



▶▶▶ power of knowledge
power of knowledge



KONČAR ELECTRICAL INDUSTRIES Inc.

Zagreb, Croatia

KONČAR

CONTENTS

- Basic data
- Ownership structure
- Organisational chart
- Production programme
- Market
- Power of knowledge
- Quality management and sustainable development
- References



BASIC DATA

- 1921 Founded as ELEKTRA Inc., Zagreb
- Until 1946 SIEMENS
- 1946 - 1990 RADE KONČAR
- Since 1991 KONČAR – ELECTRICAL INDUSTRIES Inc.

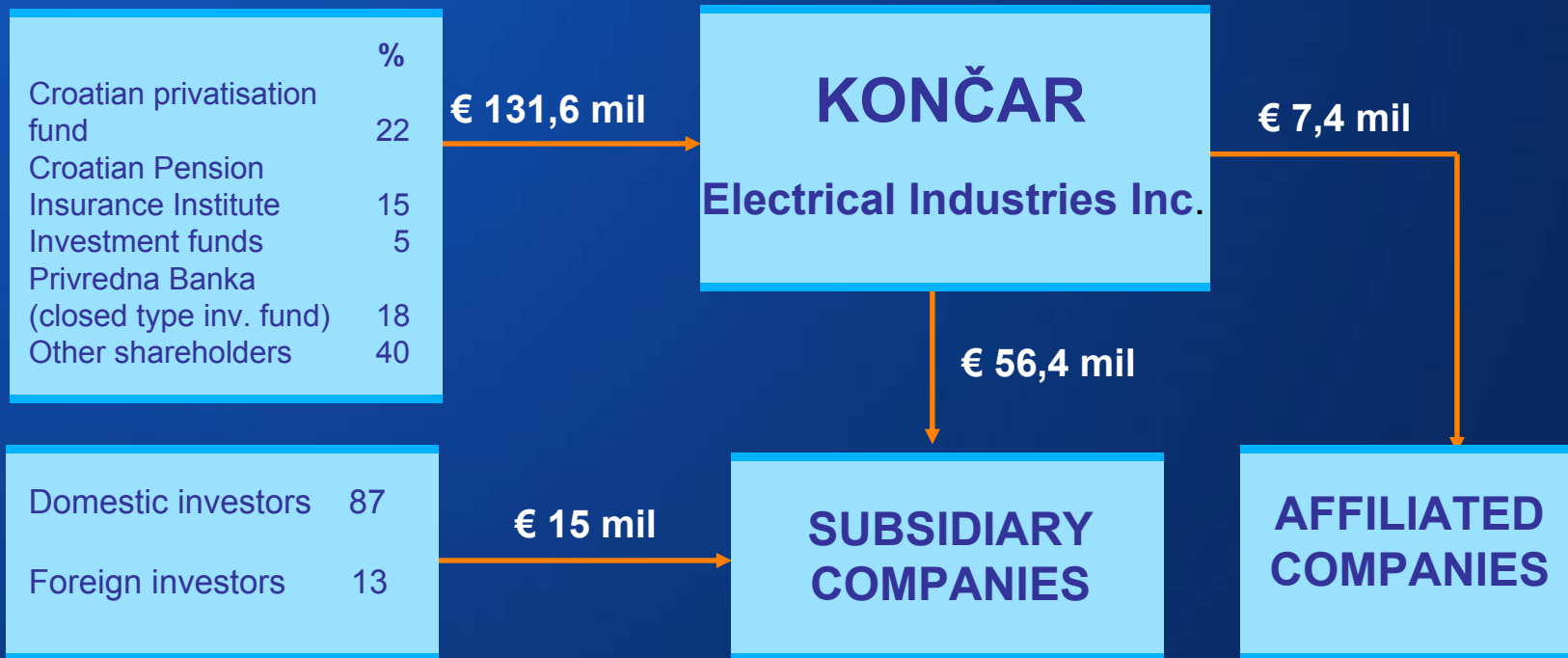
Today:

- 23 subsidiary and 4 affiliated companies in Croatia
- Companies and representative offices abroad in:
Bosnia and Herzegovina, Czech Republic, Switzerland,
Russia, Serbia and Montenegro
- 4,000 employees



OWNERSHIP STRUCTURE

Shareholders:



