



| key-energy

Innovations in Hydrogen
Technology for a
Sustainable Future

www.key-energy.eu

Introduction

Welcome to key energy Anlagenbau GmbH - pioneer in the hydrogen revolution for a sustainable future!

We are pleased to introduce you to our pioneering technologies that pave the way to a greener and more sustainable world. As a leading company in the hydrogen sector, we are proud to offer innovative solutions that reshape the energy industry.

In a world where sustainable energy sources are playing an increasingly important role, key-energy relies on forward-looking technologies that not only meet the need for clean hydrogen, but also show efficient ways to integrate renewable energy into our everyday lives.

Our corporate philosophy is characterized by a clear goal: the creation of a sustainable future in which environmentally friendly energy solutions are not only standard, but also effective and efficient.

Join us on a journey through our innovations that are revolutionizing not only the hydrogen industry, but also the way we use energy. Key-Energy stands for pioneering spirit, environmental awareness and the use of state-of-the-art technologies to shape a sustainable energy future.

We cordially invite you to learn more about our pioneering technologies and to jointly pave the way towards a green future.

With lasting greetings,

Baumgarten Günther
CEO
key energy Anlagenbau GmbH

Company at a glance

Our way, our mission, our future

Company history:

The first steps in research and development were taken by us in 2012. Since our founding in 2016, at key energy, we have consistently worked to further develop and improve pioneering technologies in the hydrogen sector. Our journey is characterized by innovative spirit and the pursuit of a sustainable energy future.

"We are only at the beginning of our journey with key-energy. We have the vision of a world in which you drive, travel, heat, produce and consume without harming the environment."

CEO, Günther Baumgarten

Hydrogen Technology

HHO Energy+

The patented innovation involves an innovative process for the electrolytic generation of a gas mixture containing oxygen and hydrogen. This process entails passing electrical current through electrodes into a liquid electrolyte medium, resulting in the production of oxygen and hydrogen gas, which partially exits the electrolyte medium as electrolysis gas.

Furthermore, it features an advanced electrolysis device for producing this gas mixture. The electrolysis device includes at least one container for holding the electrolyte medium and electrodes arranged therein for introducing electrical current into the electrolyte medium.

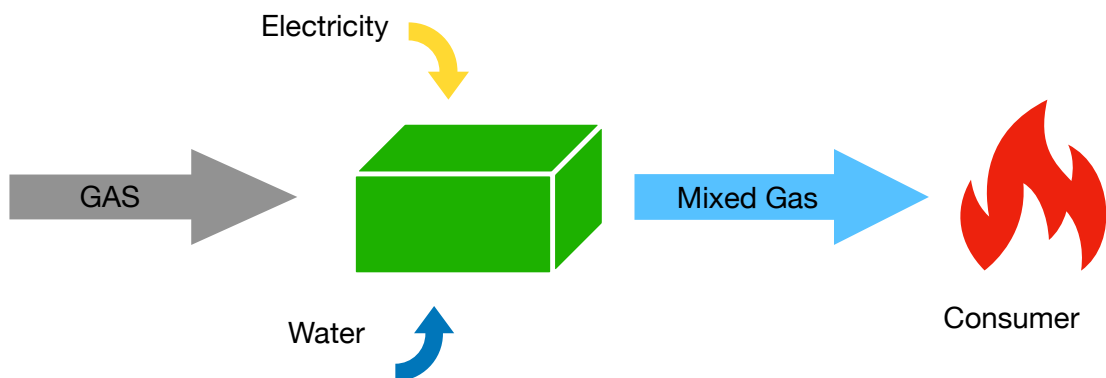
By directly mixing the electrolysis gas with the additive gas, the oxygen content in the gas mixture is reduced. This significantly lowers the risk of explosion and allows for easy handling of the gas. The hydrocarbons ensure that the resulting gas mixture remains combustible and can be effectively used as a fuel.



