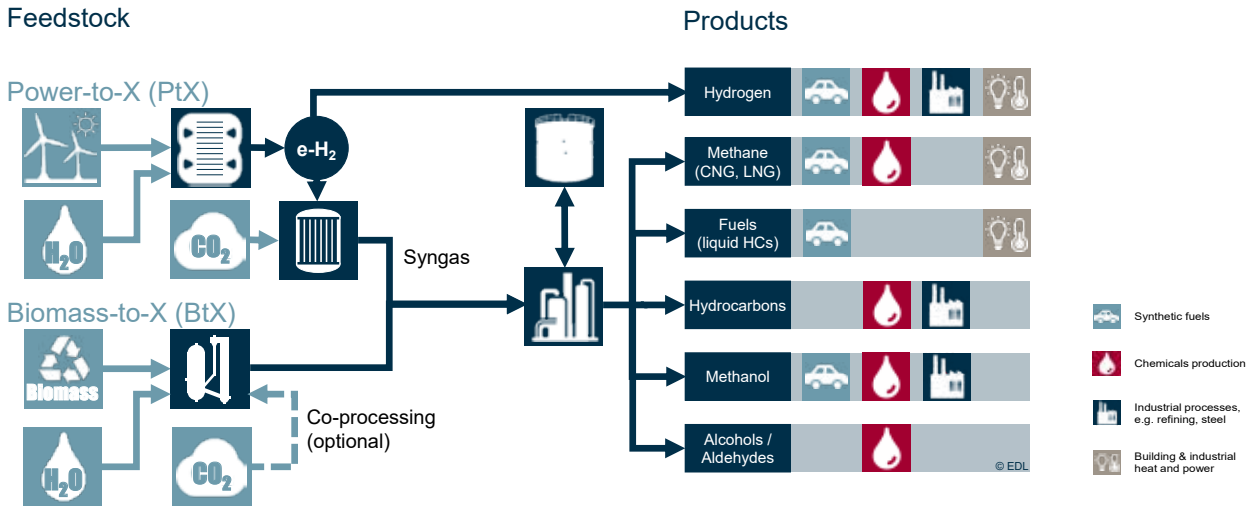
GREEN ECONOMY

The upcoming years are decisive for the energy transition. Carbon neutrality, renewable energies and sustainable growth are the challenges of our time. Only with local and sustainable energy and economic cycles, we can safeguard our future and save consequential costs. As a competent partner, the Pörner Group supports the industry in improving its carbon footprint and in switching from fossil fuels to renewable energy sources using sustainable Power-to-X and Biomass-to-X solutions. With the Pörner Group as your process plant engineering contractor you will have all options for a 'green production'.

PÖRNER GROUP: THE HOME OF GREEN ENERGY

Sustainable mobility, environmentally friendly energy generation as well as an efficient use of energy and natural resources are essential for sustainable growth.
According to the EU Renewable Energy Directive (RED II), the share of renewable energy in Europe needs to be increased to 32 % by 2030. The Pörner Group will support the industry in these projects with expertise in engineering and technology. The use of PtX / BtX technologies in all areas of transport and energy as well as in the industry is of special importance.



PtX and BtX technologies for the generation of hydrogen and synthesis gas as base material for a sustainable industry in all sectors.

We offer the whole range of PtX technologies from generation of hydrogen / synthesis gas through to the production of synthetic fuels and base chemicals. So, PtX facilitates an intelligent sector coupling between electricity, heat, transport, chemistry and industrial processes, thus making the required magnitude of decarbonization possible in order to meet the climate objectives.

PÖRNER GRUPPE

GREEN RESSOURCES

GREEN RESOURCES FOR GREEN PRODUCTS

Based on our extensive knowledge in process engineering and wealth of experience in plant construction, we offer complete solutions for the industry. Combined with third-party technologies, we always find the optimum solution for demanding tasks in the green tech area.

The most important resources are renewable electricity, biomass and CO_2. From these you can obtain sustainable synthetic products such as:

- Natural gas (bio methane, SNG)
- Hydrogen
- Methanol
- Fuels (gasoline, diesel, kerosene)
- Waxes / hydrocarbons for the chemical industry.

Our Pörner Group experts have the knowledge for the entire process chain from CO_2 extraction, gasification of wood, etc. through to the production of fuels and products.

WOOD AND WASTE WOOD – THE GASIFICATION OF TORREFIED BIOMASS

High-quality green syngas can be generated from storm-damaged and wind-blown timber, fallen dead wood, waste wood or old constructional timber. With adequate post-treatment, such as gas purification or methanation, it can be further processed into bio methane or hydrogen.

Torrefaction is a thermal treatment of biomass at temperatures typically between 250 and 280 °C. It is performed under atmospheric pressure and in absence of oxygen, which results in a partial pyrolytic decomposition and drying of the biomass. Using the two-stage gasification technology the versatile biosynthesis gas as well as biochar are generated. Biochar is a solid, dry material that can be used for example as activated carbon for water or flue gas purification, as fertilizer or as charcoal.

Torrefaction changes the properties of the biomass so that it has an increased energy density / calorific value, no longer decomposes, can be packaged, transported and stored more easily as pellet and can be used as a homogeneous and continuous feedstock for combustion and gasification applications.

