

ANNUAL
REPORT

2022



Managing Director's Statement

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Assessment of the overall development of the company in 2022

After the COVID-19 pandemic, the activities of the PPA CONTROLL, a.s. group of companies were influenced by the market development affected by the war conflict in Ukraine. Disrupted supplier-customer relationships, rising prices of some materials and the shortage of certain components as well as sharp changes in the prices of energy carriers and developing inflation created even greater market uncertainty. Although all our subsidiaries were affected by the situation, in summary, the PPA CONTROLL group of companies managed to cope with the situation very well and met the indicators of the business and financial plan approved for 2022, which, in fact, created an almost 10% exceedance of the revenues from the sale of goods, own products and services achieved in 2021.

In 2022, PPA ENERGO s.r.o. achieved excellent results, a significant part of which were the contracts and technological projects implemented in foreign markets, especially in Hungary, Germany, Great Britain, the Czech Republic and France. The largest sales were achieved in Hungary, where the contracts were placed mainly at the car battery factory in Göde and the battery component factory in Nyíregyháza for the customer Samsung Engineering Magyarország. In Germany, our cooperation with TESLA GIGAFACTORY Berlin successfully continued and expanded, the work proceeded in a contract at an electric vehicle factory. In France, implementation of BUSBAR4F Societa consortile a r.l. or more precisely for ITER ORGANIZATION France as the end customer continued to be conducted, and in the Czech Republic, the NEXEN TIRE project for SAMSUNG continued as well. In the UK, the NEWHURST incinerator project for HITACHI ZOSEN INOVA AG and the SLOUGH MULTIFUEL incinerator project were proceeding. In Slovakia, PPA ENERGO s.r.o. continued to focus on contracts in the field of nuclear energy, such as the completion of Units 3 and 4 of the Mochovce Nuclear Power Plant.

PPA Power DS s. r. o. has become an important company in the field of distribution of energy media and management of local networks and industrial parks in Slovakia. It is a stable and reliable partner to companies operating in industry, trade and services. In 2022, it expanded its activities to include the operation of another local distribution network in Slovenská Ľupča, which connects several biotechnol-

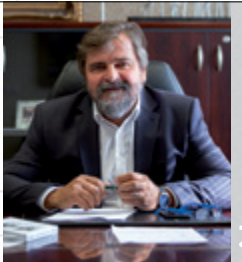
ogy companies of global significance. In addition, it acquired the first 110 kV substation, and it also gained new customers in developing parks of Sihot near Trenčín, Vrable Park and Senec - part of Outlet. A significant strengthening of the company's portfolio is the distribution network for the P3 Logistic Park, which was successfully registered by the Office for Regulation of Network Industries as the demarcated area Senec B. Despite the turbulent development of energy prices in 2022 and the disappearance of several energy entities, the company managed to strengthen its market position and commissioned its own rooftop photovoltaic power plant in the Lozorno Industrial Park.

In 2022, PPA INŽINIERING s.r.o. maintained its significant position in the transport technology market in 2022. The company achieved the highest revenues in the segment of technological equipment for road tunnels and motorways, especially from the projects of the R2 Kriváň - Lovinobaňa, Tomášovce expressway, the R4 Košice - Milhošť expressway and from the implementation of service in the Bôrik tunnel. The company achieved a significant part of revenues by the contract Nemocnica Novej Generácie Bratislava for the customer Svet zdravia, a.s. and the contract Bioenergie Wismar in Germany.

The core business areas of the subsidiary LiV ELEKTRA, a.s. are the provision of services for the power industry, especially in the field of HV, VHV and UHV, construction, reconstruction, modernization, maintenance and servicing of electrical equipment, substations and transformers without voltage limitation. In 2022, the Company was doing less well than in previous periods, as its operations were affected by negative market developments the most of all our subsidiaries. The effects of the war in Ukraine, high increases in price and uncertainty in the energy investment market adversely impacted this subsidiary's order content and operating results.

The positive economic results of PPA TRADE, spol. s r.o., FTVE 3, s.r.o. and PPA CONTROLL Magyarország operating in Hungary also contributed to the overall success of the group.

Ing. Bystrík Berthoty
Managing Director and Chairman of Executive Board





About the company

PPA CONTROLL, a. s.

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General Information about the Company

Legal identity
Business name: PPA CONTROLL, a.s.
Registered office: Vajnorská 137, 830 00 Bratislava
Legal form: joint-stock company
Company ID: 17 055 164
VAT Reg. No.: SK2020459078
Date of incorporation: September 2, 1991
Stock capital: € 1,052,008

The Company is incorporated in the Bratislava 1 District Court Commercial Register Section Sa, Insert No. 159/B

Corporate Philosophy

Our successful history, as a supply and engineering company in the field of electrical systems, measurement, control, and process automation, spans over 70 years. Based on our stable financial background and active operation, we want to provide our partners with comprehensive and professional services of the top quality and through the optimal solutions. By providing professional services, we want to help our partners streamline their operations and activities, co-innovate, reduce potential risks associated with their operations, and reduce energy costs and environmental burdens. We have been consistently creating a productive work environment for our employees, focusing on professional and personal development. Our main goal is to achieve sustainable growth of the company, strengthen its stable position in the domestic and international markets, and support the company's ability to prosper in the future.

The Company's basic Values

The company endeavours to ensure that all its employees develop their personal efforts aimed at achieving collective success and reaching it based on the following fundamental values:

- Customers – and their needs, expectations, and satisfaction are paramount
- Guarantee – of a professional and accommodating approach and provision of top quality services
- Development – of skills and professional growth of our employees
- Transparency, honesty and reliability
- Compliance – with legal, regulatory and other binding requirements of the parties interested
- Protection – of health, environment and data
- Readiness – and flexible response to changes

Company Milestones and History

1951	REGULA Praha founded
1958	ZPA Praha (Prague Industrial Automation Company) founded
1965	ZPA-DP Praha (Prague Industrial Automation and Supply Company Works) founded
1969	Branch office in Bratislava (ZPA-OZ) founded
1985	Elektromont, k.p. founded in Bratislava with the merger of ZPA-OZ and Elektromontážne závody Bratislava (Bratislava Electro Plants)
1990	Elektromont, s.p. in Prague and its suppliers throughout the ČSFR liquidated and PPA, s.p. founded in Bratislava
1991	PPA CONTROLL, a.s. established
1997	Received certificate of quality under STN EN ISO 9001
2013	Received certificate of integrated management system under ISO 14001 – Environmental Management and OHSAS 18001 – Occupational Health and Safety
2017	Acquiring the Safety Management System Certificate according to the SCCP: 2011 standard
2019	Extension of the scope of certification according to the ISO 14001 standard - Environmental management system and ISO 45001 - Occupational health and safety management system
2021	acquisition by PPA CONTROLL, a.s. and incorporation into its holding group, achieving a certificate of information security management system according to ISO/IEC 27001.

Line of Business

Studies, designs, deliveries, installation, commissioning and services in the areas of:

Instrumentation and Control Systems

- Measuring temperatures, loops of pressures, pressure differences, flows, levels, displacements and other physical variables
- Special measurements, detection of toxic combustion gases, environmental measurements
- Systems for analyzing liquids and gases
- Control valves and actuators
- Regulators and evaluation systems
- Connections to control and LV systems

Automated Control Systems

- Control systems for technological processes (DCS and PLC systems)
- Building control systems
- Systems for collecting and evaluating energy information
- Process analysis and creation of user software
- Commissioning of technologies and optimization
- System integration
- Visualization and operator control of technological processes

Electrical Systems

- LV and HV underground cable lines
- LV, HV and UHV transformer and substation
- LV cabling
- Power protection
- Building cabling
- Weak current systems (fire, intrusion, CCTV, etc.)
- Parking systems
- Voice communication
- Search and repair the faults of LV power cables (wiring)
- Search and location the ground electrical and communication lines

Switchboard Production

- 0.4 kV LV SMO switchboard (Rittal, Sarel, Profiline, Schrack enclosure)
- 0.4 kV LV switchboard for nuclear power plant conditions (SMO-S, SBO, NRS-S)
- RVB modular switchboard with withdrawable blocks (Logstrup boxes)
- System switchboards for control systems, servers and PC
- Switchboards for industrial and data communications
- Power-factor correction switchboard
- Wall-mounted NRS and NRS-P switchboard
- Control room panels and racks
- Road signs

Information and Telecommunication Systems

- Integrated light-current distributors
- Data LAN, MAN and WAN networks
- Cisco solutions
- Structured metallic and optic fiber cabling systems
- Data centers
- Search and repair the faults of communication metallic and fiber optic cables

Technological Equipment for Motorways and Tunnels

- Supply of electric power for tunnels - HV, LV, UPS, backup sources
- Tunnel lighting
- Tunnel ventilation
- Tunnel radio
- Radio connection in tunnels
- Measuring of physical variables in tunnels
- Emergency call telephones
- Measuring meteorological variables
- Traffic monitoring systems
- Traffic management systems – variable traffic signs, traffic control systems
- Security systems - rooms (fire alarm system, electrical security system, CCTV, voice alarm control)
- Technology control systems
- Integration of individual technological devices
- Operator station - control
- LED variable traffic signs – exclusive representation of the DMV manufacturer

Energy Outsourcing

- Managing power distribution and equipment
- Maintenance, repair, servicing, technical inspection and testing of electrical equipment
- Measuring and monitoring of electric power
- Supplying electricity and optimizing electric power consumption
- Audits

Comprehensive Industrial Site Management

Management and administration reports

- Preparing and reviewing budgets, records of costs and management processes, coordination of suppliers

Technical management

- Servicing, maintenance and repairs of technical facilities
- Expert inspections and technical testing of classified technical equipment:
 - electrical
 - gas
 - pressure

Non-technical site management

- Waste management, road maintenance, green maintenance, cleaning, guard service

Construction and Development of Infrastructure in D1 Park Senec

- roads
- HV and LV power lines
- gas pipeline
- water pipeline
- foul water drainage and storm sewers

Operation and Maintenance

- Warranty and post-warranty service and maintenance of all supplied systems and equipment
- Calibrations and repairs of physical and chemical measurement systems
- Calibration of temperatures, pressures and electrical quantities AC/DC
- Infrared measurements



Social Responsibility

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Corporate social responsibility has continuously been an integral part of strategic objectives and business activities of the group of companies in PPA CONTROLL. We all are aware that socially responsible behaviour increases labour productivity and employee loyalty, as well as it ultimately brings long-term sustainable development and competitive advantage to the companies in the group of PPA CONTROLL.

The values, such as strict anti-corruption behaviour, respect for transparency in all financial operations, establishing good relations with customers, shareholders and business partners, creating employee-friendly working conditions as well as compliance with environmental standards are applied by the companies in PPA CONTROLL group in their daily business activities. These values are shared by the management, senior managers and all employees of the PPA CONTROLL group of companies, which in practice creates a synergy effect and a solid basis for the all-round development of the PPA CONTROLL group of companies.