Hydrogen Technology

HHO Energy+

FUNCTIONALITY OF THE SYSTEM:



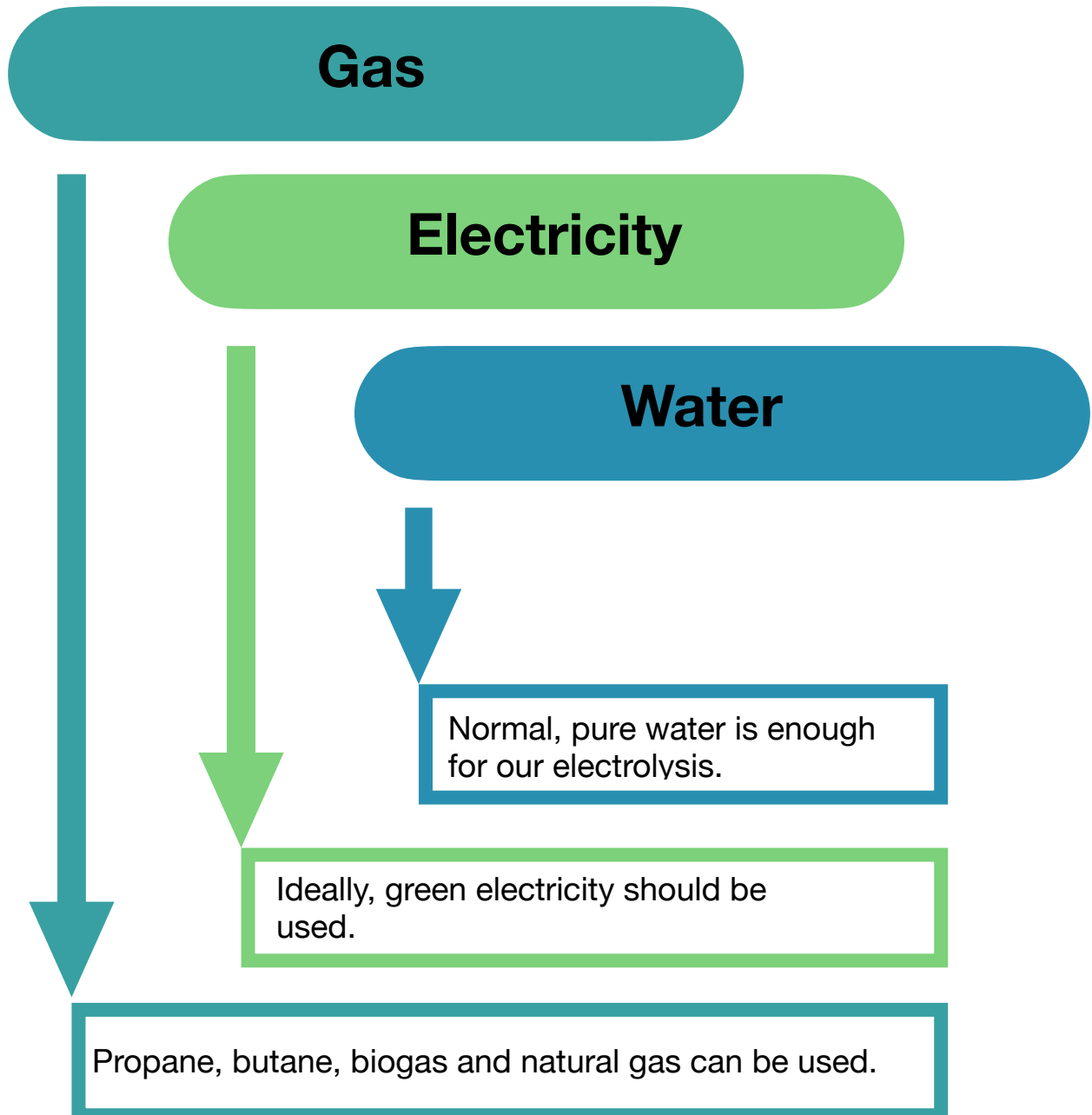
HHO gas, also known as "Browns Gas" or "Knallgas," is a promising and innovative energy source that has gained increased attention in recent years. It is a mixture of hydrogen (H_2) and oxygen (O_2) in a 2:1 ratio, just like in a water molecule.

