

# HELB Ltd. Engineering for energy infrastructures

Design, Production, Plant construction, Management  
and Maintenance, Site testing and commissioning



[www.helb.hr](http://www.helb.hr)

## Mission

*We are an engineering team based on experience, excellence and partnership that provides solutions beyond expectations.*

*We are proud to make electricity available for next generations through our community and co-creation.*

## Vision

*We will become a digital engineering company by 2025 through continuous creation of top experts.*

*We will be the first choice in the integration of advanced power systems through the implementation of new technologies and knowledge on the local and global market.*

# Values

Cooperation / Communion / Partnership

Openness / Trust / Sincerity

Responsibility

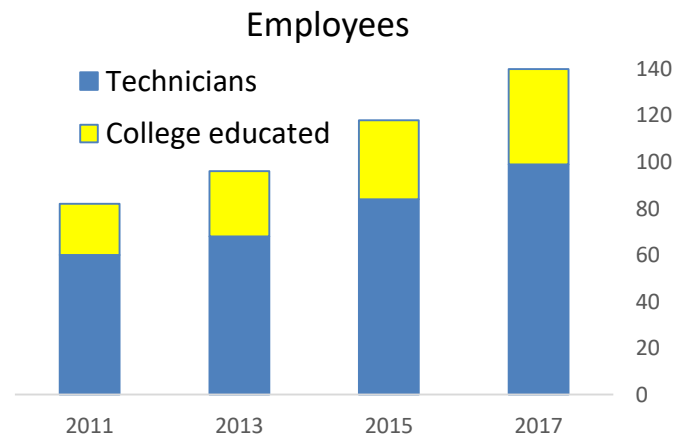
Contribution / Productivity / Creativity

Learning / Flexibility / Adaptability

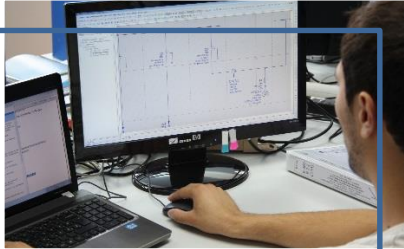
Love / Care about somebody and/or something

# Business segments

- CUSTOM CABINET PRODUCTION
- PLANT CONSTRUCTION ON ALL VOLTAGE LEVELS
- SITE TESTING AND COMMISSIONING
- ENGINEERING
- OIL & GAS PRODUCTS AND SERVICES
- MANAGEMENT & MAINTENANCE



# Business activities



Design



Production



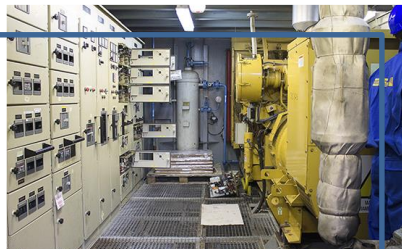
Assembly



Testing



Commissioning



Maintenance

# Certificates



ISO 9001, ISO  
14001, OHSAS  
18001, ISO/ TS  
29001



SCC

MORE THEN 250  
PROFESSIONAL  
TRAININGS

120  
PROFESSIONAL  
CERTIFICATES



**S**ICHERHEITS  
**C**ERTIFIKAT  
**C**ONTRAKTOREN

# Production



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# Products in general



- PRODUCTION OF CONTROL CUBICLES
- DEVELOPMENT & PRODUCTION OF SPECIALISED ELECTRICAL EQUIPMENT FOR THE OIL & GAS INDUSTRY

# Production of LV control cubicles

- DISTRIBUTION BOARDS FOR INDUSTRIAL PLANTS
- CHANGE-OVER DISTRIBUTION BOARDS (NETWORK/GENERATOR)
- CONTROL CUBICLES FOR HV SWITCHGEARS
- CONTROL CUBICLES FOR POWER TRANSFORMERS
- CUBICLES FOR MEASURING/METERING
- DISTRIBUTION BOARDS FOR DIFFERENT FACILITIES



# Protection and control cabinets



PROTECTION AND CONTROL  
CABINETS



METERING / POWER QUALITY  
CABINETS

# Remote control cabinets



- production according to customer's wish:  
dimensions, strength, anti-corrosive protection,  
color, ...

