

Hitachi Zosen
INOVA

EtoGas Power-to-Gas Technology
Converting Electricity into Renewable Gases



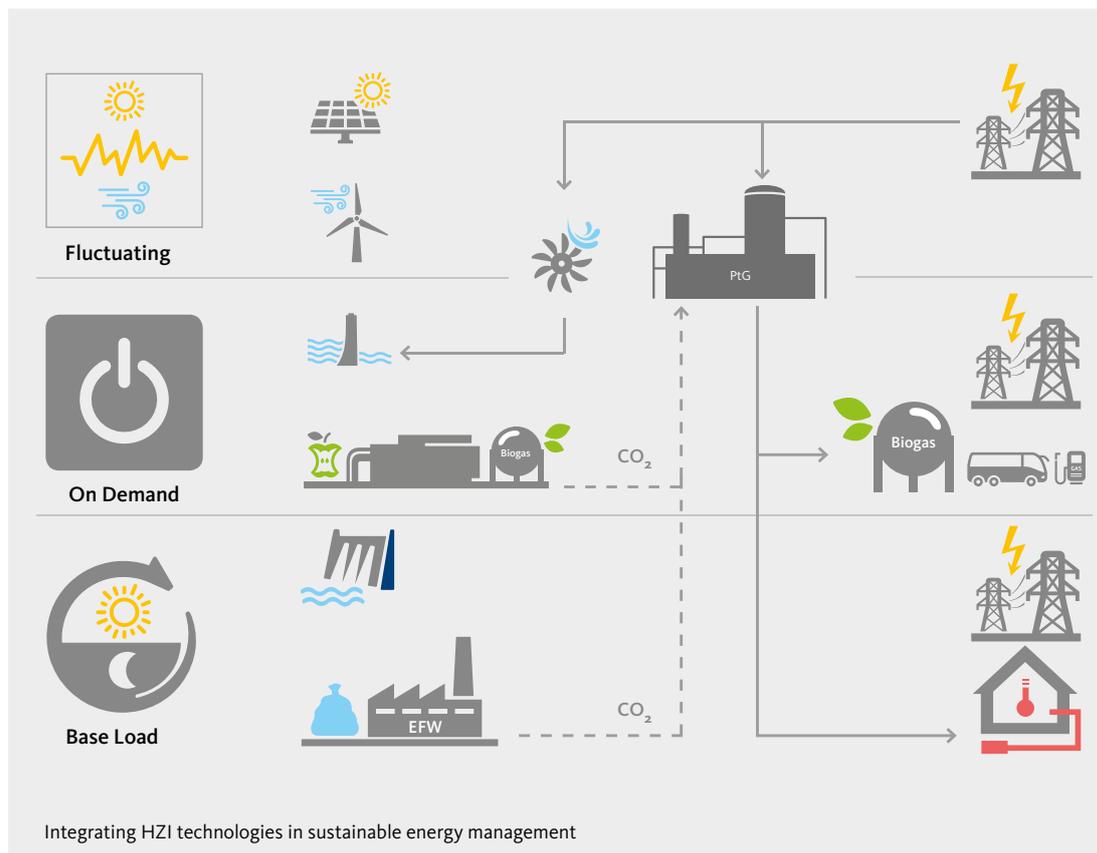
Converting Volatile Electricity into Renewable, Synthetic Gases for a Carbon-Neutral Economy

