ANNUAL REPORT 2023

PPACONTROLL®

Managing Director's Statement

Annual Report
2023

PPACONTROLL®
TECHNOLOGIES UNDER CONTROL
INSTRUMENTATION AND AUTOMATION

Assessment of the overall development of the company in 2023

The year 2023 was a challenging, however, successful and even a breakthrough year for the group of PPA CONTROLL. At the beginning of the year, a selected group of managers completed their work, looking at the ideal courses for our future development. The vision of the company got updated, the most important company values were stipulated, many measures were taken and hundreds of decisions were made. One of the objectives of the adopted strategy in section Segment and Service Development was to strengthen our own competences. The opportunity presented itself in autumn 2023 and we successfully accomplished by the purchase of ENERGO CONTROL s. r. o., In addition to our competences, it has also provided us with the expansion of our design, programming and production capacities for the project implementation, primarily in cooperation with our subsidiary PPA INŽINIERING.

It is rather impossible to list all the partial achievements and projects completed in 2023, although there are at least two milestones for which we consider this year to have been a breakthrough year in the group of PPA CONTROLL.

The first is the successful completion of Unit 3 in the Mochovce Nuclear Power Plant. The construction of Units 3 and 4 started many years ago and the employees of PPA ENERGO, s. r. o. were present there from the beginning. 2023 was the year of victorious and longed-for completion of the most challenging construction in the history of Slovak energy and industry.

The second turning point is the fact that in 2023, for the first time in modern history, we surpassed the EUR 200 million annual consolidated turnover threshold.

As in the previous years, a significant share of the PPA ENERGO, s. r. o. sales was accounted for by contracts and technological projects implemented on foreign markets, in particular in the countries of Hungary, Germany, Great Britain, Czechia and France. In Hungary, mainly orders for Samsung Engineering Magyarország were realized. In Germany, cooperation with TESLA GIGAFACTORY BERLIN successfully continued. In France, projects for BUSBAR4F Societa consortile a r.l. and ITER ORGANIZATION France as the end customer continued as well. In the Czech Republic, the NEXEN TIRE project for SAMSUNG was completed in 2023. In 2023, our company started new activities in the UK for HITACHI ZOSEN INOVA AG and for FRAMATOME. In Slovakia, the activities of PPA ENERGO s. r. o. concentrated mainly on the contracts in energy sector, with the successful completion of Unit 3 in the Mochovce Nuclear Power Plant. Moreover, work on Unit 4 will continue in the next period. The company carried out service activities at the Jaslovské Bohunice Nuclear Power Plant and participated in the shutdown works. We also continued in work for Jadrová a vyraďovacia spoločnosť. Major projects were also conducted with customers Duslo, Slovnaft, Nafta, Rona, and for Schindler the production of switchboards was conducted.

Year 2023 was one of the most successful ones in the entire history of the subsidiary PPA POWER DS s. r. o. In the field of energy and media distribution it is an outstanding company on the Slovak market and is a regular partner of major European companies. As an experienced long-term operator of local distribution networks and a manager of industrial and logistic parks, it provides its customers with superior services. In 2023, the company continued to develop its activities and acquired to its customer portfolio the new construction of Eurovea 2 as well as MDS Vranov and MDS Nitra B.

It is also important that after initial fluctuations in the area of commodity sales – electricity and gas, the price of commodities has stabilised. The negative impact of the Ukrainian military conflict in on the economy became fully apparent in 2023. There were also positive aspects, as we saw the emergence of new commercial energy products that were previously inaccessible to some customers or not accessible at all.

In 2023, PPA POWER DS commissioned its own rooftop photovoltaic power plant in the distribution network in Lozorno and, despite strong competition, it won a new contract for the comprehensive management of the EQT Exeter Park logistic park in Senec.

This year, PPA INŽINIERING s. r. o. has maintained its significant position on the transport technology market by implementing the projects R4 Prešov – northern bypass and the Bikoš tunnel. A significant share of revenues was also accounted for by the projects of Bioenergie Wismar in Germany and the projects for VOLKSWAGEN SLOVAKIA, a. s. In the course of 2023, the company acquired an important contract „Technologické vybavenie tunela Višňové", the subject of which was the design and implementation of the complete technological equipment of the Višňové tunnel and the information system of the D1 motorway Lietavská Lúčka – Višňové – Dubná Skala, including warranty service.

The consequences of the war conflict in Ukraine, high price increases, uncertainty on the investments market in energy sector and the decline in service activities had an adverse impact on the orders and operating results of the subsidiary LiV ELEKTRA, a. s. as early as 2022. The following year – 2023 was significantly more successful for the company and it implemented several projects mainly in the field of construction, reconstruction, modernization, maintenance and servicing of electrical equipment, substations and transformers without voltage limitations. Although SEPS and ZSDIS were among the most important customers in 2023 again, the company also continued in expanding its customer portfolio among private companies.

The smaller subsidiaries 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 in 2023 with positive economic results.

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 3 District Court Commercial Register Section Sa, Insert No. 159/B

The Company's basic Values

We want to be the best not only in what we do, but also in how we do it. We want the best in the field and the industry to seek our advice or inspiration, so we could be an interesting source of improvements, innovations and unique solutions for them. In our journey to achieve the goals, we are guided by and adhere to our values, which include:
Stability – which we bring to our customers, employees and shareholders. We are constantly looking for new business opportunities, markets and customers, developing what we are already good at, eliminating shortcomings and developing our competitive advantages based on our own know-how.
Ingenuity – we look for exceptional and efficient technological solutions, create an environment and atmosphere that motivate our employees to be innovative and creative; we anticipate the future needs of our customers and strive to bring positive changes to our operations.
Passion for excellence – we want to amaze with our solutions, their efficiency, originality and uniqueness. We constantly strive for exceptional quality and flexibility, set ambitious goals and enjoy finding solutions to even the most difficult and complex tasks.
Partnership – we strive for partnerships with our customers and suppliers as well as for strong and fair relationships between our employees, which we base on openness, information and trust. We are loyal and do stand by each other in challenging times, we honour and support team spirit, mutual respect and share the same values.

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, š. 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
2023	Acquisition of ENERGO CONTROL s. r. o. and their inclusion into the group of companies in PPA CONTROLL

Corporate Philosophy

As a supply and engineering company in the field of electrical systems, measurement, control and process automation, we have a successful history of more than 70 years. We want to continue to be a source of inspiration for successful technologies and co-create the world of cleaner and more comfortable ones. By providing professional services, we want to help partners streamline their activities and operations, participate in their innovations, reduce potential risks in their operations, streamline energy costs and reduce environmental burdens. We are a team of experts giving life to technologies of the future. In order to fulfil this mission, we create a productive working environment for our employees with a focus on professional and personal development.

