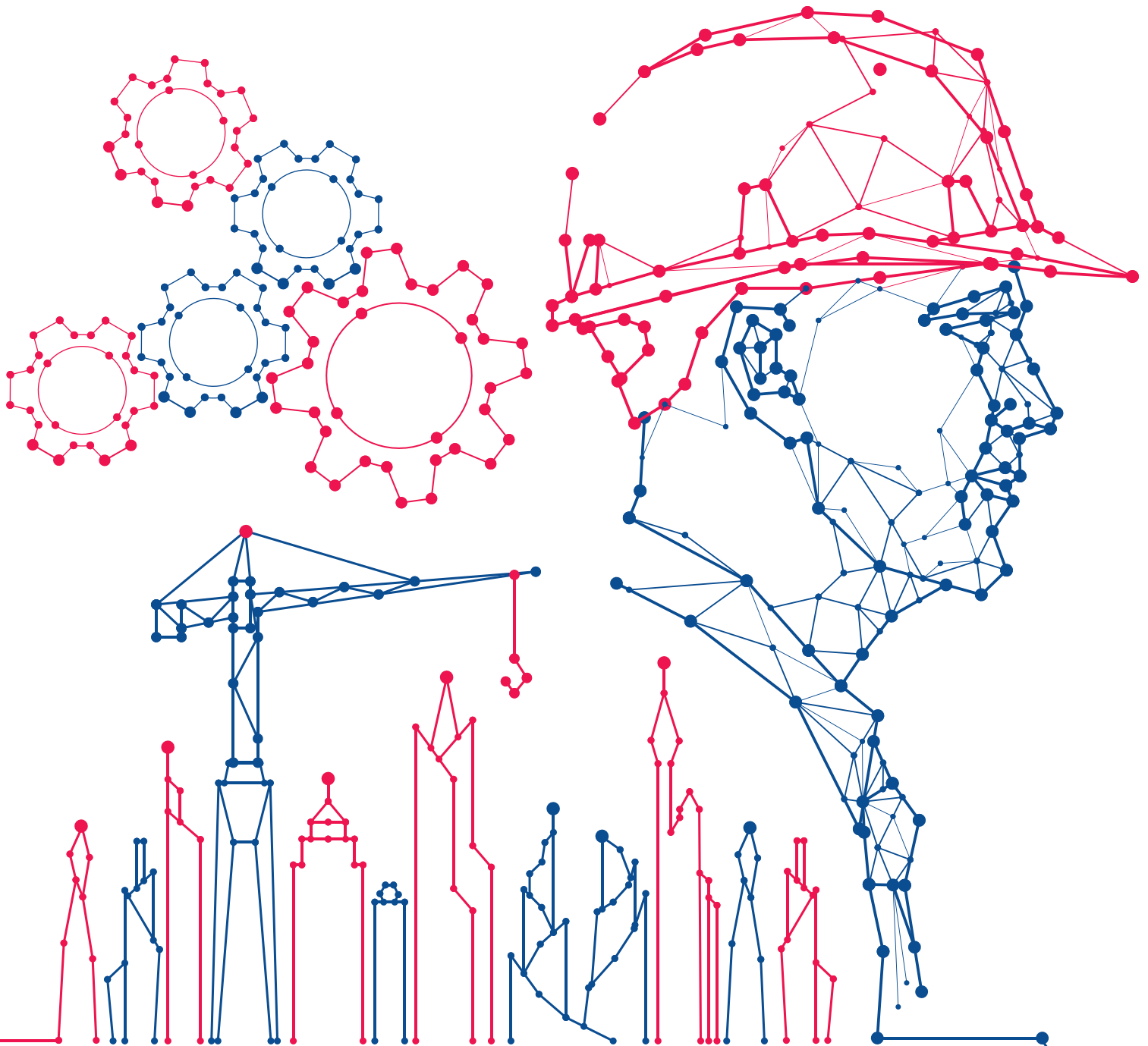




ELSACO®



A strong team
united by a single vision

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First word



Ovidiu Jitaru
Vice President



Doru Popa
Vice President



Petru Parfenov
Vice President



The Elsaco group of companies is the aggregate result of the efforts and ideas from hundreds of people with whom I had the pleasure to work for more than two decades.

