
TECHNOLOGY GROUP
TOGETHER
WE CREATE
TECHNOLOGY
OF THE FUTURE

TECHNOLOGY GROUP

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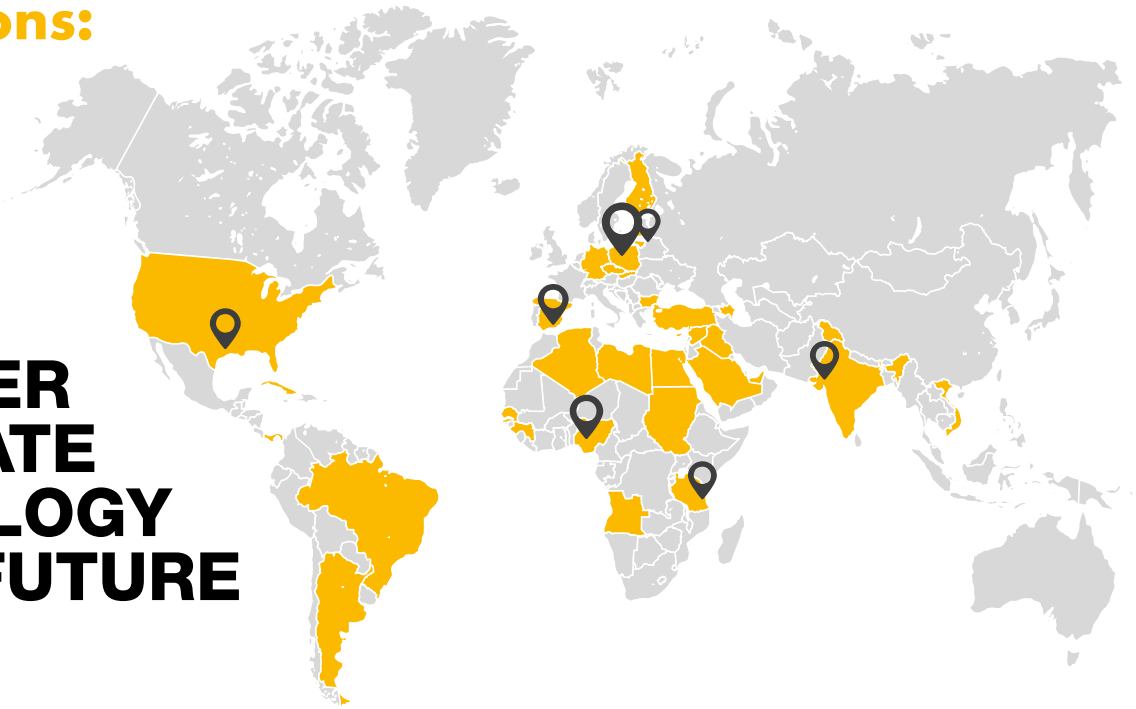
- Over 30 years on the market
- 16 specialised companies combined
- A multi-disciplinary business partner
- Implementing new technologies
- Co-founder of the Cluster of Hydrogen Technologies
- Co-founder of the Baltic Sea & Space Cluster

OVER 500 ENGINEERS

Our locations:



TOGETHER WE CREATE TECHNOLOGY OF THE FUTURE

The ASE Technology Group, bringing together over ten specialised companies, is a multi-disciplinary and versatile business partner for the largest Oil&Gas, as well as Offshore clients in Poland and in Europe.

Our certificates:

We would like to show you why we are the perfect, reliable partner for you. We have co-founded the Cluster of Hydrogen Technologies and Clean Coal Technologies. We are also a member of the Polish Chamber of Chemical Industry.

OUR COMPANIES

500 engineers

FUNCTIONAL STRUCTURE OF THE GROUP

By combining knowledge, experience and analytical, design and supervision skills, the ASE Technology Group is able to execute the most extensive and technically demanding facilities and industrial infrastructure, which is proven by our credentials. We move with the times, constantly broadening our experience and knowledge. We focus on continuous development and provide our partners with expert support.