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 metalic 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

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 perations, 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, expressed in Ethical Code as well, are shared by the management, senior managers and all employees of the PPA CONTROLL group of companies, which in practice creates a constructive interaction 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 2023 we successfully integrated company LiV ELEKTRA into the management systems of the group of companies PPA Controll, which is acknowledged by the issuance of the joint ISO certificate in integrated management system (IMS). 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

The company's personnel policy in 2023 was focused on motivating and supporting employee engagement, supporting the acquisition of a qualified workforce and working with talent. PPA CONTROLL, a. s. is actively involved in cooperation with technical schools. In order to support students for future careers, we participated in several projects and events for students in 2023.

As of 31st December 2023, the companies in the group of PPA CONTROLL, a. s. employed 785 employees. The Employee Stability Index fell to 66.2 % in 2023 (the percentage of employees who have been working for us for more than 5 years out of the total number of employees). Of the total number of employees, there are 82 % of men and 18 % are women. The average age in our company is 46 years.

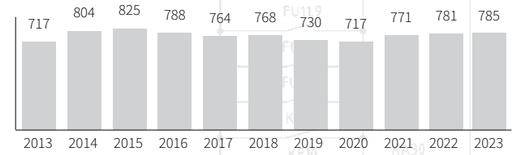
The technical education of our employees and applicants continues to be crucial for us. The most frequently filled positions in 2023 were a designer, a test technician, an electrical equipment inspection technician, and a measurement and control mechanic.

Employee development

Employee education and development continues to be one of the company's top priorities. In 2023, the company prioritized talent development, managerial development, and language education to support foreign markets.
PPA CONTROLL, a. s. invested in education the amound of € 304,687, while the average annual cost per employee was € 388.

PPA CONTROLL, a. s. shows its appreciation and support for the loyalty of its employees in the form of a wide range of benefits focused on health, regeneration, family and sport.

Number of employees in PPA CONTROLL group 2013 – 2023



Number of employees by Education for 2023

	Primary	Secondary	University
2022	6	454	321
2023	1	454	330
in % – 2023	**0**	**58**	**42**

Number of employees by Age for 2023

	18-29 y.	30-39 y.	40-49 y.	50-59 y.	Over 59 y.
2022	73	177	208	210	113
2023	71	185	216	204	109
in % – 2023	**9**	**24**	**28**	**26**	**14**

Number of employees by Gender for 2023

	Women	Men
2022	135	646
2023	138	647
in % – 2023	**18**	**82**

Employee structure by Professions for 2023

	2022	2023
Management	31	37
Sales and Procurement	82	75
Project management	70	85
Designers, programmers	122	121
Administration	99	118
Technicians	126	167
Assembly workers	236	172
Others	15	10
Total	**781**	**785**

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

Ing. Michaela Tavalyová
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. Richard Pavlík
Director of Department for Technological Projects in Power Industry

Ing. Marek Strapec
Director of Business Department

Ing. Stanislav Uhlár
Director of Technical Department

Ing. Roderik Gröne
Director of Department for Contract Realisation

ENERGO CONTROL s. r. o.

Ing. Branislav Babic
Director

Ing. Tibor Fröhlich
Head of Sales Department

Ing. Dalibor Ďurčanský
Head of the Implementation Department

Ing. Ladislav Schlosser
Head of the Technical Preparation Department

Ing. Marianna Straková
Head of the Economic Department

PPA POWER DS s. r. o.

Ing. Marian Hlasný
Executive Director

Ing. Michal Kolimár
Director of Energy Distribution Department

Ing. Michal Vargončík
Sales Director

Ing. Eva Turňová
Director of Economic Department

LiV ELEKTRA, a. s.

Ing. Peter Mekel
Chief Executive Officer and Chairman of the Board of Directors

Martin Latečka
Technical Director and Member of the Board of Directors

Ing. Karol Herchl
Production Director and Member of the Board of Directors

Ing. Jozef Múdry
Sales Director

PPA T&D, s. r. o.

Mgr. Darina Pavlů
Legal Representative of the Company

Ing. Bystrík Berthoty
Legal Representative of the Company

Ing. Erik Vicena
Legal Representative of the Company

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. Vladimír Pánik
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

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Západoslovenská distribučná, a. s.

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

- Ensuring sufficient 110/22 kV transformation capacity for the increasing load on the 22 kV 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 110/22 kV T103 power transformer, which was implemented in the existing R22 kV building. The implementation included dismantling of useless equipment and demolition of buildings.
  The addition of transformer T103 and replacement of transformers T101, T102 2 x 63 MVA with 2 x 40 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 22 kV*
- *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*
  110/22 kV 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 22 kV 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 110 kV side of transformer T103, connection of new field 07 to pre-prepared main busbar extension modules for connection of new field during operation of 110 kV 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 22 kV cabinet HV substation to include the new feeder field of transformer T103, modification of the blocking conditions of R22 kV 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.
- *PS31 Electrical protection*
  Addition of new switchboards to building common operations – R110 kV 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 Ovsište and Podunajské Biskupice. Modifications in the existing switchgears ARE, ASE Protection relay switchgears

Encapsulated station of the Čulenova power station

Transition of HV cable line to HV air line in the village of Lakšárska Nová Ves

Construction of 245 kV ES Opočínek

due to the replacement of transformers T101, T102 and addition of a new transformer T103, modification of the blocking conditions of R110 kV 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 110 kV substation SF6 loss automation and with the extension of the R22 kV 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 R22 kV. 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 4,540 m 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 22 kV HV cable lineNA2XS(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 Opočínek station (P.0457) construction and assembly works

- In association with Bohemia Müller, we conducted the reconstruction of the 220 kV Opočínek 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*
- *SO522.2 245 kV 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*

Operating Files

- *PS12 245 kV substation*
  Complete refurbishment of R245 kV outdoor design with two busbar systems and an auxiliary busbar. The substation has two 220/110 kV 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 245 kV 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 selfconsumption switchboards were gradually replaced, including complete LV cabling and diesel generator.

New transformer
Duslo Šaľa

Control cabinet for generator outlet cell TG-3 Žilina

Excavation work and laying of HV cables – power station Stupava, power station Malacky

Modernization of the distribution network in the municipality of Prietrž

- *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, PDHoverIP were installed.
- *PS65 Transmission equipment*
  New PCM transmission equipment which provides communication of comparison and distance protectors.