Dec 31, 2003

MANAGEMENT BOARD

DARINKO BAGO

President of the Management Board

BOŽIDAR PILLER

Business Area Energy and Transport

DAVOR MLADINA

Business Area Industry and Trade

MARINA KRALJ MILIŠA

Legal Affairs and Human Resources

JOZO MILOLOŽA

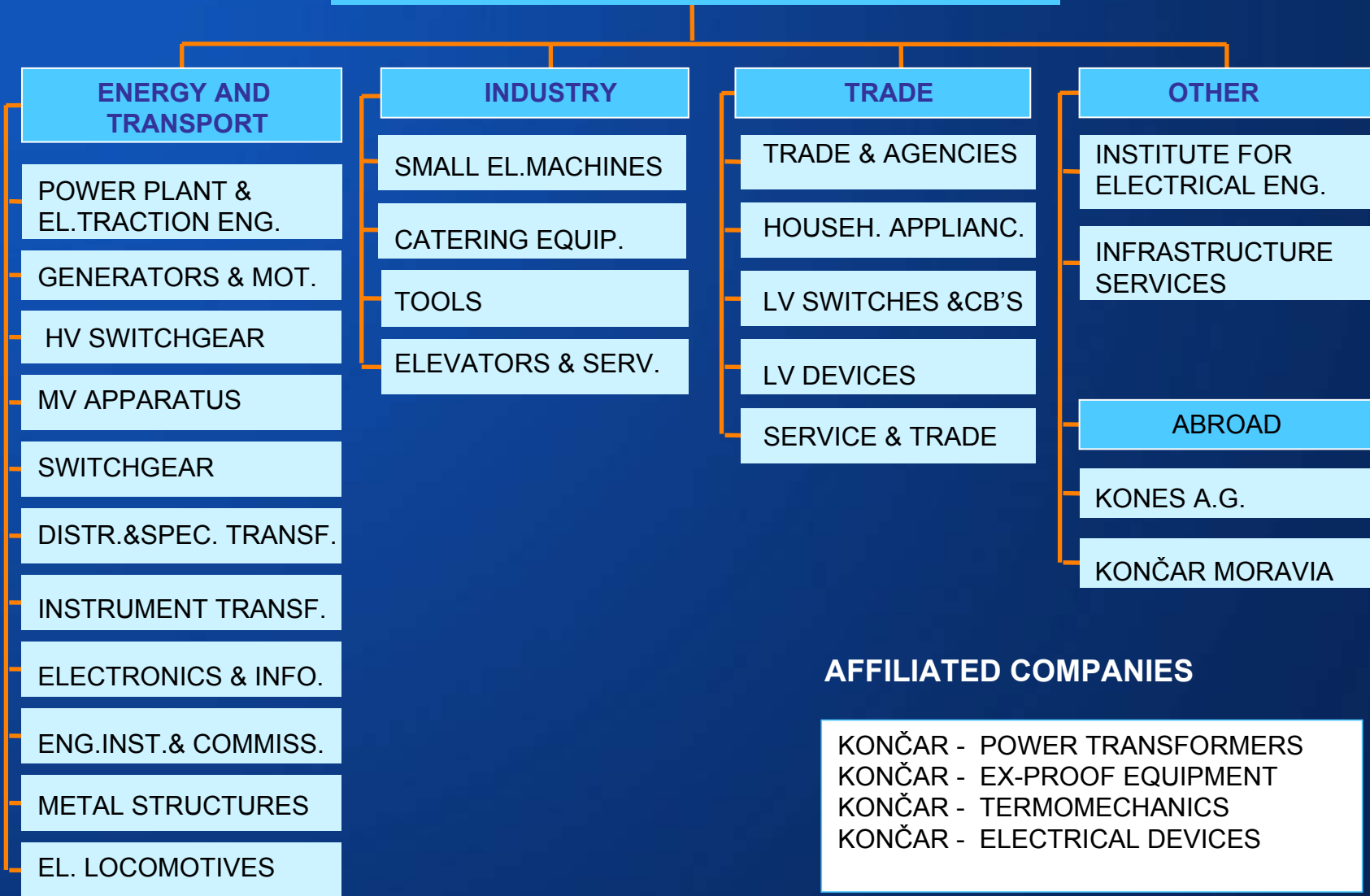
Financial Affairs

VLADIMIR PLEČKO

Corporate Development



KONČAR Electrical Industries Inc.



AFFILIATED COMPANIES

KONČAR - POWER TRANSFORMERS
KONČAR - EX-PROOF EQUIPMENT
KONČAR - TERMOMECHANICS
KONČAR - ELECTRICAL DEVICES



SUBSIDIARY COMPANIES

**ENERGY
AND
TRANSPORT**

11 COMPANIES

INDUSTRY

4 COMPANIES

TRADE

5 COMPANIES

**COMPANIES
ABROAD**

2 COMPANIES

**OTHER
ACTIVITIES**

2 COMPANIES



ENERGY AND TRANSPORT

SALES
(in '000 €)

EMPLOYEES

Power plant and elec. traction eng.

73,250

186

Generators and motors

17,108

452

High voltage switchgear

11,843

145

Medium voltage apparatus

11,521

85

Switchgear

21,838

221

Metal structures

8,542

180

Electric locomotives

8,097

227

Distribution & spec. transformers

29,871

248

Instrument transformers

14,415

200

Electronics and informatics

17,396

250

Eng. for Plant Install. and Comiss.

9,205

136



INDUSTRY

SALES
(in '000 €)

EMPLOYEES

Small electrical machines

7,646

217

Elevators and services

3,409

114

Tools

5,152

125

Catering equipment

3,752

84



TRADE

SALES
(in '000 €)

EMPLOYEES

Trade and agencies

5,539

72

LV switches & circuit breakers

7,640

276

Household appliances

15,563

334

Low voltage devices

2,510

133

Service and trade

1,888

53



OTHER ACTIVITIES

SALES
(in '000 €)

EMPLOYEES

Institute for electrical engineering

5,190

133

Infrastructure services

3,997

173



KONČAR ABROAD

COMPANIES

**CZECH REPUBLIC
KONČAR - MORAVIA**

**SWITZERLAND
KONES AG**

REPRESENTATIVE OFFICES

**BOSNIA AND HERZEGOVINA
MOSTAR**

**RUSSIA
MOSCOW**

**SERBIA AND MONTENEGRO
BELGRADE**



PRODUCTION PROGRAMME

Equipment, services and “turn key” projects in the fields of:

- **Energy** core business
- **Transport** core business
- **Industry**
- **Household appliances**
- **Information and Communications Tehnology (ICT)**



ELECTRIC POWER GENERATION

Production Programme

- “turn key” projects for HPP
- equipment and systems:
 - generators:
 - vertical and horizontal
 - reversible motor-generators
 - bulb-type
 - turbo generators
 - mini and micro generators
 - other electrical equipment:
 - excitation systems
 - unit control boards
 - switchgear
 - protection and control systems



POWER TRANSMISSION & DISTRIBUTION

Production Programme

- “turn key” transformer substations projects - up to 420 kV
- despatching centers
- equipment and systems:
 - HV circuit breakers and disconnectors
 - power transformers
 - instrument transformers
 - busbars and post insulators
 - MV switchgear
 - uninterruptible power supply
 - compensation equipment
 - measurement, protection and control systems



TRANSPORT

Production Programme

Railway and city transport:

- Electric traction vehicles:
 - locomotives
 - trams
 - electromotor trains
- Equipment and subsystems for locomotives, trams and train cars:
 - motors
 - motor drives
 - transformers
 - converters
 - protection and control systems
- Infrastructure electric systems and equipment:
 - electric traction transformer substations
 - small traffic control systems
 - level crossings control systems



INDUSTRY

Production programme

Electrical equipment and systems:

