GERMAN HYDROGEN STORAGE FACILITIES

Where is hydrogen stored? The hydrogen storage projects HPC Krummh?rn in Lower Saxony and HyStorage in Bavaria,where a gas mixture of natural gas and hydrogen is stored in a pore storage facility,are part of the implementation of Uniper???s strategy and serve to prepare commercial storage projects for hydrogen.

Can underground gas storage facilities develop a hydrogen market in Germany? The role of underground gas storage facilities in the development of a hydrogen market in Germany: development potential and regulatory framework Comparison of pumped hydro, hydrogen storage and compressed air energy storage for integrating high shares of renewable energies???potential, cost-comparison and ranking

Does Germany have a hydrogen storage system? Germany hydrogen storage in terms of energy throughput and maximum storage capacity. To link the outcome of economic dispatch energy system. By conducting 192 model runs, the analysis revealed the range of uncertainty in terms of storage use.

How much should Germany invest in hydrogen storage? Extrapolated to include all existing gas storage caverns in Germany,this would require an invest-ment of at least ???6.5 billionfrom now until 2030 and at least ???30 billion from now until 2050 in order to retrofit the facilities for hydrogen storage. This would be the lower-cost option relative to other storage technologies.

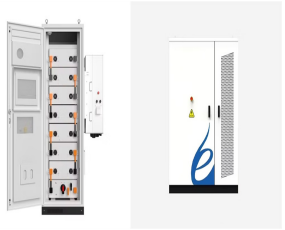
Why do we need a hydrogen storage facility? Hydrogen storage facilities are projected to be used for long-term storagefor fluctuating generation from vRES,which also ensures a certain degree of system adequacy.

GERMAN HYDROGEN STORAGE FACILITIES

How many natural gas storage facilities are there in Germany? There are currently 51underground natural gas storage facilities in Germany that can store around 230 TWh,or about 30% of Germany???s annual natural gas consumption. In addition,there are other suitable geological forma-tions,such as salt caverns,for hydrogen storage at various places around Germany.

German Aerospace Center, Institute of Networked Energy Systems, Carl-von-Ossietzky-Str. 15, green hydrogen in cavern gas storage facilities in the exemplary chosen federal state of Energies

Hydrogen storage might be key to the success of the hydrogen economy, and hence the energy transition in Germany. One option for cost-effective storage of large quantities of hydrogen is the



Transport and storage infrastructure will play a crucial role in the ramp-up of the hydrogen economy. Two caverns will be used for storing hydrogen in RWE Gas Storage West's planned facility in Gronau-Epe. The storage plant is aimed at balancing out the fluctuations in hydrogen generation using wind and solar energy.

Existing natural gas pipelines will make up 60% of the network, connecting ports, industry, storage facilities and power plants, FNB Gas Chairman Thomas Goessmann told a news conference presenting the network's plans with Economy Minister Robert Habeck. In July, the German cabinet approved a new hydrogen strategy, setting guidelines for

GERMAN HYDROGEN STORAGE FACILITIES

The hydrogen cavern storage facility in Gronau-Epe will be the first commercially operated underground hydrogen storage in Germany, providing a usable storage capacity of around 1.3 Bcf (38 x 10 6 m 3). The site in Gronau-Epe is an ideal hydrogen storage location due to its proximity to the planned long-distance hydrogen pipeline between Lingen

German energy company Uniper is to begin testing an underground hydrogen storage facility by the North Sea, as Germany seeks to transform its energy system. The facility in the northern district of Krummh?rn will be used to test ???

German's first hydrogen cavern storage facility to be used for commercial purposes will mostly be built on RWE's existing site at Kottiger Hook by the end of 2026. In October last year RWE announced that, in contrast to the original plan, it would add another cavern to the planned facilities, bringing the total to two caverns.

German energy company Uniper is to begin testing an underground hydrogen storage facility by the North Sea, as Germany seeks to transform its energy system. The facility in the northern district

extent to which hydrogen can be stored or blended at porous storage facilities. At approximately 262 TWh, Germany has the largest domestic natural gas storage capacity on a volume basis ???

The German government has today unveiled the draft of its planned "hydrogen core network", saying it will cost ???19.8bn, start transporting H 2 in 2025, and consist of 9,700km of pipelines by 2032 to connect ports, industry, power plants and storage facilities.