HHO gas is produced through electrolysis, where water is split into its components, hydrogen and oxygen, using electrical current. This gas composition has higher energy efficiency than pure hydrogen because it not only utilizes the benefits of hydrogen as a fuel but also retains the positive properties of oxygen.

A particularly interesting aspect of HHO gas is its applicability as an environmentally friendly energy source. When HHO gas is burned, only water and heat are produced, without harmful emissions of carbon dioxide or other pollutants. This makes it a promising option in the quest to develop more sustainable energy alternatives.

Hydrogen Technology

Required connections



Hydrogen Technology

Advantages



Affordable



Safe



Decentralized



Fast ON/OFF



Low



Modular



Low pressure



Low temperatures

Regional independence and security of supply

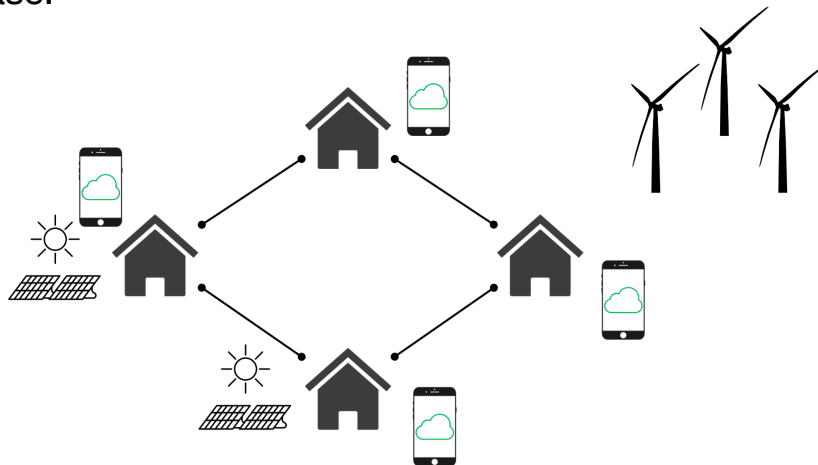
Decentralized facilities significantly contribute to regional independence by offering the possibility to produce hydrogen on-site. This not only promotes the self-sufficiency of individual communities but also strengthens supply security by making them less susceptible to external disruptions and transportation issues.

Another crucial aspect of decentralized hydrogen production is the integration of renewable energies. Combining electrolysis facilities with renewable energy sources such as wind or solar power creates green hydrogen, produced without the use of fossil fuels. This helps further minimize the ecological footprint.

Through local production, regional independence, and the integration of renewable energies, decentralized facilities not only offer efficient solutions but also help address the challenges of climate change successfully. Investments in these technologies are thus not only economically viable but also environmentally sensible, representing an important step towards a sustainable future.

Energize Pro

The patented **EnergizePro** energy management system allows the end customer to manage the energy obtained from energy suppliers as well as self-produced electricity (for example, through the use of a solar installation) in a software database.



How it works:

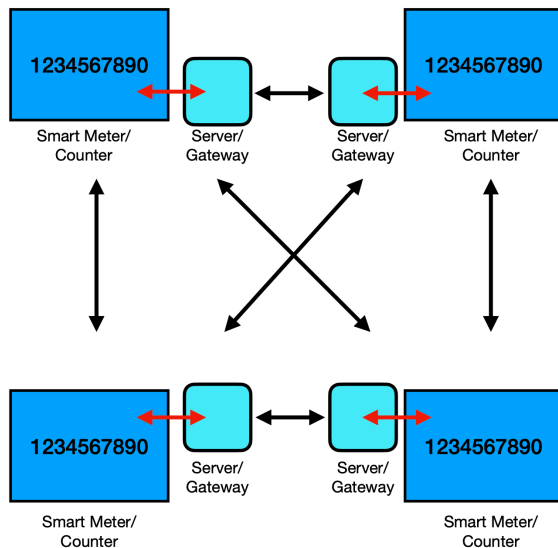
Each consumer has their own "server" that enables them to interact with all others in the network. This intelligent software allows for efficient utilization of electricity within the system. The system also communicates through a decentralized control system where data is managed. The principle is based on a decentralized database system.

