

The Future of Energy. **Pro2.**



# THE FUTURE OF ENERGY

## Greater demand, increased performance. **Pro2.**

Pro2 is your premium system partner for decentralised energy technology and bioenergy. Our technologies for electricity and heat generation are among the most advanced in the industry. Pro2 plants supply people and businesses with energy throughout the world – from globally active electricity companies to municipalities, agribusinesses and industrial companies.

As a medium-sized enterprise with headquarters in Willich, Germany, we are targeting future expansion in growing international markets for decentralised and renewable energy resources. Pro2 began with the treatment and conversion of landfill and coal mine gas to electricity. With our many years of experience since then, we now plan, build and operate highly efficient plants for the profitable utilisation of renewable energy resources.



Specialist Pro2 engineers are active at many locations in Europe, Asia and South America. We offer customers competent engineering services combined with standard containerised plants and dependable service covering all areas from planning, construction and maintenance through to plant leasing.

We use only high-grade components and materials in our plants and products. Co-generation power plants with gas treatment, high-temperature flare stations, compressor plants, special gas utilisation or lean gas disposal ensure first-rate performance: Pro2 technologies guarantee that the greatest possible amounts of energy are extracted from biogas, sewage gas, landfill gas, coal mine gas, natural gas and vegetable oil. Profitable, efficient and dependable, exactly what you expect from a premium quality partner like Pro2.



- Global leadership in climate protection technologies for electricity and heat generation



# High - e n d

Greater quality, increased performance, more profit. **Pro2.**

# Performance



- Decades of experience and expertise in decentralised power generation.

High-end performance for power generation in various ranges from 200 kilowatt to 2 megawatt. Optimised efficiency thanks to highest quality standards. High-grade monitoring and customised tuning of all components to local conditions.

Our engines are exceptionally efficient, yet extremely robust and wear-resistant. Decades of experience and expertise in decentralised energy generation go into the design and construction of our CHP plants.

Pro2 technologies enable qualitative treatment of the raw material and ensure high system availability. The result: greater efficiency, increased performance and higher profits.

We equip our containerised CHP plants with our own modules to maximise their energy conversion efficiency. Our Pro2 system solutions are tuned to exactly match the quantities and qualities of input gas. We have a large international plant portfolio maintained by our widespread network of service engineers.

Profitable – for both you and the environment.



