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2007 – 2013



OP "Development of  
the Competitiveness  
of the Bulgarian  
Economy" 2007-2013



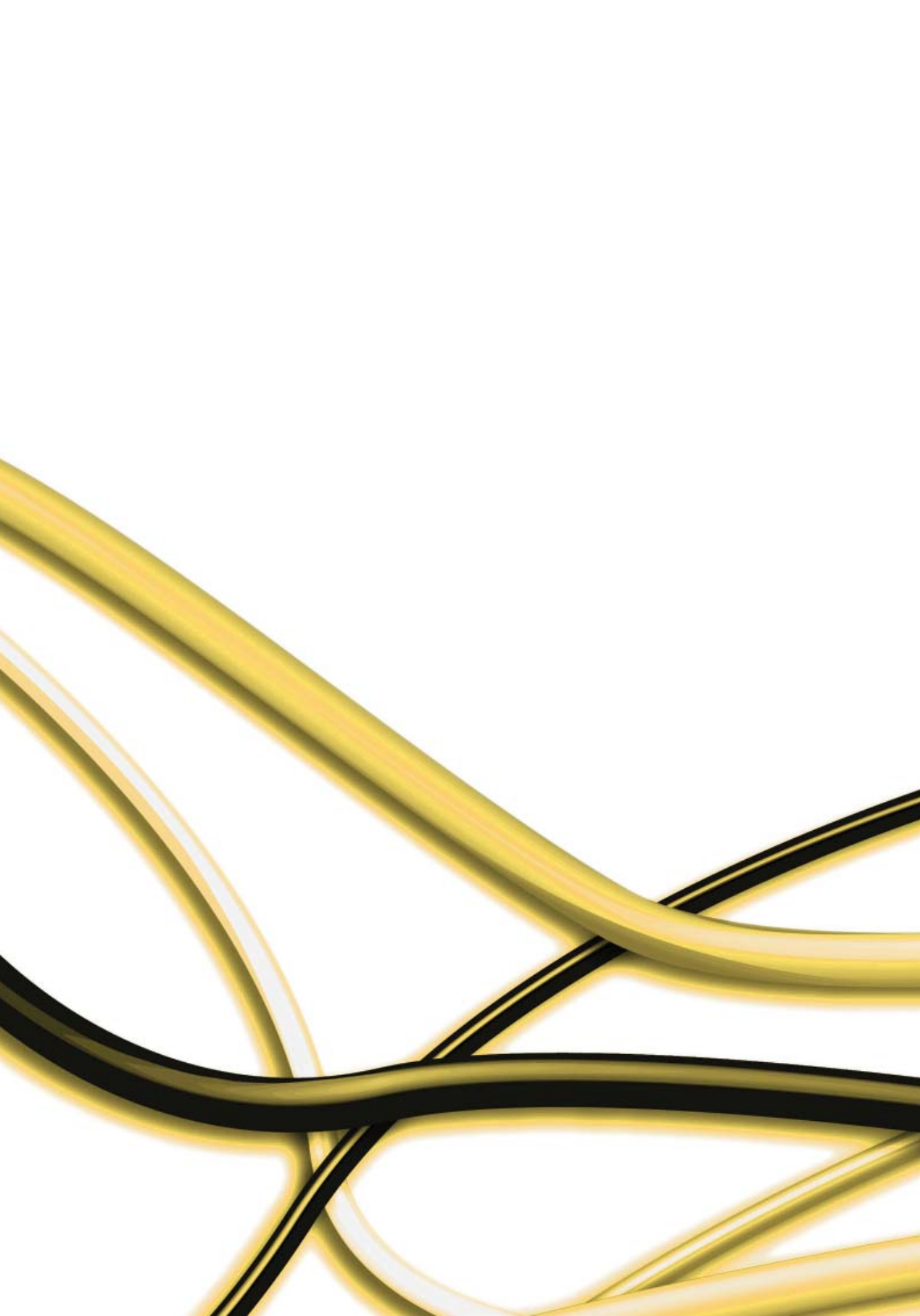
**INVESTBULGARIA  
AGENCY**

Project "Promoting the advantages of investing in Bulgaria"

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# **ELECTRICAL ENGINEERING AND ELECTRONICS SECTOR IN BULGARIA**



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# What is manufactured in Bulgaria?



- World class batteries for submarines, yachts, trains, airplanes, helicopters, military applications



- High performance transformers for the needs of the electric power industry. Bulgarian manufactured power transformers are provided with the most advanced manufacturing and testing equipment



- High end energy saving sensors for various applications in different industries ranging from automotive through food and beverage production to agriculture equipment



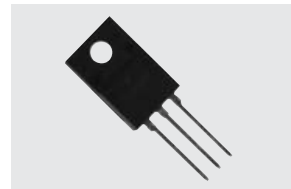
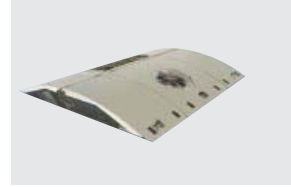
- Top quality amplifiers and high frequency power products used in the radio communication sector



- Wide range of capacitor and capacitor banks used by electrical distribution utilities and large industrial power users

# What is manufactured in Bulgaria?

- Latest generation HVAC and climate control equipment used in modern high speed electric trains
- Semiconductors and semiconductor products used in medical, machine building and automotive manufacturing globally by companies such as BMW, GM, Mercedes
- Wire harnesses and cables for the automotive industry in France and Spain
- Top quality household and commercial refrigerators for the needs of the European market
- Printed Circuit Boards (PCBs) and microelectronic components for industrial applications used all over the world
- LED chips and LED lighting equipment according to the modern trends in the lighting industry



**Ballasts and lighting equipment manufactured by the Bulgarian company Electrostart are used in the lighting of historic monuments in Peru, including the legendary “lost city of the Incas” Machu Picchu.**

# Bulgaria provides an overall compelling proposition for electrical engineering, electronics manufacturing and R&D

- Availability of experienced engineers
- Qualified assembly workforce at affordable cost
- Established traditions in the electrical engineering and electronics sector
- Infrastructure well suited for the needs of electronics manufacturing
- Easy access to EU, Russian/CIS and Middle East markets
- Vibrant mix of international and local companies from the electronics sector with successful operations in Bulgaria



**Siemens chose Bulgaria to build its Center for House Automation Systems and Conventional Energy Sources.**

# Bulgaria has particularly strong traditions in the electrical engineering and electronics sector

- In the 1970s and 1980s Bulgaria was among the leaders of electronics manufacturing in Eastern Europe
- In the 1980s Bulgaria supplied more than 40% of the mainframe and personal computers in the Eastern Europe
- More than 130 000 people were employed in the sector at its peak during the 1980s
- Electrical Engineering and Electronics Sector comprised more than 25% of total Bulgarian manufacturing at the time
- In the 1980s Bulgarian companies launched a number of joint projects with leading international electronic manufacturing companies like Varta, AEG, Toshiba



**The Bulgarian ELKA 6521 was the first European electronic calculator. ELKA 6521 was among the most popular electronic calculators in Europe in the 1960s and 1970s.**

**In 1975 Bulgaria exported more than 30 000 electronic calculators ELKA for Switzerland.**



# The sector has been developed on the basis of a system of multinational and local firms...

- A number of large international companies like Siemens, Schneider Electric, Hyundai Heavy Industries, Liebherr, ABB have discovered Bulgaria as the best destination for their business in Eastern Europe
- Many successful Bulgarian owned companies operate in the sector, offering competitive products worldwide
- The combination of local and multinational companies is creating an unique environment where productivity, ingenuity and innovation in electronics manufacturing are thriving

## ... supported by quality and affordable HR resources...

- Bulgaria offers qualified and experienced workforce for the needs of the electrical engineering and electronics industry – from assembly workers to highly qualified engineers
- Workforce in the industry is available all over the country at the most competitive cost in Europe
- Bulgarian technical high schools and universities are working together with the companies in the sector to create future qualified workforce



**The Bulgarian born NASA engineer and scientist Peter Petroff invented the digital watch and the wireless heart monitor in the 1960s.**

**The first electronic computing machine was created by John Atanasoff, an American scientist of Bulgarian descent.**



# ...specialized government incentives and EU funding...

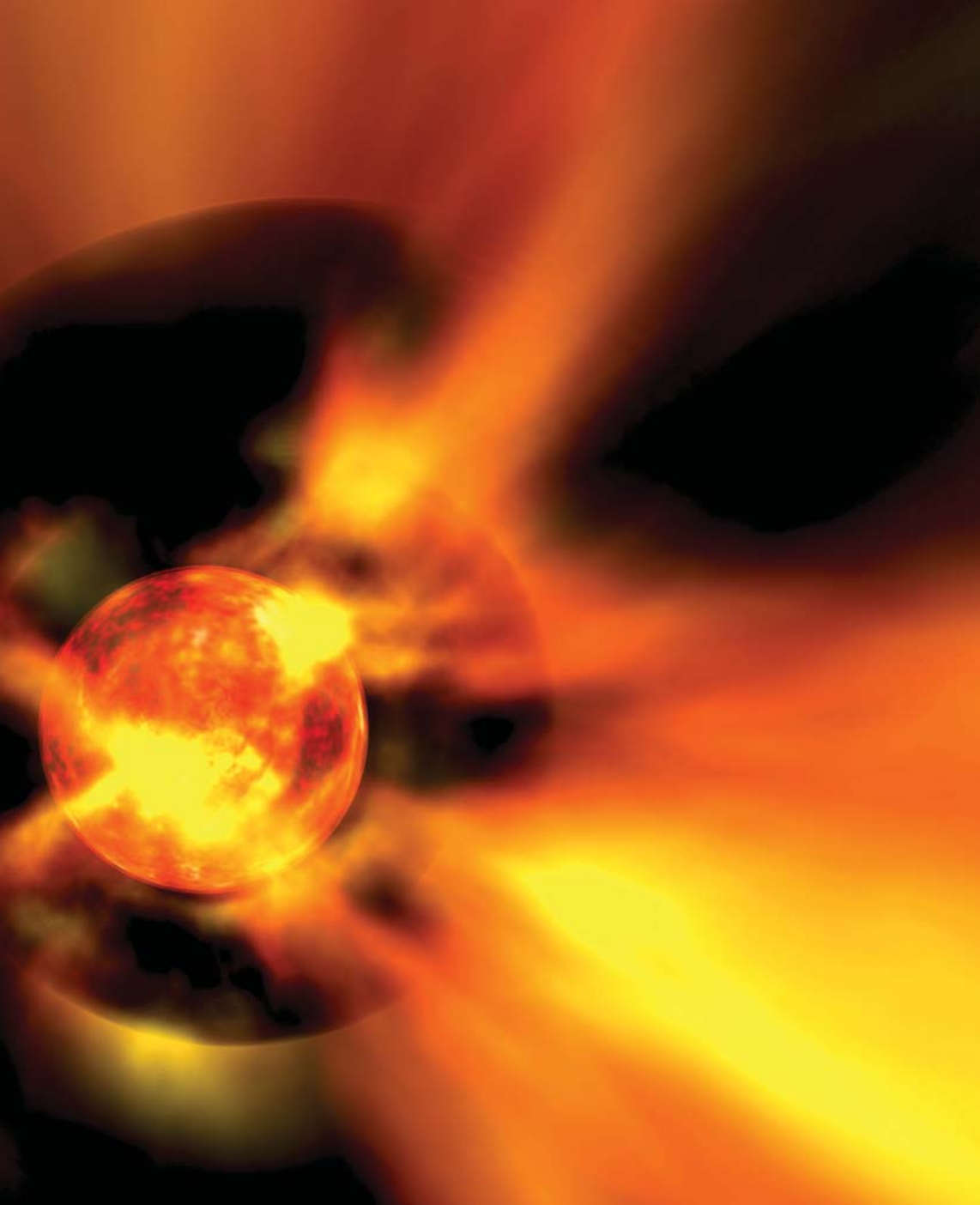
- Bulgaria has 10% corporate income tax rate and 10% personal income tax, flat rate - the lowest in EU
- Manufacturing sectors, including electrical engineering and electronics are supported by the Investment Promotion Act (IPA)
- Lowest possible costs for the acquisition of government and municipal land plus waived taxes for land status changes
- Financial grant scheme for up to 10% of the investment project cost (50% for R&D)
- More than €10 bln EU funds are set aside for Bulgaria up until 2020