Duslo Šaľa, a. s.

Replacement of HT5 and HT6 110/6 kV transformers

- The aim of the project was to replace the original obsolete 110/6 kV transformers of the specification HT5 and HT6, which supplied the local distribution system, with new transformers to ensure reliable distribution of electricity and increase energy efficiency or reduce operating costs. This exchange also included related construction modifications and renovation of the premises where these transformers were located.

Scope of work within the project:

- Construction modifications (repairs and painting of transformer chamber walls, repair of transformer chamber entrance gates, renewal of entrance gate coatings
- Modification of the transformer station
- Delivery and installation of 110/6 kV transformers
- Design and delivery of a ground choke to compensate for ground capacitive currents with the possibility of automatic tuning via IED connection to the existing Information Control System (ICS)
- Delivery and installation of cabling from the transformer control box to the control room in the length of 150 m and to the LV substation of self-consumption approx. 100 m
- Replacement of sinks from 110 kV collectors to transformer feedthroughs
- Addition of the RIO 600 expansion module for oil level signalling
- ICS modification and tests
- Comprehensive functional control tests

Žilinská teplárenská, a. s.

Reconstruction of TG-3 to new parameters

- The subject of the investment project was the reconstruction and repair of worn-out electrical equipment related to the TG3 turbogenerator in Žilinská teplárenská, a. s. The work also included the actual repairs, supplies of materials and spare parts necessary to conduct the reconstruction of the electrical part of the TG3 source on the basis of revision and diagnostic findings concerning the turbogenerator and its parts. The assignment also included the development and submission of project documentation based on which dismantling and assembly work, communication interfaces, all necessary modifications, assembly and repairs, testing and subsequent commissioning were conducted.

Scope of work within the project:

- Necessary dismantling
- Delivery and installation of T40 excitation transformer
- Reconstruction and assembly work related to the HV disconnector for excitation transformer
- Reconstruction and assembly work of the control and signalling switchboard
- Installation work of measuring current and voltage transformers (CT and VT)
- Assembly work for the reconstruction of insulators and power buses
- Reconstruction of the generator node
- Modifications of cable routes, CT and VT cabling, fire penetrations, barriers, earthing in the dungeon generator and other parts of the operation
- Adjustments in the electricity measurement part
- Reconstruction of the TG3 generator cell space
- Testing and commissioning

Západoslovenská distribučná, a. s.

Cabling within ACON projects: BA_A1_nový VNK_ES Stupava_ES Malacky, VNK

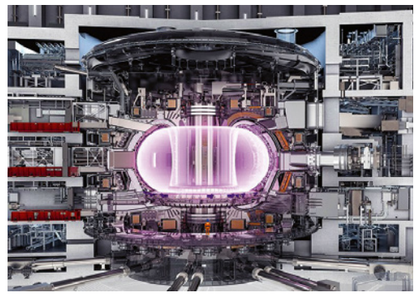
- The investment project called „BA_A1_nový VNK_ES Stupava_ES Malacky, VNK“ was implemented within the so-called Project of Common Interest ACON (Again Connected Networks) for the company Západoslovenská distribučná, a. s. This is a European project funded by the CEF instrument focusing on modernizing distribution systems and applying new communication and intelligent features to the distribution network. The aim of the project is to support the integration of the electricity market in Czechia and Slovakia as well as to streamline the operation of distribution systems in the given territory with regard to reducing losses, increasing the quality and security of supply.
- As part of this investment project, the interconnection of two substations using HV cable lines was implemented as an alternative solution for supplying the 110/22 kV substations in the „no transformation“ mode. The total length of the new HV cable route was approximately 16.5 km and HDPE conduit was laid together in the route in the same length into which the UOC (underground optical cable) was blown. At the same time, as part of the project, the V604 and V145 overhead lines were partially dismantled and the relevant part of the dismantled part was wired with an HV cable. As part of the project, a part of the HV network from the Malacky power plant was also renewed as well by cabling using MV Cable.

Scope of work within the project:

- Excavation work and overpressure
- Laying of HV cable according to PD (project documentation)
- Blowing of the central heating system and appropriate measurements
- Post-implementation geodetic survey of networks
- Electrical installation work
- Backfilling and landscaping
- Dismantling of overhead lines according to PD

Electricity Flexibility Facility in Handlová

CERN European Organization for Nuclear Research, Geneva, Switzerland



Fusion experimental reactor – ITER project

AE Hinckely Point C, Great Britain

Cabling within ACON projects:
SA_A1_Prietrž, V227 ved., NNK, NNV, VNK, VNV

- The investment project called „SA_A1_Prietrž, V227 ved., NNK, NNV, VNK, VNV „ was implemented within the so-called Project of Common Interest ACON (Again Connected Networks) for the company Západoslovenská distribučná, a. s. This is a European project funded by the CEF instrument focusing on modernizing distribution systems and applying new communication and intelligent features to the distribution network. The aim of the project is to support the integration of the electricity market in Czechia and Slovakia as well as to streamline the operation of distribution systems in the given territory with regard to reducing losses, increasing the quality and security of supply.
- As part of this investment project, the modernization of the HV and LV distribution network and transformer stations was conducted in the cadastre of the village of Prietrž. The total extent of replacement and cabling of HV networks was more than 16 km of HV cable and about 450 m of LV cable. As part of the construction, 2 existing transformer stations were replaced with new ones, one completely new substation was established and the technology was replaced with a new one in one substation. The cabling also included laying the HDPE conduit in a common trench with the HV cable and blowing the storage optical cable into the conduit. The old parts of the HV air distribution were dismantled.

Scope of work within the project:

- Excavation work and overpressure
- Laying HV cables according to PD (product documentation)
- Laying of LV cables according to PD
- Replacement of old transformers (TS) with a new TS
- Establishment of a new TS
- Replacement of technologies in the original TS
- Blowing the underground optical cable (UOC) and taking measurements
- Implementation or renewal of earthing
- Post-implementation geodetic survey of networks
- Electrical installation work
- Backfilling and landscaping
- Dismantling of overhead lines according to PD

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EIF SK 02, s. r. o.

