt to ensure a closed system, which is less costly. Moreover, this lowers the level of vulnerability and makes the market more predictable to them.

Main chains for imported products are:

Importer – retail – end-user;

Importer – wholesale – retail – end-user;

Importer – end-user – very low percentage of actual sales.

The survey shows reluctance of stakeholders to go via wholesalers. There is a clear preference to work directly with retailers, thus shortening the market chain.

#### **Communication channels**

Liebherr Bulgaria employs a number of channels for communication. These include billboards, radio advertisements, magazines, etc. The company does not use TV ads but is involved in sponsorship of sporting events, art festivals, etc. They have used the slogan: “Quality and Freshness from Professionals”. The company has been producing fridges for over 50 years and has a long tradition. Building trust in locally manufactured goods will be an important marketing strategy for Liebherr.

Indesit follows the overall marketing strategy of the “mother-company”. The company advertises its new products mainly on television and in the printed media. Media planning is on annual basis.

Gorenje focuses its overall advertising strategy on image and not on price. The emphasis is on the brand. This is done by selecting the best product in the new range and focusing the campaign on it. The main channels include outdoor advertising, ads in magazines and on television.

### **Associations of manufacturers**

Manufacturers are not organized in an association because they do not see a lot of common interests to be protected. There is one association in this area - The Association of Retailers of Home Appliances and Audio-visual Equipment. The surveyed companies are not convinced that the association has been able to protect their interests in an effective manner. For some of the companies the association is dominated by retailers for others - by importers. There appears to be little common interest that needs protection. None of the manufacturers are actually members of the association.

### **Key players**

It appears that the retailers’ market is the one with the highest concentration where two key players (Technomarket and Technopolis) are in dominant position. These two players seem to be in a position to influence the market as they continue to sideline smaller retailers, thereby decreasing their share of the market. Their strong position is further strengthened by the conviction of many manufacturers and importers that shorter distribution chains are the decisive factor for survival on the Bulgarian market. Importers identify a series of brands and producers as having important position on the market. These are: Indesit, Gorenje, Electrolux, Whirlpool, BEKO. At the higher quality level: Miele, KB, Liebherr. Ariston.

*Table 7: Images of the most important brands available at the market*

Manufacturing group	Corresponding brands	Image attached to the brand
Liebherr - Hausgerate	<i>Liebherr</i>	Quality and tradition, “Quality and freshness from professionals”
Eldominvest Ltd.	<i>Diplomat</i>	Locally made product
Indesit Company	<i>Indesit</i>	Young people getting started (trendy, color, relatively cheap)
	<i>Ariston</i>	Classic, reliable
Arcelik	<i>Beko</i>	Modern, quality for good price
	<i>Bloomberg</i>	High tech
K & K Electronics	<i>Neo</i>	Local retailer’s brand, less expensive, for the average consumer in Bulgaria
Aladin Ltd.	<i>Elite</i>	Local retailer’s brand, less expensive, for the average consumer in Bulgaria

Densi	<i>BESS</i>	Local retailer's brand of less expensive washing machines and refrigerators, for the average consumer in Bulgaria
	<i>DELTA</i>	Local retailer's brand of less expensive refrigerators, freezers and mini bars, for the average consumer in Bulgaria
Gorenje Group	<i>Gorenje</i>	For easier everyday life and more pleasurable home
	<i>Korting</i>	High end brand, qualitative built-in products
LG Electronics	<i>LG</i>	Core values: Innovation, Reliability, Humanity, Passion. Positioning: To be seen as a company that constantly pursues innovation in order to provide solid benefits to customers. Attributes: high quality, durable, variety, reasonable price
Metro Cash & Carry	<i>Alaska</i>	Local retailer's brand, less expensive, for the average consumer in Bulgaria
Snaige	<i>Snaige</i>	Experience. Quality. Style.
Videolux	<i>KTN</i>	Local retailer's brand, less expensive, for the average consumer in Bulgaria
	<i>Sang</i>	Local retailer's brand, less expensive, for the average consumer in Bulgaria
Whirlpool	<i>Whirlpool</i>	Inspired by its bold innovations and designs, customers around the globe trust Whirlpool to make their lives easier. More than ever before, the company's brands are connected with the idea that they will last a lifetime.
Electrolux Group	<i>Zanussi</i>	"Excellence in Design and Innovation" Today, Zanussi-Electrolux combines Zanussi's Italian heritage of "Excellence in Design and Innovation" with the commitment to consumer's understanding and thoughtful innovation that Electrolux represents
	<i>Electrolux</i>	"Electrolux is thinking about you"
	<i>AEG</i>	"Perfect in form and function"
Zora	<i>Crown</i>	Local retailer's brand, less expensive, for the average consumer in Bulgaria
	<i>Ayco</i>	Local retailer's brand, less expensive, for the average consumer in Bulgaria

### 2.3.3. Description of Importers

There is a general tendency that one brand is imported and represented by more than one market player.

Table 8: Brands imported by different market stakeholders

Importer	Brand
ALADIN (TECHNOLUX)	Elite
CLASSICO	Renzacci
	Maytag
	Grandimpianti
	Pralma
	Schulthess
	Rosieres
	Candy
	Terim
Hoover	
CONEGLIANO	Conegliano
DENSI	Snaige
	Hyundai
	Polar
	Mastercook
	Davoline
EXPO 2000	Bosch, Siemens
GORENJE	Gorenje
	Sidex
	Korting
	Galant
INDESIT	Indesit, Ariston
INTER SERVICE UZUNOVI	Sharp
	Fagor
	Edesa
K & K ELECTRONICS (TECHNOMARKET EVROPA)	Samsung
	Panasonic
	Neo
	Whirlpool
	Zanussi, Electrolux
	Indesit, Ariston
	Aeg
	General electric

KUEPPERSBUSCH	Kueppersbusch, Miele
LIEBHERR	Liebherr
LP	Electrolux, Zanussi
MAGNUM	LG
	Gaggia
	Midea
	Siltal
	Sogo
MODEREN DOM	Indesit
	Ariston

### 2.3.4. Description of Retailers

#### List of main retailers

- Densi
- Kueppersbusch
- Metro Cash & Carry
- Moderen Dom
- Technolux (owned by Aladin)
- Technomarket Evropa (owned by K & K Electronics)
- Technomix
- Technopolis (owned by Videolux)
- ZORA

#### Types of retailers and share of products sold

1. Large retailer chains – Technomarket Evropa, Technopolis and hypermarket - Metro Cash & Carry
2. Retailers chain of stores – Zora, Densi
3. Smaller retailers – Moderen dom, Technolux, Technomix, Interservice Uzunovi

The approximate market share of each type of retailers is:

Type of retailers	Market share
Large retailer chains and hypermarkets	70%
Retailers chain of stores	25%
Smaller retailers	5%

The two dominant players on the retailers market are Technomarket Evropa and Technopolis. The first one has 18 stores around the country, each about 3000 square meters on the average. The second one has 15 stores, each about 2500 square meters on the average. According to some estimates, about 80% of all household appliances (including white goods and consumer electronics) are sold by these two main companies.

There is a second group of retailers. It includes Zora (32 stores, about 1000 square meters on the average) and Densi (6 stores with 800 – 1000 square meters on the average).

They are followed by a third group of yet smaller retailers. It includes: Moderen dom (with 15 stores of about 150 square meters on the average), Technomix (4 stores of about 1000 square meters on the average), Technolux (2 large stores in the capital) and Interservice Uzunovi (12 stores but not exclusively selling household appliances).

### **Brief description of the main retailers**

#### **TECHNOMARKET “EVROPA” (Owned by K & K Electronics)**

Technomarket “EVROPA” is a commercial chain established in 1999 and specialized in selling household appliances and office equipment. It is owned by “K&K Electronics” and is an official distributor of Samsung, Panasonic, NEO, Whirlpool, Zanussi, Electrolux, Indesit, Ariston, AEG, and General Electric for Bulgaria.

The first store of the chain was opened in 1999 in the city of Sofia. Currently the chain has 18 stores in the biggest cities of the country. The company has opened stores in Macedonia and Serbia and Montenegro.

Over 6000 items are on sale in the chain stores, mostly from leading brands in the field of household appliances and consumer electronics: SAMSUNG, PANASONIC, LOEWE, AIWA, KENWOOD, YAMAHA, NEO, WHIRLPOOL, ZANUSSI, ELECTROLUX, PIONEER, JAMO, THOMSON, SONY, TOSHIBA, PHILIPS, LG, BEKO, SHARP, JVC, TDK.

To satisfy the consumers' demand for reasonable quality appliances at affordable prices, Technomarket “Evropa” launched their own brand “NEO”, offering a range of household appliances.

#### **TECHNOPOLIS (Owned by VIDEOLUX)**

The founder “VideoLux” company opened their first shop back in 1992 in Sofia. In 1995 the company acquired the rights of an exclusive representative for JVC for Bulgaria and Macedonia. By 1998 “VideoLux” became an exclusive representative for LG household appliances and official importer and distributor of CANDY, BEKO, TAURUS, SANG household appliances, HAIER air-conditioning systems, TANNOY loudspeakers as well as an official importer of SONY and FUJI.

The chain has 15 stores in the cities of Sofia (since 2001), Varna (since 2002), Plovdiv and Stara Zagora (since 2003) Bourgas and Rousse. The founder company owns wholesale warehouses in Sofia, Plovdiv, Rousse and Varna and a distribution network, which covers over 300 shops around the country ranging from small, retail corner shops to large stores such as METRO. Technopolis offers over 25,000 appliances and accessories for the home, the office and the car. The creation of the “Technopolis” chain is a result of the joint venture

of “Videolux” Trade Company (a leading importer of household appliances) and Lindner Group, a German holding company that is European leader in the field of construction and design. At present, the chain has made investments of 65 million BGN and employs over 1000 high qualified employees.

### **METRO Cash&Carry BULGARIA**

Metro Cash&Carry Bulgaria was established in 1999 and is owned by Metro Cash&Carry. It has stores in 7 cities around the country. The start of operation of Metro transformed the Bulgarian market at the end of the 90s by introducing the hypermarket concept. The company has one own, local retailer’s brand: ALASKA (refrigerators, washing machines, ovens, air-conditioners).

### **ZORA CHAIN**

ZORA commercial chain was established in 1991 and is among the first companies to deal with household appliances in the country. The company is a “direct” importer of Vestfrost (Denmark) fridge equipment (freezers, refrigerator / freezer and chest freezers), ARISTON (exclusive representation for Bulgaria) built-in appliances, full range of household appliances WHIRLPOOL, household equipment Vestel (brands Vestel, Crown and Ayco).

The chain has 15 stores in the capital and another 15 shops in the cities of Plovdiv, Pazardzik, Haskovo, Harmanli, Svilengrad, Gabrovo, Sevlievo, Blagoevgrad, Petrich and Yambol. ZORA has also a wide network of distributors, which cover the entire territory of the country and a large warehouse in Sofia exceeding 30,000 sq. m.

### **DENSI COMPANY**

The company was founded in 1993 by importing freezers and fridges produced in Latvia creating a nation-wide distribution network. The company acquired the exclusive rights of representation of SNAIGE in the year 2000. In 1994 DENSI expanded through the introduction of a new product group - the hermetic fridge compressors TEE-TECUMSEH (license) imported from Turkey. Then in 1999, DENSI become an official importer of POLAR (Poland) gaining the exclusive rights of representation in the year 2000. In the same year, the company started to import and distribute a wide range of electric, gas and combined cookers “Mastercook” (produced by Wrozamet factory in Poland) by means of exclusive representation. In 2001, DENSI began the import of mini cookers, kitchen aspirators and convectors of the Davoline brand produced by Klimatechniki S.A., Greece.

### **MODEREN DOM**

The company was founded in 1992 and currently employs 55 people. The chain is a commercial network for the sale of electric appliances and audio–video equipment. The founding company “Ognes” is an official dealer for the following producers: INDESIT, ARISTON, ZANUSSI, ELECTROLUX, AEG and WHIRLPOOL.

### **INTERSERVICE UZUNOVI**

The company is established in 1990 with headquarters in the city Varna. It is an official distributor of SHARP, exclusive distributor of EDESA, Spain, Morphy Richards and Auqa Vac, Northern Ireland and Superser (Bosh – Siemens). It has a structure of a holding with interests in household appliances, hotel equipment, constructions materials, tourist and transport services, etc.

## **VKG Kueppersbusch**

The company has office in Bulgaria since the year 2000. Originally established in Germany, it brings together 1800 independent producers of kitchen equipment. The company presents itself as a branch union specializing in the higher end of the household appliances market.

### **Range of products proposed in shops**

Most of the large retailers present a wide choice of products, not only “white” home appliances but also “brown” goods. This is valid for all types of retailers.

At the same time, most of the smaller retailers try to remain competitive on the market, realizing import and retail both of home appliances and kitchen furniture. Usually, these retailers offer higher-class products in terms of quality, price and energy class. They often offer predominantly in-built home appliances.

All retailers follow one and same way of decision making on the range - the decision is centralized but it takes into account the local demand also. Thus in different types of locations (depending on the size) different products are offered. Usually the stores in smaller towns offer products at lower price, which translates into lower energy classes as well.

According to the retailers, newly introduced products are about 20% to 30% on the average per year. They include mainly washing machines, refrigerators, air-conditioners and electric ovens/cookers. The main factors that determine the range of products are:

- Price - the most important.
- Energy class - becoming more and more important over the last years.

As it was mentioned already own import is one of the main ways for supply. In this way the opportunities for negotiations and bargaining are less. The retailers deliver the products using their own transport. All of them declare no serious problems with other distributors and/or clients.

### **Importance of Internet sales**

The main retailers offer some opportunities for on-line sales. But this type of services is still underdeveloped. The majority of sales are cash payments in shop and the share of Internet sales is not statistically valid.

### **Salesmen**

No special training is provided for the salesmen. The majority of retailers hire young people, although it is not a special requirement. One common requirement is to be communicative. Only the largest retailers conduct special training for their salesmen, which are done by the company’s management team. Trainings are mainly orientated towards getting the employees acquainted with the new products. Training on the methods of work is almost missing and is done inside the companies and in the shops.

The training components of a programme could be compiled on a case-by-case principle depending on the concrete engagement of retailers and possibility of the salesmen to participate but most probably by half day trainings at the end of the day or by evening sessions.

The retailers' estimate of employees' turnover is that it is not very high. More serious is the problem with "head hunting", when the experienced employees are being drawn in by competitive companies. Compensation of salesmen in all main retail chains are calculated on the basis of fixed salary income. Only "Moderen dom" retail chain bases compensation on a permanent, agreed percentage share of sold items.

In parallel to the fixed salary, the various retailers apply different mechanisms for taking into consideration the contribution of the employees and providing additional financial stimulus. The approaches of the various retail chains vary:

- Technomarket: The company keeps monthly record of sold items per salesman which is taken into consideration in view of future salary size. No additional monthly percentage is added to salary.
- Technopolis: The company keeps record of sold items per team. Individual contribution is not taken into consideration; compensation based on fixed salary.
- Technolux and Densi: Compensation based on fixed salary only.
- Technomix: Senior salesmen receive fixed salaries, the other staff receive fixed salary and bonus. Bonuses are not paid out each month and do not vary with volume of sold items. Size of bonuses is determined by the management and is paid out to all employees regardless.
- Zora: Compensation is based on fixed salary. The most important incentive used is related to credit – based purchases. Retailers give bonuses to employees who perform well in making such sales.

Only the largest retailers conduct special training for their salespersons. The trainings are usually conducted by the company's management team. Trainings are mainly orientated towards getting the employees acquainted with the new products.

Training on the methods of work is almost missing and is done inside the companies and on the job.

### **Relationship between retailers**

See section 2.4.2

### **Knowledge about the energy label**

The companies have shown fairly high level of awareness of the existence of Bulgarian legislation related to the relevant national and EU standards. It is the same for manufacturers, importers and retailers. All main market players have declared that they comply with the relevant legislation. The overall evaluation of the current regime is positive. Stakeholders also recognize the need for its existence.