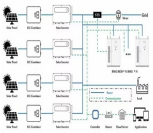
GERMAN HYDROGEN STORAGE FACILITIES


Electrolyser plant in Lingen and hydrogen storage facility in Epe to be funded with a total of 619 million eurosRostock electrolysis project with RWE participation to receive 199 million eurosFunds to be provided by German government and states of Lower Saxony, North Rhine-Westphalia, and Mecklenburg-Western Pomerania


The storage horizon is independent of the existing Bierwang natural gas storage facility. "Hydrogen plays a crucial role in our new strategy and HyStorage is part of its execution. HyStorage is a promising project to test the existing natural gas infrastructure for the potential transition to green hydrogen. It will also help accelerate the


Hydrogen can be stored physically as either a gas or a liquid. Storage of hydrogen as a gas typically requires high-pressure tanks (350???700 bar [5,000???10,000 psi] tank pressure). Storage of hydrogen as a liquid requires cryogenic temperatures because the boiling point of hydrogen at one atmosphere pressure is ???252.8?C.


Hydrogen storage in salt caverns. Storengy Deutschland operates six natural gas storage facilities throughout Germany ??? three of which are cavern storage facilities in the north-west of the country. From a geological point of view, they are ideally located to create new salt caverns there. In addition, existing salt caverns that are currently




This project aims to establish a comprehensive hydrogen infrastructure, encompassing production, storage, transport, and utilization in industry and heavy-duty transport. With 37 salt caverns across Germany, EWE holds 15% of the country's cavern storage facilities suitable for future hydrogen storage.


Pore storage systems could therefore become a crucial element of the future German hydrogen infrastructure, especially in regions with large industrial hydrogen (storage) demand and likely hydrogen imports via pipelines and ships. which could be ensured by underground hydrogen

storage facilities. For the Munich area, on the other hand

GERMAN HYDROGEN STORAGE FACILITIES

"By planning the development of hydrogen storage facilities in the order of up to 600GWh by 2030, we as Uniper are making advanced investments. So far there has been relatively little financial support for hydrogen storage, although the German government last year granted ???28.4m ($31m) to an on-site programme in Brandenburg to test H 2

For Gasunie, this participation is a first step towards developing hydrogen storage facilities in Germany. With H2CAST, which stands for H2 CAvern Storage Transition, STORAG ETZEL and Gasunie, together with project partners, aim to enable large-scale hydrogen storage in the salt caverns near Etzel, Germany. The location of the storage

Porous storage facilities in sandstone aquifers. There is no alternative to the storage potential for hydrogen in the geological underground. Due to the geological conditions in Germany and Europe, porous storage facilities in sandstone aquifers will have to supplement salt caverns.

EnBW and Rotterdam's import terminal ACE Terminal also announced plans to cooperate in supplying hydrogen from ACE Terminal's planned facilities at the Port of Rotterdam to German end-users.

Hydrogen storage is crucial for the success of the hydrogen economy. In addition to storage tanks and pipes the geological subsurface could also offer cost-effective solutions for storing large quantities of hydrogen in salt caverns, aquifers, and depleted hydrocarbon fields. However, experience with underground hydrogen storage is limited to salt caverns, which have size and ???

GERMAN HYDROGEN STORAGE FACILITIES

A stable and reliable supply of Germany and Europe will be made possible especially by the construction and operation of large-volume hydrogen storage facilities. Our HPC Krummh?rn ???

The German government is pursuing the goal of further integrating and using renewable energies with hydrogen to decarbonise all energy-intensive sectors. As a storage medium for renewably generated electricity, hydrogen can be used in energy grids, storage facilities and connected systems for sector coupling. The conversion of existing gas

The H 2 CAST Etzel project is intended to demonstrate the feasibility of large-volume underground storage of hydrogen and to prove the suitability of the salt caverns in Etzel for hydrogen storage. Operational hydrogen storage operations will be tested and serve to build a hydrogen service industry. H 2 CAST stands for H 2 CAvern Storage Transition, i.e. the ???

The green hydrogen will be used to produce aircraft fuels or will be fed into a new hydrogen grid, which will connect the refinery, the hydrogen storage facility, a hydrogen fuelling station and the existing municipal natural gas grid. Within the initial five-year project period, an electrolysis plant with a capacity of 30 MW is to be installed.