

SOLUTION MINING RESEARCH INSTITUTE

679 Plank Road
Clifton Park, NY 12065, USA

Telephone: +1 518-579-6587
www.solutionmining.org

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Subsurface expertise and joint research - the DGMK recipe for a successful transformation of energy storage

**Gesa Netzeband¹, Helen Werner¹, Nicole Grobys¹, Heike Bernhardt^{1,2}, Roman
Przyrowski^{1,3}, Jürgen Rückheim^{1,4,5}**

¹ DGMK e.V. (German Society for sustainable energy carriers, mobility and carbon cycles) –
Hamburg, Germany

² DEEP.KBB GmbH – Hannover, Germany

³ Uniper Energy Storage GmbH – Düsseldorf, Germany

⁴ GCR – Geoenergie Consulting Rückheim – Berlin, Germany

⁵ VERMILION Energy Germany GmbH & Co. KG – Hannover, Germany

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Jürgen Rückheim^{1,4,5}

¹ DGMK e.V. (German Society for sustainable energy carriers, mobility and carbon cycles) – Große Elbstraße 131, 22767 Hamburg, Germany

² DEEP.KBB GmbH – Baumschulenallee 16, 30625 Hannover, Germany

³ Uniper Energy Storage GmbH – Franziusstr. 12, 40219 Düsseldorf, Germany

⁴ GCR – Geoenergie Consulting Rückheim – Berlin, Germany

⁵ VERMILION Energy Germany GmbH & Co. KG – Baumschulenallee 16, 30625 Hannover, Germany

Abstract

The use of hydrogen will play a central role in all sectors in achieving Germany's climate targets. There is general political consensus on this. The storage of hydrogen is not only the basic prerequisite for sector coupling. Energy storage in underground storage facilities is the method of choice for the secure and long-term storage of hydrogen. Due to the highly variable production of hydrogen from different sources and the equally expected highly fluctuating demand, underground gas storage facilities will play a key role in the future energy system.

The conversion of today's underground gas storage facilities to hydrogen or the construction of new storage facilities is by no means trivial, but is highly demanding for machines, materials and processes.

In order to provide technical and scientific support for the transformation of the storage market, the DGMK has established a dedicated working group focussing on energy storage (AK Energiespeicher), a lively platform for the technical exchange of experts from both operators and the associated service industry.

In addition, the DGMK has already initiated several projects on the hydrogen compatibility of steels, cements (in preparation) and special components in recent years and is carrying these out in interdisciplinary research consortia. The necessary conversion measures of existing underground gas storage facilities for the storage of hydrogen in accordance with DVGW G260 5th gas family or for the storage of natural gas-hydrogen mixtures of the 2nd gas family are placing special demands on the technical equipment.

DGMK offers, among other things, a comprehensive and recognised network of expertise in the subsurface area. It sees itself as a platform for initiating and supporting new (also publicly funded) joint research projects. The focus is currently on issues arising from the future utilisation of pore storage facilities and caverns. The presentation will provide an overview of the current activities of the Energy Storage Working Group and the contribution of the DGMK's interdisciplinary network to the successful transformation of underground storage facilities.

Key words: hydrogen, transformation, network, interdisciplinary, joint research