Beyond the actual endeavors, Elsaco took a piece of our souls. We aimed to provide everybody with the ideal framework for further development in a dynamic company, with continuously innovative products and activities. Our colleagues' sense of belonging to one large family is one of our biggest satisfactions.

We have managed, for more than twenty five years, to earn our clients' trust all over the country, offering them quality products and services. We wanted all our collaborators to grow the feeling that they have a stable partner alongside. Thus, we have built solid partnerships by offering cost-efficient products using advanced, clean and safe technologies.

How could I synthesize the fundamental creed of the Elsaco Group?

We are defined by the desire to offer energy efficiency solutions to the community we live in. Improving the quality of life is the goal which attracts all our efforts.

Valeriu Iftime
President

A blue ink handwritten signature of Valeriu Iftime.



About us

We excel in what we do because we always focus on our clients' needs.

Elsaco is a group of Romanian companies mainly present in the domains of energy, water and utilities, its main objective being to increase energy efficiency. The group consists of 8 companies covering areas such as: EPC projects, distribution and sale of measurement and control equipment, energy efficiency solutions, process and business software, IT & C solutions, residential smart metering.

For more than two decades, Elsaco has implemented projects that have changed the lives of local communities, and the project beneficiaries have streamlined their costs, developed new and efficient power generation sources to support a higher production rate, provided clients with a quality and performant water/hot water/heat supply service, and managed and reduced network losses.

We have implemented projects both at national and international level, covering areas such as: Republic of Moldova, Belgium, Poland, Russia, Egypt, Qatar, Dubai, Mauritius and Turkey.

We continuously develop our performance to match our customers' needs. Our solutions contribute to better living and working conditions for people and to the sustainable development of our society.

Key figures



27 years of experience



15+ international projects



8 Elsaco companies



10+ strategic partners



500 employees



68 million (€) 2020 turnover

Integrated Management System

We are guided by quality,
by the care for people and the environment,
regardless of the project.



Elsaco Electronic has adopted and implemented an integrated management system compliant with the reference standards and the legal requirements and regulations.

The implemented system, certified by SRAC/IQNET, allows the company to achieve and maintain a high level of competitiveness. In order to meet our clients' expectations, in a highly competitive market, we constantly try to meet all the requirements in terms of quality, environment, pollution prevention, occupational safety and health, information security and energy management, social responsibility.

Standard Implementat	Description
ISO 9001	Quality Management
ISO 14001	Environmental Management
ISO/EC 27001	Information Security Management System
ISO 45001	Occupational Health and Safety Management
ISO 50001	Energy Management
SA 8000	Social Responsibility
ISO 3834-2	Quality management in the field of welding

Partners

We evolve together with our partners.

The collaboration with many worldwide-known companies, offered our team, constantly, the technical support and necessary consultancy to adopt the optimal solutions. The know-how transfer within these partnerships lead to the creation of some advanced solutions like the automated management of the urban water and heating supply systems. Thus, we are now able to produce and develop our own products and accessories essential for such solutions.



Clients

We form a team together with those we are working for.



UTILITIES

- heating and water companies;
- municipalities;



INDUSTRY

- private companies;



ENERGY

- electricity producers;
- investors in new energy sources;



RESIDENTIAL

- individuals (apartments/houses);
- residential developers;



RETAIL

- distributors;
- partners;



CONSTRUCTION

- contractors;
- subcontractors;
- designers.



Elsaco group of companies

ELSACO ELECTRONIC

- energy projects
- hydro projects
- automation & SCADA projects

- equipment and products for the utility industry
- automation systems and equipment

VESTRA INDUSTRY

ELSACO ESCo

- energy audit
- complex analysis
- technical Due Diligence
- ESCo projects

- smart metering solutions
- solar PV plants
- distribution of photovoltaic panels and inverters
- ARH distribution: ANPR cameras, ID readers
- distribution of tablets and video conferencing systems
- battery distribution for IoT solutions
- IT products and services
- LoRa and NB-IoT modules for water and gas meters
- video surveillance systems
- modern lighting solutions with LED lamps
- electric car charging stations

ELSACO SOLUTIONS

SMART ECO PLUS

- residential smart metering
- installations and cost breakdown services

- cogeneration projects
- hydro projects
- civil and industrial construction

ELSACO ENGINEERING

* The Elsaco group also includes two companies active in the field of tourism: Zăicești Manor

Elsaco Electronic

Elsaco Electronic, the largest company in the group, established in 1994, acts as a system integrator and engineering services provider for municipal utilities (energy, water, automation and SCADA). For each assignment, we are able to assemble a team of highly qualified specialists, with complementary skills and extensive professional experience, capable to deliver to the customer's highest requirements.