# PLC cabinets





# Transformer cabinets



- SPECIALLY DESIGNED AND ROBUST CABINET FOR EXTREME CONDITIONS, ANTI-CONDENSATION PROTECTION

# Oil and gas cabinets



- SPECIAL DESIGN, STAINLESS STEEL HOUSING
- FOR EXPLOSIVE ATMOSPHERES

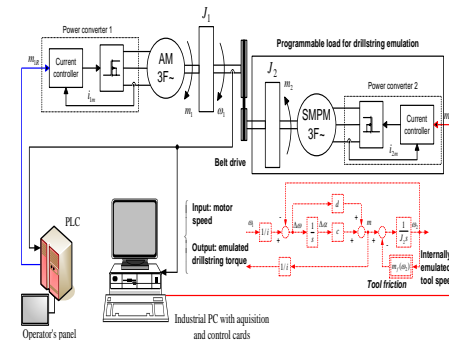
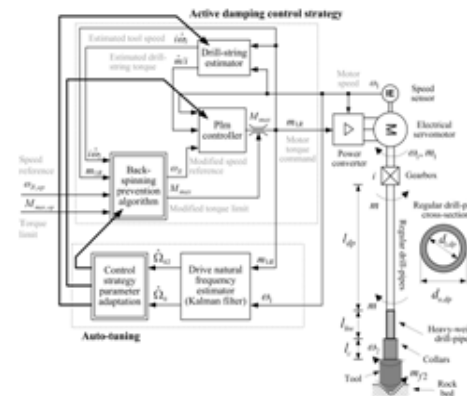
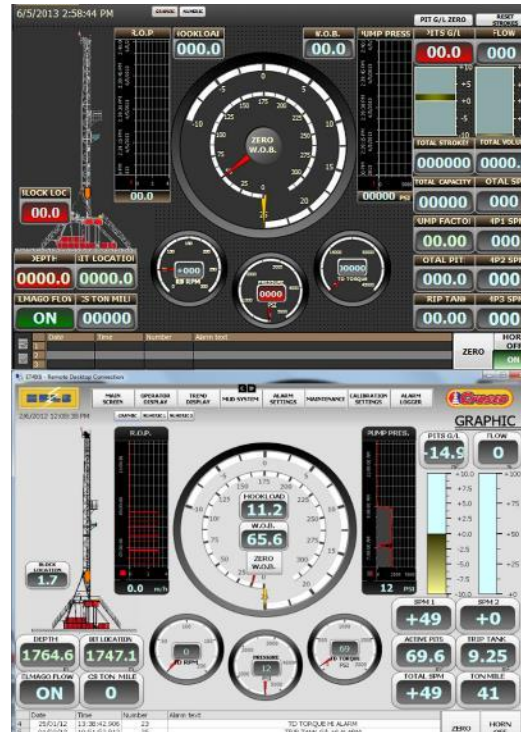
# Oil & gas industry



- SYSTEMS FOR POWER SUPPLY AND CONTROL: VFD, SCR, MCC;
- SERVICE LOOP (AUXILIARY & POWER)



# Oil & gas industry: automation systems



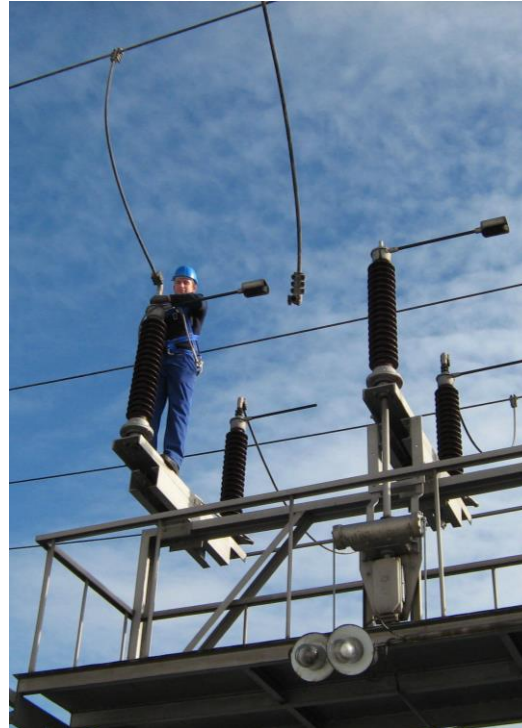
- DRILLING DATA ACQUISITION & LOGGING SYSTEM
- TORSIONAL VIBRATIONS DAMPING SYSTEM
- AUTOMATIC DRILLING SYSTEM

# Services



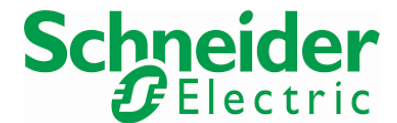
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# Plant construction - HV



- TURN KEY PROJECTS BY THE LEADING MANUFACTURERS
- REFERENCES: ALBANIA, ARGENTINA, BANGLADESH, CROATIA, IRAQ, UAE, UK, ...

