



Comprehensive energy solutions for industry

PETROL

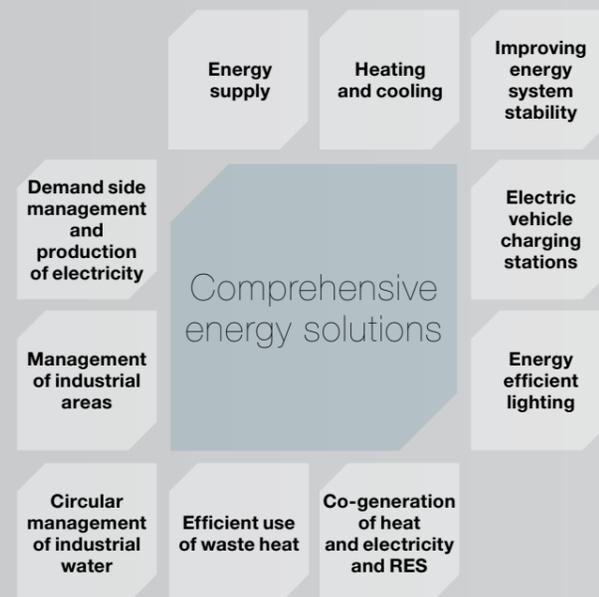
Energy for life



With energy efficiency for greater competitiveness

Choose our **comprehensive and sustainable energy solutions for your manufacturing plant**, which will significantly save on costs and energy consumption, **improve your technological processes**, increase **productivity**, and improve **working conditions**, while reducing the generation of **waste** in manufacturing facilities and processes, as well as reducing your company's carbon footprint.

Petrol's experts will help you design, build, and operate a new energy system that is economical, efficient, and environmentally friendly. Our energy solutions involve increasing the proportion of renewable energy sources, thus contributing to the fulfilment of **legislative obligations**.



- ✓ Development of energy solutions according to your needs
- ✓ Expert advice and energy auditing
- ✓ Energy-savings guarantee
- ✓ Services according to the energy contracting model

We develop comprehensive solutions for our partners

Petrol is a provider of modern energy efficiency concepts. Completely **tailored to your needs**, our solutions are distinguished by a comprehensive approach. Therefore, the first step is an **energy audit** of systems, transport, and processes. It is based on a systematic analysis of data collected from energy flow measurements. On this basis, we then **arrange energy renovation measures appropriate for your situation**: installation of heating and cooling systems, lighting, waste heat utilisation, integration of renewable sources, optimisation of electricity use, smart management of energy infrastructure systems, and other energy efficient measures. In this way, we help you **save on energy costs**.

Affordable and environmentally friendly energy supply

We will help you achieve affordable and environmentally friendly energy, while minimising the cost and maximising your comfort. As the leading energy company in the region, we provide competitive energy prices.

Supply of energy products:

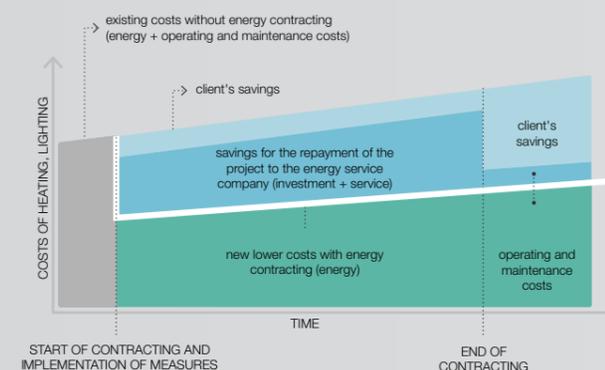
- Electricity
- Natural gas
- Liquefied petroleum gas
- Biomass

And specific energy products:

- Heat
- Cooling water
- Industrial steam
- Compressed air

With energy contracting, you can focus your financial resources on your core business