In the same way, the basis for a sustainable and successful business activity of the PPA CONTROLL group of companies is the emphasis on the identification and monitoring of the needs and expectations of business partners as well as other parties involved, on the comprehensive assessment of external and internal impacts, as well as on the risk analysis of projects, the evaluation of which is reflected in the subsequent implementation phase.

Especially by finding, creating and delivering socially responsible solutions for customers and other parties involved, together with building long-term fair relationships with business partners and actively involving employees we strive to achieve a common goal and shared prosperity. We see our companies' participation in so-called „green“ projects and projects improving the level of safety in Slovakia and abroad as an important contribution of the PPA CONTROLL group to socially responsible behaviour.

Management systems according to ISO 9001, ISO 27001, ISO 14001, ISO 45001 and SCCP

We responsibly apply priority principles of quality assurance, information security, nuclear safety, occupational safety, health and environmental protection when performing our work activities in all business processes. Implemented and certified management systems are regularly valued and continually improved.

We place a high priority on conducting activities in compliance with the requirements and expectations of our customers, government authorities, control and supervisory bodies and other parties involved. This has also been confirmed by the audits completed by certification institutions, as well as by the audits conducted by both regular and potential customers. Meeting the requirements of all parties involved and achieving prominent level of the customer satisfaction remain our priority.

The refore, the long-term application of management systems in the parent company PPA CONTROLL, a.s. and its subsidiaries is a good prerequisite for the successful and comprehensive fulfilment of procedure and legislative requirements for quality, safety, working environment as well as health and environmental protection in the individual activities of the company. Communication of their importance takes place at all organisational levels. Through an integrated approach of our managers and employees, we strengthen the PPA CONTROLL group's overall contribution to socially responsible behaviour.

It is our daily task to improve the level of quality and corporate culture, safety culture, health, occupational and environmental protection as well as information security. From the identification and analysis of risks with regard to internal and external influences, through the planning of long-term and short-term objectives, the monitoring of indicators and their trends, to the definition and implementation of appropriate measures, we contribute to the development of companies in the group of PPA CONTROLL and their reputation.

In 2022, our activities were also focused on aligning the processes of our subsidiary LIV ELEKTRA, a.s. with the activities of companies grouped in PPA CONTROLL in order to improve the overall efficiency of the activities performed and services provided. Through these activities, we strive to enhance our internal processes and meet the needs and expectations of our customers and other parties involved, but most importantly, we want to remain your trusted and reliable partner.



Human Recources

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Staff structure

In 2022, the company's HR policy was focused on stabilising employees, attracting qualified workforce and their adaptation in the company. PPA CONTROLL, a.s. is actively engaged in projects for secondary technical schools and technical universities with a focus on educating students to prepare them for future careers in order to promote the employer brand.

As of 31 December 2022, the companies grouped in PPA CONTROLL, a.s. had 781 employees. The Employee Stability Index decreased to 67.3% in 2022 (the percentage of employees working for us for more than 5 years out of the total number of employees). Of the total number of employees, 83% are male and 17% are female. The average age in the company is 46 years.

The technical education of our employees and applicants remains crucial for us. The positions most frequently filled in 2022 were an electrical installer, a lead installer, an implementation manager, an HV electrical maintainer and a project manager.

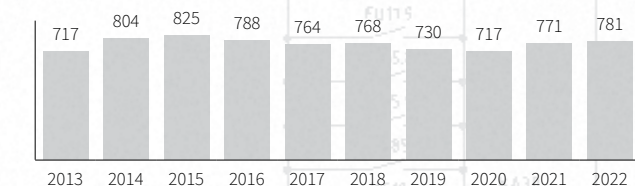
Employee development

Employee training and development is one of the company's top priorities. In 2022, the company has made significant efforts to go digital in order to build a more efficient learning and development system for our employees. Maintaining an important level of professionalism and language readiness provides the company with opportunities for employment in foreign markets.

PPA CONTROLL, a.s. invested in education the amount of € 279,902 with an average annual cost of € 368 per employee.

PPA CONTROLL, a.s. acknowledges the loyalty of its employees through a wide range of benefits focused on health, relax, family and sports.

Number of employees
in PPA CONTROLL group 2013 – 2022



Number of employees by Education

	Primary	Secondary	University
2021	4	441	326
2022	6	454	321
in % - 2022	1	58	49

Number of employees by Age

	18-29 y.	30-39 y.	40-49 y.	50-59 y.	Over 59
2021	61	180	227	220	83
2022	69	175	224	207	106

Number of employees by Gender

	Women	Men
2021	128	643
2022	135	646
in % - 2022	17	83

Employee structure by Professions

	2021	2022
Management	35	31
Sales and Procurement	77	82
Project management	67	70
Designers, programmers	118	122
Administration	95	99
Technicians	128	126
Assembly workers	237	236
Others	14	15
Total	771	781

Company Statutory Bodies and Organizational Structure

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Executive Board

Ing. Bystrík Berthoty, Chairman

Born August 9, 1965 and a graduate of the University of Economics in Bratislava. He joined the Company in 1999. At present, he has been Managing Director since 2012 and Chairman of the Executive Board since 2015.

Ing. Ladislav Ondriš, Vice Chairman

Born November 22, 1956 and a graduate of the University of Economics in Bratislava. Between 1999 and 2014 he was Chairman of the Supervisory Board. He has been Vice Chairman of the Executive Board since 2015.

Ing. Zoltán Lovász, Member

Born April 18, 1969 and a graduate of the Slovak University of Technology in Bratislava. He joined the Company in 1999. He was appointed to his current position of Director at PPA ENERGO s.r.o. in 2009. He became a member of the Executive Board in 2012.

Ing. Marián Kolenčík, Member

Born September 19, 1967 and a graduate of the Slovak University of Technology in Bratislava. He joined the Company in 1990. He was Director of subsidiary PPA INŽINIERING, s.r.o. from 2013 till 2023. Since 2013 he has been a Member of Executive Board.

Ing. Erik Vicena, Member

Born November 28 May 1975 A graduate of the Slovak University of Technology in Bratislava. He joined the Company in 2010. He has held the current position of Deputy Director General for Trade Affairs since 2018. He became a member of the Executive Board in 2019.

Supervisory Board

Mgr. Darina Pavlů, MBA, Chairman

Born December 14, 1981. She graduated from the Faculty of Law, Comenius University in Bratislava, and Master of Business Administration EADA Business School in Barcelona. She has been holding the office of Chairman of the Supervisory Board since 2018.

Ing. Karol Pavlů, Vice Chairman

Born December 19, 1941. Graduate of the University of Economics in Bratislava. In the past, he held offices in several bodies of the Company: chairman of the Supervisory Board (since 1991), vice-chairman of the Board of Directors (since 1996), vice-chairman of the Supervisory Board (since 2002), and chairman of the Supervisory Board (since 2014). He has been holding the office of Vice Chairman of the Supervisory Board since 2018.

PhDr. Darina Pavlů, Member

Born June 4, 1946 and a graduate of the Faculty of Philosophy at Comenius University in Bratislava. She was a member of the Supervisory Board since 2005, the vice-chairman of the Supervisory Board since 2012, and since 2018, she has been a member of the Supervisory Board.

Senior Management

PPA CONTROLL, a. s.

Ing. Bystrík Berthoty

Managing Director

Ing. Erik Vicena

Deputy CEO for Business Affairs

Ing. Marta Kramárová

Finance Director

RNDr. Viera Cehláriková

Management Systems Director

PhDr. Martina Fandelová

Human Resources Director

JUDr. Marek Jurina

In-house Legal Counsel

Subsidiary Company Management

PPA ENERGO s.r.o.

Ing. Zoltán Lovász

Executive Director

Ing. Katarína Krchnáková

Finance and Human Resources Director

Ing. Peter Spilý

Commercial Director

Ing. Lukáš Dubrovay

Technical Director

Ing. Peter Špaňo

Production Director

Ing. Miloš Glasa, PhD.

Director of the Project Management Department

Mgr. Roman Gonda

Director of the Procurement
and Administration Department

PPA INŽINIERING, s.r.o.

Ing. Branislav Babic

Executive Director

Kvetoslava Smejová

Director of Economic and Personnel Department

Ing. Karol Letko

Director for Strategic Contracts

Ing. Igor Jamnický

Director of Traffic Technology Department

Ing. Marek Strapec

Director of Business Department

Ing. Stanislav Uhlár

Director of Technical Department

Ing. Roderik Gröne

Director of Department for Contract Realisation

Ing. Richard Pavlík

Director of Department for Technological Projects
in Power Industry

PPA Power DS s. r. o.

Ing. Erik Vicena

Legal Representative of the Company

Ing. Bystrík Berthoty

Legal Representative of the Company

Ing. Ladislav Ondriš

Legal Representative of the Company

Ing. Michal Kolimár

Director of Energy Distribution Department

Ing. Eva Turňová

Director of Economic Department

LiV ELEKTRA, a. s.

Ing. Peter Mekel

Director and Chairman of Executive Board

Ing. Erik Vicena

Vice-Chairman of Executive Board

Martin Latečka

Technical Director and Member of Executive Board

Ing. Karol Herchl

Production Director

Roman Rybár

Construction Director

PPA Power s. r. o.

Ing. Erik Vicena

Legal Representative of the Company

PPA TRADE, spol. s r. o.

Ing. Rudolf Chochula

Executive Director

PPA SLAVUTIČ KYJEV, s. r. o.

Ing. Peter Gašparových

Executive Director

PPA CONTROLL CZ, a.s.

Mgr. Darina Pavlů

Legal Representative of the Company

PPA CONTROLL Magyarország Kft.

Ing. Zoltán Lovász

Legal Representative of the Company

References

Energy

Martinská teplárenská, a. s.