# Plant construction - MV



- INSTALLATION OF READY-MADE SWITCHGEARS & INSTALLATION OF EQUIPMENT IN INDOOR OR OUTDOOR FACILITIES
- INSTALLATION OF CABLE NETWORKS ON LV/MV/HV

# Plant construction - LV



- CUSTOM TAILORED CABINETS AND ENERGY DISTRIBUTION SYSTEMS
- FAST CONSTRUCTION AND RELIABLE OPERATION

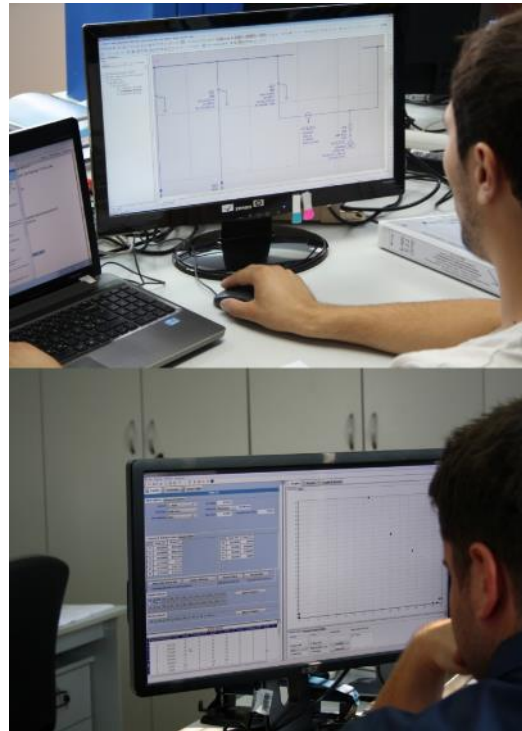


# Site testing & commissioning



- DEPARTMENT WITH SPECIALISED ENGINEERS
- BASIC & FUNCTIONAL TESTING
- SPECIALISTIC & RELAY PROTECTION TESTING

# Engineering



- IMPROVING PROCESSES & DISTRIBUTION SYSTEMS THROUGH:
  - DESIGN, AUTOMATION AND DEVELOPMENT

# Projects



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# Iraq: new AIS 132/33/11kV SS

- CLIENT: KURDISTAN REGIONAL GOVERNMENT, **MINISTRY OF ELECTRICITY (MOE)**
- ERBIL GOVERNORATE: KOYA, REZAN, SHAQLAWA, SORAN, QUSHTAPA
- YEAR: **2013-2014**



# Iraq: new AIS 132/33/11kV SS

## ERECTION WORKS

- 500 t of steel structures; 10 km of MV cables
- HV appliances in 44 132 kV bays
- HV busbars: 30 km of ACSR conductors
- 175MV cubicles, 185LV control/protection/meter. panels/AC&DC switchboard/SCADA/AVR
- 200 km of control & signal cables
- 9 power transfo. 132/33/11,5 kV, 63/50/40 MVA



# Iraq: new AIS 132/33/11kV SS

- SITE TESTING & COMMISSIONING OF ALL EQUIPMENT/SYSTEMS
  - Functional testing
  - HV testing
  - Specialised testing on power transformers
  - Parametrisation and testing of protection



# Croatia: thermal power plant Zagreb

- CLIENT: CROATIAN ELECTRICITY COMPANY HEP-PRODUCTION LTD., BUILDING: BLOCK “L” 100 MWE/80 MWT
- IMPORTANT NODE FOR 110 kV NETWORK FOR THE CITY OF ZAGREB (1,000,000 INHABITANTS)
- YEAR: 2009
- ALL WORKS CONDUCTED **WITHOUT POWER INTERRUPTIONS**



# Croatia: thermal power plant Zagreb

- RECONSTRUCTION OF 110 kV SWITCHGEAR
  - 80 km of control & signal cables
  - 57 t of steel structure
  - 18 busbar disconnectors
  - 55 current & 45 voltage metering transf.
  - 52 surge arresters; 16 control cubicles
  - 1500 m of HV 110 kV cable
  - 2500 m of Al rope 625 mm<sup>2</sup>



# Croatia: thermal power plant Zagreb

- RECONSTRUCTION OF LV & MV DISTRIBUTION BOARDS/SWITCHGEARS
  - 54 bays of MV switchgear 6.3 kV
  - 75 bays of LV switchgear 0.4 kV
  - 307 electrical distribution boards for 0.4 kV subdistribution
  - 25 bays of DC auxiliary power supply system
  - 20 power transformers (0.25 to 47 MVA)