All retailers explicitly support the introduction of energy efficient products, especially in the home appliances segment. Most of them state that their stores are more “green”, although lower energy class appliances could still be found.

The biggest obstacle to the introduction of more energy efficient products is the price. As it was already pointed out, the market is price-driven and that is the main reason for offering some lower energy class products. But according to the retailers it is already difficult to find home appliances of the “B” and “C” energy classes.

Although it was not clearly stated, some “bad practices” became evident as result of the survey. On one hand, the retailers print the labels themselves as in most cases they are also the importers of the goods and this is their responsibility. At the same time there is no serious regulation and standardized control system on this process. This leads to the situation that one and same model of brand could be labeled with different energy classes in the different shops. Usually the largest, and in particular foreign chains, mark the correct energy class, but some of the smaller, locally-owned retailers, allow wrong labeling of products.

This is the reason why a negative reaction to a future labeling policy implementation could be defined as possible. The labeling is already obligatory in Bulgaria and is carried out by the retailers. A more serious issue concerns the ways of its implementation. One of the main objectives should be prevention of the practice of circumventing the regulations.

### **Publicity**

All retailers realize advertisement campaigns. Depending on their size different communication channels are used. All retailers use press and outdoor advertisements as well as leaflets and other types of printed materials. All of them have regularly issued self-financed promotion sheets. The largest retailers conduct also TV and radio advertisements, mainly on seasonal basis.

Advertisement is predominantly used to promote new products, sales and specials, few retailers conduct image campaigns.

### **After-sales services' organization**

All the retailers offer “after-sale” services. The services are organized mainly through a network of different maintenance and repair companies. These companies are:

- Servicing foreign manufacturers and importers of established brands and
- Servicing local retailers' brands.

The retailers admit that they have some problems with the repair companies in the smaller locations around the country. The problem consist mainly in the control of their work but this is rather an exception than a permanent practice.

The usual guarantee period is about two or three years. It depends on the brand's type:

- For the established brands, it is three years (if the manufacturer has not indicate otherwise);
- For the local retailers' brands, products from Turkey and China, it is usually two years.

## Description of Large buyers

During the stakeholders' survey a group of typical large buyers of appliances was not identified. However, due to the large expansion of new buildings construction in Bulgaria during the last few years, a group of corporate buyers could be identified, namely hotels and business offices buildings purchasing mainly air-conditioners and refrigerators. Nevertheless they do not make group purchases these corporate buyers might be taken into account.

Government and local authorities, furnishing public administration offices and kindergartens, purchasing mainly air-conditioners (the first one mentioned), washing machines and cooling appliances could be identified as important potential and relatively large groups of buyers.

In the following sections corporate private buyers will be treated as possible group to work with during the project activities.

## 2.4. MARKET CHAIN STAKEHOLDER ANALYSIS

Table 9: Analysis of different market stakeholders

Organization's name	Attitude towards the label and the accompanying program	Options to respond to S&L programs
<b>Manufacturers</b>		
Liebherr Bulgaria	Cooperative	Conditional, depending on the lack of administrative obstacles
Eldominvest	Cooperative	
Gorenje Bulgaria	Cooperative	Should not be a burden to the company
Indesit	Supportive	Enforcement and compliance is important
Whirlpool	Neutral	
<b>Importers</b>		
Classico	Neutral	
Kueppersbusch	Advocate	Good for business, information for consumers
Aladin	Supportive	Depends on the benefits, there must be bonuses
<b>Retailers</b>		
K & K Electronics	Neutral	The trend is for more energy-efficient appliances anyway
Videolux	Cooperative	Need of financial incentives for consumers
Technolux	Supportive	
Zora	Supportive	
Densi	Supportive	Conditional on commercial interest
Technomix	Cooperative	Conditional on strict, uncorrupt control
Moderen dom	Supportive	Must also make appliances more affordable
Interservice Uzunovi	Cooperative	Will make "trashy" appliances go off the market

#### **2.4.1. Attitude of manufacturers / importers towards verification, labeling and regulation in general**

The local and foreign manufacturers present at the Bulgarian market show quite high level of awareness of the existence of Bulgarian legislation related to energy efficiency labeling. All have declared that they comply with the relevant legislation. Foreign manufacturers are better disposed to labeling standards and requirements. As most of them have production capacities in EU member states, these requirements have already been incorporated in their business and production strategies. Compliance with them in Bulgaria is not a problem for them.

The same observation is valid also for local manufacturers. *Eldominvest* exports to a number of EU member states (Sweden, UK, Italy and Slovakia) and has to take into consideration the standards of these countries. Moreover, most of the equipment used for the production is imported from Germany, Holland and Switzerland. The company has positive attitude towards the introduction of energy efficiency standards and labeling. It is willing to support the national policy and programs in this area and to participants in their implementation. *Liebherr* exports mainly to Germany and has to comply with the relevant German and EU standards. Liebherr would welcome a program for the use of more efficient appliances and would participate in its implementation if this does not impose any administrative obstacles.

One general opinion of the manufacturers is that there is a practice of falsifying labels. This includes misrepresentation of information, false and misleading information, etc. Verification also appears to be a problem with the appeal for a more active role of the state in the process of verification. Moreover, some (Indesit) treat the matter as even more urgent claiming that there is no laboratory on the territory of the country where tests and checks of appliances energy efficiency classes can be performed.

In general the development of effective verification system would be supported by all market players with one small exception that at a certain point some of the retailers may be affected if their locally produced brands do not comply with the requirements and this may reflect unfavorably on the support they are providing for some of the activities. But this may not be a big problem if they are informed early enough so that they have time to get prepared.

#### **2.4.2. Position of Retailers toward S&L**

The support and readiness to participate in the elaboration and implementation of such program is one of the highest stated. But this support is conditional on: the presence of bonuses and provision of incentives for participation; creation of a strict regime of enforcement and compliance with criteria; absence of administrative obstacles and creation of additional burdens; establishment of a commission ensuring compliance with adopted standards. Despite the high degree of support declared, there is still a lot of skepticism about the activities' eventual success. One is the general lack of transparency on the implementation and enforcement of such a program and the other one is the continuing low purchasing capacity of the population, which prevents the sales of higher energy efficiency class appliances.

The general opinion is that current growth in the sales of higher energy class appliances is already watched. Nevertheless they consider that the program could accelerate the trend of growth.

There is a general understanding on the benefits of the labeling regime for the consumer. Labeling ensures a better choice and it also works for the improvement of the awareness of customers as they purchase household appliances.

Some players express doubt about the validity of the information placed on the labels. There is a general lack of enforcement of legal regimes and rules in the country. Strict enforcement of regulations is one of the main recommendations of the companies. This appears to be particularly relevant for appliances imported from China. One of the stakeholders expressed doubt whether a Chinese-produced energy efficiency class A washing machine can be sold at 300 BGN /150 EURO. Despite the overall pessimism about the enforcement of legal regimes, there is a clear recognition that enforcement does have an important positive effect on household appliance purchases.

### **2.4.3. Corporate public and private sector buyers**

A survey conducted among the corporate large buyers shows that:

- Appliances are purchased separately, for private establishments equipment (98%). Partnership between companies is not widely spread (2%). The only customers who practice this are representatives of municipal administration.
- The main reasons for buying appliances in 2005 are:
  - New (first) equipment (43%).
  - Renovation of the home (37%).
  - Relatively small part purchase appliances because of worn out, old appliances (14%).
- Corporate customers are interested in buying air-conditioners, refrigerators, and electric ovens. Purchase motivations of corporate buyers confirm the conclusion that the market is price-driven. But it also shows that the corporate buyers start to pay more and more attention to energy efficiency. The Top 3 most important factors in choosing appliances are:
  - Price (79%);
  - Technical specifications of the product (53%);
  - Energy class (42%).
- Other important factors are also the brand (41%), “after-sale” servicing and guarantees (41%), the brand (24%).
- Similar is the motivation for choosing the retailer. The most important factors are:
  - Price and proposed discounts (80%);
  - Guarantees and after-sales servicing (64%);
  - Delivery period (10%).

The survey does not show any specific routines when purchasing appliances. 35% work with one and same retailer all the time, but 63% use the services of different retailers depending on the needed products and the price.

#### 2.4.4. The general public

The average monthly income in 2005 varies between 150 and 230 BGN (75 – 115 EURO) per member of household. Compared to the income level, the price level of household appliances is still quite high, even if they are lower than the average prices in other European countries. That is why the majority of realized sales are in the low-to-middle price levels (as it can be seen in the quantitative data given further down in the report).

Table 10: Average household income

Average income per member of household in BGN												
Year	Month											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
2005	156.73	147.58	162.89	175.63	178.84	177.33	183.17	190.92	194.07	192.72	187.22	229.71
2004	141.26	135.56	148.66	157.40	161.71	161.86	183.77	172.53	176.83	171.58	176.43	219.14
2003	128.82	122.39	135.79	142.38	146.59	152.29	157.2	156.96	156.98	156.21	162.10	210.61
2002	113.40	113.20	126.50	130.60	136.58	135.34	137.34	142.68	148.45	146.73	144.13	195.49
2001	105.90	99.20	112.20	117.60	122.30	122.30	123.80	125.90	126.80	126.10	126.80	152.60
2000	101.60	94.20	105.10	109.60	112.80	112.40	123.10	118.40	122.90	121.60	126.80	171.30

Note: 1 EUR = 1.95583 BGN

\*Source: National Statistical Institute

The differences in month's income are due to the fact that according to the methodology used by the statistical institute the monetary and the in-kind income for the period are included in the total monthly income. The in-kind household income includes the value of food and non-food products produced privately or received for free from other sources.

Figure 4: Trend in annual average household income per member of household in BGN



Source: stat.bg

Table 11: Average prices of household appliance

Average price per product category	BGN	EUR
Refrigerators / freezers	720	360
Washing machines	630	315
Tumble dryers	670	335
Dish washers	660	330
Air conditioners	610	305
Electric ovens/cookers	540	270

Source: Alpha research – ad-hoc market research, March 2006

The survey of household appliance prices on the Bulgarian market shows that the purchase of a new appliance is a significant burden for an average household and the main reason for purchase of low-price and quality products. This is confirmed also by the market stakeholders and is leading to the general conclusion that Bulgarian market is highly price driven. Price levels continue to be the most important consideration when customers make purchasing decisions.

Still there is an important market differentiation in terms of consumer demand on a national scale. Sofia and the big cities continue to enjoy rising consumer demand, while also enjoying higher sales of energy efficient class products. At the same time, consumers in the countryside continue to buy lower energy class appliances at a significantly lower level of demand.

Most market stakeholders identify a definite trend of rising demand in the last few years which is the reason for increased sales. At the same time, that demand is exceeding the official levels of income. One reason for this might be the availability of financial resources, which are in the form of “hidden income” (not declared) in many households. Another reason is the continuing credit expansion.

Possible barrier could be that with current electricity prices the savings from the purchase of high-energy efficient appliances are not comparable with the price difference and the pay back period will be about 7 years for the consumer (the savings for the State or utility are not included in that calculation). In order to have successful implementation of energy efficiency labeling program in the country and sustainable market transformation a necessity appears for development of financial incentive scheme for end-use consumers to compensate the initial high cost investment burden.

Please specify on how many years the savings have been calculated (product life time)

	A++/C	A++/B	A++/A	A/C	A/B	B/C
Refrigerators	kWh/y	kWh/y	kWh/y	kWh/y	kWh/y	kWh/y
1. Energy savings	kWh/y					
1D - 80-90 cm	180	135	75	105	60	45
Refrigerator freezer	346	259	144	202	115	86

2. Energy cost savings	BGN/y					
	1D - 80-90 cm	26	20	11	15	9
Refrigerator freezer	51	38	21	30	17	13
Average price difference, BGN	422	286	155	267	131	136

Table 12: Prices of household appliance per category and energy class

Price per energy class	A+, A++	A	B	C
Refrigerators/freezers	950 BGN or 475 €	800 BGN or 400 €	680 BGN or 340 €	420 BGN or 210 €
Washing machines	-	680 BGN or 340 €	460 BGN or 230 EURO	*
Electric ovens	-	580 BGN or 290 €	400 BGN or 200 €	350 BGN or 175 €
Tumble dryers	-	*	*	600 BGN or 300 €
Dish washers	-	700 BGN or 350 €	600 BGN or 300 €	250 BGN or 125 €
Air conditioners	-	1000 BGN or 500 400 €	*	*

\* No data available about that energy class.

Table 13: Prices of cold appliance per category and energy class

Price per energy class and type of refrigerators/freezers	A+, A++	A	B	C
One door refrigerators	*	480 BGN or 240 €	290 BGN or 145 €	340 BGN or 170 €
Two doors refrigerators	900 BGN or 450 €	730 BGN or 365 €	630 BGN or 315 €	*
Two doors refrigerators combined with freezers	1000 BGN or 500 €	900 BGN or 450 €	960 BGN or 480 €	550 BGN or 275 €
Freezers (chest and upright)	*	570 BGN or 285 €	460 BGN or 230 €	450 BGN or 225 €
Side by side refrigerators	*	2600 BGN or 1300 €	2400 BGN or 1200 €	*

\* No data available about that energy class.

Source: Alpha research – ad-hoc market research, March 2006

The main reasons for the final consumer to buy new appliances are:

- Renovation (26%);
- New equipment (18%);
- Broken-down old appliances that cannot be repaired (13%).

The share of people who buy appliances driven by desire to have the latest products on the market is relatively small (6%). These are mainly customers at the age of 18–30 who live in the largest cities.

When selecting an appliance the top criteria is the price, but the energy class has certain importance as well being in the middle of the ranking. The most important factors for choosing an appliance are:

- Price (74%);
- Brand (57%);
- Technical specifications of product (55%);
- Energy class (39%);
- Manufacturer (29%);
- Country of origin (19%);
- Guarantees and after-sales servicing (13%).

Private customers usually choose the appliance in the shop (40%), although a considerable part of them (31%) are used to consult their friends and relatives about the brands and stores on advance, 25% look for information provided by manufacturers and retailers.

Most attention is paid to the advices given by friends and relatives (43%) and to retailers' brochures (35%). 22% of the respondents point out advertisements as source of information.

One important observation is that there is a specific cycle in sales. This cycle is seasonal and represents a very important determinant of the level of sales.

### **3. OVERVIEW OF THE NATIONAL MARKET**

#### **Overall market evaluation**

The evaluation of the market is based on the ad-hoc market research conducted by Alpha research Ltd. – market and research agency - implemented during the period February - March 2006. Three main methodologies have been applied for the survey – desk research, 32 in-depth interviews with the main market stakeholders (manufacturers, importers and biggest retailer chains) and 300 face-to-face interviews with buyers.

Several conclusions were driven from the conducted survey:

- Bulgarian market of household appliances is expanding over the last few years, a trend of growing demand and growing numbers of sales.

- Driving factors: stable economy, currency stability, greater range of banking services; more credits, more leasing schemes.
- Demand expansion exceeds the income levels, fuelled by credit expansion and remittances.
- Growing demand is leading to better competition and market development and overall lowering the prices.
- Still predominantly a price-driven market; still high readiness to trade quality for lower price; small segment willing to buy at higher price range;
- Slow shift from cash to credit market.
- Some shades in opinions: growth starts from low base; growth is based in big cities; uncertain growth in sales of high-energy class appliances.
- Important obstacles remain: contraband import; low income levels; still strong preference for cheap models, respectively to lower energy class.
- Still difficult to get precise picture: market in development.
- High brand saturation level
- Presence of unfair competition and significant “gray market”, finally influencing the customers. Note: gray market = contraband import and “hidden sales” (non-disclosure of sales with the purpose of tax evasion).
- Bigger companies tend to be more optimistic for the future market transformation.

### **Import and export**

The share of locally manufactured products is 3% vs. 97% of imported appliances.

The established brands are imported from the countries where they are produced: EU and Central-East European countries. Most of the local retailer’s brands come from Turkey and Asian countries (mainly China). The “retailers brands” are local brands (most of them owned by biggest importers/retailers chains but produced abroad) such Crown, Sang, Neo, Elite, Alaska, etc.