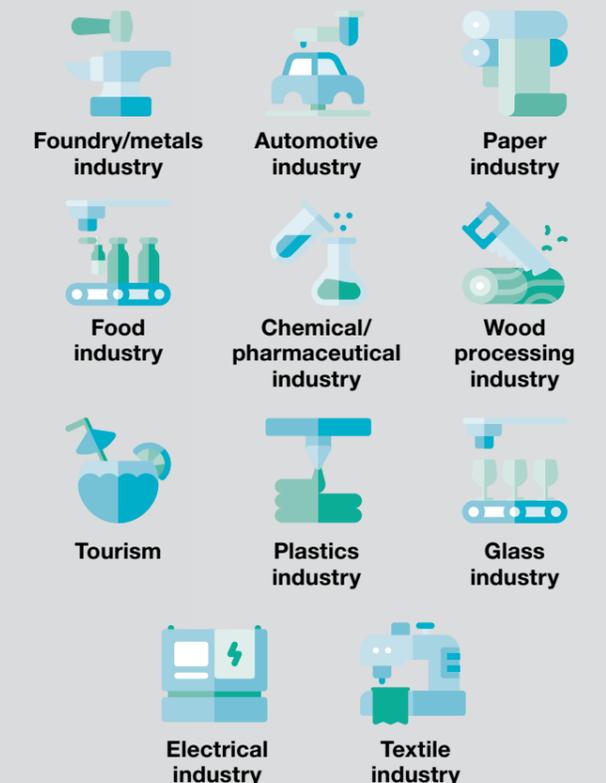
We develop and implement comprehensive energy solution projects in industry using various business models, including the **energy contracting** model - a contractual relationship with a prior guarantee of performance. Petrol will take over the development, financing, and realisation of the project as an energy partner. We also **assume the technical and economic risk**, and take over the management and maintenance of systems throughout the contract period, guaranteeing savings in energy consumption compared to the situation before the implemented measures.



Effective management and a reliable network of partners

Our solution for the challenges of modern business is the advanced **IloT Tango platform** for managing energy systems. We combine the diverse know-how and experience of our extensive portfolio of projects, in order to achieve convincing results. Our service teams are always ready to ensure smooth operation. We only work with established equipment manufacturers. Our tested and reliable **network of partners** has been carefully selected to ensure the high quality of individual products and a sustainable business policy.

Customised solutions for all types of industry





An efficient heating and cooling system

- Up to 50% energy savings in process cooling
- Custom solutions according to user/process
- Cutting edge technologies
- Guaranteed savings
- Smart management and maintenance of systems with our own IIoT Tango platform
- An independent partner in technology and solution development

At Petrol, **we plan, renovate, build, and manage** energy-efficient heating and cooling systems. This also includes the implementation of remote systems for control and troubleshooting. We optimise measurable data using near real-time **advanced analytics**, and provide reliable information in one place. We adapt the solutions to your needs and employ the most suitable technologies for your application. In this way, we help you achieve **high heat transfer efficiencies** and **maximum savings**. You can choose from a wide range of technologies, from gas condensing boilers or steam boilers, heat pumps, CHP, refrigeration and absorption refrigeration units, to waste heat recovery systems and free cooling.



Energy efficient lighting

- Up to 80% electricity savings for lighting
- Ensuring adequate and sufficient lighting
- Improved well-being of employees and users, and higher work productivity
- Management and maintenance of systems with our own IIoT Tango platform
- Guaranteed savings

At Petrol, we are replacing old and wasteful luminaires with **modern LED luminaires**, which beside **lower energy consumption**, also provide an adequate level of illumination and coloured lighting. Industry lighting represents an important part of operating costs. As part of our renovation, we **adjust your lighting according to the application** of the building, or individual rooms in the building. In this way, we **improve** the working conditions, the **safety** of the working environment, **performance**, and **well-being**. We make sure that our effective lighting solutions are **compliant with regulation and technical standards**, as well as with any specific requests, such as designer lighting. We also introduce **control systems** for remote control, automation, and troubleshooting.