Electricity Flexibility Facility in Handlová and Cígeľ

- In the area Hornonitrianskych baní Prievidza, a. s. in Handlová and Cígeľ, there were 2 constructions of „ Zariadenie elektroenergetickej flexibility – Electricity flexibility equipment“ implemented for the purpose of providing support services of the mFRRR type 12.5 min. for the transmission system operator of the Slovak Republic. The purpose of the project was to increase the availability of ancillary services, which is a necessary condition for higher integration of renewable electricity sources into the electricity system of the Slovak Republic.
- The implemented solutions consisted of four diesel generators DG located in front of the building of the 22/6/0.4 kV substation in Handlová, or in front of the building of the existing garages and oil management in Cígeľ. The power output from each DG to the local distribution system was conducted through separate 22/0.4 kV oil transformers with an installed capacity of 1,600 kVA located in kiosks. It was also necessary to build new cable routes, install and revive switchboards and the relevant information and communication Infrastructure.

Scope of work within the project:

- Buildings of T1/T2 and T3/T4 kiosk transformer stations
- Diesel generator stations DG1 to DG4
- Construction modifications in the M0701 converter
- HV cable distribution systems
- HV and LV substation
- Transformers and power output from DG
- ICS and transmission equipment
- Terminal ADCS Automatic dispatcher control system)
- Billing metering
- Grounding network and lightning conductor
- Actual consumption

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 51 km) and 108 pieces of 22 kV cables (more than 41 km) for the pulsed power network (PPEN) – supplying the fusion reactor technologies (66 kV cables from the 66 kV substation and 22 kV cables providing the connection between 400 kV transformers and 22 kV 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

CERN European Organization for Nuclear Research, Geneva, Switzerland

- Supply and production of control and power LV switchboards for cooling systems of CO2 detectors ATLAS and CMS 2PACL in the scope of:
  - Technical design and production of 62 pieces of cabinets
  - Pre-series production of 4 pieces of cabinets, including qualification and certification

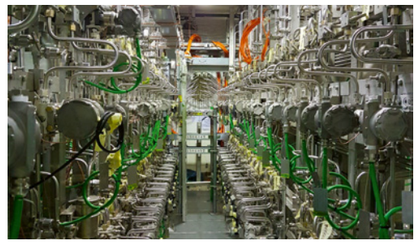
Hinckely Point C Nuclear Power Plant – Great Britain

Electrical installation work on a part of the I&C during the construction of new units

- Creating documentation – workflows, etc.
- Work on HCP
- Installation of sensors
- Laying the cabling
- junction box installation
- Connection to appliances and adapters, coupling

Block supervision room of unit V2 of NPP Jaslovské Bohunice,

NPP Mochovce



Measurement and control technology of NPP Mochovce

Steam generator and impulse tube lines of NPP Mochovce

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Nuclear energy in Slovakia

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

Nuclear Power Plant V-2 – Units 3 and 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
- 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 6 kV safety system switchgear
- Transition cabinets for TJ and super emergency supply pumps (SESP) – preparation of project documentation, execution of works
- Supply of 400 kV 1 GB and 2 GB substation switchgear – preparation of project documentation, supply, installation, recovery, tests
- 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
- 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 cables for 6 kV appliances, excavation and laying works Pečeňady – design, supply, installation, tests
- Removal of backlighting for signalling the status of 400 kV EBO V2 switches and disconnectors – supply, installation, tests
- Replacement of elements and components H3BO3 for concentration measurement – design, supply, installation, tests
- 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 6 kV 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
- Modification of TQ ultrasonic sensors
- Modification of pressure pump displacement measurements – innovation of obsolete pressure sensors.
- Modernization of measuring circuits included in task EBO10432 – Modification of measurements on the discharge of pressure pumps in order to use instruments currently produced, available, supported by the manufacturer, with a higher range and SW adjustment of the measurement range in the technological computer system.

Mochovce Nuclear Power Plant

Units 1 and 2

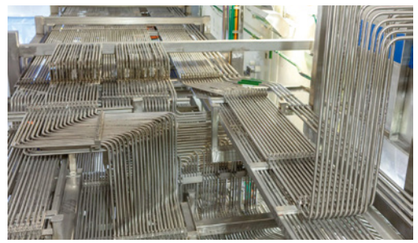
- Repair of cabling for JEC temperature measurements – repair of cabling, supply of new temperature sensors and materials
- Reassessing the classification of ICS equipment – engineering, supply and implementation, testing
- Modification of pump bearing cooling, removal of embedded cooling circuits and modification of electrical supply to boron VT pumps – engineering for ICS and electrical section, execution, testing
- 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
- Supply of two FH2-3A/F fuse disconnectors in DC switchgear due to seismic failure of existing disconnectors
- Resetting of U09 protection for all main supply pumps for Unit 1 and Unit 2 in SE-EMO – processing of project documentation, implementation documentation, quality documentation for selected equipment. Modifications in the BELT control system and testing of the rebuilt main supply pump protections together with commissioning.
- Replacement of automatic starting of DC drives of MAV, MKW oil pumps – delivery of new switchboards and replacement of old switchboards in the number of 12 pcs for both EMO12 blocks. Design, implementation documentation, complete implementation with testing and commissioning.

Units 3 and 4 – Completion:

- Design and engineering activities for the part of ELECTRO and I&C for the conventional and nuclear island, including verification of documentation on the construction site.
- 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 110 kV back-up power substation
- Reactor protection system (RRCS) – supply and installation of cabling

General deliveries in the energy sector

Tanks of emergency systems of NPP Mochovce



Impulse tube routes of NPP Mochovce

Heating plant in Martin

Cogeneration units in the Martin heating plant

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- 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 (6 kV, 0.4 kV, 24 V, protection elements, measurement and synchronization), transformers, impulse lines, earthing, support for commissioning
- 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

Unit 3 – support for the commissioning of the unit

- Validation and verification of measurement circuits (I&C, INCORE, EXCORE and noise diagnostics)
- Activation and adjustment of the end positions of actuators (shut-off and control servo drives, high-speed valves and non-return valves)
- Participation in automation tests, technological and pressure tests
- Changes in sensor ranges, configuration and setting of parameters for special measurements according to customer needs
- Activation and calibration of chemical measurements
- Activation, calibration and adjustment of air conditioning systems
- Shift support for 24/7 operation during the hot hydrotesting, physical start-up and energy start-up phases, for the area of actuators and I&C
- Finding errors, removing defects and backlogs found in the commissioning process

Jadrová a vyraďovacia spoločnosť a. s. Bratislava

- 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

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

Thermal power plant Planta Centro, Venezuela

Thermal power plant Felton, Cuba

Building of the heating plant of Slovenské cukrovary Sereď

Steam boiler room in the heating plant of Slovenské cukrovary Sereď

Power plant Planta Centro, Venezuela

Reconstruction of 400 MW boiler No. 5

- 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 +6.1 m
- 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