The company successfully performs activities in the following fields:



Energy projects

- cogeneration plants for the efficient production of electricity and heat;
- automated central and individual thermal modules;
- high energy efficiency pumping systems;
- heat transport and distribution networks;
- depollution installations of flue gases evacuated by the combustion plants;
- recovery technologies for the residual heat resulting from the industrial technological processes.



Hydro projects

- water supply and sewerage systems;
- water and wastewater treatment plants;
- pumping stations;
- irrigation systems;
- civil and industrial constructions, including related facilities.



Automation and SCADA projects

- automation and control systems;
- AMR / AMI systems for collecting and managing meter data;
- SCADA / DCS / Process control systems for control rooms / dispatchers (RTU & PLC panels, servers, PC stations, communications networks, software).

Works and services

Efficient integrated solutions for production, storage, transport and distribution of water and energy

DEVELOPMENT OF INVESTMENT PROJECTS

- technical consultancy and assistance
- elaboration of conceptual studies and optimal technological solution
- elaboration of development strategies, opportunity and feasibility studies
- elaboration of planning documentation, obtaining authorizations and approvals

ENGINEERING AND DESIGN OF INVESTMENT OBJECTS

- concept and process engineering
- technical design and elaboration of execution details
- project specialties coordination (civil, mechanical, electric, automation)

TURNKEY PROJECTS IMPLEMENTATION

- project management and organization of works execution
- technical design and elaboration of execution details
- procurement of equipment and materials
- execution of construction, fitting and installation works
- performing inspection, testing and commissioning services
- operation and maintenance staff training
- performance tests and guarantees

OPERATION AND MAINTENANCE OF INVESTMENT OBJECTS

- warranty and technical assistance
- process monitoring and optimization
- industrial equipment maintenance
- operation of the systems of production-transport-distribution of water and energy

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Vestra Industry

Is the first specialized cluster in the utilities and automation equipment industry. Vestra was established at the beginning of 2015, through the outsourcing of the Utility Equipment and Services Division of Elsaco Electronic, and currently focuses its activity not only on the sale of equipment for utility companies but also on hardware and software equipment for industrial automation.

Divided into two Divisions (Utilities and Automation) Vestra welcomes customers with the following **product range**:

- measurement and control equipment for the utility industry (water, heat, gas);
- valves and fittings;
- taps and connections;
- special equipment for urban cleaning;
- automation systems and equipment.

Because customer relationship is a priority in all Vestra's actions, the company also provides a number of **services** such as:

- consultancy and guidance for the most appropriate solutions;
- basic design for the proposed equipment;
- technical assistance and support;
- metrological inspections, repairs, guarantee insurance.

Over the years Vestra has strengthened partnerships with world-known leaders in the domains in which they operate, and currently brings on the Romanian market the best equipment from manufacturers such as: Itron, Sainte Lizaigne, AVK, Kamstrup, Orbinox, Baroclean, Rockwell Automation, Panduit, ProSoft, PTC etc.



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Elsaco EScO is a company dedicated to energy services consultancy, focused on the needs of customers. The stability of the company comes from an innovative way of working, always close to the client and to his needs. Working as a team we deliver intelligent and efficient solutions.

We offer complex services and solutions which allow efficient consumption of energy and resources, within the activity of clients in the industrial field and not only.

SERVICES

Energy audit

Energy audit is the main tool by which a company can identify its energy consumption and evolution over time, related to the production of the analyzed subunits. It is the main document that any energy company must have in order to establish a measure plan to increase energy efficiency.