### ... and available physical infrastructure

- Bulgaria is crossed by five major Trans European corridors, providing easy access to regional and European markets
- Two of the largest ports at the Black Sea, Varna and Burgas are located in Bulgaria, both connected to the trans-European corridor VIII, which links the Adriatic Sea and the Black Sea
- Bulgaria offers well developed electricity and gas infrastructure and at the same time power and utility prices are among the lowest in Europe
- There are 12 functioning industrial zones and 26 more under development, all of them suitable for manufacturing companies
- Infrastructure development is a priority for the Bulgarian government





# OVERVIEW OF BULGARIA

With a strong macroeconomic and financial performance Bulgaria has competitive advantages in the region



- South-East Europe – a 122 million inhabitant, high growth market
- European Union - Bulgaria offers the lowest cost access to a market of 500 million consumers
- Russia/CIS, Middle East and North Africa

Bulgaria offers a combination of political and macroeconomic stability and incentives for doing business:

- Stable parliamentary democracy, EU, NATO and WTO member
- Bulgaria's currency is fixed to the Euro under a currency board arrangement
- Lowest tax rate and one of the lowest labour costs in the EU coupled with special incentives for investors
- EU funding – more than €10 bln in EU funds

## Bulgaria: Summary Statistics

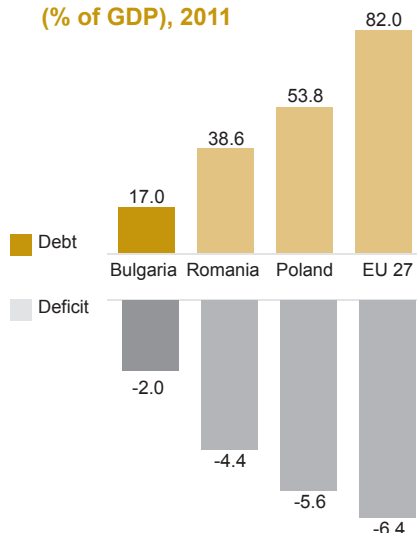
Population:	7.4 million
Labour force:	3.4 million
Urban Population:	73%
Capital:	Sofia
Time zone:	EET (UTC+2)
Summer (DST):	EEST (UTC+3)
Total area:	110 879 sq. km
Land area:	108 489 sq. km
Water area:	2 390 sq. km
Climate:	temperate
Languages:	
Bulgarian (official)	85.2%
Turkish	9.1%
Roma	4.2%
English, German, Russian, French:	widely spoken
Religions:	
Christian Orthodox	76%
Muslim	10%
Other	14%
Currency:	Lev (BGN)
Fixed exchange rate:	€1 = BGN 1.95583
Corporate income tax:	10%
Personal income tax:	10%
VAT (standard):	20%
Government type:	Parliamentary Democracy
Supreme legislative power:	Unicameral 240-seat National Assembly
Executive state body:	Council of Ministers, head: Prime Minister
EU member since 2007	
NATO member since 2004	
WTO member since 1996	

## Bulgaria has exemplary macroeconomic fundamentals

2012 Economic Snapshot:	
GDP (€ bn):	39.7
Exports (€ bn):	26.5
Net FDI (% of GDP):	3.7
GDP growth (%):	0.8
Unemployment (%):	11.4
Inflation rate (annual change,%):	3.0
Government deficit (% of GDP):	-0.5e
Government debt (% of GDP):	18.9
Current account balance (% of GDP):	-1.3
Long-term credit ratings:	
Moody's:	Baa2 stable
S&P:	BBB stable
Fitch:	BBB stable

Source: Bulgarian National Bank. National Statistics Institute. Ministry of Finance Bulgaria

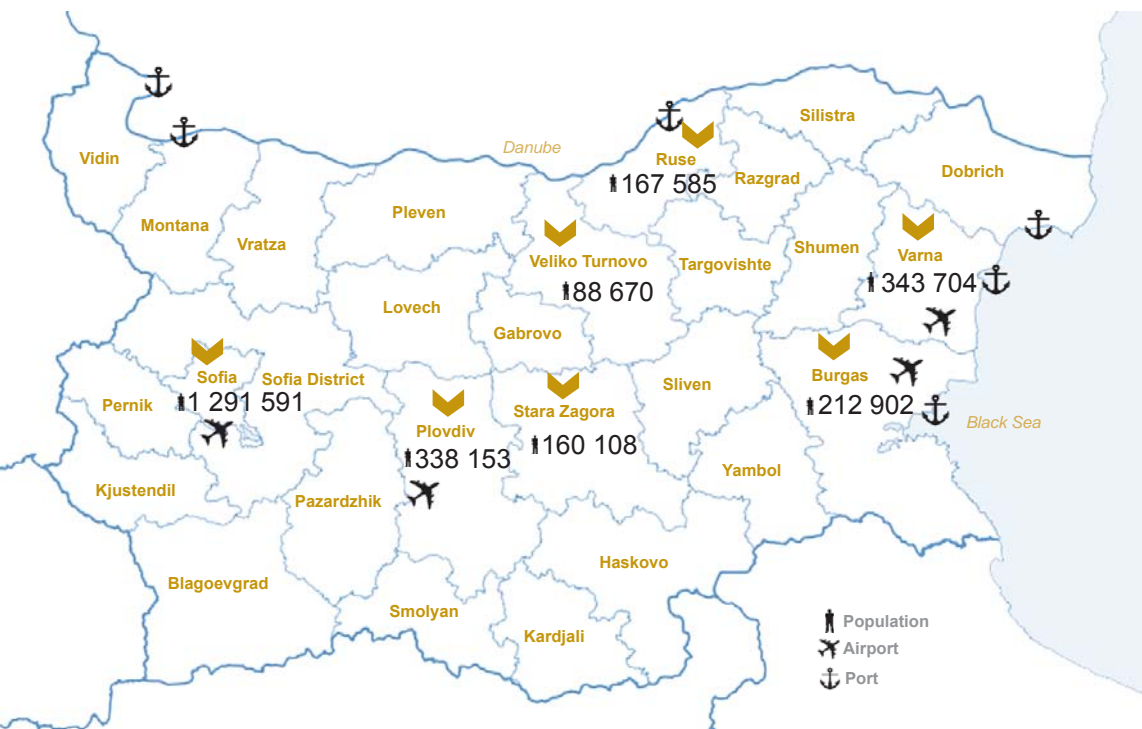
**Government debt and government deficit in Bulgaria, Romania, Poland and EU 27 (% of GDP), 2011**



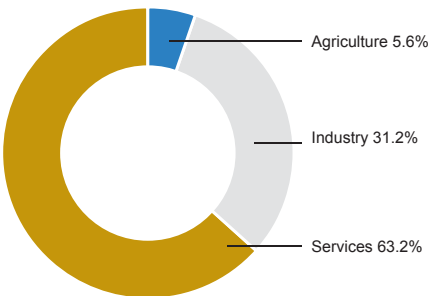
- The Bulgarian economy had a constant growth of above 6% in the period 2000-2008
- The economy stabilized in 2011 with GDP growth of 1.8% for 2011 and 0.8 % in 2012
- The budget deficit in Bulgaria is one of the lowest in Europe for 2012: -0.5e %
- There are no currency fluctuations due to a currency board, introduced in 1997 – the Bulgarian Lev is pegged at 1.95583 to the Euro
- Bulgaria has the lowest government debt to GDP ratio in the EU27 in 2012



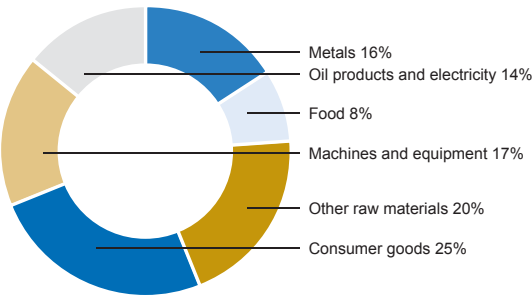
Bulgaria is the only European country with an increased credit rating by Moody's since the beginning of 2010.