According to the data from the quantitative research conducted for the project, the majority of sold appliances are established brands.

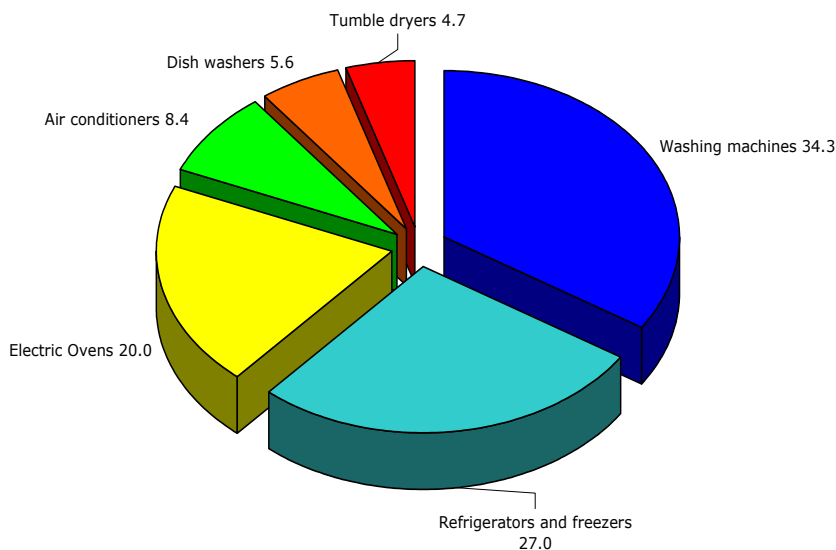
Thus, the share of products imported from European countries could be estimated at about 70% - 75%. The other products come from Turkey and Asian countries.

### **General market overview. Product trends**

The total volume of home appliances market for the year 2005 is estimated at approximately 650,000 sold product units. This number is a general estimation based on the information supplied by the retailers, as well as based on other sources like customers’ research and public information. Many of the retailers declare that the number of sales data is confidential corporate information and refuse to answer this question. So it is possible that the volume of

the market is underestimated because of the hidden sales. The market shares of each product category show different weights.

**Market share of main product categories (%):**

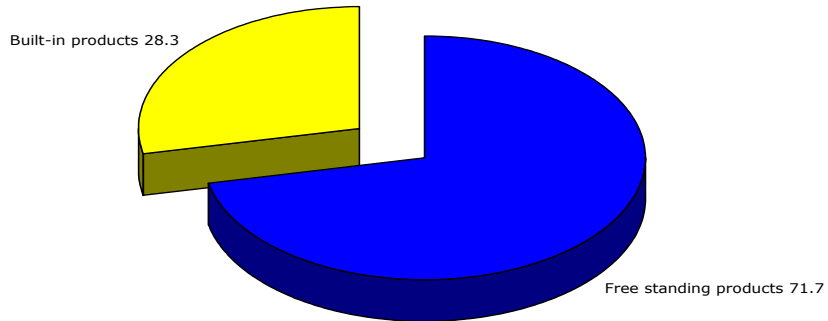


The data from the largest retail chains shown above reveals that in 2005 the products with most sales on the Bulgarian market are washing machines, cold appliances and electric ovens. Air conditioners, dishwashers and tumble-dryers are still a relatively small part of the home appliances market.

Common opinion of the main retailers is that there is a clear tendency towards:

- Decrease in demand for freezers;
- Increase in demand for combined two-door refrigerators, with bottom freezer compartment as well as no-frost cooling system;
- Increase in demand for washing machines, dish washers and inverter air conditioners (although their market share is still small);
- Shift towards higher energy class products (especially in the categories, which are most actively purchased);
- Increase in demand for built-in products, although the sales of free standing appliances still dominate the market;

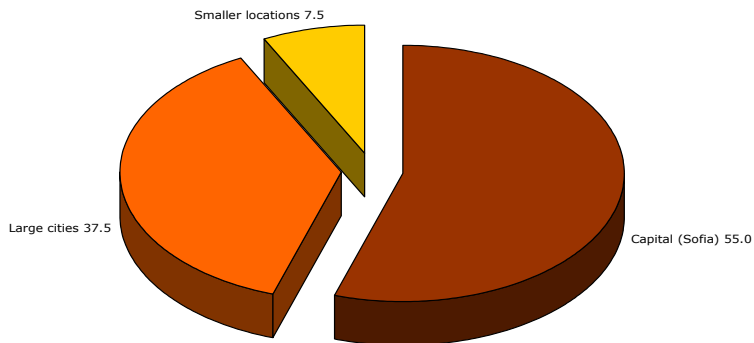
**Sales of free standing and built in products (%):**



The majority of sales in 2005 are realized in the city of Sofia (55%), followed by the regional centers around the country (37.5%). Only 7.5% of the sales are done in smaller locations. The factors, which determine such market situation, are:

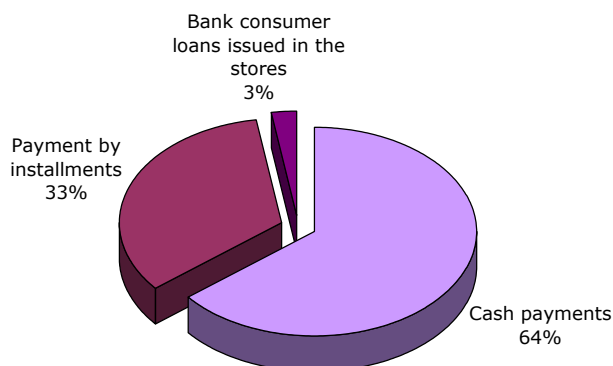
- Lower level of consumer demand in the smaller locations compared to the larger regional centers;
- Available network of stores: home appliances hypermarkets and stores are located mainly in the regional centers. There are some shops in the smaller locations, but they are not price competitive to the largest stores. So the customers who live in smaller locations more often purchase their product from the regional centers.

**Sales by type of locations (%):**



According to the retailers' opinion, one of the main factors for the market growth is the introduction of various schemes of non-cash payments like leasing, bank loans, etc. Although the cash payments still prevail, the share of non-cash ones is increasing and has reached about 36% in 2005.

**Sales per ways of payment (%):**

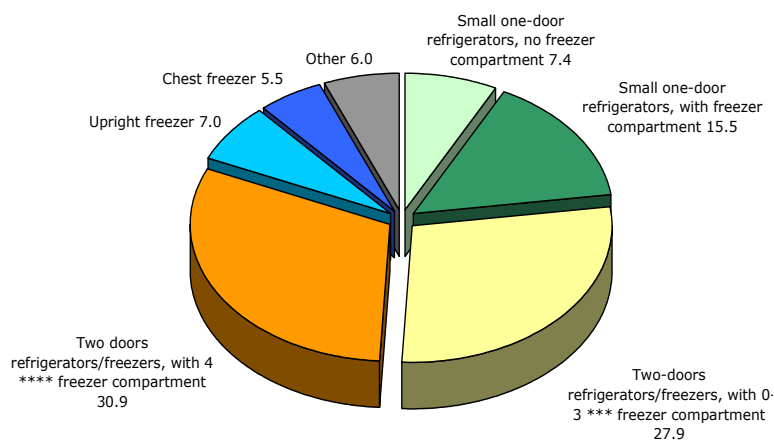


**Most important product categories differentiated in the EU label directives**

a) *Cold appliances: 27% of the total market, approximately 175,000 product units sold*

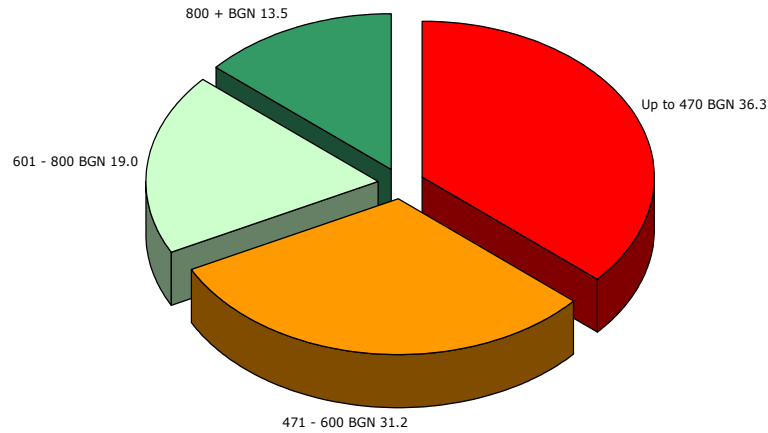
The largest share of sales belongs to the two-door cold appliances with 4\*\*\*\* freezer compartment (30.9%) and 3\*\*\* freezer compartment (27.9%). Small one-door refrigerators and freezers (upright or chest) present a relatively small market share:

**Share different types of cooling appliances (%):**



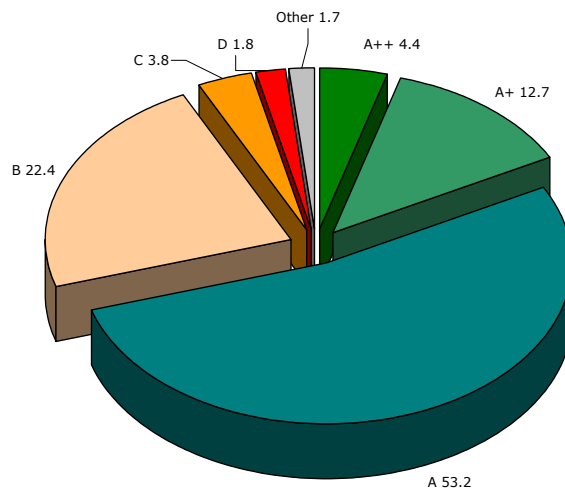
The market of cold appliances is relatively equally distributed between low, middle and high price products. In 2005 the largest share of refrigerators and freezers are sold at a price of up to 470 BGN (235 EURO) and 471–600 BGN (235–300 EURO). Considerable share of cold appliances is sold at prices over 600 BGN (300+ EURO) also.

**Price level of sold refrigerators/freezers (%):**



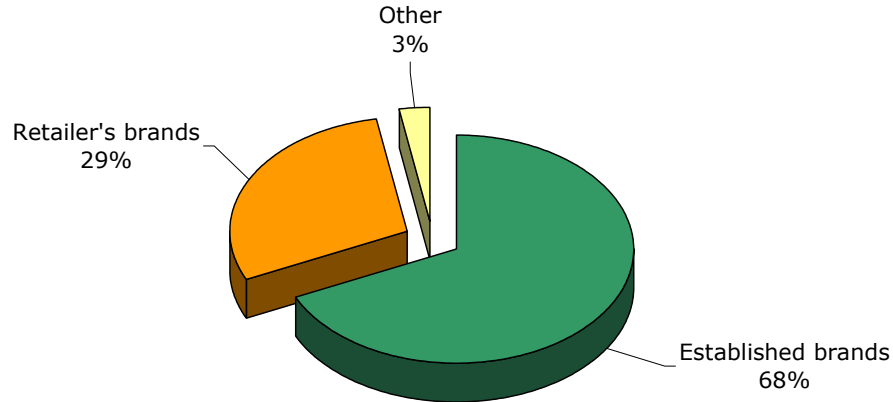
The data on refrigerator/freezer sales by energy label class shows a shift towards higher energy classes on the Bulgarian market. More than half of the sold cold appliances are “A” and higher energy classes, about 22% are of energy class “B”.

**Energy classes of sold refrigerators/freezers (%):**



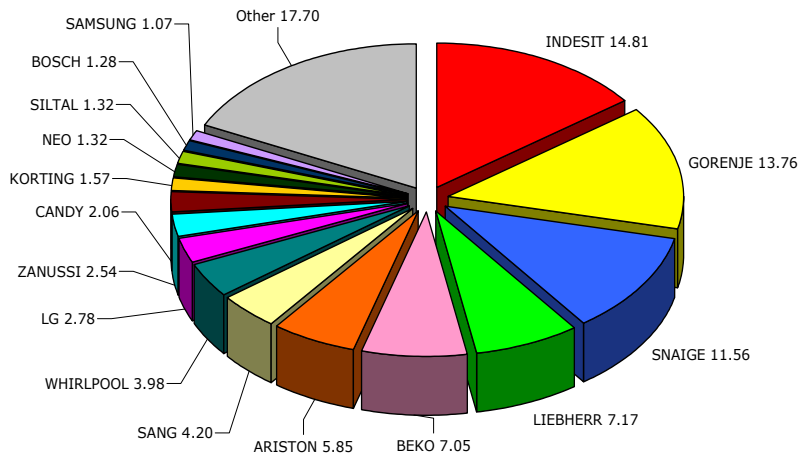
The established brands of cold products dominate over the local retailer's brands. There is only one manufacturer working on the local market (Liebherr) and it is mainly foreign-export orientated. There are a few other local retailers' brands - Crown, NEO, Alaska, etc., which are owned by Bulgarian companies but are produced abroad.

**Types of brands of sold refrigerators and freezers (%):**



Leading brands of refrigerators and freezers on the Bulgarian market in 2005 are Indesit, Gorenje, Snaige and Liebherr. Because of lack of data on one of the mayor stakeholders (Zora company), it is possible that their local retailer's brand (Crown) and Whirlpool (as Zora company is one of their main distributors) are underestimated in the brand distribution shown below.

**Sales of refrigerators/freezers per brand - market share in %:\***



\*Because of the missing data from Zora company, their brand Crown is underestimated. Zora company is one of the official distributors of Whirlpool products and that is why the brand is also underestimated.

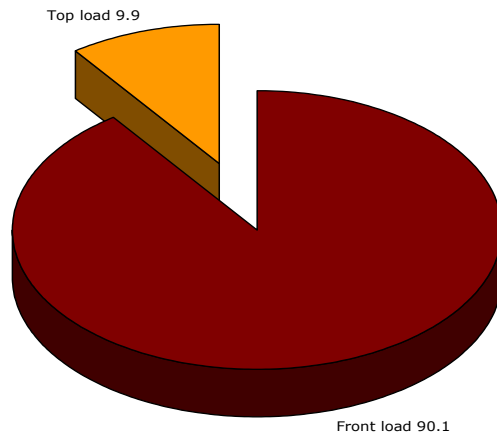
Two main conclusions could be drawn:

- The brands of established foreign manufacturers are leading on the Bulgarian market of cold appliances;
- The local market of cold appliances is too fragmentary. There are more than 40 brands presented. Only the brands with more than 1% market share are given in the chart. The share of “other brands” (17.70%) includes 26 brands with less than 1%.

*b) Washing machines: 34.3% of the total market of home appliances, approximately 240,000 product units sold.*

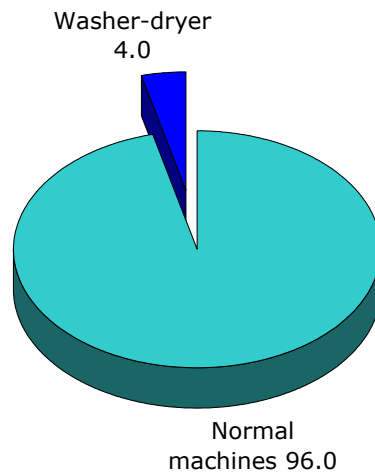
As it was pointed above, the retailers identify a clear tendency towards increase in the demand for washing machines. Some of the interviewed retailers stressed on the slight increase in the sales of top load washing machines, although the data does not show it clearly. In 2005 the washing machines market is totally dominated by front load (90,1).

**Types of sold washing machines (%):**



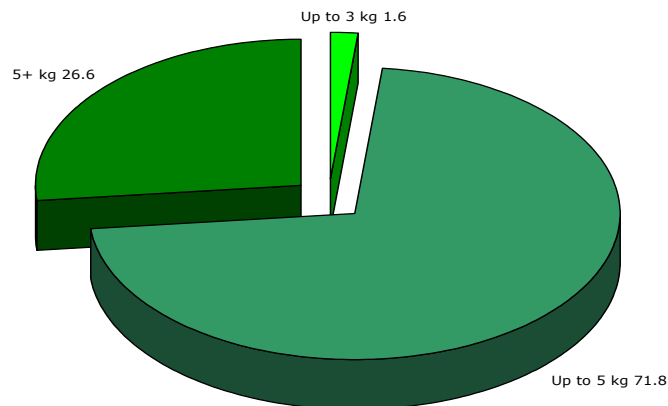
The sales of normal washing machines dominates (96%) over the sales of combined washer-dryer machines.