# Croatian highways

- CLIENT: HAC CROATIAN HIGHWAYS LTD.
- KEY OBJECTS FOR TRANSMISSION & DISTRIBUTION
- YEAR: 2003-2008
  - SS Oštarije, SS Andrijevcı 110/35/10(20) kV
  - SS Bobovje 110/20 kV, SS Obrovac 35/10/20 kV
  - SS Sveti Rok, SS Mala Kapela 35/20 kV



# Croatian highways

- RECONSTRUCTION OF 110 kV SWITCHGEAR
  - > 50 circuit-breakers
  - > 100 disconnectors with earthing blades
  - > 50 busbar disconnectors
  - > 150 current met. transf.
  - > 50 voltage met. transf.
  - > 150 surge arresters
  - > 100 control/protection/metering cubicles





# Croatian highways

- RECONSTRUCTION OF LV & MV DISTRIBUTION BOARDS/SWITCHGEARS
  - > 120 bays of MV switchgear 10/20 kV
  - > 60 bays of LV switchgear 0.4 kV
  - > 24 bays of DC auxiliary power supply system
  - > 24 power transformers (0.25 to 40 MVA)
  - >100 enclosed busbars 2.500 A, 5.000 A



# Albania: main 220 kV SS

- CLIENT: **OST** SHA ALBANIA -OPERATORI SISTEMIT TRANSMETIMIT
- MAIN SUBSTATIONS IN THE CAPITAL OF ALBANIA: TIRANA, ELBASAN
- YEAR: 2012
- ALL WORKS CONDUCTED IN EXTREME WEATHER CONDITIONS



# Albania: main 220 kV switchyards

- CLIENT: **KESH** SH.A. - KORPORATA ELEKTROENERGJITIKE SHQIPTARE
- MAIN SWITCHYARDS FOR **HYDRO POWER PLANTS**: FIERZA & VAU DEJËS
- YEAR: **2013**
- ALL WORKS CONDUCTED **WITHOUT POWER INTERRUPTIONS**



# Zagreb international airport

- CLIENT: ZAGREB INTERNATIONAL AIRPORT
- ZAGREB: THE CAPITAL OF CROATIA
- YEAR: **1996-2014**
- CONSTRUCTION & RECONSTRUCTION OF SS & SWITCHYARDS
- CHALLENGE: CONTINUOUS POWER SUPPLY

**MZLZ**   
 Međunarodna zračna luka Zagreb  
 Zagreb International Airport



# Zagreb international airport

## — SCOPE OF WORKS

- Transition of all switchyards from 10 to 20 kV
- Construction of new substations 10(20)/0.4 kV – SS2, SS3, SS4 i SS7
- Reconstruction of: 10(20)/0.4 kV switchyard-SS1 and automation of diesel generators
- Performance measurement & protection 10(20)/0.4 kV – on all 7 SS

**MZLZ**   
 Međunarodna zračna luka Zagreb  
 Zagreb International Airport



# Dubrovnik airport

- CLIENT: **DUBROVNIK AIRPORT**
- **MEDITERANEAN** TOURISTIC CENTAR
- YEAR: 2016
- RECONSTRUCTION OF SUBSTATION TS-1 10(20)/0,4 kV;  
2x1000 kVA
- ALL WORKS PERFORMED DURING THE HEIGHT OF THE SEASON  
WITHOUT THE AIR TRAFFIC DISTURBANCE





# Ukraine: equipment for subarctic conditions

- CLIENT: **CROSCO**, FOR UKRGASVYDOBUVANNYA (UGV) PJSC
- YEAR: 2016 -2017
- SCOPE OF WORKS: PREPARATION OF EMSCO 605:
  - Replacement of MCC connector and connecting board, drilling plant's cables and connectors, cooling units in PCR, complete lighting on the drill facility
  - Complete rig winterization



# Croatian oil industry: Jackup drilling rig Labin

- CLIENT: **CROSCO**, INTEGRATED DRILLING & WELL SERVICES CO.
- CROATIA: THE **ADRIATIC** SEA
- YEAR: 2013
- SCOPE OF WORKS:
  - Reconstruction, testing & commissioning of the main power control station (generator incomers, switchboard, main AC/DC drives)





# Italian oil industry: Jackup drilling rig Key Manhattan

- CLIENT: TRANSOCEAN LTD.
- ITALY: THE ADRIATIC SEA — JACK-UP DRILLING RIG “KEY MANHATTAN”
- YEAR: 2012
- SCOPE OF WORKS:
  - Reconstruction of the AC power supply system