Heating system at Unior, Zreče



Renovated lighting at SIJ Acroni, a manufacturer of steel and steel products





Renewable energy sources and high-efficiency cogeneration

- Cogeneration of electricity and heat, with up to 90% efficiency
- Sustainability and independence
- Own source of energy
- Management and maintenance of systems with our own IIoT Tango platform
- Guaranteeing energy and financial savings

Cogeneration of heat and electricity enables **up to 90% efficiency**. There is a selection of **different cogeneration technologies**, such as an internal combustion engine or a gas turbine. This gives you your **own source** of electricity and heat, as well as easier **long-term cost management** and a shorter payback period.

The **integration of renewable energy sources** is also becoming increasingly important in industrial processes. With solar and wind power plants, you get your own source of energy for heating and cooling, for production and other electrical appliances, lighting, and even charging stations for electric vehicles.

Cogeneration of heat and electricity for the needs of the industrial area of Ravne na Koroškem



Improving energy system stability

- System optimisation and a reduction in electricity consumption
- Optimisation of compressed air systems
- Optimisation of electric motor drives
- Improving the quality of electricity
- Management and maintenance of systems with our own IIoT Tango platform
- Guaranteeing energy and financial savings

Our comprehensive solutions for industry are aimed at **improving the stability of your energy system**. We provide the services of a **closed electricity distribution system operator**. As part of our energy contracting activities, we assume the engineering and construction of energy systems in industry, as well as the risks associated with the renovation and operation of industrial energy systems. Our **measures to reduce energy consumption** include the optimisation of electric motor drives, the use of compressed air, and the implementation of reactive energy compensation, as well as ensuring an appropriate quality level of the electricity.



As the operator of the closed electricity distribution systems in the Ravne and Štore industrial areas, Petrol is responsible for the reliable and secure long-term energy supply.