### Sales of normal and combined washing machines (%):



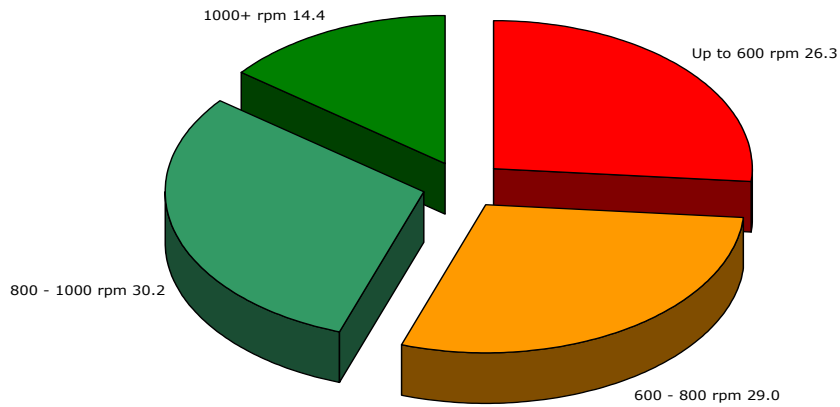
The data shows that the middle capacity washing machines (up to 5 kg) have the largest market share. Small capacity washing machines are rarely sold and have just 1.6% share of the market.

### Capacity of sold washing machines (%):



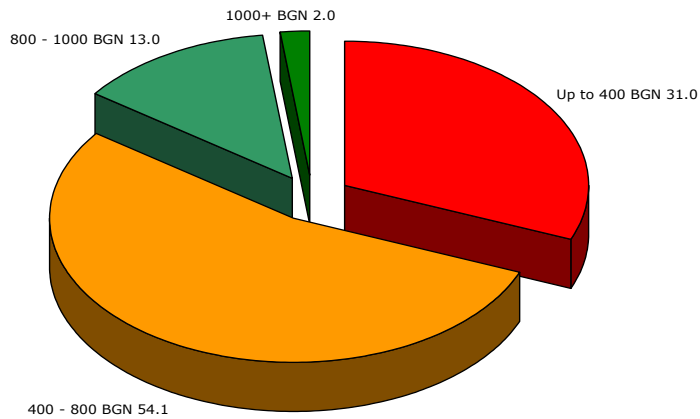
A comparison between the distribution of sales according to capacity and spin speed shows that the market tends to develop towards middle capacity (up to 5 kg) with higher spin speed machines. The largest shares are to 600–800 rpm (29%) and 800–1000 rpm (30%) machines. At the same time, machines with less than 600 rpm spin speed still keep an important market share.

**Spin speed of sold washing machines (%):**



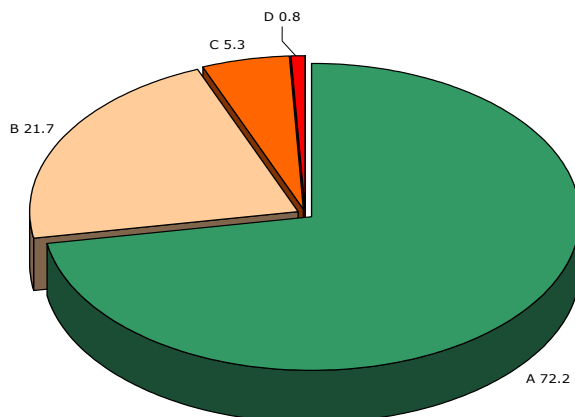
The largest share of sales is realized at prices between 400 and 800 BGN (200–400 EURO), but the share of low price level sales is also considerable (31%).

**Price level of sold washing machines (%):**



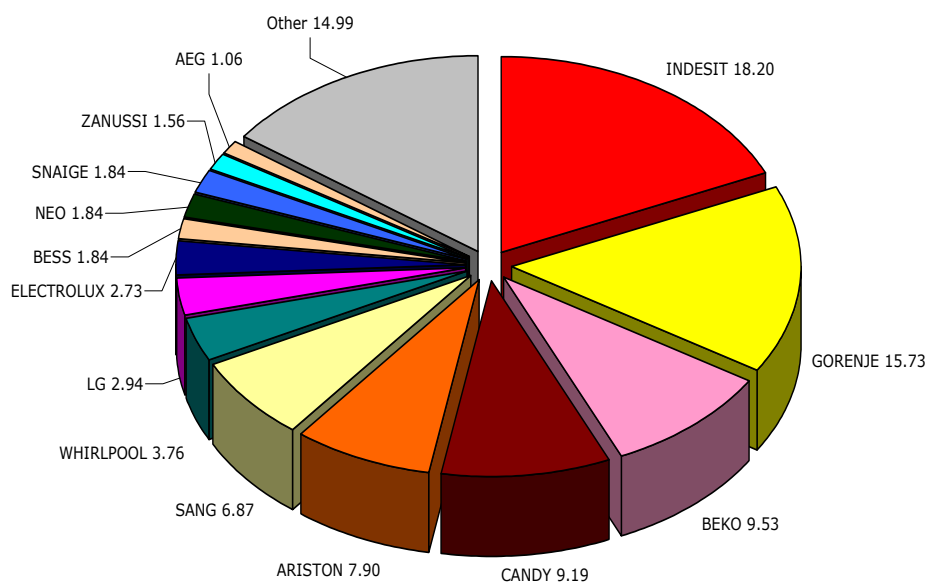
The sales according to the energy label class show that the market for washing machines is developing towards higher energy classes. The majority of washing machines sold in 2005 are of energy class “A”. The “B” energy class still has a considerable market share but the lowest energy classes are almost off the market. Most of the retailers declare that they do not offer “C” and lower energy classes of washing machines in their range of products.

Energy classes of sold washing machines (%):



The market is dominated by the established brands. The variety of local retailer's brands is also well presented. Indesit and Gorenje are the leading brands, followed by BEKO, CANDY and ARISTON. Because of lack of data from one of the mayor players (Zora company), it is possible that their local retailer's brand (Crown) and Whirlpool (as Zora company is one of their main distributors) are underestimated in the brand distribution below. Similarly to the market of refrigerators, the market for washing machines is also highly fragmentary. The total number of presented brands is approximately 35 and 21 brands have less than 1% market share.

Sales of washing machines per brand - market share (%):\*

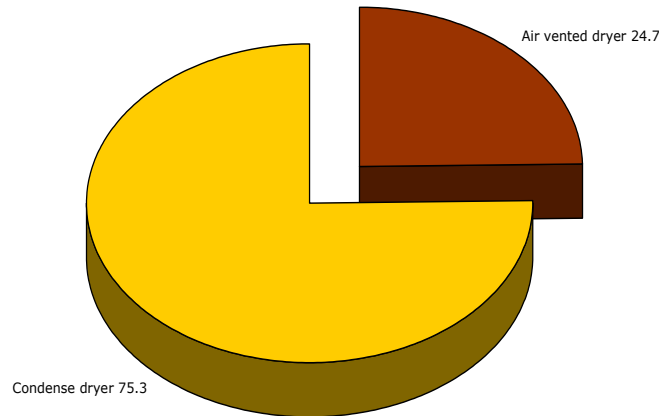


\*Because of the missing data from Zora company, their brand Crown is underestimated. Zora company is one of the official distributors of Whirlpool products and that is why the brand is also underestimated.

c) *Tumble-dryers: 4.7% of the total market, approximately 9500 product units sold.*

The tumble dryers are the product category with the lowest share of sales on the Bulgarian home appliances market. There is no active demand, nor active supply of this product. The underdeveloped market of tumble dryers in Bulgaria is characterized by:

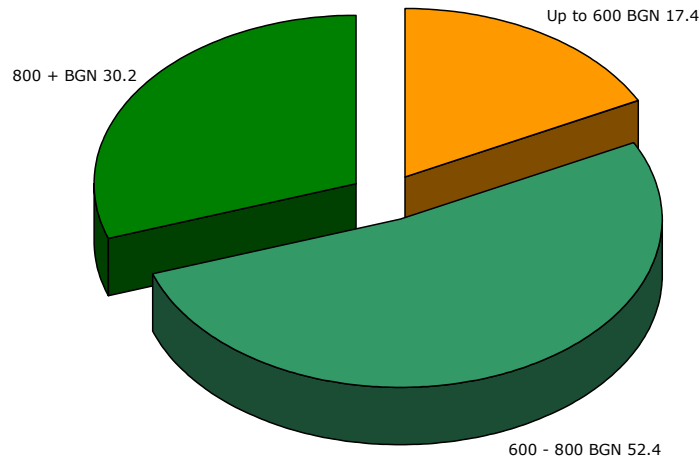
**Types of sold tumble dryers (%):**



- Limited number of presented brands – only 15, which is quite small number compared to washing machines;
- Domination of lower energy classes (C and lower), which are quite expensive compared to the other product categories.

Depending on the type of the tumble dryers, the market is dominated by condense dryers (75%). The largest share of sales is realized at prices between 600 and 800 BGN (300–400 EURO) and more than 800 BGN (400 EURO).

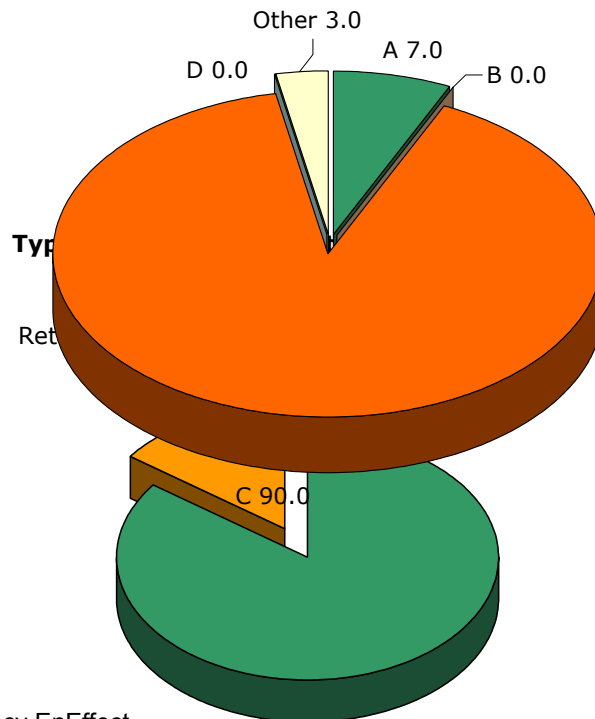
**Price level of sold tumble dryers (%):**



But even these expensive (compared to the washing machines) products are of low energy classes: “C” energy class has the largest share of sales, followed by a small share of “A”.

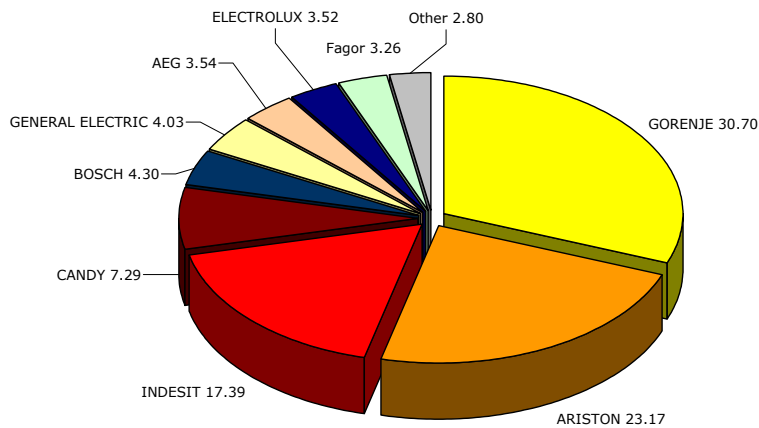
However a 7% market share for A-class driers is still far above the possible level for Bulgaria as the only manufacturer of such class machines is AEG. This could be an indication of an erroneous data or a fraud. The data was not collected by energy class and manufacturers, which makes the allocation of the exact manufacturers included in these 7% impossible.

**Energy classes of sold tumble dryers (%):**



As far as the market of tumble dryers is quite contracted, there is clear predominance of a limited number of established brands. The leading brands are Gorenje, Ariston, Indesit, Candy, etc.

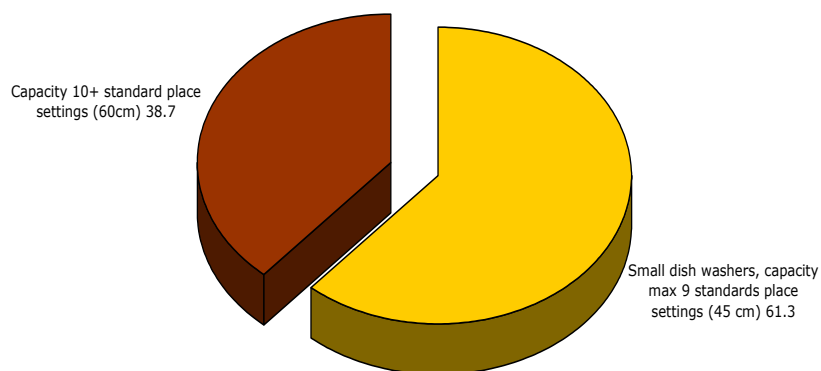
**Sales of tumble dryers per brand - market share (%):**



d) *Dish washers: 5.6% of the total market, approximately 36,000 product units sold.* The dishwashers market is the other one with relatively small market share. Similarly to the market of tumble dryers (although to a different degree), it is skewed towards middle to high price levels. But in contrast, the available dishwashers are of higher energy class and there is a larger range of products. The development of the dish washers market should be pointed out as well. The survey revealed that two years ago the market was dominated by the low energy classes, but now the situation has improved. The small dishwashers dominate the market in Bulgaria. The

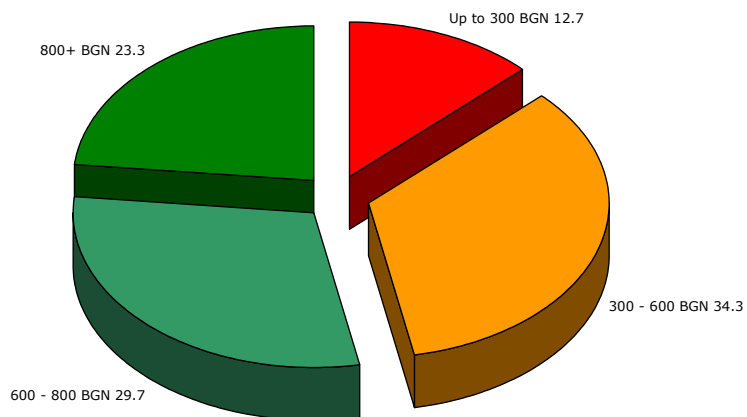
majority of sold products (61%) are with capacity of max 9 standard place settings.

**Types of sold dish washers (%):**



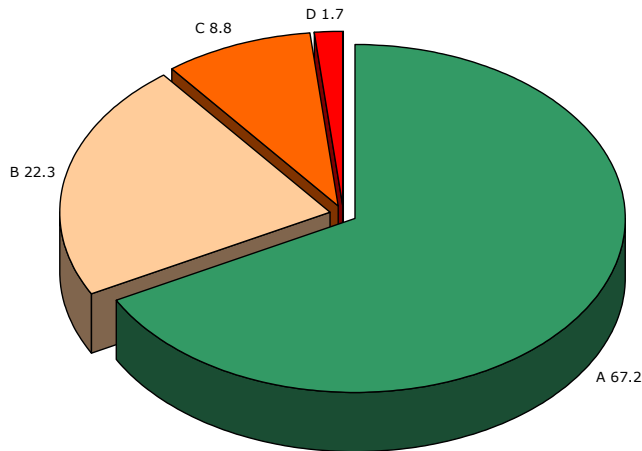
As it was pointed above, the sales of dish washers are realized on middle to high price levels: 34% between 300 and 600 BGN (150–300 EURO), 30% between 600 and 800 BGN (300–400 EURO) and 23% at price more than 800 BGN (400 EURO).