GDP Breakdown 2011



Exports Breakdown





## Bulgaria offers a unique lifestyle experience within easy reach of Sofia...



- ...vibrant cities with many art galleries, festivals, concerts, museums
- ...emerging world-class golf courses
- ...beautiful coastline with white and golden sand beaches
- ...numerous spa resorts
- ...ski resorts including the 2012 World Cup host town of Bansko
- ...hiking and adventure sports in the beautiful Rila, Pirin, Rhodopes and Balkan mountains
- ...fine cuisine and boutique wineries

## ...and boasts some of Europe's greatest historical treasures



- ...Thracian and Roman ruins and artifacts,
- ...Medieval fortresses and historical artifacts
- ...monasteries and temples dating back as far as 4th century AD
- ...picturesque villages from the period of the Bulgarian National Revival



Sofia is among the oldest capital cities in Europe and the only city besides Jerusalem with an Orthodox church, a Catholic cathedral, a mosque and a synagogue within a square kilometer.

## Bulgaria is strategically located to serve EU and regional markets



- Bulgaria is located at the cross-roads of Europe and Asia
- Bulgaria is in the middle of the high growth market of South East Europe
- Bulgaria is a suitable export base for serving the region, the EU, Russia and CIS, and Middle East and Africa

# Bulgaria has infrastructure well suited for the needs of the manufacturing industries

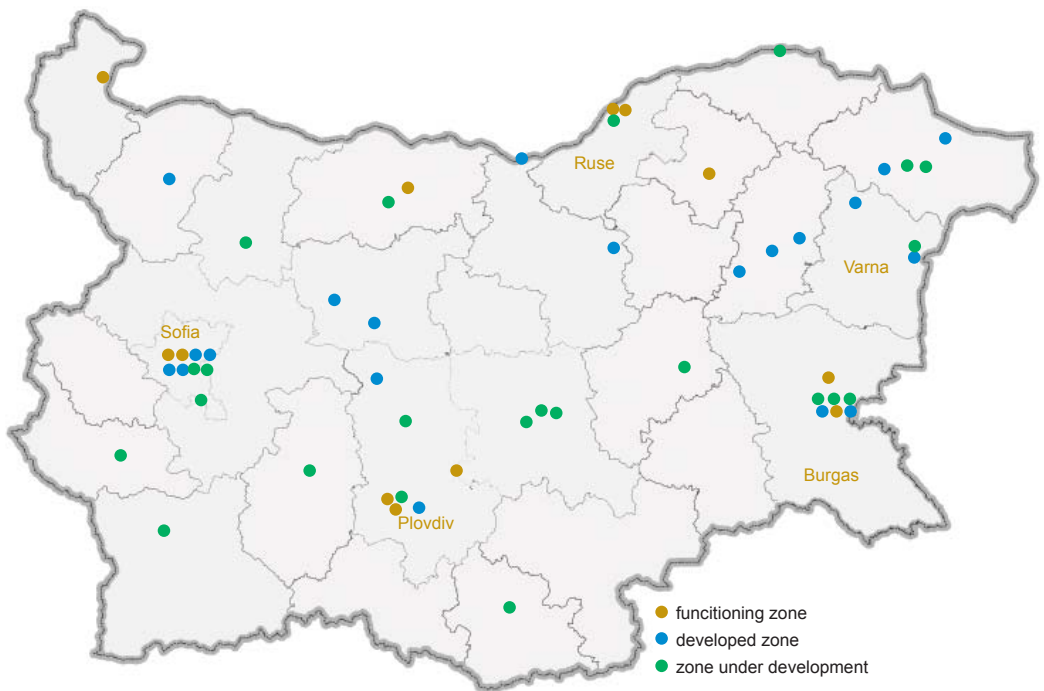


- Road network of 19 276 km, of which motorways are 480 km
- 5 motorways connecting the Bulgarian logistics hubs and Bulgaria with Turkey and Greece are in the process of construction
- Railroad network length of 4 098 km
- 6 major ports: largest river port Ruse; largest seaports Varna, Burgas
- 4 international airports in Bulgaria - the major are Sofia, Varna, Burgas

## Industrial Zones in Bulgaria

The industrial zones in Bulgaria offer attractive conditions for establishing production and warehousing. Currently Bulgaria has:

- 12 functioning zones, with active local and foreign investors
- 20 zones, either with fully or mostly developed infrastructure and ready to be invested in
- 26 zones under development



## Industrial Zone Profile: Elin Pelin

**Available Area in sq.m.:** 1 021 000

**Total Area in sq.m.:** 1 600 000

**Internal Road Network:** Yes

**Nearest Railway:** Proximity to two railway stations

**Nearest Highway:** Trakia Motorway – 5 km

**Nearest Airport:** Sofia Airport – 18 km

**Nearest Sea/River port:** Burgas Seaport – 360 km away / Lom River port – 180 km away

**Electricity Info:** on-site

**Sewerage System Info:** 3 km away

**Gas Supply (SNG) Info:** 1 km away

**Water supply Info:** 3 km away

**Companies:** Overgas, Bogaris Bul Ltd , Glorient Investment Ltd



## Industrial Zone Profile: Maritza

**Available Area in sq.m.:** 800 000

**Total Area in sq.m.:** 3 000 000

**Internal Road Network:** Yes

**Nearest Railway:** 1.5 km

**Nearest Highway:** Trakia Motorway – bordering the zone

**Nearest Airport:** Plovdiv Airport – 18 km away

**Nearest Sea/River port:** Burgas Seaport – 230 km away

**Electricity Info:** on-site

**Sewerage System Info:** on-site

**Gas Supply (SNG) Info:** on-site

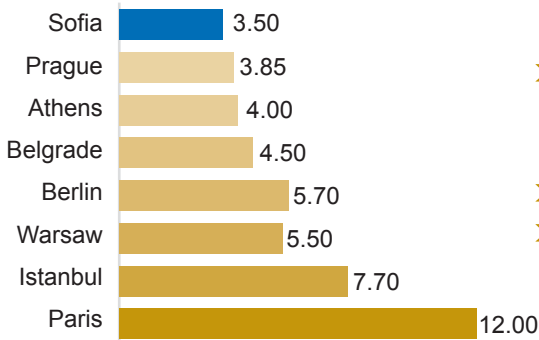
**Water supply Info:** on site

**Companies:** Liebherr - Holding GmbH, Ferrero, Schneider Electric, Mercedes Benz, Bosch Group, Kottmann, Winterhalder.



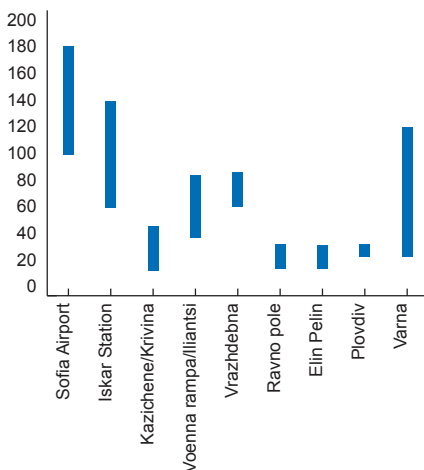
## The price and rent of industrial properties in Bulgaria are very attractive

Average monthly industrial rents in Sofia compared to other European cities, € per sq m/month (Q4 2012)



- Prime industrial and logistics space in Sofia is about 628 000 sq.m. with approximately 67 000 sq.m. of new supply in Q2 2011
- An estimated additional 32 000 sq. m. of industrial space is currently under construction
- Vacancy rate is about 8%
- Rents of industrial property in Sofia are among the lowest in Europe and rent levels in the rest of Bulgaria are even lower

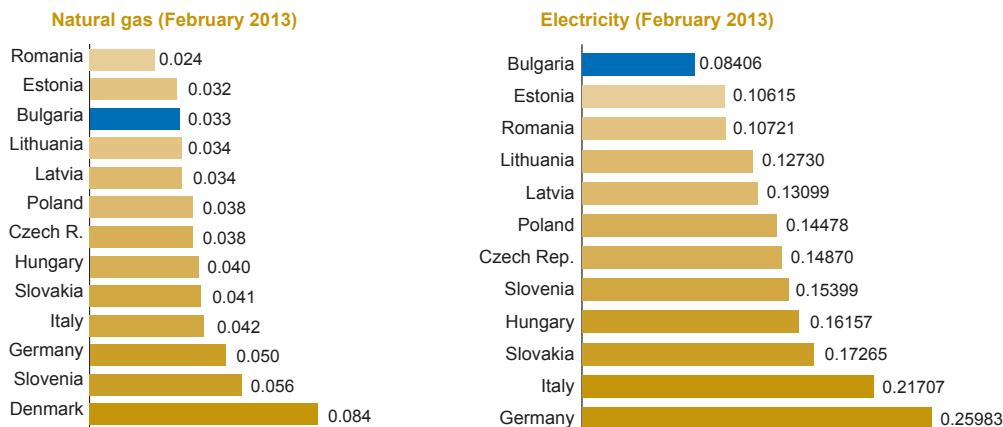
Price range of industrial zones, € per sq m (Q3 2012)



- Industrial zones with well developed infrastructure are available at a very affordable price
- The price of prime rate industrial property in Bulgaria ranges from €15 to €200 per sq. m.

