AUSTRIA AG
Renewables and Gas

Climate technology Methane Electrolysis

Carbon dioxide-free production of hydrogen and solid carbon in Upper Austria

Climate technology "Methane Electrolysis" (Methane splitting)

With the climate technology „methane electrolysis", natural gas (methane/CH_4) can be split without carbon dioxide emissions, decarbonized and thus made usable in a climate-friendly way. In this way, carbon dioxide-free hydrogen and high-purity carbon can be produced. The process has great potential and is being implemented for the first time in Austria at the Krift site in Kremsmünster.

Valuable solid carbon

This innovative technology succeeds in decarbonizing natural gas and making the solid carbon usable as a raw material. It is a valuable additive for soils that have been intensively used for agriculture in recent years. Together with renowned partners such as the University of Natural Resources and Applied Life Sciences in Vienna and the Montan University of Leoben, RAG has already carried out several glasshouse and field trials with very promising results. In addition, it has a wide range of uses as a value material in various branches of industry.

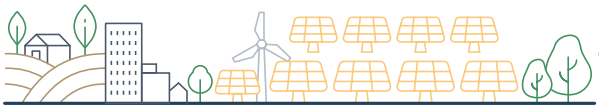
Versatile usage of hydrogen

Since today the majority of hydrogen demand is still produced with technologies that generate carbon dioxide, the production technology „Methane Electrolysis" is a CO_2-free alternative. Hydrogen has a wide range of applications.

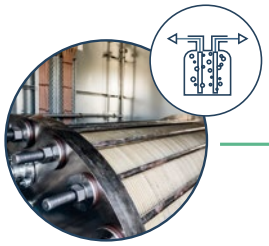
At the Krift site, RAG's own combined heat and power plant is powered by hydrogen in order to use the summer sun for winter heating.

Summer sunshine for heat generation in winter in Upper Austria

RAG Energy Valleys
Scalable flagship regions for local climate-neutral energy supply



Energy strategy of the Upper Austrian state government: Strong expansion of electricity production with photovoltaik by 2030 of 3.5 TWh / 3.5 GW



Water electrolysis since 2015 / Methane electrolysis since 2023
Conversion into the storable energy carrier hydrogen

H_2

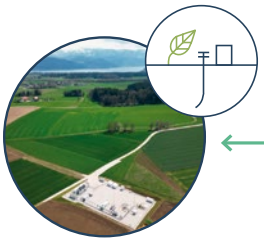
Heat, power and (according to demand) industrial hydrogen for the region in winter

Austria's first hydrogen powered combined heat and power plant in Krift/Kremsmünster, 2023

RAG Energy storage facilities

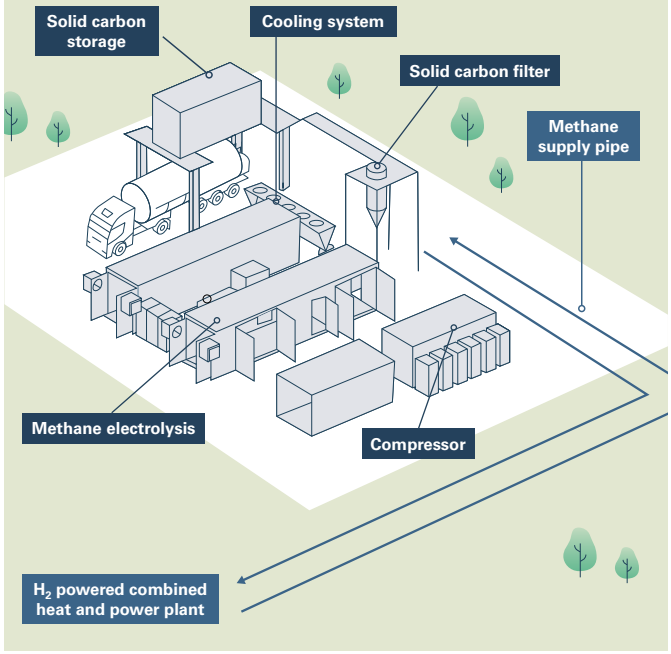
UNDERGROUND SUN.STORAGE

2015 / 2023



Plans for underground hydrogen storages in gas reservoirs in the central region of Upper Austria of 1.3 TWh / 1.3 GW by 2030

Plant overview



Opening of the plant in the „RAG Energy Valley"

In September 2023, the methane electrolysis plant was opened in the „RAG Energy Valley" – the flagship region for 100% green energy supply in Upper Austria.

The demonstration plant will produce carbon dioxide-free hydrogen and pure carbon, thus strengthening domestic value creation in Austria.

Technical Data

Electrical power	500 kW
Hydrogen production	50 kg/h H_2
Carbon production	150 kg/h C

The plant can be operated in partial load

RAG AUSTRIA AG
Renewables and Gas

RAG Austria AG

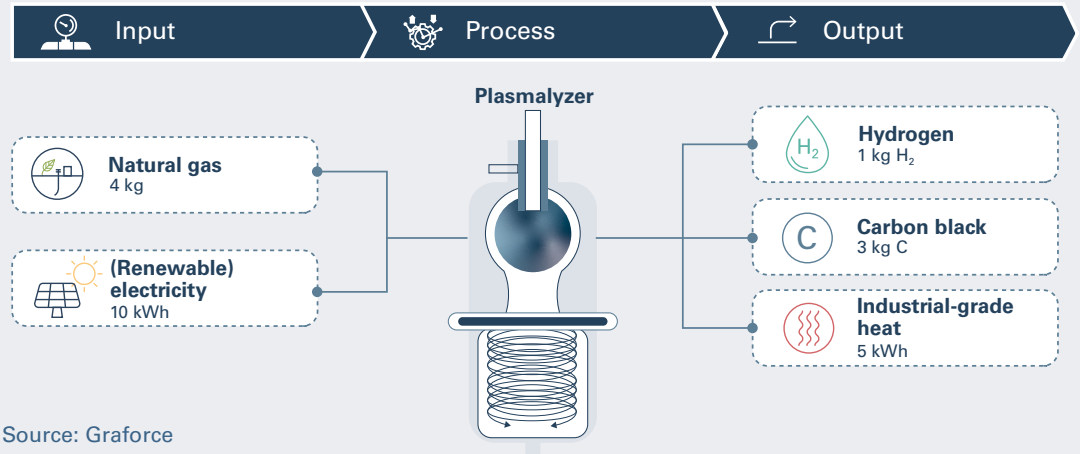
RAG Austria AG is Austria's largest energy storage company, and one of Europe's leading gas storage facility operators. Our business focus is market driven storage, conversion and conditioning of energy in gaseous forms. We also develop leading edge energy technologies related to "green gas" that partner renewables.

This enables RAG to play a vital role in attaining Austria's ambitious climate goals, and in the sustainable stewardship of the country's raw material and energy supplies. Our goal is to provide our customers with safe, efficient, environmentally friendly and affordable energy and gas storage services – sustainably and responsibly.

GRAFORCE

Graforce

Graforce is a German hydrogen technology company. Their power-to-X plants produce carbon dioxide free or carbon dioxide negative hydrogen and synthetic feedstocks – with highest efficiency and lower infrastructure costs in the multi-megawatt range. Thus, Graforce decarbonizes fossil energies, industrial sectors and the heat, transport and building sectors. The company is currently in the process of expanding its strategic partnerships to quickly scale its hydrogen technology worldwide. For more information, visit **www.graforce.com**



Source: Graforce

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