# Croatia: windpark Vrataruša 42 MW

- CLIENT: VALALTA ROVINJ — **GREENFIELD** INVESTMENT
- FIRST SIGNIFICANT **CROATIAN** WIND PARK CONNECTED TO 110 kV TRANSMISSION NETWORK
- YEAR: **2008-2009**
- MAIN CONTRACTOR FOR **ELECTRICAL INSTALLATION & ERECTION WORKS**



# Croatia: windpark Vrataruša 42 MW

## SCOPE OF WORKS:

- 4 x 110 kV bays, 5 x 30 kV bays
- Earthing of 14 wind masts
- 20 km of Cu rope 120 mm<sup>2</sup>
- 66 km of MV cable, 20 km of optical cable
- DC system selectivity test
- Earthing resistance, touch & step voltage, potential transfer measurement



# Croatia: geothermal power plant

- HELB CLIENT: SIEMENS CROATIA
- INVESTOR: MB HOLDING, TURKEY
- PRODUCT GROUP: SIEMENS SIVACON, NX PLUS, SIMATIC, SIPROTEC
- 'VELIKA 1' – CAPACITY 16.5 MWE
- THE LARGEST GEOTHERMAL POWER PLANT IN CONTINENTAL EUROPE
- TECHNOLOGY - BINARY (ORC)



# Egypt: combined-cycle natural gas power plants

- LOCATIONS: BENI SUEF, NEW CAPITAL & BURULUSS
- HELB CLIENT: **SIEMENS AG, GS SCM C SG EFS FS**
- SCOPE OF WORK: SUPERVISION OF INSTALLATION OF POWER TRANSFORMERS 485 MVA, 500 kV

**SIEMENS**





# Oman: 220 kV substation

- LOCATIONS: SOHAR, OMAN
- HELB CLIENT: (SIEMENS) KONČAR POWER TRANSFORMERS
- SCOPE OF WORK:
  - supervision of installation and testing of power transformers 500 MVA, 220 kV

**SIEMENS**





# Croatia: thermal power plant Zagreb

- CLIENT: SIEMENS CROATIA
- LOCATIONS: EL-TO ZAGREB
- SCOPE OF WORK: RECONSTRUCTION OF EL-TO ELECTRIC POWER PLANT
- PROJECT DURATION: 18 MONTHS

**SIEMENS**



# Croatia: 7 biomass cogeneration plants

- LOCATIONS: BE-TO CHP SISAK, OSIJEK, ĐAKOVO, SLAVONSKI BROD, GLINA 1, GLINA 2, SAVA
- NET ELECTRICAL OUTPUT: 1-5 MWe, HEAT: 3-15 MWt
- SCOPE OF WORK: GENERAL CONSUMPTION OF BE-TO



# Uk: offshore wind park

- CLIENT: **DONG**
- HELB CLIENT: PROINTEGRIS FOR **SIEMENS**
- LOCATION: BURBO BANK & WALNEY EXTENSION - ONSHORE / OFFSHORE PLANT 400, 220, 34 kV FOR WIND POWER CONNECTION
- SCOPE OF WORK: FUNCTIONAL TESTING

**SIEMENS**



# Croatia: SS 110/10 (20) kV Zamet

- 2017-2018
- INVESTOR: CROATIAN TRANSMISSION SYSTEM OPERATOR LTD.
- CLIENT: SIEMENS CROATIA
- INSTALLATION OF GIS 110 kV FOR INTERNAL INSTALLATION



# Croatia: SS 110/10 (20) kV Ploče

- INVESTOR: CROATIAN TRANSMISSION SYSTEM OPERATOR LTD.
- CLIENT: KONCAR - POWER PLANT AND ELECTRIC TRACTION ENGINEERING INC.
- SUPPLY AND INSTALLATION OF PRIMARY EQUIPMENT (**GIS 110 kV**) FOR INTERNAL INSTALLATION
- YEAR: 2016

**SIEMENS**



# Croatia: photovoltaic solar plant Biograd

- CLIENT: **MERIDIAN NEUE ENERGIEN GMBH, GERMANY**
- BIOGRAD: THE BIGGEST SOLAR PLANT IN THE REGION OF DALMATIA
- YEAR: **2013**
- THE INVESTOR'S **INTERNAL QUALITY CONTROL** UNDERLINES EXTREMELY HIGH QUALITY CONSTRUCTION & TECHNICAL PERFORMANCE





# Croatia: photovoltaic solar plant Biograd

- DELIVERY & INSTALLATION ON A **TURN-KEY** BASIS
- TESTING & COMMISSIONING
- EQUIPMENT:
  - 16 inverters: 6 REFUSOL 017K & 10 REFUSOL 020K
  - 1,176 PV modules type TSM-255
  - Output power: 299.88 kW
  - Yearly production: **389,700 kWh**



Thank you



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