## Price of Electricity and Natural Gas as well as Corporate Taxes are the lowest in Europe

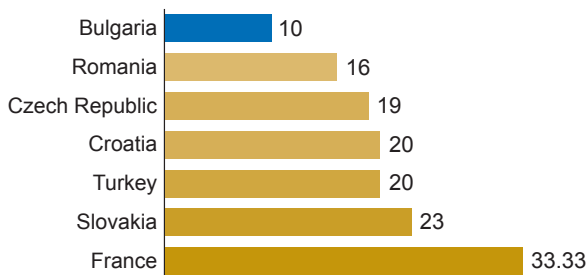
Prices of Natural Gas (Consumption: 0.25 GWh/year) and Electricity (Consumption: 1GWh/year) in € per Kwh



- Costs of natural gas and electricity are among the lowest in Europe, thus reducing total costs not only for the electronic industry but also for all manufacturing sectors

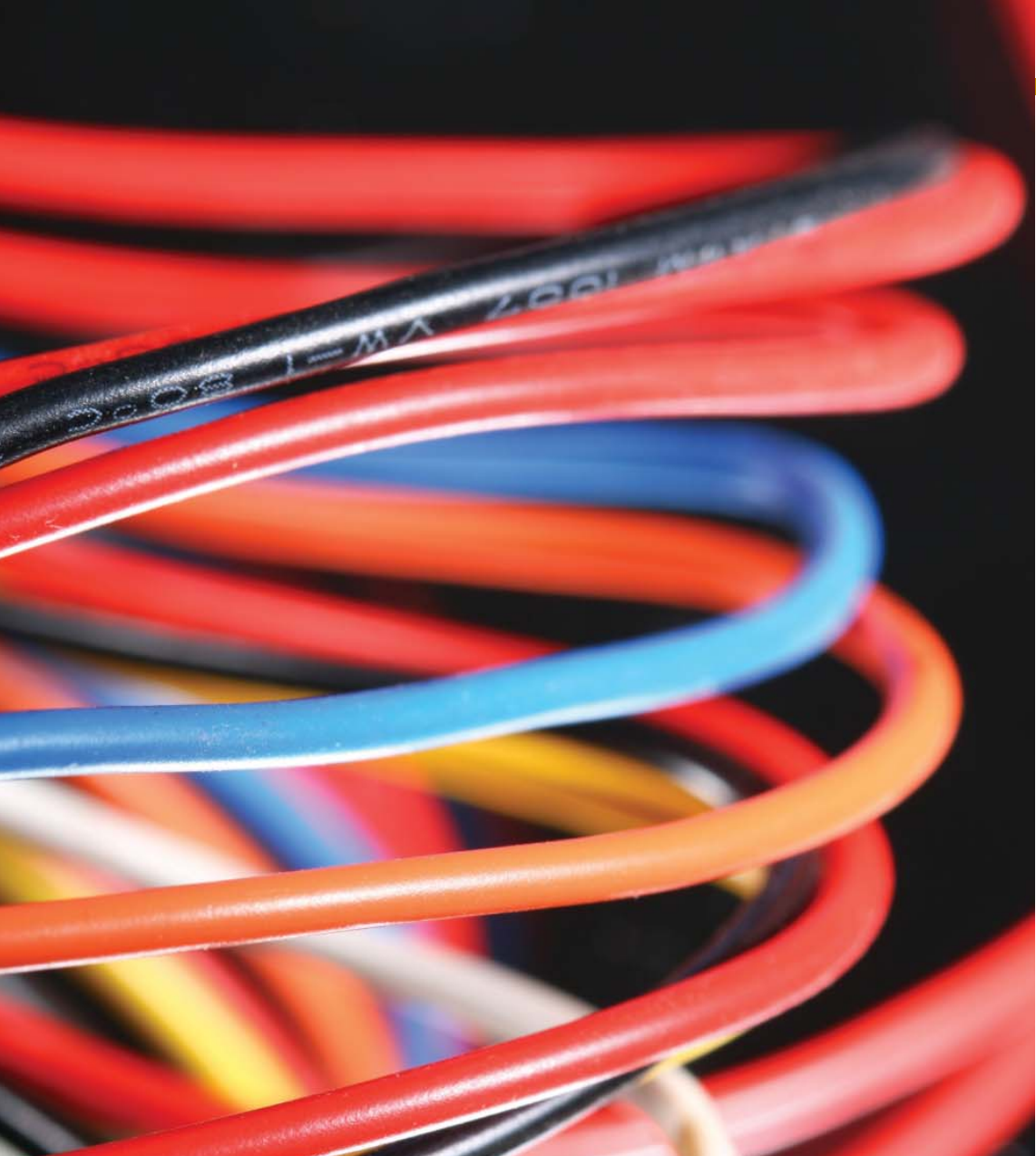
Source: Energy.eu

### Corporate tax rate in selected European Countries (%) (June 2012)



- Bulgaria offers the lowest corporate tax rate in EU
- In regions with high unemployment rate corporate tax is 0%





# OVERVIEW OF THE ELECTRICAL ENGINEERING AND ELECTRONICS SECTOR

## Electronics and electrical engineering in Bulgaria



**1928**  
First telegraphic and telephone factory opens in Sofia.



**1965**  
The first European electronic calculator ELKA 6521 was invented in Bulgaria.



**1890s**  
Siemens participated in building the telegraph network in Bulgaria.

**1947**  
The state electronic manufacturing enterprises "Radioprom" and "Elprom" are established.

**1971**  
Beginning of manufacturing of computing electronics. Transition to mass production of memory, processors etc.



## has rich history and established traditions

**1972**

The first Bulgarian – made space equipment was launched into space.

**1988**

Bulgaria manufactures more than 40% of the mainframes and personal computers in Eastern Europe.



**1985**

The peak of the industry – manufacturing of modern computers. Electronics comprises 25% of Bulgarian manufacturing. 130 000 people are engaged in the industry.

**1990**

Beginning of privatization of state owned electronics and electrical engineering enterprises.



## After 1990s international companies established



**1991**  
Schneider Electric and Siemens open offices in Bulgaria.



**1993**  
EPIQ starts manufacturing operations in Bulgaria.



**1997**  
Hyundai heavy Industries privatized the largest Bulgarian manufacturer of power transformers and tap changers.

**1993**  
Festo AG & Co.KG establishes sensor manufacturing facility on Sofia.



**1996**  
ABB acquires the state owned electronic component company Avangard.



**2000**  
Liebherr opens its refrigerator manufacturing facility in the Maritza industrial zone near Plovdiv.



## operations in Bulgaria, leading to a significant growth of the industry after 2000



**2000**

Melexis establishes their Bulgarian operations for microelectronic components.



**2007**

Yazaki builds its plant for wire harnesses in Yambol.



**2012**

Reichle&De-Massari opens a production facility for connectors for optic telecommunications in Sofia

**2002**

Sensor Nite opens manufacturing facility for the production of sensors and high value added electronic and electro-mechanical products.

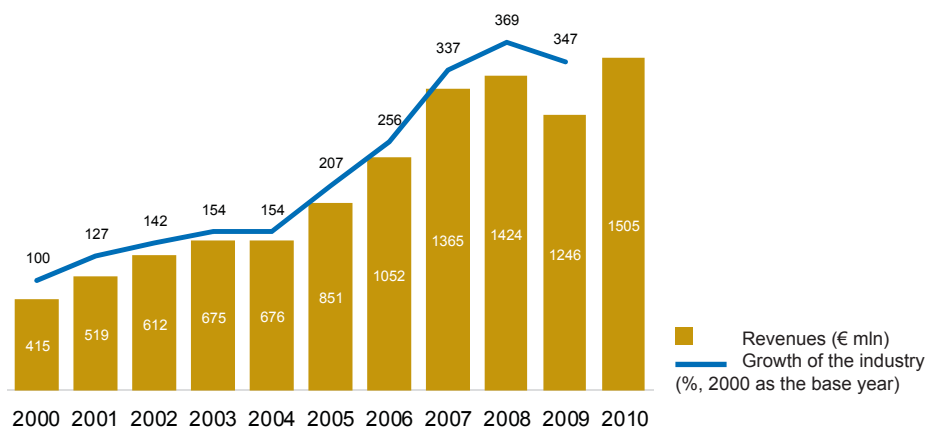


**2011**

IMI purchases the facility of EPIQ Bulgaria in Botevgrad.



## The Electrical Engineering and Electronics sector in Bulgaria has experienced steady growth since 2000

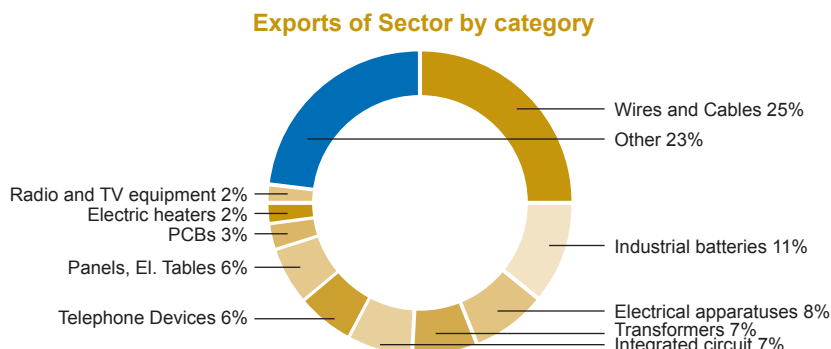


- Sector volume production increased almost 4 times in 2010, compared to 2000
- 2010 revenues were over €1.5 bln, the highest level since 1990
- Currently there are about 45 000 people employed in about 2 300 companies in the electrical engineering and electronics sector



Yazaki Bulgaria is the leading supplier of electric wire harnesses for the automotive industries in France and Spain.

## The majority of the production is exported



- More than 75% of the production of the Electronics manufactured in Bulgaria is exported
- Key markets for the Bulgarian electronics manufacturing are the EU countries, Russia and CIS, USA
- Wires and cables represent 25% of the total sector exports, followed by industrial batteries with 11% of the exported production and electrical apparatuses with 8% of the export
- The export mix has been changing in the recent years towards products with higher added value requiring more engineering skills



Submarine batteries weighing more than 300 tons are manufactured by the US company EnerSys in the Bulgarian city of Targovishte.