**Price level of sold dish washers (%):**



A substantial part of sales still consists of “B” and lower energy class products. But the comparative data shows that there is a significant shift towards “A” energy class.

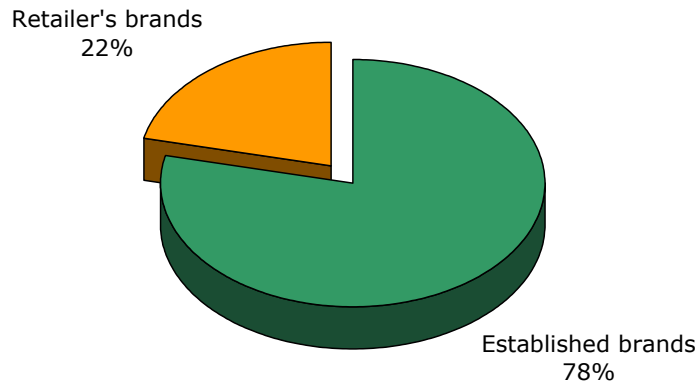
**Energy classes of sold dish washers (%):**



*Note: The analysis does not reflect the energy class in combination with the dishwashers' performance class*

Contrary to the tumble dryers market, there is a considerable share of local retailer's brands on the dishwashers market. According to the data received from the retailers the no-name brands, that were widespread on the market a few years ago, are not present any more. At least, they are not available in the large retail chains.

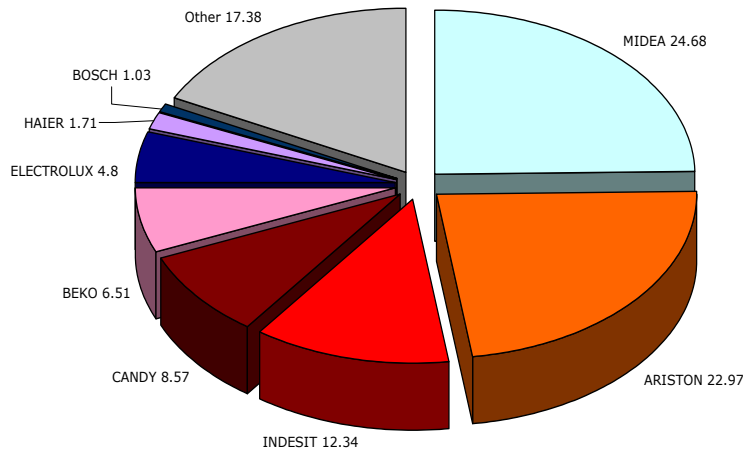
**Types of brands of sold dish washers (%):**



Leader on the market is the Chinese brand Midea. The established brands Ariston, Indesit, Candy are also well presented. Although relatively high number of brands is presented, only 8 brands have more than 1% market share. Another 12 brands (and among them many local retailer's brands) have less than 1%. Due to the lack of data from one of the major stakeholders (Zora company), it is possible that their local retailer's brand (Crown) and

Whirlpool (as Zora company is one of their main distributors) are underestimated in the brand distribution.

Sales of dish washers per brand - market share (%):\*



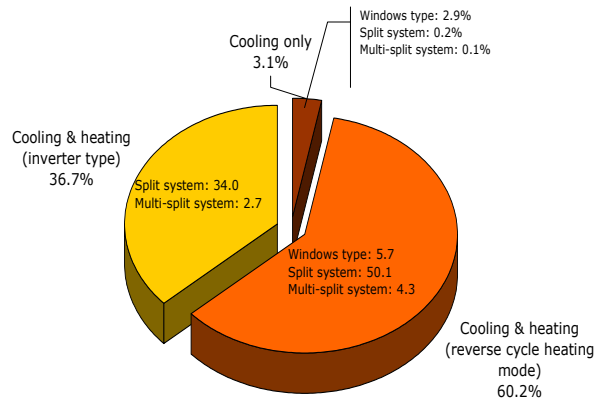
\*Because of the missing data from Zora company, their brand Crown is underestimated. Zora company is one of the official distributors of Whirlpool products and that is why the brand is also underestimated.

e) Air conditioners: 8.4% of the total market, approximately 55,000 product units sold.

According to the retailers' opinion, there is a clear tendency towards increase in the demand for air-conditioners and in particular of inverter air conditioners.

In 2005 the largest market share is of reverse cycle heating mode air conditioners (60.2%), followed by the inverter type (36.7%). Air-cooled package units are only 3.1% of the sales. The split systems dominate the market. The demand of multi-split systems is increasing, especially in the category of air conditioners of inverter type.

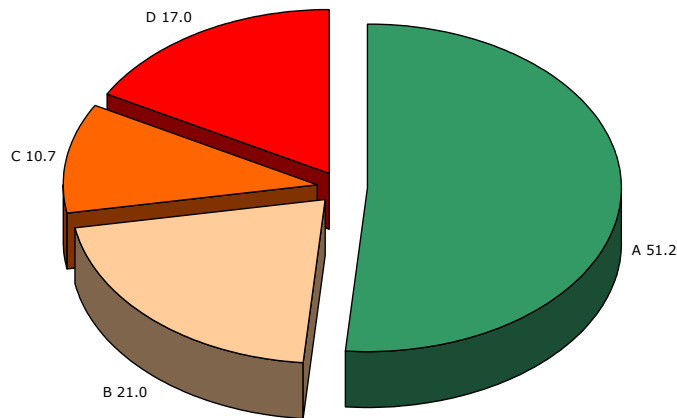
Types of sold air conditioners (%):



The majority of sales are realized at low to middle price levels. 26% of the sales are at prices less than 350 BGN (175 EURO) and 37.6% at prices between 300 and 600 BGN (150–300 EURO). Another sizable group is the sales at prices over 1000 BGN (500 EURO), which are mainly inverter air conditioners. In Bulgaria simple air conditioners with resistant heating mode (using a compressor for cooling and electric resistance heater for heating) have insignificantly small share on the market.

51% of the sold air conditioners in 2005 are of “A” energy class, but the lower energy classes still have quite large market share. The air conditioners are the only product group with such a high share of “D” energy class – 17%. One reason for this could be that the label is new and manufacturers have not yet eliminated their less performing models. An important note should be made here. The energy class distribution is given on the basis of retailers’ responses. Almost half of the retailers declare that, as far as they know, there is no differentiation of air-conditioners by energy class. If this is incorrect, this could be an indirect indicator of the actual energy class level of air-conditioners sold in Bulgaria. The data energy class data of sold air conditioners is based on the responses given by half of the retailers in the sample. The other half did not declare any energy class distribution. This is why it is possible that the level of high energy class products is a little bit overestimated.

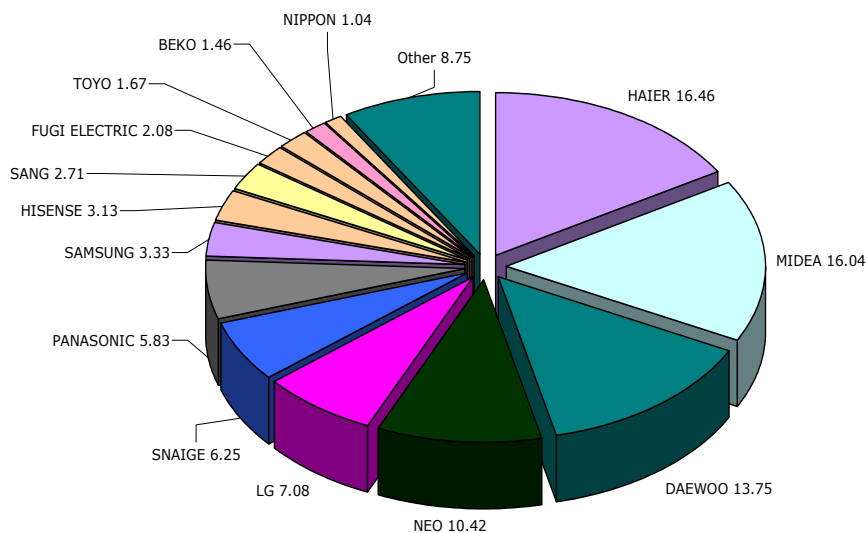
**Energy class of sold air conditioners (%):**



The data about the market share of established and local retailer’s brands of air-conditioners confirms the last conclusion. The air conditioners are the product group with highest share of local retailer’s brands among all reviewed so far product categories.

As it is seen on the chart, the Bulgarian market for air conditioners is too fragmented: more than 30 brands are presented and 14 brands have a market share over 1%. At the same time, there are another 16 brands with less than 1% market share.

**Sales of air conditioners per brand - market share (%):\***

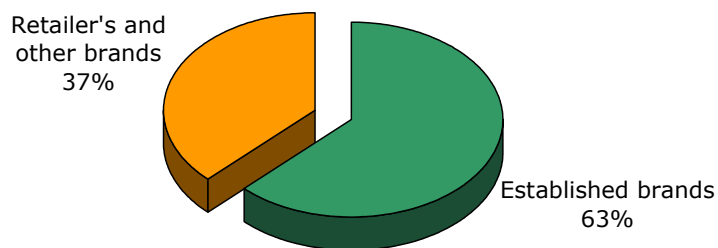


\*Because of the missing data from Zora company, their brand Crown is underestimated.

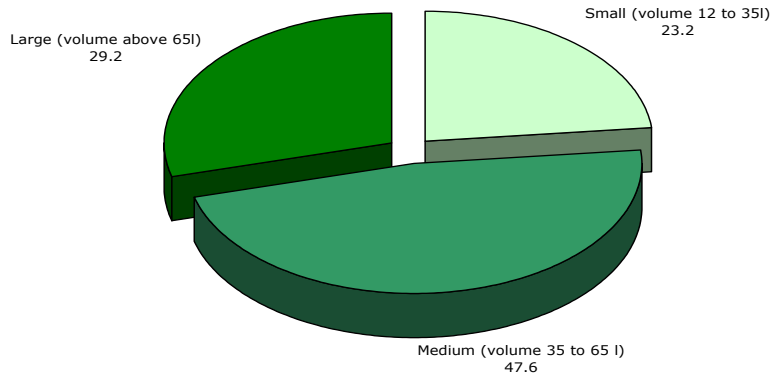
f) Electric ovens: 20% of the total market, approximately 130000 product units sold.

The electric ovens have the third largest market share. Middle capacity ovens (volume 35 to 65l) are most often sold. Small and large ovens have relatively identical shares.

**Types of brands of sold air conditioners (%):**

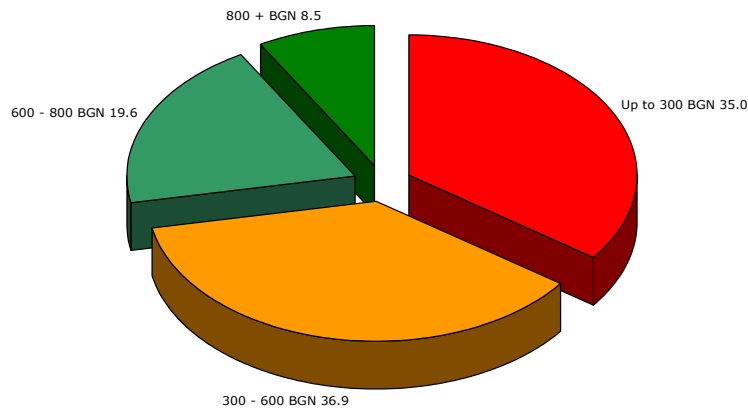


**Types of sold electric ovens (%):**



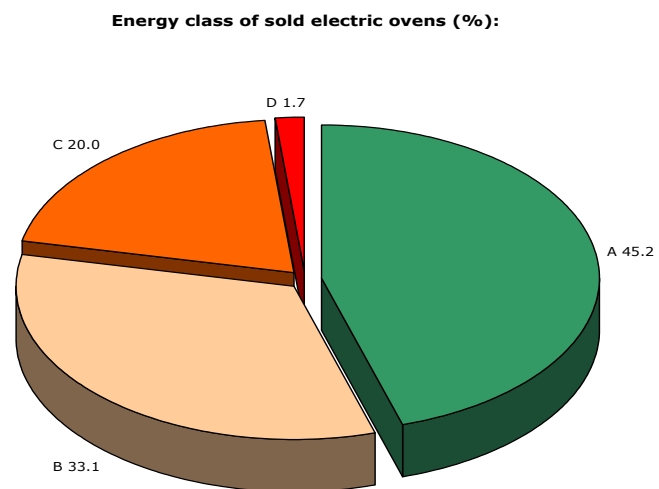
The sales of electric ovens are realized at low to middle price level: 35% are sold at less than 300 BGN (150 BGN) and 37% at 300 to 600 BGN (150–300 EURO).

**Price level of sold electric ovens (%):**

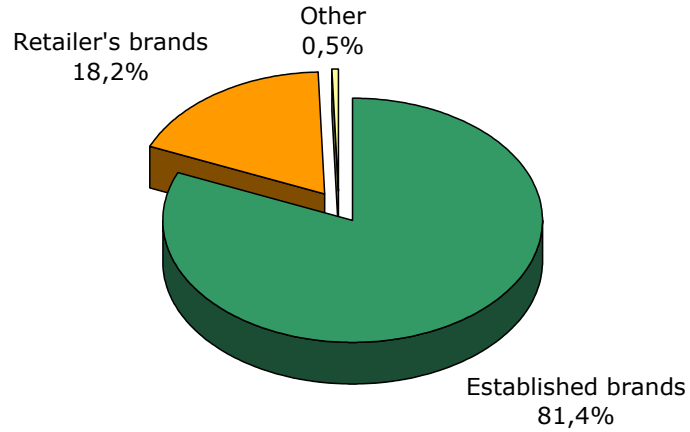


Contrary to the other actively sold product groups (cold appliances and washing machines where the largest share of sold units are highly energy efficient), the market of electric ovens could be described as one of the least developed. It is the second one (after the tumble dryers) in which the low energy classes dominate. 45% of the sold electric ovens and cookers are labeled “A” energy class, 33% are “B” and 20% are

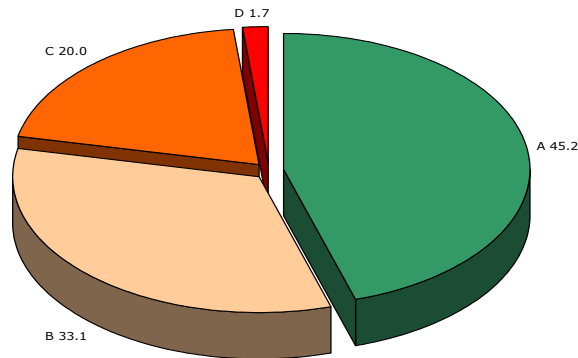
“C”.



**Types of brands of sold electric ovens (%):**



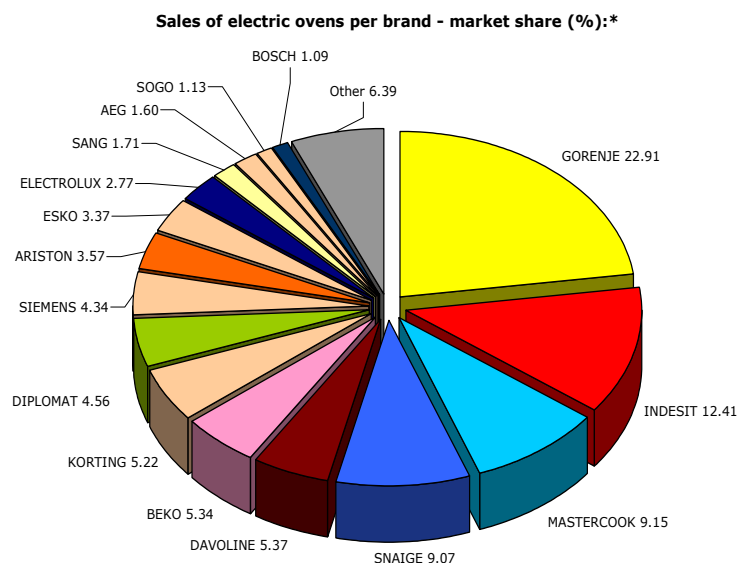
**Energy class of sold electric ovens (%):**



Similarly to the product categories with smaller shares (tumble dryers and dish washers), the established brands of ovens prevail over the local retailers' ones. But similarly to the groups of cold appliances and washing machines, it is also one of the products where some no-name brands are still presented.