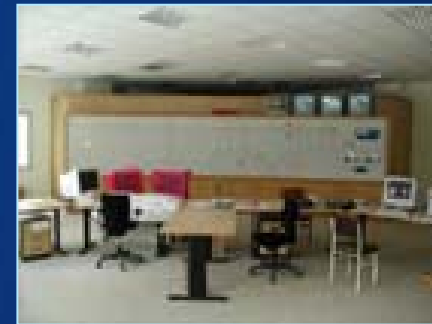
- power generation and distribution
- special transformers
- drives (motors and convertors)
- control panels and elements
- MV and LV switching devices and boards
- auxiliary electrical equipment
- elevators



INFORMATION AND COMMUNICATIONS TEHNOLOGY (ICT)

Production programme

- Computer process control systems for:
 - hydropower plants
 - transformer substations
- Computer process control systems built in:
 - locomotives
 - trams
 - electromotor trains
- Personal computers
- Notebooks
- Computer networks (LAN)
- ERP
- UPS



HOUSEHOLD APPLIANCES & CATERING EQUIPMENT

Production programme

• HOUSEHOLD APPLIANCES

- **Production**
(cookers, water heaters, kitchenettes, electrical towel heaters)
- **Co-operation**
(washing machines, dryers, refrigerators, freezers, vacuum cleaners, cooking hoods, oil filled radiators, other small appliances, air conditioners)