## Bulgaria hosts many of the large international companies in the sector...



- Bulgarian subsidiary employs 1700+ people
- Capacity to manufacture 600 000 refrigerators annually
- Delivers refrigerators to most EU countries



- Employes 800 + people in Bulgaria
- Among the world leaders in electric distribution products and industrial automation
- Established presence in Bulgaria - operating two manufacturing facilities



- Employes 440 people in Bulgaria
- Specialized in manufacturing of sensors and sensor applications
- Bulgarian facility is one of the biggest that the company operates



- Global leader in power and automation, employing 300+ in Bulgaria
- Bulgarian subsidiaries provide engineering services and manufacture electrical equipment: circuit breakers, disconnectors and generating sets



- Operates a manufacturing facility in the cities of Yambol and Sliven, employs 3400+ people
- Bulgarian branch is the main supplier of wire harnesses for the automotive industry in Spain and France



- Employes 500+ people in Bulgaria
- Represented in Bulgaria since the end of the 19th century
- Runs manufacturing facilities and provides global engineering services from its Bulgarian offices



- Employes 650+ people in Bulgaria
- Manufactures heavy industry transformers, tap changers and solar systems
- Hyundai Heavy Industries Bulgaria serves clients all over the world

... as well as Bulgarian firms that have managed to establish themselves as regional and global leaders



- Consortium of companies with main activities in the area of design, manufacturing, sales and servicing of electronic devices
- Exports 90% of its products in Central and Eastern Europe, Russia, Africa and Asia



- Founded in 1990 by a group of research fellows from the Bulgarian Academy of Science
- Product portfolio includes electronic cash registers, printers, digital scales
- Among the industry leaders in Central and Eastern Europe



- Manufactures lead acid batteries for various applications
- Exports around 85% of its products all over the world, mostly EU, and Eastern Europe



- High tech manufacturer of full range of intruder and alarm systems
- Products are exported to more than 40 countries all over the world



- Leading manufacturer of ballasts for fluorescent, sodium, mercury and HID lamps, ballasts, capacitors
- Exports its products to EU, South America, Central and Eastern Europe and Russia

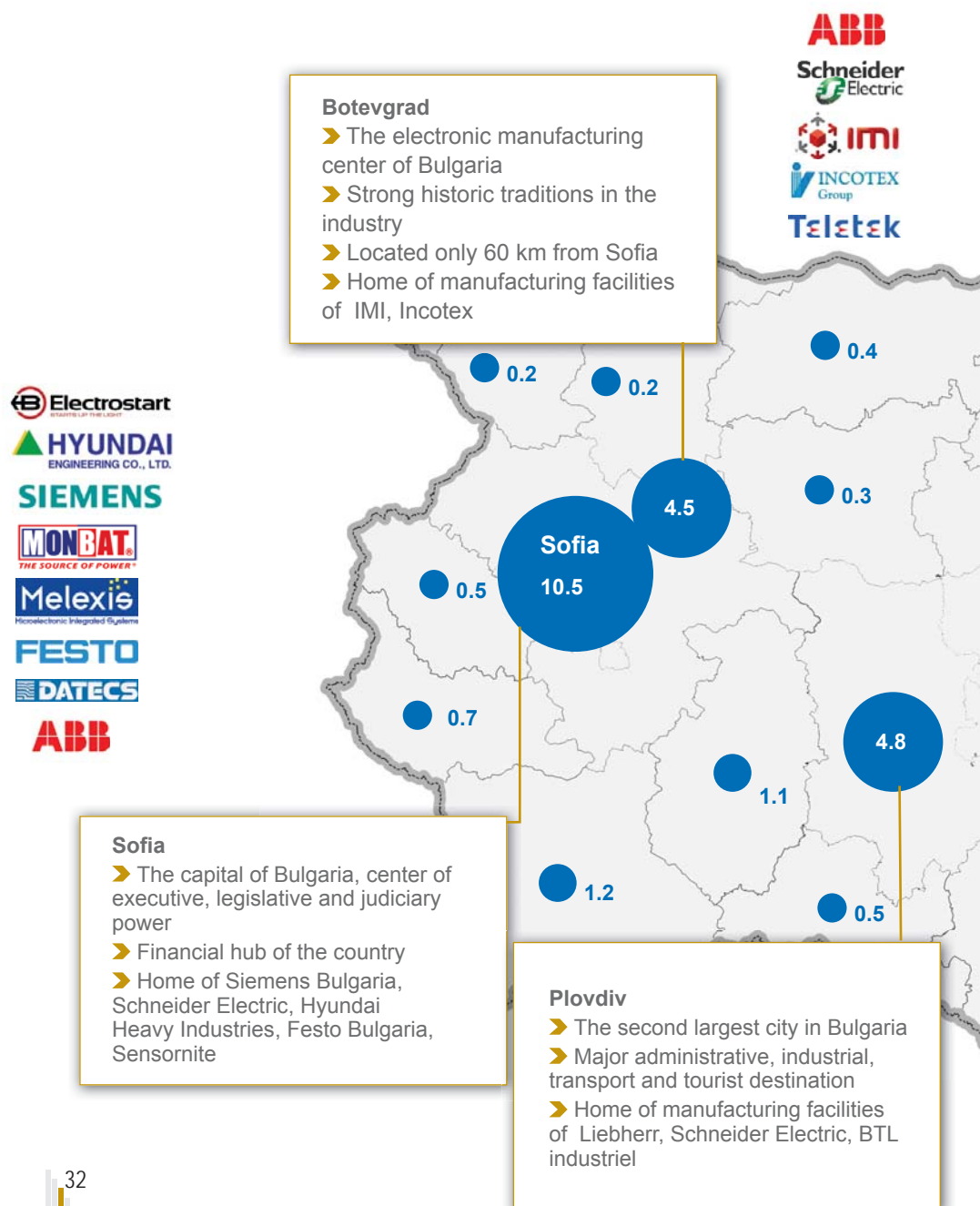


- Designs, manufactures high quality High Frequency (HF) equipment, HF antennas and antenna crank-up masts
- Products are sold in 110 countries around the world



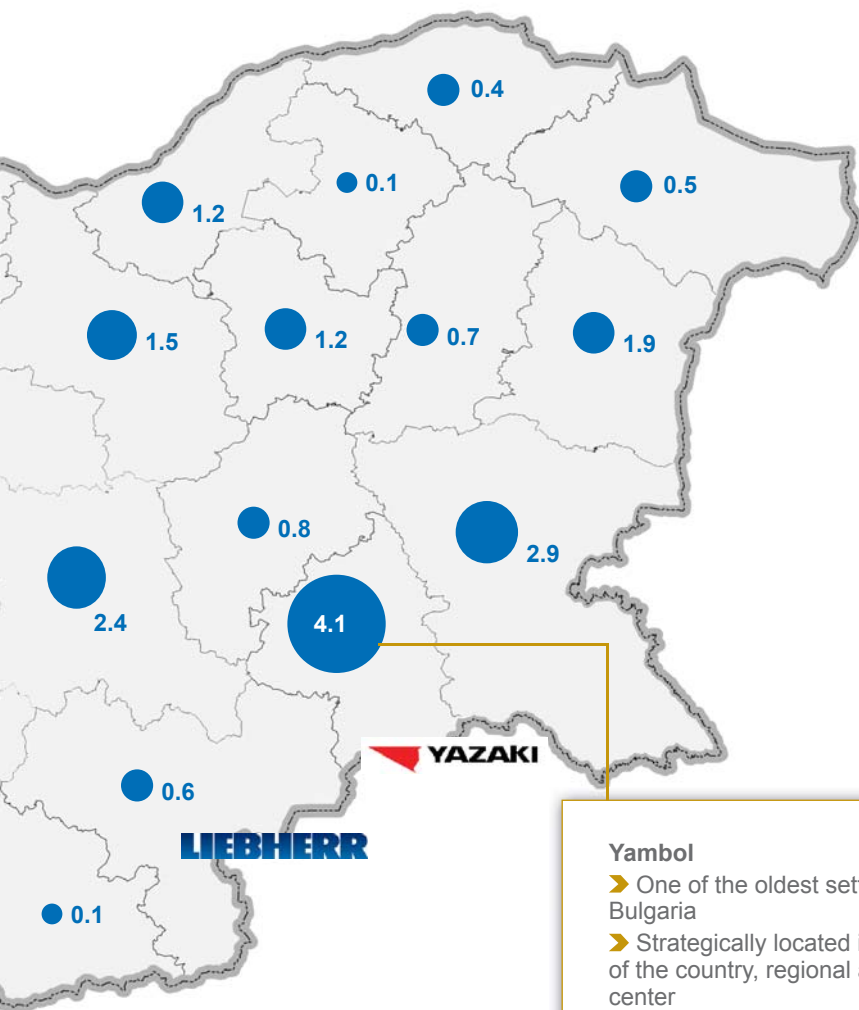
- Broadband communications industry and contract electronics R&D and manufacturing company
- Designs and implements complete hardware and software solutions

# There are a number of established cluster zones



## in the electronics and electrical engineering sector in Bulgaria

Number of employees in the sector (thousands)

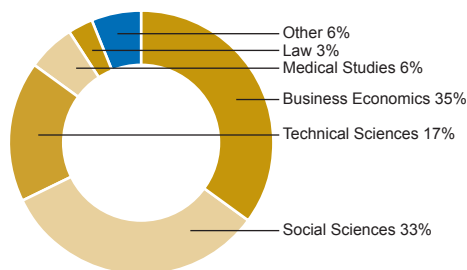


## Bulgaria offers a qualified and skilled workforce, well suited for the needs of the sector

- Because of the traditions in the sector, Bulgarian engineers are highly qualified for the needs of the electrical engineering and electronics manufacturing
- There are experienced assembly workers available at very affordable labor cost
- Very good overall quality/cost ratio of the workforce
- There are five technical universities in Bulgaria offering majors in electronics and electrical engineering

## About 30 000 University students are enrolled in majors related to the Electrical Engineering and Electronics manufacturing

### 2012 University and college graduates by field of study



- Bulgaria has a very good University system with traditions in the electrical engineering and electronics sector

- About 9 000 of the current Technical University students study majors directly related to Electrical & Electronics sector
- About 20 000 more students are enrolled in other majors in Technical Universities and may be suitable for a career in the electronics sector as well
- Many Bulgarian students study engineering in Universities in Europe, USA and the rest of the world and could be considered by sector companies as potential employees

### Sofia Technical University

- 18 000 students
- Faculties of Electronic Engineering and Technology, Electrical Engineering, Power Engineering, Computer Systems, Communication Technologies, Mechanical Engineering, Transport, Applied mathematics and Informatics
- There are three faculties with education in foreign language- faculty of German Engineering Education and Industrial Management, English Language Department of Engineering, French Language Department of Electrical Engineering



[www.tu-sofia.bg](http://www.tu-sofia.bg)

### Sofia Technical University – Plovdiv Branch

- 2 100 students
- Faculties of Electronics and Automation and faculty of Mechanical and Instrumental Engineering
- University is working closely with local and international companies and universities to ensure quality of the student programs



[www.tu-plovdiv.bg](http://www.tu-plovdiv.bg)

### Varna Technical University

- 7 000 students
- Faculties of Electronics, Electrical Engineering, Mechanical Engineering and Technologies, Computing and Automation, Shipbuilding



[www.tu-varna.acad.bg](http://www.tu-varna.acad.bg)



[www.tugab.bg](http://www.tugab.bg)

### Gabrovo Technical University

- 5 400 students
- Faculties of Electrical Engineering, Mechanical Engineering and Technologies, Economy
- 1 500 students studying in Electrical Engineering and Electronics majors
- Works closely with Bulgarian - German Institute for Quality and Industrial management



### Ruse Technical University

- 8 000 students
- Works with Cornell University in a Special Partnership Program
- Faculties of Electronics, Business and Management, Transport and Logistics, Law, Natural sciences; optional English, Russian, French or German courses
- Besides the numerous national and European projects and initiatives carried on by the University, there is a special focus on cross-border cooperation with Romania



[www.uni-sofia.bg](http://www.uni-sofia.bg)

### Sofia University

- 25 000 students
- Laboratories run by IBM, Oracle; affiliate center of Harvard University
- Faculties, Mathematics and Informatics, Natural Sciences and others
- Double diploma programs with Paris Sorbonne and Bordeaux IV, City University of Seattle; Business and technical majors taught in English, French or German



# Bulgarian University students design their first electric car

A team of students from the Technical University - Sofia (TU) designed the first Bulgarian student's electric vehicle and won a contest organized by Shell Bulgaria and FullCharger Bulgaria.