Greening of the company – increasing energy efficiency and end of coal operations

Technological part:

- Supply and installation of cogeneration units
- Supply and installation of hot water boilers
- Supply and installation of duct pipes
- Supply and installation of flue gas exhaust system
- Supply and installation of technologies for electrical power output
- Supply and installation of LV and HV distribution systems
- Supply and assembly of low voltage switchboards
- Supply and installation of technological process control systems
- System programming

Construction part:

- Construction of a new building with a machine room for cogeneration units
- Complete reconstruction of the building for the hot water boiler house
- Delivery and assembly of steel service platform structures and pipeline and transport bridges
- Supply and installation of technological equipment for gas leak detection, EFS, and camera systems
- Supply and implementation of underground distribution and sewerage systems
- Construction of roads and paved areas

Power plant Planta Centro, Venezuela

Reconstruction of 400 MW boiler No. 5 - EPC CONTRACT

- 420 kV unit outlet (surge arresters)
- Transformers 30 MVA 5BT01, 5BT02
- Generator outlet and zero
- Generator excitation system
- Electrical protection and measurement, MicroSCADA
- HV block substation
- LV block substation
- Branch substation at +6.1m
- Branch substation for water treatment
- Branch substation for pumping station
- Earthing and lightning conductors of technological structures
- Lighting and socket wiring of technology
- Sources and distribution of DC voltage
- Diesel generator



Heating plant
in Martin

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Building of the
heating plant of
Slovenské cukrovary
Sered'



Steam boiler Bosch
with accessories in
the heating plant of
Slovenské cukrovary
Sered'



Steam boiler room in
the heating plant of
Slovenské cukrovary
Sered'



Main substation in
the heating plant of
Slovenské cukrovary
Sered'

Tepláreň Slovenských cukrovarov, Sered' (EPC Contract)

New heat source 2x36 t/h, pressure 12 bar

- Supply of complete project documentation for the building permit and implementation documentation for the work execution
- Preparation of the application for amendment of the integrated permit, including the process of obtaining the building permit
- Construction works necessary for the execution of the work, construction of the building, pipeline bridge
- Supply of 2 Bosch boilers with accessories
- Supply of technology equipment including desulphurisation
- Supply and installation of biogas storage tank including complete pipelines to the heating plant
- Supply and installation of continuous emission measurement
- Disassembly and reassembly of the existing reverse osmosis system, pre-seasonal service and commissioning
- Assembly and installation of boilers with accessories and other technology equipment
- Supply and installation of transformer substation
- Supply and installation of HV distribution lines
- Supply and installation of external LV distribution lines
- Supply and installation of external low-current distribution
- Supply and installation of lighting and socket installation
- Supply and installation of power distribution systems for technologies
- Supply and installation of EPS
- Supply and installation of GDS
- Supply and installation of CCTV system
- Commissioning, including the approval statement of the Technical Inspection of the Slovak Republic
- Test operation including protocol on measurements taken and criteria achieved
- Preparation of operating and maintenance regulations, list of spare parts
- Operator training
- Approval of the complete work

Modification of LVO combustion technology

- Supply of implementation documentation for the construction of the work
- Construction works necessary for the installation of the LVO storage tanks
- Supply and installation of elements for the modernisation of 2 SAACKE burners
- Modernisation of the existing burner automation
- Supply and installation of 2 storage tanks
- Supply and installation of heated pipework
- Supply and installation of external LV distribution lines
- Supply and installation of external low-current wiring
- Supply and installation of heavy-current distribution systems for technology
- Supply and programming a new part of the Emerson master control system
- Upgrading of the existing Emerson master control system
- Commissioning
- Test operation including report on measurements taken and criteria achieved
- Preparation of operating and maintenance manual
- Operator training

Západoslovenská distribučná, a. s.

ES Čulenova – completion of T103 and replacement of T101, T102

- Ensuring sufficient 110/22kV transformation capacity for the increasing load on the 22kV distribution system in the vicinity caused mostly by development activities in the immediate and wider area of the power station, especially at Landererova Street and Mlynské Nivy.
- Construction and completion of the 110/22kV T103 power transformer, which was implemented in the existing R22kV building. The implementation included dismantling of useless equipment and demolition of buildings. The addition of transformer T103 and replacement of transformers T101, T102 2x63 MVA with 2x40 MVA in low noise design required several modifications to the existing power station technology.

Building Objects

- SO31 Substation 110 kV
- SO32 Transformer site
- SO34 Building of common operations
- SO35 Substation 22kV
- SO37 Site lighting
- SO41 Internal communications
- SO45 Rough landscaping
- SO46 Final landscaping
- SO47 External fencing - modification
- SO49 Demolition
- SO59 Intrusion alarm system (IAS)
- SO60 Electric Fire Alarm System (EFS)

Operational Files

- PS01 Technology dismantling
- PS04 Transformers and chokes
110/22kV transformers - T101, T102 and T103, new primary resistors and their primary connection, VHV power connections from cable glands to HV transformer glands, HV power cables from the node of secondary windings of 22kV transformers T101, T102 and T103 to primary resistors, HV surge arresters including their connection, auxiliary steel structure for HV and VHV cables, cable VHV terminals and surge arresters.
- PS09 Switchgear 110 kV
New SF6 gas insulated field 07 for connection of 110kV side of transformer T103, connection of new field 07 to pre-prepared main busbar extension modules for connection of new field during operation of 110kV substation, replacement of existing VHV cables of transformer T101 and T102 with new ones including terminations, routing of VHV cables of T101, T102 and T103, connection of new field 07, terminations.
- PS10 22 kV distribution equipment
Extension of the 22kV cabinet HV substation to include the new feeder field of transformer T103, modification of the blocking conditions of R22kV and modification of the parameterisation of the affected protection terminals, laying of new HV cables from transformer T101, T102 and T103 to the HV switchboard, including installation and connection of cable terminals.

References



Encapsulated 110 kV substation ES Čulenová



Encapsulated transformer station ES Čulenová



Transition of HV cable line to HV overhead line

• PS31 Electrical protection

Addition of new switchboards to building common operations - R110kV area, modifications in existing switchboards and in the transmission equipment cabinet, testing and activation of transmitted signals of pulling down and remote switching off, in the opposite substations Ovsíšte and Podunajské Biskupice. Modifications in the existing switchgears ARE, ASE Protection relay switchgears due to the replacement of transformers T101, T102 and addition of a new transformer T103, modification of the blocking conditions of R110kV and modification of the parameterization of the affected protections and substations CIS.

• PS32 Control and Information System (CIS)

Addition of CIS related to the new transformer T103 and its digital protections and to the field substation AEA07. Addition of CIS in connection with the new 110kV substation SF6 loss automation and with the extension of the R22kV substation with the new AJE45 field substation. Modifications to transformer substations T101 and T102 in connection with their replacement. Extension of fibre optic loops with new protection and substation.

• PS33 Evaluative measuring and power quality measuring

Construction of a new electricity evaluative measurement cabinet AQQ01 and electricity quality measurement cabinet AQF01.

• PS40 Main earthing network (MEN)

• PS50 Self-consumption

Rearmament (addition) of outlets in switchboard ANG2,8 for cooling, control and heating supply in connection with the addition of T103 and replacement of T101, T102 and in connection with the new switchgear AZE03 - ELI R22kV. Rearmament (addition/disconnection) of outlets in switchboard ATJ1,3 and in switchboard ANL0.

SA_A1_Lakšárska Nová Ves, VN238, LV, HV cable and overhead line, HV/LV kiosk transformation station

- In 2022 LiV ELEKTRA, a.s. implemented the project SA_A1_Lakšárska Nová Ves, VN238, VNK, TS, NNK. It was a construction conducted under the project of common interest called ACON, which is an important European project financed by the CEF instrument. The ACON project focuses on the main aspects of the development of smart grids based on smart technologies and new communication elements. The main objective of the ACON (Again Connected Networks) project is to support the integration of the electricity market in the Czech and Slovak Republics. The aim of the ACON project is to efficiently unify the behaviour and activities of system users in order to create an economically viable, sustainable electricity system in high quality and security of supply with low losses.

- The specific line structure was built in accordance with the project documentation and relevant permits in the cadastral areas of Lakšárska Nová Ves and Borský Svätý Jur. Its total length was 4,540m and consisted of a HV cable line, a fibre optic line and three new HV/NN transformer stations. For LiV ELEKTRA, a.s. it was the first construction of this nature, for which it was necessary to provide personnel and new technological equipment.

• SO 01 - HV distribution

Dismantling of the existing overhead line 238. Connection of existing HV cable, laying of new 22kV HV cable line NA2XS(F)2Y with total length of 13,700 m to new grooves, crossing with road of 2nd and 3rd class, crossing with product pipeline DN1200, stream crossing and controlled overpressure in the place of dense forest vegetation. Final land work, geometric plans and engineering.

• SO 02 - LV distribution

Connection of LV distribution lines from TS PS 01 to PS 02 and PS 03.

• SO 26 - HDPE protection for fibre optic cable

Supply and installation of MiDia Dry Core 8.1&9.1 fibre optic storage cable routed in parallel with the HV cable runs.

• PS 01 - Replacement of TS 0028-010

Replacement of the existing single column TS 0028-010 with a new kiosk transformer station (TS) from the manufacturer HARAMIA type EH6. The existing LV outlets from TS 0028-010 were reconnected to the TS.

• PS 02 - Replacement of TS 0028-015

Replacement of the existing single pole TS 0028-015 with a new kiosk transformer station from the manufacturer HARAMIA type EH6. The existing LV outlets from TS 0028-015 were reconnected to the TS.

• PS 03 - Transformer station TS

New kiosk transformer station from the manufacturer HARAMIA type EH1. New LV and HV lines were connected to the new TS.

ČEPS, a.s.

OPO – renewal of Opočín station (P.0457) construction and assembly works

- In association with Bohemia Müller, we conducted the reconstruction of the 220kV Opočín substation for ČEPS, a.s. The scope of work consisted of dismantling the existing fields and subsequent assembly - 2 feeder fields (V202, V203), 2 transformer feeder fields (T201, T202), 1 busbar switch field, 1 auxiliary busbar switch field and 1 measurement field. The existing central house was structurally modified together with the house for the short-circuit sets, where the new diesel generator was placed.

Building Objects

- SO360 Area collection system
- SO360.2 Drainage system
- SO522.2 245kV outdoor substation building
- SO525 Diesel generator house
- SO527 .1 Cable ducts
- SO528 Central house
- SO542 Physical protection of electrical substation assets (PPP)
- SO640 Car Shelter
- SO690 Internal communications

Construction of
245 kV ES Opočíněk



Thermal power plant
Felton, Cuba



Full-scale simulator
for NPP Jaslovské
Bohunice



Full-scale simulator
for NPP Jaslovské
Bohunice

Operating Files

- PS12 245kV substation
Complete refurbishment of R245kV outdoor design with two busbar systems and an auxiliary busbar. The substation has two 220/110kV transformers, two feeder fields, main busbar coupling and auxiliary busbar coupling field, metering field and busbar earthing field. The instruments are located on auxiliary structures with protection of live parts by position.
- PS33 245kV substation protection
New digital protection switchboards in houses UDD11, UDD21 and UDD31 including new LV cabling.
- PS41 Control system and measurement
Installation of new control system. The system has a decentralised, two-level, modular structure.
- PS50 Self-consumption
As part of the refurbishment, all DC and AC self-consumption switchboards were gradually replaced, including complete LV cabling and diesel generator.
- PS61 LAN stations
Two racks of LAN stations with TEK servers, active network elements including new structured cabling.
- PS64 TELCO transmission equipment
For the transmission of information from the 245 kV substation, there was the following equipment installed in the electrical station: WDM, IP/MPLS, SDH, PDH over IP were installed.
- PS65 Transmission equipment
New PCM transmission equipment which provides communication of comparison and distance protectors.