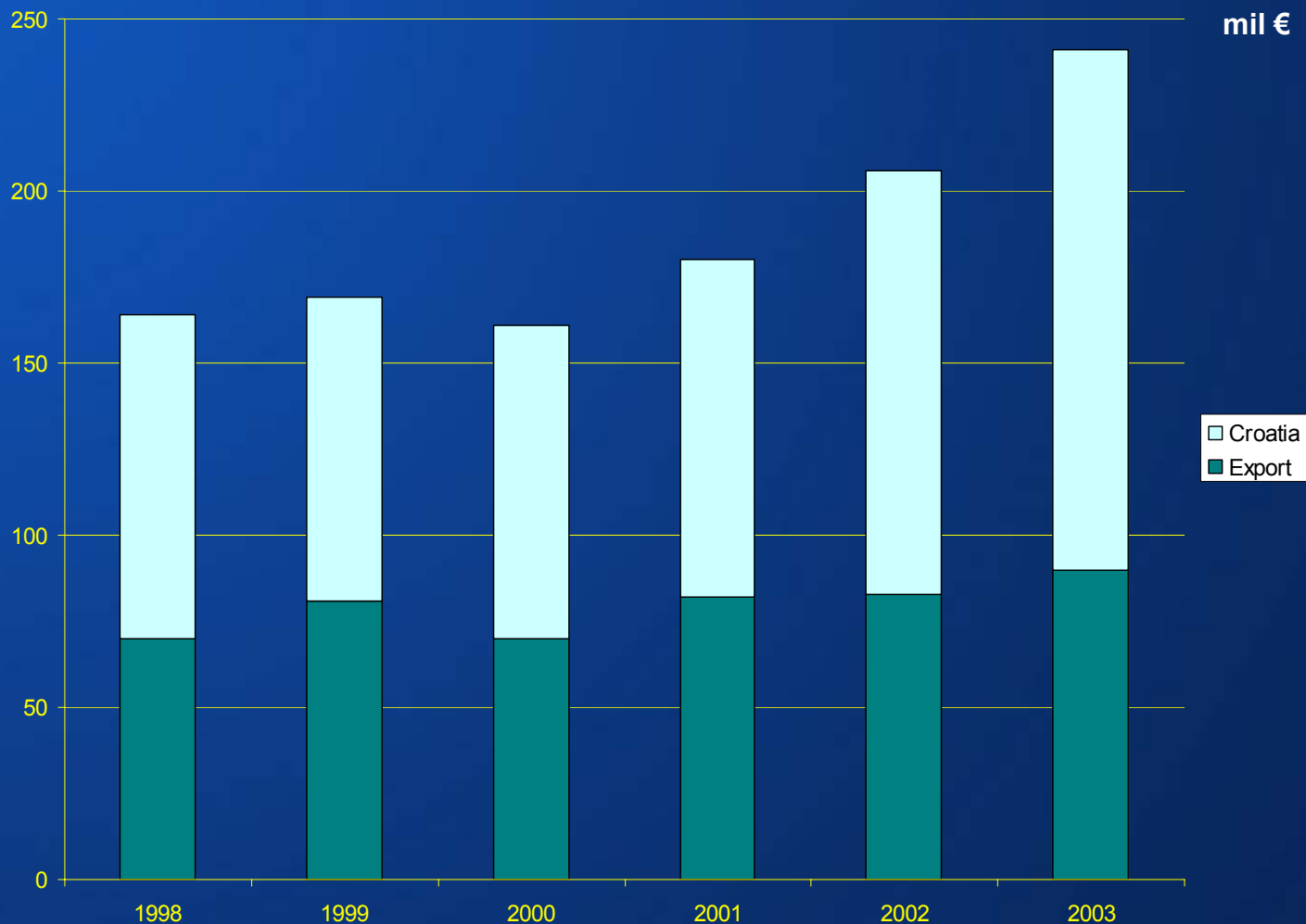


• CATERING EQUIPMENT

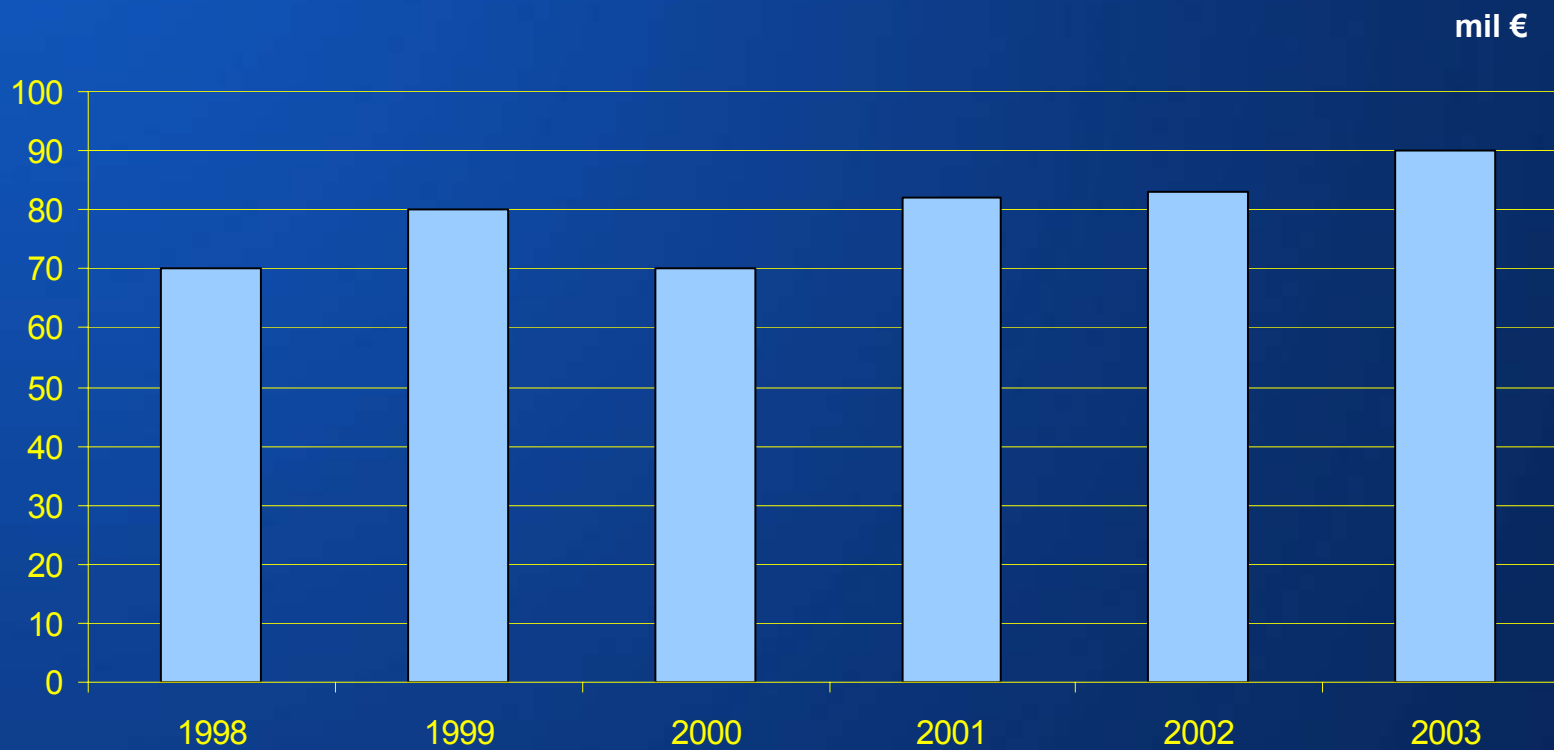
- thermal equipment for food preparation
- free-flow food servicing equipment
- neutral equipment
- cooled and neutral cabinets
- marine equipment



