

# **The first energy storage project in Hamburg Germany**



## Overview

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Although the conceptualisation of the ETES system is traced back to 2011, the models were developed and validated from 2012 onwards. A pilot ETES system with 700kW charging power and 5MWh storage capacity was successfully implemented at a test site in 2014. The proven success of.

The ETES pilot project is funded by the German Federal Ministry of Economics and Energy, under its 6th Energy Research.

The ETES prototype uses 1,000 tonnes (t) of volcanic rocks as the medium for energy storage. The facility is charged using hot air produced with the help of a resistance heater and a blower. The thermal energy converted from electricity is stored in the volcanic rocks at a.

The ETES technology is based on 80% off-the shelf components and provides a flexible solution for storing surplus power and discharging the same during hours of peak electricity demand. It will thus help maintain the grid stability and complement the renewable power.

The ETES system's energy efficiency for storing direct heat or heat converted from electricity is expected to be 99%. The energy efficiency for producing electricity from the stored.

The 130MWh Electric Thermal Energy Storage (ETES) demonstration project, commissioned in Hamburg-Altenwerder, Germany, in June 2019, is the precursor of future energy storage solutions with gigawatt-scale charging and discharging capacities. How does a heat storage facility in Hamburg-Altenwerder work?

The heat storage facility, which was held a grand opening ceremony in Hamburg-Altenwerder, holds about 1,000 tonnes of volcanic rock that it employs as an energy storage medium. To store the energy, a resistance heater converts electrical energy converted into hot air, and with the aid of a blower, it heats the rock to 750°C.

What is electric thermal energy storage (ETEs)?

The 130MWh Electric Thermal Energy Storage (ETES) demonstration project,

commissioned in Hamburg-Altenwerder, Germany, in June 2019, is the precursor of future energy storage solutions with gigawatt-scale charging and discharging capacities. Siemens Gamesa, Hamburg University of Technology, and Hamburg Energie.

What can Tu Hamburg do with energy storage technology?

TU Hamburg researches the thermodynamic fundamentals of the energy storage technology used. Simens Gamesa says, that by using standard components, it can convert decommissioned conventional power plants into green storage facilities (as a second-life option). Hamburg Energie will market the stored energy on the electricity market.

What is a heat storage facility?

The innovative storage technology makes it possible to store large quantities of energy cost-effectively and thus decouple electricity generation and use. The heat storage facility, which was ceremonially opened today in Hamburg-Altenwerder, contains around 1,000 tonnes of volcanic rock as an energy storage medium.

How does a heat storage facility work?

According to the company, the unique storage technology allows cost-effective storage of large quantities of energy, thereby decoupling electricity generation and its use. The heat storage facility, which was held a grand opening ceremony in Hamburg-Altenwerder, holds about 1,000 tonnes of volcanic rock that it employs as an energy storage medium.

What does Hamburg energy do?

Hamburg Energie is responsible for marketing the stored energy on the electricity market. The energy provider is developing highly flexible digital control system platforms for virtual power plants. Connected to such an IT platform, ETES can optimally store renewable energy at maximum yield.

## The first energy storage project in Hamburg Germany

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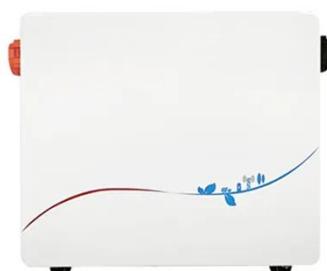


### Start of construction in Hamburg-Altenwerder: Siemens ...

Nov 30, 2017 · Over a period of 3-years, Siemens Gamesa Renewable Energy has been doing R& D-activities on converting energy to heat in rock fill at a testing-unit in Hamburg. Now the ...

## Octopus Energy Generation supercharges 2GW ...

May 7, 2025 · Octopus Energy Generation, the renewables arm of Octopus Energy Group, is accelerating Germany's energy transition with the acquisition ...