1 MW pilot plant with the Torrgas / TAF / DBI process for the production of synthesis gas from torrefied waste wood in Delfzijl / The Netherlands; a 25 MW plant is planned

Synthesis gas from torrefied biomass is a versatile, scalable and cost-efficient way of producing renewable energy sources.

A large-scale 25 MW gasification plant for torrefied waste wood is planned by engineering partner Pörner in the Netherlands. TAF Freiberg – Pörner's competence center for gasification technology – will supply the required gasification equipment.

TAF
PÖRNER GRUPPE

pörner
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FUTURE-ORIENTED PTX SOLUTIONS

In its function as a technology-driven company and system integrator combined with decades of experience in plant engineering, EDL has developed industrial solutions for the production of power-based Sustainable Aviation Fuel (SAF), also known as eSAF or Power-to-Liquid (PtL) kerosene.

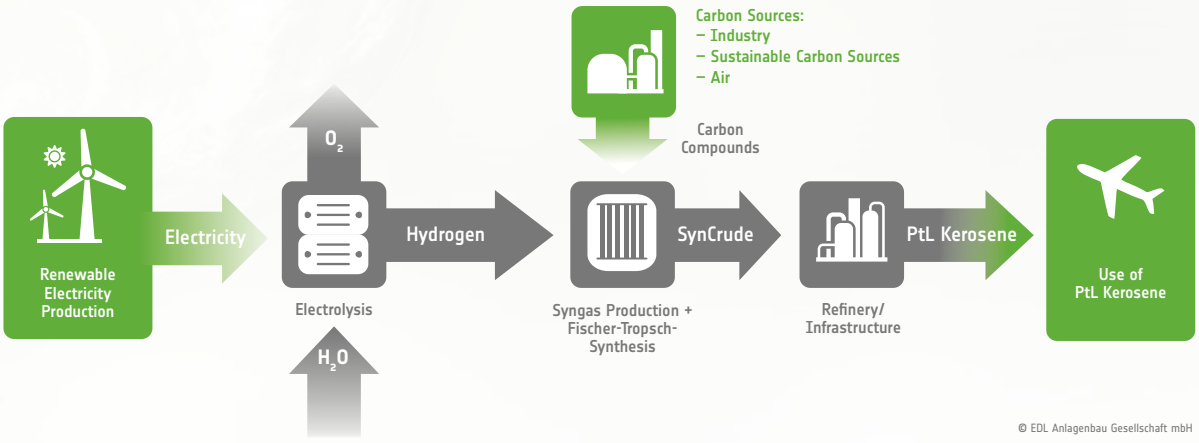
With the HyKero process, EDL offers an overall process based on „Technology Readiness Level 9“ technologies, thus already allowing industrial-scale production of PtL kerosene.

Key benefits of renewable aviation fuel, made from sustainable carbon sources, water and renewable electricity:

- Standard-compliant, high-quality SAF products
- Drop-in capability of the fuel
- Hardly any water consumption
- No new logistics infrastructure and no new propulsion systems required.

This makes synthetic fuels an excellent alternative to fossil fuels.

The HyKero plant for production of 50,000 TPA PtL kerosene - the worldwide largest industrial plant - will be built in the south of Leipzig in Böhlen-Lippendorf.



Classic oil refineries can use PtX products such as green hydrogen, green methanol or green Fischer-Tropsch hydrocarbons to improve their CO_2 balance and increase the portion of renewable fuel.

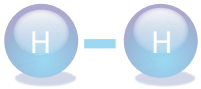
EDL
PÖRNER GRUPPE

GREEN ECONOMY

GREEN HYDROGEN THANKS TO PTX

Green hydrogen generated exclusively from renewable electricity by electrolysis of water, is an essential part of the energy transition. It is not only a versatile energy source, but also ideal as flexible storage medium for volatile wind or solar power. It also plays an important role in sector coupling.

Hydrogen or its reaction products produced through PtX technology can decarbonize areas where renewable electricity can hardly be used directly, as in cement or aviation industries. Additionally, hydrogen is used as feedstock in numerous industrial processes and can soon replace conventional feedstock, e.g. in steel production.



PLASTIC WASTE - VALUABLE RAW MATERIAL FOR THE INDUSTRY

The constant increase in plastic waste has become a global issue. This waste can be reused e. g. by raw material recycling.
With the patented EDL depolymerization technology, polyolefinic plastic waste is converted into valuable feedstock. This makes plastic waste a valuable raw material for the industry again.

Engineering and construction of a plant for the production of 4,000 TPA fully synthetic waxes from polyethylene and polypropylene through depolymerization; Webau / Germany, 2016

CUSTOMER BENEFITS

1. Technology competence
As a company specialized in technology and plant engineering and construction, the Pörner Group acts as integrator and combines new as well as already proven third-party technologies with its own technologies and know-how in various areas such as water, CO_2 and co-electrolysis, dry reforming, methanation, methanol synthesis, Fischer-Tropsch synthesis, hydrocracking, isomerization and biomass gasification.

2. Experience
With our knowledge and experience in refinery processes, hydrogen and synthesis gas generation as well as in using renewable energy sources, we create for our customers holistic solutions for environmentally friendly production plants.

3. Integrated project management
With decades of international experience, the Pörner Group manages projects from the basic concept to the entire engineering, procurement and construction supervision right up to commissioning, training and predictive maintenance.

A progressive and sustainable production is important in order to reduce global warming while taking into account economic feasibility. With our solutions, we support you along the way to CO_2 neutral processes and production. Contact us!

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