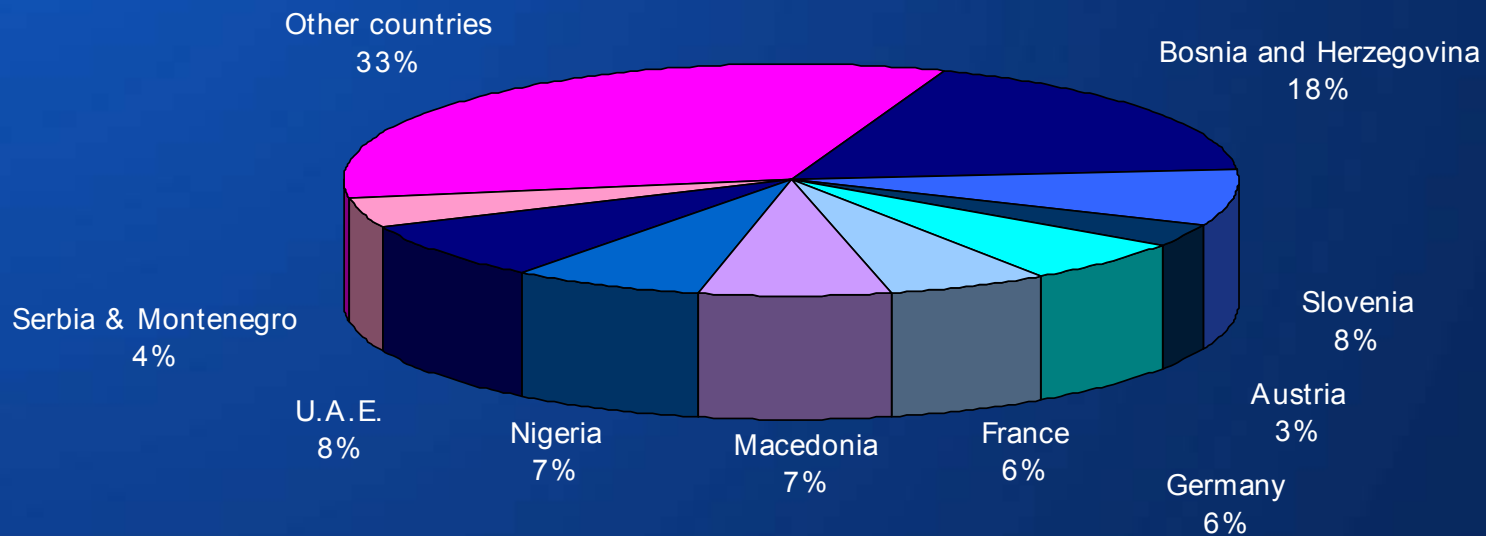
SALES OF PRODUCTS AND SERVICES



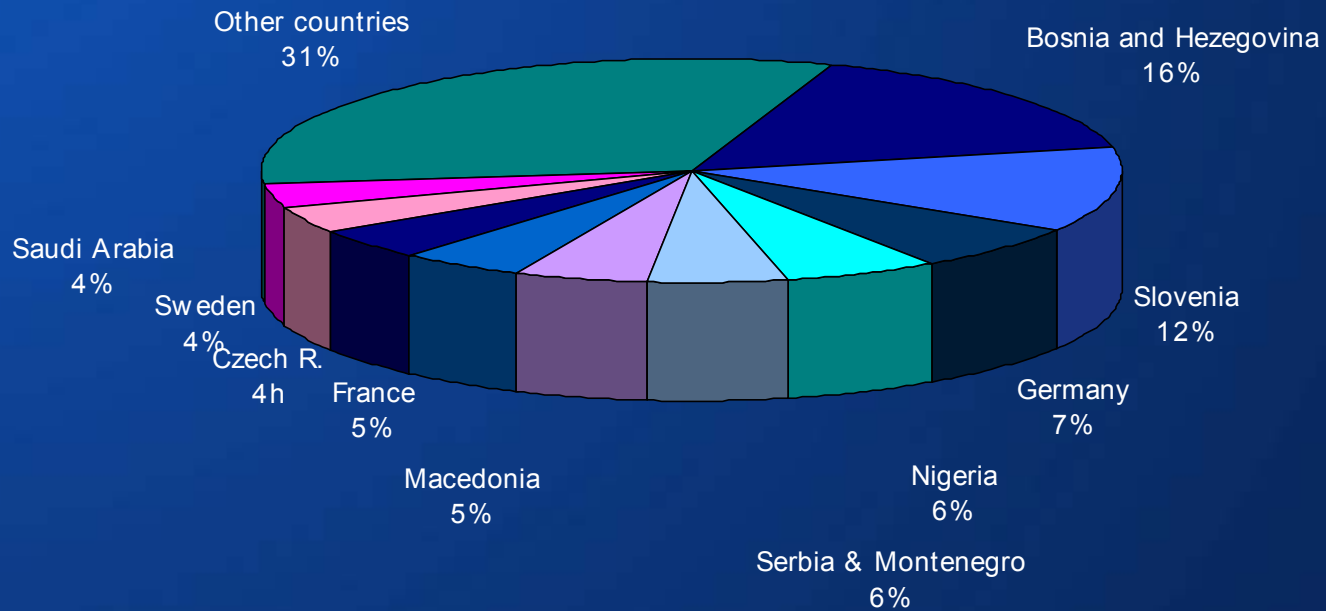
EXPORT



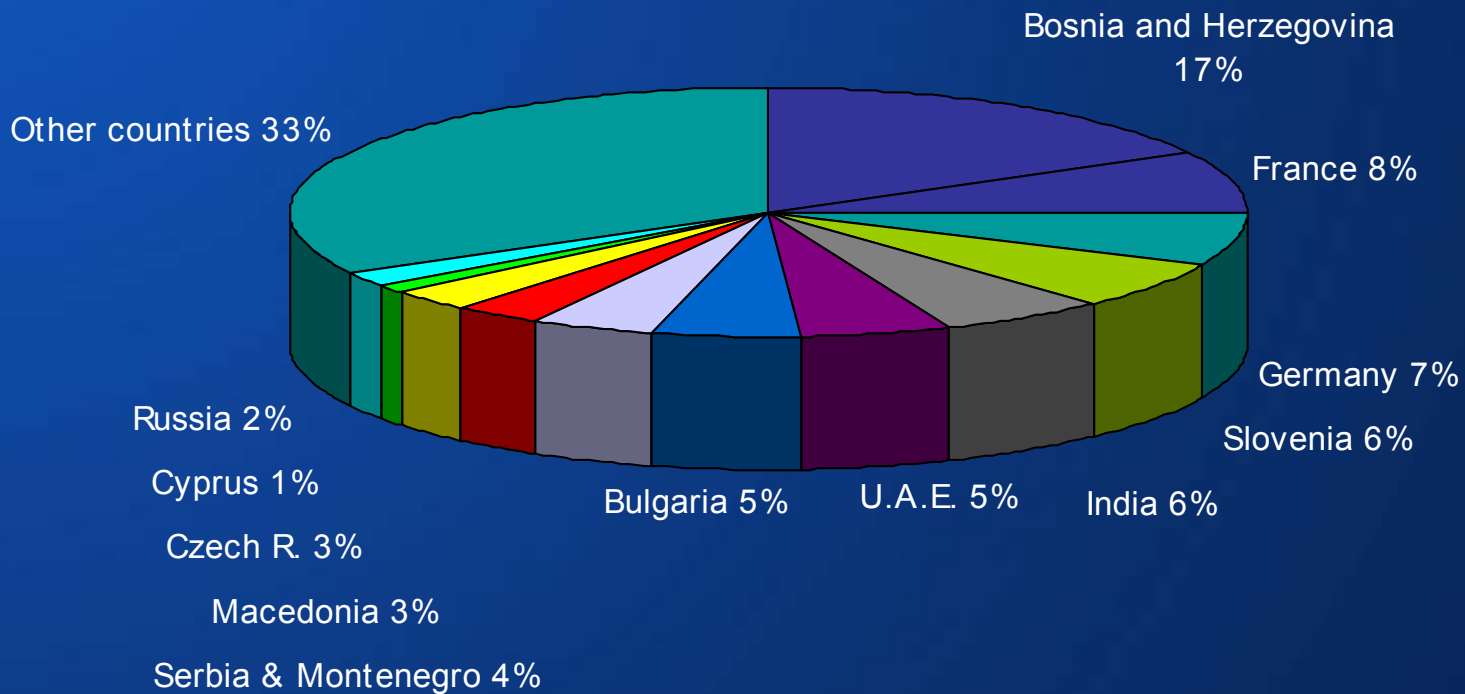
EXPORT IN 2001



EXPORT IN 2002



EXPORT IN 2003



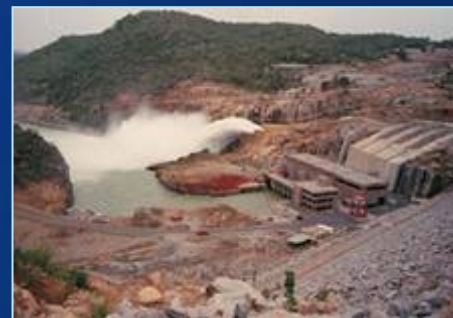
MAJOR CLIENTS IN CROATIA

- Croatian Electricity Company
 - Croatian Railway Company
 - Croatian Motorway Company
 - City of Zagreb Tram Company
 - Croatian Oil Industry
-
- Shipyards
 - Industry
 - Trading companies