ENGINEERING DESIGN EPC

- BIPRORAF
- PROJMORS
- CAMINO PROJECT
- PROJMORS INDIA
- WULKAN ENERGY (SPAIN)

EXPERT TRAININGS HR

- EKO-KONSULT
- LKK / CNK

INTEGRATOR

- ASE ATEX
- ASE OFFSHORE
- SQUADRON

PRODUCER

- ELMECH - ASE
- MIEP
- ASE BALTIC
- ASE EAST AFRICA

Mission

Our mission is to provide safe technologies and solutions for the industry and infrastructure.

We operate in all the important areas of the energy transition:

- **offshore wind farms,**
- **hydrogen,**
- **electric and thermal energy storage,**
- **nuclear power technologies**

and

we have many years of experience in the oil & gas industry.

Our competences:

The entire investment process

Concepts/ construction permits

Detailed designs

Environmental impact assessment

Explosion and fire protection consultancy

Investor's supervision

Production (energy storage solutions)

Supplies/ construction

Assembly and after-sale service

BIPRORAF

We are an engineering and design company that specialises in the design and comprehensive execution of investments. We support our clients at every step of an investment process, from the technology selection, to a feasibility study, a programme and spatial concept, budgeting, construction designs, detailed designs, deliveries specification, construction and assembly works, to start-ups and final acceptances.

- **50 years of experience** and continuous operation
- **5000 cross-industry projects**
- **EPC projects** – experience with "turnkey" projects
- **Investor's supervision,** supporting international investors

Main business areas:

EPC

- Construction designs
- Detailed designs
- "Turnkey" execution
- Technology selection and integration

INNOVATIONS

- Technical concepts
- Feasibility study
- Supervision in terms of green technologies for EPC investments

GREEN HYDROGEN SOLUTIONS

- RFNBO hydrogen
- Ammonia
- Methanol

Green hydrogen for private clients

Construction of systems for the production of green hydrogen utilizing renewable energy sources and electrolysis as EPC projects. We design and build some of the first Polish installations for the production, compression, storage and dispensing of green hydrogen, intended for cars, buses and forklifts.

Hydrogen Refueling Stations (HRS)

We design and deliver technology, together with engineer's supervision, for the first Polish publicly available HRS stations in the largest cities in Poland.

Green hydrogen installation concept

6 MW energy storage

2 MW energy storage

HRS POZNAŃ & HRS KATOWICE

TRZEBINIA H2 PLANT H2 AND PSA+

Design, delivery and construction of a "turnkey" (EPC) installation for the production of propylene glycol with auxiliary installations, i.e. a Glycerine Purification Plant, a Hydrogen Production Plant, a Sewage Treatment Plant and additional infrastructure.

- The first in Poland and the largest in Europe installation for the production of environmentally friendly propylene glycol.
- Yearly production of 30,000 tons of environmentally friendly propylene glycol (as much as 10,000 more than the only such installation in Europe that is located in Belgium).

CSD AND HPU (PSA+), GDAŃSK

Design, delivery and participation in the start up of a Hydrogen Purification Unit (HPU) and a purified hydrogen pipeline up to the border of the CSD installation in Gdańsk as part of the "PUREH2" project.

Project components:

- An additional purification station.
- Fuelling infrastructure (a CSD station) in the Pruszcz Gdański municipality.
- Pipelines supplying purified hydrogen, as well as drinking water and sanitary waste water transmission pipelines.

SOLBET – GREEN HYDROGEN PLANT

An installation for the production of green hydrogen based on the electrolysis technology, with compression, storage and dispensing (passenger vehicles and forklifts) – an EPC project for a private client. Put into service in October 2023.

BIPRORAF was responsible for:

- base, detailed and post-construction designs,
- specification and execution of all deliveries necessary for the task,
- construction and assembly works,
- commissioning of the hydrogen production system with a fuelling station for forklifts and passenger vehicles and participation in its start up.