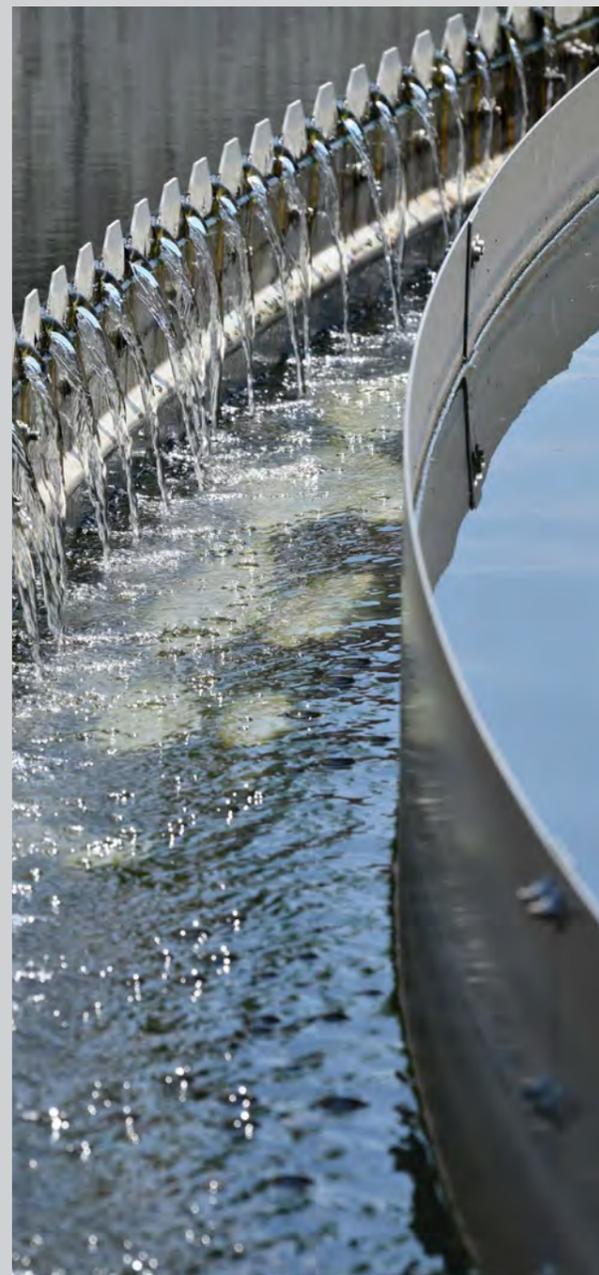


Circular management of industrial water

- Drinking and technological water supply
- Designing of closed cooling systems
- Designing and management of industrial wastewater treatment plants
- Water treatment and reuse

In addition to its beneficial environmental effects, the economical use of industrial wastewater also generates **competitive advantages**. At Petrol, our primary concern is **ensuring** a reliable and safe **supply** of drinking and technological water. **We manage industrial treatment plants**, as well as open and closed industrial water systems in the industrial areas of Železarna Štore and Železarna Ravne. We take care of the **reuse of industrial water** in recirculation systems for the rational and environmentally friendly use of water. Cooled industrial water in systems is harmless to the environment and can be released back into nature.

*In 2010, we took over the management of the industrial treatment plant of the Papirnica Vevče paper mill, designed for the treatment of wastewater produced in paper production. In this context, we are now responsible for the smooth operation of the plant, the compliance of parameters with the applicable legislation and the values agreed with the **Vevče paper mill**, and for the maintenance of all the mechanical, technological, and electrical equipment.*



*We are also in charge of industrial water treatment at the **Paloma Sladki Vrh paper mill**.*

Efficient use of waste heat

- Circular resource management
- Reducing the use of primary energy sources
- Improving working conditions with optimal ventilation
- Cooperation between industry and the local community
- Reducing the carbon footprint
- Ventilation with heat recovery

Source heat exchangers (waste heat capture)



In industry, **waste heat can be an excellent source of energy** for production processes, space heating, and domestic hot water, as well as a heat source in district heating systems. The most common **sources of waste heat** are hot flue gases at the exhaust from various types of combustion devices, waste heat in compressed air systems, and waste heat from cooling systems. But the primary contribution to a comfortable and healthy working environment are **ventilation systems** which return the energy of the exhaust air. In an industrial environment, it is crucial that such systems are **properly designed and installed**, as in these environments, the air is usually quite polluted and ventilation losses are high.

*At Petrol, working together with experts from SIJ Metal Ravne and the Centre for Energy Efficiency at the Jožef Stefan Institute, we developed a solution on how to use the **excess heat** from the metallurgical processes of SIJ Metal Ravne for **district heating** in Ravne na Koroškem and the industrial area, and for **domestic hot water heating** in the industrial area. In 2019 alone, we thus saved CO₂ emissions in the amount of 1,741.26 t.*

Excess heat generated during the cooling of the electric arc furnace in the company SIJ Metal Ravne, provides 41% of the heating needs of the town of Ravne.



Demand side management and production of electricity

- Integrating systems into an aggregator platform
- Adaptation of energy production and consumption
- Providing financial savings
- Smart (Tango) systems management
- Improving the stability of the electricity network

The **stability of the energy system** requires not only sufficient electricity production, but also the adjustment of electricity production and consumption. You can also provide a reliable, stable, and fast service for adjusting the consumption and production of electricity in your business community, by **connecting your flexible units to our aggregator platform**. Flexible demand can be provided with batteries, diesel generators, CHP units, and electric boilers, the use of which is steadily increasing. In this way, you will **intelligently manage surpluses or shortages** of electricity, while at the same time **improve the stability** of the electricity network, postponing investments in new infrastructure.