### Germany Begins First Hydrogen Salt Cavern ...

May 12, 2025 · Germany Kicks Off Its First Big Underground Hydrogen Storage Project Germany just took a bold step toward a cleaner energy future by ...

## Heated Volcanic Rocks Store Energy

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Nov 14, 2019 · A large electrothermal energy storage project in Hamburg, Germany, uses heated volcanic rocks to store energy. Siemens Gamesa, the ...

**12.8V 200Ah**



**German battery energy storage: a key technology for grid ...**

Apr 17, 2025 · While Germany's new coalition government has made the right noises about energy storage in its written agreement, the lack of concrete reform and legal certainty in the ...

## Energy Storage

Energy storage systems are an integral part of Germany's Energy Transition (Energiewende). While the need for energy storage is growing across Europe, ...



**Siemens Gamesa Begins Operating**

...

Jun 18, 2019 · According to the company, the unique storage technology allows cost-effective storage of large quantities of energy, thereby decoupling



...

## Stade LNG Terminal, Germany

May 20, 2025 · The Stade LNG Terminal, also known as the Hanseatic Energy Hub, is Germany's first land-based liquefied natural gas (LNG) storage and import terminal. It is currently under ...



## LNG Terminal Brunsbüttel

The first regular LNG tankship from Abu Dhabi docked at the FSRU in Brunsbüttel in February 2023. With its load, the regular operation to provide Hamburg and Northern Germany with ...

## Siemens Gamesa Starts Building Hot Rock Plant for Long ...

Dec 18, 2017 · The Future Energy Solution project in Hamburg will use surplus power to heat rocks to 600 degrees Celsius.



## 2025 Agenda

Historically driven by residential demand, utility-scale projects are now beginning to surge, with nearly 16 GWh of capacity installed in the first half of 2024. ...

### Siemens Gamesa commissions volcanic rock-fill ...

Jun 13, 2019 · In an opening ceremony in Hamburg yesterday, Siemens Gamesa Renewable Energy SA (BME:SGRE) put into operation an electric thermal ...



### Innovation Tender: Germany picks 587MW of ...

Oct 18, 2024 · A co-located solar PV and battery storage project in Germany. Image: Baywa r.e. The German Federal Network Agency ...



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**Octopus acquires German developer with 2-GW ...**

May 7, 2025 · Octopus Energy Generation has acquired German renewables developer MN projects GmbH, securing a 2-GW pipeline of solar and battery ...

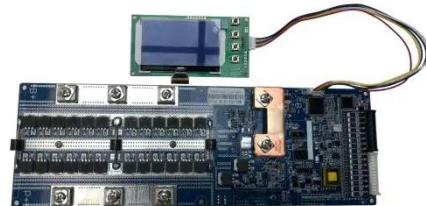
**Aquila Clean Energy finalises co-location project ...**

Dec 14, 2023 · - Pioneering projects of this kind play a key role in the energy transition Hamburg, 14 December 2023 - Aquila Clean Energy EMEA, the ...

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**Encavis AG constructs its first Battery Energy ...**

Sep 4, 2024 · The Hamburg-based solar and wind farm operator, commenced construction on its first battery storage facility in Germany. This facility, with a ...



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unlimited combinations in parallel  
**BUILT-IN DUAL FIRE PROTECTION MODULE**



## **Germany to host world's first long-duration AirBattery storage project**

Jul 1, 2025 · Israel's Augwind Energy has announced plans to build the world's first commercial-scale AirBattery energy storage facility in Germany, marking a major breakthrough in the race ...

## **Siemens inaugurates world's largest**

...

Sep 25, 2019 · Siemens inaugurates world's largest electrothermal energy storage system. A 'milestone' electric thermal energy storage system operated

...



## **Aquila Clean Energy EMEA begins construction ...**

Hamburg, 19 November 2024 - Aquila Clean Energy EMEA, developer of integrated & hybrid clean energy solutions and an independent power ...



### **List of 5 large German IPPs**

Jun 24, 2023 · The deal represents a stepping stone to Tion's ambitious pipeline of 1.5GW of battery storage projects in the coming years. Baldur Power - ...