Biogas

Sewage gas

Coal mine gas

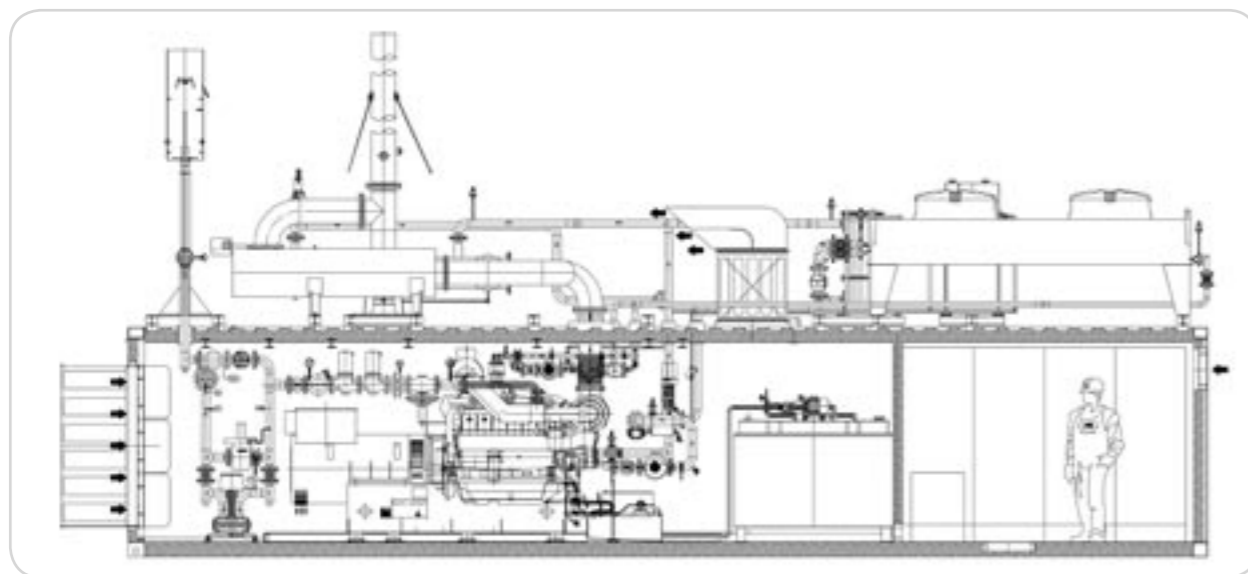
Landfill gas

Natural gas

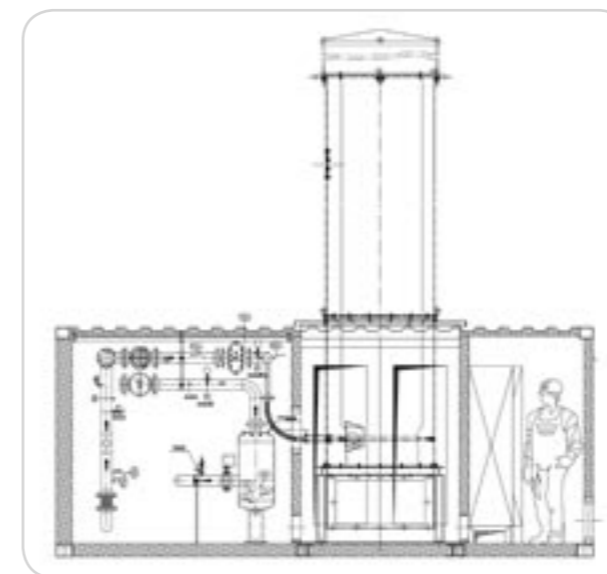
Vegetable oil

The result is what's important and this is why we offer products and services of the highest quality. As a system partner we don't just supply the renewable energy plant - we take care of the gas collection, compression, gas cleaning and disposal as well. Our overall system expertise means greater benefits for you as a result of fewer interfaces, ensuring high overall

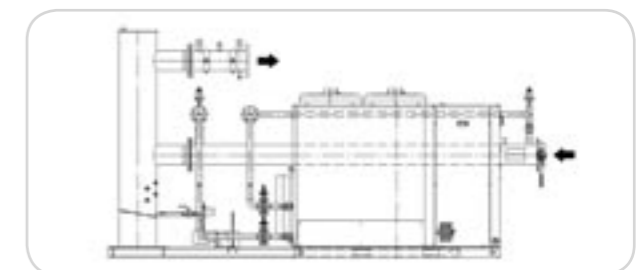
plant performance. This applies not only in the implementation phase, but during years of reliable operation as well. Pro2 provides a solution for efficient and profitable energy generation using locally available resources.



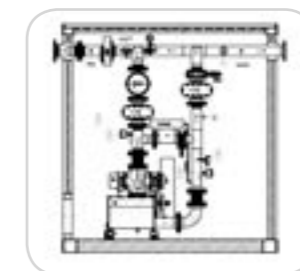
Co-generation power plant



Flare station



Gas treatment



Gas compressor

■ System expertise from one source



# Biogas

Optimum energy generation using renewable resources.

Pro2's modern technologies take advantage of the fermentation process in natural biodegradable materials to generate energy using a fuel that is both efficient and environmentally sound: biogas. The mixture of methane and carbon dioxide provides approx. 5.5 kWh/m<sup>3</sup> and offers a clean alternative to fossil fuels.