Petrol participates in several development projects, such as the **X-Flex** project, where we are developing tools that will enable and facilitate the **use of flexibilities** in the electricity system. Another successful development project is **DEUP** (Integrated Energy Management Demonstration), where, along with our partners, we **developed a demonstration platform for consumption management in the steel industry**, a tool for the optimal use of flexibility, and a modern energy system for energy management in the industrial environment.



Supply of energy products

- Comprehensive supply of energy products
- High-quality and reliable supply of energy products
- Affordable and environmentally friendly energy
- Competitive energy product prices
- Provision of specific energy products

Our concern is the reliable and competitive supply of all types of energy products, including industry. We provide **high-quality energy products** adapted to specific applications, with many benefits for people and the environment. We strive to **select technologies and environmentally friendly energy products** that contribute to decarbonisation.

We provide energy products such as natural gas, liquefied petroleum gas, electricity, district heating, biomass and heating oil, as well as industry-specific energy products such as cooling water, compressed air, technical gases, and industrial steam. As an energy product, hydrogen will also play an important role in the transition to a low-carbon society. At Petrol, we monitor the development of hydrogen, and study various possibilities for its integration and use.

Liquefied petroleum gas supply for Mlekarna Planika





Operation of industrial areas

- Reliable and safe operation of closed industrial areas
- Providing the necessary energy and energy products to a sufficient extent
- Tracking development needs and legal requirements
- Caring for the environment and "giving back" to the local community

As the operator of the closed electricity distribution systems in the Ravne and Štore **industrial areas**, Petrol is responsible for a reliable and secure long-term energy **supply**, and **system operation**. The **waste heat** generated in metallurgical processes is a **source for district heating** for the needs of the town of Ravne and the entire closed industrial area of Ravne. We are also in charge of the **distribution** of natural gas, the production and distribution of compressed air, and the preparation, distribution, cooling, and treatment of **industrial water**. Using wastewater collection and treatment solutions, we follow the customer's development needs and legal requirements.



Petrol has been overseeing the energy management of the entire closed industrial areas of Ravne since 2002, and Štore since 2003. Around 70 companies with about 4,000 employees operate in both complexes.



Sustainable and cost-effective mobility

- Greater flexibility
- Own source of electricity
- Aesthetic placement
- Simple "plug and play" installation
- Reliable operation in all conditions
- Dynamically adjustable charging power from 3 to 22 kW
- Web application for operation management and monitoring
- Colour LED status display
- Long-term business rental of electric vehicles

We also help industry in the transition to cost-effective and low-carbon mobility, by **developing new transport possibilities**. We are working to introduce **sustainable mobility models** that reduce traffic pollution, which includes the supply of **alternative fuels**.

We offer you professional assistance in the **planning, installation, and management of charging stations** for electric vehicles, and in the gradual transition to electricity-driven traffic. We take care of the **efficient charging of all electric vehicles**, without interfering with your energy network. By **setting up e-charging stations** and modernising your vehicle fleet, you can also significantly reduce greenhouse gas emissions, and simplify employee mobility in your industry.

*Petrol's integrated e-mobility services are also used by **Pivovarna Laško Union**, where Petrol fully manages and maintains their electric fleet, in addition to the charging infrastructure. A similar cooperation has also been undertaken with **Knauf Insulation**, where Petrol's range of comprehensive business services includes everything from vehicle rental, with comprehensive fleet management and maintenance, to the establishment and management of charging infrastructure, charging services, and customer support services, as well as corporate vehicle sharing.*





A trustworthy partner

Dairy Mlekarna Planika in Kobarid

At Petrol, we are intensively investing in energy renovations of facilities and various energy systems in the region, as well as in their optimisation. We are driven by a desire to improve energy efficiency for our partners, ourselves, and our planet. Numerous reference examples prove that we are a reliable and trustworthy partner.