The same data is stored in each system, providing better protection against possible manipulations of centralized control systems. It is defined which consumers can be supplied with external surplus energy or how much energy from self-production (photovoltaic, storage, etc.) is available for other providers. Customers form their own network where all data is managed.

Energize Pro

The software manages all servers in the network (houses, businesses, schools, etc.), enabling the most efficient use of energy within the network. All data is encrypted during transmission, and all servers are connected via IP Ethernet, ensuring reliable data exchange. With the energy management system, end consumers can autonomously exchange their electricity and act completely independently. With this function, the consumer network could also be operated entirely without electricity producers. This method represents a unique exchange and communication within the network.

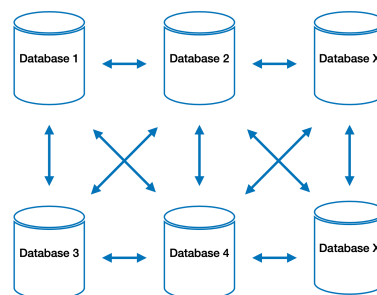
Example: Smart meter or similar (electricity meter) with a server and how the communication could look (star-shaped).



"The true power of energy lies not only in its generation but in the intelligent way it is shared. Smart energy exchange between households is the key to collectively shaping a sustainable future – one where each household not only consumes energy but also shares it to make the world better together."

CEO, Günther Baumgarten

Energize Pro



Power Distribution:

Since surplus energy from the system can also be transferred within the system, this value can also be determined by the customer. There is the option to either choose a fixed output to be fed into the network, or a dynamic value that exceeds self-consumption at a specific time.

The server can communicate with the smart meter or a separate meter that transfers precise data from the system. Consumers are directly controlled via the server. All consumers of the respective customer are listed in the gateway's software and can be individually activated for the network system or, if desired, remain in self-management.

This interaction between consumers, power, energy, and producers leads to a unique and forward-thinking system. Consumers can include, for example, dishwashers, washing machines, heaters, pool pumps, charging stations, etc.

Management of surplus energy

EnergizePro also presents an approach to electricity exchange between end customers, which can significantly enhance the efficiency of the power grid. Existing smart grid solutions only concern the relationship between the energy provider and the consumer. In the future, end consumers will increasingly become electricity producers with their own photovoltaic systems, with energy from storage systems also being regulated and controlled between end consumers. EnergizePro can thus ensure the independent operation of consumers among each other. In the best-case scenario, conventional smart meter solutions transmit data with a delay of 15 minutes and therefore cannot be used in various applications. EnergizePro uses a separate meter to generate data, thus providing real-time data.

In Conclusion

Together for a greener future

Our vision:

We envision a world where sustainable energy sources are the norm and environmental friendliness is at the heart of every energy project. Our vision is to shape the path towards a green future, where innovative hydrogen and energy technologies not only alleviate environmental burdens but also foster economic progress.

Commitment to research and development:

In order to make this vision a reality, we invest intensively in research and development. Our dedicated team members and partners of scientists and engineers are constantly working to push the boundaries of hydrogen technology. New ideas, innovative approaches and state-of-the-art technologies are at the center of our efforts.

Future projects and goals:

The journey never stops, and we are always looking for new challenges and opportunities. In the coming years, we plan to further diversify our portfolio and implement groundbreaking projects in the hydrogen industry. Our goal is to further optimize the use of hydrogen as a key resource for a sustainable energy future.

Thank you for your interest and trust!

With a big thank you, we close this brochure from key energy Anlagenbau GmbH. It was our pleasure to give you an insight into our pioneering technologies in the hydrogen sector and to share our vision for a sustainable future.

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