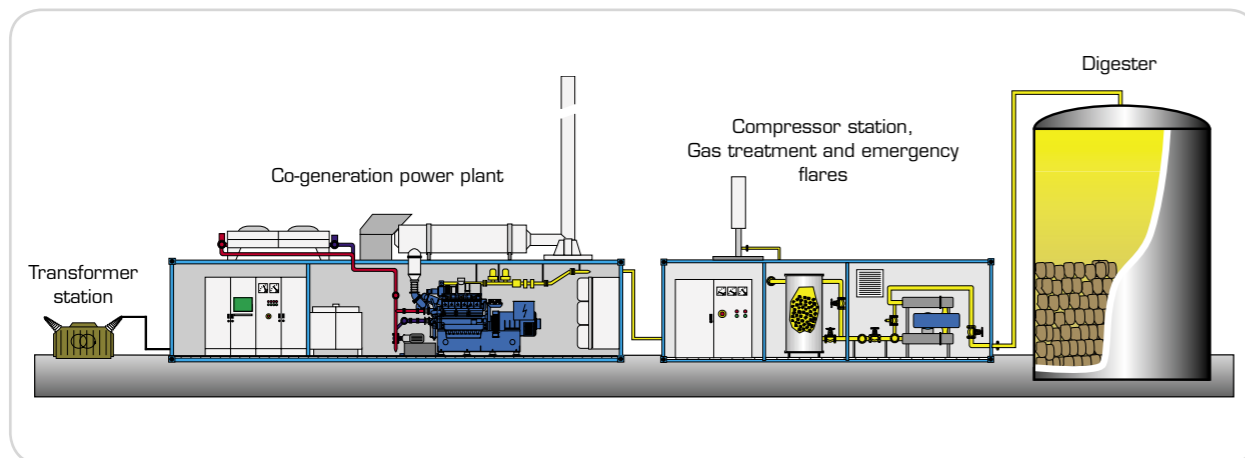


Diagram of a biogas CHP plant with digester

Our co-generation power plants deliver exceptional performance ratings while ensuring the environmentally-friendly generation of electricity and heat. Disposal costs are reduced thanks to the utilisation of organic residual materials for biogas generation. Electricity and heat generation using biogas makes an important contribution towards creating local added value. In addition to being environmentally sound, this type of energy generation offers agricultural businesses long-term economic benefits.



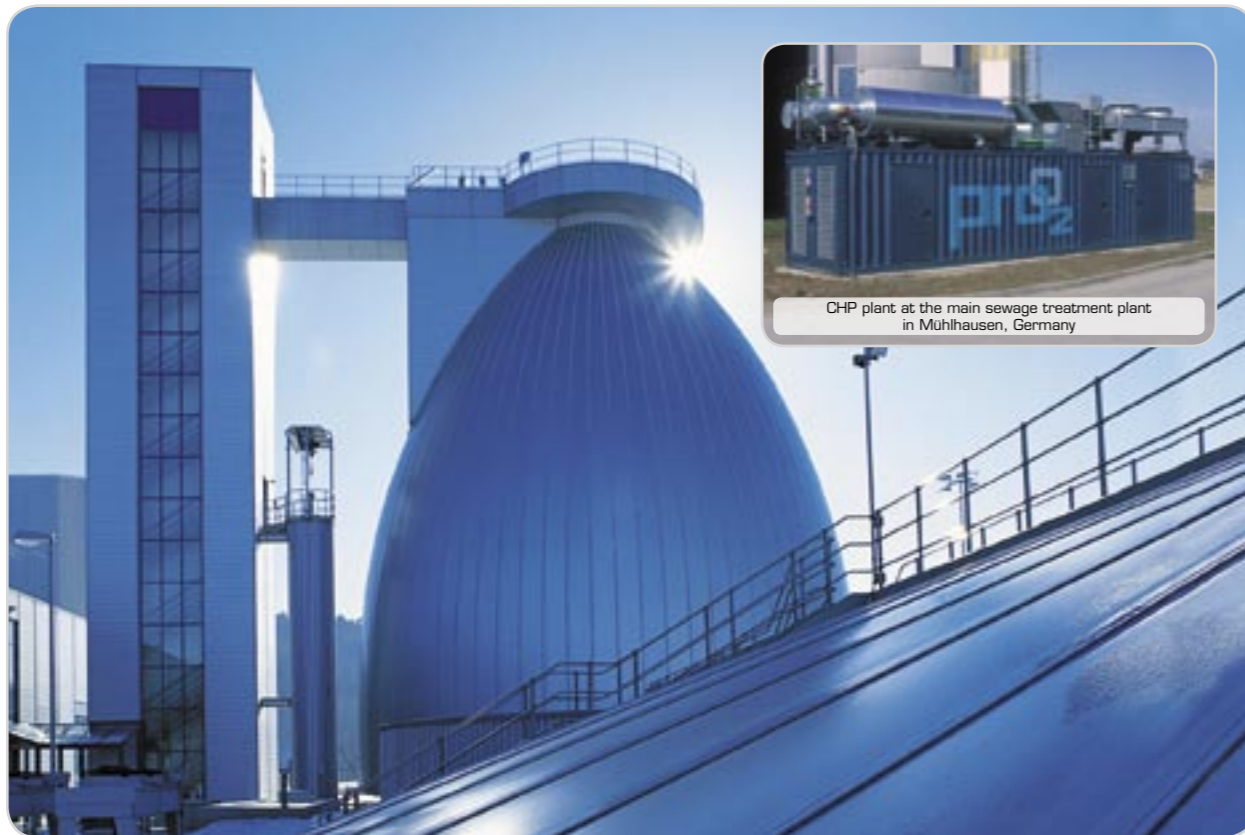
Biogas plant with gas cleaning station in Kleinbautzen, Germany