We are already trusted by many industrial companies including: ZGO Ravne, ZGO Štore, Paloma, Unior, SIJ Metal Ravne, Cetis, Salonit Anhovo, TRO Prevalje, Koto Ljubljana, Trimo Trebnje, Tehnološki park Ljubljana, Acroni Jesenice, Mlekarna Planika, Steklarna Hrastnik.

Unior: increasing the reliability of the district heating supply

Petrol and Unior have been successfully cooperating in the energy field for many years, striving to increase the reliability of the district heating supply, and ensure energy efficiency. In recent years, we have successfully implemented nine projects within the framework of energy contracting.

"By modernising heat production sources and installing a highly efficient cogeneration plant, we have increased the system's efficiency, reduced greenhouse gas emissions, and customers now have a long-term, reliable, safe, and competitive district heat supply. Cooperation is also taking place on other projects, such as biomass and solar power plants."

— Unior Group

Papirnica Paloma: we help industrial treatment plants to properly treat wastewater

Paloma and Petrol started cooperating in 2015 in the field of operational management and maintenance of their industrial treatment plant. By 2020, we carried out updates and automation of certain processes, and organised an on-call service in case of failures or interventions outside regular working hours.

»The Paloma industrial treatment plant is a classic biological treatment plant with activated sludge, intended for the removal of organic degradable substances from wastewater from the production of paper products. It oversees the treatment of process wastewater from production and municipal wastewater from the settlement of Sladki vrh (approximately 10% of the total amount). We annually treat more than 1,100,000 m³ of wastewater, and thus remove environmentally harmful and dangerous substances in accordance with all legal parameters, which is very important for our company."

— Paloma industrial treatment plant

Mlekarna Planika: transition to a cleaner and more energy efficient energy product

The European Alternative Fuels Strategy lists liquefied petroleum gas (LPG) as one of five alternative fuels to enable the transition to a low-carbon society. With the help of Petrol, it has also been introduced by Mlekarna Planika in Kobarid. The plant in Mlekarna Planika is powered by water vapour, which the company uses for milk processing and for heating facilities. Prior to the transition to LPG, water vapour was produced with residual fuel oil, i.e. heavy oil. LPG provided a more environmentally friendly, technically cleaner, simpler, and at the same time more financially viable energy product. The investment reduced heating costs by 8.2% and the total cost savings are around 15%. Energy savings amount to 140 MWh per year, and in addition to lower CO₂ emissions, they practically eliminated emissions of sulphur compounds.

"The vision of Mlekarna Planika is to purchase everything that is produced by our farmers, who are also 100% owners of the company, and we process the purchase into the best possible products to sell on the Slovenian market. The vision of Mlekarna Planika is also to preserve our living environment. We are an extremely organic dairy, and we must strive for these values in all respects, while also taking care of economic efficiency. The results of the transition to the new energy product are positive, and the savings are self-evident. It is of the utmost importance that we minimise pollution of the environment."

— Anka Lipušček, director of Mlekarna Planika

SIJ Metal Ravne: beneficial use of waste heat as a source for district and domestic hot water heating

Waste heat generated during the cooling of the electric arc furnace in the company SIJ Metal Ravne used to be dissipated into the environment via cooling towers. Working together with experts from SIJ Metal Ravne and the Centre for Energy Efficiency at the Jožef Stefan Institute, we developed a solution on how to use waste heat for heating the town of Ravne na Koroškem, the entire industrial area of Ravne, as well as for domestic hot water heating. In 2019 alone, we thus saved CO₂ emissions in the amount of 1.741 t. This project proved that even industrial and energy-intensive economic environments can develop in synergy with the local community, and contribute to environmental protection and the circular economy.

"In 2019, we handed over 8,611 megawatt hours of thermal energy, generated as waste heat in the process of cooling the electric arc furnace in the company SIJ Metal Ravne, to the local energy supplier for heating the town of Ravne na Koroškem. This amount covers about 41 percent of all the heat required for Ravne na Koroškem."

— SIJ Group



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