Thermal Power Plant Felton, Cuba (EPC contract)

- Providing complete implementation documentation for the construction
- Supply of new boiler parts, burners, flue gas fans, blowers, air heaters, necessary valves and accessories
- Supply of high- and low-pressure turbine parts including accessories, such as the turbine control system, lubrication system, vibration monitoring and other necessary peripherals
- Supply of the generator rotor including oil, gas and water lines
- Supply of automation, which includes the control system, supply of complete instrumentation for the boiler room and machine room, supply of complete assembly material
- Supply of the electrical part, including the supply of the main AC and DC switchgear, light switchgear, DC batteries, mains synchronisation, high voltage protectors, necessary cabling and other additional material
- FAT testing of selected types of supplies for dispatch
- Technical assistance during installation

Nuclear Energy – Slovakia

Slovenské elektrárne a.s. Bratislava, Jaslovské Bohunice Nuclear Power Plant

NPP V-2 – Unit 3 and Unit 4

- Replacement of accumulator batteries used for power supply of NPP V-2 safety systems (system devices that ensure the liquidation of primary circuit accidents and after-cooling of the reactor) - preparation of project documentation, installation, testing and commissioning
- Innovation of computer stations of the Technological Computer System for direct measurement and processing, evaluation, archiving and visualisation of technological data from the secondary and primary circuit of the NPP and for communication with other information and control systems - development of technical and project documentation of equipment and components, their dismantling, assembly and testing at Units 3 and 4 of the NPP V2
- Change of the electrical supply of the Simatic control system ensuring the measurement of parameters in the technical water system
- Replacement of electrical protectors with new digital protectors on 13 pins of 6kV safety system switchgear
- Transition cabinets for TJ and super emergency supply pumps (SESP) - preparation of project documentation, execution of works
- Supply of 400kV 1GB and 2GB substation switchgear - preparation of project documentation, supply, installation, recovery, tests
- Replacement of obsolete Gateway PAMS - preparation of project documentation, supply, installation, revival, tests
 - Replacement of lockable control pushbuttons to ensure functionality and reliability of control and operation of 6kV electrical circuits of switches in non-system switchgear of pump-filter station PFS Pečeňady

References

Block supervision room of unit V2 of NPP Jaslovské Bohunice,



- Implementation of a representative full-scale simulator for NPP Jaslovské Bohunice
 - Delivery of technological computer system for the simulator - ensures collection, processing, archiving and visualization of technological data obtained from the simulator
 - Manufacture and assembly of panels and consoles of the simulator
- Replacement of 0.4 kV circuit breakers of ARV type with Siemens and Schneider circuit breakers - development of the implementation project and DSV, delivery, implementation
- Installation of SCORPIO in the EBO simulator as part of the upgrade of the EBO V2 Intra-Reactor Control System - ensuring data collection and provision towards both the original and new system in parallel
- Modifications, updates and engineering support of software and corrective maintenance of TPS hardware - SW modifications, algorithm corrections, addition of new functions, application of security patches, etc. at all levels of the information system from PLC data acquisition, through communication and computation modules to data visualization and archiving as well as updating SW of third party (Windows, Linux, VMWare)
- Upgrade of the central system of PI SE a.s. - simplification of data transfer from EBO V2 to the central system and addition of several levels of firewalls and security features
- Replacement of 6 kV power cables for the main power supply of the PFS Pečeňady facility (pumping and filtration station) and EBO V2, excavation and laying works
- Replacement of cables for 6 kV appliances, excavation and laying works Pečeňady - design, supply, installation, tests
- Removal of backlighting for signalling the status of 400kV EBO V2 switches and disconnectors - supply, installation, tests
- Replacement of elements and components H3BO3 for concentration measurement - design, supply, installation, tests



NPP Mochovce



Measurement and control technology of NPP Mochovce



Steam generator and impulse tube lines of NPP Mochovce

- Modification in Exchange station of thermal feeder ESTF in Jaslovské Bohunice - stage 2 and camera system for EBO warehouse - design, supply, assembly, implementation of camera system for surveillance in the premises of the exchange station and warehouse
- Implementing measures of Open Phase Condition - replacement of protections for non-system 6kV switchboards B18150/1 - project development, delivery, installation and tests
- ESTF heating from Turbo Generator TG steam taps - power supply for new electrical appliances and completion of measuring, regulatory, control and signalling circuits on TG steam branches for heating of the substation for Trnava, Hlohovec and Jaslovské Bohunice
- Replacement of elements and components for H3BO3 concentration measurement - complete replacement of measuring circuits for measuring concentration of boric acid - design, supply, installation, tests

Mochovce Nuclear Power Plant

Units 1 and 2

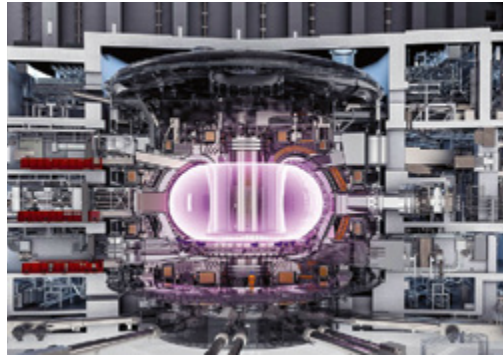
- Assistance in repairs of electrical equipment to the extent of routine and general repairs during GO 2020-2022 – electric motors, generators, servo drives, distribution equipment, transformers, wiring, protection elements
- Repair of cabling for JEC temperature measurements – repair of cabling, supply of new temperature sensors and materials
- Reassessing the classification of ICS equipment - engineering, supply and implementation, testing
- Modification of pump bearing cooling, removal of embedded cooling circuits and modification of electrical supply to boron VT pumps - engineering for ICS and electrical section, execution, testing
- Addition of water temperature measurements on cooling towers - engineering, supply and implementation, tests

- Implementation of electrical measures - processing documentation and seismic hardening of selected electrical elements
- Replacement of seismically unsuitable components of the electrical part
- Modification of protection U11 for Super Energy Power Pump SEPP – supply of design and implementation documentation and quality documentation for selected equipment, implementation of modifications in the BELT control system
- Replacement of power relays for Main circulation pump - supply and replacement of protection for MCP, supply of design and implementation documentation, implementation of replacement of elements
- Replacement of cabling at tanks 2JNG40BB002 and 2JNF40BB001 during seismic earthing of machinery
- Supply of two FH2-3A/F fuse disconnectors in DC switchgear due to seismic failure of existing disconnectors

Units 3 and 4 – completion:

- Designing and engineering activities for parts ELE and ICS
 - for the nuclear island,
 - for the conventional island
 - project documentation, on-site verification of documentation
- Implementation of the E05 Project – General electrical part – engineering, supply, installation, and commissioning of the following own consumption NPP equipment – 6 kV encapsulated conductors, 6/0.4 kV transformers, 6 kV own consumption switchboards, 0.4 kV sectional switchboards, 0.4 kV auxiliary switchboards (MCC – Motor control centres – including production), 1st category secured power system (rectifiers, converters, inverters, batteries and UPS), control and diagnostic system for power supply dispatching at the central electrical control room, generator protection and outlet of power and protection of 110kV back-up power substation
- Reactor protection system (RRCS) – supply and installation of cabling

References



Fusion experimental reactor - ITER project



ITER project



NPP PAKS II,
Hungary



NPP Loviisa
- working team

- EXCORE system – supply and installation of switchboards
- Neutron flux monitoring system – installation of switchboards and technological parameter sensors
- Implementation of the JOB12 project – engineering, supply, installation, and commissioning of selected ICS parts and the electrical part for the nuclear island – sensors reading technological parameters, sampling system for sensors reading technological parameters, sealed tube bushings, sealed cable ducts, cabling, analysers of technical and technological parameters, main and secondary cable routes, cabling
- Implementation of the E06ER project – electrical installation works and installation of ICS for the completion of the emergency diesel generator (Unit 4 of the MO34 NPP), installation of main and secondary cable routes, laying and connection of cabling (HV, LV), installation of sensors, switchboards (6kV, 0.4kV, 24V, protection elements, measurement and synchronization), transformers, impulse lines, earthing, support for commissioning
- Archive of technical documentation - elaboration of the project for the building permit
- Installation of battery racks and installation of battery cells in the batteries, seismic connection in between battery rows and supply of related documentation and seismic calculations for the connection in between battery rows
- Building wiring for conventional island on Unit 4 - installation of light and socket wiring, lightning conductor, circuit recovery
- Implementation of engineering activities of the electrical profession -dispositional placement of appliances and their earthing, design of main and secondary cable routes, fireproofing of cable routes

Jadrová a vyradovacia spoločnosť a.s. Bratislava,

- Project of the International Fund for NPP V-1 Decommissioning Support – **D4.1 Modification of the power plant and installation of new equipment** -installation of the electrical part and I&C system according to the RPD 1-6, including deliveries
 - heavy-current distribution system – power supply and operations
 - technological process management system
 - light-current distribution system and structured cabling
- Project of the International Fund for the support of NPP V-1 decommissioning - **C7.A4 Equipment for remelting radioactive waste** - installation of equipment for power factor compensation for remelting of metallic radioactive wastes, includes installation of switchboards, HV transformer, cabling and inspection performance
- Project **D4.4C of the International Fund for NPP V-1 Decommissioning Support** – Dismantling of systems in the controlled zone of NPP V1 - elaboration of an implementation project for the I&C part, power distribution, lighting, EFS and implementation work
- Project for the completion of spent nuclear fuel (SNF) storage capacity at the site of Jaslovské Bohunice
 - temporary power supply for cranes, operational power distribution
 - installation and supply of electrical systems, ICS systems, I&C and construction electricity
- Reconstruction of the CTW- chemical treatment water to DSW – deionised service water - production of electrical and ICS switchboards, installation of new measuring circuits, programming of PLC automats for communication with the production line for deoxidised utility water production and provision of information gathering from the electrical part to the CIS

Nuclear Energy – Abroad

Project ITER (France) – International Fusion Experimental Reactor

- Electrical installation work - installation of electrical equipment including water cooled encapsulated conductors, fast charging units and associated equipment, busbars and apparatus, installation of cabling and instrumentation
- Installation of cabling - laying and termination of 204 pieces of 66 kV cables (more than 51km) and 108 pieces of 22 kV cables (more than 41km) for the pulsed power network (PPEN) - supplying the fusion reactor technologies (66kV cables from the 66kV substation and 22kV cables providing the connection between 400kV transformers and 22kV high voltage switchgear
- Supply of LV switchboards for TOKAMAK Cooling Water System 1st Plasma to the extent:
 - Design and manufacture of a test sample assessed in a laboratory in France to a magnetic induction of 21mT
 - Manufacture and supply of switchboards
 - Support at launching

NPP Loviisa 2 (Finland)

- Replacement of low-frequency converters for reactor control rod drives - dismantling of 19 cabinets with the old Russian drive system, installation of 16 cabinets of the new system with wiring modification and individual tests during the planned reactor shutdown.

