Project Partners

RAG AUSTRIA AG

axiom ANGEWANDTE PROZESSTECHNIK GES.M.B.H.

ENERGIE AG Oberösterreich

ENERGIE INSTITUT an der Johannes Kepler Universität Linz

EVN

HyCentA HYDROGEN CENTER AUSTRIA

K1 MET metallurgical competence center

TU WIEN

IFA TULLN

BOKU

Verbund

WIVA P&G Energy Model Region

voestalpine ONE STEP AHEAD.

Bundesministerium Klimaschutz, Umwelt, Energie, Mobilität, Innovation und Technologie

klima+ energie fonds

FFG Forschung wirkt.

The project is funded within the framework of the RTI initiative „Vorzeigeregion Energie“ of the Climate and Energy Fund, endowed with funds from the Ministry of Climate Protection (BMK).

RAG Austria AG

RAG Austria AG is Austria’s largest energy storage company and one of Europe’s leading gas storage facility operators. Our focus is on storage, conversion and demand based conditioning of energy in the form of gaseous energy carriers. With a storage capacity of more than 6.2 billion cubic metres of natural gas RAG Austria AG has already converted large parts of its gas reservoirs into storages facilities. These can supply the stored energy at any time and at high capacity.

RAG is living the vision of „sustainable energy mining“ and makes a major contribution to security of supply of Austria and Central Europe. The company develops innovative and pioneering energy technologies around green gas that act as partners to renewables. RAG Austria AG is playing a vital role in achieving Austria’s ambitious climate goals, and in the sustainable stewardship of the country’s raw material and energy supplies. RAG’s goal is to provide its customers with safe, efficient, environmentally friendly and affordable energy and gas storage services – sustainably and responsibly.

RAG AUSTRIA AG

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UNDERGROUND SUN.STORAGE 2030

RAG AUSTRIA AG

Underground Sun Storage 2030

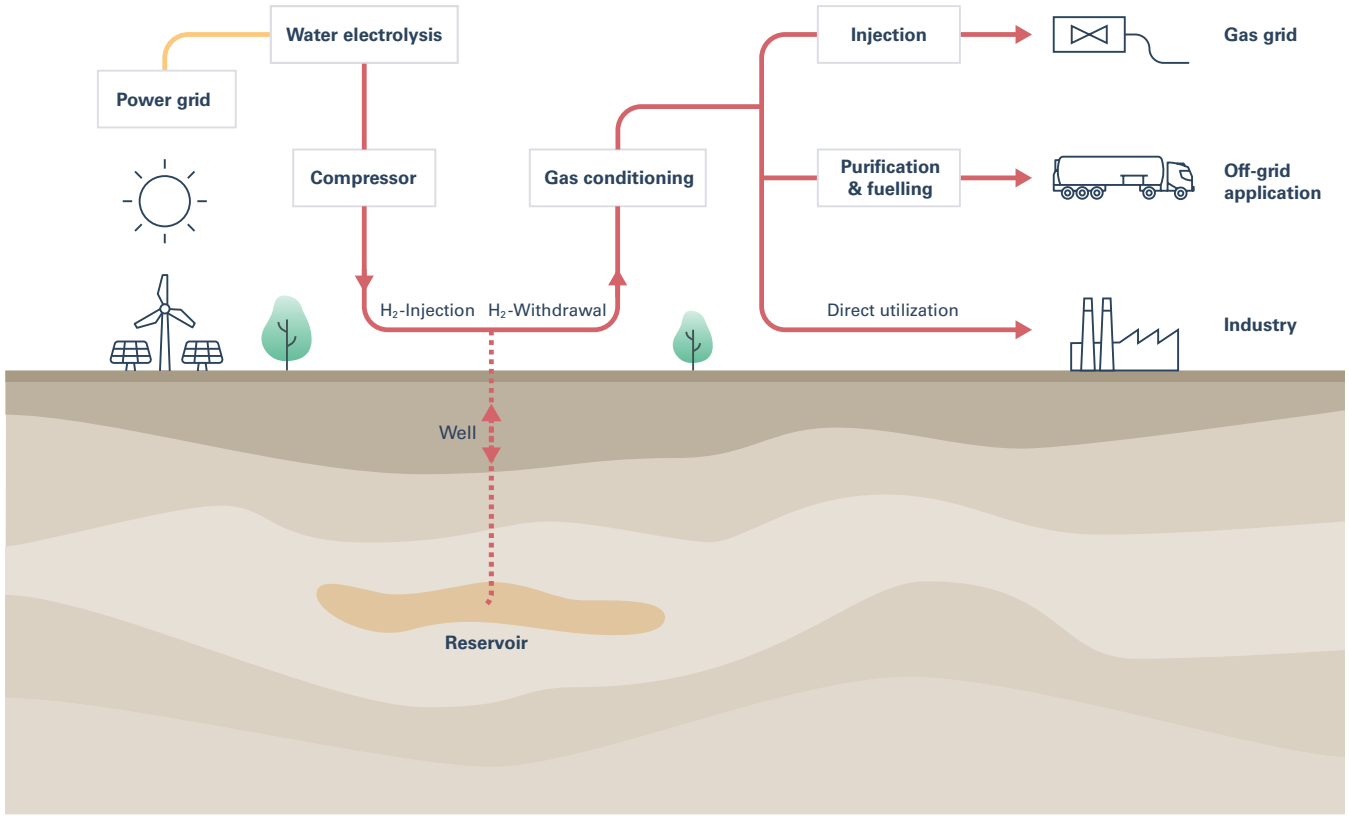
Seasonal storage of green hydrogen in underground gas reservoirs