Biogas plant in Steinfurt, Germany



# Energy Field



CHP plant at the main sewage treatment plant in Mülhausen, Germany



Natural gas plant in Munich (Germany)

## Sewage gas

- Energy generation increases profitability.

Treatment of waste water and digestion of sewage sludge produces sewage gas containing methane. We utilise this energy-rich gas in our co-generation power plants to generate energy efficiently. The resulting quantities of heat and power make it possible to supply sewage treatment plants with electricity and heat – in some cases completely self-sufficiently. Sometimes there is more energy available than is needed to supply the plant and the excess energy is fed into the local power grid, making the operation of the sewage treatment plant even more profitable.

In addition to energy conversion, Pro2 systems also take care of gas treatment, condensate separation and cleaning as well as sewage gas disposal. The modules can be integrated into existing buildings of the sewage treatment plant or implemented in a container-type design.

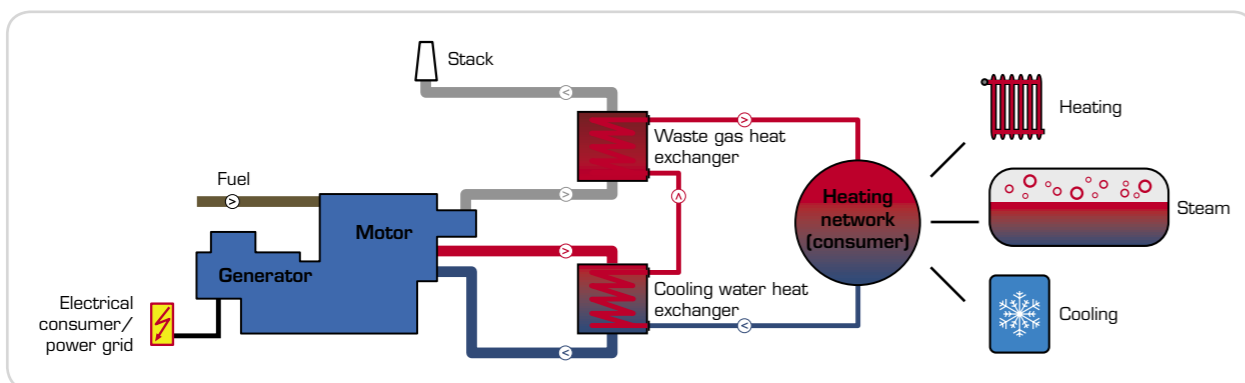


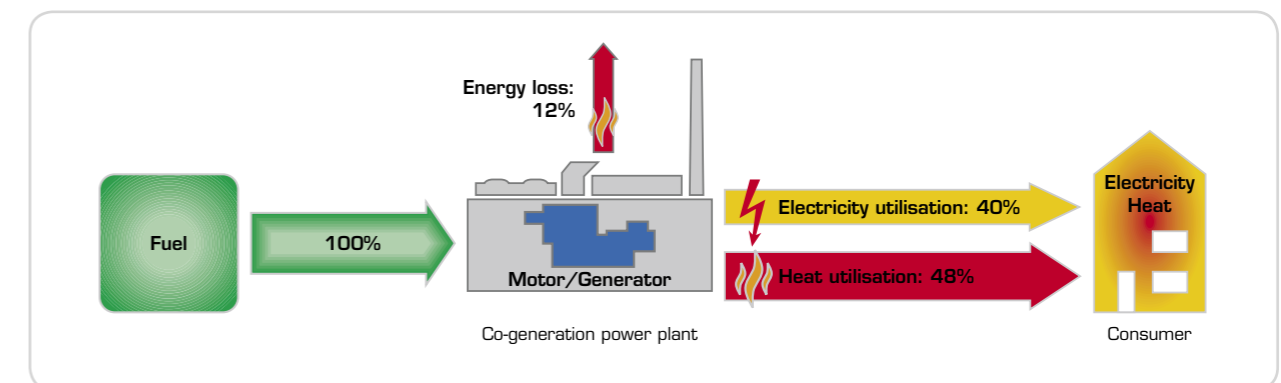
Diagram of tri-generation system

## Natural gas

- Decentralised energy generation with profitability in mind.

Natural gas has one of the lowest CO<sub>2</sub> emission values of all fossil fuels. With its well-developed supply system, this natural resource has an enormous potential to increase efficiency in the energy sector. Highly profitable energy generation with Pro2 natural gas CHP plants gives you independence from the power grid.