NPP PAKS II (Hungary)

- Electrical installation work on the temporary wiring project



Car battery factory in
Göd, Hungary



Nexen Tire
production plant,
Czech Republic



Incinerator Newhurst,
Great Britain



TESLA GIGAFACTORY
electric vehicle
factory Berlin,
Germany

Industry – Abroad

Car battery factory, Göd (Hungary)

Electro implementation to the extent of delivery and assembly of equipment and materials, testing and inspection for commissioning of the supplied equipment

- installation of cabling and lightning conductor
- light current switchboard production including temporary on-site switchboards
- light current and heavy current switchboards
- main and emergency lighting system
- Implementing the electrical extension of the main building of Complex 2 with production lines No. 11 and 12
- Wiring and complete testing of MV transformer cables in the electrical substation for the secondary buildings of Complex 2
- Implementing the electrical part for the building for assessing the charging and discharging cycles of battery primary cells

Factory for car battery components, Nyiregyhaza (Hungary)

- Installation of temporary electrical wiring for the construction site, laying and wiring the cables to the temporary electrical switchboards
- Excavation work and laying of copper cable for earthing and EPN (Equipotential network)
- Production and supply of LV switchboards for temporary wiring

Car battery factory, Komárom (Hungary)

- Production and supply of 58 PLC panels

Factory for car battery components, Környe/Tatabánya (Hungary)

Installation of ELEKTRO and ICS equipment, installation of main and secondary cable routes, laying and wiring of cabling, manufacture of LV and light-current switchboards, wiring of technologies

Implementation of the electrical part in the scope of:

- Production and supply of PLC switchboards for Building management system
- Supply and installation of cable routes, cables and connection of process equipment in the process part for production lines E-H and C-D.

Project Incinerator NEWHURST (Great Britain)

Engineering activities and electrical installation works on the project for construction of a recovery plant for municipal and commercial solid waste, in the scope of:

- elaboration of the implementation project for the ELEKTRO part, including 3D model
- manufacture, supply and installation of junction boxes
- installation of encapsulated conductors, supply and installation of main and secondary cable routes, earthing, instrumentation, components, impulse lines
- laying of HV, LV, communication cables (ICS and optical fibre) including their connection
- sealing of fire-protection transitions in E-houses and ducts
- cable testing in accordance with BS 7671
- engineering support during the execution of the work
- drawing up of the actual condition after implementation

Project Incinerator SLOUGH MULTIFUEL (Great Britain)

Engineering activities – preparing the realisation project of the ELEKTRO part including 3D model

Project NEXEN TIRE (the Czech Republic)

Engineering activities, supply of materials, installation of wiring and recovery on the project of constructing the plant for tires production, in the scope of:

- elaboration of the implementation project for the ELEKTRO and ICS part
- supply and installation of temporary site wiring, switchboards, cabling, lighting, earthing system
- installation of HV switchboards and transformers 6kV and 22kV, supply and installation of HV cabling, PIPT (professional inspections and professional tests)
- production of LV switchboards (Sivacon)
- supply and installation of cable routes and cabling, PIPT
- supply and installation of CCTV system and compressed air system and cabling, installation of sensors and SCADA system, PIPT
- supply and installation of light switchboards and cabling, installation of lights, supply and installation of lightning conductor

Factory for electric vehicle production TESLA GIGAFACTORY BERLIN (Germany)

Preparation, adjustment and modification of the implementation project in 3D model

Technical and construction wiring in the scope of:

- manufacture and supply of LV switchboards (MCC, power panels, lighting panels, local control boxes)
- installation of HV and LV substations
- supply and installation of busbar system
- supply and installation of earthing and lightning conductor
- supply and installation of main and secondary cable routes
- supply and installation of cabling
- supply and installation of lighting, including emergency lighting
- installation of electrical and ICS equipment
- inspections, recovery and commissioning

Industry – Slovakia

Duslo, a.s., Šaľa

- SW modifications and tests - supply of services related to the inspection and modifications of SW control systems at plants after shutdown reconstructions
- New boiler K8 - alignment of NOx emissions with legislation
 - elaboration of the implementation project with annexes for the building permit
 - general supply of the K8 boiler including construction and other professions
 - comprehensive and functional tests, test operation, official tests, guarantee performance test
 - actual design, accompanying technical documentation
- Alignment of NOx emissions with legislation - part: Upgrade Control System K5, K6, K7 - RPD +DSV processing, material supply, switchgear manufacturing, dismantling, assembly, construction modifications of the heating plant control room, SW RS YOKOGAWA, tests, PIPT
- Distribution boxes Scame, Rittal - material supply
- Cybersecurity of control systems - extension and assembly of the structure for KB - processing of RPD +DSV, material supply, production of switchboards, modification and supplementation of existing switchboards, disassembly, assembly, tests, PIPT
- Replacement of K5 boiler burners - SW modification of RS - RPD +DSV processing, material supply, switchboard production, disassembly, assembly, SW RS YOKOGAWA, tests, PIPT
- Heating of liquid ammonia by heat - supplies of materials and services for the ATPCS section (Automated technological process control systems), electrical and lighting for the new technological part of the plant

- Upgrade of the control system of production unit KD2 and KD3 - supply of materials and services for the upgrade of the YOKOGAWA control system, including a cybersecurity assessment of the control system installation
- Upgrade of the DX1 production unit control system - Supply of materials and services as part of the upgrade of the YOKOGAWA control system at the DX1 plant, including a cybersecurity assessment of the control system installation
- Reconstruction of STS in PF Váh - use of UniGear HV switchboard from CV4 PTS - Supply of materials and services related to the use of existing ABB HV switchboard from the shut down CV4 plant at PF Váh operation (pumping facility)
- Upgrade of the control system at the Verification Plant - supply of material and services related to the upgrade of InTouch visualisation at the Verification Plant
- Ammonia Warehouse SW Upgrade - Supply of materials and services related to the upgrade of the YOKOGAWA control system at the Ammonia Warehouse operation, including a cybersecurity assessment of the control system installation
- Utilization of rotary steam reducers for power generation_ELE, I&C - Supply of material and services for the ASRTP and electrical part of the new technical part of the plant, which will be used to reduce steam for the production process and also generate electricity

Slovnaft, a.s.

Construction of the Ethylene Storage Tank

- Supplementing the existing lightning conductor of pipe bridges and supplementing the earthing of buildings and construction objects - supply and installation of cabling, supply and installation of cable routes, supply and installation of fibre optic cabling, tests and tests
- Construction of cable routes for HV and LV distribution, supply and installation of cabling, supply and installation of lights, supply and installation of outdoor lighting,

connection of existing HV and LV switchboards, tests and recovery, inspection reports

- Air Cooler connection - execution of electrical and ICS parts, preparation of RPD and DSV, installation of ICS and electrical switchboards, installation of cabling and lightning conductor, PD-MSA control system
- Centralization of HRP7 command centre - supply and installation of cabling, supply and installation of cable routes, supply of switchboards

Reconstruction of the data centre, UMT building

- Electrical installation work and supply of materials for heavy current power, OMS hanging rail system, supply and installation of switchboards, testing and recovery of components, inspection reports

Reconstruction of lighting at Bratislava and Kľačany terminals (Car Tank Station)

- Comprehensive solution includes preparation of RPD for lighting replacement, including surveying and completion of missing layouts, dismantling works, supply and installation of equipment, testing, recovery and commissioning, updating of the protocol on the determination of the external environment as well as updating of the fire safety design of the building
- Installation of cable routes, supply and installation of cabling, supply and installation of luminaires, supply and installation of LV switchboards, software update

Reconstruction of the electric fire alarm system (EFS) at production sites AD5, AVD5 and AVD6

- Achievement of the required fire safety within the territory of SLOVNAFT, a.s. in accordance with the fire safety project and applicable legislation in the form of turnkey construction
- Construction of cable routes, supply and installation of cabling, supply and installation of EFS components, supply and installation of LV switchboards, software update, recovery

Duslo Šaľa plant



Duslo Šaľa - boiler house with new K8 boiler



Slovnaft Bratislava plant



References



POZAGAS a.s.,
pressure transmitters



U.S.Steel Košice
plant



Renewal of LV
distribution lines
Nafta a.s.



Water slalom
complex in Liptovský
Mikuláš

POZAGAS a.s

- Installation of pressure transducers on the intermediate columns of selected ZS6 probes - project documentation and execution of the work
- Supply and installation of actuators on GU MS Láb IV (HAZOP) - delivery, installation, tests
- Installation of pressure transducers on the intermediate rings of groups of selected ZS6 probes - 2nd stage - project documentation and the work execution, realization of pressure transducers replacement and completion of measurements with connection to technology
- Reconstruction of monitoring and level control of sprayed TEG from RK1AB - ensuring the transmission of new signals to the control systems and the control centre
- Replacement of lights in collector room ZS7
- Safety shutdown of MS Láb IV – Design documentation DD - processing and implementation of the work
- Installation of pressure transducers on ZS7 probe intermediate rings - DD processing and execution

Nafta a. s.

- Overhaul and modernisation of compressor unit TK8 - preparation of project documentation for the electrical part
- Reconstruction of LV wiring of probes ZS1 - preparation of project documentation
- Renewal of electric fire alarm system (EFS) control panels at ZS1 and ZS2 - supply, installation
- Renewal of LV distribution of probes ZS1 - delivery of 9 pcs of switchboards, replacement of cable lines between the supply centre ZS1 and individual probes on clusters D, E in Suchohrad and Jakubov, replacement of radio communication for data communication via fibre optic cables
- Replacement of the GDS and EFS at the ZSG2 centre - replacement of the electric fire alarm system and gas detection system, supply, installation

- Replacement of GDS and EFS at CAPZZP Láb - Plavecký Štvrtok - replacement of electric fire alarm system and gas detection system, supply, installation
- Pressure measurement at the intermediate probe rings of the 3rd construction - addition of pressure sensors at ZS3 and ZS4 centres, installation and commissioning, modification and addition of lightning conductors
- Lighting of the KS TK3-6 building - elaboration of the DD and implementation of the work
- Rehabilitation of control stations of ZSG2 probes

U. S. Steel Košice

Repair of wiring, measurement and control and auxiliary drives for turbocharger TD5

- Supply and installation of internal wiring, cable support systems
- Supply and installation of rotor actuator, temperature and pressure sensors, electro-pneumatic actuators in explosive atmospheres
- Supply and installation of LV switchgear and control system with Symatic S7 visualisation

Reconstruction and modernisation of the boiler house Stage 1 – Boiler K7

- Supply and installation of internal wiring and cable support systems
- Supply and installation of lights and electrical equipment
- Supply and installation of LV switchboards
- Supply and installation of central battery system

Repair of RS1V and RS2V control on URS

- project documentation preparation
- Supply and installation of new pressure and temperature sensors, replacement of actuators for RS1V and RS2V
- Supply and installation of control cabinets for RS1V and RS2V actuators
- Wiring of RS1 and RS2 actuators in the substation.
- Reconstruction of field no 3 in the control room
- Complete replacement of cables and cable routes

Dust removal from the charred coal system at VKB 1 and VKB3

- Supply and installation of indoor and outdoor lighting and socket wiring
- Supply and assembly of cable lines
- Installation of switchboards and local control cabinets
- Supply and assembly of lightning conductor
- Supply and installation of I&C cabling
- Supply and installation of an electric fire alarm system
- Commissioning, inspections, participation in testing

Repair of switchboard RM071 for EN2 and cable rooms

- project documentation preparation
- Disconnection and dismantling of the original RM071 switchboard
- Dismantling of original cabling and fire barriers
- Supply and installation of a new RM071 switchboard
- cabling connection and restoration of fire barriers
- CHÚV Heating Plant – repair of the cable space under substation R013
- Inspections, tests, training

Repair of P22 drives

- Supply and installation of cable routes
- Supply and installation of I&C cabling
- Supply and installation of power cabling
- Installation of switchboards and local control cabinets

Slovenská kanoistika – water slalom complex in Liptovský Mikuláš

Reconstruction and modification of the object on the Váh River - the electrical part, the implementation includes the development of project documentation and delivery of the HV transformer station, LV switchboards and LV wiring, measuring and control system for monitoring and controlling the valves position, water level and pump performance

Carmeuse Slovakia



Carmeuse Slovakia, s.r.o.