### **Energy Storage Germany 2026 , Leading Energy Storage ...**

Explore the future of energy storage at Energy Storage Germany 2026, June 9-11 in Stuttgart. Connect with industry leaders, discover innovations, and shape the future of energy solutions.

### **Energy storage in Germany. Present developments and ...**

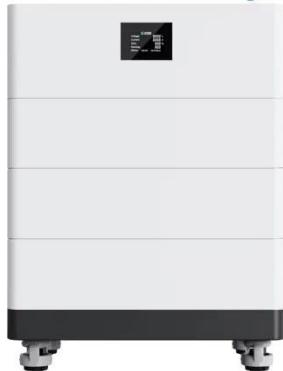
Apr 26, 2021 · Imprint The study "Energy Storage in Germany - Present Developments and Applicability in China" is published within the framework of the

"Sino-German Energy ...



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## High Voltage Solar Battery



## Siemens Gamesa launches revolutionary thermal ...

Jun 12, 2019 · The ETES (electric thermal energy storage) pilot plant in Hamburg, Germany -- at the site of a decommissioned conventional power plant -- ...

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## Elements Green gets initial approval for 400MW ...

Apr 4, 2024 · The project is in Elsfleth, Lower Saxony. Image: Billboa / Wikicommons. Developer Elements Green has secured preliminary planning

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## World first: Siemens Gamesa begins operation of ...

Jun 13, 2019 · In a world first, Siemens Gamesa Renewable Energy (SGRE) has today begun operation of its electric thermal energy storage system (ETES).



## **Octopus Energy acquires over 2 GW of German solar and storage ...**

May 8, 2025 · Octopus Energy Generation, the renewables investment arm of Octopus Energy Group, has acquired Hamburg-based green energy developer MN projects GmbH, adding a 2

...



## **New Energy Storage Power Station in Hamburg Powering Germany ...**

Discover how Hamburg's cutting-edge energy storage solutions are reshaping renewable energy integration and grid stability. This article explores the technical innovations, environmental ...

## **Siemens Gamesa's high-performance energy storage facility**

...

Sep 26, 2018 · To kick off the Global Wind Summit, comprising WindEnergy

Hamburg, the world's leading wind energy expo, and the global WindEurope conference, Siemens Gamesa ...



## Home , BESS Germany

May 29, 2025 · Welcome to BESS Germany - Your partner for the development of Battery Energy Storage Systems (BESS) projects At BESS Germany we ...

## World first: Siemens Gamesa begins operation of its ...

Jun 12, 2019 · In a world first, Siemens Gamesa Renewable Energy (SGRE) has today begun operation of its electric thermal energy storage system (ETES). During the opening ceremony, ...



## A Major Step for the Energy Transition

Sep 5, 2024 · H& MV Engineering and Aquila Clean Energy EMEA Launch a Battery Energy Storage Project in Germany. H& MV Engineering, in ...



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## **HGHH - Hamburg Green Hydrogen Hub**

6 days ago · Wärme Hamburg is concentrating its efforts in the hydrogen project on utilizing waste heat and developing the power plant site Moorburg towards ...



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## **Siemens Gamesa Starts Building Hot Rock Plant for Long ...**

Dec 18, 2017 · The plant, being built on a site owned by aluminum smelting giant Trimet in the Altenwerder container terminal quarter of Hamburg, in northern Germany, is expected to store ...

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## **Gravity Storage - About us**

The assets of Heindl Energy GmbH has been sold in 2021 to Gravity Storage GmbH, based in Hamburg (Germany) and funded by Dr. Sven Bode. He and ...

## Home Energy Storage (Stackble system)



### Product Introduction

- Scalable from 10 kWh to 50 kWh
- Self-Consumption Optimization
- Integrated with inverter to avoid the compatibility problem
- LiFePO<sub>4</sub> battery, safest and long cycle life
- Stackble design, effortlessy installation
- Capable of High-Powered Emergency- Backup and Off-Grid Function

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