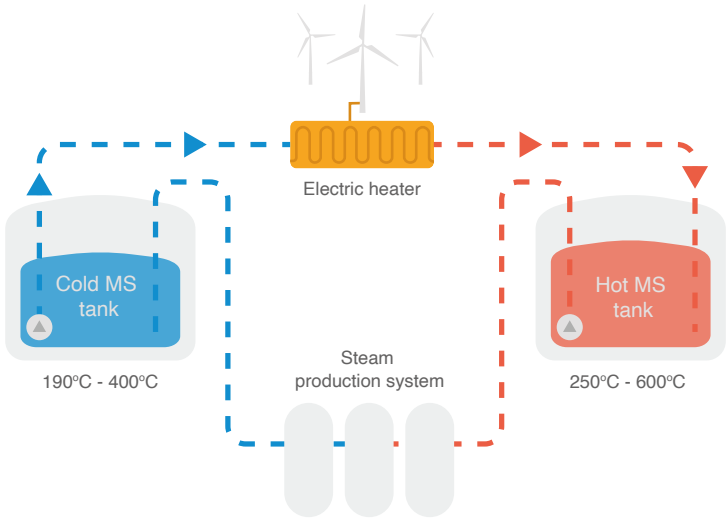
HEAT STORAGE FACILITIES AND ENERGY OPTIMISATION

Heat storage in molten salt

- Originally, heat storage was developed in order to stabilise the operation of CSP (Concentrated Solar Power) plants installed in countries experiencing high temperatures.
- Currently, CSP plants are not required for heat storage in molten salt, since it is possible to heat it using an electric resistance heater.
- We are cooperating with RPow Consulting – a Spanish company that has vast experience with the molten salt technology. Together we are working on concepts and feasibility studies for Polish companies wanting to invest in high-temperature thermal energy storage (TES).

RPOW CONSULTING

Thermal energy storage operating principle

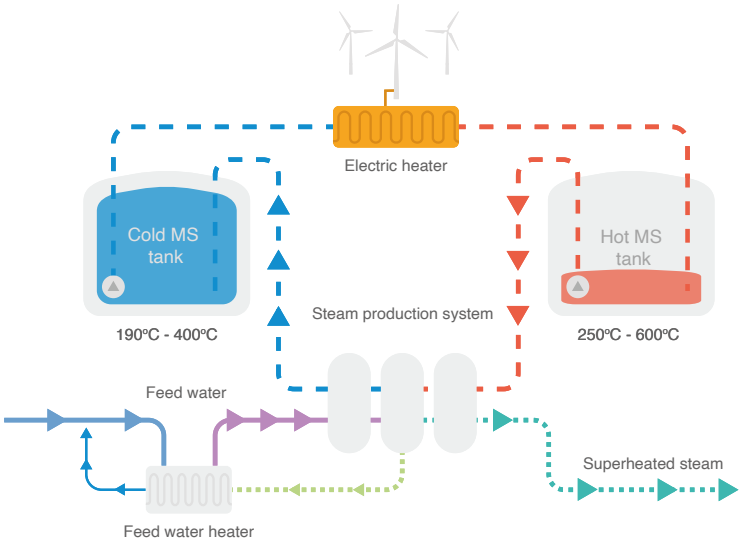


Storage charging

When cheap electric energy from e.g. renewable sources or self-generated energy surplus is available, it can be used to feed the electric heater that will heat molten salt to high temperatures reaching as much as 600°C (depending on the needs).

Storage discharging

When the price of electric energy exceeds the planned product price and the storage is charged, it can be used for steam production. Salt is supplied from the hot salt tank to the heat exchangers assembly (the steam generator) where it releases heat to the feed water. In the next step steam may be used to cover the demand for high-temperature heat or to supply the steam turbine, and then to generate power.



PROJMORS

PROJMORS is one of the oldest design companies in Poland. We are able to maintain our reputation through our commitment to offering high quality services and our flexible approach to the clients' needs. We do not stand still, offering new possibilities and expanding our portfolio of top-quality services. Our company is where tradition meets modernity. We have a team of highly experienced designers, as well as young engineers full of energy and passion for innovation. That is why we are not afraid of demanding projects that involve new solutions and technologies. We believe in continuous growth and the fact that a strong market position is built mostly by people.

- **75 years on the market**
- Our services include design, technical consultancy, investor's supervision, hydrotechnical projects and investments management, including offshore wind power engineering.
- **308 projects** completed in 2017-2023
- **41 construction** permits for offshore construction in 2019-2023

Offshore wind farms:

- **POWER: 5939 MW**
- **Offshore wind turbine: 413**
- **Offshore power plant: 12**
- **Construction permits for offshore wind farms: 5**

Main business areas:

Hydrotechnical facilities:
ports, terminals, quays,
breakwaters

Offshore wind power engineering:
7 wind power projects
in the Baltic Sea

Military facilities:
airplane hangars,
military projects, a staff building,
tank garages

Volume and utility projects,
industrial projects

CENTRAL PORT, GDAŃSK

A large outer port located on the Gdańsk Bay, between the entrance to the inner port and Port Północny (Northern Port). The concept and feasibility study include two container terminals, an LNG (Liquefied Natural Gas) terminal, a shipyard and a passenger terminal. The dock surface area is almost 1400 ha, and the terminals surface area – 410 ha. The breakwater is almost 8500 m long, while the quays are 19,000 m long.