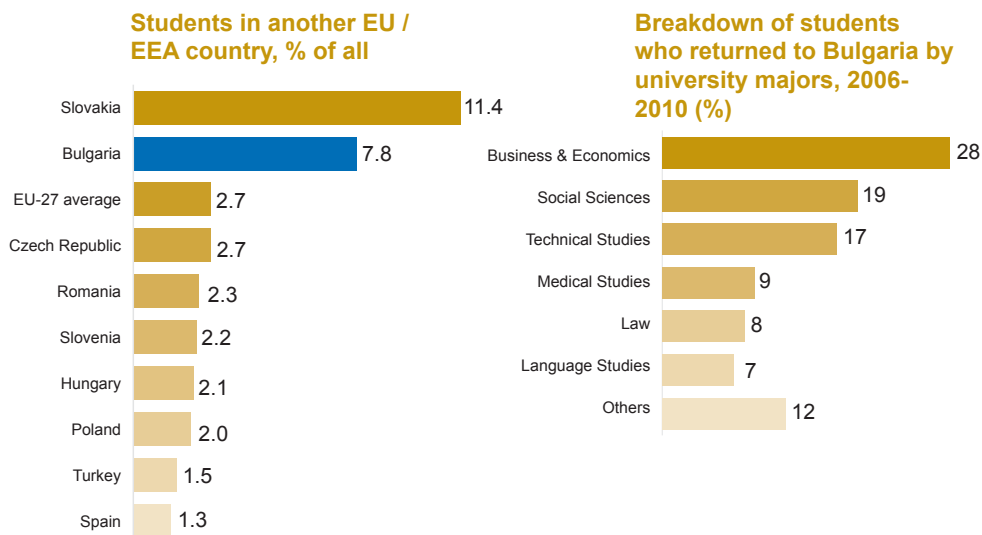
Electric vehicle of TU-Sofia will weigh around 120-125 kg and will develop a speed of 30-40 kilometers per hour. Battery power with 600-700 W will power electric motor that weighs only 1.3 kg and has the size of a human fist, said the captain of the team Blagoy Bourdin.

Two more universities projects took part in the contest – of Technical University - Varna and the branch of the Technical University-Sofia in Plovdiv A High School team also participated– a team from the vocational school in Chepelare.

The winners will represent Bulgaria in the international contest for fuel economy in the Netherlands.



## An estimated 80 000 Bulgarian students study abroad, many of them in electronics and engineering majors



Svilen Kanev, senior at Harvard University majoring in computer science, was selected by the US Computing Research Association as one of the most promising young Scientist.

Svilen was recognized for his work in optimizing energy efficient hardware. Svilen has also worked on building detailed performance simulations of the Atom CPU micro architecture, including power modeling. Additionally, Svilen is the lead contributor to the AI system used in competition by the Harvard-MIT Robot Soccer Club, working on everything from the high-level strategy language down to low-level embedded controls.

## Bulgaria has a network of technical high schools preparing specialists for the electronics sector

- More than 90 professional schools all over the country educate young people in electronics and other technical studies
- Professional high schools have established traditions in the Bulgarian education system
- High schools of electronics are among the most sought after institutions for secondary education in the country
- There are more than 150 000 students enrolled in these high schools, many of them potential employees of the electronics industry

## Distribution of Professional Schools in Bulgaria



- Bulgarian secondary education is among the best in the world with the country ranking 5th in the world in sciences and 11th in mathematics
- Bulgarian high-school algorithm writers have been among the medalists at International Olympiads in informatics for 15 years

## Robopartans – School of Robotics



A group of young Bulgarian enthusiasts interested in Electronics and robotics have started an ambitious and interesting project – School of robotics “Robopartans”



The aim of the school is to provoke and strengthen the interest of children of all ages and students in electronics, mathematics and technical sciences as a whole

In the School, students are empowered to play, think, make mistakes, create and be original and at the same time develop knowledge and experience in technical sciences



Using robots in the education process provides a lot of advantages. Students construct and program robots, which helps them acquire the knowledge faster using real objects than using formulas and abstract notions

The mentors of the children are young professionals, some of them still students, others in the early stage of their professional career in technologies and electronics

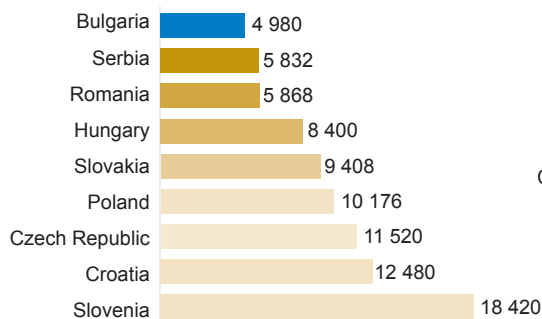


The Robopartans won Empower Award 2010 for Young Entrepreneurial Excellence and Special Awards Forbes 2011 2010, Special awards Forbes 2011

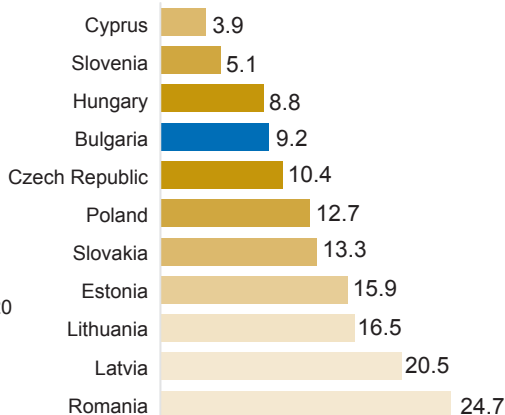
## Wage costs in the sector and overall in the economy remain competitive

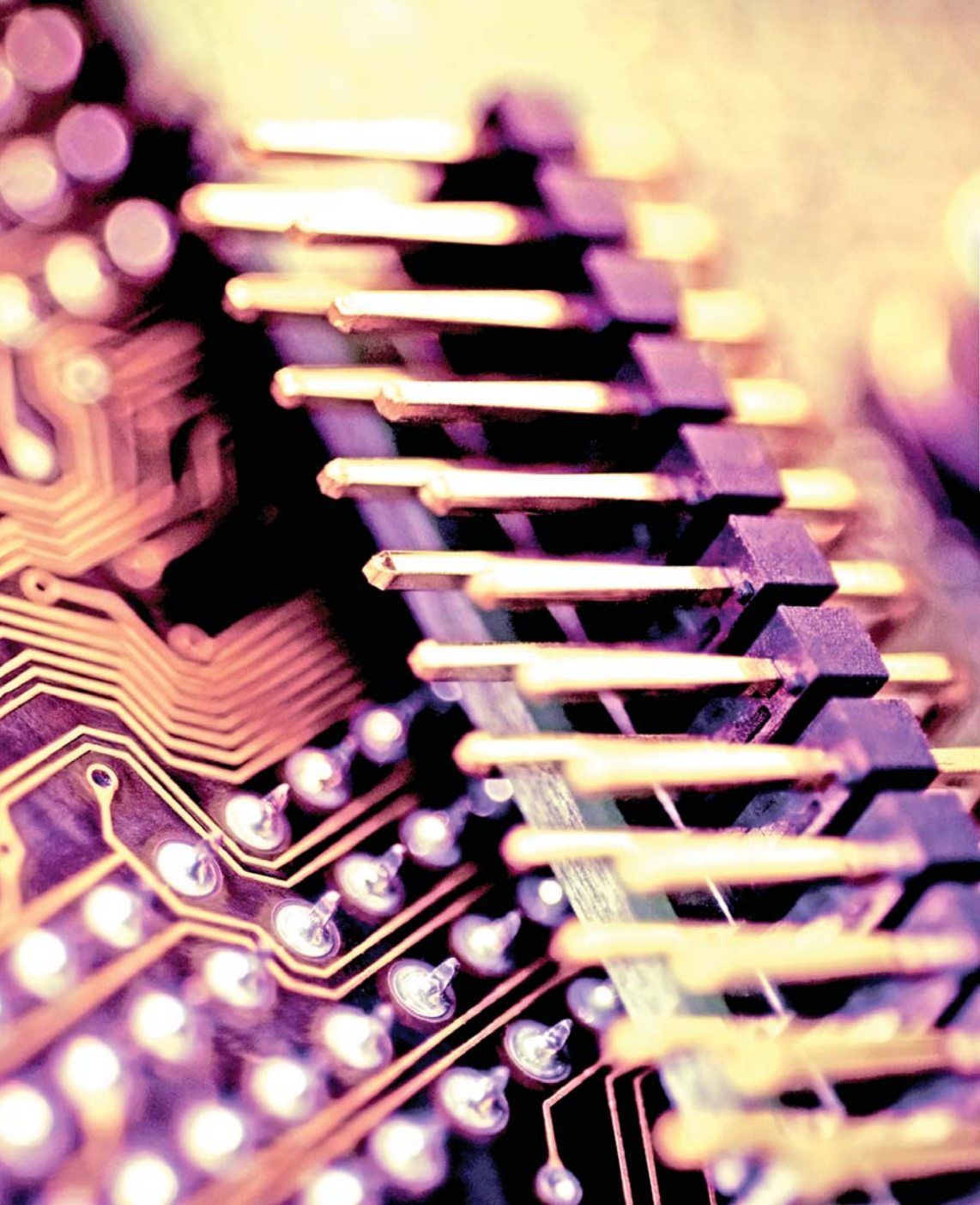
- In 2012 average annual wage in the electronics and electrical engineering sector is € 4 980
- Salary not only in the industry but also in the economy in general is among the most competitive in the EU
- It is expected that wages will maintain its relatively competitive levels in the foreseeable future

**Annual country average wage in 2012, (€)**



**Hourly wage growth, CAGR 2004-2008, (%)**





**SUCCESS STORIES**





**Established in Bulgaria:** 1959

**Personnel:** 575

**Activity:** manufactures starter batteries, stationary batteries, solar batteries, batteries for military applications, locomotive batteries, LED production, recycling



Monbat is a Bulgarian company with almost 60 year history and traditions in the manufacturing of batteries.