POWER OF KNOWLEDGE

- Research and development
- Highly educated and experienced employees
- Production:
 - “Tailor made”
 - Creativity
 - Based on individuals
 - Complex problems solving
- Individual approach to the Client



RESEARCH AND DEVELOPMENT

- Own research and development institute
- Joint projects with University and other institutions
- 90% of products – result of own development
- “Know-how” of plants and systems
- Production technologies – own solutions



PEOPLE

- 1,150 highly educated employees
- 130 scholarships
- Foreign languages knowledge
- High level of IT usage
- Continuous special and scientific knowledge improvement



QUALITY MANAGEMENT & SUSTAINABLE DEVELOPMENT

- Meeting customers' requirements by delivering products and services within the agreed price, delivery time and quality
- Continuous improvement of the products and process



- Production and supply of products and services that do not involve unacceptable risks to society (environment/health/safety)
- Getting all employees involved and motivated

- Each company in the Group is responsible for maintaining the quality assurance (ISO9001) and the environment management system (ISO14001)



CERTIFICATES

ISO9001

ISO14001

	ISO9001	ISO14001
Distribution and Special Transformers	X	#
Low Voltage Switches and Circuit Breakers	X	
Power Plant and Electric Traction Engineering	X	#
Tools	X	#
Low Voltage Devices	X	#
Electronics and Informatics	X	#
Generators and Motors	X	
Institute for Electrical Engineering	X	#
Switchgear	X	#
Instrument Transformers	X	#
High Voltage Switchgear	X	
Catering Equipment	X	
Medium Voltage Apparatus	X	#
Engineering for Plant Installation and Comissioning	X	
Small Electrical Machines	X	#
Metal Structures	X	#
Electric Locomotives	X	
Household Appliances	X	
Trade and Agencies		#
Infrastructure and Services		#



REFERENCES

HYDRO POWER PLANTS

- More than 100 references in the field of hydro power plants in Croatia and abroad, as well as 385 of synchronous generators delivered with total installed capacity of 12,370 MVA
- Some of the most significant references in the field of hydro power plants:



HPP ĐERDAP, 3 x 190 MVA, SCG



HPP HADITHA, 6 x 128 MVA
IRAQ



HPP SHIRORO, 4 x 176,5 MVA
NIGERIA



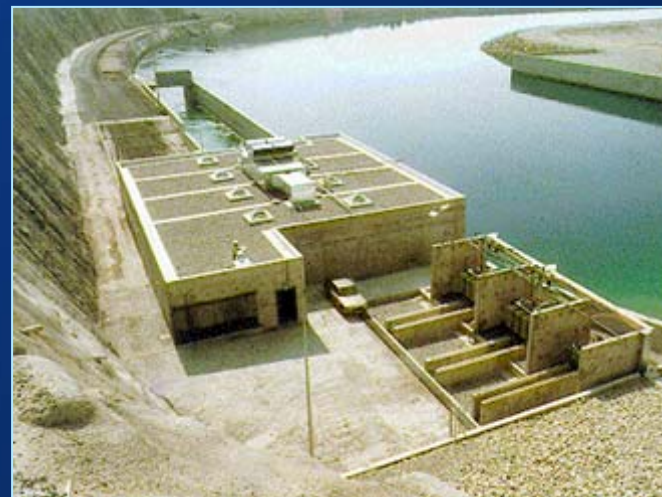
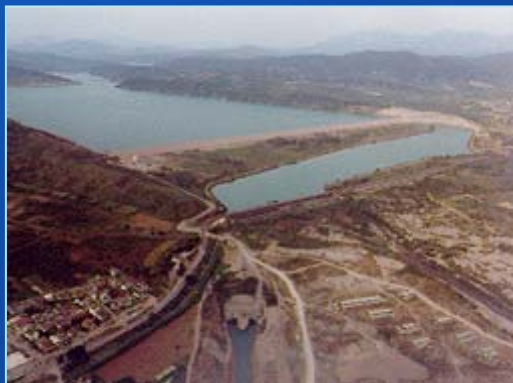
HPP MESSOCHORA, 2 x 90 MVA
GREECE