DCT TERMINAL, GDAŃSK

The deepwater container terminal, designed by PROJMORS in 2005-2010 is the largest investment of its kind, both in Poland and on the Baltic Sea. The handling capacity of the terminal amounted to 500,000 TEU at the first stage of its construction, and finally reached 1 million TEU.

- Depth of 13.5 m and 16.5 m, suitable for Postpanamax ships, and a Ro-Ro ramp (320 m), handling capacity of up to 7100 TEU.
- 30 ha of storage and manoeuvring yards, as well as service buildings.

VISTULA SPIT CANAL CONSTRUCTION NEAR KRYNICA MORSKA

The investment includes the construction of a shipping channel, a shielding port, a new road system with moveable bridges, a lock, an artificial island, as well as the construction of a waterway and the reconstruction of the Elbląg river reinforcement. The total length of the new waterway will amount to almost 23 km, and its depth – 5 m. Ultimately, it is supposed to allow the vessels of the length of up to 100 m and the width of up to 20 m to enter the port in Elbląg.

Photo source: NDI SA

SEA TERMINAL, POLICE

The handling and storage terminal was designed as part of the PDH investment construction. It is a facility used for unloading propane and ethylene from ships and storing it, that supplies those resources to the PDH installation and the PP installation.

Photo source: Grupa Azoty Polyolefins

PROJMORS IN INDIA

Ahmedabad

In view of the dynamic economic growth in India and the enormous potential of the construction sector, PROJMORS had decided to open a new branch in India that has been operating since 2021.

Currently, the company is focusing on designing and consulting within the areas of offshore and civil engineering. At the same time we are closely following innovative solutions in offshore wind power.

SELECTED PROJECTS:

- Expert consulting and the assessment of the Gujarat state ports handling capacity
- Design of a container terminal with necessary yards and technical infrastructure at the Dhamra Port
- Design of 15.5 km of roads and bridges at the Mundra Port
- Review of the Western Container Terminal design in Colombo, Sri Lanka
- Services of an independent engineer for the expansion of the Vizhinjam Sea Port, Kerala
- Drawing up design documentation for a shallow quay at the Jawaharlal Nehru Port
- Design documentation for the Hazira terminal, Gujarat

CAMINO PROJECT

We are a design company specialising in the comprehensive management of investment projects. We act as a contract engineer and a supervision inspector. We provide support at every stage of an investment. We are present throughout the entire process: from designing installations, drawing up design documentation, selecting equipment technology, to final acceptances and start ups.

Design within the following areas:

- process systems
- sanitary systems and industrial sewage systems
- wiring systems
- ventilation and air conditioning systems
- potentially explosive zones – Ex
- architecture

Main business areas:

- **Process systems**
- **Conventional and nuclear power engineering**
- **Sanitary systems and industrial sewage systems**

Completed projects

AZOTY – ZOŚKA – BIOGAS PLANT

Technical and economic concept of the construction of a Thermal Processing and Materials Recovery Plant. Cogeneration.

MOCHOVCE POWER PLANT

2D and 3D design documentation for fire protection systems.

ORLEN GUTKOWO

Detailed design for the modernisation of rail and tank trucks terminals lighting. Technical consulting.

ORLEN PŁOCK

Limiting odour for reservoirs, author's supervision.

JANTAR DEVELOPMENT

Supervision over the execution of a storm water sewage system and a water system for an investment in Wiślinka near Gdańsk.

SUPPORT AND DESIGN:

Technical supervision over construction works and their quality, supervision over the entire documentation prepared by the contractor, supervision over the correctness of EU procedures application and ensuring compliance with all the related formalities.

DESIGN:

In potentially explosive zones (Ex), systems: wiring, fire protection, ventilation and air conditioning, sanitary, BIM technology documentation.