Thermal Power Plant Felton, Cuba

- 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

Tepláreň Slovenských cukrovarov, Sereď

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
- Delivery and installation of the CS for technological processes including a new part of the Emerson superior control system
- Upgrade of an existing Emerson superior control 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

Hydroelectric power plants HPP

- Reconstruction of excitation controllers HPP Mikšová 3 x 31 MW – electrical installation works
- Modernization of alarm controllers HPP Nové Mesto nad Váhom TG1, TG2, HPP Horná Streda TG1, TG2, HPP Dubnica nad Váhom TG1, TG2
- New cable routes
- Cable laying
- Switchgear replacement

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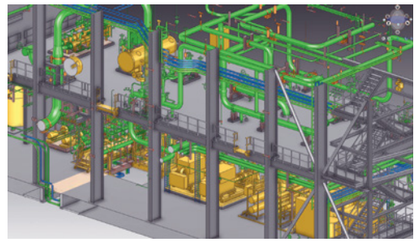
Municipal waste incinerators

Project Incinerator Newhurst, UK



Visualisation of the engine room in the Newhurst incinerator plant

Project Incinerator NEWHURST (Great Britain)

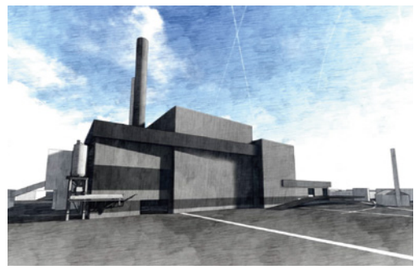
Engineering activities and electrical installation works on the project for construction of a recovery plant for municipal and commercial solid waste, in the scope of:

- 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 Newhurst, UK

Project Incinerator SLOUGH MULTIFUEL (Great Britain)

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



Slough Multifuel Incinerator, UK

Westfield Lot 9 DNO Works (Scotland)

- Installation of switchboards
- Cable pulling
- Installation of cable routes
- Installation of arc flash duct – production of the actual state after implementation

SKELTON GRANGE Incinerator Project (United Kingdom)

Delivery and installation of electrical installation on the project of construction of a facility for the recovery of municipal solid waste, in the scope of:

- Production, supply and assembly of junction boxes
- Installation of encapsulated conductors, delivery and installation of main and secondary cable routes, earthing, instruments, components, impulse lines
- Laying of HV, LV, communication cables (I&C and optical fibres) including their connection
- Sealing fire passages in e-houses and ducts
- Cable testing in accordance with BS 7671
- Engineering support during the implementation of the work

Derby&Derbyshire – waste incinerator (Great Britain)

Supply and installation of electrical wiring:

- Manufacture, supply and installation of switchboards, junction boxes, switch boxes
- Supply and installation of UPS 110 V DC and 400 V AC
- Supply and installation of armoured cables, cable support systems for low voltage distribution, instrumentation and fibre optic networks
- Testing of cable systems, instrumentation and optical networks
- Engineering support for design and installation
- Preparation of documentation of the actual state

Skelton Grange Incinerator, UK

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Car battery factory in Göd, Hungary

Nexen Tire production plant, Czech Republic

Project biomass boiler Wismar, Germany

TESLA GIGAFACTORY electric vehicle factory Berlin, Germany

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INSTRUMENTATION AND AUTOMATION

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

New gatehouse for Complex 2, Göd (Hungary)

- Grounding and lightning conductor
- Production of LV switchboards
- LV distribution
- Main and emergency lighting
- UPS, Delivery & Recovery

Battery Components Factory, Nyíregyháza (Hungary)

- Designing cable routes, cable lengths and dimensions
- Production of LV switchboards
- Installation of Cable Routes
- HV and LV distribution
- Installation of the Equipotential network for appliances and switchboards
- Installing Hilti Cable Routing Construction
- Installation of underground pipes for cables

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 6 kV and 22 kV, 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 grounding and lightning conductors
- 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
- Power supply and implementation of photovoltaic panels
- Delivery and installation of air conditioning
- Supply and installation of piping

Wismar (Germany)

New biomass boiler project for combustion wood pellets

- Installation in the transformer station of turbo generator and LV power output
- Supply and installation of main and secondary cable routes
- HV installation, delivery and installation of LV and I&C distribution systems
- Supply and installation of external low-current ducts
- Installation and wiring of MCC switchboards
- Supply and installation of high-current distribution systems for technologies
- Assembly and wiring of RIO control cabinets in the field
- Testing of cable systems, instrumentation and optical networks

Audi Neckarsulm (Germany)

Delivery and implementation of electrical installation for Audi Neckarsulm painting systems:

- Delivery and installation of cable routes
- Delivery and installation of main and secondary power cable lines
- Delivery and installation of low-current cables and connection of technological equipment
- Delivery and installation of communication cable lines

Duslo Šaľa – boiler house with new K8 boiler

Slovnaft Bratislava plant

POZAGAS a. s., pressure transmitters

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
- **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
- **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
- **New electro-fire alarm system (EFS)**
- **Upgrade SW Močovina**
  Supplies of materials and services related to the upgrade of DCS YOKOGAWA at the operation of SBU A – Močovina – project documentation, documentation of actual delivery, automated technological process control system (ATPCS), material supply, production of switchboards, FAT test, assembly on site, OPOS, tests, processing of SW DCS YOKOGAWA, cyber security of DCS YOKOGAWA
- **Reconstruction of the Irganox barrel filling line,** supplies of materials and services related to the reconstruction of the barrel filling line at SBO – IRGANOX – barrel filling plant – project documentation of processing, documentation of actual delivery (electrical, I&C, ATPCS and machine), material supplies – control system, devices, electrical; production of the barrel filling machine structure, switchboards for control, assembly at the plant, OPOS, tests, processing of SW control system SIEMENS, security of control system SIEMENS
- **Delivery of measuring instruments and frequency converter for the new boiler K8** – comprehensive supply of pressure, temperature, flow and frequency converters sensors for the new boiler K8 part I&C and electrical, current condition, sensors and frequency converters were delivered and installed on the new boiler K8

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

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

Online corrosion monitoring system
- Installation of sensors for corrosion measurement on pipes, including the installation of cable routes and cabling

POZAGAS a.s

- 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.