HPP KARIBA, 4 x 167 MVA
ZAMBIA

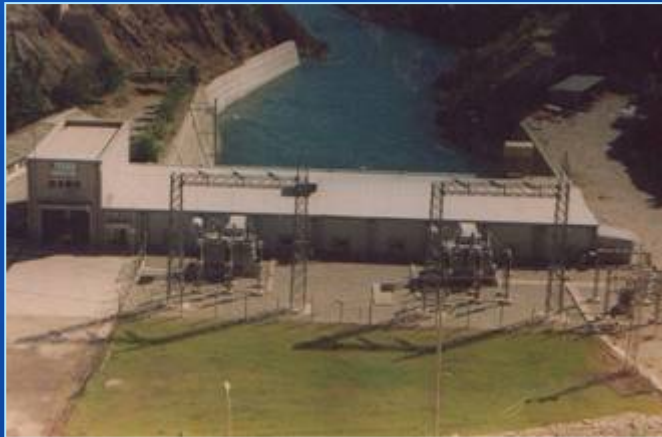
REFERENCES

HPP STRATOS 2 X 84 MVA - GREECE



REFERENCES

HPP MENZELET 4 X 33 MVA - TURKEY



REFERENCES

HPP PAJARITO 1X5 MVA & HPP DOLORES 1X9 MVA COLOMBIA



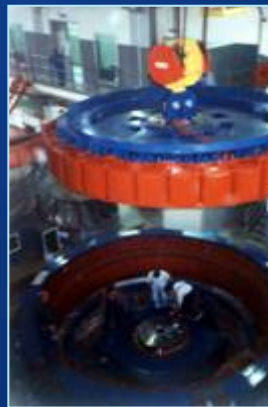
REFERENCES

HPP MESSOCHORA 2 X 90 MVA - GREECE



REFERENCES

HPP RUZZIZI 1(od 3) X 15 MVA RWANDA



REFERENCES



HPP GOJAK, 3 x 20 MVA
CROATIA



HPP DOBLAR, 1 x 50 MVA
SLOVENIA



HPP ZAKUČAC, 2 x 120 MVA
2 x 150 MVA, CROATIA



HPP SENJ, 3 x 80 MVA
CROATIA



HPP BOČAC, 2 x 65 MVA
BOSNIA AND HERZEGOVINA

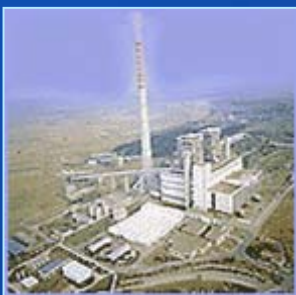


HPP PLAVE, 1 x 23 MVA
SLOVENIA

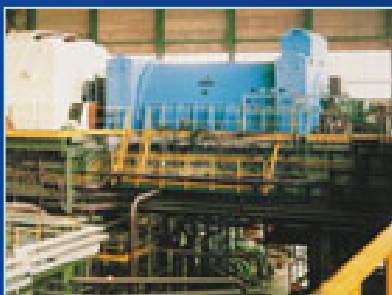
REFERENCES

THERMAL POWER PLANTS

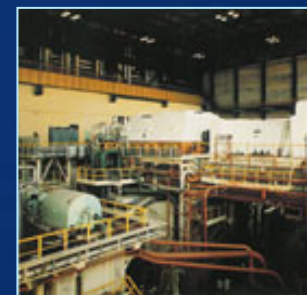
- More than 100 turbogenerators delivered with total installed capacity of 5,720 MVA
- Some of the most significant references in the field of thermal power plants:



TPP DRMNO, 1 x 410 MVA
SCG



TPP UGLJEVIK, 1 x 353 MVA
BOSNIA AND HERZEGOVINA



TPP GACKO, 1 x 353 MVA
BOSNIA AND HERZEGOVINA



TPP PLOMIN 2, 1 x 247 MVA
CROATIA



CCPP NOVI SAD, 1 x 194 MVA
SCG



REFERENCES

TPP KHARTOUM NORTH 2 X 75 MVA - SUDAN



REFERENCES



TPP PLOMIN2
1 x 247 MVA
CROATIA

CCPP ZAGREB
1 (OF 3) 80 MVA
CROATIA



REFERENCES

TRANSFORMER SUBSTATIONS

The most significant references:

• 420 kV

- | | |
|------------------|---------|
| • TS FASSA | IRAN |
| • TS ELBASAN | ALBANIA |
| • TS TUMBRI | CROATIA |
| • TS VELEBIT | CROATIA |
| • TS ERNESTINOVO | CROATIA |



• 245 kV

- | | |
|--------------|----------|
| • TS GURUN | MALAYSIA |
| • TS GERGA | EGYPT |
| • TS KALUBIA | EGYPT |
| • TS MRACLIN | CROATIA |



• 132 kV

- | | |
|--------------------|----------|
| • TS SONG SONG | MALAYSIA |
| • TS TALATA MAFARA | NIGERIA |
| • TS KHAJEH RABE | IRAN |

REFERENCES



SS PAG, 110 kV
CROATIA



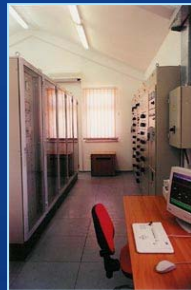
SS PAG, 110 kV
CROATIA



SS TUMBRI, 400 kV
CROATIA



TUNNELS Electrical equipment
CROATIA



SS KATORO, 110 kV
CROATIA



SS DUBEC, 110 kV
CROATIA

REFERENCES

POWER TRANSFORMERS

- To date, a total of 1,638 power transformers with voltage range of 72.5-420 kV and totalling to 110,220 MVA in installed power were delivered
- Some of the most significant references:



TPP OBRENOVAC
420 kV/ 725 MVA
SCG



TPP FARAKKA
1f, 420 kV/ 200 MVA
INDIA



SS ERNESTINOVO
AUTOTRANSFORMATOR
420 kV/ 300 MVA
CROATIA



HPP VELEBIT
420kV/ 155 MVA
CROATIA

REFERENCES

DISTRIBUTION TRANSFORMERS

- More than 1650, 2,5 – 63 MVA of up to 170 kV distribution transformers, with total installed power of more than 19,500 MVA
- More than 159,600 oil (<2500 kVA, <36 kV) and dry type (<5000kVA, <24 kV) transformers with total installed power of more than 42,300 MVA
- More than 180 special transformers for electric tractions & mines delivered with total installed power of more than 960 MVA



SS REKOLA 40 MVA
115±9x1,67%/21 kV
FINLAND



SS ŽERJAVINEC 20 MVA
110±10x1,5%/21(10,5)/10,5kV
CROATIA



SS BRAMMING 16/20MVA
60,272-2±18x0.818/10.5kV
DENMARK

REFERENCES

INSTRUMENT TRANSFORMERS

- More than 17,500 delivered in export of voltage level from 72.5 750 kV voltage ranges



• HV CIRCUIT BREAKERS

Delivered circuit breakers of voltage level:

- 420 kV 115 pcs
- 245 kV 150 pcs
- 170 kV 100 pcs
- 145 kV 150 pcs
- 123 kV 1,250 pcs
- 72.5 kV 250 pcs

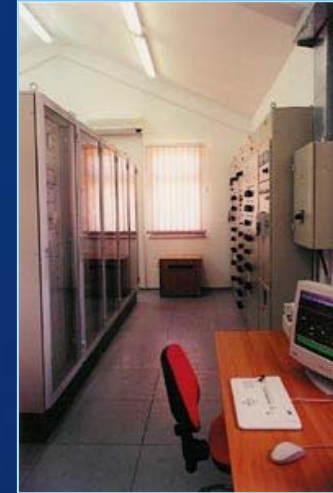


REFERENCES

SCADA AND AUTOMATION

- Delivered more than:

- 100 SCADA centers
- 600 RTU



- The most important references:

- SS 420 kV TUMBRI Croatia
- SS 420 kV VELEBIT Croatia
- Transmission centers Croatia
- DC ZAGREB Croatia
- DC BEOGRAD Serbia and Montenegro