Similarly to the categories of cold appliances and washing machines, the electric ovens market is highly fragmented. More than 30 brands are presented, half of them have more than 1% market share.

Leading positions on the market have the established brands Gorenje, Indesit, Mastercook, Snaige. The remaining part of the sales is distributed between many brands with relatively small market shares.



\*Because of the missing data from Zora company, their brand Crown is underestimated. Zora company is one of the official distributors of Whirlpool products and that is why the brand is also underestimated.

### Current penetration rates of appliances

According to the annual survey on the penetration of home appliances in Bulgarian households conducted by Alpha Research, almost all households possess electric cookers/ovens and refrigerators. The penetration rate of the other appliances is lower, especially of dishwashers and freezers.

Table 14: Penetration of main household appliances and trend of purchases

Year 2005

Type of appliances*	Possession	Years of usage / Purchases				Planned purchases in 2006 (% of households)
		2-5 years	5-10 years	above 10 years	Purchased last year	
Electric oven (cooker)	90,0%	11,4%	20,7%	53,9%	4,0%	3,0%
Refrigerator	94,8%	11,5%	26,2%	54,3%	2,8%	2,4%
Freezer	46,1%	10,8%	20,5%	12,8%	2,1%	1,5%
Washing machines	68,5%	14,8%	26,1%	22,8%	4,8%	3,2%
Dish washers	4,5%	1,3%	1,8%	0,9%	0,5%	2,7%
Air conditioners	9,1%	5,0%	2,1%	0,1%	1,9%	5,6%

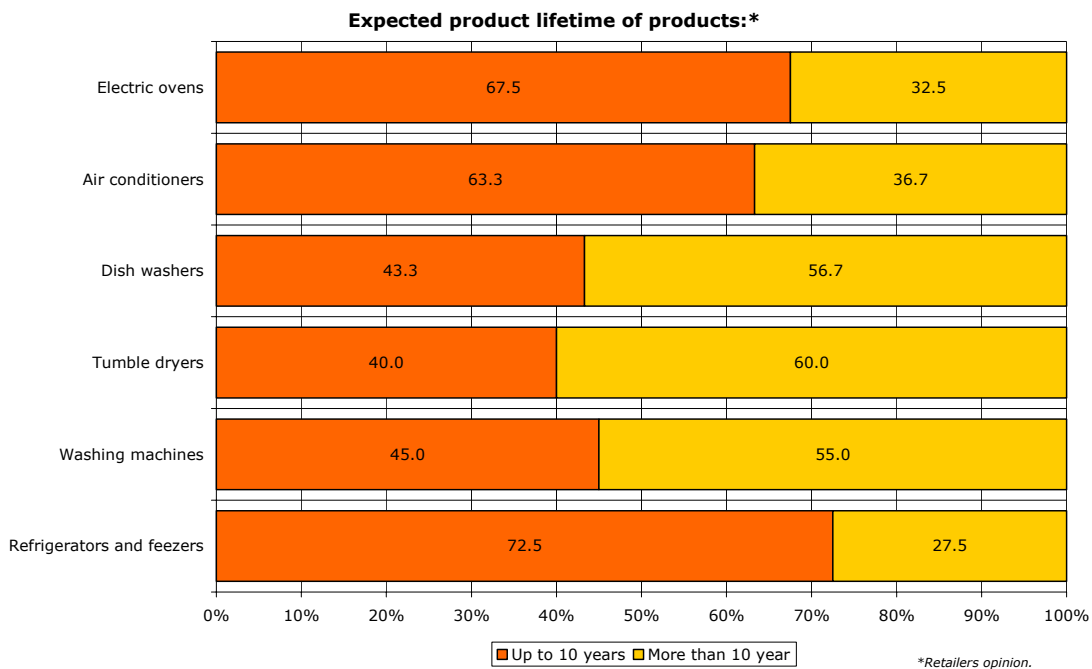
\*Data for tumble dryers will be available in the beginning of May 2006

A few main conclusions could be outlined from the above results:

- The majority of products with high penetration are more than 10 years old, which means that they are not energy efficient;
- In 2005 the washing machines are the largest product group (in terms of sales) among the surveyed appliances. This fits with the retailers' opinion about the increase in demand for this product;
- The data about the newly purchased household appliances in 2005 shows that the average number of purchased products is around 400,000 which corresponds to the estimated volume of sales, given by the retailers (the data concerns households only and does not include corporate customers);
- The customers' plans for the year 2006 are orientated towards air conditioners, washing machines and electric cookers/ovens.
- The future plans of the customers are least connected with purchases of freezers, a tendency outlined by retailers as well.

### Typical product lifetime

According to the household survey data, the usage period exceeds 10 years. At the same time, according to the retailers' estimation, most of the products that are present on the market have up to 10 years lifetime.



It is important to note that not all retailers provide answer on this question. As far as there is no official standard definition of the products lifetime, they are not willing to make predictions. But the common opinion is that 10 years is the average product lifetime of home appliances that are present on in the Bulgarian market.

## 4. POLICY & LEGAL SECTION

### 4.1. POLICY – TRANSPOSITION OF EU LABELING AND MEPS DIRECTIVES

The priorities of the energy sector policy in Bulgaria ensue from the National Plan for Economic Development and comply with the Energy Strategy of the country. One of the principal goals of the **Energy Strategy of the Republic of Bulgaria** comprise promotion of investments in energy efficiency at end-use; support, including state guarantees, for projects for demand-side energy management, which have significant social impact; promotion of the development of more efficient than electricity space heating options and improvement of the access of the population to them. According to the principles laid down in the strategy, energy efficiency is a means to improve the quality of the energy services at acceptable public costs and an opportunity to reduce final energy consumption.

**The Energy Act**, passed by the 39<sup>th</sup> National Assembly on 26 November 2003, is a primary legislative act for Bulgaria. The law is based on the Energy Strategy of the Republic of Bulgaria from 2002 and lays down the foundations for introduction of a regulatory regime on the markets for electricity, natural gas and district heating in the country and in compliance with the EU Directives for the common European market for electricity and natural gas. Consumer protection is one of the priorities of the Energy Act and is laid down in the provisions for quality of services, which will be further detailed in by-laws on that subject.

**The Energy Efficiency Act** was passed on 19 February 2004 and promulgated in the State Gazette on 5 March 2004. By virtue of this law energy efficiency has been recognized as a national priority. The law defines in a clearer manner the commitments of and support by the state concerning the setting in place and development of institutional, regulatory and financial conditions for implementation of the national policy in the field of energy efficiency. In compliance with the requirements of Directive 2002/91/EC of the European Parliament and the EU Council of 16 December 2002 concerning the energy performance of buildings, the law contains imperative norms, which legal entities should observe in the course of construction, retrofitting, modernization and operation of buildings.. The Energy Efficiency Act provides also for the setting up of an Energy Efficiency Fund, whose objective is to manage the financial resources allocated for development of energy efficiency investment projects in compliance with the priorities laid down in the annual energy efficiency programmes approved by the Council of Ministers.

The harmonization of the Bulgarian legislative framework with the European one in the field of appliances has been conducted through the introduction of the European acts of the *acquis communautaire*, which form part of the Global Approach and the New Approach. The European Directives, incorporated in the New Approach, are introduced in the country by virtue of ordinances, which define the significant specific requirements for these products on the grounds of the **Law on Technical Requirements with Respect to Products**. Directives related to the Global Approach, which deal with the requirements for labeling of appliances, are introduced in Bulgarian legislation on the grounds of the **Law on Consumer Protection**.

### **Ordinance concerning the requirements for labeling of appliances with respect to their consumption of energy and other resources**

The Ordinance has been worked out by the Ministry of Economy (currently Ministry of Economy and Energy) and approved by virtue of Council of Ministers' Decree No 224 of 9 October 2003, in force as of 1 September 2004. The Ordinance transposes in full the requirements of the Framework Directive and other Directives related to appliance labeling, namely:

The correct spelling of the names of the directives is in UK English. No need to change this to US English

- Council Directive 92/75/EEC of 22 September 1992 on the indication by labelling and standard product information of the consumption of energy and other resources by household appliances;
- Commission Directive 94/2/EC of 21 January 1994 implementing Council Directive 92/75/EEC with regard to energy labeling of household electric refrigerators, freezers and their combinations;
- Commission Directive 95/12/EC of 23 May 1995 implementing Council Directive 92/75/EEC with regard to energy labeling of household washing machines;
- Commission Directive 95/13/EC of 23 May 1995 implementing Council Directive 92/75/EEC with regard to energy labeling of household electric tumble driers;
- Commission Directive 96/60/EC of 19 September 1996 implementing Council Directive 92/75/EEC with regard to energy labeling of household combined washer-driers;
- Commission Directive 2002/40/EC of 8 May 2002 implementing Council Directive 92/75/EEC with regard to energy labeling of household electric ovens;
- Commission Directive 97/17/EC of 16 April 1997 implementing Council Directive 92/75/EEC with regard to energy labeling of household dishwashers;
- Commission Directive 2002/31/EC of 22 May 2002 implementing Council Directive 92/75/EEC with regard to energy labeling of household air-conditioners;
- Commission Directive 98/11/EC of 27 January 1998 implementing Council Directive 92/75/EEC with regard to energy labeling of household lamps;
- Commission Directive 2003/66/EC of 3 July 2003 amending Directive 94/2/EC implementing Council Directive 92/75/EEC with regard to energy labeling of household electric refrigerators, freezers and their combinations.

The Ordinance defines the obligations of manufacturers, importers and traders to present information about the energy efficiency performance of the appliances manufactured/ marketed by them by means of an energy label and information sheet in Bulgarian language. The control on the implementation of the Ordinance has been assigned to the Commission for Consumer Protection.

**The Law on Technical Requirements** with respect to products lays down the provisions for determination of the most substantial requirements concerning the products sold on the local market and the procedures for performing the assessment compliance and market supervision. Directives 96/57/EEC, 92/42/EEC and 2000/55/EEC are transposed by virtue of the following ordinances (by-laws):

- Ordinance concerning the substantial requirements for and assessment of the compliance of household refrigerators, approved in implementation of the provisions of the above Law. It defines the requirements for maximum permitted energy consumption of household refrigerators, freezers and combinations thereof. Approved by virtue of Decree No. 193 of the Council of Ministers of 23 August 2002, promulgated in SG Vol. 84/3 September 2002, in force as of 4 March 2004.
- Ordinance concerning the substantial requirements for and assessment of the compliance of hot water boilers fired by liquid fuels or gas. Approved by virtue of Decree No. 138 of the Council of Ministers of 21 June 2004, promulgated in SG Vol. 56/29 June 2004, in force as of 29 June 2005.
- Ordinance concerning the substantial requirements for and assessment of ballasts for fluorescent light sources with respect to the energy efficiency requirements. Promulgated in SG Vol. 77/3 June 2004, in force as of 29 June 2005.

## 4.2. POLICY – ADOPTION OF OTHER RELATED EU DIRECTIVES

The government has not started yet the process of transposition of the following related EU regulations:

- Energy Star regulation 2422/2001/EC.
- The Eco-design of Energy-using Products (or EuP) directive.
- The recently adopted End-use Energy Efficiency and Energy Services Directive.

The way of their transposition to national legislation is still under discussion within the responsible institutions but most probably this will be done by amendments to the Energy efficiency act.

Recently a new ordinance was introduced by the Ministry of Environment and Waters on the requirements concerning electrical and electronic equipment **placed** at the market and transportation and preserving of waste equipment. This ordinance is transposing the EU Directive 2002/96/EC. The ordinance is introducing a product fee to be paid by all manufacturers and importers of electrical and electronic equipment and will be collected in the Enterprise for Management of Environmental Protection Activities (EMEPA). There is a possibility for none payment of the product fee if the manufacturer or the retailers organize their own collection, transportation and recycling of the appliances themselves.

### 4.3. POLICY – FINANCIAL INSTRUMENTS

#### Financial instruments for energy efficiency

In the last few years certain financial mechanisms and incentives have been applied in the country targeted to the promotion of energy efficiency improvements mainly in the building sector – state-owned, municipal, and private buildings.

The Energy Efficiency Act introduces **fiscal preferences** for physical persons/legal entities, engaged in energy efficiency activities through appropriate amendments to the Law on Local Taxes and Charges and the Law on Corporate Income Taxation. The amendments to the Law on Local Taxes and Charges are related to exemption from tax on buildings for those buildings that have obtained certificates issued under the terms and procedures of the Energy Efficiency Act and the Ordinance concerning certification of buildings. Depending on the category of the certificate the exemption is valid for a period of 10 years for Category A certificate and 5 years for a Category B certificate as from the year following the year of the certificate issue. The amendments to the Law on Corporate Income Taxation are related to diminishing of the accounting financial result by the amount spent for a donation - to the amount of 10 percent of the positive financial result during taxation recalculation when it has been done for the account of the reserves and the non-distributed profit for previous reporting period and in favour of the Energy Efficiency Fund. The amendments in the Law on Taxation of the Income of Physical Persons refer to taxation preferences for physical persons who have made donations in favour of the Energy Efficiency Fund.

By virtue of the Energy Efficiency Act an **Energy Efficiency Fund** has been set up for the purposes of financing activities for promotion of energy efficiency. The objective of the Fund is financing on explicitly commercial basis of investment projects for energy efficiency improvement, leading to reduction of GHG emissions, depending on the priorities laid down in the national long- and short-term energy efficiency programmes approved by the Council of Ministers. The Fund will grant free financial assistance for bankable EE projects through lending credits and/or provision of partial guarantees on credits lent by other financial and crediting institutions.

In order to help Bulgarian households to diminish their costs for space heating, the European Commission, the European Bank for Reconstruction and Development and the Energy Efficiency Agency of the Republic of Bulgaria have developed a **crediting mechanism** to the amount of EUR 50 million for financing of energy efficiency in the residential sector – Residential energy efficiency credit line (REECL). This money has been made available to four well-established Bulgarian commercial banks for lending consumer credits for energy efficiency measures implementation in Bulgarian households. The range of EE measures comprise: energy efficient windows; insulation of walls, floors and roofs; efficient biomass-fueled stoves and boilers; solar water heaters; efficient gas-fired boilers and heat-pump systems for heating and cooling.

Additional free financing to the amount of EUR 10 million has been envisaged for management of the REECL programme and lending of free of charge financial assistance to the borrowers. Every household- borrower has the right of grant to the amount of 20% of the project costs but not more than EUR 850. The grant is allocated by the Kozloduy International Fund, which was founded in the year 2000 with funding from the European Commission, EU member-states and Switzerland. The Kozloduy International Fund is designated as a financial support for the decommissioning of Units 1 through 4 of the Kozloduy Nuclear Power Plant. It renders support also for other initiatives in the energy sector, related to the efforts for decommissioning of nuclear capacities in general and energy efficiency promotion in Bulgaria in particular.

The program has a list of criteria for selection of the equipment to be covered by the grant schemes as well as list of approved suppliers of equipment. The criteria for the heat pump systems is that they have  $EER > 3$  and  $COP > 3.5$ , which generally puts them in energy class A (for single packaged; B for split) and B, however the energy class is not mention anywhere in the criteria. The overall focus of the program is put on windows, outside insulation materials, biomass and gas boilers.