The success, proved by the large number of performed audits and balances, places Elsaco EScO on an honorary position of market leader in this segment of activity. Among the clients who trusted us there are: ALRO Slatina, ALUM Tulcea, Agrana, Compa Sibiu, Smithfield, VALEO, Yazaki, Damen Galați, Damen Mangalia, Perla Harghitei, FORD Romania, Brenntag, EXTRUSION Slatina, Betty Ice, Kandia Dulce, Pancevo Serbia Refinery, Romgaz, Deutek, Chimcomplex Borzești, Timken, Cugir II Mechanical Plant, Vrancart, Apavital Iași, Oradea Thermal Power Plants, West Gate Business Park Bucharest Complex, Galleria Malls, Rose Garden Bucharest Residential Complex, FelyCity Bucharest Residential Complex and others.

Complex analysis

We work with a large number of industries and deliver complete analysis, development strategies as well as various feasibility studies.

We have over 5 years' experience in the field:

- balance for drinking water supply systems;
- balance centralized heat supply systems;
- feasibility studies;
- strategies for supplying thermal energy to towns.



Technical Due Diligence

In the case of a technical Due Diligence, the assistance we provide specifically includes the following activities:

- analysis of the technical and financial situation;
- technological and operational evaluation of the investment;
- analysis of sales revenues and margins according to the sectors in which the company operates;
- checking the quality of integrated planning;
- determining the technological and market situations which prevent the conclusion of a transaction;
- analysis of material and energy flows in order to identify the essential value generators, the determinants of success as well as the risk factors;
- business evaluation;
- assistance in establishing and negotiating the transaction price.

ESCO projects

Based on energy audits we identify situations in which we are directly involved as medium and long term energy suppliers. Our guarantees cover the stability of energy prices, market and climate risks, regardless of whether the energy is produced in our own or in customer's installations.



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Elsaco Solutions

The IT&C solutions division started its activity in 1994 within company Elsaco Electronic, and since 2013 it operates through Elsaco Solutions. The manufacture of PC stations started in 1996, together with the launch of the first computer under the brand “Elsaco”. Over time, Elsaco has been constantly among the first suppliers and IT solutions integrators, both for home type or enterprise applications, as well as for industrial applications such as SCADA/AMR, required in the power field and utilities.

In recent years, Elsaco Solutions has offered numerous smart metering and energy efficiency solutions to prestigious companies such as: AFI Cotroceni, Kaufland, Cris-Tim, Yazaki, Azur, Zoppas and many others.

The mission of Elsaco Solutions is to permanently promote the newest technologies and innovating services, for a better world, opened towards people’s needs, in harmony with the environment.

Elsaco Solutions provides:

- smart metering solutions;
- solar PV plants;
- distribution of photovoltaic panels and inverters;
- ARH distribution: ANPR cameras, ID readers;
- distribution of tablets and video conferencing systems;
- battery distribution for IoT solutions;
- IT products and services;
- LoRa and NB-IoT modules for water and gas meters;
- video surveillance systems;
- modern lighting solutions with LED lamps;
- electric car charging stations.

Elsaco Solutions provides the necessary consultancy and support required by the clients in choosing the information solution, permanently adapted to their budget and requirements, basic design, as well as post sale technical support. At the same time, we also provide services of installation, configuration, training and commissioning of supplied equipment.

Based on different contracts, we provide maintenance of supplied information systems in order to maintain their availability at the highest degree possible and to keep the clients constantly satisfied.

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Smart Eco Plus

Smart Eco Plus provides solutions which help customers save resources, therefore cost and, live better, throughout professional, modern, efficient equipment, aimed at improving consumers' quality of life.

Services

Efficiency of water consumption by correctly measuring the consumption of cold and hot water and their optimization by modern and efficient equipment, with radio reading, provided by the French company "Itron", the world leader in smart metering services, a company present in over 100 countries where it contributes to the optimization of supply and consumption of water and energy.

Efficiency of heating consumption

The installation of modern and efficient heat cost allocators, with radio reading, ensures solid and constant benefits to the families in the condominiums which benefit from them: from the complete elimination of the inconvenience and the time lost with the monthly reading of the indexes, to the efficiency of the heat consumption and, therefore, in achieving monthly savings on maintenance, not to mention that online consumption monitoring can directly help to set up a consumer profile which allows us to give end consumers suggestions regarding the optimal correlation between the degree of comfort desired and the purchasing power.

Online monitoring

In the case of the GPRS solution, the computer program developed for the radio equipment alerts if there is an abnormal consumption of cold water, hot water or heat.