PS608 - LV Fuel management for new shaft furnaces

- Supply and installation of LV switchgear measurement distributor
- Supply and installation of CIS control information system switchboards
- Installation of new cable routes to the technology in question
- LV cable connections
- Connection of the new equipment supplied to the earthing network
- Revitalisation, participation in FAT tests

PS606 - Transport and treatment of lime for new shaft furnaces

- Installation of LV switchboards
- Installation of DT switchboards I&C
- Installation of RIO stations and SOCOMEC boxes
- Supply and installation of cable routes
- Supply and installation of LV cabling
- Participation in tests

Mondi SCP a.s., Ružomberok

Investment project ECO plus PM19

- New container for white lye – electro and ICS parts – connection of technological equipment, manufacture and installation of new switchboard, installation of frequency converters, supply and connection of cabling, supply and installation of cable routes, supply and installation of heating cable
- connection of field instrumentation, manufacture and supply of the pooling cabinet, supply and laying of cables, supply and installation of cable routes, supply and installation of a new air distributor and air distribution lines for valve control
- supply and installation of lights for the building
- Modifying the distribution system of the power supply in data centres, reducing the risk of service or UPS failure by splitting the backup voltage supply into two different buses

TRANSPETROL, a. s.

- Reconstruction of switchboards RM416, RU2 a RU4 in PS4 Tupá
- Reconstruction of I&C – replacement of outdated elements of instrumentation and control in 24 stations on the crude pipeline of the route Tupá-Bučany-Slovnaft Bratislava

FORTISCHEM a. s.

- Operational power distribution and I&C for holding tanks – installation of a pumping and monitoring system for newly built holding tanks used for filling railway and road tankers with chemicals
- Level measurement – Warehouses and handling areas of ZP – implementing the part of instrumentation and control within modernisation of the plant
- Modernisation of the DMV monitoring system – implementing the part of instrumentation and control of the plant modernisation

Jaguar Land Rover Slovakia s.r.o.

- JLR Nitra Paint Shop – project development and installation of new TAP OFF BOXES on the existing BUS BAR and modification of switchboards PTS MDB-LV-002 and PTS MDB-LV-004 to connect the new line.
- Reconstruction of damaged cable routes and emergency lighting lines
- Implementation of emergency lighting of the new line in the JLR Nitra Paint Shop
- Implementation of work area lighting in JLR Nitra Paint Shop

Minebea Slovakia s.r.o.

Production plant for mechatronic drives UB

- Supply and installation of two substations
- Supply and installation of HV distribution lines
- Supply and installation of external LV distribution lines
- Supply and installation of external low-current distribution lines
- Supply and installation of public lighting
- Supply and installation of lighting and socket installation
- Supply and installation of low-current installation
- Supply and installation of heavy-current distribution systems for technology
- Supply and installation of EFS
- Supply and installation of HSP
- Supply and installation of CCTV system

Adler Pelzer Automotive Slovakia, s.r.o.

Hall BRA1 – HP PELZER – Power supply for technological switchboards

- project documentation
- Supply and installation of LV switchboards (with compensation)
- Supply and installation of cable support systems
- Supply and installation of heavy current power cables including termination

Continental Matador Rubber s. r. o., Púchov

- Supply and installation of electrical equipment (HV switchboards, transformer station, HV transformer)
- Increase of the T28 transformer substation capacity

Production plant
MinebeaMondi SCP
RužomberokPaint shop in JLR
Slovakia in Nitra

References



eustream, a.s.



Eurotalc – talc treatment



Hall FELS in Ilava



Ikea Industry

eustream, a.s.

- Reconstruction of digital protections on transformers T101, T102, T103, T104 and electrical machines ES1, ES2, ES3 at KS01 Velké Kapušany, including design of protections setup, configuration and setup of protections and performance of secondary and functional tests of protections

Eurotalc, a.s.

Talc treatment in Gemerská Poloma

- Supply and installation of complete heavy current and low-current power wiring in six production halls and one administrative building
- Realization of HV connection
- HV relocation
- Supply and installation of heavy current and low-current power wiring as well as fibre optic network wiring throughout the entire complex

Fells Rotaform

Hall FELS in Ilava – power supply of technological equipment

- Supply and installation of transformer and its connection to HV
- Supply and installation of LV switchboard RH03
- Supply and installation of compensation switchboard RC03
- Supply and installation of SIEMENS PS2500/PS1600 busbar system
- Connection of production technology including carrier routes
- Services: project documentation, individual, comprehensive tests, commissioning, personnel training, participation in guarantee tests

Ikea Industry Malacky

Analysis of data collection from HVAC units

- Analysis of possible data collection from HVAC units
- Design of a technical solution for data collection from HVAC units
- Programming and data collection of HVAC units
- Delivery of Wonderware software
- Delivery of application software for Wonderware SW

Essity Slovakia, s.r.o.

PS02 HV connection and switchboards of VH6 substation

- Supply and installation of transformers and their connection to HV
- Supply and installation of HV disconnectors including connection to HV feeder in VH4
- Supply and installation of switchgear in VH6 substation RH11/x and RH12/x fields and their connection to the respective transformers
- Supply and installation of compensation switchboards RC11 and RC12 in the premises of SCA Hygiene Products Slovakia, s.r.o.
- Services: project documentation, individual, complex tests, commissioning, staff training, participation in guarantee tests

New transformer T13 for production hall 4

- Installation of a new kiosk transformer substation
- Installation of HV supply including HV switchboard
- Installation of a compensation switchboard
- Installation of LV switchboard RH13
- Relocation of power supply to equipment from existing transformers
- Construction modifications for the new transformer substation
- Individual, comprehensive tests, commissioning, staff training, participation in guarantee tests

ZF Slovakia a.s.

ZF Levice – Geňa – Reconstruction of main lights ZF Trnava – Overhaul of the lighting in PKW production hall in object No.24

- Removal of the original lights and supply and installation of new lights, PRS and communication wiring for the control system DALI by company Philips

Steam-gas power plant in Malženice

- Dismantling and assembly works of the field instrumentation of the combustion turbine at the power plant in Malženice

Bratislavská vodárenská spoločnosť a.s.

- Replacement of electrical switchboards of trolleys LP 3 pcs and LT 2 pcs at ÚSTP Vrakúňa

Faculty of Electrical Engineering and Information Technology of STU in Bratislava

- Project Revitalization of the interior parts of FEI STU – Data Centre FEI STU – electrical installation works and material supply, electrical power supply distribution, supply and installation of switchboards, tests and revitalization of components, inspection reports

Waste water sewage disposal plants (SDPs)

- SDP Krupina
- SDP Látky
- SDP Čierny Balog

Maintenance, Repairs and Equipment Inspection

Slovenské elektrárne a.s.

- maintenance and repairs of ICS and ELEKTRO – NPP V-2 Jaslovské Bohunice
- maintenance and repairs of ICS and ELEKTRO – NPP Mochovce 1,2
- Overhaul of visualisation PCs and central server at Diesel Generator Station
- Servicing ICS and ELEKTRO equipment and mechanical parts of the equipment at the transfer stations of the Central Heat Supply
- Preventive and corrective maintenance of signalling system of the fire door opening at NPP V2
- Modifications, updating and engineering support of the software and corrective maintenance of the hardware of the technological computer system (TCS)
- Repair of ICS equipment for the information system of the generator in Jaslovské Bohunice
- Servicing, repair and maintenance of equipment of the controlled input system at Mochovce NPP Unit 3,4
- Diagnostics and servicing of GESTRA electrical condensate diverters for SE-EMO
- Diagnostics and servicing of GESTRA electrical condensate diverters for SE-EBO
- Corrective repairs and maintenance of mechanical equipment in local and detached CZT stations
- Corrective maintenance of RS Simatic S7 installed in technological units in SE EBO
- Corrective repair of RS Simatic S7 and its operator stations OS1-OS4
- Performance of post-warranty service repairs of non-block control systems – NPP Mochovce 1,2
- Corrective maintenance of the process computers of the primary and secondary circuit controller system

- Service, maintenance and repair of the controlled entry system and CCTV at 5 EMO34 gates – turnstiles, barriers, card readers, cameras, CCTV
- Assistance in repair of control system equipment in SE-EBO – service work on ICS equipment as required by the operation during and outside GO
- Maintenance work for repairs of ICS equipment in SE EMO – service work on ICS equipment according to the requirements of the operation during the GO
- Conducting repairs, maintenance work and fault elimination on electrical equipment VHV, HV, LV – service work on ELE equipment according to the requirements during and outside the GO
- Repair of technological PCs of non-block systems / outdoor objects – replacement of PCs including development of new software

Jadrová a vyradovacia spoločnosť a. s.

- Repairs and maintenance of electric equipment
- Repairs and maintenance of ICS

Other industry

- **Bekaert Hlohovec a.s.**
 - service and revision works on the plant
 - regular maintenance of HV and LV transformers, HV and LV substations, cleaning of equipment, performance of measurements and inspections of electrical parts
 - regular annual maintenance of LV switchgear, cleaning and electrical measurements
- **NAFTA a.s.**
 - framework contract for the performance of revisions of selected technical electrical equipment in 2021
- **DUSLO a.s.**
 - Waste Incineration Plant and IRGANOX - Service contract for the YOKOGAWA control system - emergency standby, preventive maintenance and comprehensive maintenance of the control system
 - Service repairs on electrical and I&C equipment
 - Service and preventive maintenance of LV switchgears, transformers and busbar systems
- **Fortischem a. s.**
 - Measurement of partial discharges
- **Slovak Technical University in Bratislava / FMST STU Trnava**
 - performance of professional inspections and professional tests of lifting equipment, electrical equipment and performance of inspections of hand tools and electrical appliances
- **Schneider Electric spol.**
 - annual check of Micrologic and SEPAM protection settings in the CLOETTA production hall
- **SEOYON E-HWA AUTOMOTIVE SLOVAKIA s.r.o.**
 - regular servicing of lighting in the production hall, work and emergency lighting, replacement of lights and checking of batteries
- **EnIS J&A s.r.o.**
 - performance of professional inspections and professional tests on the production line for Coissant No. 2 and troubleshooting after professional inspections and specialised tests
- **NOVARES Slovakia Automotive**
 - performance of periodic technical inspections and technical tests on the main switchgear in the NOVARES production hall

NPP Jaslovské
Bohunice



Nafta, a.s.