uss-2030.at/en

Underground Sun Storage 2030

In the project „Underground Sun Storage 2030“ (USS 2030), the safe, seasonal and large-scale storage of renewable energy in the form of hydrogen in underground gas reservoirs is being developed. In addition, all partners involved in the project will jointly gain valuable technical and economic knowledge for the development of a secure hydrogen supply.

In this research project, the only one of its kind in the world, renewable solar energy is converted into green hydrogen in a climate-neutral way by means of electrolysis and stored in a pure form in former gas reservoirs. Until 2025, interdisciplinary technical-scientific investigations for the energy future will be carried out under real conditions at a small former gas reservoir in the municipality of Gampern (Upper Austria) under the leadership of RAG Austria AG. A customised research facility will be built for this purpose. These investigations will be complemented by the development of suitable processing technologies, the modelling of future energy scenarios and techno-economic analyses.



Project Information

The predecessor projects „Underground Sun Storage“ and „Underground Sun Conversion“ have already demonstrated that a hydrogen content of up to 20% can be stored in gas reservoirs in a well-tolerated manner. Laboratory tests suggest that the hydrogen content can also be increased to 100%.

Building on this, the project „Underground Sun Storage 2030“ is now moving to the real scale and is investigating the storage of pure hydrogen, generated from solar and wind energy, in former gas reservoirs as part of a field trial. Together with renowned partners from industry and the Austrian research community, the project is also investigating other aspects related to stored hydrogen.

This includes, for example:

- Hydrogen as a substitute for fossil natural gas
- Direct use in energy-intensive industry
- Processing and utilisation of hydrogen with high purity

In order to be able to achieve the climate targets and a significant reduction in CO_2, reductions are needed in the entire energy sector. In addition, affordability and security of supply must be maintained. Without gaseous energy carriers and the associated storage capacities, the energy transition is not possible. The project is part of the energy showcase region WIVA P&G and an important step for the development of a secure hydrogen economy.

„Hydrogen is the missing piece of the puzzle for a completely CO_2-neutral energy system: it can be produced in a climate-neutral way, used directly in industry, produce environmentally friendly heat and electricity, and represent a fuel of the future. But the decisive factor is its large-scale storage and transportability in the existing almost invisible gas infrastructure. Only in this way will we have sufficient and, above all, demand-oriented green energy available even in times of low sun and low wind.“