Thanks to Pro2's advanced co-/and tri-generation technologies, our natural gas CHP plants are able to achieve an overall efficiency rate of up to 90 percent. This enables individual buildings such as hospitals, swimming pools, heating networks or even entire industries to become highly efficient, self-sufficient and – in some cases – energy suppliers to public power distribution grids themselves.



Energy generation in a co-generation power plant



## Landfill gas

- Controlled gas collection, profitable energy utilisation.

The safe collection and disposal of landfill gas is a sensitive topic. Released uncontrolled, it represents a health hazard and a danger to the climate and environment. Used wisely, the fuel can be converted into an energy resource.

As one of the market leaders active throughout the world, we treat landfill gas mixtures and make them useable. Our profitable plants specially equipped for application in this area are competitively priced, effective and safe in the utilisation and disposal of landfill gas. Our high-temperature flare stations provide an environmentally sound means of disposal for non-useable landfill gas – climate protection technology par excellence.

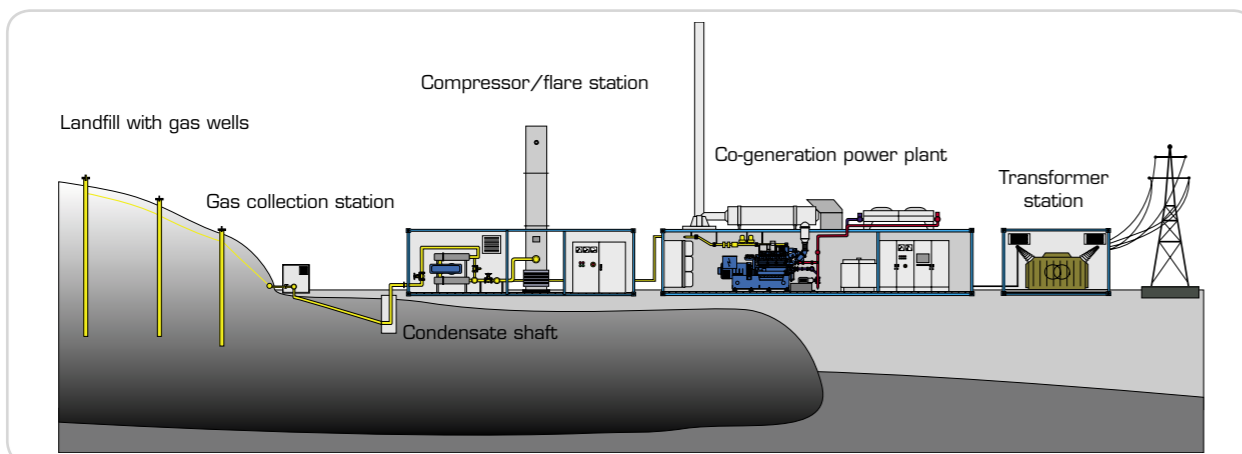


Diagram of landfill gas utilisation



## Coal mine gas

- Climate protection and more energy

The release of mine gas is an unwanted side effect of coal mining. Not disposed of properly, the methane mixture contributes to global warming. In addition, the explosive mixture represents a safety hazard as well.