Duslo Šaľa
plant



Fortischem a.s.





Information system
of the Lietavská
Lúčka - Žilina feeder



Operator workplace
of D1 motorway
Hričovské Podhradie
- Lietavská Lúčka



D1 motorway
Budimír - Bidovce



MIS D1 Trnava
- Horná Streda

Technological Equipment for Road Tunnels, Motorways and Railways

Motorway D3 Žilina (Strážov) – Žilina (Brodno)

Complete supply of the following objects of the technological part of the Považský Chlmec tunnel:

- Complete Electrical Fire Signalling System (EFS)
- Supply, installation of switchboards of the Central Control System (CCS), including the SIMATIC S7 control system
- Programming of the traffic control system and tunnel technology control system
- Supply and installation of illuminated and LED changeable traffic signs
- Dispatcher's telephone
- Visualisation at the Integrated Operator Workstation at the Motorway Administration and Maintenance Centre in Považská Bystrica

Complete delivery of the construction and technological part of the Motorway Information System (MIS):

- Communication and power supply infrastructure
- Supply, installation, integration and management of complete changeable traffic signs
- Road traffic lights
- Technological hubs
- Traffic signal controllers
- Supply, installation, integration and visualisation of weather stations
- CCTV surveillance
- Electrical safety signalling
- SIMATIC S7 control system
- Visualisation at the Integrated Operator Workplace at the Motorway Administration and Maintenance Centre in Považská Bystrica
- Delivery, installation and configuration of a vehicle counter with axle weighing at the intersection in Brodno

Motorway feeder Lietavská Lúčka - Žilina, Stage II, km 4.7 - 7.3, information system of the feeder

- Construction part – supply of power distribution switchboards, power cables, UPS, communication fibre optic cables, earthing
- Construction part – technological equipment poles
- CCTV surveillance
- Road traffic lights
- Changeable traffic signs – lamellar
- Changeable traffic signs – LED
- Signal-circuit controllers
- Technological hub
- Weather station
- Visualization SW for the Integrated Operator Workplace of the Považská Bystrica Motorway Administration and Maintenance Centre

Motorway D1 Hričovské Podhradie – Lietavská Lúčka

- Visualisation SW for Ovčiarsko and Žilina tunnels and adjacent parts of motorway at the Integrated Operator Workplace in Motorway Administration and Maintenance Centre in Považská Bystrica

Motorway D1 Trnava – Horná Streda

- Communication and power infrastructure
- Construction of supporting structures for technological equipment - columns and steel portals
- Technological hubs
- Signal section controllers
- Supply, installation, integration and visualisation of weather stations
- CCTV surveillance
- SIMATIC S7 control system

- Operator workstation including video wall at the Motorway Administration and Maintenance Centre in Trnava
- Visualisation of the motorway part at the operator's workplace
- Delivery, installation and configuration of traffic counters
- Supply, installation and configuration of TNV emergency telephones
- Supply and installation of slat PDZs, including large-area ones
- Supply and installation of LED PDZs
- Supply and installation of LED information panels

Motorway D1 Dubná Skala – Turany, extended workplace SSÚD Žilina

- Connection to MIS optical network
- Power and communication infrastructure
- Operator workstation including video wall at the Motorway Management and Maintenance Centre
- Visualisation of the motorway parts at the operator's workstation

Motorway D1 Budimír – Bidovce

- Communication and power infrastructure
- Road traffic lights
- Technological hubs
- Supply, installation, integration and visualisation of weather stations
- CCTV surveillance
- Electrical safety signalling
- SIMATIC S7 control system
- Visualisation at the Integrated Operator Workplace at the Motorway Administration and Maintenance Centre in Košice
- Delivery, installation and configuration of traffic counter
- Supply, installation and configuration of emergency telephones
- Salt warehouse - integration into RS

References



Highway R2 Kriváň
- Lovinobaňa,
Tomášovce



Rest area on highway
R4 Košice – Milhošť



Tunnel Považský
Chlmec



Project of Bratislava
bypass D4R7

Highway R2 Kriváň – Lovinobaňa,
Tomášovce (section Mýtna – Tomášovce)

- Complete communication and power infrastructure
- Technology nodes
- Controllers for signal sections
- Camera surveillance
- Electrical safety signalling
- LED variable message signs
- Supply, installation and configuration of vehicle counters
- Supply, installation and configuration of a road weather system
- SIMATIC S7 control system
- Visualisation at the operator's unit at the Motorway Administration and Maintenance Centre in Zvolen

Highway R4 Košice – Milhošť, Rest area

- Installation of vehicle weighing system - construction and technological part
- Supply of power switchboards, power cables, fibre optic communication cables, earthing
- LV and telecommunication connection
- Camera surveillance
- Supply and installation of transformer substation
- Supply and installation of outdoor lighting in Rest area

Bypass of Bratislava D4/R7

- Bypass of Bratislava D4 – project documentation in paper for building permits related to Motorway Information System (MIS) (approx. 20 building and technological objects)
- Bypass of Bratislava D4/R7 - processing project documentations (implementation and actual state), complete electrical part, including Motorway and Highway Information System (MIS/HIS) (approx. 350 construction and technological objects)

Supply, installation, servicing and
modification of the road tunnels we have
implemented

Tunnel Horelica

- Servicing changeable traffic signs
- Servicing CCS including visualisation
- Servicing HV parts
- Inspections of electric parts

Tunnel Branisko

- Servicing EFS, non-portable fire extinguishers, HV
- Servicing motorway D1 Studenec – Beharovce
- Servicing motorway D1 Jablonov - Studenec
- Repairs of malfunctions

Tunnel Bôrik

- Spare sources
- Emergency call equipment - SOS cabs
- CCTV surveillance
- Radio link
- Notification circuits - transmission system
- Telephone connection
- Tunnel radio
- Fire doors
- Central control system (CCS)
- Measuring physical quantities
- Traffic signs
- Operator workstation equipment
- Electric fire alarm system (EFS)
- Tunnel lighting
- Tunnel ventilation
- Fire water supply - electrical part
- Outer lighting
- Repairs of malfunctions

Tunnel Považský Chlmec

- Central Control System (CCS)
- Traffic signs
- Electric fire alarm system (EFS)
- Dispatcher's telephone
- Motorway Information System (MIS)
- Repairs of malfunctions

Servicing Motorway Information System
(MIS)

- Motorway D1 part Dubná Skala - Turany
- Motorway D1 part Piešťany - Sverepec
- Motorway D1 part Sverepec – Vrtižer
- Motorway D1 part k Vrtižer – Hričovské Podhradie
- Motorway D3 part Hričovské Podhradie – Žilina (Strážov)
- Motorway D3 part Žilina (Strážov) – Žilina (Brodno)
- Motorway D1 part Važec – Mengusovce
- Motorway D1 part Mengusovce – Jánovce
- Motorway D1 part Studenec – Beharovce
- Motorway feeder Lietavská Lúčka – Žilina, Stage II, km 4.7 - 7.3
- Motorway D1 part Trnava – Horná Streda

Scope:

- Construction part (power distribution boards, cables, earthing)
- Emergency call stands
- Electrical safety signalling
- CCTV surveillance
- Technological hubs
- Changeable traffic signs - lamellar
- Changeable traffic signs - LED
- Road traffic lights
- Radio transmission
- Signal section controllers
- Operator workstation

Supply and installation of automatic traffic
counters

Motorways and highways in Slovakia

- Supply and installation of automatic traffic counters
- Supply of software works
- Testing and commissioning

References



D1 Logistics Park in Senec



Automotive Industrial Park in Lozorno



Photovoltaic power plant in Drahovce



Technical administration

Energy Outsourcing

Comprehensive management of industrial sites

Management of technological equipment of buildings, energy networks of industrial sites, optimization of energy processes, energy supply, on-site energy distribution, engineering and supply activities:

- D1 Park Senec
- Prologis park Bratislava
- Logistic park Sihot - Chocholná
- Headquarters DHL Senec
- Production plant ZF Slovakia Trnava, Levice
- Car industrial park APP Lozorno
- P3 Bratislava Airport
- Mahle Behr Senica

Management and office administration

- Budget preparation and audit
- Recording costs and administration processes
- Coordination of suppliers

Utilities management

- Servicing, maintenance and repairs:
 - HV and LV power distribution systems
 - gas pipelines
 - heating pipeline
 - water pipelines
 - sewage and storm rain drainage

Construction and development of infrastructure in D1 Park Senec

- Communications
- HV and LV power distribution
- Gas pipeline
- Water pipeline
- Intelligent meter data collection
- Sewage and rainwater drainage

Technical management of objects

- Servicing, maintenance and repairs of:
 - Heating systems
 - HVAC and refrigeration systems
 - fire - technical and security equipment
 - compressed air distribution systems
 - electrical equipment HV, LV and I&C
 - lifting equipment
- Professional inspections and professional tests (PIPT) of the selected technical equipment, such as:
 - electrical
 - gas
 - pressure

Non-technical administration of objects

- Waste management
- Maintenance of roads and greenery
- Cleaning
- Guarding service

Energy supply and distribution

- Logistic park D1 Park Senec
- Logistic park P3, Lozorno and Bratislava Airport
- Industrial park DaK Küster, Devínska Nová Ves
- GARBE Industrial real estate
- Shopping centre EUROVEA, Bratislava and City Arena, Trnava
- Shopping centre Galéria Lučenec
- Car industrial park APP Lozorno

Supply of electricity and gas

- Combined supply of electricity and gas
- On-line summaries of electricity and gas
- Notifications of limit and defined parameters

Operation of energy distribution networks

- Establishment of local distribution networks
- Registration of consumption points, certification in accordance with legislative regulations
- Creation and approval of own distribution price lists
- Measuring and billing of consumption
- Energy management via mobile applications and the Power IEM web portal
- On-site energy resources

Operation of water and sewerage systems

- Professional representative for the operation of the public water supply system
- Professional representative for the operation of the public sewerage system
- Servicing, maintenance and repair

Energy audits and optimization services

- Železničná spoločnosť Slovensko, a.s.
- Plastic Omnium Auto Exteriors, s.r.o.
- SLOVALCO, a.s
- ProLogis Slovak Republic
- Faurecia Automotive Slovakia s.r.o.
- IAC Group (Slovakia) s.r.o.

Basic identification of energy management

- Expert assessment of the condition of buildings, technologies and equipment
- Determination of energy performance and savings potential

Establishment of an economically viable savings plan

- Measures without the need for investment
- Low-cost measures and long-term measures

Implementation of energy saving measures

- Coordination of processes, possible financial participation

Operation of energy sources

- Photovoltaic power plants Drahovce
- Photovoltaic power plants Čechánky
- Photovoltaic power plant Šahy

Technical operation of resources

- Ensuring trouble-free operation of resources, servicing, maintenance

Legislative management of resources

- Compliance with legislative obligations of resources, monitoring, billing documents, reporting of mandatory data

References



New Generation
Hospital in
Michalovce



Hospital in Stará
Ľubovňa



New Generation
Hospital in Bratislava



Multifunctional
building Tabáň
in Nitra

Various Projects

Svet zdravia, a.s.