Loss identification

The equipment in the apartments allows the concrete identification of the losses which can occur at the indoor water installations: the association has the possibility to act in time and limit the possible negative effects of the precarious technical state of the installations after the branch meter, taking into account that, in general, they were never replaced after the building was put into service.



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Elsaco Engineering



The company was founded in 2013 having the purpose of managing the implementation of heat and electric energy cogeneration projects for heating companies and private companies which need modern production sources of energy based on turbines or gas engines.

Elsaco Engineering provides project management, partners / subcontractors, engineering and design services coordination by working with its own specialists or with outsourced resources.

The first large project, in progress between 2014-2016, was the construction of a new heat-electric power plant in cogeneration for Oradea Municipality with an installed capacity of approx. 45MWe and 283 MWt.

Also, Elsaco Engineering implemented a project aimed at zoning, counting and monitoring pressure in the cities of Satu Mare, Carei, Negrești-Oaș and Tășnad between 2014-2015.

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REFERENCE PROJECTS



COGENERATION



Cogeneration power plant – CET Oradea

Client: Oradea Municipality

Period: 2014-2016

Activități:

- project management;
- obtaining approvals and authorizations;
- engineering and design;
- execution of construction and installation works;
- supply of equipment and materials;
- mechanical, electrical and automation technological works;
- personnel training, tests and PIF, performance test, spare parts.

Key elements:

- 88% overall cogeneration efficiency, 96% CAF thermal efficiency;
- 45 MWe high efficiency gas turbine (General Electric);
- a 50 MWt turbine heat recovery system;
- a heat accumulator of approx. 355 MWh;
- two hot water boilers of 116.3 MWt.

ENVIRONMENTAL PROTECTION TECHNOLOGIES



Desulphurisation plant (DeSO_x) in CET 2 Iași

Beneficiary: Iași Municipality
Period: 2014-2016

Activities:

- general services (surveys, As-built documentation, Operating and maintenance manuals);
- design and engineering services;
- works and services associated with constructions;
- mechanical, electrical and automation technological installations;
- fire detection and signaling facilities, access control;
- supply of spare parts for 2 years;
- commissioning and personal training for the Beneficiary, Performance Tests.

Key elements:

- the plant removes over 97.7% of the sulfur dioxide of the flue gases;
- concentrations of SO₂ emissions in the atmosphere <50 mg / Nm³ (well below the 200 mg SO₂ / Nm³ required by European standards);
- concentrations of powders emitted in the atmosphere <20 mg / Nm³;
- availability of desulphurisation plant in operation > 95%.

HEATING SYSTEMS



Rehabilitation of centralized heat supply system stage II - Vatra Dornei

Beneficiary: Vatra Dornei Municipality
Period: 2021-2023

Activities:

- technical project execution details
- rehabilitation and expansion of secondary thermal networks;
- rehabilitation and extension of the primary thermal networks: installation of pre-insulated pipes, 58 thermal mini-points, rehabilitation of the connection sections;
- rehabilitation of 6 thermal points: construction, thermomechanical, electrical and automation works;
- testing and commissioning.

Key elements:

- use of pre-insulated pipes, provided with a monitoring / fault signaling system;
- in the thermal point are also installed the central units related to the leakage detection system through pipes for the secondary thermal network and for the sections of the primary thermal network, which will be provided with the possibility of remote data transmission.



Design and execution of thermal transport and distribution networks and thermal points – Foçşani

Beneficiary: Foçşani Municipality

Period: 2019 - 2021

Activities:

- technical project with execution details;
- works execution:
 - » rehabilitation of 2.8 km thermal transport network with dimensions up to DN 700;
 - » rehabilitation of 11 km thermal distribution network;
 - » rehabilitation of constructions, thermomechanical and automation works for 9 Thermal Points.

Key elements:

- reduction of the total annual heat losses of 9.265 Gcal / year (the target value from the specific objectives being 9.124 Gcal / year);

In order to increase the energy efficiency of the system, for the primary and secondary thermal networks were used:

- pre-insulated pipes equipped with fault signaling systems;
- metering and balancing equipment at the level of block stairs;
- heat exchangers, pump sets, frequency converters, automation systems and data transmission systems in the dispatcher and other modern equipment in thermal points.