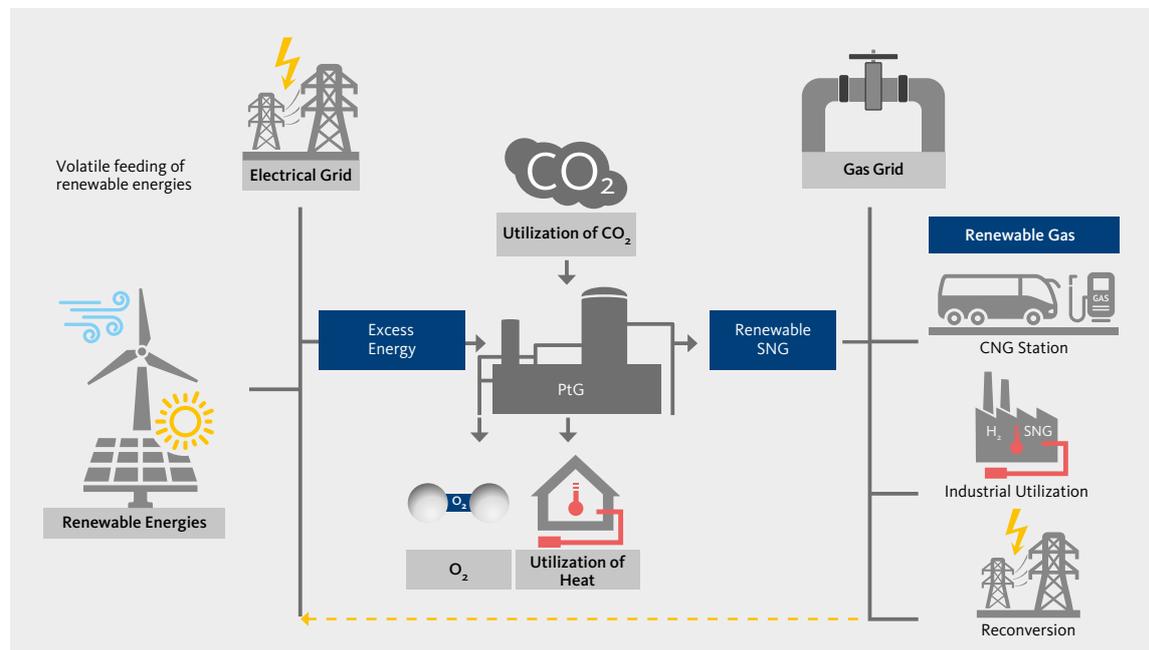
Power-to-gas technology makes it possible to convert virtually unlimited amounts of power from volatile renewable sources into storable synthetic gas. EtoGas by Hitachi Zosen Inova helps make the energy transition happen by facilitating the production of synthetic fuels and the neutralization of CO₂.

Making Energy Storable

HZI EtoGas GmbH, a subsidiary of Hitachi Zosen Inova, develops and constructs turnkey power-to-gas (PtG) plants for producing synthetic gases such as hydrogen and methane. These gases are fed into the existing infrastructure, and can be used as a fuel for vehicles or heat, or converted back into electricity at any time. This evens out fluctuations in the grid, while enabling the long-term storage of the electrical energy and making it available later on demand.

Alongside HZI's other technologies, PtG is a key component of modern energy management and infrastructure, and can be combined as desired with other renewable energy sources. Since we also provide plants for thermal and biological energy recovery from waste, we are familiar with the upstream and downstream processes relevant for PtG, enabling us to deliver bespoke concepts.





Stable Energy Supply

PtG is an integral part of the efforts to ensure the reliable supply of energy. It facilitates the energy transition by harnessing the ideal long-term storage capacity of the existing natural gas infrastructure. Using PtG technology, electricity from regenerative sources is first converted into hydrogen using electrolysis. This can be combined with CO₂ in a proprietary catalytic reactor to produce methane, which can then be fed into the existing natural gas infrastructure without any restrictions.

The EtoGas technology thus makes it possible to convert renewable energy for integration in the natural gas system. The methanation process requires CO₂, and is particularly suitable for processing biogenic gas mixtures (biogas, sewage gas) or other industrial sources of CO₂. PtG technology thus makes a substantial contribution to sustainable decarbonization.

The technology can also be used to produce hydrogen for direct use in industry and transportation, and to generate oxygen. The heat it produces can also be used for industry and district heating networks.

Our Products

The EtoGas portfolio comprises three main system solutions and a comprehensive service offering:

- Power-to-SNG turnkey plants
- Power-to-Hydrogen (electrolysis)
- Hydrogen-to-SNG (methanation)

Our plants are structured as separate modules (each delivering 1 MWe), which means they offer flexible scalability and can be easily adapted to client wishes. Other advantages of this concept include:

- a reactor already tried and tested in chemical plant engineering
- optimized catalyzers
- specific adaptation to the required CO₂ source

Our Expertise

As a pioneer in PtG technology, HZI EtoGas has a broad range of experience in planning and delivering turnkey total plants, and in maintaining and operating them.

We are specialized in the evaluation of operational management concepts and applications. Other core competencies are:

- Feasibility studies and business case design
- Financing
- Design and construction
- Service and maintenance work
- Plant operation
- Operational analysis



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