PROJECT MANAGEMENT:

Planning and preparing investments, developing an execution schedule, developing design documentation, selecting technology and equipment, optimising investment costs, selecting contractors, participating in meetings and interim acceptances, final acceptances and start ups, help during operation: inspections, audits, expert opinions.

EKO-KONSULT

We are a consulting company offering services in the area of industrial safety and environmental protection. We provide support for the power engineering market, including the offshore, oil and gas, renewable energy sources sectors, as well as other sectors of the industry: chemical, petrochemical, mining and food sectors. As EKO-KONSULT we participate in multiple offshore and onshore projects, including, above all, natural gas storage and transmission, as well as offshore oil and gas exploration.

- Environmental consulting: investments and procedures
- Process safety: hazard and risk analysis
- Atex: explosion protection analyses
- Fire protection: fire protection analyses for facilities and installations
- Seveso: major accidents prevention
- SIL: functional safety

Trainings:

- **Safety Academy – approx. 17,000 trained participants**
- **Hydrogen Academy**
- **Hydrogen Webinars**
- **Inspector–Ex**

EKO-KONSULT AND HYDROGEN PROJECTS:

- **Pure H2 (5.0) project**

Participation in the Pure H2 Project Information Sheet, covering the scope of analysis of legal conditions and sources of information concerning the execution of the planned enterprise, performance of environmental analyses in terms of fauna and flora and protected areas, as well as issues regarding providing information to the public – an information campaign concerning the planned enterprise.

- **Hydrogen Production Plant for an Oil&Gas client**

Audits and technical supervision for a Hydrogen Production Plant installation carried out by BIPRORAF.

- **Replacement of a C100 compressor efficiency control system in a Hydrogen Recovery System**

Replacement of a C100 compressor efficiency control system in a Hydrogen Recovery System:

Stage 1 – analysis of the existing process and technical documentation for the specified systems
Stage 2 – HAZOP and SIL analysis for the specified process systems
Stage 3 – drawing up of a final HAZOP and SIL test report

An analysis report for specifying the required Safety Integrity Levels (SIL).

- **Analysis for the Institute of Power Engineering – Research Institute**

Performance of HAZOP, SIL, fire safety, explosion safety analyses as part of a project involving the development and design of a power-to-gas (P2G) system based on a solid oxide cells stack operating in an electrolysis mode (SOE).

ASE ATEX

We provide the industry with comprehensive safety technology solutions. We specialise in top quality implementations and integrated solutions based on our own know-how and products from world renowned manufacturers.

At ASE ATEX we also have experience with hydrogen technologies. We offer our clients hydrogen flame and leak detection systems.

We provide industrial facilities with solutions in terms of:

- Industrial automation
- Tank technologies
- Safety systems
- Explosion-proof electrical engineering solutions
- Explosion protection equipment and safety devices
- Electric heating
- Industrial IT systems
- Offshore solutions
- Manufacture of Ex equipment certified by IECEx and ATEX

Products and solutions

Fire suppression

- Fire detection and extinguishing systems
- Water-based and foam-based extinguishing systems
- Gas-based extinguishing systems
- Spark detection and quenching
- Ventilation and smoke ventilation systems

Gas and flame detection

- Gas detectors
- Flame sensors
- Sensors central units
- Signalling devices
- Handheld detectors

Selected projects

MODERNISATION OF A SHIP DOCKING STATION FIRE PROTECTION SYSTEM AT A METHANOL TERMINAL

- Production of a methanol detailed design
- Modernisation of a ship terminal
- Relocation and start-up of water and foam monitors
- Delivery of a remote control for fire protection monitors
- Delivery, installation and start up of a 2-in-1 CCTV system
- Detection of the docking station camera fire
- Modernisation and relocation of the existing fire protection pump house
- Water pump house

WATER-BASED EXTINGUISHING SYSTEMS FOR A NEW COAL FEEDING SYSTEM IN A POWER PLANT

- Over 9000 m of pipelines
- Over 500 tons of steel
- VDS standard

COMPREHENSIVE FIRE PROTECTION SOLUTIONS IN AN ALUMINIUM POWDER MANUFACTURING PLANT

- Fire detection and signalling systems for the entire manufacturing plant
- Gas-based fire extinguishing system using argon
- Gas detection systems
- Suction gas detection systems for monitoring O2 levels within the explosion protection function