- **HAZOP measures on CS** – Implementation of the project developed by NAFTA. Installation of new static pressure transducers and temperature converters for TEG degassers H01/1, H01/2, H01/3 and condensate separators H02/1, H02/2, H02/3 in CS PZZP Láb with remote data transmission to the Operating Control System
- **Replacement of EFS cabling at the Centrálny Areál Gajary operation** – Operative provision of replacement of the damaged cable on the existing EFS – Centrálny Areál Gajary
- **Semi-annual inspection of EFS and GDS at ZSG2** – Ensuring the performance of regular periodic inspections on the Electronic Fire Alarm System and Gas Detection System implemented by us
- **Renewal of lightning conductors and earthing of 3rd level probes – part 1.** – Implementation of the project developed by NAFTA – construction of a new network of lightning conductors and earthing for probes of storage centres of the 3rd construction

Nafta a. s.

Renewal of NN distribution lines Nafta a. s.

U. S. Steel Košice plant

Mondi SCP Ružomberok

- **Reconstruction of I&C distribution systems on CS PZZP Láb – Stage 5** – Installation of DT-RIO1-KOT of the project developed by NAFTA – replacement of the existing cabling in the Central Station of Underground Natural Gas Storage in the area of the boiler room hall with a system of remote inputs and outputs (Remote IO). Commissioning
- **Addition of lightning conductors at ZS1, ZS2, ZS4 centres** Implementation of the project developed by NAFTA – construction of a new network of lightning conductors and grounding for storage centres ZS1, ZS2, ZS4
- **GO and modernization of TK8 – Exhaust tracts – earthing** implementation of the project developed by NAFTA – construction of a new network of lightning conductors and earthing to protect the TK7–8 building, including chimneys from the effects of atmospheric electricity – construction of interceptors, downpipes, earthing
- **Reconstruction of GDS – compress room system at Gas Collection Centre Gajary – Baden** – Elaboration of the implementation project, provision deliveries, materials and project implementation. The project dealt with the replacement of the sensors of the Gas Detection System at the Gas Collection Centre Gajary-Baden centre in the compressor building and the delivery of the Gas Detection System control panel
- **Measurement of pressure on the rings of probes of the 3rd** construction, renewal of lightning conductors and earthing of probes – Implementation of the project developed by ARTex – construction of a new network of lightning conductors and earthing for probes of storage centres of the 3rd construction
- **Replacement of LV switchboards RM318, RM328 and RSB** Elaboration of the implementation project, deliveries, materials and project implementation – production of new switchboards, implementation of switchboards and cables
- **Renewal of detectors EFS – ZS2** – Elaboration of the implementation project, provision of supplies, materials and works. The subject of the project was the renewal of the Electronic Fire Alarm equipment at the ZS2 centre – replacement of flame and push-button detectors in the outdoor environment
- **Restoration of lightning conductors and earthing of probes of the 3rd construction – part 1** – Implementation of the project developed by ARTex – construction of a new network of lightning conductors and earthing for probes of storage centres of the 3rd construction
- **Renewal of lightning conductors and earthing of probes of the 3rd construction – 2024** – Development of the implementation project, provision of supplies, materials and works. – Construction of a new network of lightning conductors and earthing for probes of storage centres of the 3rd construction
- **Pressure measurement on the rings of probes of the 3rd construction – 2023** – Implementation of the project prepared by PPA and ARTex, installation and commissioning of pressure sensors on the probes of the 3rd construction, addition of earthing and lightning conductors
- **Restoration of recovery boiler 2, 3 – contractor** – Implementation of the project of mechanical, construction, electrical and I&C parts according to the project of GasOil Technology. Commissioning
- **Renewal of LV distribution of ZS1 probes on routes A, B and C** – Preparation of project documentation, installation of new LV and data switchboards, installation of lightning conductors, replacement of LV cables, construction of a new optical network on Trsy A, B, C of the ZS1 centre, commissioning

U. S. Steel Košice

Repair of wiring, measurement and control and auxiliary drives for turbocharger TD1, TD2, TD3, TD4 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 PZ2 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

Mondi SCP, a. s., Ružomberok

Investment project ECO plus PM19

- New Speed Sizer PM18, Mondi SCP a. s. part: PRS
- Operating power distribution, atpcs pre project new hp pipeline from RB3 to TG 1, 2
- Electrical, ATPCS and construction electrical installation work for the NEW 500 M3 NAOH TANK
- New small PM17 rewinder

Carmeuse Slovakia

Production plant Minebea

Control system, KOSIT, a. s. Košice

Eurotalc – talc treatment

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Carmeuse Slovakia, s. r. o.

Vápenka (limeworks) Košice: 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

Vápenka (limeworks) Košice: 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

Vápenka (limeworks) Slavec: Automation of the Slavec Plant – Lime Mill and Hydration Station
- Preparation of implementation project documentation for HV, LV, I&C
- Delivery and installation of HV/LV transformer 1,600 kVA
- Delivery and installation of LV RM switchboards
- Delivery and installation of DT and RIO I&C switchboards
- Delivery and assembly of I&C field elements
- Supply and installation of frequency converters and motors
- Supply and installation of cable routes
- Delivery and installation of HV, LV and I&C cabling
- Activation, testing, training

KOSIT, a. s. Košice – ENERGY USE OF BOILER K1

Power supply and control of electrical equipment of the new steam turbine with 999 kW generator
- SO 01 New construction and motor wiring in the affected premises
- PS 05 Turbine power output to the RM 1.3 switchboard in the electrical substation
- PS 06 I&C – Elements of the I&C field for control of control circuits and detection of operating and fault states of the technology, including HW supplementation of the control room and SW programming
- Activation, trial operation

VOLKSWAGEN SLOVAKIA, a. s.

Expansion of production capacities – extension H7C, H7D
- Delivery of lighting installation by VAGO control system
- Delivery and installation of outdoor lighting
- Delivery and installation of emergency lighting using the Central Flashlight System
- Delivery and installation of HV, LV, IT cable routes
- Delivery and installation of HV and LV cable distribution
- Supply and installation of 400 V, 230 V socket distribution
- Connection of technological distribution
- Delivery and installation of a 400 V battery-powered connection system
- Delivery and installation of LV switchboards
- Delivery and installation of grounding and lightning conductor
- Construction of 10 transformer stations, of which 8 for halls H1 and 2 for halls H7C and H7D
- Installation of HV terminals
- Installation of dry type transformers from TMC Transformers SpA
- Installation of HV switchboards (8 Siemens NXAir switchboards and 2 PIX switchboards from Schneider Electric)

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

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

Transformer station
TS 13, Essity Slovakia

Production plant
Cloetta in Levice

FELLS Ilava plant

Ikea Industry

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Fells Rotaform

Hall FELLS 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

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

TAURIS, a. s. Rimavská Sobota

Lightning conductor transformer stations and workshops Rimavská Sobota
- Implementation of a distant lightning conductor at the technological operation in the plant in Rimavská Sobota
- Official exam

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

ZEOCEM, a. s. Bystré

Electrical installation, lightning conductor and LV connection of the KlinomixGranul mixing line
- Delivery and implementation of cable carrier routes
- Delivery, implementation of cabling
- Adjusting the pins of the power array
- Construction wiring and lightning conductor
- Testing, commissioning

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 Vrakuňa

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

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

New Generation Hospital in Michalovce

New Generation Hospital in Bratislava

Hospital in Stará Ľubovňa

Hospital in Zvolen

Healthcare

Svet zdravia, a. s.