Hospital - Nemocnica Novej Generácie in Michalovce

- Supply and installation of power wiring, cable support systems and installation of ending elements
- Supply and installation of Medical Insulated System
- Supply of UPS
- Supply and installation of LV connection to the new hospital building
- Services: individual, comprehensive tests, commissioning, staff training, participation in guarantee tests

Hospital - Nemocnica Novej Generácie in Bratislava

- Supply and installation of heavy-current distribution of electrical system
- Supply and installation of switchboards
- Supply and installation of Medical isolated system
- Supply and installation of lighting and socket system
- Emergency lighting system
- Services: individual, comprehensive testing, commissioning, staff training, participation in guarantee tests

Pavol Jozef Šafárik University in Košice

- Replacement of the power cable for the Rector's office building
- Cable routes
- Replacement of LV/substation circuit breakers

NSP Sv. Jakuba, n. o., Bardejov

Establishment of a ward for emergency medicine

- Delivery and installation of heavy current power distribution of electrical installation
- Supply and installation of the Medical Insulated System
- Supply and installation of lights and sockets
- Supply and installation of EFS
- Supply and installation of HSP
- Supply and installation of CCTV system
- Supply and installation of public lighting

Capacity building and infrastructure modernisation in Ľubovnianska nemocnica, n. o.

- Supply and installation of new lights and sockets
- LV connection
- Supply and installation of structured cabling
- Supply of UPS
- Supply and installation of Medical insulated system
- Supply of Central battery system

Modernization of infrastructure for more efficient provision of urgent health care in Nemocnica Zvolen, a.s.

Construction of emergency medicine ward, Department of Anaesthesiology and Intensive Care Medicine, reconstruction of operating theatres

- Supply and installation of new lights and sockets
- LV connection
- Supply and installation of structured cabling
- Supply of UPS
- Supply and installation of Medical insulated system
- Supply of Central battery system

Multifunctional building Tabáň v Nitre

- Delivery and installation of heavy current power electrical distribution
- LV switchboards
- Interior lighting
- Earthing and lightning conductor
- Central torch system
- UPS
- Electrical fire alarm system
- Voice fire alarm
- Ramp heating
- CCTV system
- Data distribution

Futball arena in
Košice

KFA - Košická Futbalová Aréna

- Supply and installation of transformer substation
- Delivery and installation of HV switchgear
- Supply and installation of LV switchboards for the main building and additional in-builds
- Implementation of earthing and lightning conductor
- Supply and installation of high-current electrical wiring for playground lighting
- Supply and installation of high-current distribution of electrical, lighting, socket and technological installation
- Supply and installation of emergency lighting system
- Supply and installation of UPS and diesel unit
- Supply and installation of outdoor lighting
- Drawing up of the documentation of the actual execution

Zuckermandel - ČSOB Bank

- Delivery, installation and project of the actual state
- LV distribution
- LV switchboards
- Indoor and outdoor lighting
- Earthing and lightning conductor
- Diesel unit 800 kVA

Zuckermandel - administrative buildings

- Installation of main LV switchboards
- Installation of light switchboards
- Supply and installation of interior lighting
- Supply and installation of PRS (cable routes, LV cables including terminations)
- Connection of technological equipment
- Supply and installation of lightning conductors

Production plant
Cloetta in Levice

Expansion of the plant Cloetta in Levice

PS 200.1 Switching station 22 kV

- Dismantling the control cable connected between thermal protection of the T2 transformer in PTS2 and the trip coil of the switch in the switching station

PS 210 Substation - PTS 10

- Supply and installation of cable lines
- Supply and installation of substation EH3
- Earthing and lightning protection

PS 301 External HV distribution lines

- Supply and installation of cable lines

SO 100 Main building

- Switchboard MCC10
- Cable lines in the hall
- Main coupling

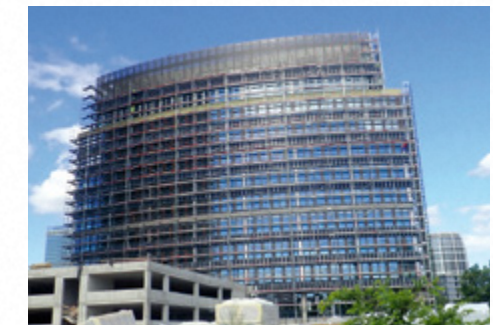
Services: project documentation, individual, comprehensive tests, commissioning, staff training, electrical equipment inspections, cooperation in official testing, technical assistance in the approval procedure

Multifunctional complex KLINGERKA - Building SO 02 - Office building

- Supply and installation of heavy-current distribution of electrical system
- LV switchboards
- Internal lighting
- Earthing and lightning conductors
- Central flashlight system
- Installation of LV terminal elements and switchboards

Eurovea 2

- Supply and installation of electric fire alarm systems
- Supply and installation of voice fire alarm
- Supply and installation of cable routes and cabling
- Supply and installation of low-current distribution systems
- Preparation of the documentation of actual state

Zuckermandel
- administrative
buildingsKLINGERKA
multifunctional
complexAdministrative
building in the
KLINGERKA
multifunctional
complex

References



Final preparation
for the delivery of
switchboards for
Schindler escalators



Assembly hall
of switchboards for
Schindler escalators



Switchboard
manufacturing plant
assembly hall



Visualisation
of the engine room
in the Newhurst
incinerator plant

Production of Switchboards

We are constantly innovating and expanding our competences in the field of quality production and delivery of switchgear in order to meet the expectations and requirements of even the most demanding customers. In 2022, our production portfolio expanded to include the globally recognized SIVACON system - a brand of reliability and quality according to the highest global standards. Thanks to our skilled design team and years of experience in Slovak market and abroad, we have successfully qualified for the Sivacon S8 License, which moved us to the next stage of switchgear production.

SCHINDLER ESKALÁTORY, s.r.o.

- A long-term project for the assembly-line production and supply of switchboards with sensors and controls for escalators supplied throughout Europe. In order to ensure production capacity, the project established a new functional ALPP (Assembly-line Production Plant) in a new hall, which, in addition to the assembly area, also houses offices, a warehouse and an OTTO testing area.

In addition to the references listed for individual customers or projects, LV production and supply for other major projects in Slovakia: hospital - Nemocnica novej generácie Bory, the Bikoš Tunnel, the multifunctional complex Nové Apollo.

Engineering Activities in the Area of I&C and Electro

Providing design, programming, 3D modelling and consultancy services for various customers in the area of energy and industry in Slovakia and abroad: Slovenské elektrárne a.s., Slovaft a.s., Hitachi Zosen Inova, Samsung Engineering Hungary, Ltd., Doosan Energy Solution Kft., Nafta a.s., VUCHT a.s., IDO HUTNÝ PROJEKT a.s., Škoda JS a.s., VUJE a.s., Vertiv Slovakia, a.s., PANTOGRAPH s.r.o., BEZ TRANSFORMÁTORŮ a.s., SEW-EURODRIVE SK s.r.o., SLOVENSKÝ VODOHOSPODÁRSKY PODNIK

Reducing Energy Demands - Operational Programme of Environmental Quality

The projects of lighting and wiring replacement are implemented within the framework of the OPEQ (Slovak Agency for Innovation and Energy and the European Regional Development Fund) in order to reduce energy consumption and achieve the planned savings in operating costs. The aim of the projects is to improve the quality of lighting at workplaces, in particular by increasing the intensity of lighting and improving equal distribution of lighting. The new lighting and wiring reflect the extreme demands of the environment, such as dust, the impact of chemicals, vibration and ambient temperature in order to reduce service interventions to a minimum and to allow cleaning of the equipment with pressurised air or water. Contract implementations cover the replacement of lights and lighting equipment with a substantial proportion of innovative technologies (LED lights, intelligent systems of DALI lights control).

- “Increasing the efficiency of indoor and outdoor lighting of the production units at Saneca Pharmaceuticals, a.s.
- “Building modifications focusing on reducing the energy consumption in AŽD W Poprad, s. r. o. - part 2 Electrical installation”
- “Increasing the capacity of Elementary School at Medzilaborecká 11, Bratislava - Ružinov “
- “Reduction of energy consumption at RONA, a. s. “ – stage 1 and stage 2

Balance Sheet, Profit and Loss Account

Annual Report
2022

Consolidated Balance Sheet ending with the 31st December 2022 in thousands of EURO

	2022	2021
Non-current assets	17.800	18.455
Intangible assets	392	330
Tangible assets	12.944	11.569
Other movable property	3.749	5.304
Goodwill	0	0
Non-current financial assets	2	2
Other financial assets	86	91
Long-term receivables	0	399
Deferred tax assets	627	760
Short-term assets	89.082	94.286
Inventory	8.357	3.777
Receivables	47.356	47.940
Other receivables	2.946	3.263
Short-term accruals	597	500
Cash and bank accounts balances	29.826	38.806
Total assets	106.882	112.741
Equity attributed to shareholders	61.330	59.438
Share capital	1.052	1.052
Fund of exchange differences	96	94
Capital and Statutory funds	312	319
Funds of profit	4.251	4.231
Retained earnings	50.788	46.460
Profit for the period attributed to shareholders of the mother company	4.831	7.282
Equity attributed to non-controlling shares	2	1
Total equity	61.332	59.439
Long-term liabilities	10.307	13.128
Long-term trade and other payables	3.410	5.199
Deferred tax liabilities	140	104
Long-term provisions	6.757	7.825
Current liabilities	35.243	40.174
Short-term trade payables	28.355	32.472
Liabilities to the state	2.079	1.726
Other current liabilities	3.263	2.373
Short-term income and accrued expenses	40	48
Short-term provisions	1.486	1.544
Short-term borrowing	20	2.011
Total liabilities	45.550	53.302
Total equity and liabilities	106.882	112.741

Consolidated Profit and Loss Account ending with the 31st December 2022 in thousands of EURO

	2022	2021
Sales	160.641	146.496
Cost of goods sold	-26.613	-11.800
Shaft material and energy	-50.363	-41.794
External services	-47.387	-47.744
Occupational loan	-31.959	-31.917
Depreciation	-1.627	-1.596
Gross margin	2.692	11.645
Other operating income	5.795	-2.122
Other operating expenses	-918	-256
Operating profit	7.569	9.267
Financial income	950	1.563
Financial expenses	-1.870	-1.594
Profit before tax	6.649	9.236
Income tax	-1.816	-1.953
Profit after tax	4.833	7.283
Shares in associated companies affiliated operations	0	0
Discontinued operations		
Profit from discontinued operations	0	0
Profit for the period	4.833	7.283
Assigned to:		
holders of the parent company	4.831	7.282
non-controlling shares	2	1



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Annual Report Availability

The printed annual report is available at the company's registered office and can be sent by post upon request.
The report can be downloaded in PDF format from www.ppa.sk, Tel.: + 421 2 321 03 138, e-mail: marketing@ppa.sk.

Annual Report
2022

Technology under control