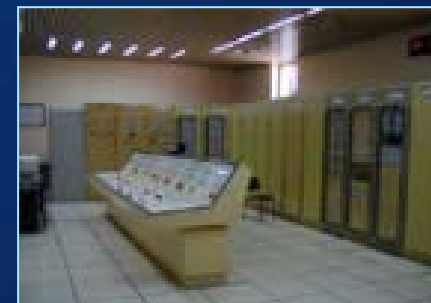


REFERENCES

HPP AUTOMATION SYSTEMS

- Installed at more than 50 hydro power plants
- Some of the most important references:

• HPP HADITHA	6 x128 MVA	IRAQ
• HPP ZAKUČAC	4 x150 MVA	CROATIA
• HPP DUBRAVA	4 x 42 MVA	CROATIA
• HPP PLAYAS	3 x 71,9 MVA	COLOMBIA
• HPP STRATOS	2 x 84 MVA	GREECE
• HPP MESSOCHORA	2 X 90 MVA	GREECE
• HPP VARAŽDIN	2 x 50 MVA	CROATIA
• HPP ČAKOVEC	2 x 42 MVA	CROATIA
• HPP ORLOVAC	2 x 80 MVA	CROATIA
• HPP DOLORES	1 x 9 MVA	COLOMBIA



REFERENCES

TRANSPORT - VEHICLES

• LOCOMOTIVES:

- 203 pcs diode 120 - 140 km/h
- 114 pcs diode 130 km/h
- 16 pcs diode 160 km/h
- 16 pcs thyristor 160 km/h
- 347 locomotives (general overhaul, reconstruction and modernisation)



- **TRAMS** 16 pcs
(DC traction with chopper)



- **ELECTROMOTOR TRAINS** 27pcs
(general overhaul, reconstruction and modernisation)



REFERENCES

TRANSPORT - VEHICLES



HŽ 1 141 300



CFR 46



BDŽ 46.200



TCDD E52 500



MŽ 442



REFERENCES

TRANSPORT – INFRASTRUCTURE SUBSYSTEMS

- More than 40 ETSS, 110/25 kV, 50 Hz
- More than 20 rectifier substations, 10(20) kV, 50Hz/600 V DC
- More than 40 overhead contact line sectioning substations of 25kV
- Systems for reactive power compensation, 25 kV
- 39 level crossing control systems
- 233 track circuit control devices
- Systems for train pre-heating and pre-conditioning
- Point machine heating installation



REFERENCES

TRANSPORT – ELECTRIC TRACTION SUBSTATIONS



ETSS ANDRIJEVCI
CROATIA



ETSS SUNJA
CROATIA

REFERENCES

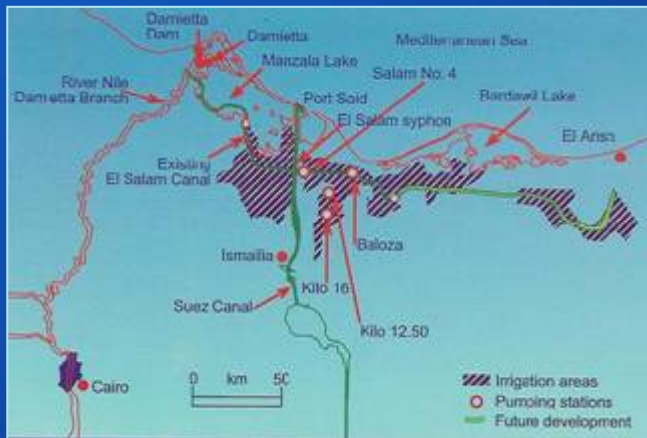
INDUSTRY

- **More than 100 power supply plants, motor drives systems and electrical auxiliary systems in:**
 - heavy and processing industry
 - open casts and pit mines
 - water pumping stations
 - shipbuilding and civil engineering
 - petrochemical industry
 - compressor stations
 - oil production, refineries, pipelines, gas production and treatment plants
- **in Russia, Egypt, Iraq, Algeria, Croatia, Serbia and Montenegro, etc.**



REFERENCES

IRRIGATION OF NORTH SINAI - EGYPT



PROJECT LOCATION MAP



EL SALAM No.4
Main pump drive motors



BALOZA Pumping station control
desk



KILO 12,5
1400 kW Pump drive motors

REFERENCES

TRANSPORT - MARINE



SHIP BRIDGE CONTROL
CONSOLES



MAIN CURRENT CONTRACTS

ENERGY - Export

- HPP BOŠTANJ SLOVENIA
- 6 HYDRO POWER PLANTS REFURBISHMENT
(HPP VRUTOK, HPP RAVEN, HPP VRBEN,
HPP SPILJE, HPP GLOBOČICA, HPP TIKVEŠ) MACEDONIA
- HPP ULZA & HPP SHKOPETI ALBANIA
- HPP BHAVANI KATTALAI BARAGE INDIA
- HPP PEĆ MLINI BOSNIA AND HERZEGOVINA



MAIN CURRENT CONTRACTS

TRANSPORT - Export

- MODERNISATION OF 4 DIODE ELECTRICAL LOCOMOTIVES
- MODIFICATION AND MODERNISATION OF 38 ELECTRIC LOCOMOTIVES

BULGARIA

SERBIA AND MONTENEGRO



MAIN CURRENT CONTRACTS

INDUSTRY - Export

- ELECTRICAL EQUIPMENT FOR IRRIGATION PUMPING STATIONS:
 - DEAR EL-SHANKOURIA
 - HAFFER SHEHAB EL-DIN
 - DRAN No3.

EGYPT



MAIN CURRENT CONTRACTS

ENERGY - Croatia

- SS ŽERJAVINEC 400 kV
- SS SUŠAK (GIS) 110 kV



MAIN CURRENT CONTRACTS

TRANSPORT - Croatia

- 70 LOW-FLOOR TRAMS FOR THE CITY OF ZAGREB
- ELECTRIC EQUIPMENT FOR MODERNISATION OF 16+31 LEVEL CROSSING CONTROL SYSTEMS



MAIN CURRENT CONTRACTS

INDUSTRY - Croatia

- ELECTRICAL EQUIPMENT FOR :
 - ZAGREB-SPLIT MOTORWAY
 - ZAGREB-RIJEKA MOTORWAY



MAIN OFFICE

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