New Generation Hospital 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

New Generation Hospital 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

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

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NPP Jaslovské Bohunice

Nafta, a. s.

Duslo Šaľa plant

NPP Mochovce

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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 nonblock 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 SEEBO – 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
- Diagnostics and servicing of electrically operated MO34 drainage valves
- Corrective repair of condensate drains during the general outage and outside the general outage of Units 3 and 4 of Bohunice NPP
- Servicing of non-block control systems
- Corrective maintenance of SIMATIC systems in SE EBO
- Corrective maintenance of CS Simatic S7 on technological water units, HVAC, chemical water treatment, TAPROGE, radio-active waste bottling station at Units 3 and 4 of NPP V2, central supply station EBO V2
- Corrective repair of CS Simatic S7 and its operator stations OS1, OS2, OS3, OS4 – unmanned operation and remote control of the equipment of Drahovce and Pečeňady nuclear power stations for the EBO V2 NPP
- Preventive and corrective maintenance of the fire door opening signalling system
- Corrective repairs and maintenance of machinery of local and detached DH/OST stations
- Implementation of automatic pump start of low-pressure emergency core cooling system in mode 6 – emergency reactor cooling system with automatic start refuelling the coolant in the case of a supercooled sealed reactor in the event of a LOCA type leak has not yet been solved for the R6 mode
- Service interventions on SAM DG equipment in SE-EMO – diesel generator service in Mochovce NPP – during emergency conditions
- Performance of maintenance and interventions for 6 kV electrical switchboards of Unit 3 EMO – annual maintenance on 6 kV NPP EMO3 actual consumption switchboards, cleaning, diagnostics, tests of protection and automation

Jadrová a vyraďovacia spoločnosť a. s.

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

Other Industry

- **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
- **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
- **Bekaert Hlohovec, a. s.** – Replacement of a part of HV cables for Transformers T181 and T182 – replacement of 6 kV power cables
- **Schneider Electric Slovakia, spol. s r. o.** – HV service during a company-wide shutdown – Maintenance of HV switchboards with control of electrical protections – regular maintenance of HV switchboards, testing of digital protections
- **EnIS J & A s. r. o.** – OPOS switchgear – performance of periodic inspections
- **Bekaert Hlohovec, a. s.** – Maintenance of transformers and substations R1, R3, R5 and LV switchboards for cords during the summer holiday in the company – regular annual maintenance of substations in the Bekaert Hlohovec plant – cleaning of transformers, oil samples, measurements
- **Gestamp Nitra, s. r. o.** – Performance of periodic OPOS – performance of periodic revisions of SKR switchboards and lighting in GESTAMP
- **EnIS J & A s. r. o.** – Dismantling and installation of 2 new 22 kV bays in the switching station – replacement of 22 kV switchgear bays – feeders, old bays were replaced with new ones with digital protections
- **ELMONT – ZH, spol. s r. o.** – Inspection and maintenance of HV/LV equipment in the Cloetta Levice plant – regular maintenance of HV/LV equipment – inspection of protective relays in the Cloetta – Levice plant

Tunnel Bikoš

ISRC R4 Prešov – northern bypass

D1 motorway Budimír – Bidovce

MIS D1 Trnava – Horná Streda

Technological Equipment for Road Tunnels, Motorways and Railways

Motorway R4 Prešov – Northern Bypass (km 0 – 4.3)

Complete delivery of the technological part of Bikoš tunnel (2 x 1,150 m):

- Complete HV, LV power supply system
- Backup power supplies: Diesel generator, UPS
- LED-based tunnel main lighting system
- Tunnel ventilation and cross-connection ventilation system
- Measurement of physical quantities
- Delivery, installation of switchboards of the Central Control System, including the SIMATIC S7 control system
- Programming of traffic control system and tunnel technology control system
- Delivery and installation of illuminated and LED variable traffic signs
- Complete Electrical Fire Alarm System (EFS)
- Emergency call devices – SOS cabins
- Tunnel announcement system
- Camera surveillance with automatic incident detection
- Radio communication and broadcasting system of radio stations
- Dispatch phone
- Visualization at the Regional Operator‘s Office at the Highway Administration and Maintenance Centre in Prešov
- Ventilation and air conditioning of the operational-technological building
- Fire water supply – electrical part

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

- Communication and power infrastructure
- Delivery, installation, integration and control of complete variable traffic signs
- Traffic lights
- Technological nodes
- Signal cut controllers
- Delivery, installation, integration and visualization of weather stations
- Camera surveillance
- Electrical signalling
- SIMATIC S7 control system
- Visualization at the Regional Operator‘s Office at the Highway Administration and Maintenance Centre in Prešov

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 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

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

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Highway R2 Kriváň – Lovinobaňa, Tomášovce

Rest area on highway R4 Košice – Milhosť

Tunnel Považský Chlmec

Operator workplace of D1 motorway tunnel Považský Chlmec

Highway R4 Košice – Milhosť, 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

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, 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

Technical and hygienic maintenance of railway rolling stock in Zvolen

- Supply and installation of lighting towers
- Supply and installation of luminaires
- Delivery and installation of HV connection
- Delivery and installation of electrical pre-heating system distribution
- Delivery and installation of SPC distribution systems
- Delivery and installation of LV distribution systems
- Relocation of cables MK – ŽSR, RK – ŽSR

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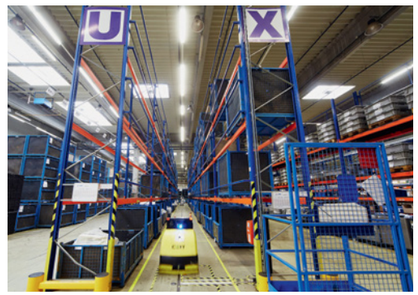
D1 Logistics Park in Senec