One of the fastest growing battery companies in SEE with 2010 revenues in excess of EUR 80 million.

Operates two battery manufacturing facilities in Bulgaria located in the towns of Montana and Dobrich.

Owens two recycling facilities in Romania and Serbia.

Monbat maintains intensive R&D activities in cooperation with the Bulgarian Academy of Science.

Works in cooperation with many large international companies such as Vodafone, Ericsson, Huawei.



Monbat exports 85% of its products. 24% of the sales are realized on the German market.

## SIEMENS

**Established in Bulgaria:** 1991

**Personnel:** 500+

**Activity:** manufacturing of equipment for transformers, energy engineering, industrial engineering and medical engineering solutions



Siemens is a multinational conglomerate, the largest European based electronics and electrical engineering company

The company and its subsidiaries employ more than 400 000 people worldwide



Siemens chose Bulgaria for the home of its engineering outsourcing centers for house automation systems and conventional energy sources, servicing 12 countries.

### Key Activities and Products manufactured in Bulgaria:

- Ingredients for high tension measure transformers used in the energy sector
- High voltage electrical engineering components for the electric industry
- Automation and control devices used in manufacturing industry
- Engineering solutions





**Siemens Bulgaria:**

Siemens has been represented as a company in Bulgaria since the end of the 19th century when it participated in the building of the national telegraph network.

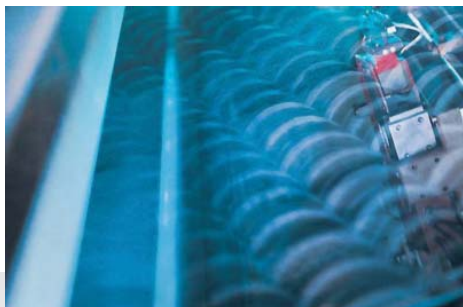
The Bulgarian branch of the company offers its full range of engineering solutions and services.

A state of the art facility in Pravets Bulgaria was built in 2011 and manufactures high voltage electrical engineering components.

Siemens has participated in the modernization of many industrial enterprises in Bulgaria.

The company is successfully cooperating with a number of Bulgarian engineering firms certified as “Siemens Solution Partners”.

Siemens Bulgaria has been cooperating with all local technical universities in developing future engineers through establishing masters programs and engineering labs and workshops.





**Established:** 2008

**Personnel:** 140

**Activity:** design, production and maintenance of energy meters, tachographs, fiscal and non-fiscal trade equipment, LED lighting



- A group of companies, established and operating in Bulgaria. Headquarters is in Sofia and a purpose-built manufacturing facility is located in Botevgrad
- Holds many international standards: ISO 9001:2008 by TÜV Rheinland, AERO CERT and others



Incotex exports over 90% of its products in over 20 countries in Central and Eastern Europe, Russia, Africa and Asia.

### Key Products:

- Cash registers
- Fiscal printers
- Electronic scales
- POS terminal systems
- Energy Meters
- LED lights



INCOTEX has restored a 40-year-old Bulgarian tradition in Microelectronics resuming the production of its own LED chips.

The company brings together the potential of Bulgarian scientists and engineers with the specific production conditions (a state of the art clean room), high tech equipment and materials of highest purity.

In LED chips production INCOTEX uses cutting-edge technology and aims to become the second company in Europe to close the production cycle from the chip to the end product.

In August 2011 INCOTEX opened a brand new production facility for LED chips and lamps, situated in the industrial zone "Microelectronica" in Botevgrad Bulgaria.





**Established in Bulgaria:** 1993

**Personnel:** 440

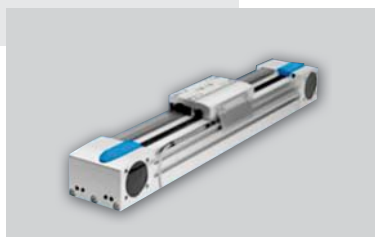
**Activity:** production of magnetic sensors and automation applications



- 100% owned by the German company Festo AG & Co.KG
- Since 1997 Festo Bulgaria has been specializing in manufacturing of sensors and sensor applications
- Operates two manufacturing facilities in Sofia and Smolyan
- 2011 revenues reached EUR 440 mln

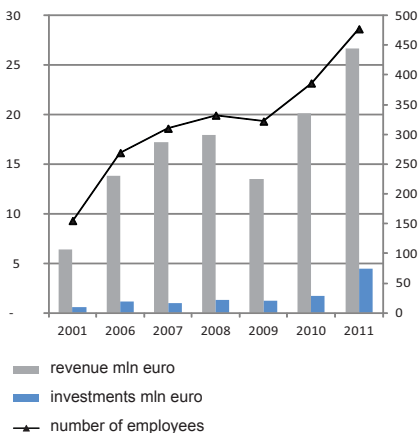
#### Key Products manufactured in Bulgaria:

- Production of fluid and magnetic sensors with various applications in automotive, machine building and other industries
- Cable applications for sensors and valves



### Why FESTO Chose Bulgaria:

- Bulgaria has availability of qualified and experienced workforce in the electronics sector
- Affordable costs of doing business
- Close cultural connection and easy communication with European partners



### Future of FESTO Bulgaria:

Planning to increase the capacity of the sensors production and industrial automation in Bulgaria.

In 2012 started the construction of a new production hall with a total area of 7 600 square meters. It will be ready in mid-2013.



**Established in Bulgaria:** 1999

**Personnel:** 800+

**Activity:** Energy management, integrated solutions for smart grid, smart buildings and cities



- French multinational company - world leader in energy savings, electric distribution products and industrial automation
- Employees more than 100 000 people in 130 countries
- 2010 revenues of the Bulgarian operations of the company are in excess of EUR 50 million



Schneider Electric is a world leader in energy saving technologies and the Bulgarian operation was first in the world to manufacture company's energy saving timers and switches.

#### Key Products manufactured in Bulgaria:

- Energy saving electric switches used in the energy sector and manufacturing industry
- PLCs, Buttons, Sensors with application in manufacturing, energy and transport industries
- Energy saving timers



### Schneider Electric in Bulgaria:

- The first manufacturing facility in Bulgaria started in 1999 but the company had commercial presence in Bulgaria since 1990
- Currently Schneider Electric Bulgaria operates two manufacturing facilities in Perushtitsa and Plovdiv
- Plovdiv facility was built in 2007 and expanded in 2008
- Schneider Electric has sales and service offices in Varna, Burgas and Ruse
- 60% of the components used in the Bulgarian manufacturing are supplied by local companies
- Schneider Electric received “Investor of the year in the industrial automation industry” award in 2007





**Established in Bulgaria:** 1989

**Personnel:** 100

**Activity:** designs, manufactures and sells worldwide audio and radio amplifying technology



- Started its business from a small garage in 1989
- 100% of company production is exported
- The first company from Bulgaria to supply electronics for the most competitive markets in the world simultaneously – USA, Germany, Japan



ACOM is innovation based company that serves customers from 110 countries around the globe.

#### Key Products:

- High Frequency (HF) equipment used in radio communication industry
- HF antennas for commercial, government and amateur markets
- Antenna crank-up masts
- Systems for short range network radio communications
- In 2011, ACOM started a joint venture with a large global private equity fund for development of other innovative products outside the pure amplification technology





Convincing cabling solutions

## Established in Bulgaria: 2012

**Personnel: 150**

**Activity:** development, production and trade of electronic, electrical, optic and copper components for telecommunications networks



Constructing the production of copper and fiber optic components for telecommunication networks is a high-tech and innovative project with no other analogue on the territory of Bulgaria.

### Why Bulgaria:

- Geographical location and logistic network in Bulgaria - air and land one;
- Timely provision of assistance by the central management of R & M
- Competitive labour costs
- Availability of qualified staff
- Cultural similarities/differences
- Traditions and knowledge of the local market
- Origin of the output from the European Union

### Key products:

Fiber - optic pigtails



Fiber - optic patch cords

Fiber - optic platforms



A significant place in the structure of “Reichle & De-Massari Production Bulgaria” Ltd. is occupied by the unit for engineering and design of fiber optic platforms where highly qualified Bulgarian technical specialists work.

- In 2012 the company was certified as a Class A investor and won the “Investor of the Year” award
- The investment has been implemented only for 9 months
- This is the first Swiss high-tech investment in Bulgaria
- The parent company is among the top 500 companies in Switzerland



**Established in Bulgaria: 2007**

**Personnel: 600+**

**Activity:** tubular lead acid industrial batteries



- World leader in the manufacturing of industrial batteries and specialty batteries
- EnerSys and its predecessor companies have been manufacturers of industrial batteries for over 100 years
- Operates manufacturing and assembly facilities in 12 countries for customers in over 100 countries



EnerSys Bulgaria manufactures batteries weighing more than 300 tons for UK and German submarines.

### Key Products manufactured in Bulgaria:

- Submarines batteries
- Solar batteries
- Batteries for the mining industry
- Railway batteries
- Explosion proof batteries used in mining
- Stationary batteries used in the telecom industry



### EnerSys in Bulgaria:

- The forklift battery plant Energia in Targovishte was established in 1971 under the license of the German company Varta
- In 2007 EnerSys acquired Energia
- EnerSys facilities in Bulgaria cover 206 000 sq.m., incl. 58 600 sq.m. of buildings
- Existing facilities allow the company to close the production cycle and to manufacture all components for the assembly of the batteries
- The company provides its raw materials mostly from Bulgarian suppliers
- Bulgarian production of tubular lead acid batteries serves the markets of motive power and reserve power applications, as well as the rail and mining markets





**Established in Bulgaria:** 1996

**Personnel:** 300+

**Activity:** high and medium voltage electrical equipment, automation parts, engineering solutions



- Global leader in power and automation technologies and electrical equipment
- The ABB group of companies operates in 100 countries and employees 130 000 people



ABB companies in Bulgaria export their products in Russia, Iraq, Romania, Mexico, Brazil, Sweden, Norway, China, Germany, France.