LAND IMPROVEMENT WORKS (IRRIGATIONS)



Rehabilitation of Viișoara Irrigation Facility – Teleorman County

Beneficiary: National Agency for Land Improvements

Period: 2018-2020

Activities:

- design services;
- construction works;
- hydromechanical works;
- electrical installations: medium voltage, low voltage, automation and supervision.

Key elements

Purchase and installation of pumping equipment:

»SPA Gârla Iancului:

- 4 pumping units with the following characteristics: $Q = 5.33 \text{ mc/s}$, $H = 4.5\text{m}$;
- 2 submersible pumps with the following characteristics: $Q = 4\text{l/s}$, $H = 25\text{m}$;
- 2 submersible pumps with the following characteristics: $Q = 15\text{l/s}$, $H = 15\text{m}$;

»SRP 2 Zimnicea:

- 2 pumping units + 1 pump with the following characteristics: $Q = 1.1 \text{ mc/s}$, $H = 54\text{m}$;
- 2 submersible pumps with the following characteristics: $Q = 3\text{l/s}$, $H = 25\text{m}$;
- 1 submersible pump with the following characteristics: $Q = 15\text{l/s}$, $H = 15\text{m}$.



Modernization and rehabilitation of SPA LUNCA pumping station – Iași

Beneficiary: F.O.U.A.I. „Aqua Lunca Prut”

Period: 2018-2019

Activities:

- modernization of the irrigation infrastructure;
- construction works and hydromechanical installations;
- rehabilitation of electrical installations and automation.

Key elements:

- cumulative flow rate pumping station 18.000 mc/h;
- 3 direct suction pipes from Prut, with a diameter of 1.200 mm and a length of 200 ml each;
- the pumping station provides the water needed for an irrigation ring which will serve an area of 12.000 hectares.

WATER/WASTEWATER TREATMENT



Rehabilitation of the wastewater treatment plant – Vatra Dornei

Beneficiary: ACET S.A. Suceava
Period: 2013-2015

Activities:

- civil works;
- assembly work for mechanical and hydromechanical equipment;
- installation work for technological pipeline networks (wastewater, sludge, air);
- execution and design of electrical and automation panels;
- works of electrical installations and automation;
- SCADA: design and execution;
- systematization and land management works.

Key elements:

- complete reconstruction of the water and sludge line;
- construction of administrative pavilion;
- dehydration hall construction, respectively sludge dewatering plant;
- the station serves 19.000 PE.



Modernization of water treatment plant – Siriu, Buzău

Beneficiary: Hidroconstrucția Siriu
Period: 2013-2014

Activities:

- civil works;
- low voltage electrical works;
- mechanical works;
- outdoor lighting installation;
- delivery and installation of the monitoring and control system;
- SCADA components: delivery and installation of PLC equipment, dispatcher equipment, software;
- testing and commissioning.

Key elements:

- the capacity of the station is 180 mc/h treated water;
- 500 m³ storage tank;
- automatic dehydration plant (30%);
- chemical pavilion with automatic / autonomous operation;
- active SCADA system, with passive monitoring from the water company dispatcher.

WATER AND SEWERAGE NETWORKS



WATER INFRASTRUCTURE

Rehabilitation of chlorination station and arrangement of Izvarna capture enclosure; rehabilitation and extension of the supply pipe Izvarna – Craiova Section II Thread I

Beneficiary: Compania de Apă Oltenia
Period: 2020-2023

Activities:

- Technical Project, documentation, authorizations and approvals;
- thread II adduction pipe extension works and existing adduction pipe rehabilitation works;
- rehabilitation of chlorination station and administrative building;
- testing, commissioning, staff training.

Key elements:

- adduction pipe extension works, length: 1.587 m;
- adduction pipe rehabilitation works, length: 18.858 m.



AUTOMATION & SCADA

Purchase and installation of SCADA equipment - Miercurea Ciuc

Beneficiary: Harviz S.A.