Here too, Pro2 coal mine gas CHP plants enable both an effective and safe way to generate electricity and heat - even with extreme fluctuations in the quality and quantity of the natural coal mine gas reserves. Thanks to decades of experience and expertise in the area of gas treatment, Pro2 technologies turn the treatment and utilisation of coal mine gas into a profitable source of energy.

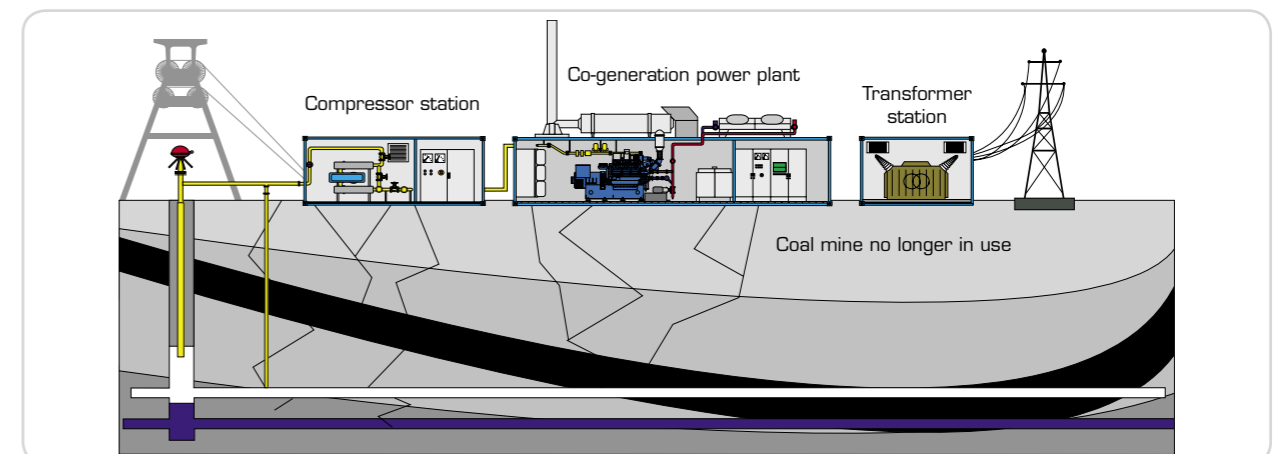


Diagram of coal mine gas utilisation



Biogas plant with gas cleaning station in Wassenberg, Germany



Landfill gas plant with gas cleaning station in Nurlu, France



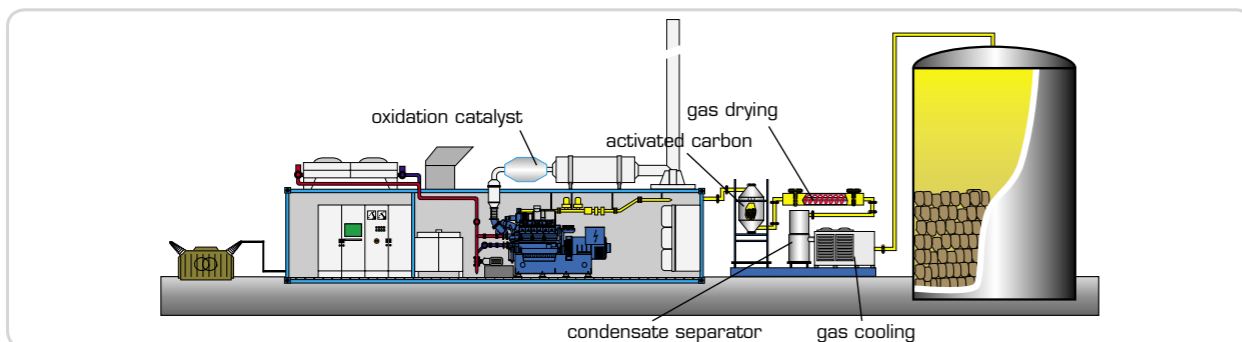
## Gas Purification

### ■ Pro2 – Modules for the purification of Sewage-, Bio- and Landfill-Gas.

For trouble free operation of high efficiency Gas Engines, a refined high quality gas is a basic essential. In addition to the popular and efficient Biogas plants, Pro2 also offers solutions to enable the more complex gases that come from Sewage – Landfill or Biogas using waste foodstuffs, to be refined via individual Gas Purification Technology.