Automotive Industrial Park in Lozorno

Photovoltaic power plant in Drahovce

Technical administration

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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 Sihoť – 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

Optimalization 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 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

Multifunctional building Tabáň in Nitra

NTC Košice

Zuckermandel – administrative buildings

Multifunctional complex KLINGERKA

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Various Projects

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

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

NTC KOŠICE

- Heavy current, grounding and lightning conductor – implementation of high-current distribution, lighting and emergency lighting in the operational building and in the tennis hall, connection of technological equipment, delivery and installation of LV switchboards, delivery and installation of CBS system, lighting control by the DALLI system, performance of necessary tests and measurements
- External LV distribution – earthworks related to the laying of supply cables for outdoor lighting switchboards, area outdoor lighting and other technologies in the exterior, performing the necessary tests and measurements
- Relocation of LV and HV networks – earthworks associated with the laying of LV/HV cables and their completion in external switchboards, performance of necessary tests and measurements
- Public lighting – earthworks related to the laying of supply cables and grounding of the outdoor lighting masts, their installation, installation and connection of outdoor lighting switchboard, performance of necessary tests and measurements
- Area lighting – earthworks related to the laying of supply cables and grounding of area outdoor lighting masts, their installation, installation and connection of luminaires and switchboards setting of outdoor lighting, control by the DALLI system, performance of necessary tests and measurements
- Replacement of substitute energy source, delivery and installation of diesel generator in accordance with the valid project documentation, performance of necessary tests and measurements

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 – 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

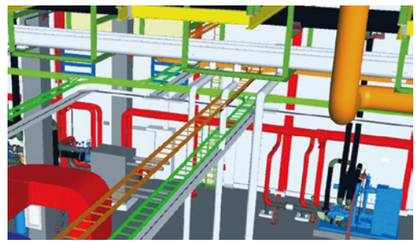
Multifunctional complex KLINGERKA – Building SO 02 – Office building

- 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

Final preparation for the delivery of switchboards for Schindler escalators

Assembly hall of switchboards for Schindler escalators

Switchboard manufacturing plant assembly hall



3D model of cable routes and supporting structures in a car battery plant for PHEV Nyíregyháza

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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:

- **Bikoš tunnel** – delivery of technological switchboards
- **Multifunctional complex Nové Apollo**
- **TESLA Gigafactory Berlin**
- **Volkswagen** – switchboards for LV power supply technology of the Volkswagen car production plant
- **České Budějovice Heating Plant** – LV switchboards for K12 boiler retrofit
- **CERN** – delivery of control and power LV switchboards for cooling systems of CO2 detectors ATLAS and CMS 2PACL
- **ITER** – delivery of LV switchgear for the cooling system technology (TCWS) of the Tokamak fusion reactor, including successfully assessed samples of magnetic, seismic, EMC qualification
- **NEXEN TIRE** – supply of technological switchboards for power supply, automation and control of technologies in the Nexen industrial plant

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.,
Slovnaft, a. s.,
Hitachi Zosen Inova,
Samsung Engineering,
Nafta, a. s.,
VUCHT, a. s.,
Škoda JS, a. s.,
VUJE, a. s.,
Vertiv Slovakia, a. s.,
PANTOGRAPH, s. r. o.,
SLOVENSKÝ VODOHOSPODÁRSKY PODNIK, š. p.,
Mondi SCP, a. s.

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 s 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.”**
- **“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

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Consolidated Balance Sheet ending with the 31st December 2023 in thousands of EURO

		2023	2022
Non-current assets		**22,032**	**17,800**
Intangible assets	G.1	420	392
Tangible assets	G.2	18,870	12,944
Other movable property	G.3	1,491	3,749
Goodwill		0	0
Non-current financial assets		0	2
Other financial assets		95	86
Long-term receivables	G.4	1	0
Deferred tax assets	G.4	1,155	627
Short-term assets		**97,953**	**89,082**
Inventory	G.5	8,173	8,357
Receivables	G.6	52,827	47,356
Other receivables	G.6	4,283	2,946
Short-term accruals	G.6	966	597
Cash and bank accounts balances	G.7	31,704	29,826
Total assets		**119,985**	**106,882**
Equity attributed to shareholders		**62,549**	**61,330**
Share capital		1,052	1,052
Fund of exchange differences		8	96
Capital and Statutory funds		352	312
Funds of profit		4,264	4,251
Retained earnings		48,582	50,788
Profit for the period attributed to shareholders of the mother company		**8,291**	**4,831**
Equity attributed to non-controlling shares		1	2
Total equity	**G.8**	**62,550**	**61,332**
Long-term liabilities		**14,314**	**10,307**
Long-term trade and other payables	G.9	8,217	3,410
Deferred tax liabilities	G.9	84	140
Long-term provisions	G.11	6,013	6,757
Current liabilities		**43,121**	**35,243**
Short-term trade payables	G.10	32,423	28,355
Liabilities to the state	G.10	3,259	2,079
Other current liabilities	G.10	3,281	3,263
Short-term income and accrued expenses	G.10	140	40
Short-term provisions	G.11	2,022	1,486
Short-term borrowing	G.12	1,996	20
Total liabilities		**57,435**	**45,550**
Total equity and liabilities		**119,985**	**106,882**

Consolidated Profit and Loss Account ending with the 31st December 2023 in thousands of EURO

		2023	2022
Sales	H.1	**209,170**	**160,641**
Cost of goods sold	H.2	-55,785	-26,613
Shaft material and energy	H.2	-37,360	-50,363
External services	H.2	-69,370	-47,387
Occupational loan	H.3	-36,278	-31,959
Depreciation	H.4	-1,936	-1,627
Gross margin		**8,441**	**2,692**
Other operating income	H.5	2,900	5,795
Other operating expenses	H.6	-975	-918
Operating profit		**10,366**	**7,569**
Financial income	H.7	811	950
Financial expenses	H.8	-829	-1,870
Profit before tax		**10,348**	**6,649**
Income tax	H.9	-2,056	-1,816
Profit after tax		**8,292**	**4,833**
Shares in associated companies affiliated operations		0	0
Discontinued operations			
Profit from discontinued operations		0	0
Profit for the period		**8,292**	**4,833**
Assigned to:			
holders of the parent company		8,291	4,831
non-controlling shares		1	2
Other comprehensive profit		-	-
Complex result of management		8,292	4,833

Contacts

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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.ppacontroll.sk, tel.: +421 2 321 03 138, e-mail: marketing@ppa.sk**.

Technology
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