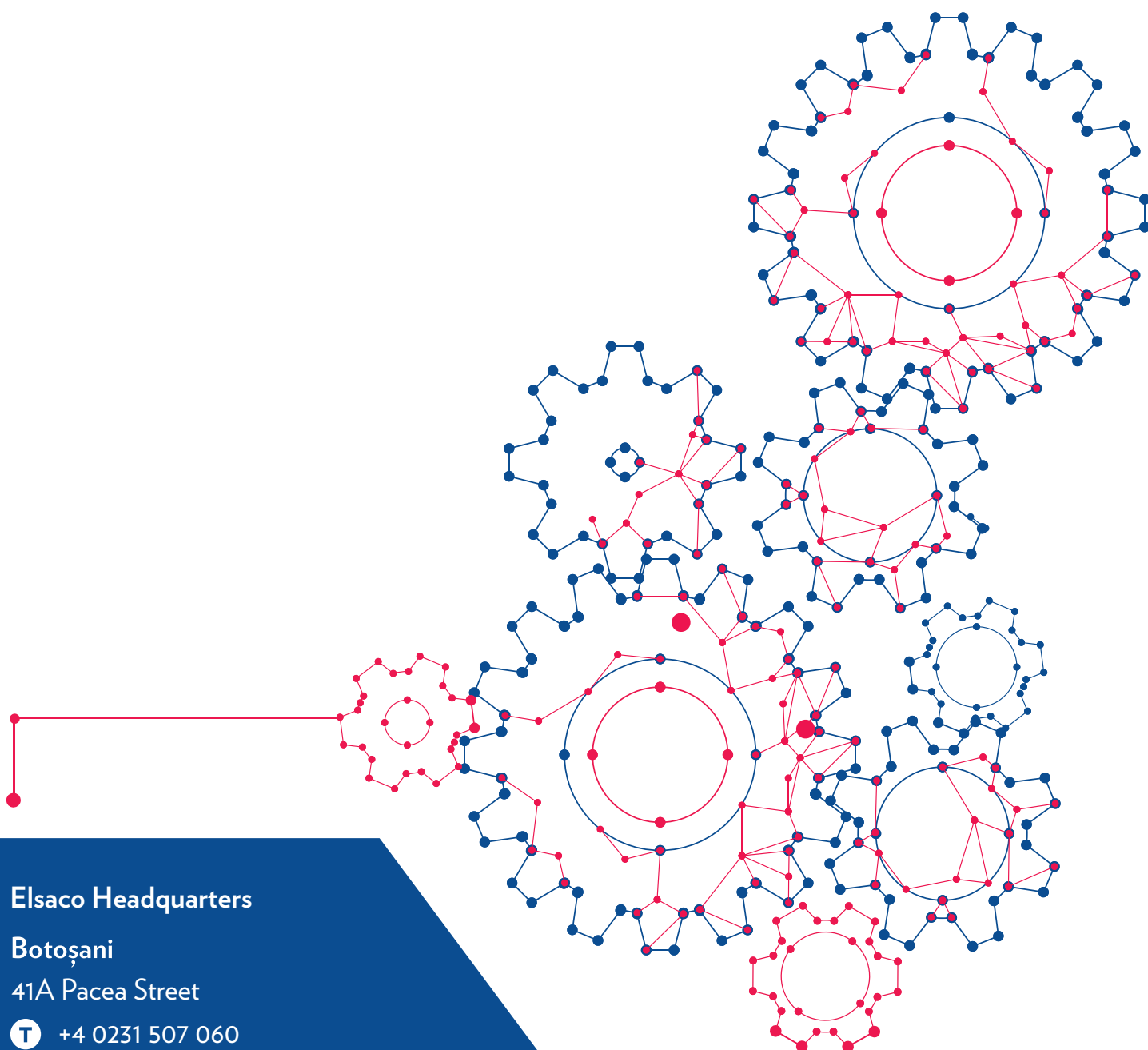
Period: 2014-2016

Activities:

- delivery and installation of process instrumentation;
- design, execution and installation of automation and control cabinets;
- parameterization of the automation systems;
- central monitoring and control of local automation systems;
- implementation of the communication system;
- hardware and software equipment required to achieve the Regional Dispatch (DR) and 2 Zonal Dispatch (DZ1, DZ2);
- commissioning, testing and maintenance of the entire SCADA Regional System.

Key elements:

- integrated SCADA regional solution;
- SCADA system based on the Siemens WinCC platform;
- three dispatch centers made with process servers in redundant topology.



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