ASE OFFSHORE

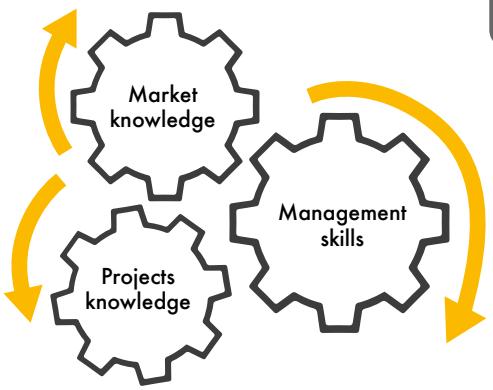
At ASE Offshore we combine potential with the experience of the oldest Polish design and consulting companies operating in the area of offshore power engineering that form part of the ASE Technology Group and the SMDI Consulting Group.

Company's vision:
We provide top quality consulting services for offshore power engineering on the basis of knowledge, cooperation and many years of experience.

Thorough needs recognition and professional coordination of actions allow us to ensure the development and execution of investment projects, from initial concepts, to feasibility studies and technical concepts, environmental tests and analyses, obtaining all the required permits, to execution supervision and operation management until decommissioning, helping our clients meet their business goals.

Our mission is to **provide comprehensive services for investments** in offshore power throughout their entire life cycle through top quality consulting, design and management services. That way we also contributeto the dynamic modernisation of power engineering in line with the principles of sustainable development..

Integrator and coordinator



We provide integrated services for offshore power investments

- Strategic consulting
- Project management
- Tests and analyses
- Permits

- Design
- Public communication
- Investment supervision
- Customers

SQUADRON

Our business is focused on delivering safe, comprehensive products and services in the area of unmanned aviation, as well as simulators. We owe our market position to our experienced staff and to the fact that we have built our offer on three pillars: our own products, a wide range of services and specialist trainings.

Our team consists of:

- Unmanned aviation experts
- IT/ICT experts
- Certified instructors
- FMV (Full Motion Video) image analysis experts
- Engineers
- Land surveying and map making experts

Offer:

- **software production**
- **unmanned aviation**
- **drone academy / UAVO trainings**
- **tactical simulators**
- **counter drone shields**

Dangerous incidents simulation:

- Safety analyses, simulators
- UAV trainings and simulators for the military
- Facilities, systems, installations safety forecasting

and

- Development of emergency and evacuation plans
- Photogrammetry – topography mapping
- Environmental and dendrological surveys
- Supervision over historical structures
- Critical infrastructure protection – unmanned systems and counter drone systems

We specialise in providing services for:

- **Public administration**
- **Safety**
- **Investments and construction**
- **Telecommunications**
- **Real Estate**
- **Uniformed services**
- **Forestry**
- **Power engineering**
- **Land surveying**
- **Photogrammetry and remote sensing**
- **Mining**
- **Infrastructure**
- **Agriculture**
- **Offshore and ship industry**

ELMECH

Our company was established in Poland in 1987. From the very beginning we have been designing and manufacturing electronics and power electronics for the maritime sector and for the industry, the power engineering sector and the military.

We have developed many innovative solutions for guaranteed power supply, energy conversion, charging, supervision and management of batteries and for the improvement of power quality. Based on our experience, we are currently implementing systemic solutions aimed at improving power quality and power management at industrial plants to meet the challenges of the 21st century.

WE ARE A POLISH MANUFACTURER OF:

- industrial electric energy storage solutions,
- active filters,
- guaranteed power supply systems.

OUR PRODUCTS AND SERVICES RECEIVED RECOGNITION FROM CLIENTS FROM THE FOLLOWING SECTORS:

- light and heavy industry, power engineering, military, aviation, rail, shipbuilding and food.

ENERGATE:

- **designed by ELMECH engineers**
- **manufactured in our manufacturing facility in Pruszcz Gdański**
- **adapted to the Client's needs and requirements**

BASIC ELEMENTS:

- battery
- active filter
- automation
- control
- software
- enclosure

ENERGY STORAGE

ENERGY MANAGEMENT

ENERGY EFFICIENCY

EXPECTED RESULT

HOW IS IT POSSIBLE?