### **Key Activities and Products manufactured in Bulgaria:**

- Circuit breakers and disconnectors for industrial purposes
- Capacitor banks used by electrical distribution utilities and large industrial power users
- Generating sets
- Automation parts used in manufacturing industries
- Engineering solutions



### ABB in Bulgaria :

- ABB now operate in Bulgaria through one company with the Head office in Sofia, having offices and branches in five locations
- ABB has five locations in Bulgaria – main office in Sofia, manufacturing facilities in Petrich, Sevlievo and Rakovski and office and turbochargers service station in Varna
- ABB Bulgaria EOOD focuses on providing engineering solutions and electrical equipment for high, medium and low voltage, as well as automation systems and products for the technological processes, both in the power and industrial sectors
- ABB production unit in Sevlievo focuses on engineering and assembly for high and medium voltage equipment and related services. At the end of 2011 the factory in Sevlievo delivered the first Metal Enclosed Capacitor Banks (MECB) products
- ABB Automation is an internal supplier of automation parts for ABB factories mainly in Italy, as well as for other factories within the ABB Group, in countries such as France, Germany and China
- ABB in Bulgaria has been awarded the prize Investor of the year 2009”, by the InvesBulgaria Agency





**Established in Bulgaria:** 1997

**Personnel:** 650+

**Activity:** production of power and distribution transformers, high voltage apparatuses, tap changers, solar power systems



- Global integrated heavy industry company, employing more than 24 000 people worldwide
- Operates seven business divisions: Shipbuilding, Offshore & Engineering, Industrial Plant & Engineering, Engine and Machinery, Construction Equipment, Electro Electric Systems and Green Energy



Hyundai Heavy Industries Bulgaria exports its transformers and tap changers to more than 50 countries in Europe, Asia, America, Africa.

## Key Activities and Products manufactured in Bulgaria:

- Power Transformers for the energy industry
- High Voltage Apparatuses
- Tap Changers used in power transformers manufacturing
- Solar Power Systems for clean energy generation



## Hyundai Heavy Industries in Bulgaria :

- Vassil Kolarov power engineering and transformers plant was established in 1949 as a state enterprise
- The plant was among the largest heavy industry facilities in the country
- In 1997 Hyundai Heavy Industries acquired majority stake in the company
- Hyundai Heavy Industries Co. Bulgaria manufactures oil-filled power transformers for power substations, hydro-electric & thermal power plants industrial enterprises
- All power and special transformers are equipped with Tap Changers developed and manufactured in Bulgaria
- Tap Changers manufactured in Hyundai Heavy Industries Co. Bulgaria are installed in a wide range of transformers and are currently in operation in Russia, South Korea, Romania, United States and many other countries in Asia, Europe, South and North America







**Established in Bulgaria:** 2000

**Personnel:** 300+

**Activity:** microelectronic component manufacturing, sensors, IC's for the automotive industry



- Melexis is a Belgian company, leading manufacturer of advanced mixed signal semiconductors, sensor ICs, and programmable sensor IC systems
- Melexis is present in 12 countries worldwide



Melexis Bulgaria IC's are used in the vehicles of companies like Mercedes-Benz, BMW, Audi, VW, Suzuki, Toyota, GM and Ford.

## Melexis Bulgaria:

Melexis Bulgaria is based in Sofia in a 7 800 sq. m. facility containing office space, R&D, test areas, and over 1 000 m<sup>2</sup> clean rooms for handling semiconductors

In 2006 and 2007 Melexis invested over EUR 13 mln to improve its Bulgarian operations

Melexis Bulgaria is involved in component manufacturing, R&D and testing activities





## Infrared Thermometer developed in Bulgaria

In 2007 Melexis was granted the famous French Electron d'Or Award for its infrared thermometer developed in the R&D Facility in Sofia

Melexis infrared thermometer sensor has won in the category “Sensors with Signal conditioning”.

The Infrared (IR) thermometer, allows non-contact measurement of surface temperatures by analyzing the invisible, infrared spectrum emitted from an object. The IR thermometer uses Melexis' advanced infrared technology to measure fast and quick surface temperature of objects without physical contact. This technology allows safe measurements and cuts measurement time to almost zero with the ability to measure several reading per second. The nature of this measurement technique prevents contamination and damaging of the measured object.

This small and cost effective non-contact thermometer delivers a fully calibrated, digital infrared temperature reading. An infrared sensor and a custom signal conditioning chip are integrated in one package. The thermometer is used anywhere a temperature reading is required – from manufacturing to medical industries.

The Thermometer is based on the MLX90614 sensor, the most innovative product in the company's infrared sensors family.



**LIEBHERR**

**Established in Bulgaria:** 2000

**Personnel:** 1 700+

**Activity:** manufacturing of refrigerators and freezers for domestic and commercial use, railway vehicle equipment



Liebherr Hausgeräte Ochsenhausen GmbH–Germany employs a workforce of approximately 22 000 in more than 100 companies on all continents.



Liebherr Hausgeraete Maritza has the capacity to manufacture more than 600 000 refrigerators annually.

### **Liebherr Bulgaria:**

Liebherr Hausgeraete Maritza LTD and Liebherr Transportation Systems Maritza LTD are located in Maritza Industrial Zone in Plovdiv region.

Lienherr Hausgerate manufactures refrigerators and freezers for residential and industrial use. In 2011 the company realized more than EUR 140 million in revenues.

Liebherr Transportation Systems develops and manufactures air conditioning, power supply and hydraulic actuation systems for all the segments of the rail vehicle industry.

Total investment in the company's Bulgarian operations is approximately EUR 86 mln.

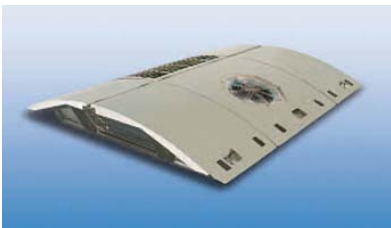
Liebherr's facilities are built on 200 000 sq. m., of which 65 000 manufacturing facilities and warehouses.

## South African Electric Trains with Bulgarian built HVAC

Liebherr-Transportation Systems GmbH & Co KG, in collaboration with Bombardier Transportation UK Ltd. (Derby) has designed and built the Heating Ventilation Air Conditioning (HVAC) system of the South-African Gautrain electrical multiple units. Gautrain is a rapid rail network in Gauteng, linking Johannesburg via Sandton with Pretoria as well as OR Tambo International Airport.

The cab and saloon HVAC systems are made of individual self-contained air conditioning units. There are two saloon units fitted in every car, with a single cab unit in the driving cars. The air conditioning units are constructed in stainless steel and built at the Liebherr- Transportation Systems production site in Radinovo, Bulgaria.

The HVAC units are equipped with latest generation components and CFC free refrigerant, and the design will ensure high reliability and ease of maintenance. The Liebherr HVAC systems are microprocessor-controlled and connected to vehicle data bus systems to ensure complete full and effective system integration.





**Established in Bulgaria:** 2007

**Personnel:** 3 400

**Activity:** manufactures electrical wire harnesses for the automotive industry



- Owned 100% by the Japanese Yazaki Corporation
- Present in 50 countries and employs more than 170 000 people worldwide
- Holds 35% market share of the world wire harnesses for the automotive industry



Yazaki Bulgaria main customers are the automotive manufacturers in France and Spain.

### Yazaki Bulgaria:

Established in Yambol industrial zone, investment of more than EUR 30 mln

In 2012, in Sliven Yazaki opened its second factory in Bulgaria.

Bulgarian facility spreads on 50 000 m<sup>2</sup>, with 24 500 m<sup>2</sup> of the area dedicated to manufacturing facility

Yazaki Bulgaria has not only an assembly department but also an engineering division providing wire harnesses for the automotive industry





**Established in Bulgaria:** 1993 as EPIQ

**Personnel:** 2 000+

**Activity:** electronic assembly, module assembly, development & manufacture of plastic injection moulds & factory automation equipment



- In July 2011 the Belgian EPIQ group sold, EPIQ Electronic Assembly EOOD to Integrated Microelectronics, Inc (IMI), a Philippines based company
- IMI subcontracts for well-known names in the automotive sector, including Valeo, Denso, Brose and EF
- IMI manufactures components for famous brands in the consumer electronics like Tefal, Rowenta, De Longi



IMI manufactures more than 230 products and exports them mostly to the European markets.

### IMI Bulgaria:

IMI Bulgaria is located in Botevgrad, 60 km from Sofia

Main Activity includes PCB Assembly and Testing, System Product Integration Tooling and plastic injection

The Bulgarian operations are among the leading international suppliers to the automotive, consumer electronics and industrial appliance markets





## The Bulgarian Association of Electrical Engineering and Electronics

bcee@bcee-bg.org



The Bulgarian Association of Electrical Engineering and Electronics (BASSEL) is the approved and acknowledged by the business society in our country and the authorities, competent a nation-wide representative of the Bulgarian electrical engineering industrial sector

BASSEL was founded in 1994 as an officially registered national non-profit organization with members – more than 150 companies from the electrical branch with manufacturing, engineering, commercial, consultant and R&D activities.

They join the Chamber on a voluntary basis, incl. all leading foreign branch investors as FESTO, ABB, SCHNEIDER, HYUNDAI, SPARKY, BOSCH etc. with a staff total of about 13 000 employees in the following sectors:

- HV/MV-electric power equipment, switchgear
- LV-switchgear, electric utilities, lighting fixtures, luminaries
- Cables and wires
- Electric motors, hand tools, hoisting & haulage and transport technique
- Batteries
- Automation, control & measurement appliances
- Subcontractors of elements, parts, materials
- Electric thermal equipment
- Engineering, complete projects, consultancy
- Trade companies

BASSEL is also a member of ORGALIME in Brussels – the most authoritative association of the engineering industries in the European Union.



## IBA Services:

- Macroeconomic information
- Legal advice
- Information on operational costs
- Regional data on unemployment, availability of skilled labour force, level of education, infrastructure, foreign investors and industrial zones
- Recommendation of vacant land
- Identification of potential suppliers, subcontractors or joint venture partners
- Individual administrative services
- Contacts with the central and the local authorities
- Contacts with industry chambers, local universities and NGOs



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