Dependant on the local circumstances, there are harmful pollutants such as Hydrogen sulphides or silicon based particles that can be purified using special Carbon Coals. In addition for an optimal Pre-gas usage point, we can incorporate Gas drying – warming technology, individually suited to the requirements.

As a result the operating company can profit not only from the “clean-burn process”, but also the concluding availability of the plant as a whole. Less wear and tear on the Gas-engine reduces service intervals and therefore costs, all this leads to a more economic use and obviously more profit.



Biogas- and exhaust gas cleaning station

## System Technology

### ■ Total solutions from one provider.

An economic operation of the total plant is only feasible when all the components are precisely tuned and linked together. Pro2 is a complete system provider capable to design and build using in house engineering.



### Compressor Station

The continual use of the available gas is only possible with optimised gas transport methods. Pro2 can deliver compressor stations for Bio – Refuse – and Mine gases, with pressure differences ranging from 100 mbar to 10 mbar.



### Flare

Where it is not always possible to continually utilise the gas emission, then a Flare must be installed. Pro2 offers a wide range of flare stations, from simple emergency flares to complex high temperature flares for complex gases.

# Premium Services for exceptional results. **Pro2.**



Worldwide monitoring



Customised service



Comprehensive maintenance expertise



Turn-key and flexible plant exchange



Always close to where you are

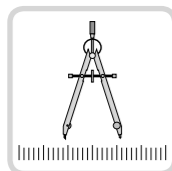


24-hour availability

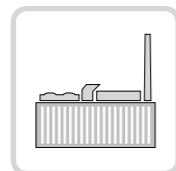
Our Pro2 Premium Services are characterised by high-performance solutions and expertise in plant maintenance and monitoring. Our teams consist exclusively of experts. Mechanics, technicians and engineers are the personal contacts to our customers and are always ready to serve. The on-site optimisation of the plant is no exception. Our experts use original premium quality spare parts, which are always kept on stock to ensure fast delivery.

We apply the high standards of our Pro2 Premium Services for our customers on a daily basis: performance-based service packages customised to fit the detailed operational needs of the individual plants. The plants are monitored continuously, 24 hours a day, using innovative software specially developed for this purpose. The Pro2 Teleservice enables us to directly adjust the plant parameters. Even the smallest deviations can be detected and corrected via data transfer before faults occur.

## Core competencies applied economically. Pro2 Contracting.



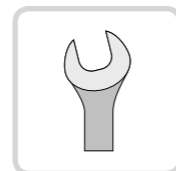
Planning



Construction



Operation



Maintenance

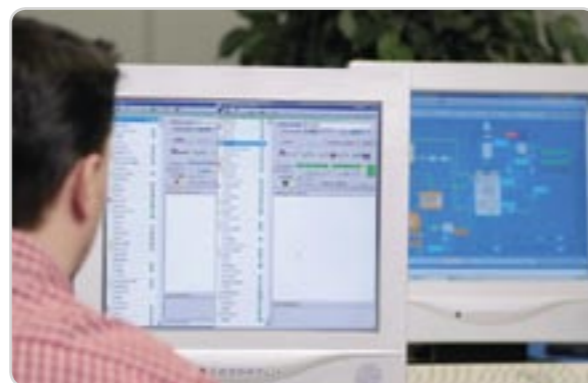


Financing

The highest level of expertise and years of experience are the best basis for continuous profitability of plant operation. With a form of contracting that is carefully conceived, Pro2 enables customers to reap the attractive advantages of energy generation using renewable and decentralised energy resources.

Our customers can stay focused on their core business while Pro2 takes over the planning, construction, operation, maintenance and financing of the respective plant – and thus the responsibility for the fastest possible amortisation and highest profitability as well.

Pro2 contracting is coupled with a comprehensive services portfolio. It includes 24-hour monitoring of the plant by our qualified engineers as well as flexible adjustment of the containerised plant size to the changing gas reserves or energy requirements. This ensures that energy generation is always optimised to match the available resources.



- Stay focused on your core business