- Reduced costs of energy purchasing
- Reduced distribution fees
- Increased use of free energy from photovoltaics
- Reduced cost of electric cars charging
- Not exceeding contracted power
- Elimination of reactive power costs – active filter

Step-by-step benefits: electric energy expenses cut by 30%

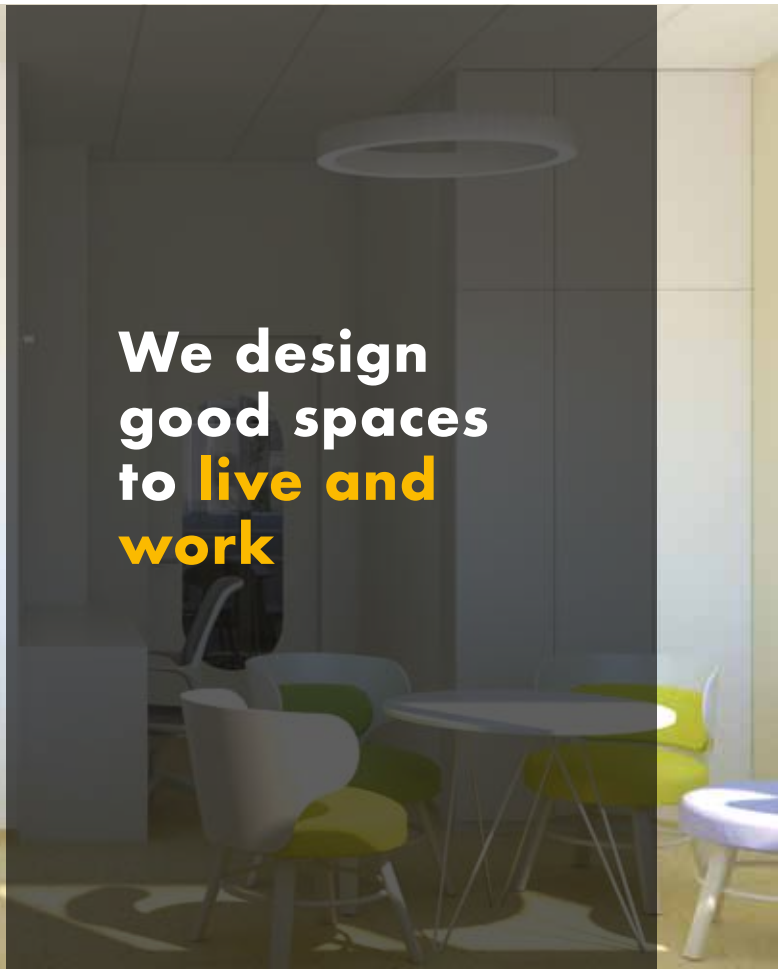
ASE STUDIO

- **A department at BIPRORAF** from the ASE Technology Group.
- An interdisciplinary team of **architects, interior designers, artists, constructors, engineers.**
- **Cooperation:** from an initial conversation about the idea, to a design and supervision over its execution anywhere in Poland.
- Specialised in **detailed interior and building visualisation**.
- **Main aim**: harmonious integration of buildings with nature.

Cooperation:

- **Stage 1** – a concept
- **Stage 2** – a construction or technical interior design
- **Stage 3** – execution and supervision

Possible remote cooperation – consultations in the form of videoconferences, delivery of material samples, visits to specified locations.



MISSION:

We design buildings complying with environmental standards, integrating them with renewable energy sources. We always take into account local environment where our designs are to be set. We choose natural materials. Our philosophy is based on biophilic design, i.e. the bond that people form with nature through architecture.

Our main values include:

- **Acting in line with sustainable development**
- **Creating timeless spaces**
- **Looking for solutions that best integrate humans with their surroundings**
- **Combining the Client's needs and expectations with modern, harmonious and environmentally friendly solutions**

ENVIRONMENTALLY FRIENDLY HOUSES

OFFICE SPACES

SPECIAL DESIGNS

GARDENS AND PUBLIC SPACES

ENERGY STORAGE

ORIGINAL FURNITURE DESIGNS

INTERIORS AND APARTMENTS

ORIGINAL FUNCTIONAL ART

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