To date no other specific mechanisms have been applied in the country for the purposes of energy consuming appliances efficiency. In general, the Ministry of Economy and Energy and the Energy Efficiency Agency support the development and application of various mechanisms aimed at transformation of the market for energy consuming appliances in favour of the more energy efficient ones. Generally speaking, opportunities should be sought in two principal directions:

- development and application of a pilot incentive scheme for consumers in the event of purchase of energy efficient appliances or integration of this objective in an already existing financial mechanism for promotion of energy efficiency;
- survey of the opportunities for and signing of voluntary agreements with energy utilities (for application of incentive programmes for reduction of final energy consumption) and banks (for granting of preferential conditions for crediting the purchase of efficient appliances or leasing schemes).

#### **4.4. LEGAL – VERIFICATION PROCEDURES**

The administrative penalty provisions of the Law on Consumer Protection and the Law on the Technical Requirements with Respect to Products envisage imposing of fines for non-compliance with the requirements concerning labeling of energy consuming goods and the safety marking for compliance and technical documentation of the goods on sale.

The penalty for non-compliance with the requirement for labeling is to the amount of BGN 300 to BGN 1500, whereas in the event of repeated violation the amount of the imposed fine is doubled. There is some lack of clarity with respect to the procedure to be applied by the Commission for Consumer Protection for control on the implementation of the Ordinance on labeling of energy consuming appliances, neither on the rules in the event of detection of or doubts for non-compliance between the information stated on the label and that in the technical documentation of the appliances.

A general observation, including position from market stakeholders, is that there is no effective procedure for verification of the compliance with the ordinance of labeling moreover they assume that there is practice of false labels. This includes misrepresentation of information, false and misleading information, etc. This is confirmed also by the fact that most of the retailer's owned brands do not have declared energy class but are widely offered in the stores.

There is official procedure concerning the supervision of the market for compliance with the requirements of the Law on the Technical Requirements with Respect to Products and the Ordinances to it that has been designed by the State Agency on Metrology and Technical Supervision and has been endorsed in the **Ordinance concerning the terms and procedures for market supervision** through: surveys; planned and ad-hoc checks of the products available and/or commissioned on the market; taking of samples and test-samples from the products and drafting of reports concerning their compliance with the requirements. The supervision is performed by product groups in compliance with an annual plan and inspection schedule approved in the end of every year. The inspectors work according to this plan and may conduct ad-hoc checks wherever deemed appropriate.

The inspectors perform supervision of all products offered on the market by collecting information about the following: product name; product appearance and availability of marking for compliance; availability of instructions and/or guidelines in Bulgarian; technical performance data related to product compliance; name and address of the head office of the entities, which have introduced and/or commissioned the products for sale/use; statement of compliance, as required. The collected information is processed and stored in a database. When the inspectors find that the products are marketed and/or commissioned without marking for compliance or statement for compliance, or without technical documentation, they are to draft a protocol of findings for the issue of an order for temporary ban on the distribution and/or use of the product until assessment of its compliance has been performed. The inspectors shall take samples and test-samples from the product, whereas the number of samples shall depend on the required type and number of indicators for testing and the testing method. The Ordinance contains dispositions specifying for whose account the costs related to taking of samples or test samples will be. It regulates also the terms and procedures concerning the persons/entities authorized to perform the tests and the documents to be produced as a results of the tests. When as a result of the test it is found that the product does not comply with the substantial requirements, an order for banning of the distribution or use of the product is to be issued and dispositions will be issued for its withdrawal from the market within 30 days as from the date of handing over of the order. The State Agency on Metrology and Technical Supervision then issues an order for destruction of the product in the event that the non-compliance with the substantial requirements cannot technically be repaired or when the person/entity, which has introduced the product on the market and/or commissioned it has not implemented the disposition of the order in the set deadline. The procedure for destruction of the product is described in detail as well.

A similar procedure has to be officially endorsed also with respect to the control on the market for energy consuming appliances with respect to compliance with the requirements for energy labeling. Taking due consideration of the existing technical potential and expertise at the State Agency on Metrology and Technical Supervision it is necessary to estimate the

benefits from their involvement in the market control jointly with the Commission for Consumer Protection.

## 5. TEST FACILITIES FOR PERFORMANCE TESTING

### 5.1. TESTING ENTITIES AND FACILITIES

#### 5.1.1 Verification Capacity

The accreditation of laboratories in Bulgaria is performed by the **Bulgarian Accreditation Office Executive Agency**. There are some general problems, which the agency is facing in the process of accreditation of testing labs for electrical equipment, the main of which are:

- traceability of measurements – according Guideline EA4/07 “Traceability of Measuring and Test Equipment to National Standards” all testing labs should calibrate their measuring equipment either in the National Metrology Center or in national or foreign accredited labs. Since the existing national potential for performing these measurements is relatively low, most of the labs should make the calibration abroad, which increases their cost.
- assessment and calculation of the uncertainty of the measurements – all laboratories should develop methodology assessment and calculation of the uncertainty in quantitative testing and the accreditation agency, during the process of accreditation, often faces not sufficient qualification of the personnel in this area and also not enough knowledge of the existing guidelines for uncertainty calculation.
- problems with standards – since most of the standards adopted as BDS do not have Bulgarian translation, sometimes this is a barrier for their implementation

#### 5.1.2 Test Facilities for Performance Testing

During the discussions with different stakeholders three main laboratories were identified, which can have the potential to upgrade the existing capacity to undertake appliance performance testing. Those are "TESTING ELECTROTECHNICAL PRODUCTS" JSC (TEP JSC), ELPROM ILEP LTD. testing laboratory and Laboratory for testing of household electrical equipment under the Bulgarian Agency for Testing and Certification.

"TESTING ELECTROTECHNICAL PRODUCTS" JSC (IEP LTD). The company has more than 40 years experience and practice in testing of electro-technical products, conformity assessment and product certification. The testing laboratory has at its disposal 938 m<sup>2</sup> laboratorial area in which the testing installations and the measuring equipment are combined in eleven thematic testing laboratories, nine of which are operational: testing of household and similar products, testing of manual electric instruments, testing of low-voltage electric devices and complex commutation devices (LVED and CCD), electro-physical and chemical tests of electro-insulating materials and electro-installation products, testing of micro machines, testing of noise and vibrations, testing of the degrees of protection provided by the enclosures and climate and mechanical dynamical tests The laboratory is performing tests for manufacturers DECLARATION FOR CONFORMITY ACCORDING TO BDS EN

45014:2002 mainly in the area of safety and declares readiness and enough knowledge and capacity to conduct appliance performance testing. In result of the interest in cooperation shown on the behalf of VDE Testing and Certification Institute, the Laboratory TEP is preparing for its inclusion in the VDE system for mutual approval of the testing results and for giving a statute of "a contact group" - a branch of VDE for Bulgaria and the region.

ELPROM ILEP testing laboratory also has significant experience in testing of electro-technical products, conformity assessment and is the only existing laboratory that has performed testing of electric ovens according BDS EN 50304. The ovens tested are produced by the Bulgarian manufacturer Eldom Invest who actually ordered the tests. They are performing tests for manufacturers DECLARATION FOR CONFORMITY ACCORDING TO BDS EN 45014:2002 in the area of safety.

The third laboratory is a government body under the Bulgarian agency for testing and certification and is located in Varna. They are specialized in performing tests for household electrical devices. The State agency for metrology and technical surveillance usually uses this laboratory for testing appliances for non-compliance.

The LIEBHER plant in Bulgaria, which is one of the biggest "green field" investments in the last years, has its own testing laboratory and performs quality tests of every product it produces. As 97% of their production is exported to EU their plant as well as the laboratory are modern and theoretically can be used for testing other refrigerators. But having in mind that LIEBHER intends to build a second plant and to double their production in Bulgaria it is doubtful if the laboratory will have enough capacity for external testing.

It is difficult to assess the real capacity of these laboratory and the additional recourses needed to upgrade the existing facilities in order to conduct appliance performance testing. However in 2004 a Feasibility study for reaching a EU-norm conformity for Bulgarian electro-technical laboratories financed by GTZ was performed by VDE and GORA consultants. Nine labs were selected and the assessment was based on 12 criteria shown in Table 15.

*Table 15: Laboratories selected for VDE, GORA assessment*

Laboratory name	Accreditation	Property	Scope pf activities
EMC Laboratory (ElectroMagnetic Compatibility)	National	State owned	Testing of ElectroMagnetic compatibility
Laboratory Sparky Eltos	Accredited by RvA*	Company lab	Different electrical instruments
Laboratory Elkabel	Accredited by RvA	Company lab	Cables and conductors (wires)
Laboratory ABB	Accredited by RvA	Company lab	Circuit breakers medium voltage
Laboratory Liebherr	Not accredited	Company lab	Refrigerators
Laboratory for testing household electrical appliances	Accredited by RvA	State owned	Household appliances

Laboratory for lighting fixtures at the Sofia Technical University	Not accredited	Independent	Lighting fixtures
IEP Laboratory Ltd.	Not accredited	Independent	Household appliances, medical devices, installation materials, lighting fixtures
Laboratory Minproekt	National	Independent	Safety devices

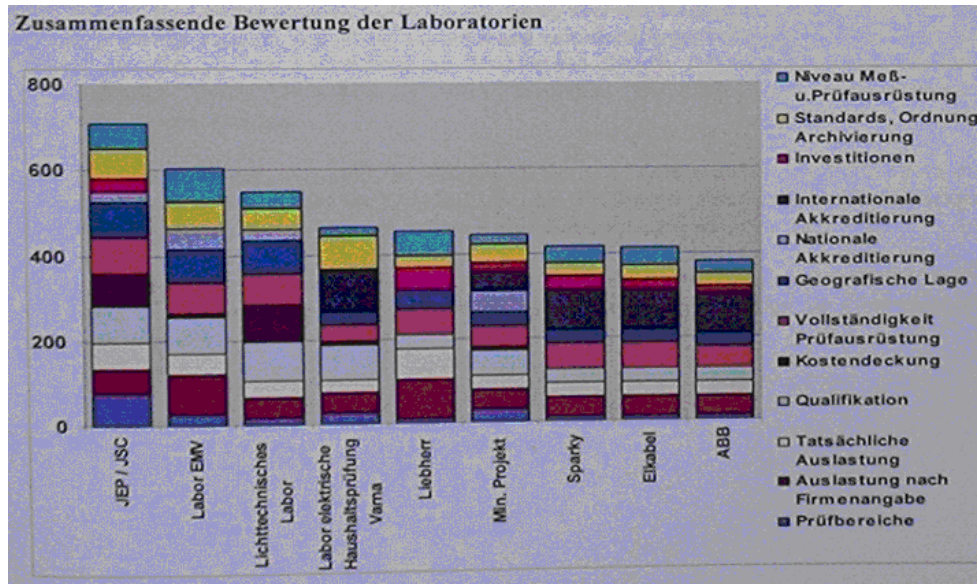
\* RvA is the Dutch Accreditation Council

Table 16: Criteria for assessment of the compliance of the Bulgarian laboratories working in the field of electrical appliances to the EU norms

Criteria for assessment	Peculiarities	Points
1. Scope of testing	15 major sectors	100
2. Work load by lab information	Full load	100
3. Work load of personnel	Level of experience (A) annually depending on the scope of testing	100
4. Qualification	100% graduates from higher schools of professional secondary schools	100
5. Activities expenditures payment	Company laboratories	0
Expenditures details - 1:1	Personnel salaries (5 p.); Production costs (5 p.); Investments (10 p.); Qualification and additional training of personnel (5p.); National accreditation (2,5 p.); International accreditation (2,5 p.)	30
6. Availability of testing equipment in accordance with the scope of activities		100
7. Geographical position	Optimal	100
8. National accreditation	Available (100 p.); In preparation (50 p.); No actions so far (0 p.)	100
9. International accreditation	Available (100 p.); In preparation (50 p.); No actions so far (0 p.)	100
10. Investments	Needed for the carrying out of the main activities and for systematic maintenance and update of the measuring and testing equipment: Partial (70 p.); Not sufficient (30 p.); Missing (0 p.)	100
11. Discipline, archives, standards	Without manifested faults (At faults in separate sectors 33 points are deducted)	100
12. Technical Level of measuring and testing equipment	Up-to-date (100); 20% is more than 15 years old (80 p.); 50% is more than 15 years old (50 p.); 70% is more than 15 years old (30 p.); 90% is more than 15 years old (10 p.); Average values depending on the general condition	100

The final results from the assessment is shown on figure 5. According the assessment one of the best laboratories currently working in the country is IEP Laboratory Ltd. scored 700 points from all 12 criteria. Still it will need a lot of investment to be equipped, accredited and trained to conduct appliance performance tests for the needs of enforcement and verification activities in the country.

Figure 5: Testing facilities assessment according VDE study



## 5.2. PARTICIPATION IN INTERNATIONAL STANDARDS ORGANIZATIONS

See description of Bulgarian Institute for standardization.

## 5.3. TRANSLATION, ADOPTION AND INTERPRETATION OF PERFORMANCE TEST PROCEDURES

Most of the EU norms for performance testing of appliances are adopted in respective Bulgarian State Standards (BDS). The draft appliance standards are developed and proposed for approval by two main technical committees (TC) – TC 6 Home appliances - covering washing machines, tumble dryers, electric ovens and dishwashers and TC 43 Refrigerating equipment - covering refrigerators and air conditioners.

The Technical committees are responsible for the development and presentation for approval of the draft Bulgarian standards as well as for the translation and adoption of international norms. Members of the technical committees are local manufacturers, testing facilities, government institutions, technical universities, Academy of science and research institutes.

Table 17: *Bulgarian standards for performance measurement of appliances*

Appliance	EU test standard	Respective Bulgarian standard	Respective TC
Refrigerators	EN 153:1995 Methods of measuring the energy consumption of electric mains operated household refrigerators, frozen food storage cabinets, food freezers and their combinations, together with associated characteristics	BDS EN 153	TC 43
Tumble dryers	EN 61121 Tumble dryers for household use - Methods for measuring the performance	BDS EN 61121:2003	TC 6
Clothes washing machines	EN 60456 Clothes washing machines for household use - Methods for measuring the performance	BDS EN 60456 (2005): 2005	TC 6
Electric ovens	EN 50304 Electric ovens for household use - Methods for measuring the energy consumption	BDS EN 50304:2003	TC 6
Electric dishwashers	EN 50242 Electric dishwashers for household use - Test methods for measuring the performance	BDS EN 50242:2003	TC 6
Air conditioners	EN 14511 Air conditioners, liquid chilling packages and heat pumps with electrically driven compressors for space heating and cooling	Not adopted In the 2006 work program	TC43

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

The energy efficiency policy of Bulgaria is based on the national priorities and is in conformity with the new positive sustainable policy and economic trends, as well as with the requirements of the European directives and market-based economic principles. The policy contains the requirements for sustainable economic development and improvement of the living standard. In accordance with the natural and geographic factors, which define the role of the country's energy sector in the region, the policy establishes concrete prerequisites for fuels and energy supply to the region.

The main energy efficiency policy instruments are the Energy Strategy from 2002; the Energy Act adopted in 2003; the Energy Efficiency Act, adopted in March 2004 and the National long term energy efficiency till 2015 (NLEEP). In fact till now there isn't any program targeted towards energy efficiency appliances, though the government officials are generally aware of the usefulness in the development of such activities. The listed programs below are developed in the last years and show the increasing activities towards energy efficiency.

**The National long term energy efficiency program till 2015 (NLEEP)** has been worked out as a long-term strategy. One of the most important conclusions of the NLEEP is that without a radical change in the field of energy efficiency for the entire forecast period the indicators for energy intensity of the national economy will continue to be higher than the average European levels.

Another conclusion made by the NLEEP is that at the background of the anticipated upward development of the country's economy (GDP growth by about 5% per annum) fuel and energy consumption will also grow, although at a slower pace. For this reason the consumption of coal for electricity generation is expected to increase in the next few years, leading to the resultant increase of harmful emissions. The measures for reduction of these emissions will exercise additional pressure on electricity prices on one hand, but will also bring opportunities for emission trading. Reserves for mitigation of these negative impacts on the economy should be sought in the energy efficiency measures at the level of production of resources and energy, their transportation, distribution and consumption. In this sense the measures aimed at maintaining and expansion of the use of natural gas as an alternative to electricity and liquid fuels gain in importance. The program has listed a number of measures for improvement of the energy efficiency in all sectors of the economy including the residential buildings. Though most of the measures are targeting building envelopes, some attention is given also to increasing of the energy efficiency household appliances by raising awareness and by disseminating information to consumers.

### **Other energy efficiency programs**

The project **Building the Local Capacity for Promoting Energy Efficiency in Private and Public Buildings** is funded by the Global Environment Facility through UNDP. The objective of the project is to improve the energy efficiency (EE) of the energy use of the private and public buildings in Bulgaria by strengthening the institutional framework, raising the awareness and building the capacity of the targeted end user groups in order to create sustainable demand for energy efficiency investments and related services; building the capacity of the local energy service providers to market their services and to meet the requirements of the targeted financiers to finance EE projects; and facilitating effective replication and dissemination of the results by i) institutionalizing the further support needed for the promotion of EE measures in public and private buildings, ii) by addressing the remaining legal and regulatory barriers and by iii) facilitating effective dissemination of the project results and lessons learnt. The project started in the beginning of 2006.

**National short-term energy efficiency programme 2005-2007 (NSEEP)** is based on the priorities already laid down in the NLEEP 2005-2015 and the municipal, district and sector short-term energy efficiency programmes submitted to the Energy Efficiency Agency. It strives to reconcile national interests with local preferences. The short-term program is a summary of the submitted and grouped by priority projects, as well as the investments required for their implementation till 2007. The overall implementation of the NSEEP envisages financing of 552 projects to the total value of about EUR 137.5 million. However national budget financing is not secured for those projects.

### **National strategy for financing the insulation of buildings for the period 2005-2020**

envisages allocation of funding from the Republican Budget in the course of the coming 15 years for financing of improvement of the insulation of 508 state-owned buildings, 3,454 municipal buildings and 650,981 private dwellings in panel apartment blocks. The total amount of the state subsidy is as follows for:

- state-owned buildings: EUR 73.5 million;
- buildings municipal property: at least EUR 0.5 million for certification;
- private panel housing: 20% of the basic package of measures for complete renovation or EUR 250 million for the portion related to insulation, which includes also the amount of EUR 24.4 million specifically designated for energy audits.

The total amount to be allocated by the Republican Budget for the overall implementation of the Strategy is about EUR 329 million or BGN 43.8 million/year.

### **Relevant International projects**

Bulgaria is also a partner in several international projects under the Intelligent Energy for Europe Programme that promotes use of energy efficient appliances and labels.

**Implementing EU Appliance Policy in Central and Eastern Europe – CEECAP.** The project is developed with the aim of supporting Central and East European countries in creating conditions for implementing appliance efficiency policies in accordance with the EU Appliance efficiency acquis and programmes. It aims to increase expertise and experience regarding the verification and enforcement, market introduction aspects, strengthening relationships between stakeholders and the start up of national actions to improve energy efficiency. The results will be an improved policy infrastructure for appliance efficiency and the future EU policies; a verification infrastructure for product and retailer compliance; coordinated activities to increase the consumer response to labels; and establishment of a platform for information exchange and transfer.

**GreenLabelsPurchase – making a greener procurement.** The objective of the project is to increase the use of energy labels in the procurement process of public authorities, the tertiary sector and administrations of industry and SMEs and more specific to raise the awareness and knowledge concerning energy labels as a simplifying instrument in public and private procurement departments, to develop and disseminate standardized tools to support a wider distribution of energy related “greener” procurement procedures and to implement procurement pilot projects as the first step for comprehensive green procurement.

**Residential Monitoring to Decrease Energy Use and Carbon Emissions in Europe - REMODECE** This project will evaluate the potential electricity savings that exist in the residential sector in Europe, and that can already be implemented by existing means, like the use of very efficient appliances or the elimination/mitigation of standby consumption. Different approaches for market transformation, in consultation with the market stakeholders, will be analyzed for different types of equipment, leading to a set of specific policy recommendations for each type of equipment. Some of the activities of the project include a software tool development to enable users a cross comparison of the energy performance of similar households in the countries involved, on site measurements of household electricity consumption of different appliances and introducing a set of policy recommendations to

promote energy efficient equipment in the residential sector addressing both conventional appliances and new fast growing loads (e.g. information and telecommunication technologies, education/entertainment, standby loads).

## 7. THE ELECTRICITY SECTOR AND EMISSION FACTORS

### Electricity production

Electricity is one of the most important energy sub-sectors of the country. There are four electricity production regions in the country:

1. Maritza region - its resources come mainly from the lignite coal deposit in Maritza Iztok. There are production units with 2,700 MW capacity, which corresponds to one-fourth of the country's electricity generation capacity. One-fifth of the country's energy is produced here.
2. Rhodopi region - it provides electricity mainly with hydropower plants and pumped-storage power stations (PSPS).
3. Sofia-Pernik region - it includes the TPP Bobov Dol and other production units of regional importance.
4. Danube region - its main production units are the NPP Kozloduy, TPP Rousse and TPP Rousse - Zapad, as well as industrial electricity generation units. A total of 18 per cent of the country's energy generating capacity is located in this region.

The installed electricity production units in 2004 were 12,331 MW, of which 53.6 per cent or 6,613 MW were thermal power plants, 23.4 per cent or 2,880 MW were installed in the nuclear power plant, while the hydropower plants and the pumped-storage power stations were respectively 16 percent or 1,974 MW) and 7.0 percent or 864 MW.

The real capacity of the electricity generating units is much lower than the installed one due to the fact that the existing TPP blocks are rather old and worn out and the district heating plants do not use their total electricity capacity for economic reasons. Thus the generated electricity in 2004 was 41,515 million kWh, of which 16,815 by the nuclear power plant, 21,399 by the thermal power plants and 3386 by the hydro power plants.

Table 18: Electricity generation, million kWh

Electricity production, million kWh				
Year	NPP	TPP	HPP and PSPS	Total
2000	19 791	18 179	2 958	40 928
2001	19 553	22 368	2 047	43 968
2002	20222	19738	2741	42701
2003	17278	21991	3285	42554
2004	16815	21399	3386	41600
2005*	17972	21828	3072	42872

Source: Bulgarian energy sector 2001 –2204, DOE\*Data for 2005 – forecast

## Creation and development of electricity market

The Energy law introduced a new market model of regulated third party access to the networks, which replaces the Single Buyer Model. The liberalized portion of the electricity market is gradually expanded, following the model of Bi-lateral Contracts and a Balancing Energy Market. Legal unbundling of the operators of the transmission and distribution systems from the production and supply activities is introduced. In compliance with the requirements of the European Directives the electricity market will be introduced stage by stage in a way giving the power producers the opportunity to have a free access to the transmission and distribution network and to negotiate directly with the end users who have acquired the right to such access. The first stage of the opening of the electricity market was introduced in July 2004 and the market will gradually expand with inclusion of different type of end-users.

Table 19: Stages in the opening of electricity market

Stages	Share of electricity consumption of all customers (%)	Annual electricity consumption threshold for the eligible consumers
Till 01.07.2004	Up to 18.9	≥ 100
01.07.2004 – 30.06.2005	Up to 22	≥ 40
01.07.2005 – 30.06.2006	Up to 25	≥ 20
01.07.2006 – 31.12.2006	Up to 28	≥ 9
01.01.2007 – 30.06.2007	Up to 60	All non household customers
From 01.07.2007	Full opening	All customers

The wholesale electricity market will be set up with the introduction of the distribution companies in the category of eligible customers. A longer-term target (from 01.07.2007.) in the development of the domestic market is the creation of a retail electricity market, in which the household consumers will have the right to choose the supplier. Thus a 100% liberalization of the electricity market will be achieved.

The National Electric Company EAD (NEC EAD) is the operator of the electric grid and carries out the centralized management, control and coordination of energy supply.

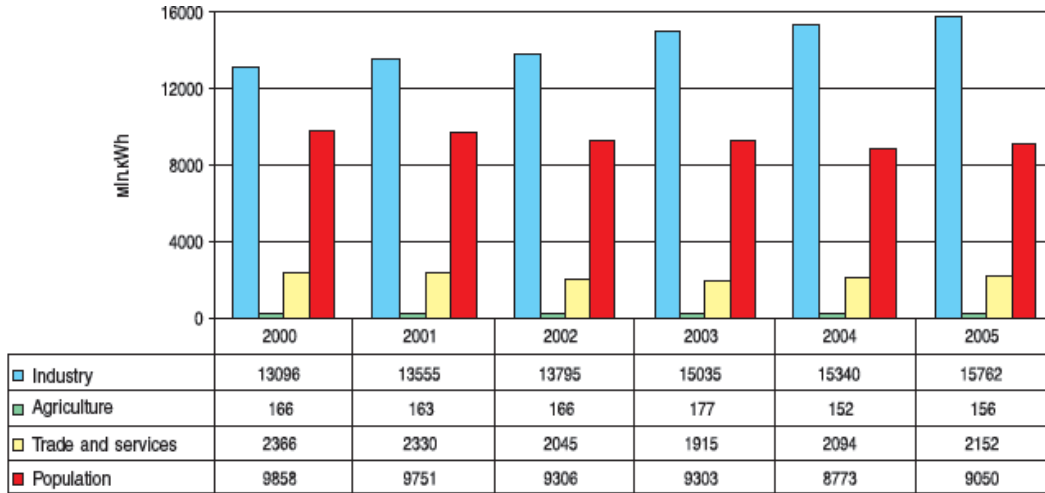
### Electricity distribution companies

In 2003 seven Power Transmission Enterprises (PTE) for the regions Sofia-City, Sofia-Region, Pleven, Plovdiv, Stara Zagora, Varna and Gorna Oryahovitsa were established outside of NEC. In 2004 the process of their privatization was finished and their majority shares were sold out as follows: PTE Sofia-City, PTE Sofia-Region and PTE Pleven to the Czech CEZ company; PTE Varna and PTE Gorna Oryahovtza to the German EON company and PTE Plovdiv and Stara Zagora to the Austrian company EVN. The state, in the person of the Ministry of Economy and Energy, also possesses part of the shares of the privatized enterprises.

### Household electricity consumption and forecast till 2020 r.

Electricity is the most important energy source in the household sector. In 2004 its share in the total energy consumption of households is 33%.

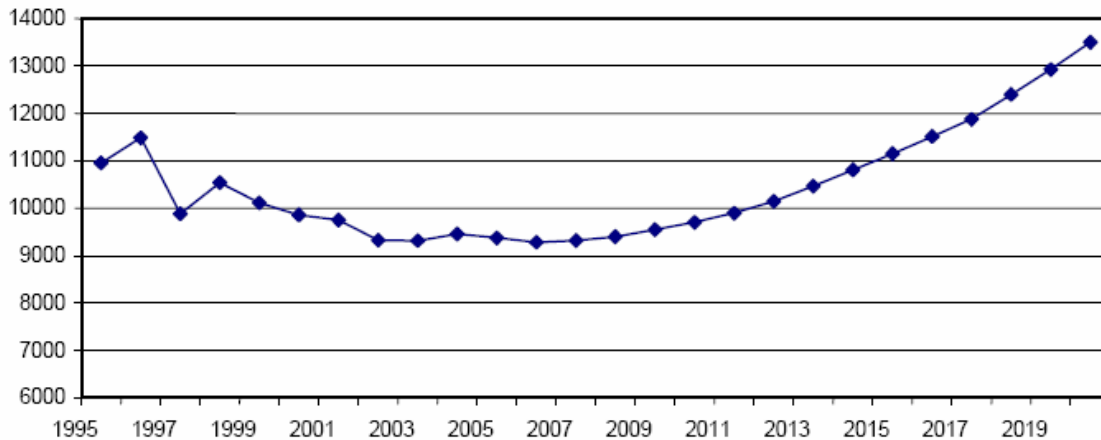
Figure 6: Electricity consumption by different sectors



Source: Bulgarian energy sector 2001-2004, MEE

The plan for the development of the electric energy sector till the year 2020 that was elaborated by the NEC in 2004, contains prognosis of the energy consumption growth by industry sectors. For the elaboration of the households consumption prognosis was used the relation of energy consumption, households incomes and energy prices. At the expected change of energy prices for household consumers with 2% annually and at 3,5% inflation rate till the year 2020, the average annual increase of energy consumption in households is expected to be 2,2% for this period.

Figure 7: Forecast for the electricity consumption in the household sector



Source: NEC

### Electricity prices

The price of electricity for households has gradually increased in the last few years with the introduction of electricity pricing reform. This reform focuses on: removal of the household prices cross-subsidy; setting the prices of both household and industrial consumers based on the cost-plus method; improvement of the investment potential of the power companies and

ensuring the prerequisites for the establishment of a competitive electricity market. The implementation of the pricing reform is accompanied with a system of measures to protect the low-income layers of the society. More precisely it consists of two block tariffs for electricity consumption (which most probably will be removed from mid 2006) and allocation of special social aid.

Table 20: Electricity prices 2002 – 2005

Type of metering	Timing zone	Monthly consumption	Price (Euro/kWh)					Applicable to consumers
			From 1.04.02	From 1.07.02	From 1.07.03	From .07.04	From 1.10.05	
Two tariffs	Day	Up to 75 kWh	0.05	0.05	0.05	0.05	0.05	All consumers
		Over 75 kWh		0.065	0.078	0.089	0.089	All consumers
	Night	The entire consumption	0.027	0.035	0.042	0.048	0.048	Connected to district heating;
		Up to 50 kWh	-	0.027	0.027	0.027	Cancelled from 1 Oct 2005	Not connected to district heating
		Over 50 kWh	-	0.035	0.042	0.048	Cancelled from 1 Oct 2005	Not connected to district heating
	One tariff		Up to 75 kWh	-	0.05	0.05	0.05	0.05
Over 75 kWh			-	0.065	0.078	0.089	0.089	Connected to district heating;
Up to 125 kWh			-	0.098	0.098	0.098	Cancelled from 1 Oct 2005	Not connected district heating
Over 125 kWh			-	0.065	0.078	0.089	Cancelled from 1 Oct 2005	Not connected to district heating

### CO<sub>2</sub> emission factor from electricity

In 2005 two different studies have been conducted for establishment of Combined Margin Calculation Carbon Emission Factor for the Bulgarian Grid.

The first study was performed in 2004 in the framework of a project “Joint implementation capacity building in Bulgaria”, financed by Danish Environmental Protection Agency (DEPA). As a result base line marginal emission factor for electricity production was calculated as a combination of emissions from existing units operation and the new built once. The factor is calculated for three voltage levels (HV, MV and LV levels) for the years 2008-2012. The study explores the ENPEP (Energy and Power Evaluation Program) modeling system. Bulgaria utilizes the model for energy and power planning studies and for GHG emissions

projections, development and assessment of climate change mitigation measures in the last 10 years. The model is tuned on the bases of the electricity and energy demand projections developed by the Ministry of Energy and Energy Resources in 2003 and the 2003 Least Cost Expansion Plan of the NEC.

*Table 21: Base line marginal emission factors or electricity production, kg CO<sub>2</sub>/kWh*

Year	2005	2006	2007	2008	2009	2010	2011	2012
Electricity injected into HV network, kg CO <sub>2</sub> /kWh	1,19	1,18	1,16	1,16	1,15	1,14	1,10	1,08
LV network	1,403	1,392	1,368	1,368	1,356	1,344	1,297	1,274

The calculations for the low voltage level has used the following presumptions: 3% losses are accepted for the HV network, 6% losses are accepted for the MV network and 7% losses are accepted for the LV network.

According the study performed by the NEC CO<sub>2</sub> emission factor has been calculated with reference year 2004 using the approach of the small scale clean development methodology. The emission factor from power generation is set at 1,2 kg CO<sub>2</sub>/kWh, which is close to the factor calculated in the previous study, but the distribution losses are calculated on a bases of 10%, leading to final carbon factor of 1,319.